Mollusc World

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The Conchological Society of Great Britain & Ireland

Helping to understand, identify, record and conserve molluscs

Coastal recording in Pembrokeshire & West Sussex

Medieval molluscs **Slug variation**

A 90th birthday celebration for Peter Dance

Mollusc World

A full colour magazine and newsletter for Conchological Society members (and subscribers) on all aspects of molluscs, in addition to the Society's web site and social media fora.

Mollusc World will also be of interest to all enquiring about this subject or the work of the Society. We depend upon and welcome all contributions in whatever form they arrive.

(see page 34 for further details).

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Front Cover:
Martin Willing & Simon Taylor sieving sediment for *Caecum armoricum* (Pagham Spit lagoon, West Sussex) (see p. 7). (photo: Jo Brooksbank)
Background pp 2-3: 'Cockles on Swansea beach'. (photos: June Chatfield)

From the Hon. Editor

This issue of *Mollusc World* includes reports of two (mostly, but not exclusively, marine) field meetings from 2021, to Pembrokeshire and West Sussex. The latter included a day at Medmerry, surveying four sites at the largest open-coast managed retreat in Europe, designed for coastal flood protection and to create much needed new intertidal habitat.

Marine molluscs are under increasing pressure worldwide from climate change and other human pressure. Kevin Brown sent a clip from London's *Metro* newspaper (29th July 2021) reporting on the destruction of protected coastal habitat in the Naples area of Italy by gangs drilling to extract date mussels (*Lithophaga lithophaga*), which apparently sell for £170/kg on the black market. Derek Worth highlighted an item in *Invertebrate Conservation News* (**101**: 5–6, Sept. 2021) detailing the mass mortality of marine invertebrates (estimated at around 1 billion individuals) on the shores of the Salish Sea near Vancouver, Canada, which had reported record air temperatures of 40˚C during the extreme heatwave last year. In December 2021 the BBC reported that on the island of Mauritius the number of seashells found on local beaches had decreased by around 60% in the last 10-15 years, due to multiple factors including climate change, a recent major oil spill, 'overfishing, tourism and pollution from wastewater and boats'. The Mauritius government 'is trying to stop people picking up shells - and the sale of souvenirs to tourists - with two laws brought in over the last 15 years'[1]. The cover of the February 2022 issue of *Geographical,* the Royal Geographical Society's magazine, featured the deep-sea gastropod *Chrysomallon squamiferum* (see also *Mollusc World* **15**), which, together with other species living only on hydrothermal vents, may come under threat in the future from deep sea mineral mining operations.

On a more upbeat note, **please take the opportunity to add to your library of conchological books** by having a look on our web site at the list of books that have been kindly donated for free (donations welcome) distribution to anyone interested. Please contact Tom Walker at sales@conchsoc.org.

Peter Topley

[1]https://www.bbc.co.uk/news/world-africa-59701735

Contents

Field meeting week in Pembrokeshire: 18th to 25th September 2021

Simon Taylor

Having been postponed from the previous year due to the Covid-19 pandemic, it was something of a relief that this trip could go ahead in 2021. Our smallish party (between five and eight over the course of the week, with some comings and goings) stayed at the Field Studies Council centre at Dale Fort, with which many will be familiar, accessed down a narrow lane from Dale village and occupying the Victorian former artillery battery built on a rocky headland, with wonderful views along Milford Haven. As anticipated, the accommodation was slightly on the spartan side but the lull in the pandemic facilitated a steady turnover of student parties creating a nicely educational atmosphere to complement our endeavours. On top of that, the Society had funded the hire of a laboratory, which made a huge difference when it came to processing and studying samples brought back from the various sites visited each day.

Activity was focused on the north shore of Milford Haven and the southern half of St Brides Bay, a relatively small area geographically but with a long length of coast. The geology is principally sandstone, from the late Silurian through the Devonian Old Red Sandstone into Carboniferous Coal Measures, with some igneous intrusions, all folded, often spectacularly so, by the Variscan Orogeny (associated with continental collisions which created the supercontinent Pangaea in the late Palaeozoic). The coast is characterised therefore by rocky cliffs with occasional sandy bays and is famously picturesque.

Marloes Sands was the first site studied in earnest (figure 1). The general zonation of the shore would become very familiar over the course of the week. The cliffs at the rear had various caves eroded into them. In front of the cliffs were rocky ridges separated by sandy inlets, sometimes all the way to the base of the cliffs. In places the larger ridges were eroded to a rocky platform with occasional and sometimes extensive rockpools. Beyond the rocky ridges and platforms, sand flats extended as far as the lowest spring tide could expose, although in places there were boulder areas which sometimes also overlapped onto the rocky platforms. Algal growth was limited to the rockpools and the more sheltered parts of the platforms and boulders, and was rarely lush. Despite the spring lows, extensive kelp was only occasionally present and exposed.

figure 1: Marloes Bay looking east.

High on the rocks, in the splash zone, were abundant *Melarhaphe neritoides*. The lower rocky parts of the shore were inhabited extensively by barnacles accompanied by patellid limpets (*Patella vulgata* and *P. ulyssiponensis* were accompanied by *P. depressa*), the trochids *Steromphala umbilicalis* and *Phorcus lineatus*, a variety of littorinids but with *Littorina littorea* relatively scarce, and *Nucella lapillus*. *Fucus* wracks were rarely abundant and hence, although present, *Littorina obtusata* and *L. fabalis* were always limited in numbers. Diligent searching of rockpools, algae and those rocks which could be turned over (many were stuck in the sand) added to the list of living species present. At Marloes this yielded, for example, *Patella pellucida*, *Steromphala cineraria*, *Trivia arctica*, *Venerupis corrugata* and *Heteranomia squamula*, while several species were recorded as stranded shells. Rich shell grit was not often found anywhere during the trip but Marloes proved to be one of the richest sites, where Bas Payne collected a small sample that later microscopic examination revealed to contain a diverse variety of fresh specimens. At Marloes the low tide enabled access onto Gateholm Island (figure 2) where we were closely monitored by a group of choughs active on the cliff tops.

figure 2: Marloes Bay and Gateholm Island.

Algae samples were collected from each site. We were joined later in the week by two staff from the Marine Biological Association who had provided a list of species they were targeting as part of the Darwin Tree of Life project (www.darwintreeoflife.org) which ambitiously aims to sequence the genomes of all species of eukaryotic organisms in Britain and Ireland. Many of the targets were smaller species and the MBA wanted them alive, so our algae processing was more involved than the usual 'weed washing' process, with much poring over trays of algae in seawater in the lab. It proved productive, however, and permitted the microscopic study of the live animals. The MBA target species were then stored alive in an aerated tank of seawater (figure 3), the 'micros' in glass tubes with perforated lids.

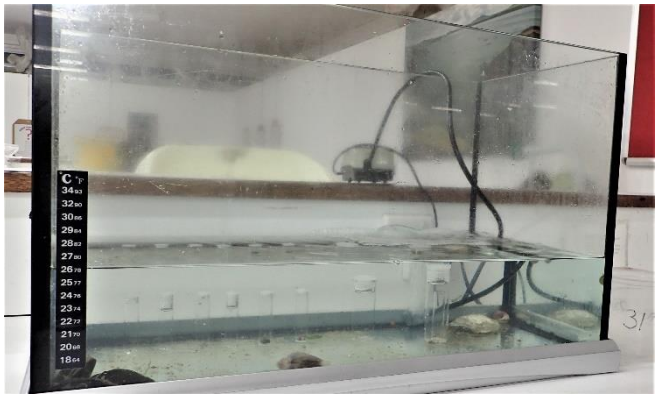


figure 3: The MBA livestock in an aerated seawater tank in the lab.

On the return from Marloes some of us investigated the shore at Dale itself where, at the head of a long bay, the sheltered beach consists of much more mixed sediment than just sand and is strewn with a relatively rich fauna of beached shells, including many typical infaunal bivalves. At the top of the beach is a vegetated ridge – Pickleridge – behind which is a lagoon evidently fed primarily by the sea on extreme spring high tides. This seemed promising for some brackish specialist species, but close investigation revealed just *Peringia ulvae*, dead *Mya arenaria* and *Scrobicularia plana* plus some cockles which were not obviously *Cerastoderma glaucum*, but neither were they typical *C. edule*.


figure 4: Lindsway Bay.

Lindsway Bay (figure 4), to the east along the north shore of Milford Haven, was possibly the most scenic of all sites visited in the week although the habitat and fauna were similar to Marloes. There were a few species present which had not been recorded previously in the week, including *Gibbula magus* and our first nudibranch, a very large sea lemon (*Doris pseudoargus*) found by Rosemary Hill. Later processing of weeds produced several species for the already growing MBA menagerie. Tom Walker led a small party to nearby Monks Haven to survey terrestrial species and much excitement was generated by an unusual slug which bore a strong resemblance to the Kerry slug, *Geomalacus maculosus.* This would be a staggering find as the species is recorded only from SW Ireland and NW Iberia. As the adrenaline levels began to stabilise, close observation of the mantle revealed it could not be *G. maculosus* and eventually it was determined to be an unusually pigmented *Limacus maculatus* (still only recorded once before in this part of Pembrokeshire so a good find, although not requiring a redrafting of the text books).

The next day was spent at Westdale Bay (figure 5), on the opposite side of the Dale peninsula to Dale Fort. This site was unusual in being entirely bereft of *Littorina littorea* despite the plentiful rocky environment. *Littorina saxatilis* and *L. arcana* were both present (the specimens were checked anatomically in the lab), the former including yellow forms with black spiral lines which could easily be confused with the classic 'nigrolineata' form of *L. compressa*, which was also present in the bay but not in that form. There were a number of turnable boulders although many were part buried in the sediment; one was occupied by a *Leptochiton cancellatus*, a specialist of this habitat. Turning rocks in pools revealed *Berthella plumula*, *Trivia monacha* and *Aplysia punctata*, while weed samples yielded several micro species including *Runcina coronata*, found at several sites during the week, particularly because of the live weed observation in the lab, and *Eatonina fulgida*, found in samples of algal turf from rockpools at almost every site during the trip.


figure 5: Westdale Bay.

By the Wednesday morning shore visit, a pattern was beginning to develop. On arrival at the bay, the party would split left and right and while the tide was retreating would investigate caves in the hope of finding any specialist species of this habitat, notably *Paludinella globularis* and *Otina ovata*. It was today's site, Broadhaven (figure 6), where this tactic first met with success. *P. globularis*, in particular, seems to require a very specialist habitat, characterised by dampness and dark maroon algal/lichen staining on rock with sufficient crevices to provide shelter, in the splash zone towards the top of the band inhabited by *Melarhaphe neritoides*. The long, spectacularly rocky shore at Broadhaven, with stacks and arches as well as multiple caves, provided ample opportunity to seek and recognise this 'Goldilocks zone'. Broadhaven has a wide sandy beach at its centre where the week's richest strand fauna was found, including the typical range of bivalves and abundant *Euspira catena*.


figure 6: Broadhaven.

Another feature of Broadhaven was the large and accessible car park (albeit pay & display), a feature notably lacking at Druidston where the first challenge faced was to find somewhere to leave our vehicles. Once on the shore it proved very similar to Broadhaven; while the strand fauna was slightly less bountiful, several caves held populations of *Paludinella globularis* and *Otina ovata*, plus the week's first record of *Leucophytia bidentata*. We were joined here by Joanna and Kes from the MBA, who were excited to find such relatively exotic species almost immediately.

For the last full day in the field, we made our first journey of any distance from Dale, heading to the south of Milford Haven at West Angle Bay where we were joined by the Society's Journal Editor, Anna Holmes from the National Museum of Wales. To maximise coverage, the party divided up with Bas Payne and I heading south to Freshwater.

Between us all, three bays were surveyed and although none were hugely diverse, all fresh data is useful and further occurrences of *Paludinella globularis* were recorded.

figure 7: Bas Payne and Alistair Stevenson hard at work in the lab.

The final evening was spent tidying, stabilising and packing samples and equipment (figure 7), although on this trip it was augmented by the handover to Joanna and Kes of our carefully tended livestock and the data to go with them. In all we provided a dozen species from the MBA 'wants' list, half of them from their most desired 'Category 1' including: *Rissoella diaphana*, *Runcina coronata*, *Eatonina fulgida*, *Barleeia unifasciata*, *Otina ovata* and *Leptochiton cancellatus*. It is hoped the Society will be able to contribute further to the DToL project. Another feature of our last night was concern regarding the journey home, as this was the weekend when reports of possible fuel shortages led to panic buying at filling stations across the country. Fortunately, the next morning revealed the panic had not spread to Pembrokeshire and all made it home with no problems.

Some non-marine work was conducted during the week, coordinated by Rosemary Hill, particularly in the first few days when we were joined by Society President Tom Walker. In all, 27 species were recorded, not spectacular perhaps but still adding four species (*Cecilioides acicula*, *Physella acuta*, *Pyramidula umbilicata* and *Tandonia sowerbyi*) to the Ordnance Survey SM 100 km square. A further eight: *Arion circumscriptus*, *A. rufus*, *A. subfuscus*, *Cernuella virgata*, *Deroceras invadens*, *D. laeve*, *Galba truncatula* and *Helicella itala*, had evidently not previously been recorded in SM north of Milford Haven (quite surprisingly, given the popularity of Pembrokeshire as a study site and the presence of the FSC field centre).

As a final note, as is often the case on these trips, some site visits were incorporated into the journey home. Alistair Stevenson and I visited Pendine, famous for motorsport on its enormous sandy beach. Despite the tide having only just turned to ebb there were plentiful stranded shells, including *Acteon tornatilis* and abundant *Pharus legumen*, plus some grit which contained *Tellimya ferruginea*, *Cylichna cylindracea* and *Parthenina decussata* amongst a handful of other species. The rocky area at the western end of the sands had some small caves in the cliffs and close examination inside revealed yet another record of *Paludinella globularis*, as well as some very elongate specimens of *Myosotella myosotis* (figure 8), the first time the species had been found all week despite something in the region of 30 caves having been explored.

figure 8: Unusually elongate *Myosotella myosotis* inside a cave, Pendine.

My thanks are extended to all who attended and supported the trip and for their patience with the sometimes very uncertain prior arrangements due to the pandemic.

Upcoming FSC courses

The following upcoming Field Studies Council courses are being taught by Conchological Society members. Please note that at the time we go to press it will be short notice for some of these courses and they may already be full.

13th April 2022: **Field Identification of Slugs** at FSC London: Bushy Park, The Stockyard Education Centre, Hampton Court Road, TW12 2EJ. Tutor: Imogen Cavadino.
For details see: www.field-studies-council.org/shop/courses/field-identification-of-slugs-april-2022/.

20th April 2022: **Field Identification of Slugs** at FSC Bishops Wood, Crossway Green, Stourport-on-Severn, DY13 9SE. Tutor: Chris du Feu. For details please see: www.field-studies-council.org/shop/courses/field-identification-of-slugs-wm/.

20th April 2022: **Slug Identification with Microscopes** at FSC London: Bushy Park. Tutor: Imogen Cavadino.
For details please see: www.field-studies-council.org/shop/courses/slug-identification-with-microscopes-april-2022/.

30th April – 1st May 2022 (residential): **Identifying and Recording Land Snails** at FSC Juniper Hall, Old London Road, Mickleham, RH5 6DA. Tutor: June Chatfield. Please see: www.field-studies-council.org/shop/courses/identifying-and-recording-land-snails-22/.

4th May 2022: **Slug identification by dissection** at FSC London: Bushy Park. Tutor: Imogen Cavadino.
For details please see: https://www.field-studies-council.org/shop/courses/slug-identification-by-dissection-040522/

11th May 2022: **Slug Dissection Volunteer Identification Day** in collaboration with the Royal Horticultural Society at FSC London: Bushy Park. Tutor: Imogen Cavadino. please see: www.field-studies-council.org/shop/courses/slug-volunteer-id-day-copy-11-may/.
18th May 2022: **as above**, For details, please see: www.field-studies-council.org/shop/courses/slug-dissection-volunteer-id-day-18-may/.

17th May 2022: **Slug identification by dissection** at FSC London: Bushy Park. Tutor: Imogen Cavadino.
For details please see https://www.field-studies-council.org/shop/courses/slug-identification-by-dissection-170522/

More climbing slugs and snails

Adrian T. Sumner

I was intrigued to read Tom Walker's article on tree-climbing *Pomatias elegans* in the November 2021 issue of *Mollusc World* (Walker 2021), particularly as I spent some time years ago examining tree trunks to see what snails were climbing up them and how high they went. As well as trees, I also looked at walls: I suspect that in general it doesn't make a lot of difference to the snail whether it is on a tree or a wall, or indeed a rock face or building. Although I have found certain species, notably *Cernuella virgata* and *Xeroplexa (= Candidula) intersecta*, only on walls, this is probably the result of a shortage of trees in their usual habitats. Some species are commonly found on trees and walls, often well above head height, while others may be only casual climbers and I have tried to indicate this in Table 1. Others can probably add more species.

