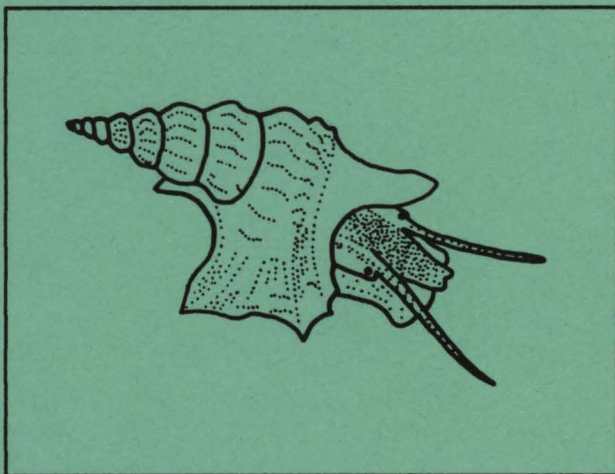


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Behind Closed Doors: The Conchological Society Council

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Some time ago a questionnaire about the Society was circulated to all members of the Society. One of the questions asked was 'the Council deals with Society business in an efficient and appropriate manner'. Although most members said they agreed with this statement or agreed strongly, many people said 'don't know', or 'as far as I can tell'. One member wished to know more about the election of Officers, and how this takes place. It seems to me that these results revealed that many members understand little about the day to day running of the Society, unless they are or have been members of the Council. I thought, in view of some of these comments, that it would be useful to produce an article about what Council does, who does it and how they do it.

Council comprises three groups of members: Officers, Ordinary (elected) members and Vice Presidents. All are unpaid, and must be members of the Society. Officers are elected annually, except the President, and are usually people who have been on Council before taking on the post, although this is not a requirement. In most voluntary organisations some officiorial posts are notoriously difficult to fill once they become vacant, notably that of Treasurer, so quite often those nominated as Officers are those who volunteer! Usually some evidence of the candidate's ability to do the job would be expected, so for example these days the Secretary would be expected to have word-processing skills and not just typing. Anyone who is a member can stand for nomination as an Officer, as long as they have a Proposer and Second (except if nominated by the President), even if there is an existing post holder. In such an instance the details of the competing nominees would be printed on the ballot paper. Normally there is insufficient space to do this for all Officers, and often the activities of the nominees are well known to the membership because they have already been playing an active

role in the Society. For example, I would doubt that anyone is not familiar with the work of our Non-Marine Recorder of over 20 years' standing, Dr Michael Kerney. Until recently the President was elected for a two-year term, thus Mr Brian Eversham is the first President of the Society who will complete three years in office. The outgoing President nominates the new President, thus there are never any other candidates for this post. It is also expected that the new President will be known for their activities in the world of conchology. On completion of the term, the President automatically becomes a Vice-President, which honour cannot be relinquished except by leaving the Society. There are currently 16 Vice-Presidents, but only the five most recent may vote at Council meetings.

A brief résumé of the jobs of each Officer may be helpful here. This is not intended as a complete job description for each Officer, but to give members some idea of the responsibilities of each. A more full explanation of most can be found in the annual Officer's reports.

President: Chairs meetings of Council and Ordinary meetings and liaises between Council members. Acts as figurehead for the Society in an Official capacity, makes ratifying decisions.

General Secretary: Prepares agendas for meetings; writes up and circulates minutes; prepares ballot papers, order forms, notices etc. and circulates these to members. Acts as back-up to other officers, e.g. signatory on bank account; answers enquiries and deals with correspondence.

Membership Secretary: Keeps records of all members and subscribers, including details of payments, changes of address, interests, etc. Produces labels for the *Journal*, *Newsletter* and other mailings. Sends subscription reminders.

Treasurer: Keeps and checks details of all the Society's financial transactions. Decides whether purchases can be made, including investments.

Editors: Production of the Society's publications.

Recorders: Collating all national records of Mollusca.

Conservation Officer: Informs Council on potential threats to Mollusca and their habitats and advises external bodies including government agencies and conservation groups on threatened species and their protection. Acts as Society's representative in relevant organisations, e.g. Biodiversity Steering Group, and makes formal recommendations regarding proposed harmful activities; Chair of the recently formed Molluscan Conservation Group of Britain & Ireland (MCGBI).

Programme Secretary: Organises meetings, both indoor and outdoor, also workshops and special events. Produces programme card and diary of meetings in *Newsletter*.

Ordinary (elected) members stand for a three-year term. Three are elected per year, thus there are always nine ordinary members. They are not given any specific job, as their main function is to represent the views of the membership of the Society, which is why there is at very least a rotation of these Council members. The nature of meetings means that most people who are nominated and subsequently elected are those who attend indoor meetings regularly. Of course, anyone can apply for nomination, following the usual rules that usually appear in the October *Newsletter*. However the vast majority of nominations come from the floor at Council meetings, usually in October or November. These tend to be people whose work with molluscs is known (although by no means is this necessarily professional work) who can offer some benefit to Council, by virtue of their knowledge, experience or just the ability to offer a well thought out opinion! Sometimes Council members will be given or volunteer for a specific job, such as producing the display boards in my own case. Council members may not be re-elected to the same post within one year of completion of their term of Office. This useful wording means that ex- Ordinary Council members can become Officers straight away, but have to have a break otherwise. Incidentally, Presidents may also be re-elected, as well as retaining another Officer post during their term.