Slugs are also great climbers and possibly the champion is *Limacus maculatus*, which can ascend to great heights on both trees and buildings. Although I have no actual measurements for this species, I reckon it can routinely climb 30 feet (~10 metres) or more in a night (and back down again). In fact, many of the Limacidae seem to be vigorous climbers, while the large *Arion* species only climb very rarely. The climbing propensities of slugs, as I've observed them, are summarised in Table 2. The presence of *Ambigolimax valentianus* on the list should be noted as this species seems to be a reluctant climber (Rowson *et al.* 2014); confusion with the very similar *A. nyctelius*, which is said to be more likely to climb, is possible.

Many slugs and snails probably climb trees and walls simply to get food; except in polluted areas trees and walls are covered with lichens and algae. Some species may perhaps spend all their lives up trees or on walls. I have often found colonies of *Lauria cylindracea* under vegetation growing at or near the tops of walls, and suspect the snails may never come down to the ground. *Balea* spp. and clausiliids spend most of their time on walls or trees. Boycott (1934) stated that he had never found *Balea* on the ground, although he quoted a few examples from other observers, and I have found specimens on the ground under pieces of wood or stones. Vertical surfaces such as trees and walls are probably also areas where snails are relatively safe from predators; few mammals or birds can climb them easily, although squirrels could probably tackle larger snails such as *Cornu aspersum* or *Cepaea* spp. One mystery, to me at any rate, is why one can find a tree covered with snails one day while they are absent on another occasion. There does not seem to be any obvious connection with the weather – which brings one back to Tom Walker's unexplained observation of *Pomatias elegans* climbing trees.

References

Boycott, A.E. (1934) The habitats of land Mollusca in Britain. *Journal of Ecology*, **22**: 1–38.

Hadden, N.G. (1917) Hibernation of *Succinea elegans*. *Journal of Conchology*, **15**: 216.

Norris, A. (2006) *Hygromia cinctella* (Draparnaud, 1801) in Yorkshire. *Mollusc World*, **12**: 21.

Rowson, B., Turner, J., Anderson, R. & Symondson, B. (2014) *Slugs of Britain and Ireland*. Telford: Field Studies Council.

Walker, T. (2021) Tree-climbing *Pomatias elegans*. *Mollusc World*, **57**: 3.

table 1: Climbing snails on trees and walls

Species	Comment
Oxyloma elegans	Hibernating (Hadden 1917)
Succinea putris	A single observation
Cochlicopa lubrica	Often on walls, etc., up to at least 241cm
Lauria cylindracea	Usually on trees and walls
Columella edentula	Never very high on tree trunks
*Merdigera obscura**	Usually on trees and walls
*Balea perversa**	Usually on trees and walls
*Balea heydeni**	Usually on trees and walls
*Clausilia bidentata bidentata**	Common on trees and walls
*Cochlodina laminata**	Common on trees and walls
Euconulus fulvus	Occasional
Nesovitrea hammonis	A single observation
Oxychilus alliarius	Occasional
Oxychilus cellarius	Occasional
Oxychilus draparnaudi	Occasional
*Discus rotundatus**	Occasional
*Vitrina pellucida**	Occasional
*Cepaea nemoralis nemoralis**	Common on trees and walls
*Cepaea hortensis**	Common on trees and walls
*Cornu aspersum**	Common on trees and walls
*Cernuella virgata**	Can climb up to more than 272 cm on walls
Hygromia cinctella	Can climb higher than 10 feet (300 cm) (Norris 2006)
*Trochulus hispidus**	Occasional (see figure 1)
*Trochulus striolatus**	Occasional
Xeroplexa intersecta	Occasional
* Indicates species listed by Walker (2021)	

table 2: Climbing slugs on trees and walls

Species	Comment
Tandonia sowerbyi	A single observation
Deroceras invadens	A single observation
Deroceras reticulatum	
Ambigolimax valentianus	Occasional
Lehmannia marginata	The tree slug, one of our best-known climbers
Limacus flavus	
Limacus maculatus	An excellent climber, up to great heights
Limax cinereoniger	A single record, in a hole in a tree trunk
Limax maximus	Well known for its arboreal mating habits
Arion flagellus	A single observation, ~4 feet (120 cm) up a tree
Arion subfuscus	A regular climber
Arion circumscriptus	A single observation
Arion distinctus	Occasional

figure 1: *Trochulus hispidus* on ash, nr Watlington, Oxon.
(photo: Peter Topley)

Field meeting report: Pagham Harbour and Medmerry, West Sussex, August 21st and 22nd 2021

Martin Willing

Day 1: Pagham Harbour (Saturday August 21st)

Background: Pagham Harbour lies on the eastern margins of the Manhood Peninsula in West Sussex, a few km north of Selsey. Pagham Harbour Nature Reserve is mostly owned by West Sussex County Council and managed by the RSPB. The area's conservation importance is recognised by its SSSI, Special Protection Area (SPA) and Ramsar designations; in 2013 it was also designated as a Marine Conservation Zone (MCZ) with De Folin's lagoon snail (*Caecum armoricum*) as one of the qualifying features. The Society's August 2021 field meeting was able to make a valuable contribution to ongoing molluscan studies (particularly those for upper shore communities) that have been undertaken at Pagham since at least 1985. Survey locations are displayed in figure 1.

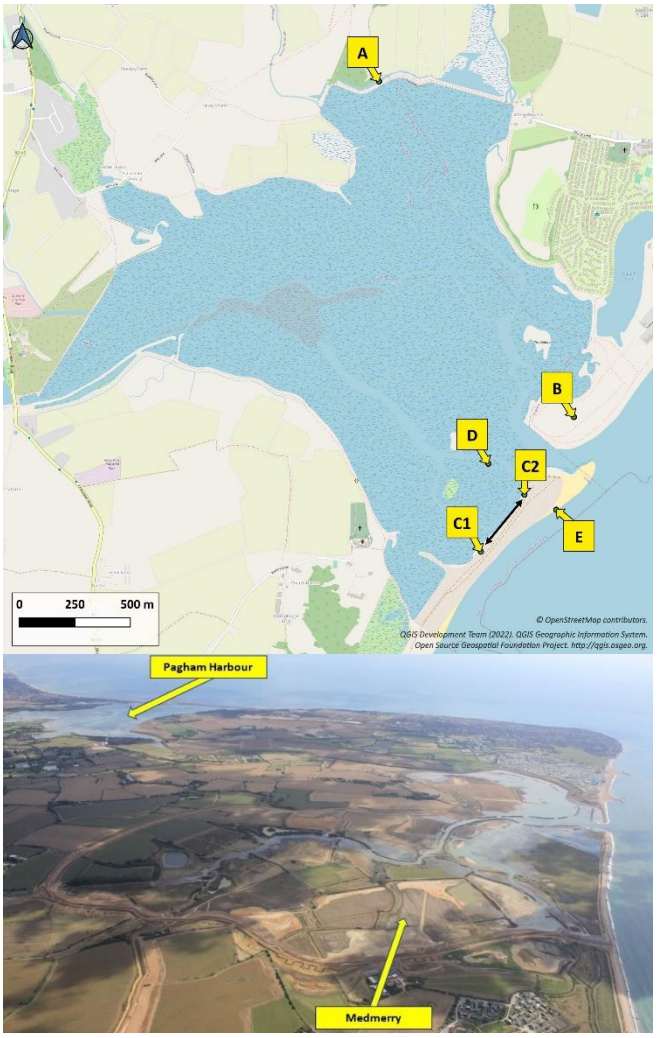


figure 1: Survey locations at Pagham Harbour (above) and (below) aerial view of survey areas on Manhood Peninsula (looking east). (photo: Environment Agency)

Participants: The meeting was attended by Conchological Society members Martin Willing, Bas Payne, Simon Taylor, Peter Barfield and five guests: Jo Brooksbank, Ivan Lang, Rayner Piper, and Georgina and Evalina Barfield.

Methods (apply to both survey days): In addition to the familiar 'hands and knees' visual searches, pools and channels were sampled using an aluminium square-framed net fitted with 0.5 mm monofilament nylon mesh. At several locations upper tidal drift and netted sediment samples were collected for later off-site drying, sieving and sorting (often with the aid of low-powered head magnifiers). Sampling for *C. armoricum* required special techniques. This snail is difficult to detect without magnification, being so small that it will typically pass through a 0.5 mm sieve. Survey for the species entailed the trowel removal of sediments from the saline 'springs' at Pagham Spit Lagoon. These were then placed on the upper level of a 30 cm-diameter four-tier sieve nest consisting of 10, 2, 0.5 and 0.25 mm units (see front cover). Samples were then washed with copious quantities of seawater (figure 2) and the 0.5 and 0.25 mm residues were retained (by Martin and Simon) for later processing. This involved the examination of small samples on water-filled, lipped dishes allowing examination beneath a low-power binocular microscope. The upper three tiers of the same sieve nest were also used to sieve sediments of netted samples from the Medmerry lagoon site.

figure 2: Martin Willing and Simon Taylor sieving sediment for *Caecum armoricum* (Pagham Spit Lagoon). (photo: Jo Brooksbank)

Results (apply to both days): For each survey site all live Mollusca recorded are shown in tables which also provide an approximate indication of frequency. Dead shells are only included where they occurred in sufficient numbers to suggest that they may have been living at a site (or very close to it). There were additional dead shell records but, in most cases, these were few and/or were often in a worn state, suggesting that they may either have been living elsewhere or were scarce. A full list of all living and dead species recorded by all participants is with Simon Taylor who, as Hon. Marine Recorder, will manage them further for Society purposes.

Site A: Non-tidal brackish lagoon: This non-tidal brackish lagoon lies just north of the sea wall. Netting recorded large numbers of *Ecrobia ventrosa* living in a typical habitat for this species. Although locally present around neighbouring Chichester Harbour, this is the only site known at Pagham, first being recorded here in October 2002 (Willing 2003).

Species:	**Live (L) / Shell only (S) (approx. frequency)**	**Previously recorded at site (last 10 years)**
Ecrobia ventrosa	L (abundant)	yes
Potamopyrgus antipodarum	L (occasional)	yes

table 1: Records from Pagham Harbour site A.

Site B: Pagham Spit Lagoon: The fully saline Pagham Spit Lagoon (figure 3) was separated from Pagham Harbour entrance channel until August 2020, when a high gravel bank was washed away leaving it partially breached. It was at this site that a small number of *C. armoricum* were first found in 2013 (Wilkinson & Baldock 2013). A later survey of the site

for the snail in 2017, when water quality in the lagoon was judged as poor, found no live specimens although numerous dead shells were recovered in both sediment washings and in upper tidal flood debris, and it was feared that it had died out (Willing 2018). An unusual feature of the southern margins of the lagoon are the 'saline springs' (figure 4) that, at certain states of the tide, emerge from the gravel just below the high tide mark.

figure 3: Pagham Spit Lagoon (breached at the far end).

figure 4: Saline 'spring' on upper shore at Pagham Spit Lagoon.

It is thought that these 'springs' are sourced by water seeping through the gravel bank lying between the lagoon and the outflow channel. These 'springs' closely resemble similar features described from locations on the southern Chesil Beach shores of the Fleet, where *C. armoricum* was first recorded in Britain (Seaward 1987a, 1987b, 1989; Baldock & Bass 2012). Fine sieved material collected from these springs during the meeting and later examined microscopically by Martin and Simon revealed not only further dead shells but a small number of fresh specimens suggesting that the snail was still living at the site. Freshly dead *Caecum* have a translucent shell which soon changes to opaque white (Tillin & White 2017). Further surveys for *Caecum* (figure 5) at the site were planned for later in the autumn of 2021.

Washed gravel also produced large numbers of both the tiny *Lasaea adonsoni* and *Leucophytia bidentata* (figure 6), a very local species in Sussex.

Species:	**Live (L) / Shell only (S) (approx. frequency)**	**Previously recorded at site (last 10 years)**
Caecum armoricum	L (scarce)	yes
Lasaea adansoni	L (abundant)	yes
Leucophytia bidentata	L (abundant)	yes
Littorina saxatilis agg.	L (occasional)	yes
Myosotella myosotis	L (occasional)	yes
Onoba semicostata	L (frequent)	yes

table 2: Records from Pagham Harbour site B.

figure 5: *Caecum armoricum* (Fleet Lagoon, Dorset) (shell length approx. 1.2 mm). (photo: Lin Baldock)

figure 6: *Leucophytia bidentata* (shell length approx. 5 mm). (photo: Derek Rands)

Site C: Church Norton Spit: upper gravel shore and terrestrial margins: Church Norton Spit (figure 7) and its adjacent shores lie to the south of Pagham Harbour. The area was reached on a rapidly falling tide but we firstly surveyed a cobble beach lying just below upper tidal levels on the sheltered western margins of the spit. Searches revealed a community of specialist species typical of higher salt marsh and sheltered upper shores. The most notable of these was the very local *Truncatella subcylindrica* (figure 8), a species first found here by David Holyoak in 1985 (personal communication).

figure 7: Church Norton Spit. Typical *Truncatella subcylindrica* habitat. (photo: Peter Barfield)

figure 8: *Truncatella subcylindrica* (shell length approx. 4 mm). (photo: Derek Rands)

Full surveys of Pagham Harbour for *T. subcylindrica* between 2002–2005 (Willing 2003, 2006) discovered that the snail was restricted to upper cobble areas of Church Norton Spit, occupying a stretch of upper shore extending for about 650 m; this is possibly the second largest known population in Britain after those on the margins of the Fleet. Elsewhere in Sussex, the snail is only known from a few very small populations in Chichester Harbour. The snail was found buried below or amongst cobbles, typically where these rested upon a firm substrate of compressed clay (figure 9) and often in or close to sea purslane, *Atriplex portulacoides* (figure 10). In contrast to Pagham Spit Lagoon, *Leucophytia bidentata* were quite scarce although *Myosotella myosotis* was abundant.

figure 9: *Truncatella subcylindrica* resting on clay beneath flint cobbles at Church Norton Spit. (photo: Peter Barfield)

Conditions at upper tidal levels are so sheltered that terrestrial and upper shore marine species overlap. Thus, *Lauria cylindracea* and *Xeroplexa interesecta* were found living very close (< 0.25 m) to *M. myosotis* and sand hoppers (*Talitrus saltatori*).

figure 10: Simon Taylor searching for *Truncatella subcylindrica* on Church Norton Spit.

It was on this spit that *Caecum armoricum* was first found living at Pagham Harbour in October 2007 (Pain *et al.* 2007). A repeat survey in 2013 (Wilkinson & Baldock 2013) failed to re-find specimens here and another extensive survey of the spit in 2017 again found no living specimens or dead shells (Willing 2018). A possible explanation for the apparent loss of the snail was the increased sedimentation in the harbour, which has led to a noticeable increase in clay sediments below and between upper shore cobbles (personal observations: 1992–2021).

Species:	**Live (L) / Shell only (S) (approx. frequency)**	**Previously recorded at site (last 10 years)**
Leucophytia bidentata	L (occasional)	yes
Littorina saxatilis agg.	L (occasional)	yes
Myosotella myosotis	L (frequent)	yes
Truncatella subcylindrica	L (frequent)	yes
Terrestrial taxa		
Lauria cylindracea	L (frequent)	yes
Xeroplexa intersecta	L (occasional)	yes

table 3: Records from Pagham Harbour site C.

Site D: Pagham Harbour (inner harbour): The rapid fall of the tide through the harbour's narrow outflow channel reveals a mosaic of exposed gravel, sand, sandy-mud, mud, saltmarsh, pools and channels (figure 11). We briefly explored some of these habitats lying immediately to the west of Church Norton Spit. Few Mollusca were found in

figure 11: Tide falling to reveal inner Pagham Harbour shore.

this mostly 'high-energy' area where shore sediments experience regular scouring by tidal currents. Those who frequently visit this area see a regularly changing shore. An interesting find by Bas Payne was that of the tiny gastropod *Dikoleps nitens*, recovered by sieving upper shore drift material collected on the northern edges of the inner harbour.

D. nitens lives amongst weeds and in pools on rocky shores at extreme low water extending sub-littorally. The presence of about 15 specimens suggests that the snail is living in the harbour. Surprisingly this is not the first record of this snail from Pagham; Society records reveal that it was first recorded here by Mike Goodchild in December 1973.

One shallow gravel-bottomed tidal pool produced two interesting finds. Peter Barfield noticed several small unfamiliar sea anemones (figure 12). Submission of images and other information to iRecord resulted in the confirmation that these were the non-native *Diadumene lineata*, an invasive sea anemone originating in the Asian Pacific but now widely distributed globally. The NBN Atlas displays a current UK distribution[1] showing a scattering of west coast populations running north to Orkney and Shetland and numerous populations on the south coast, particularly from Swanage eastwards and into the Solent. The 'raw' gravel-bottomed pool in which they were found appears to be ideal for the species. Wikipedia states that: *'[T]hese anemones target ecosystems that are barren landscapes or with low species diversity. Appearing suddenly, populations quickly proliferate and colonize zones … Within short durations, they are known to vanish from the area quickly with no warning.* Diadumene *anemones display high tolerance to inter-tidal exposure and drying out in extreme summer heat*'.[2]

The same pool also contained numerous specimens of a snail appearing to be elongated *Peringia ulvae*. A total of 31 specimens were randomly collected and later measured, showing that all were > 5mm in height and eight shells (26%) were > 8mm. *P. ulvae* typically range to a maximum height of between 4–6 mm, rarely exceeding 5 mm (Kerney 1999). Rothschild (1936) considered that large individuals were the result of digenean parasite infection and that specimens of the snail > 5 mm were rare. Initially it was thought that the Pagham specimens might have been a different species, but study of live animals revealed a black band on the tentacles just before the tip reinforcing the belief that this was an unusual, 'giant' population of the species (figure 13). Work is still in progress to study these snails; specimens preserved in ethanol have been sent to the National Museum of Wales for future examination which may reveal parasite presence, and DNA sequencing will also be considered.

figure 12: Pagham Harbour: (left) pool supporting invasive sea anemone and 'giant' *Peringia ulvae*; (right) invasive sea anemones *Diadumene lineata*. (photos: Peter Barfield)

figure 13: 'Giant' *Peringia ulvae* from Pagham Harbour tidal pool. Note characteristic black bands near tip of tentacles (below).

Species:	**Live (L) / Shell only (S) (approx. frequency)**	**Previously recorded at site (last 10 years)**
Cerastoderma edule	L (occasional)	yes
Crepidula fornicata	L (scarce)	yes
Dikoleps nitens	S (scarce)	Yes (1973)
Littorina littorea	L (scarce)	yes
Littorina obtusata (agg)	L (scarce)	yes
Littorina saxatilis agg	L (scarce)	yes
Parvicardium exiguum	L (scarce)	no
Peringia ulvae	L (frequent)	yes
Scrobicularia plana	L (scarce)	yes

table 4: Records from Pagham Harbour site D.

Site E: Pagham Harbour (eastern outer beach): Searches, mostly undertaken by Simon Taylor, on the sandy-gravel shore lying eastwards of Church Norton Spit, produced a small assemblage of mostly common species typical of such habitats, including the two top shells *Steromphala umbilicalis* and *S. cineraria* that were not found within the harbour or in Pagham Spit Lagoon. One notable find was a single *Phorcus lineatus*, a southern species more typical of south-western Britain and Ireland. This species is scarce in the eastern Channel with the NBN Atlas only displaying two Channel records east of Pagham.

Species:	**Live (L) / Shell only (S) (approx. frequency)**	**Previously recorded at site (last 10 years)**
Cerastoderma edule	L (occasional)	yes
Crepidula fornicata	L (occasional)	yes
Lepidochitona cinerea	L (scarce)	yes ?
Littorina littorea	L (occasional)	yes
Ocenebra erinaceus	L (scarce)	yes
Phorcus lineatus	L (scarce)	no
Ruditapes decussatus	L (occasional)	yes
Steromphala cineraria	L (occasional)	yes
Steromphala umbilicalis	L (occasional)	yes

table 5: Records from Pagham Harbour site E.

Day 2: Medmerry (Sunday August 22nd)

Background: The Medmerry reserve also lies on the Manhood Peninsula about 1 km to the south of Pagham Harbour and immediately to the west of Selsey. On 9th September 2013 the Environment Agency breached the coastal gravel bank, allowing the sea to enter and flood much of the Medmerry area. This is the largest open-coast managed retreat in Europe, designed primarily to provide flood protection for Selsey and Pagham but also to create new intertidal habitat as mitigation for habitat lost elsewhere in the Solent area. About 300 ha of land is enclosed by 7 km of earth or stone embankments including over 183 ha of new intertidal habitat. In the last eight years this has allowed successional colonisation by marine animals and plants. Molluscan surveys of the area were undertaken before the breach in 2012 (Willing, 2013) and then post-breach from 2018. The Society's August 2021 field meeting has added valuable additional information to ongoing studies of the area.

Participants: The meeting was attended by Conchological Society members Martin Willing, Bas Payne, Peter Barfield, and guest Ivan Lang.

Four main areas were surveyed at Medmerry and locations are shown on figure 14. Similar methods were adopted at Medmerry to those described above for Pagham Harbour.

Site A: Western Lagoon (non-tidal): This man-made scrape (figure 15) was constructed before the entry of seawater into Medmerry in 2013. The resulting lagoon has some shallow margins with central water reaching about 1.5 m depth. The site is not subject to daily tidal inflow but is 'topped up' by higher tides following which water leaves through a small, shallow channel. The 2021 field visit recorded 14 mollusc species, seven of which were recorded previously at the site (Willing 2019). Four of these species,

figure 14: Survey locations at Medmerry.

Crepidula fornicata, *Ostrea edulis*, *Lepidochitona cinerea* and *Littorina saxatilis* agg., although previously recorded elsewhere at Medmerry, were new to this lagoon. Three of the new species, *Haminoea navicula*, *Parvicardium exiguum* and *Littorina obtusata* agg., were also new Medmerry records. *H. navicula* and their associated egg masses were plentiful and found crawling at several locations in the shallow margins (figures 16 and 17). There are various records of this species from Chichester, Langstone and Portsmouth Harbours and from the Solent coastline of the Isle of Wight, but none from further east in the English Channel. *L. obtusata* is plentiful on shores adjacent to the reserve but its scarcity at Medmerry may be due to the current relative lack of fucoid seaweeds. *P. exiguum*, which may have colonised the site since the last survey visit, was represented by frequent dead paired valves but just a single live animal.

figure 15: Medmerry site A: saline lagoon

figure 16: *Haminoea navicula* (Medmerry site A).

figure 17: *Haminoea navicula* from Medmerry site A (lower animal approx. 25 mm in length). (photo: Peter Barfield)

figure 18: *Ruditapes decussatus* from Medmerry site A (shell length approx. 45 mm). (photo: Peter Barfield)

figure 19: *Ruditapes phillipinarum* from Medmerry site A (shell length approx. 35 mm).

In 2018 *Ruditapes decussatus* (figure 18) and *R. phillipinarum* (figure 19) were both found living in the lagoon, but the 2021 visit only produced dead shells of the latter species. This may suggest environmental changes at the site, possibly reflected by a similar situation with the two *Cerastoderma* species also living there. In 2018 *C. glaucum* were plentiful at the site although small numbers of *C. edule* were also present. The 2021 visit, by contrast, produced numerous *C. edule*, but few, mostly large *C. glaucum* (figure 20). Some members of the party expressed doubts about this identification, suggesting that they might instead be an unusual form of *C. edule* with an elongated anterior to posterior shell length. As a result, the 2021 specimens were sent for a second opinion to Anna Holmes at the National Museum of Wales and to Graham Oliver, who both considered them to be *C. glaucum*. To further clarify identification and resolve any uncertainty, a return visit to the lagoon is planned to collect further specimens to provide tissue samples for DNA sequencing. An earlier *C. glaucum* cohort from the 2018 survey shows an assemblage of shells perhaps typical of this cockle (figure 21). It is speculated that *C. glaucum* colonised the lagoon shortly after its formation (in 2013–2014?) when conditions may have been more brackish and that, with an increase in salinity following more regular saline inflows, conditions have become more favourable to *C. edule* whilst leaving a declining and aging *C. glaucum* population.

figure 20: *Cerastoderma glaucum*? Medmerry site A, August 2021.

figure 21: *Cerastoderma glaucum*? Medmerry site A, September 2018.

A drive around the Medmerry perimeter took the party to the eastern end to allow the survey of several habitats lying close to the main entrance channel.

Species:	Live (L) / Shell only (S) (approx. frequency)	Previously recorded at site	Previously recorded elsewhere at Medmerry
Abra tenuis	L (frequent)	Yes	Yes
Cerastoderma edule	L (frequent)	Yes	Yes
Cerastoderma glaucum	S (scarce)	Yes (frequent)	Yes
Crepidula fornicata	L (scarce)	No	Yes
Haminoea navicula	L (frequent)	No	No
Lepidochitona cinerea	L (scarce)	No	Yes
Littorina obtusata	L (scarce)	No	No
Littorina saxatilis	L (scarce)	No	Yes
Macoma balthica	L (scarce)	Yes	Yes
Ostrea edulis	L (scarce)	No	Yes
Parvicardium exiguum	L (scarce live)	No	No
Peringia ulvae	L (abundant)	Yes	Yes
Ruditapes decussatus	L (frequent)	Yes	Yes
Ruditapes phillipinarum	S (occasional)	Yes (live)	Yes

table 6: Records from Medmerry site A.

Site B: Rocky revetments on Medmerry eastern margin: The large basalt blocks forming the seaward revetments of the Medmerry area (figure 22) were searched by Bas Payne who recorded the presence of *Patella vulgata*, a new Medmerry record and so possibly a relatively recent colonist. Despite the 8–9 years since their placement, the blocks remain remarkably free of other mollusc species such as *Nucella lapillus*, *Mytilus edulis* and *Steromphala* spp.

figure 22: Medmerry site B: rocky revetments at eastern entrance to Medmerry Reserve.

Species:	Live (L) / Shell only (S) (approx. frequency)	Previously recorded at site	Previously recorded elsewhere at Medmerry
Patella vulgata	L (scarce)	No	No

table 7: Records from Medmerry site B.

Site C: Creek, tidal channel, mud and muddy sand flats (inside breach at eastern end of reserve): The shore at this point lies just within the retreat area and at low tide reveals a mosaic of still-water pools, outflow channels and areas of exposed sand, muddy sand, mud and patches of salt marsh (figure 23). Searches revealed four live and four dead species, all previously recorded here between 2018 and 2020. A small patch of muddy sand revealed a small population of the deep-burrowing *Scrobicularia plana*. Location of the hidden animals is revealed by the star-shaped pattern present on the mud around their burrows, produced by the placement of this deposit-feeding bivalve's siphons onto the sediments around the burrow entrance when submerged (figure 24). The presence of numerous dead shells of the two piddock species, *Barnea candida* and *Pholas dactylus*, may originate from burrowing populations inhabiting the hard intertidal clay banks present at parts of the Medmerry coastal entrance.

figure 23: Medmerry Site C: muddy sand, mud, pools and channels.

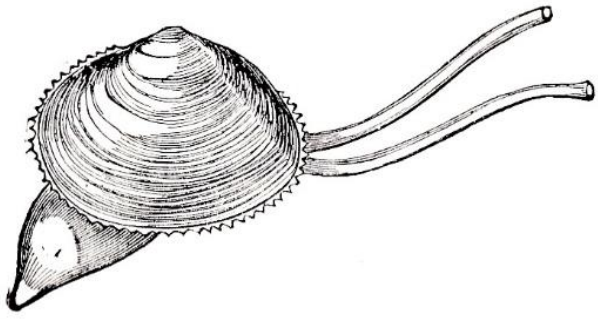


figure 24: *Scrobicularia plana* burrow entrance (above), note 'star-shaped' lines on mud produced by siphons (Medmerry site C); *Scrobicularia plana* line drawing (below) showing the long siphons (Step, E. *Shell Life*. F. Warne 1945).

Species:	Live (L) / Shell only (S) (approx. frequency)	Previously recorded at site	Previously recorded elsewhere at Medmerry
Abra tenuis	L (abundant)	Yes	Yes
Barnea candida	S (occasional)	Yes (shell)	Yes (shell)
Cerastoderma edule	L (abundant)	Yes	Yes
Macoma (Limecola) balthica	S (occasional)	Yes (live)	Yes
Peringea ulvae	L (abundant)	Yes	Yes
Pholas dactylus	S (occasional)	Yes (shell)	Yes (shell)
Scrobicularia plana	L (occasional)	Yes	Yes
Venerupis corrugata	S (frequent)	yes	Yes (live)

table 8: Records from Medmerry site C.

Site D: Drainage sluice and channel: This site consists of a deep-water sluice partially enclosed by steep concrete walls. Since it was last surveyed in January 2020, a fall in water level of an adjacent lagoon has caused a fall in the low tide water level of the sluice channel. As a result, several of the *Ostrea edulis* attached to the concrete have died as a result of emersion. Netting of *Enteromorpha* and *Ulva* algal growth in the channel produced low numbers of *Rissoa parva*, another new record for Medmerry.

Species:	Live (L) / Shell only (S) (approx. frequency)	Previously recorded at site	Previously recorded elsewhere at Medmerry
Crepidula fornicata	S (scarce)	Yes (live)	Yes
Ostrea edulis	S (occasional)	Yes (live)	yes
Rissoa parva	L (occasional)	No	No

table 9: Records from Medmerry site D.

Acknowledgements

The RSPB is thanked for allowing access to their Pagham Harbour and Medmerry reserves. Particular thanks are due to Ivan Lang (Pagham Harbour Warden, RSPB) for arranging access to restricted areas of the reserves, for helping on both of the field days and for providing transport to the survey sites.

Peter Barfield and Bob Foreman gave help in the production of site maps and I'm also grateful to Bas Payne, Anna Holmes and Graham Oliver for providing opinions on identification issues. Bas also kindly kept on-going field records for the group during the two field days.

Finally, Natural England's licencing team is thanked for issuing MJW with a *Caecum armoricum* survey licence (NE No. 2021-53929-SCI-SCI).

References

Baldock, L. & Bass, J. (2012) Chesil and the Fleet EMS – survey of shingle springline communities. Unpublished report to Natural England.

Kerney, M. (1999) *Atlas of the land and freshwater molluscs of Britain and Ireland*. Colchester: Harley Books.

Pain, C., Wilkinson, S. & Light, J. (2009) Two further UK sites for *Caecum armoricum*, de Folin, 1869, formerly known only in the Fleet, Dorset, as a member of the interstitial "spring" community. *Journal of Conchology*, **39**: 779–780.

Rothschild, M. (1936) Gigantism and variation in *Peringia ulvae* Pennant 1777, caused by infection with larval trematodes. *Journal of the Marine Biological Association of the UK*, **20**: 537–546.

Seaward, D. (1987a) A new addition to the British marine mollusc fauna living in the Fleet, Dorset. *Conchologists' Newsletter*, **103**: 66–67.

Seaward, D. (1987b) *Caecum armoricum* De Folin, 1869, new to the British marine fauna, living in the Fleet, Dorset, within an unusual habitat. *Proceedings of the Dorset Natural History and Archaeological Society*, **109**: 165.

Seaward, D. (1989) *Caecum armoricum* (Prosobranchia: Rissoacea) new to the British fauna. *Journal of Conchology*, **33**: 268.

Tillin, H.M. & White, N. (2017) *Caecum armoricum* DeFolin's lagoon snail. In Tyler-Walters, H. & Hiscock, K. (eds), *Marine Life Information Network: Biology and Sensitivity Key Information Reviews* [online]. Plymouth: Marine Biological Association of the United Kingdom. Available from: https://www.marlin.ac.uk/details/1166.

Wilkinson, S. & Baldock, B. (2013) Survey for *Caecum armoricum* in Pagham Harbour March 2013. Unpublished report to Natural England (Worthing).

Willing, M.J. (2003) Pagham Harbour L.N.R. Terrestrial, Fresh and Brackish Water Molluscan Survey (June–November 2002). Unpublished report for Pagham Harbour LNR, West Sussex County Council.

Willing, M.J. (2006) Pagham Harbour L.N.R. Terrestrial, Fresh and Brackish Water Molluscan Survey II (extension report) (December 2003–May 2005). Unpublished report for Pagham Harbour LNR, West Sussex County Council.

Willing, M.J. (2013) Survey of saltmarsh, brackish lagoons and saline seepages on the RSPB Bracklesham Reserve: August 2012. Unpublished report to the RSPB, Sandy, Beds.

Willing, M.J. (2018) De Folin's lagoon snail *Caecum armoricum* survey at Pagham Harbour (October 2017–April 2018). Unpublished report to Natural England (Worthing).

Willing, M.J. (2019) Brackish and marine molluscan survey of the Medmerry Managed Retreat Area: August–October 2018. Unpublished report to the RSPB, Pagham.