So, how are Council meetings structured and organised? In the past Council meetings have taken place prior to every Ordinary meeting, this being the most convenient time to assure

maximum attendance and avoid the cost of extra room bookings and unnecessary travelling, but recently it has been decided that six meetings per year ought to be sufficient most of the time. The two committees, (Publications and MCGBI) meet 2-3 times per year each in addition to this, usually immediately before a Council meeting or instead of one. The minutes of the meetings are now sent out as soon as possible after the meeting (traditionally they were sent with the agendas), and as meetings last up to an hour and a half, there are usually about four pages. The minutes also include an 'action' column to remind Council members what they are supposed to do before the next meeting. Seven days' notice must be given for Council meetings, so agendas are finalised and posted about 12 days before the meeting. A few days before that, the Secretary makes lots of phone calls to establish what should be included as well as checking previous minutes and correspondence. Every agenda starts with the items 'apologies for absence', 'minutes of the last meeting' and 'matters arising', and ends with 'any other business' (AOB).

In between these items is the crux of the meeting, and will usually include at least one item that is a direct follow on from items raised at the previous meeting, or which has been requested for inclusion at the previous meeting (often during AOB). Sometimes items are aired several times with revisions each time until Council makes a consensus decision; on other occasions a proposal is submitted in great detail so that all the facts are available immediately. In this case the proposer will often have submitted a written recommendation that is copied and circulated to Council members with the minutes. When a Society has been going for over 120 years it is very hard to say when some subjects first got aired, for example recruitment of new members, which was probably raised at the first ever Council meeting! Also covered are items that have come to the attention of Council since the previous meeting, for example if there were a proposed development on the site of a rare mollusc habitat, and the reports of the two committees. All decisions of the Committees have to be agreed by Council, and there is a standard procedure for this as well as any other decisions that Council makes. Each proposal is

stated clearly and minuted exactly. If the item has not already been discussed at length a speaker for and against the motion will be asked to speak. A Proposer and Secunder for the motion are given, although the President may propose without a Secunder. Voting is by show of hands, and, as stated before, only five Vice Presidents are entitled to vote. Co-opted members are also not entitled to vote. There must be a clear majority for a decision to be carried, and there must be a quorum present. These are all standard procedures on most committees.

Anything that has a direct effect on you, the membership (and for that matter, me), is of prime importance for discussion by Council. This includes ratification of the Officers' reports, the contents of the programme, proposed changes to the publications or membership fees, inclusions in the January mail-out and the questions on the questionnaire that I referred to at the beginning of this article. One member wrote that they did not think recent Councils were interested in the opinions of the membership. I would like to refute this by saying that opinions on the running of the Society can be brought to my attention at any time; there is no need to wait for a questionnaire. All the members of Council are here to support the Society and act as its representatives; we wish to see it flourish as a vibrant and active Society. This can only be done with the support and encouragement of the members themselves. Thus we need you to actively participate in attending field and indoor meetings, by writing articles for the *Newsletter* and standing for nomination as members of Council. I hope this article has gone some small way to dispelling some of the uncertainties about how Council is run, and that some more of you will be willing to play an active part in the running of the Society in the future.

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Fauna of Britain project

June Chatfield

Anglefield, Alton, Hampshire

This project is inviting information from naturalist on the many ways in which the wild animal life of Britain is interwoven with human culture, history and folklore and it is to cover all parts of the animal kingdom. It would be good to have the molluscs well represented.

They are seeking information on:

- Customs, festivals and traditions that mark particular types of animals. Use of some part of an animal.
- Individual animals or groups which have achieved fame and perhaps have inspired national literature, music or poetry.
- Place names related to animals. (The late A. E. Ellis published lists of mollusc-related place names in this newsletter and these could be copied and sent in).
- Is an animal named after a place?
- Animals on coats of arms.
- Regional names for animals.

Results will be published in a book by Professor Stefan Buczacki. Every organisation involved will be named in the book, so molluscs need to be there.

There is much information on molluscs in culture already in the long run of our newsletter – is there a member who has the time to go through this and list likely articles? Members of the Society are likely to come up with some additional inspired pieces of information and ensure a good place for molluscs in the published book. We invite members to take part in the project.

The contact address is: Fauna of Britain Project, PO Box 393, Twickenham, Middlesex TV1 1XQ. It also has a web site: www.hamlyn.co.uk/fauna. I have written to the project to let them

know it will be advertised in *The Conchologists' Newsletter* so if you send in records, do identify yourself as a Society member. Since much of the material likely to be generated on this for molluscs would also be of interest for our newsletter, please kill two birds with one stone and make a second copy to send to Rosemary Hill, address on inside front cover.



***Vertigo geyeri* in Ireland**

The glacial relict snail *Vertigo geyeri* has been found by Dr Evelyn Moorkens on Killaun Bog, near Birr in County Offaly. This species is one of the three land snails listed for protection in Ireland under the European Habitats Directive. Only 12 locations are known for this snail in Ireland and there are moves to have Killaun Bog designated as a Special Area of Conservation. Drainage and turf cutting at the margins of bogs have removed the lagg zones of most raised bogs, which is the habitat for *V. geyeri*.

This note is sourced from a Press Release of the Irish Peatland Conservation Council amended with data from Kerney M. (1999) *Atlas of the land and freshwater mollusca of Britain and Ireland*. Harley Books, 263 pp.

Thanks also to Keith Alexander for bringing the press release to the attention of the Editor.

Volutes and Olives: Workshop at Reading, May 1999

June E. Chatfield

Alton, Hampshire

The exotic gastropod groups of volutes and olives were the topic of the third Conchological Society workshop at Reading, this time held at Blake's Lock Museum, to check identifications of shells in the collections of Reading Museum Services (Fig. 1). The core of this collection came from Horatio Bland of Burghfield, who had his own museum just outside Reading. On his death in 1876 the trustees offered the contents of his museum to Reading Corporation. This led to the second phase of the new Town Hall complex, to include a museum and library, which opened in 1882. The Bland collection is worldwide, species-rich and contains rare shells. About 60 lots of volutes and over 50 lots of olives were checked and the computer entries on Modes Plus will be amended.



Fig. 1 Conchological Society workshop at Blake's Lock Museum, Reading, May 1999. Photo J. Chatfield.

One of the most interesting shells was Rossini's volute *Cymbiola rossiniana* (Bernardi) a volute endemic to S.E. Caledonia and named after the composer (Fig. 2).

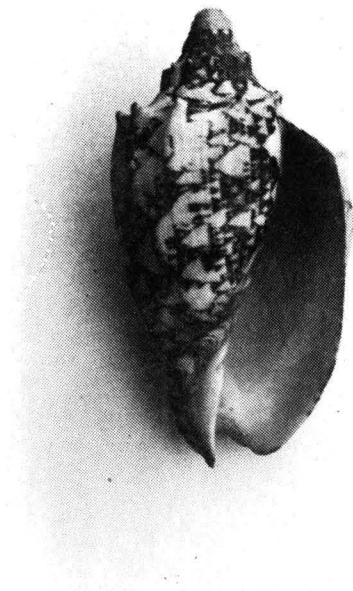


Fig. 2. Rossini's volute. (Reading accession number 1995.110.3001).

Photo J. Chatfield

The Volutacea, a superfamily of marine gastropods, includes a number of families which have showy colourful shells that are popular with collectors: olives, mitres, vase shells, chank shells, harps, volutes, nutmeg shells and marginellas. They are typically found in warm seas and live as carnivores and scavengers.

Volutes: Volutidae

Volutes are among the largest and most colourful and patterned marine gastropods and a few of them have a crown of spines on the top of the whorl, for example, the Imperial volute *Cymbiola imperialis*. There are about 200 living species of Volutidae, mostly

from warm seas, but with some temperate examples. Australia, with 67 species, is the best place for volutes and these include the largest and most brightly coloured. Photographs of shells and living animals of the Australian volutes are published in Wilson and Gillett with some introductory text.

One of the features of volutes is the limited range of the species and many have a very restricted distribution and were deemed to be rare. Habitats have now been discovered so some shells are more commonly found in collections than they were, but the deep water species are still scarce. Cowries in contrast have very wide Indo-Pacific distributions. The reason for the limited areas occupied by volute species is that volutes do not have a pelagic larval phase which enables young to distribute long distances in ocean currents. They lay large eggs, protected in leathery capsules, and the female often stays around her egg mass. Each egg is well endowed with food and they hatch at a large size into free crawling volutes. The protoconch is of a very large size in the false melon volute *Lavonia mammila*. A high percentage of success in hatching has been reported.

Volutes have a large effective foot and most use this to burrow into sand and, appropriate to a carnivore, they are comparatively fast moving. The intertidal species tend to stay below the surface of the sand when the tide is out, emerging just before the tide comes in – and this is when the collectors go for them.

Olives: Olividae

There are about 60 species of olives and ancillas and both are well represented in Australia and illustrated in Wilson and Gillett. The two subfamilies of the dwarf olives (olivellas) and the agaronias are best represented in the Americas. With their smooth, glossy and patterned shells olives have some resemblance to cowries but have never been as popular and this may be due to difficulties in identification. A monograph on olives (Zeigler and Porreco 1969) was written to enhance interest in this group.

Olives are thick-shelled gastropods, most are up to 5 cm (the tent olive *Oliva porphyria* is larger) with small spires and the

body whorl making up most of the shell. There is an elongate slit-like aperture, a siphonal notch at the base, a thickened callus area of the columella with folds or ridges and this is often a markedly different colour from the rest of the shell. The inside of the lip may also be coloured as in the purple-mouth olive *Oliva episcopalis*. The outer shell surface is smooth and glossy with various patterns, but the considerable degree of variation of pattern within the species and the presence of geographical forms, make them difficult to identify at first.