Internet sources

[1]https://records.nbnatlas.org/occurrences/search?q=lsid:NHMSYS0020770700&fq=&nbn_loading=true#tab_mapView.

[2] Edited extract: https://en.wikipedia.org/wiki/Diadumene lineata. Accessed 30.01.2022.

Shelly places names

Many years ago the late A. E. Ellis published a list of shelly place names in *The Conchologist's Newsletter*. Here are two molluscan road names in east Hampshire: Snailing Lane at Greatham off the Selborne road (B3006) and Shell Lane, south of Farrington off the A32 Gosport Road photographed respectively in 2006 and 2013.

June Chatfield

Happy 90th birthday, Peter

Tom Walker

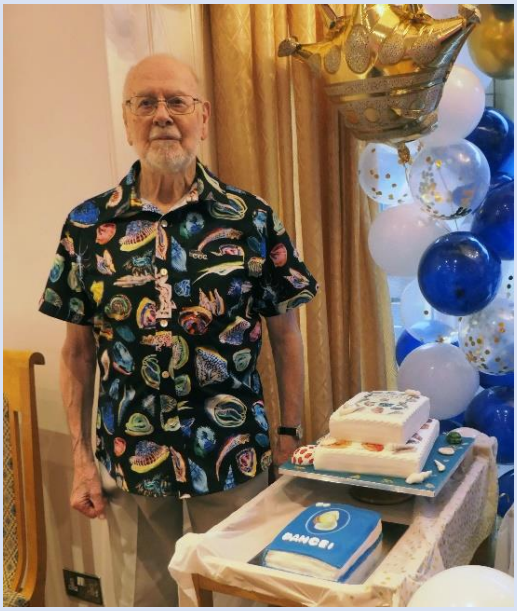
Peter Dance reached his 90th birthday on 3rd February and celebrated with a gathering at his daughter-in-law Nong's Thai restaurant in Carlisle the following weekend, to which I was delighted to be invited. About 30 family and friends assembled to honour Peter, together with many Thai helpers who prepared a sumptuous banquet.

Peter is the longest surviving member of the Conchological Society, having joined in 1950, and has been an active member throughout most of the last 70 years, although recently his presence has been missed due to increasing infirmity. The last field meeting he attended was in Dumfriesshire in 2011, not far from his home in Carlisle. He was our President in 1966–1968 and has been a prolific contributor to Society publications, with 29 articles in the journal and 22 in the *Conchologists' Newsletter* or *Mollusc World*. He is still a regular contributor, his most recent article being in the last issue of MW on the consequences of the blitz on the Shell Gallery in the Natural History Museum.

I am fortunate to have got to know Peter well over the last 25 years and have had several shelling trips with him. Perhaps the most notable were two trips to Sanibel in Florida and an excursion to Ardnamurchan, the most westernmost point of mainland Scotland, which he wished to revisit having had a shelling excursion there many years previously and where we spent a wonderful day among the dunes seeking more shells.

Peter is renowned for his shell shirts, having obtained the material for many of these in Sanibel. He was delighted to receive his most recent shirt as a gift only a few days before his 90th birthday, from a colleague in China, and shown in these photographs.

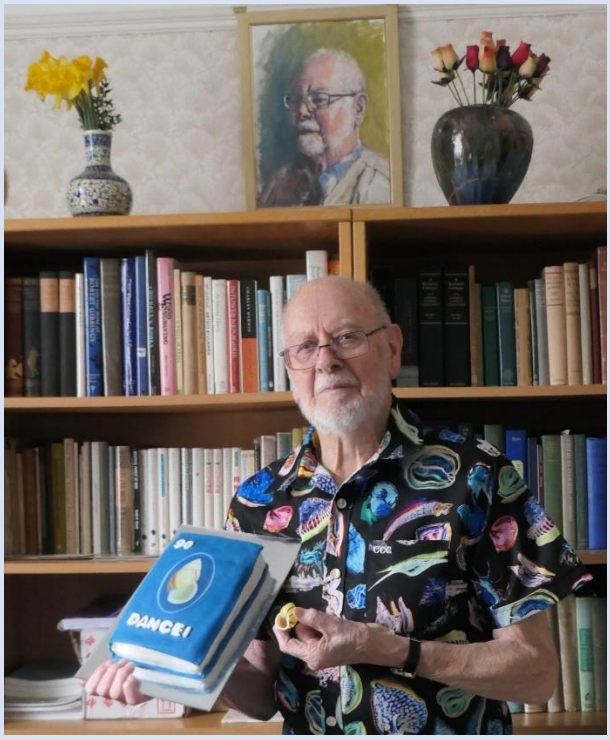
We wish Peter well in the future, which he will enjoy with his family; he will doubtless welcome many visitors to his home in Carlisle, which was built by the grandfather of 28th US President Woodrow Wilson.



Peter in his new shell shirt with his birthday cakes.

Peter with his son Robert, daughter-in-law Nong and grandson Nicky.

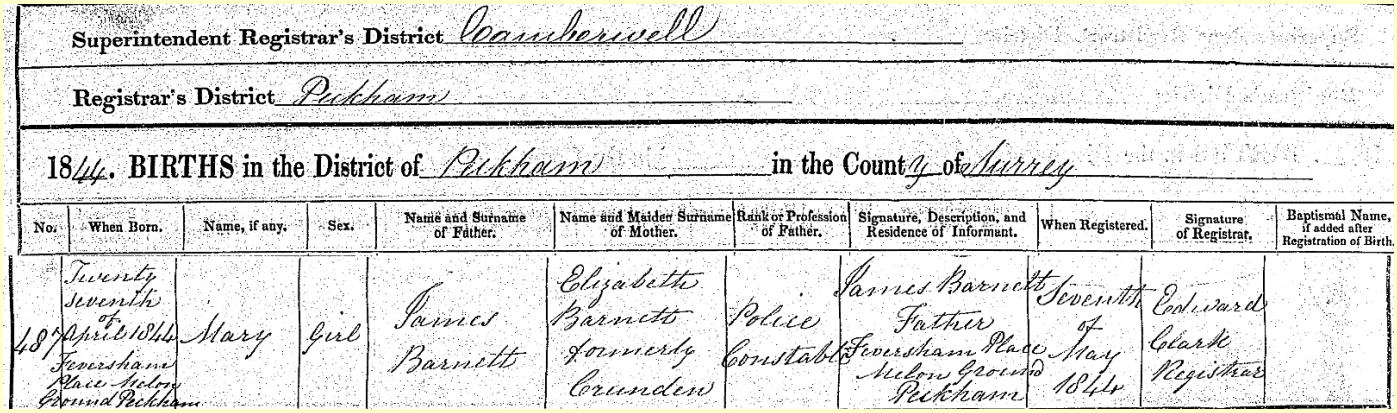
Peter's 'official' birthday cake with the cover of his *Compendium of Seashells*.



Peter with his 'unofficial' birthday cake – a gift from Kirsty and Rob Law. His is holding one of only five known specimens of *Amphidromus dancei* (also shown on the cake), the most recent shell to be named in his honour in 2021. His portrait is the last painting by his very good friend Noel Gregory.

Mary Skilton – the first female member of the Conchological Society of Great Britain and Ireland (CSGBI)

Brian Goodwin



Superintendent Registrar's District Camberwell

Registrar's District Peckham

1844. BIRTHS in the District of Peckham in the County of Surrey

No.	When Born.	Name, if any.	Sex.	Name and Surname of Father.	Name and Maiden Surname of Mother.	Rank or Profession of Father.	Signature, Description, and Residence of Informant.	When Registered.	Signature of Registrar.	Baptismal Name, if added after Registration of Birth.
487	Twenty seventh of April 1844 Faversham Place Melon Ground Peckham	Mary	Girl	James Barnett	Elizabeth Barnett formerly Crunden	Police Constable	James Barnett Father Faversham Place Melon Ground Peckham	Seventh of May 1844	Edward Clark Registrar	

figure 1: Record of the birth of Mary Barnett (later Mary Skilton).

In 'The ladies who conch – Part 2' (*Mollusc World* **57**: 20–25, 2021), I made a brief reference to Mrs Mary Skilton, the first female member of CSGBI. Mary seemed to hold such an iconic position in the history of the Society I thought it would be worthwhile to investigate her life in more detail. What has been discovered so far is tantalising. While a good deal of genealogical detail regarding Mary's life has been found, sadly very little relating to her conchological activities has come to light.

Mary was born Mary Barnett (figure 1) on 27th April 1844 in Peckham (Camberwell, then part of Surrey), to parents James and Elizabeth Barnett (née Crunden) who had married some years earlier on 8th May 1826. Elizabeth was about 40 years old when Mary was born, and 43 by the time a younger brother, Henry, came along.

James Barnett was serving as a police constable at the time of Mary's birth. With wife Elizabeth, he then resided at Faversham Place, Melon Ground, Peckham (Camberwell). By the time of the census in 1851, James is shown as 'late sergeant in London police' and the family had moved to Brighton, living at 39 Oxford Street. It was here that Henry was born and the two children, Mary and Henry, were baptised in a joint ceremony on 5th September 1847.

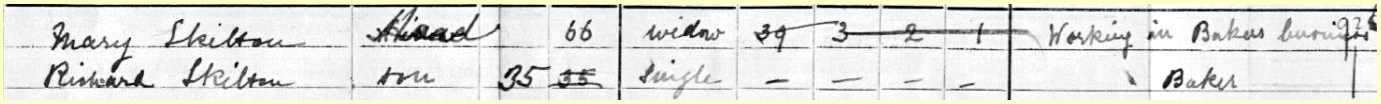
Father James died towards the end of 1856, so that by the 1861 census Elizabeth was supporting herself and the two teenaged children. Her occupation is listed as 'cage dealer', the exact nature of which is unclear to me – it might refer to poultry or pet cages. Their address is shown as 47 Queen's Road, Brighton. Unfortunately, little is known of Mary's childhood, and how and when she became interested in molluscs is a complete mystery.

Ten years later, Elizabeth (now 67) and the grown-up children, Mary (26) and Henry (24), had moved to Military Road, Chatham, Medway, Kent. Elizabeth, still working, was recorded in the 1871 census as a 'straw bonnet maker', while Mary had become a tailor's shop assistant and Henry was working in a clothing factory. Somewhere around this time, Mary met her future husband Richard Skilton, a baker, and they were married at the parish church in Chatham on 8th September 1872. It is possible that the photograph of Mary (figure 2) was taken around the time of her marriage. The marriage record shows that both fathers were deceased: William Skilton's profession was given as 'baker', while James Barnett was recorded as a 'bazaar keeper'. Again, this is not an occupation with which I am familiar but it may have referred to something like a market stallholder, that he presumably started after leaving the police.

figure 2: Photograph of Mary (Barnett) Skilton (all photographs and artwork courtesy of Quentin and Mark Pickard, Mary's great-grandsons).

Mary and Richard took up residence at 21 London Road, Brentford, where they lived for the rest of their lives, in Mary's case for the next 48 years. These premises served as both bakery and residence and were listed in various trade directories of the time. One reference I discovered described the bakehouse as 'old' but 'good & well ventilated' (wellcomelibrary.org/moh/report/b19969715/62).

The couple had two children: Richard junior and Elizabeth, born in 1875 (or 1876) and 1877 (or 1878) (censuses give conflicting dates). Richard junior also took up the bakery profession and according to the 1911 census (after husband Richard's death) Mary also worked in the bakery (figure 3). The handwriting on this census is Mary's.



Mary Skilton	~~Head~~		66	widow	39	3	~~2~~	~~1~~	Working in Bakers business
Richard Skilton	son	35	~~35~~	single	–	–	–	–	Baker

figure 3: Record from the 1911 census in Mary Skilton's handwriting.

figure 7: Family wedding photo from 1902 with Mary Skilton front centre, next to the bride – her daughter Elizabeth. Mary's husband Richard is sitting next to her.

Mary applied to join the Conchological Society in 1884 as the first female member (figure 4), soon to be followed by Miss E.M. Fairbrass and Mrs J. Fitzgerald (née Hele).

NEW MEMBERS.

Messrs. James Madison, E. J. Elliott, and Mrs. Skilton were elected members of the Society.

figure 4: *Journal of Conchology* **4**: 215, meeting of 1st May 1884.

Despite scouring the Proceedings in the journal, I have so far found no record of her attending meetings. It is entirely possible that she may have joined the London branch which was inaugurated in 1895, but unfortunately Covid-19 restrictions prevented me from trying to follow this up at the Society archives at Leeds. The only record of her conchological activities I could find was a short note in volume 4 of the *Journal of Conchology* (p. 265, 1884) regarding a *Clausilia rugosa* monst. *dextrorsum* collected at Slamannan in Stirlingshire (figure 5). Since the shell in question was 'now in her collection', she seems to have had a serious, 'hands on' interest in conchology. However, apart from membership lists, this is the only mention of Mary in the *Journal of Conchology*, with one interesting exception.

Clausilia rugosa monst. **dextrorsum in Stirlingshire.**—Mrs. Skilton of Brentford, Middlesex, informs me that a specimen of this form has been found at Slamannan in Stirlingshire, which is now in her collection.—J. W. Taylor, Dec. 23rd, 1884.

figure 5: *Journal of Conchology* **4**: 265 (1885).

In 1888 she presented an oil portrait of the late Dr John Gwyn Jeffreys to the Society. This was not only reported at the meeting (figure 6), but also received special reference in the Annual Report for 1889 (*Journal of Conchology* **6**: 90). Regrettably, the whereabouts of the portrait is not known – there seems to be no record of it in the Society archives. Mary's artistic inclinations seem to be supported by the 1891 census which gives her occupation as 'artist sculp'.

DONATIONS.

The following donations were laid on the table and the thanks of the Society were accorded the donors:—

A framed portrait of Dr. Gwyn Jeffreys, F.R.S., painted in oils and presented by Mrs. M. Skilton.

figure 6: *Journal of Conchology* **5**: 307 (1888).

Did 'artist sculp' perhaps mean artist sculptor? With this as a line of enquiry, I persisted with internet searching and by a great stroke of fortune this led me to a descendent of Mary's, her great-grandson Quentin Pickard, and a family photograph taken at the wedding of Mary's daughter Elizabeth (i.e. Quentin's grandmother) in 1902 (figure 7).

Family records and memorabilia confirm that Mary was more than competent artistically, and that she had received painting lessons from a well-known local artist called John Thomas Fairs who was Principal of the Kew School of Art. Moreover, there exists a watercolour portrait of her 'in action'. painting on the canal near Brentford, which the family has also kindly permitted me to reproduce here (figure 8).

figure 8: Detail from a watercolour of the canal at Brentford (looking south with the tower of St Lawrence's church in the distance) by John Thomas Fairs. The artist at her easel is Mary Skilton.

Evidence of Mary's artistic skills is provided by her oil painting of 'Isleworth by the Thames' (figure 9). Her descendants had always supposed this to have been painted from life. However, a few years ago they were astonished to find that it was in fact a very accurate copy of a postcard view published by the famous firm of Tuck's Postcards (no. 7121, from an original painting by R.F. McIntyre – see figure 10).

Mary's family was unaware of her interest in conchology and unfortunately none of her extant artwork is related to the subject. However, from pieces still in the family archives, it is clear that Mary's artistic talent was developed at school (St Mary's, Chatham) where she demonstrated her early draughtsmanship, and then later a willingness to experiment with different techniques (figure 11).

figure 9: 'Isleworth by the Thames' by Mary Skilton.

figure 10: Tuck's postcard no.7121.

figure 11: A composite of Mary's artwork: left – her draughtsmanship at school; bottom right – her signature while a schoolgirl; top right – later experimentation with pierced paper 'pinhole' art of a dog rose.

Mary Skilton remained a member of CSGBI for 25 years, resigning in 1909 shortly before her husband Richard died (8th April 1910). Figure 12, taken around 1911, shows Mary with a child, probably her granddaughter Elizabeth, the mother of Quentin Packard and his brother Mark.

Regrettably, the nature of her shell collection and what became of it have not been established. Mary herself died aged 76 on 31st August 1920 as a result of 'myocardial degeneration', leaving effects of £251 on probate.

figure 12: Mary Skilton with granddaughter Elizabeth, *circa* 1911.

It is sad that so much of Mary's relationship with molluscs in general, and CSGBI in particular, remains shrouded in mystery (and is likely to remain so), although the chance of a London branch connection remains. There is also the tantalising possibility that a portrait of John Gwyn Jeffreys in oils might turn up sometime, somewhere! Nevertheless, it is worth raising a glass in remembrance of Mary Skilton and her important historical connection to the Society – our very first female member.

More slug trails

Brian Goodwin

It seems that a lot of us have pictures of 'ever-decreasing circles' like Tom Walker's on the front cover of issue **55** (and some in previous issues – see **48**: 26 and **52**: 10).

Here is my version. Unlike Tom, we know the fate of mine – it was a warm night and it stayed out too long! Not sure of the species – perhaps a *Limacus maculatus*? Or *Limacus desiccatus*!

Arion hortensis: a note on variation in body colour

Tony Wardhaugh

Whilst visiting the garden of Ormesby Hall, a National Trust property in North Yorkshire, on 12th April 2021 I chanced upon a pair of mating slugs beneath a short section of log (NZ 5294 1665). They were at once striking because, superficially, one appeared to be a normal dark-coloured *Arion hortensis* but the other individual was paler, with yellowish pigment on the dorsal surface. My first thought was that the latter might be *Arion distinctus* and hence that I was witnessing a case of hybridisation (figure 1). The pair were placed carefully in a suitable container and taken home for closer examination. At the time I wondered whether one or both would subsequently lay eggs and, if so, what the appearance of any offspring would be.

figure 1: Mating *Arion* sp. *in situ.*

On closer examination the dark individual did appear to be *A. hortensis*, having all the external features typical of this species, i.e. bright orange sole mucus, orange tail tip, grey-purple tentacles, the lowest line of tubercles along the body side contrastingly pale and the right mantle band passing over the pneumostome (Davies 1977, 1979; Rowson *et al*. 2014). Intriguingly, the paler individual also possessed all of these characteristics, albeit with less contrast between the lowest line of tubercles and the rest of the body sides (figures 2 and 4), suggesting that it was an unusually pale *A. hortensis* and not *A. distinctus* (figures 3 and 4). Davies (1977, 1979) states that in her observations some *A. hortensis* were more uniformly yellow-grey and that sometimes this coloration developed from the more normal blue-grey as the slugs aged. She also described a form of *A. hortensis* suffused with reddish pigment; Rowson *et al*. (2014) figure an individual with this appearance, somewhat paler than the normal form.

The date of the observed mating, 12th April, would place it at the end of the normal season for *A. hortensis* and the beginning of that for *A. distinctus*. The former normally breeds from autumn to winter but can breed well into spring after a mild winter (Davies, 1977); in the local area winter 2020-2021 was mild, with very little snow. The yellow-grey pigment present in both of the mating slugs (figure 1) suggests that they may have been older individuals, as described above. The breeding season for *A. distinctus* is chiefly spring and summer.

figure 2: The paler of the mating pair shown in figure 1.

figure 3: *Arion distinctus*. Note the blue-grey tentacles, dark tail tip (top) and mantle band passing through and below the pneumostome (bottom).

figure 4: Soles of slugs from figures 2 and 3 (top) compared. Upper = *A. distinctus*; lower = paler of the mating pair.

At some point between 6th and 9th May 2021 the dark individual laid three eggs. Immediately after this it became moribund and soon died, the eggs failing to show any signs of development. In contrast, the pale individual laid eight batches of eggs between 29th April and 21st July; the number in each batch generally declined with time, varying from 20 to six. These eggs were very largely viable. Subsequently this slug laid up to three eggs on a few occasions up to mid-August, these being mostly nonviable. It was moribund by the end of August. This is consistent with the observations of

Davies (1977) for *A. hortensis* that the breeding period ends, and senility begins, when egg production ceases, or the rate suddenly drops with the production of a few eggs which are usually infertile.

Eggs from the first eight batches were retained, hatching rate and survival of the offspring being mostly very good. In total about 60 offspring were reared. Interestingly, from a very early age these exhibited a good deal of variation in general background colour, from pale grey to near black. All had distinctly purple-grey tentacles when viewed under white LED illumination (figure 5). As they matured all of the other external features typical of *A. hortensis*, as described above, became apparent (figure 6). It could be argued that the appearance of these offspring was influenced by the conditions in which they were reared, notably perhaps their diet. Jordaens *et al*. (2001) found that diet could have a significant influence on the external appearance of *A. fasciatus* and *A. circumscriptus silvaticus*. Particular diets could provoke the loss of yellow-orange lateral bands by the former and their development in the latter, the opposite of normal appearance in each case, and thus each species could be induced to resemble the other. In the present study all the F_1 individuals received the same diet of lettuce, cabbage and carrot so it seems very unlikely that food could have influenced variation between individuals in background body colour, this being exhibited from an early age and with the shade constant in each individual as it grew.

figure 5: Offspring on 12.07.2021 aged 35 days, extended length approx. 10 mm.

Figure 6: Offspring on 10.10.2021 aged 125 days, extended length approx 30 mm.

As a second note of caution, it cannot be guaranteed that the dark individual was the male parent of the F_1 offspring. The latter could have been the result of the pale individual ('mother') mating previously with another slug; second and multiple matings were observed in *A. hortensis* by Davies (1977). Alternatively, the offspring could have been the result of self-fertilisation. However, Davies (1977) commented that unmated slugs in her studies produced only a few infertile eggs. Furthermore, Foltz *et al*. (1982) studied *A. hortensis* and *A. distinctus* from the British Isles using electrophoresis and biochemical staining techniques and found that both species are highly polymorphic and heterozygous, evidence which suggests that they reproduce predominantly, if not completely, by outcrossing; hence self-fertilisation seems very unlikely.

Regarding the possibility of hybridisation, Davies (1977) found no evidence of interbreeding between *A. hortensis* and *A. distinctus* in her extensive investigations. Iglesias & Speiser (2001), studying captive slugs of these two species in northern Switzerland, found just one instance of hybridisation, as evidenced by a spermatophore of *A. distinctus* found in the atrium of one *A. hortensis*. Nonetheless they considered hybridisation extremely unlikely on biochemical, anatomical and behavioural grounds. Rowson *et al*. (2014) consider that the two are unlikely to interbreed often.

In view of all these possibilities, and that there is a good deal of variation in external appearance known in these two species, it seemed desirable to check the reproductive anatomy of some of the F_1 offspring. Both species possess an epiphallus process. In *A. hortensis* this is flattened, plate-shaped and only partly covers the entrance to the epiphallus whereas in *A. distinctus* it is conical, mushroom-shaped and covers the entrance (Rowson *et al*. 2014). I am very grateful to Ben Rowson who kindly offered to make an independent assessment of a sample of the offspring once they were well-grown. Two pale individuals and one dark were examined by him and all proved to have an epiphallus process typical of *A. hortensis*.

References

Davies, S.M. (1977) The *Arion hortensis* complex with notes on *A. intermedius* Normand (Pulmonata, Arionidae). *Journal of Conchology*, **29**: 173–187.

Davies, S. M. (1979) Segregates of the *Arion hortensis* complex (Pulmonata, Arionidae) with a description of a new species, *A. owenii*. *Journal of Conchology*, **30**: 123–128.

Foltz, D.W., Ochman, H., Jones, J.S., Evangelistsi, S.M. & Selander, R.K. (1982) Genetic population structure and breeding systems in arionid slugs (Mollusca: Pulmonata). *Biological Journal of the Linnean Society*, **17**: 225–241.

Ilgesias, J. & Speiser, B. (2001) Distribution of *A. hortensis* s. s. and *A. distinctus* in northern Switzerland. *Journal of Molluscan Studies*, **67**: 209–214.

Jordaens, K., van Riel, P., Geenan, S., Verhagen, R. & Backeljau, T. (2001) Food-induced body pigmentation questions the taxonomic value of colour in the self-fertilising slug *Carinarion* spp. *Journal of Molluscan Studies*, **67**: 161–167.

Rowson, B., Turner, J., Anderson, R. & Symondson, B. (2014) *Slugs of Britain and Ireland*. Telford: Field Studies Council Publications.

A medieval assemblage from the Thames at Wallingford *Janet Ridout Sharpe*

Immediately downstream from Wallingford bridge in South Oxfordshire, the River Thames is actively eroding the left (east) bank leaving low 'cliffs' and creating a silty-sandy beach much loved by the local children when the river is low (figure 1). Recently a dog-walker presented Wallingford Museum with the base of a green-glazed, 13th-century flagon that he had found on the beach, and subsequent investigation by The Wallingford Historical and Archaeological Society (TWHAS) recovered several fragments of medieval pottery eroding from a discrete shelly layer in the river bank (figure 2).

figure 1: The embayment immediately downstream from Wallingford bridge.

figure 2: The shelly layer exposed in the river bank.

Wallingford Castle, once one of the largest and most important castles in the land (now largely reduced to spectacular earthworks thanks to the diligence of Oliver Cromwell) lay on the right (west) bank just upstream from the bridge. The castle reached its peak during the medieval period. It was famously and unsuccessfully besieged by King Stephen during the Anarchy of the 12th century and the town was granted its charter in 1155 by a grateful Henry II for safeguarding his mother, the Empress Matilda, who had sought refuge at the castle. The pottery appears to date from the period immediately subsequent to this: most fragments date to the late 12th and early 13th centuries, with a few pieces from the 14th century but nothing later. The shelly deposit is approximately 50 cm below the present ground level and 20 cm above the present beach, the river having cut down into its present channel. It appears to represent an earlier beach, or possibly a flood deposit, cut into by the present embayment which did not exist 40 years ago.

Approximately 1 litre of this shelly deposit yielded nearly 2200 shells, most of them broken and battered. The smaller, more solid shells survived best, with *Bithynia tentaculata* representing 40% of the total followed by *Theodoxus fluviatilis* at 29%, so the more fragile shells are probably underrepresented. Nevertheless, a minimum of 24 species was recorded, including many juveniles and comprising 15 species of freshwater gastropods, at least six species of freshwater bivalves (no attempt was made to identify the *Euglesa* to species), and three species of land snails (table 1).

SPECIES	No.	SPECIES	No.
Freshwater snails		**Freshwater snails** cont.	
Theodoxus fluviatilis	626	*Gyraulus acronicus*	51
Viviparus viviparus	25	*Planorbarius corneus*	1
Bithynia tentaculata	889	**Freshwater bivalves**	
Valvata piscinalis	310	*Anodonta anatina*	1
Lymnaea stagnalis	4	*Unio tumidus*	4
Ampullaceana balthica	45	*Pisidium amnicum*	10
Radix auricularia	8	*Euglesa* spp.	20
Planorbis carinatus	25	*Sphaerium corneum*	81
Planorbis planorbis	32	*Sphaerium rivicola*	1
Ancylus fluviatilis	3	**Land snails**	
Anisus vortex	4	*Cochlicopa lubrica*	2
Bathyomphalus contortus	1	*Vallonia pulchella*	3
Gyraulus albus	9	*Trochulus hispidus*	39

table 1: Shells recovered from approx. 1 litre of deposit containing medieval pottery.

The freshwater species are indicative of a wide range of riverine habitats in the vicinity. The exact position of Wallingford's ford has yet to be determined but in the past the river here was notorious for its numerous eyots and reeded shallows, quite different from the almost 'canalised' and dredged Thames of today. The outfall of the castle moat was 65 m upstream, and this and a number of mill leats and weirs would have combined to offer more variety of freshwater habitats – slow-flowing shallows, deeper and faster-flowing channels, vegetated margins, ditches and wetlands – than exist today. This is reflected in the shell assemblage, which represents a period of relatively high molluscan biodiversity in the Thames. Most notable among the species present was *Gyraulus acronicus* (figure 3), which comprised about 40% (51 of 126) of the shells of the eight species of Planorbidae identified. This species is now extremely rare and known only from the Upper Thames and some tributaries; it may already be extinct (Rowson *et al*. 2021).

figure 3: *Gyraulus acronicus* recovered from the shelly deposit (scale in mm). (Photo: Peter Topley)

Reference

Rowson, B., Powell, H., Willing, M., Dobson, M. & Shaw, H. (2021) *Freshwater snails of Britain and Ireland*. Telford: Field Studies Council Publications.

A scalariform *Planorbis carinatus*

Adrian T. Sumner

figure 1. A scalariform specimen of *P. carinatus* found in a reservoir near Hopetoun House, West Lothian, with the same specimen showing how the rest of the shell has developed at an angle to the protoconch.

In May 2021 I visited a reservoir near Hopetoun House in West Lothian, Scotland. It was not a rich site and apart from *Planorbis carinatus*, which was quite common, I only found a single specimen of *Gyraulus albus* and a pea mussel. Then I netted a strange conical shell that I didn't recognise; it resembled no freshwater snail that I was aware of and didn't look like a terrestrial snail that might have fallen in the water. Eventually I realised what it must be – a scalariform specimen of *P. carinatus* (figure 1). The shell of this individual was about 6.2 mm in diameter at the base and 2.5 mm at the apex; the height of the shell was 8.6 mm. A typical normal shell of *P. carinatus* from the same site was about 12.25 mm in diameter, and a very rough calculation suggested that the volume of the scalariform shell was significantly smaller. The apex of the shell was at an angle to the rest of the shell (figure 1, left); or perhaps one should say that the rest of the shell was at an angle to the apex, since the protoconch was evidently coiled in one plane as expected for a planorbid snail, but the subsequent growth of the shell was aberrant. (Note that, anatomically, planorbid snails are sinistral but carry their shells as if they were dextral; therefore what I have referred to as the 'apex' of the shell is really the underside (Rowson *et al.* 2021).)

I was able to keep the scalariform *P. carinatus* for a few days, along with some normal specimens. The scalariform animal seemed less vigorous than the normal ones and made much less effort to climb the vertical sides of the plastic vessel in which they were contained.

The normal *P. carinatus* had pink tentacles, because of the haemoglobin in them; this was not visible in the scalariform animal, which might be the result of anaemia but possibly simply because it was a smaller animal (figure 2). After three days, the scalariform animal appeared to be dead, although the normal ones remained active for a long time. One possibility is that the scalariform animal, being unable to climb to the surface and possibly deficient in haemoglobin, simply suffocated.

The scalariform *P. carinatus* that I have described is the first abnormal planorbid I have found, although I must have seen thousands of normal ones. Nevertheless, shell abnormalities in planorbids are relatively common (although books on freshwater snails are remarkably reticent on the matter!). As far back as 1767 abnormal shells were observed in planorbids (Sykes, 1905), and subsequent reports are too numerous to mention them all. Sometimes authors refer to individual specimens and sometimes to whole populations of abnormal planorbids. Piré (1871) described many abnormalities in planorbids from a Belgian lake (figure 3); he referred to them as '*Planorbis complanatus*', which is now regarded as a synonym of *P. planorbis*, although his illustrations do not show the keel characteristic of shells of that species. Stubbs (1898) described numerous varieties of '*Planorbis spirorbis*' (presumably *Anisus leucostoma*) from a ditch in Tenby, South Wales, where they formed about 2% of the population. As well as many scalariform specimens, many other abnormalities were present (figure 4). Some of

figure 2: The scalariform specimen of *P. carinatus* with a normal one. Haemoglobin is visible as a pink colour in the tentacles of the normal snail but appears to be absent from the scalariform one.

the shell forms are grotesque. Populations of planorbids with abnormal shells are still being reported, and Clewing *et al.* (2015) have described 'corkscrew-like' shells from a lake in Tibet.

There appears to be no evidence that any of the abnormalities referred to above are heritable, but the studies of Franz Hilgendorf from 1863 onwards on the fossil planorbids of the Steinheim basin in southern Germany showed that planorbids with unusual shell shapes can actually form new species. As well as typical planorbid planispiral shells, there were corkscrew-shaped shells, loosely coiled shells, shells with ribbing and shells with a conical shape. Unlike the abnormal specimens described in previous paragraphs, these varieties occurred consistently in specific layers of sediment in a consistent sequence, and are regarded as good species (Rasser, 2013). Moreover, Hilgendorf was able to construct an evolutionary tree, the first ever to be produced using palaeontological data.