Unlike volutes, olives have pelagic veliger larvae and at this stage they have an operculum, but it is lost in metamorphosis and not present in the adult shell. Cowrie shells are thin until they are almost fully grown, when the shell thickens, the aperture shape changes and the lip of the adult shell is secreted. In contrast olive shells thicken gradually as they grow.

Olives are carnivores and scavengers and will eat shrimps and bivalves, but most information on their activity is derived from aquarium studies in the USA on the lettered olive *Oliva sayana*. They are active and usually move below the surface of the sand with the siphon only showing above.

Many worldwide shell books have limited coverage of volutes and olives, but Abbott and Dance (1994) have a reasonable range of species.

References

- Abbott, R.T. & Dance, S.P.**, 1994, *Compendium of Seashells*.
Wilson, B.R. & Gillett, K., n.d., *Australian Shells*. Reed, Sydney and Melbourne, Australia. ISBN 0 589 07069
Zeigler, R.F. & Porreco, H.C., 1969. *Olive Shells of the World*. Henrietta, New York, USA.

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***Limax tenellus*: more of a saproxylic?**

Keith Alexander

██████████, Cirencester, Gloucestershire ██████████
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Jan Light (*Conchologists Newsletter* No. 149 pp 165-167) raises a number of questions regarding this elusive slug to which I hope my own observations can make a useful contribution.

Firstly I have only ever found it associated with large decaying tree trunks in Britain, leading me to suspect for many years that it is primarily associated with the fruiting bodies of wood decay fungi. Of course large old decaying hulks combine wonderfully moist retreats with an ample food supply!

But I have found it more widely in the Normandy forests – where large decaying hulks are in very short supply thanks to activities of the local foresters – and particularly on isolated toadstools such as *Russula* spp. In order for this to fit my established theory, I decided that, in the absence of old hulks, the species could actually survive in moist decaying leaf-litter with toadstools. Perhaps there is a climatic effect too? Although the presence of *Zenobiella subrufescens* in those same French forests does suggest that the climate is perhaps not that different to that of western Britain where the two also coincide.

Perhaps it is a weather effect, that only under particularly calm and humid conditions does the slug wander more widely and farther afield from its moist refugia? Most of my records come from the hill country of the north and west of Britain – perhaps the relatively cool local conditions combined with the relatively windy, rather drying conditions (despite higher rainfall) keeps the slugs more tied to hulks?

My British records are mostly based on finding individuals beneath loose bark on decaying hulks – beech, oak, wych elm, and Scots pine, but also include some slugs actively exploring the outer surfaces of the hulks during daylight hours. The records of active slugs tend to be in mid-October, when they are fully grown and presumably better able to survive any adverse conditions which

might develop when they are out and about. I have only found adults actually on fungi once I believe, at Ashridge in Hertfordshire, where they were seen on black buttons *Bulgaria inquinans* – the black and yellow colour combination was very striking.

My earliest dates have been at:

- 14 June 1988, Felbrigg Beeches in Norfolk – when they were so small that I asked Ian Killeen if he would go and check their identity for me later in the season!
- 23 July 1999, Low Wood, Bransdale, North York Moors, on this occasion they were just about at a sensible size for reliable field identification.

I also have one late date of 1st December 1992, from the Forest of Dean, Gloucestershire, showing that full-grown adults can survive into the winter period.

I thank Jan Light for her article. There is a great need in British Conchology for more of these observations of biology and ecology to be written down and analysed. We know so little about so many of our species!

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Maintaining a culture of the Mud Snail *Lymnaea glabra* (Müller, 1774)

P. J. Wisniewski

Endangered Species Breeding Unit, c/o Wildfowl and Wetlands
Trust, Martin Mere, Burscough, Lancashire. L40 0TA.

Introduction

The Mud Snail (*Lymnaea glabra*) is a west European species where it inhabits soft water in muddy pools and ditches on acid soils with impoverished flora and fauna (Kerney, 1999). The species seems to favour sites with a tendency to periodic dessication. The species has shown a dramatic decline in Britain due to land drainage, deepening of pools, ploughing, eutrophication and wetland removal and as a result is now listed as Vulnerable in the *British Red Data Book 3* (Bratton, 1991) and is on the Long List of Globally Threatened/Declining Native Species. In Ireland it is listed as Endangered. Similar declines have been observed in other species of temporary waters e.g. Fairy Shrimp *Chirocephalus diaphanus*, Tadpole Shrimp *Triops cancriformis*, Star-fruit *Damasonium alisma* and Brown Galingale *Cyperus fuscus*.

During 1997 several specimens of *Lymnaea glabra* were removed from a site due for development as part of the expansion of Manchester Airport. These specimens were deposited at the North of England Zoological Society, Chester Zoo. Six specimens were later given to the author by M. Crumpler, Chester Zoo's Aquarist, on 18 December 1997.

Methods

The six snails were housed in a plastic aquarium measuring 22 x 33 x 20 cm deep. The bottom of the aquarium was covered with local garden soil (a slightly acidic mixture of sand and peat) and at one corner this was banked up so that it would protrude above the water surface. A small quantity of moss and several dead, dried sycamore and oak leaves were placed on the bank. The tank was filled to a depth of 3 cm with soft tap-water. A small piece of cuttle-bone was added to the water as a source of calcium, should

this be required. The intention was to simulate the 'mean places' described by Boycott (1936) as the species' habitat.