What causes some planorbid shells to become scalariform or distorted into strange shapes? This begs the question of how a normally shaped shell develops. The curvature of shells approximates to a logarithmic spiral, as exemplified by the Conchological Society's current logo. This does not explain how the shape develops. Hutchinson (1989) proposed that the developing shell followed the previous whorl, and that if there is a keel or shoulder on the previous whorl growth followed this; he described it as the 'road-holding' model. However, although there has been a large amount of theoretical work on the development of gastropod shells, I have been unable to find anything that might help to understand why the development should go so wrong in

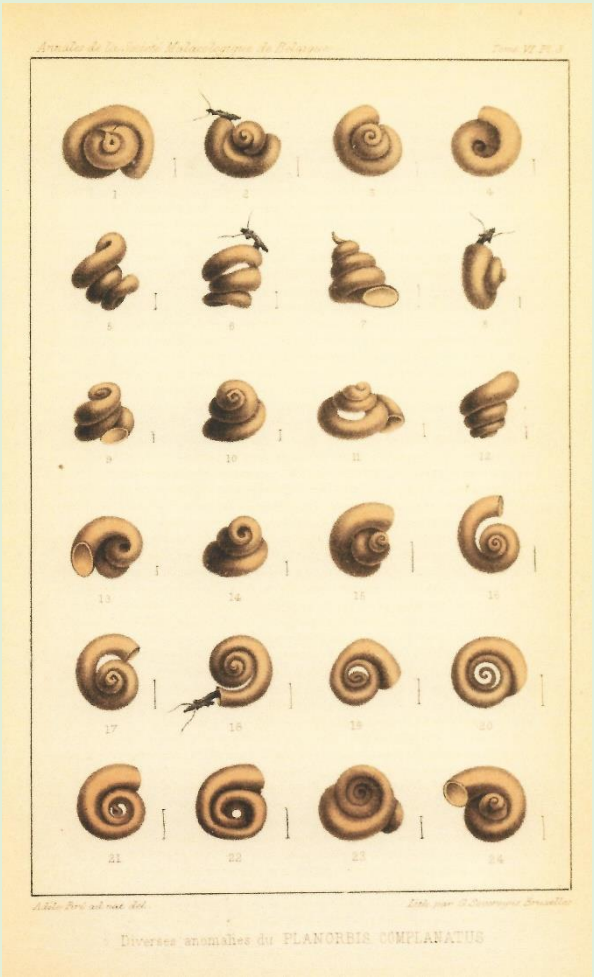


figure 3: Abnormal planorbids from a lake in Belgium, described by Piré (1871) (plate 3).

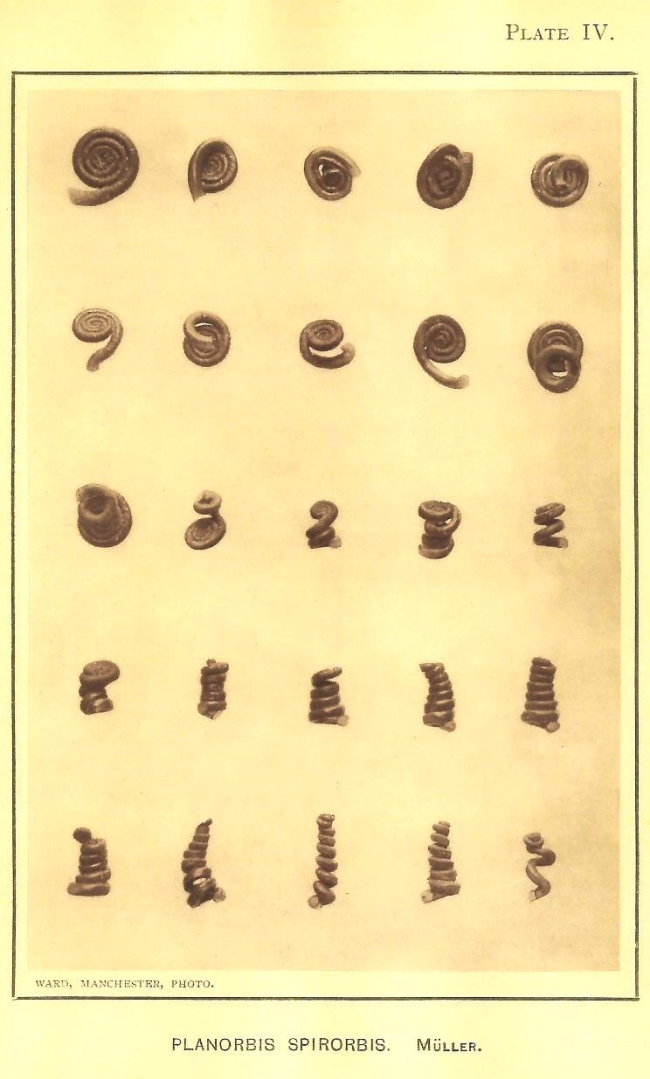


figure 4: Abnormal planorbids from a ditch at Tenby, South Wales, described by Stubbs (1898) (plate 4).

Various factors have been suggested that might cause the development of strangely coiled or uncoiled shells. Some sort of environmental stress has been proposed in the case of the planorbids of the Steinheim basin, and for the Tibetan planorbids studied by Clewing *et al.* (2015).

As far back as 1884, Tryon, quoted by Winslow (1926), wrote: 'The plan of the spiral of this genus [*Planorbis*] is such as to yield readily to pressure; hence monstrosities are rather frequent. They consist of a tilting up of the whorls on one side, or even a conical elevation of the spire'. Stubbs (1898) suggested that the production of abnormal shell forms might be connected with the drying up from time to time of the ditch in which the snails lived. Shells would become distorted by being dragged through the drying mud. Checa & Jiménez-Jiménez (2007) attached small weights to growing planorbid shells and thereby produced abnormal coiling. It is, perhaps, not too difficult to imagine that when immature planorbids are dragging their shells through glutinous mud, they might experience asymmetrical forces on their shells, leading to distorted growth. Nevertheless, I haven't found any convincing evidence that this is a general cause of abnormalities in planorbid shells. Many other causes of abnormal shell development have been suggested, such as genetic aberrations, embryological disturbances and a variety of environmental effects. Almost certainly, different mechanisms are likely to operate in different cases.

References

Checa, A.G. & Jiménez-Jiménez, A.P. (2007) Regulation of spiral growth in planorbid gastropods. *Lethaia*, **30**: 257–269.

Clewing, C., Riedel, F., Wilke, T. & Albrecht, C. (2015) Ecophenotypic plasticity leads to extraordinary gastropod shells found on the 'Roof of the World'. *Ecology and Evolution*, **5**: 2966–2979.

Hutchinson, J.M.C. (1989) Control of gastropod shell shape; the role of the preceding whorl. *Journal of Theoretical Biology*, **140**: 431–444.

Piré, L. (1871) Notice sur la *Planorbis complanatus* (forme scalaire). *Annales de la Société malacologique de Belgique*, **6**: 23–26.

Rasser, M.W. (2013) Darwin's dilemma: the Steinheim snails' point of view. *Zoosystematics and Evolution*, **89**: 13–20.

Rowson, B., Powell, H., Willing, M., Dobson, M. & Shaw, H. (2021) *Freshwater Ssnails of Britain and Ireland.* Telford: Field Studies Council Publications.

Stubbs, A.G. (1898) Observations on abnormal specimens of *Planorbis spirorbis* and other freshwater shells at Tenby. *Journal of Conchology*, **9**: 106–108.

Sykes, E.R. (1905) Variation in recent Mollusca. *Proceedings of the Malacological Society of London*, **6**: 253–271.

Winslow, M.L. (1926) The varieties of *Planorbis campanulatus* Say. *Occasional Papers of the Museum of Zoology*, **180**: 1–9.

Snail carving

A large carved wooden snail at Juniper Hall Field Centre, near Dorking, Surrey in September 2007 but the optic tentacles are missing. It is still present (2019) although further weathered and repositioned outside the ice house in the grounds. Near the ice house a real Roman Snail (*Helix pomatia*) crawls along the top of the orchard wall on a damp afternoon in May 2012.

June Chatfield

Shell art at Houghton Hall, Norfolk

Peter Topley

Whilst my wife and I were on a short trip to Norfolk in July 2021 we visited Houghton Hall, which frequently hosts exhibitions of modern art. An exhibition entitled 'Rock Paper Scissors' included some 'shell art' by Carolyn Brookes-Davies. Carolyn moved to the North Norfolk coast in 2003, having spent the previous 25 years as a fashion designer in London. The theme of the impact of human activity on nature is present throughout Carolyn's work. She uses combinations of recycled paper, seashells, wood and metal, aiming to 'utilise the intrinsic qualities of the material and processes to evoke thoughtful, calming and surprising associations. Her chosen medium of shell has led to scrutiny of all that implies and recent works examining protection and susceptibility, enclosure and exposure could not be more poignant in the current environment'.[1] However, her art also seemed to rework some of the nostalgia of the shell work of previous centuries.

Some examples of the artist's work from the exhibition, (often using local shells such as *Mytilus* and *Spisula* as well as more exotic species) are shown here.

figure 1: Large Shell Box, 2021. Mixed shells.

figure 2: Shell Box, 2021. Mixed shells.

figure 3: Shell Mirror, 2021. Shells, vintage mirror.

figure 4: Pearl Sand Pot, Metal Rim, 2020. Shells, sand and wire frame.

figure 5: Pair of Candlesticks, 2021. Mixed shells (one of the pair shown).

Acknowledgements
My thanks go to Paul Vater of Contemporary and Country for permission to photograph the exhibition and to Carolyn Brookes-Davies for her consent to include these images of her work.

[1]https://www.contemporaryandcountry.com/artists/92-carolyn-brookes-davies/works/

The Conchological Society joins Twitter

Mags Cousins

figure 1: From the Conchological Society's Twitter profile page.

If you are a Twitter user you may have noticed that the Conchological Society has opened a Twitter account: @conchsoc (see figure 1 for a snip of our profile page). If you are not a Twitter user you may wonder what is the point?! The main utility of social media is the wide reach the platform provides to a global community, in this case of all things molluscs, with whom we can share news, research findings, engage and educate (figure 2), advertise talks and conferences, and notify people of grant and job opportunities, or just enjoy general mollusc related chit chat.

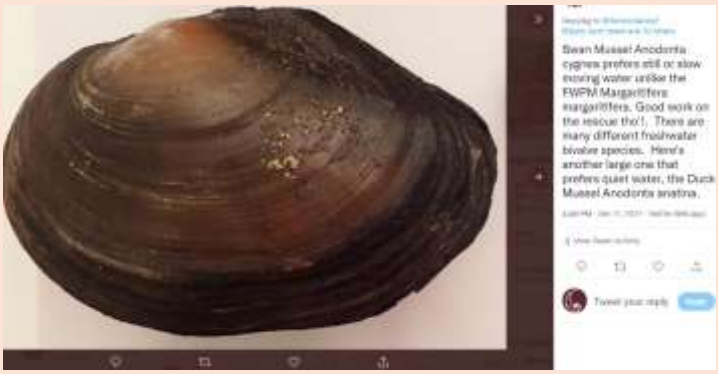


figure 2: Example of a Twitter communication.

The trick of Twitter is to communicate something of interest, in nothing more than short messages called 'tweets', usually with a compelling image to grab the attention of the user who then reads your tweet, and then maybe engages with you or others about the content. They might 'like' it, or 'retweet' it so their followers see it too, or maybe even ask a question, thereby starting a conversation and thus your network grows, facilitated by the computer algorithm. This works in such a way that the more you 'like' and 'follow' people and topics, especially when using hashtags (#), the more you will see of these, so your network of like-minded contacts grows. It goes without saying that our interaction is limited to appropriate, relevant and uncontentious content and mollusc enthusiasts are starting to reach out to us (see figure 3).

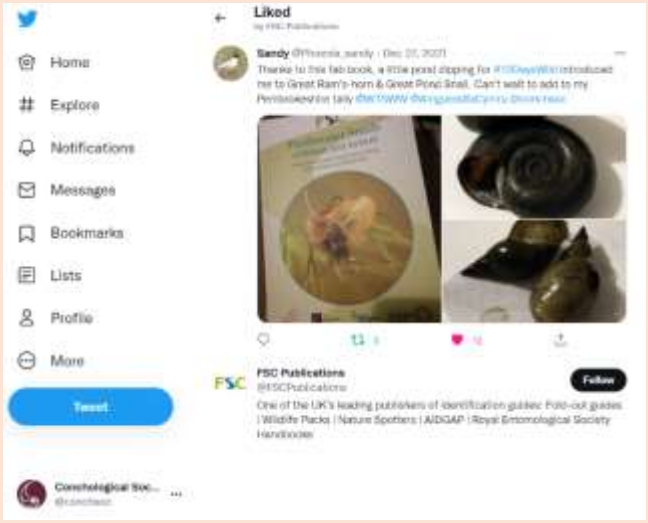


figure 3: Tweet about recent FSC Freshwater Snails guide.

The Conchological Society opened the twitter account in autumn 2020 and since then we have tweeted our online talks which has encouraged participation; tweeted about interesting new records and joined in with #MolluscMonday which is basically an excuse for tweeting an image of a mollusc with a snippet of information about it (figure 4). We are finding it a useful and entertaining conduit for interaction with members, malacologists and conchologists all over the world, hearing about their research and conservation work and seeing some fabulous images of beautiful molluscs. Feel free to join in, use mollusc related hashtags, follow us and tag us @conchsoc.

figure 4: Example from #MolluscMonday.

Letters to the Editor

Mystery objects attached to *Cornu aspersum*

This picture was taken in my garden last night [October 2021]. Does anyone have any idea what is on this snail? It was coming from the side of the outside of my house where there is a drain area but also lots of debris from my windy garden often blows there. I do have bushes with berries, though none that colour I don't think.

Diane Bamford

Comment from Ben Rowson, Hon. Non-marine Recorder:
I have never seen anything like that on a snail! Are they really berries? They seem quite irregular in size, but otherwise look a bit like the weevil pupae I get in large numbers on figwort in my garden. I hope they are not flatworm cocoons, which I have never seen myself, but I believe can look similar.

Gibbula species from Cyprus

We are respectfully disagreeing with the identifications of the *Gibbula* species shown in the photographs in the 'Marine molluscs from Cyprus' note* in *Mollusc World* **57**: 26 **(**November 2021).

In our opinion, the shell in figure 1, and also the shell in figure 37 of your 'Molluscs in North Cyprus' article in *Mollusc World* **56**: 11–17, are both *Gibbula ardens* (Salis Marschlins, 1793). In other words, your original identification was correct. Moreover, the shell in figure 2 in the November note is *Steromphala nebulosa* (Philippi, 1849), previously *Gibbula nebulosa*.

For comparison, attached is a photo (figure 1) of a specimen that we have identified as *Gibbula albida* (Gmelin, 1791) from Alaçati on the western coast of Turkey. This species often has its umbilicus covered, but umbilicated forms are also present as is this particular shell.

Further information about these species is available at the following pages:

Gibbula ardens
http://www.idscaro.net/sci/04_med/class/fam3/species/gibbula_ardens1.htm
http://www.conchigliedelmediterraneo.it/shell.php?classe=Gastropoda&fam=Trochidae

Gibbula albida
https://en.m.wikipedia.org/wiki/Gibbula_albida#
http://www.idscaro.net/sci/04_med/class/fam3/species/gibbula_albida1.htm
https://www.researchgate.net/publication/322600075_Premier_signalement_du_gasteropode_Gibbula_albida_Gmelin_1791_sur_les_cotes_finisteriennes_ouest_Bretagne

Steromphala nebulosa
http://www.idscaro.net/sci/04_med/class/fam3/species/steromphala_nebulosa1.htm

We will take this opportunity to thank you for the always enjoyable articles in *Mollusc World*.

Aydin Örstan
Germantown, Maryland, USA

Panayotis Ovalis
Athens, Greece

figure 1: *Gibbula albida* , Alaçati, Turkey.

* The author of the note in response to my original article, Adrian Brokenshire, is happy for this response to be included here, whilst remaining in disagreement on some aspects of the identification. Identification of *Gibbula* species from this area appears to be tricky but has at least encouraged some debate! [Ed.]

Letter to the Editor: is it dangerous to let your mind wander?

Dear Peter

I first joined the Conchological Society when a student at Avery Hill College of Education in Eltham. I was very shy as I only knew about a dozen marine species and three terrestrial ones. I quickly moved to Liverpool and was 'adopted' by Mrs Mac [Nora Macmillan]. I can remember the then Conch. Soc. president, Terry Crowley, introducing me to an equally young John Llewelyn-Jones as I had some unknown tiny marine shells from the beach at Ryde on the Isle of Wight. That was my introduction to the Rissoidae.

Because I also smoked a pipe, Tom Pain and I really got along. We would spend quite some time talking about tobaccos we had tried since we last met. I can remember Tom coming into a meeting one day absolutely full of beans as he had just tracked down and bought a copy of Born [*Testacea Musei Caesarei Vindobonensis*, 1780]. I can also remember his joy when Tebble had published his book [*British bivalve seashells*, 1966] and Tom exclaiming, 'He has drawn the same shell twice!' – a reference to the genus *Acanthocardia*. I still cannot remember which species is the same shell drawn twice.

I always called Bert Biggs, 'The Reverend Biggs' – I was petrified of him – yet he was always kindness itself and would often seek me out for a chat. On one occasion I came down from Liverpool with Mrs Mac to attend a Conch. Soc. meeting. By pre-arrangement I bought an old brass microscope from him. This must have been about 1967. I paid him what he had bought it for – either £2 10 shillings or £7 10 shillings, I cannot remember which. He was pleased to sell kit to an interested party and was also pleased to pass on to me a low power lens that gave me x10 magnification.

This microscope was quite something. It had single objective lenses in a turret that would hold two and binocular eye pieces. There was a range of objective and eye piece lenses in brass tubes. Two outstanding features were its stage – this had knurled knobs that controlled worm drives so that you could move the specimen being viewed in any direction – and a most unusual sub-stage condenser. This was a brass tube on the top of which was mounted a domed lens. The top centre of this lens had a conical cavity in it within which sat a disc. Attached to the underside of the disc was a rod that went downwards to beyond the base of the mounting tube. This was a form of light control through the substage condenser.

A few years ago I mentioned to a friend at the Dorset Geologists' Association Group that I wanted to get rid of this old microscope. Doreen said that she would try to sell it for me but there would be a price. I said my price was anything above £7 10 shillings, but she meant a price for her services. She used the manufacturer's information on the microscope and also on the lenses and the boxes that held them. Yes, it was a cobbled together collection of bits and pieces but Doreen was convinced it was worth serious money. Having done her research, she auctioned my microscope online. Bids came from all over Europe and even the USA. The eventual owner was a German who paid Doreen £1,500 plus the cost of manufacturing a secure crate for its transit to Germany. That was some return on Bert's generosity.

Over the years I have often thought about the Reverend Biggs and as to why he frightened me. It was simple – he always seemed to be at least two feet taller than myself and always met me with a gigantic smile. Not many people have always been so pleased to see me.

The Reverend Biggs and Tom, along with Terry Crowley, were close on the last of their generation of exceedingly competent conchologists. Perhaps Mrs Mac was the last of that generation…

For a reason that escapes me, a while ago I wanted to refer to my old, well abused copy of Winckworth's List (Winckworth, R., 1932, *Journal of Conchology*, **19**(7): 211–252). That set me wondering about what had happened to his collection. Several months later, by idle chance I was browsing through back copies of the *Conchologists' Newsletter* when I discovered Mrs Mac's account (McMillan, N., 1997, **141**: 823) of the loss of the by far greater part of his collection during World War II. Eventually some ancient memory returned. I can recollect one Saturday afternoon when I was a volunteer worker in the Mollusca Section of the City of Liverpool's Museum asking Mrs Mac the same question. I can remember her answer, 'It is not worth the effort looking, for so little remains. It would have all been in our collection today if the authorities had stored it in a safe place, as I had asked. It was largely destroyed by the bombing during the War.'

I located the Liverpool Museum entry on *Mollusca Types in Great Britain* [https://gbmolluscatypes.ac.uk/collections]:

> 'The Mollusca collections currently comprise around 25,000 lots of specimens, held at the World Museum in central Liverpool. The collections were much larger before a firebombing raid in 1941 which unfortunately destroyed the majority of the collections built up through the 19th and early 20th centuries … R.E. Winckworth's (1884–1950) collection of British Marine Mollusca was one of the most complete ever formed and specimens rescued after the raid remain a large element of the museum's marine holdings.'

Accompanying a brief description of the molluscan collection is a photograph of one of the drawers. The contents look just how I remember them from all those years ago.

I also found the concise description of the collection within the website for National Museums Liverpool [https://www.liverpoolmuseums.org.uk/shells-and-other-invertebrates] headed: 'Shells and other invertebrates', which includes the following:

> 'A small part of the huge H.C. Winckworth [brother to R.E.] British Marine Shell Collection was also saved and is still the major component of the British marine species.'

Within this Mrs Mac was most upset at the loss of the type material for two species.

I appear to have answered my question myself. I may well have handled some of the Winckworth material without realising it when accessing the specimens from the Bootle Museum Collection and including them in the main collection at Liverpool.

David Harfield

Memories of Thora Whitehead (1936 – 2021)

Simon Taylor

figure 1: Thora Whitehead looking at her part of a display on female collectors exhibited in the Queensland Museum in 1997. (photo: supplied to the author by Thora in June 1997).

It was very saddening to hear of the death, on 30th September 2021, of Thora Whitehead (figure 1). She was a long-standing member of the Conchological Society despite residing for many years in Brisbane, Australia, having emigrated there with her husband and young family in the 1960s.

I wrote to Thora in the early 1980s when, as a junior member of the Society, I noticed she listed *Haliotis* as one of her special areas of interest on the membership list. Not only did she take the trouble to reply, she also sent some specimens of *H. varia* (which I still have) and provided ample excellent advice on how I might develop my conchological interest and knowledge. She seemed so well-informed and friendly that I wrote back, again with a myriad of questions – some of which must have seemed quite basic and naïve – and we continued to correspond regularly for the rest of her life.

Looking back at her first letter, Thora described herself as a '47-year-old mother of three' and also as a 'shell addict' whose shell room was already overfull (a recurring theme in her letters). Born in Chile, she was mostly brought up in Trinidad, then schooled in England. Upon marriage, she and her husband John spent some years in Tanzania (as a result of which she claimed to have once been fluent in Swahili) before returning to England and thence, as a consequence of John's work with ICI, to Australia. She very much settled into family life once ensconced in Brisbane, although always busying herself with collecting and studying seashells. Over the years her reputation spread and she met and befriended many of the famous names in conchology from the latter half of the 20th century. Most will recognise her name from her collaboration with Kevin Lamprell on the book *Bivalves of Australia Volume 1* (Crawford House Press, 1992) and perhaps also for naming the pleurotomariid *Bayerotrochus westralis* (Whitehead, 1987) (figure 2), something which she modestly maintained was achieved almost by accident. She was heavily involved in the Shell Club scene in Australia and attended many of their events, as well as joining regular boat trips out to various sites in the Great Barrier Reef to collect and study specimens. Thora was at pains to advocate the parallels between shell collecting as a hobby and as a means of studying molluscan populations to ensure their health and sustainability, to which end she was involved as a volunteer at the Queensland Museum and spent many years as a marine invertebrate specialist on the state government's Harvest Management Advisory Committee.

Re-reading our early correspondence, I am amazed by how accommodating and understanding Thora was. In the early days we wrote almost monthly and discussion strayed from shells to include all manner of subjects from school work, sport, music and even the tribulations of teenage spots! Whatever the topic, Thora was engaging and enthusiastic. To the best of my knowledge she only visited the UK twice since 1983 and both times it unfortunately proved impossible for us to meet because I was caught up in student fieldwork and suchlike. We finally met in 2004 when I was able to visit her in Brisbane. The mischievous twinkle in her eye immediately tallied with the character I had come to know through our extensive correspondence. Over a short few days she introduced me to several other conchologists in Brisbane and conducted an extensive tour of that decidedly overfull shell room; we even had an opportunity to explore some of the local shores too.

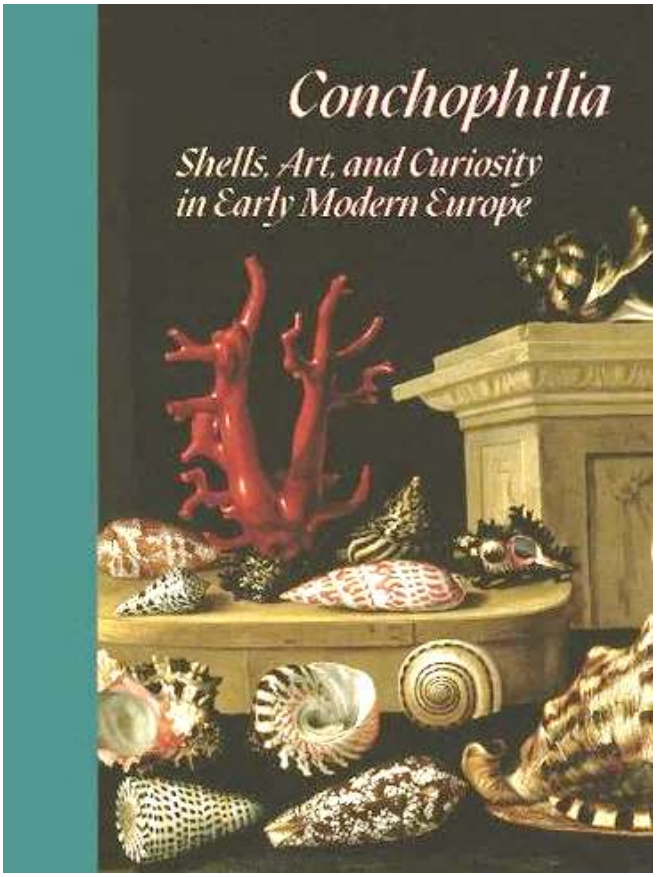
I visited her again in 2015, by which time her health was beginning to fail and she was having thrice-weekly hospital visits for dialysis, but the twinkle remained and she was clearly still very happily working on her collection and maintaining her correspondence with shell enthusiasts all over the world (she never adopted digital facilities and although she typed the vast majority of her letters on an old manual typewriter, those over recent years were hand-written). As time wore on she took the plunge and decided to donate her entire collection to the Queensland Museum (see *Mollusc World*, December 2020, **54**: 17). During the accessioning process a new species of volute – *Amoria thorae* Healy, 2019 – was recognised and described in her honour, two of the paratypes being specimens from her collection. It is the most recent of several species named in her honour over the years. The story even made the national TV news in Australia (see https://tinyurl.com/2zths2jd).

I will always be grateful for the help, advice and encouragement Thora offered me over the years of our friendship, and I endeavour to follow the example she set. Shell collecting may be falling slightly out of fashion as a hobby now but Thora demonstrated fully the benefits and fulfilment which can be gained from it.

figure 2: *Bayerotrochus westralis* (Whitehead, 1987). (Photo: Shellnut, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=17490393)

Book Review: *Conchophilia: Shells, Art, and Curiosity in Early Modern Europe*

By Marisa A. Bass, Anne Goldgar, Hanneke Grootenboer, Claudia Swan and contributors.
Princeton Press 2021, 214 pages, 84 figures in colour, ISBN 9780691215761. Price from £28.75 (02/2022).



Last year I was pleased to pick up a copy of this book 'hot off the press' in the shop of the Harley Gallery on the Welbeck Abbey estate near Worksop, home of the Duke of Portland, because Margaret, Duchess of Portland (1715-1785) of Bulstrode Park in Buckinghamshire, is remembered for amassing a huge and significant natural history collection, particularly shells, which was worked on by herself, Daniel Solander and Revd John Lightfoot. The whole collection was sold and dispersed after her death and The Portland Museum next to the gallery exhibits a rare copy of the sale catalogue. The sale does get a mention in this book, relating how the shells were described in the catalogue with qualitative judgements applied to the shells as 'works of art' alongside other collectable items of the time, such as prints. However, the focus of the book is mainly on continental northern Europe and the impact that the interest and trade in shells had on the visual arts.

Including the introduction, the book consists of a series of seven 'essays' split into three sections with rather enigmatic titles (Part I: *Surface Matters*; Part II: *Microworlds of Thought* and Part III: *The Multiple Experienced*). They consider how, with the increasing influence of Europe in the world (including its exploration and exploitation of places, peoples and products) the influx of exotic shells fuelled their desirability, study and depiction in the arts. This reviewer finds it unfortunate that the authors have chosen to 'coin' yet another word to describe the 'passionate engagement with shells': *Conchophilia* (although the word 'conchophile' has been used informally before). This aside, the book takes a fascinating look at how people of the time interacted with shells, from their investigation and depiction in the early years of natural history to their use by artists in painting, elaborate nautilus cups, shell-encrusted grottoes and dolls houses. Some of these themes have been addressed by other authors in the past (for example, by Ingrid Thomas in *The Shell: a World of Decoration and Ornament* (Thames & Hudson, 2007)) but there are interesting topics in the present volume which have not often been covered, such as the role of shells as currency in the slave trade, the place of shells in still-life tableaux and the connections between their forms and the human body.

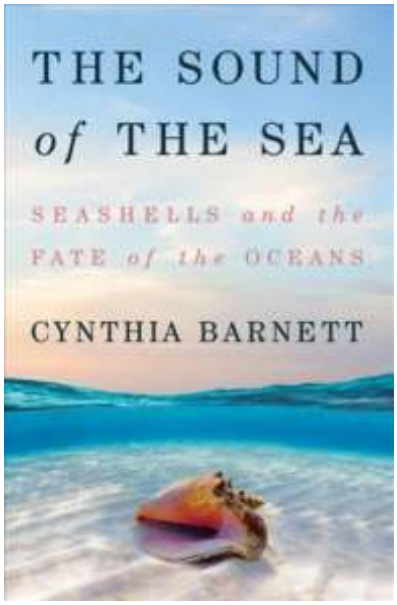
At a recent 'travelling' exhibition of Rembrandt prints from the Ashmolean Museum at the North Hertfordshire Museum in Hitchin, I was pleased to see included his only still life, *The Shell*, an etching of *Conus marmoreus* that is famously depicted in reverse because Rembrandt drew from it directly onto the copper plate. Stephanie Dickey, in her chapter in this book entitled *Shells, Prints and the Discerning Eye*, reminds us that Rembrandt was the owner of a 'renowned curiosity cabinet'. She uses the print as an illustration of the connection between the desirability and collecting of shells and prints in the 17th century. Rembrandt himself bid at the 1637 auction of the estate of the painter Jan Bassé, paying 11 guilders for a conch shell which was apparently 'the highest recorded price for a single shell in over forty years of Amsterdam auctions'. He also purchased an engraving after Raphael for about the same amount, but by 1657 Rembrandt had been declared insolvent.

The book is very well illustrated with excellent colour figures of paintings, engravings and objects, some of which may be familiar whilst others (such as the shells depicted in the 16th century *Triptych of St. Christopher, St. Jerome and St. Anthony* or the late 17th century *East Indian Art Cabinet with Miniature Shell Collection* from *The Dollshouse of Petronella Oortman*) less so, but therefore all the more fascinating. There is a good bibliography and index.

In a relatively slim volume, considering its remit, *Conchophilia* covers a time of remarkable global change and the ways in which shells were circulated, painted and drawn, collected and valued during this period. As one of the authors, Marisa Bass, puts it: 'In their manifold artifice and complex histories, shells are too restless to be held in place by symbolic meanings or fixed interpretations. They are, in art as in nature, the ultimate curiosities.'

Peter Topley

Book Review: *The Sound of the Sea: Seashells and the Fate of the Oceans* by Cynthia Barnett
W.W. Norton & Co., 2021, 417 pages, ISBN 9780393651447. UK Price approx. £17.00 (HB) or £12.50 (PB, due August 2022)



Hardback cover

In this wide ranging book the author, an environmental journalist, takes us from the earliest known biomineralised fossil, an 800-million-year-old 'precursor' of the Mollusca, to the present day with all the varied threats to the oceans and the life, molluscs included, they support. The book has many facets: there are forays into the fossil record of molluscs and their survival of previous mass extinctions; numerous accounts of human uses of shells from prehistoric times to today; diversions into literature, both prose and poetry, and into the lives of people connected with shells – collectors, authors and scientists of the past and present; and excursions into economics with the origin of the Shell petrol company and the use of cowries as currency. In short, this book has something of interest for everyone, whatever their personal interest in shells.

With its twin themes, summed up in the book's subtitle 'Seashells and the Fate of the Oceans', it would have been easy to place to much emphasis on shells or too much emphasis on the environmental side. For me, the balance is overall well judged.

One of the strengths of this book, from a British perspective, is the inclusion of information from American sources which may be less familiar and as a result all the more welcome. For example, in the section on shell trumpets the focus is on *Titanostrombus galleatus* used in the ancient temple complex at Chavín de Huántar in Peru, while the widespread use and importance of *Sinistrofulgur sinistrum* to the native peoples of North America, and their 'Great Cities of Shell', make fascinating reading.

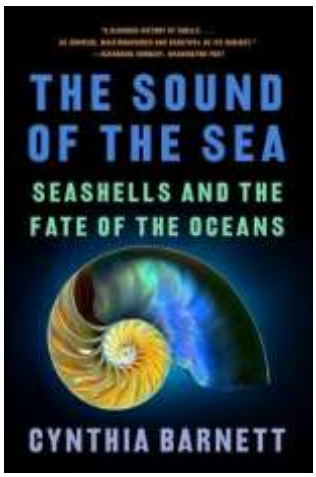
I was pleased to read the account of Erasmus Darwin (grandfather of Charles) adding the motto *E Conches Omnia* ('everything from shells') to his coat of arms, and the uproar this caused. I had heard the story before, but not seen it in print.

In the account of the precious wentletrap, and the now discredited story of rice paste forgeries, we read: 'A London shell shop owner was sure he had a rice-paper fake in the mid-twentieth century … when he died, he left two surprises. The fake was proved a real precious wentletrap. And the shell shop's owner was proved a fake; he was a Nazi fugitive'. Having known the person concerned, this greatly upset me, and on checking the source cited (Peter Dance's *Out of my Shell*) the original description was 'A fugitive from Nazi Germany', a very different emphasis. Unfortunately, I suspect that having been printed this calumny will be as difficult to eradicate as the myth of the rice paste forgeries.