The tank was stored in a cool and shady environment. Lettuce leaves and Tetramin tropical fish flakes were introduced to the tank immediately and replenished once eaten.

Breeding results

On 11 January 1998 the first egg mass, roughly oval in shape, was found at the water surface. By 24 January many egg masses were to be found also mostly at the air/water interface.

The young snails fed upon the lettuce and grew to adult size within three months, necessitating the establishment of a second colony. This course of action proved fortuitous as, although a second bout of egg-laying occurred in the first tank, the culture rapidly died out. Since then a similar pattern of boom and bust has been followed with each culture producing a maximum of two batches of eggs before dying out. In order to ensure continuity of the captive stock three separate colonies are maintained at any one time with young being removed and rehoused on a rolling programme. To date six generations have been produced.

The exact reason for the loss of viability of each colony after approximately 4–5 months is unknown but may be related to depletion of some nutrient in the substrate (it might be supposed that calcium for shell formation might be limiting yet there is little evidence that the snails graze the cuttle chunks supplied to every tank). Alternatively it might be related to the accumulation of toxins or the presence of a predator; ostracod crustaceans become very common in snail tanks and it is known that these can be predatory upon fairy shrimps in temporary pools. Interestingly, colonies of fairy shrimp in the author's collection seem to exhibit similar patterns of boom and bust with animals growing much larger and becoming more fecund when removed to a tank with fresh substrate despite similar feeding regimes.

Snails were observed to climb out of the water especially when food was not replenished. However, it was found unnecessary to allow colonies to dry out in order to encourage breeding, a fact also noted by Boycott (1936).

References

- Boycott, A. E.**, 1936. The habitats of fresh-water Mollusca in Britain. *Journal of Animal Ecology*. **5** (1). 116-187
- Bratton, J. H.** (Ed.), 1991. *British Red Data Books: 3. Invertebrates other than insects*. Joint Nature Conservation Committee. Peterborough. 253 pp.
- Kerney, M.**, 1999. *Atlas of the land and freshwater mollusca of Britain and Ireland*. Harley Books. 263 pp.



For Sale

A large collection of tropical and exotic shells, including cowries, *Conus*, *Lambis*, *Strombus*, *Terebra*, volutes, *Chlamys*, *Tibia*, etc., some with labels or information on countries and dates of collection.

Also several issues of the *Journal of Conchology* dating back to the early 1990s and copies of the *Conchologists' Newsletter* dating back earlier.

Books for sale include:

Red Sea Coral Reefs	Bemert/Ormand
Saudi Arabian Seashells	D.P. Sharabati
The Coral Reef	Alan Emery
Great Barrier Reef	Readers' Digest
Murex Shells of the World	Radwin/D'Attilio
Cone Shells	Jerry G. Walls
Cowries	"
Conchs, Tibias and Harps	"
Shell Collecting	"
Compendium of Seashells	R. Tucker Abbott/S. Peter Dance
The Encyclopedia of Shells	S. Peter Dance

Offers may be made or further information obtained from:

Mrs P. Plumb

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Basildon, Essex

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Field Meeting to Colne Point Reserve, Essex July 1999

Pam Wilson

Colchester, Essex

On Saturday 24 July, eleven members visited Colne Point (TM 108 125), a 680-acre Nature Reserve belonging to the Essex Wildlife Trust and part of the Colne Estuary National Nature Reserve. It is made up of stabilised shingle ridges that enclose a considerable area of salt marsh, and 250 acres of foreshore consisting of mud-flats, shingle and pools. The Reserve has one of the finest stands of shrubby sea blight (*Suaeda fruticosa*) on the East Coast, as well as many other plants typical of this type of habitat. Part of the area was once used for gravel extraction. The warden of the reserve, Neil Harvey, welcomed us to the area and joined us until lunchtime.

As it was near high tide when we arrived, the group began by looking at the saltings and walking the length of the reserve along the shingle ridges. On the saltmarsh *Ovatella myosotis* and *Hydrobia ulvae* were both common; a few *Littorina saxatilis tenebrosa* were also seen and litter was collected to be looked at later. Shells of *Truncatella subcylindrica* have recently been recorded from saltmarsh litter on the reserve, so we hoped we might find live specimens during this visit. Jan Light explained where they were most likely to be found and the group spent some time searching in the shingle beneath bushes of shrubby sea blight growing just above high tide level. Sadly, luck was not with us, and our efforts were only rewarded by two or three live *Leucophytia bidentata*.

After a picnic lunch, we resumed our walk to the Point, where some Quahog (*Mercenaria mercenaria*) shells provided some entertainment for jigsaw enthusiasts! Several specimens were found, the largest being about 10 cm across. Most of the shells were fairly fresh, but broken in a characteristic manner. The umbones were still joined by the ligaments and the pieces scattered nearby obviously came from the same animal, as

complete shells could be pieced together. A possible explanation for this, is that birds have learned to find live individuals and drop them from a height, on to a suitable hard substrate, in order to break them and get a good meal. The shells were surprisingly thick, but also quite brittle and consequently vulnerable to this type of assault.