Beyond a one-page drawing at the start of each chapter, attractive but not very helpful, this book is not illustrated. There are many points where it would have benefitted greatly from the inclusion of some photographs. Whether reading of Lucy Say drawing, colouring and engraving plates for her husband Thomas' *American Conchology*, or the author's description of a photograph of Julia Rogers (author of *The Shell Book*) traced through family members, or the description of Mayan images of the queen conch used as 'weapons for hand-to-hand fighting', one wanted to see the images referred to. While for those less familiar with shells, some photographs of species mentioned would have been useful.

The text finishes on page 342. There follow some acknowledgements, 53 pages of references and a 15-page index. The references would be more appropriate for an academic volume rather than one, presumably, intended for a general readership. Unless one reads the references in parallel with the text (I did), I suspect they will be largely ignored. In the acknowledgements the author writes: 'When this project became unwieldy, I decided to forgo shellfish and concentrate on seashells'. For me, the section on the *Galatea paradoxa* fishery in Ghana is one of the most interesting parts of the book, and I cannot help wondering how many other shellfish stories could have been included if the 53 pages of references had been replaced with a simpler, more user-friendly, two- to three-page bibliography of major sources with 50 pages devoted to further text.

This book has much to recommend it, even for those very knowledgeable about conchology in all its aspects. There will be areas and themes which are new, while more familiar subjects often have added information or recent discoveries included. I wish, though, that it had been photographically illustrated – that could have made a good book into a great one.

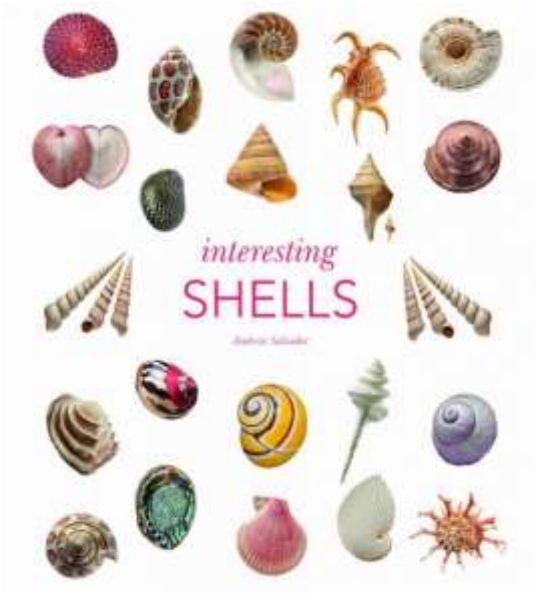


Paperback cover

Kevin Brown

Book Review: *Interesting Shells* by Andreia Salvador.

256pp, Natural History Museum, 2022, hardback. Colour illustrations. 150 mm x 177 mm, UK £12.99, ISBN 9780565095109.



As a teenager (many years ago), I purchased a set of postcards from what was then the small shop in London's Natural History Museum (NHM), each of which depicted a tropical marine shell from the museum's collection. That set of cards was one of the elements that first nurtured my interest in molluscs. This attractive new book, published by the same museum and written by its senior curator of marine Mollusca, might easily be the modern equivalent; perhaps as a gift for someone to spark or grow an interest in this fascinating phylum.

The (relatively small format) book consists of 121 full page colour images (sometimes across two pages) of shells from the museum's collection, accompanied by a paragraph of information with the addition of two brief statements giving the species' known range and the largest dimension of the illustrated specimen. In the introduction, the author gives a brief, simply worded overview of what shells are, their components, how they are formed and the classes of living molluscs.

'Interesting' representatives of each of the major classes of molluscs are included (although there is only one chiton and one scaphopod), and the species are not exclusively marine nor tropical. For example, the selection includes, perhaps not surprisingly, several cowries, but also species found in the UK such as *Cepaea nemoralis* and *Littorina obtusata*. A common name of each species is used, although scientific names are also clearly given (without author citations). This is also true of the index, which is in common name order.

This book is not primarily an identification guide, so that the paragraph accompanying each plate is often not a description of the species, but some other information, which might include the animal's habitat, behaviour, uses by man, historical associations and environmental concerns. This is the most interesting aspect of the book and would make it an ideal occupant of a coffee table, to pick up, browse and perhaps learn something new.

It is hard to pick just a few of the many thought-provoking pieces of information that are included in this book. Some facts are fairly well known, such as the fake shell story relating to the precious wentletrap (*Epitonium scalare)*, or that of the desert snail (*Eremina desertorum*) that revived after four years being glued to a wooden display tablet in the British Museum. But other examples include the red fluorescence of the strawberry top shell (*Clanculus pharoensis*), species that nurture symbiotic algae or bacteria, the reasons for chiral dimorphism in *Amphidromus* snails, sex changes in West Indian worm shells (*Vermicularia spirata*), and how many millions of kilograms of land snails the Portuguese eat every year!

Occasionally, if space had been allowed, some more detail may have added further interest. For example, the paragraph next to the image of the endangered amber snail (*Powelliphanta hochstetteri*) from New Zealand does not mention that their delicate shells consist of a very thin layer of calcium carbonate, covered by a thicker chitinous outer periostracum. A moist environment is required to avoid the shells shrinking and cracking, which sometimes happens during storage in museum collections.

Marine molluscs are particularly affected by environmental change, including pollution and global warming. The author includes as an example *Clio pyramidata*, a pelagic pteropod or 'sea butterfly', a constituent of the plankton, the transparent shells of which are particularly vulnerable to rising carbon dioxide levels and which have been proposed as a bioindicator to monitor ocean acidification.

There are a number of historical references amongst the accompanying paragraphs, for example the 17th century physician and naturalist Martin Lister and his illustrator daughters in the text accompanying the plate of Lister's conch (*Mirabilistrombus listerii*). Other topics include the HMS *Challenger* expedition of the 1870s and pioneering shell collectors, such as W.H. Benson, Hugh Cuming, Henry Godwin-Austen, Yoichirō Hirase and Sir Hans Sloane, some of whose collections form part of the huge Mollusca collection of the NHM today.

I was gratified to see that mollusc-related scientific societies have a mention, including the Conchological Society of Great Britain and Ireland under the entry for the pelican's foot shell (*Aporrhais pespelecani*). Contrary to what is stated, this species no longer forms part of the Society's logo, but it had done so for many years. Mention is also made elsewhere of the American Malacological Society (in the context of the shell of the endangered species that forms its logo, the spiny riversnail *Io fluviatilis*), and the German Malacological Society whose first journal editor, Wilhelm Kobelt, described the featured Japanese land snail *Euhadra senckenbergiana*.

The photographs are excellent throughout and are set either on black or white backgrounds. They are not intended primarily for identification purposes and some of the specimens are arranged more for artistic effect (e.g. *Melo aethiopicus* and *Conus gloriamaris*), but in the present context this is not a criticism. A brief glossary is included at the end, which curiously includes 'Malacology' but not 'Conchology'!

I would highly recommend this book as an attractive and accessible introduction to molluscs, but it is also a 'conchological chocolate box': dip in and sample its delights.

Peter Topley

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.

The Conchological Society of Great Britain & Ireland

Some key contacts (see web site [http://www.conchsoc.org/pages/contacts.php] for additional contact details)

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SUBSCRIPTIONS and MEMBERSHIP

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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. Members joining later in the year will receive all publications issued during the relevant calendar year. • 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 postage for distribution from the UK, members living in the Republic of Ireland and 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 Catherine Jagger, CIRCA Subscriptions, 14 St Barnabas Court, Cambridge CB1 2BZ, (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, Brian Goodwin.

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- 1Mb (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. Due to the Editor's availability please aim for **copy intended for the July 2022 issue to be sent to him before 20th May 2022**; 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.

A large number of *Theba pisana* (O.F. Muller, 1774) aestivating on a wooden post at Thurlestone near Bantham, South Devon. 16th September 2021.
(photo: Liz Brokenshire).

It's usually large numbers of British visitors basking in the Mediterranean sun, not Mediterranean natives enjoying the sun of South Devon!

from *Adrian Brokenshire*

Conchological Society of Great Britain and Ireland
Diary of Meetings

Continued from back cover

Saturday 10th to Thursday 15th September 2022: FIELD MEETING (marine) mid-Northumberland coast.
Leader: Rosemary Hill (0121 4431459, rosemaryhi@lineone.net) This meeting will be examining shores which have been less well recorded in the mid part of the county between Amble and Bamburgh including the area Ted Phorson worked for shell sand. Members wishing to participate should find their own accommodation in Amble or up the coast from there.

Saturday 24th September 2022: FIELD MEETING (non-marine): Queenswood Country Park, central Herefordshire (SO 5051). Leaders: **Ben Rowson** (07853 849114, Ben.Rowson@museumwales.ac.uk) and **Tim Kaye** (07980 863577, tim@clan-cic.org). Non marine molluscan recording on a joint meeting held with the NLHF supported 'Hidden Herefordshire' project. Further details will appear on the website.

Saturday 1st OR Saturday 8th October 2022: FIELD MEETING (non-marine): RHS Gardens, Wisley, Surrey.
Leaders: **Imogen Cavadino** and **Hayley Jones** (01483 226568, imogencavadino@rhs.org.uk)
Native and introduced species with a focus on several established and newly created freshwater habitats. Additionally, there may also be opportunities to explore in the gardens, glasshouses and woodland. Meet at 10.30am. Participants must contact the leader in advance, for free access to the gardens and to confirm the meeting point. Places are limited, and members of other Societies may also be invited.

October Wednesday 5th October 2022: FIELD MEETING (non-marine): Wyre Forest, Worcs.
Leaders: Rosemary Winnall (rawinnall@gmail.com) & **Rosemary Hill** (rosemaryhi@lineone.net)
Joint meeting with Wyre Forest Study Group to look for *Malacolimax tenellus* in Hunthouse Wood, Worcestershire. This is a WT reserve down some steep wooded dingles with a mixture of ancient woodland and some coal mining sites and also tufa outcrops which have not been looked at previously by the CS. Further meeting and other details will appear on the Society website

Saturday 8th October, **FIELD MEETING (non-marine): Pewsey, Wiltshire.**
Leader: Mags Cousins (07873 532681, shropshiremolluscs@gmail.com) This will be a training and recording meeting focussing on Desmoulin's whorl snail (*Vertigo moulinsiana*) and other molluscs in the fen. Meet at 10.30am at Jones's Mill, the Vera Jeans Reserve, Wiltshire Wildlife Trust, Pewsey SN9 5JN. Parking at OS Grid Ref: SU 16966 61015. Not suitable for wheelchairs and pushchairs.

Saturday 8th & Sunday 9th October 2022: FIELD MEETING (marine): Solent, Hampshire
Leaders: Bas Payne (bas.payne@gmail.com) and Simon Taylor (abmanuk@hotmail.com). A two-day meeting to work Solent shores during the October low spring tides, and also look at lagoon sites for *Cerastoderma glaucum*. Details and rendezvous t.b.a. on the website.

Saturday 15th October 2022; INDOOR MEETING with exhibits and lecture (NHM with Zoom link)
Guest speaker: Dr. Corina Ciocan (Brighton University) 'Fibreglass boats and oysters don't mix! Hazardous contaminants in the aquatic environment GRP (Glass reinforced plastic) accumulation & impact on bivalves'
14.00 –17.00 (13.45 Zoom sign in): Angela Marmont Centre, Natural History Museum, London SW7 5BD

Additionally:

Further field meetings planned opportunistically, often at short notice, may be posted onto the Conchological Society website. Society members are encouraged to check this regularly for notification of such meetings as well for updates on the other fixed dates.

Further indoor meetings: A Regional Meeting is being planned to take place in Liverpool during **November 2022**; date yet to be fixed when further details will be posted. There will also be an indoor meeting on **10th December**; details TBA

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.

Meeting Programme compiled by Martin Willing. Contacts for meetings related matters are either Martin Willing (martinjwilling@gmail.com) OR Rosemary Hill (secretary@conchsoc.org).

Conchological Society of Great Britain and Ireland
Diary of Meetings

Please check website (www.conchsoc.org) for further details/updates, including other meetings arranged at shorter notice.

Field meetings
The Covid-19 uncertainties that impacted the 2021 field programme have declined and so it is anticipated that problems and restrictions will be minimal. We will, however, be keeping a close watch on developments; specific meeting arrangements and other changes will appear on the Society website which Society Members are advised to visit regularly.
It is essential for those wishing to attend ANY of the field meetings, to contact the leader in advance (ideally at least a few days before) to book a place and obtain further details.
Note: Two field meetings occur on 28th May but as each is a joint event planned with other organisations the overlap is unavoidable.

Indoor meetings
Details of whether a meeting is 'live' plus Zoom or Zoom only, will be circulated to members prior to each meeting, together with instructions on how to access the NHM and /or the online Zoom. News updates will also appear on the Society's website.

It is ESSENTIAL to let Catherine Jagger at CIRCA (shellmember@gmail.com) know of your intentions to attend on Zoom or at the NHM, at least a week before each meeting. She will then send you joining instructions and an agenda. If you do not respond on time, it may not be possible to make the necessary access arrangements. Zoom meetings will open from 13.45 and please ensure that you join before the 14.00 start as late admissions may be impossible.

Saturday 9th April 2022: ANNUAL GENERAL MEETING AND ADDRESS (NHM with Zoom link)
Guest speaker: John Whicher, 'Sowerby's Mineral Conchology. Tales of the unexpected'.
James Sowerby's *Mineral Conchology of Great Britain*, a comprehensive catalogue of invertebrate fossils, was published over a 34-year time-span starting in 1812. The finished worked contains 650 coloured plates distributed over 7 volumes. John will revisit the subsequent history of several species he described with outcomes he would probably not have expected.
14.00 –17.30 (13.45 Zoom sign in): Angela Marmont Centre, Natural History Museum, London SW7 5BD

Saturday 28th May 2022: FIELD MEETING (non-marine): Calne, Wiltshire.
Leader: Mags Cousins (07873 532681, shropshiremolluscs@gmail.com)
Surveys in a mixture of habitats: Chalk grassland, scrub and juniper and yew woodland. A joint meeting with the Wiltshire Wildlife Trust. Meet at 10.30 am at Morgans Hill WWT reserve Calne SN11 8PZ, OS Grid Ref: SU025672. Parking is at Smallgrain Picnic Area, and there is about 1km to walk to the reserve along a deeply rutted byway unsuitable for wheelchairs.

Saturday 28th May 2022: FIELD MEETING (non-marine): Farnham Park, Surrey.
Leader: June Chatfield (01420 82214, collections@haslemeremuseum.co.uk)
Various habitats in a Local Nature Reserve. A joint meeting with various local natural history societies. Meet at 10.30 am at Farnham Park car park next to Regional Office, On A 287 on road leading from Farnham to Folly Hill. GU9 0AU

Saturday 11th June 2022: FIELD MEETING (non-marine): Bath area for *Ena montana*
Leader: Keith Alexander (01872 271186, keith.n.a.alexander@outlook.com,)
Areas of ancient woodland with records for *Ena montana* where we will be updating the Society's records of this rare species. Venues not confirmed at this stage but will be posted on the Society website in due course.

Saturday 23rd July 2022; ZOOM MEETING with online exhibits and lecture
Guest speaker: Dr. Jeremy Biggs (Director, Freshwater Habitats Trust)
'Understanding and protecting freshwater Mollusca: the work of the Freshwater Habitats Trust' 14.00 ─16.00 approx. (13.45 Zoom sign in)

Saturday 6th August: FIELD MEETING (non-marine): Hartslock Nature Reserve, Goring, Oxfordshire.
Leader: Tom Walker (07488 231574, tom@tmwalker.co.uk) This is a joint meeting with the Reading and District Natural History Society. We will be surveying the molluscs in this Reserve which lies on a chalk hillside overlooking the River Thames. It is essential that you contact the leader prior to the meeting who will give directions to the difficult- to find parking area.

Wednesday 7th September: FIELD MEETING (non-marine): Cricklade.
Leader: Mags Cousins (07873 532681, shropshiremolluscs@gmail.com)
This will be a training meeting, terrestrial and freshwater molluscs of meadows and lakes, joint with Wiltshire Wildlife Trust at Lower Moor farm complex, a group of Wiltshire Wildlife Trust reserves. Meet at 10 am at the car park of Lower Moor Farm, Cricklade, SN16 9TW, OS Grid Ref: SU007939. There are toilets, a cafe, and it is easy access.

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