By this time the tide had fallen group made their way back along the foreshore in a welcome, cooling, breeze, with one member clutching a large piece of timber infested by *Teredo* sp. Several live Portuguese oysters (*Crassostrea gigas*), one live native oyster (*Ostrea edulis*) and a few limpets (*Patella vulgata*) attached to stones of the gravel surface were noted. The variety of seaweeds in the clear pools looked promising, but did not yield any molluscs of interest.

Around thirty species of molluscs (live and shells) were recorded, but unfortunately we did not manage to add to the Reserve's list – despite a further search for *Truncatella* near the car park before leaving. Perhaps the weather was just too hot and dry.

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CAUTION Snails Crossing. Slugs, snails and the Conchologist as gardener

Rosemary Hill

, Reading, Berks.

I cannot be the only member to have spent Saturday in good company at a non-marine Conchological Society Field Meeting enjoying our discoveries of slugs and snails, only to spend Sunday guiltily wondering how best to rid my garden of pest species intent on consuming my preferred plants! It was therefore with interest that, while walking round Gait Barrows National Nature Reserve after a Field Meeting, that Pryce and Christine Buckle told me that they had browsed in their Bed and Breakfast a copy of the Royal Horticultural Society's magazine *The Garden* which contained an article by Andrew Halstead listing herbaceous plants which, while not immune to slugs and snails, will survive relatively unscathed. Having been quizzed by several of my work colleagues and others in the last two wet years as to how a person who likes gardening can possibly like slugs and snails, and faced with their ravages, I concluded that there must be a way of both enjoying an attractive garden and a clean conscience by gardening with rather than against mollusca. Pryce and Christine kindly provided me with a copy of the list from *The Garden*, but I immediately noticed that for at least some species my experience differed from that of its author, so I decided to send the list to some other Conchological Society members with garden involvement to see if they would be prepared to comment on it.

The members I approached annotated the list and sent back their opinions with commendable speed, for which many thanks. They were Jan Light who has a garden with plenty of molluscs, Jane Reynolds who is a professional Head Gardener, and Stella Davies, a slug lover with a well-known hatred of slug pellets. Much as I suspected, there were considerable differences in views on the species list and on methods of gardening and I am going to try and summarise these.

Firstly, the general comments. I am assuming that most of us are not concerned when garden molluscs eat senescent leaves or the contents of the compost heap as this provides a useful return of nutrients to the garden. If they did only this, no doubt they would be as popular with gardeners as the earthworms are! Tiresomely, some molluscs appear to regard all variegated or spotty-leaved plants as senescent and therefore fair game. I would be intrigued to know what proportion of garden recycling attributed to the earthworms is actually the work of the molluscs.

It is not obviously in the interest of plants to have their fresh foliage and flowers attacked by molluscs and there are a number of ways in which plants have evolved to prevent this. This includes having physical defences such as spiny or densely hairy leaves (such as *Eryngium* spp. (sea hollies), *Acanthus mollis* (bear's breeches), *Hieracium aurantiacum* (fox-and-cubs) and *Stachys lanata* (lamb's ears), chemical defences in the sap (such as *Alchemilla mollis* (lady's mantle), *Corydalis* spp., *Digitalis purpurea* (foxglove), *Euphorbia* spp., *Geranium* spp. (hardy perennial geraniums) and many culinary and medicinal herbs (*Salvia officinalis* (sage), *Thymus vulgaris* (thyme), *Tanacetum vulgare* (tansy), *Mentha vulgaris* (mint), *Foeniculum vulgare* (edible fennel), *Papaver somniferum* (opium poppy) etc.).

It makes sense to choose these species and others like them to reduce mollusc attack in the garden with the following provisos. Spiny plants and especially chemically toxic plants may scratch or poison people as well as molluscs so particular care should be taken to supervise young children in the garden. Such plants may also be vulnerable to molluscs in the early stages of growth before spines have developed or before the young growing points have developed high concentrations of defensive chemicals. The primary function of a new plant shoot is to reach the light before other competing plant shoots do and it concentrates its available energy and nutrient resources to achieve this. Only once the shoot is viable and photosynthesising effectively does it divert its metabolism into producing chemical defences, which may be autotoxic to the plant and consequently reduce its rate of growth. This is why many plants, especially bulbs, require some

protection from marauding molluscs when they begin growth in spring. An odd mollusc nibble may provoke the plant into early production of chemical defences, but the nightly ravages of hungry full-grown *Arion ater* agg. cutting straight through entire growing shoots at the base like small-scale chainsaws let loose in a forest do not provide time for the plant to adapt!

There are various ways of reducing slug damage such as sprinkling soot (which is hard to get hold of these days), shredded prickly garden waste or sharp gravel around the bases of plants or protecting the shoot using the inverted top of a cut-off large plastic water bottle pushed into the ground which may work, depending on the mollusc species but which in my experience work least well with large thick-soled species such as *Arion ater* agg. and *Helix aspersa*. I like to use native wild plants when gardening and was pleased to find plants of the toxic *Oxalis acetosella* (wood sorrel) in a garden centre and purchased two as I considered that they would be a safe bet. One plant was fine but the other was progressively chewed by a junkie mollusc which was apparently coming back nightly for a dose of oxalic acid! Unfortunately I never caught the mollusc in action so I could not name it but its slime was obviously that of a large species. Possibly the plant may have been genetically deficient in its ability to produce oxalic acid? There is a commercially marketed product containing a plant (*Yucca*) extract which may be sprayed around vulnerable plants but it is expensive for use in a large garden and I also do not yet know for how long it remains effective.

Species which may be vulnerable to attack when emerging in spring include *Arum italicum*, *Acanthus mollis*, *Antirrhinum majus* (snapdragons), *Aquilegia* spp. (granny's bonnets), *Bergenia* spp., *Cynara cardunculus*, *Dicentra spectabilis* (bleeding hearts), *Digitalis purpurea*, *Hemerocallis* (day lilies), *Iris* spp. (irises), *Papaver orientale* (oriental poppy), *Phlox paniculata*, *Polemonium foliosissimum* (Jacob's ladder), *Pulmonaria* spp. (soldiers and sailors), *Scabiosa caucasica*, *Tropaeolum* spp. (nasturtiums, canary creeper) and *Verbascum* spp. (mulleins). Almost all bulbs may be added to this list, except *Agapanthus* (Nile lily) and *Allium* spp. (edible onions, leeks and ornamental species). I have found the

most resilient bulbs to be those vigorous enough to outgrow mollusc damage and which are often advertised as good for naturalising such as *Hyacinthoides hispanica* (Spanish bluebell), *Narcissus pseudonarcissus* (wild daffodil), *Galanthus nivalis* (snowdrops) and *Chrysanthus* spp. (small winter-flowering crocus).

The species most prone to demise from attack by molluscs are suggested to be *Lupinus* spp. (lupine), *Hosta* spp., *Delphinium* spp., (Large arum lily), *Tradescantia* (which was on the original list of resistant species!), *Tagetes erecta* (French marigold) and summer bedding plants grown in the greenhouse and not hardened off before planting.

One correspondent suggested that wild flowers (including weeds) were resistant to mollusc attack, but my experience with wild flower gardening and observations in the field during wet weather indicate that this is not the case, nor is it predictable which flowers will thrive. *Malva moschata* (musk mallow) grew undamaged in my wild flower meadow whereas *Althaea officinalis* (marsh mallow) succumbed rapidly. *Solidago virginaurea* (wild golden rod) just managed to outgrow the persistent attention of *A. ater* agg. (whereas the cultivated species *S. canadensis* is not normally damaged). *Fritillaria vulgaris* (snakes head fritillary) leaves are relished by molluscs whereas those of the cultivated species *Fritillaria imperialis* (Crown Imperial) are not touched. *Iris pseudacorus* (Yellow flag) are untouched although they live in wet places whereas *Iris foetidissima* (gladdon) leaves are shredded (but the plants survive in dry places). The ultimate wild flower gardening problem has to be that of English Nature's endeavour to reintroduce the fully legally protected *Cypripedium calceolus* (Lady's Slipper Orchid) (NOT for your garden!) to suitable wild habitats and having to keep the seedlings in wire netting cages, regularly pelleted with metaldehyde, to keep *Trichia striolata* at bay.

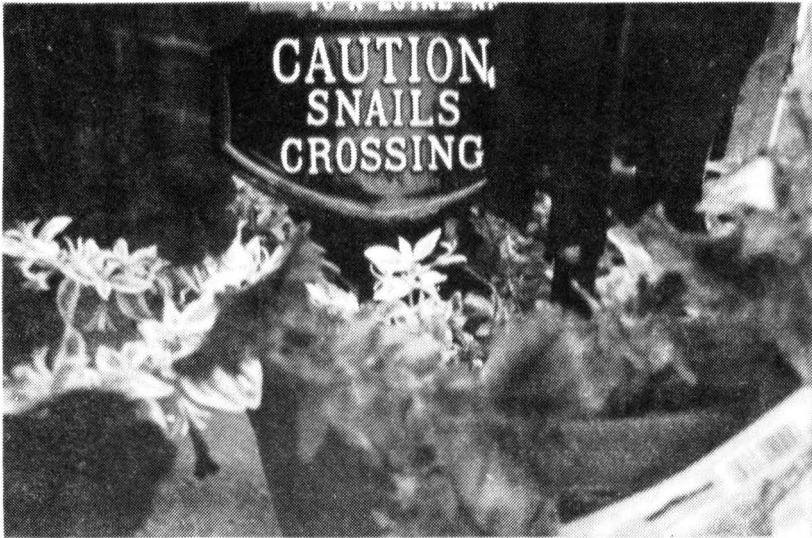
So what then are the most mollusc-resistant species, apart from those already mentioned? This will no doubt remain controversial! I would head the list with *Hedera helix* (common ivy, this comes in a useful range of leaf shapes and variegated forms),

ornamental grasses and sedges, ferns (except *Asplenium scolopendrium* (hartstongue) when emerging in spring but the fronds survive), *Calluna* and *Erica* spp. (heathers), *Saxifraga x urbium* (London Pride), *Potentilla* species and hybrids, *Armeria* spp. (thrift), *Achillea* spp., *Astilbe x arendsii*, *Aster amellus*, *Aster x frikartii* and *Aster x novae-angliae* (Michaelmas daisies), *Centranthus ruber* (red valerian), *Vinca minor* and *V. major* (lesser and greater periwinkles), small-leaved *Hebe* spp., *Gaultheria shallon* (Shallon), *Thalictrum aquilegifolium* ... The best other edible species are tomatoes and rhubarb. Feel free to write in with your views and experiences.

Other approaches which may be tried include applying aluminium sulphate solution to the soil in spring and autumn (aluminium sulphate slug pellets appear only to stop the larger molluscs feeding for about four days), keeping the garden free of decaying matter in which molluscs can feed, hide and multiply (but this prevents mulching which is essential on sandy and gravelly soils and during droughts) and turning the soil in frosty weather to expose molluscs and their eggs to frost, encouraging mollusc-eating wildlife (but do the large *Arion* spp. have any effective natural predators?)

Perhaps it is too much to hope that mollusc feeding preferences can be entirely predictable. Given a free choice, the grazing preferences of large mammals are usually predictable at a given season but their mobility is considerably greater than that of molluscs, especially if the weather is dry or unpredictable. Given predictably wet weather, *Deroceras reticulatum* and *Trichia striolata* head directly from all parts of a garden towards ripening strawberries and *Helix aspersa* and *Arion ater* agg. will happily climb up considerable heights for ripening plums, damsons and apples. But in drier and more unpredictable weather a given mollusc must consume what is available to it or starve. Consequently I am doubtful whether studies done with molluscs in captivity reflect the true situation. If we really want to know what is going on there can be no substitute for going out in the garden on damp nights with a torch, observing the behaviour and then bringing the mollusc in for identification.

It is tempting to suggest that nature should be allowed to take its course. This is fine until the neighbours begin commenting that their gardens are unbelievably full of slugs and that they are afraid of slipping on YOUR front path. Perhaps the ultimate answer lies in a country craft centre I visited recently. The resident metal sign maker stocks 'Caution Snails Crossing'! (Fig. 1).



NB Any complaints about the Newsletter Editor writing copy for the Newsletter should be accompanied by suitable alternative articles. Contributions of all sizes and types welcome!

□

Snails behaving badly in letter boxes

Royal Mail workers in Devon and Cornwall have solved the problem of snails (?*Helix aspersa*) eating the letters posted in rural letter boxes by placing two strips of bristles across the front of wall-set letter boxes. The brushes, which are rather like those found in a carpet sweeper, prevent the snails from entering the boxes without harming them.

A Royal Mail spokesman, Adrian Booth, said that the snails are attracted by the glue on the envelopes and the saliva used to stick them down.

Adapted from a Western Morning News story kindly brought the Editor's attention by Stella Turk.

G.P.O. 1999

Gluc-sniffing slug and snail
Your slime will not avail
Against the bristly strips
Affixed to postbox lips.

Gum-guzzling molluscs fail
To raid the Royal Mail:
Missives will now be safe
From rasping radulas' strafe.

N.D. Wood 1999

***Perforatella subrufescens* (Zenobiella
subrufescens as was) – still more**

David Long

[REDACTED], Cheltenham,
Gloucestershire [REDACTED]

I am very grateful for Robert Cameron's additional data on *P. subrufescens* (*Conchologists' Newsletter* 150, p. 221), which followed up my note (*Conchologists' Newsletter* 147, pp. 103-104). Since then Michael Kerney kindly drew my attention to W.E. Alkins's paper of 1925 'Note on the Habits of *Hygromia fusca* (Montagu)' (*Journal of Conchology* 17: 243-247) which summarises the author's and others' records on the ecology of what we now call *P. subrufescens*. Alkins and his colleagues already knew most of what we have just (re)discovered on this species. Though they did not record it from yew or holly, Alkins repeats, on p. 244, R. Standen's 1905 record of finding the snail on juniper at Arnside Knot, Silverdale, Lancashire, which may also be the basis for Taylor's mention of Juniper in his comments on the species (Monograph of the land and freshwater Mollusca of Great Britain part 4 p. 50) also quoted by Alkins.

As far as this year in Gloucestershire is concerned, David Haigh swept four juveniles off two yew trees at a second Forest of Dean locality, Woolaston Lime Coppice SO 570005 on 26 June; this is about 41km north-east of Ban y Gor Wood where it was first noted on yew. Work for the Gloucestershire Wildlife Trust at its Midger Wood Reserve (ST 79 and ST 89) on the Cotswold escarpment near Hawkesbury has produced 16 records of *P. subrufescens* during monthly visits from April to August; four of these, all on 23 June, were of juveniles swept from holly by David Haigh; in one case 5 juveniles came off a large holly along with a full grown and an immature *Ena montana*.

With many thanks to Robert Cameron, Michael Kerney, and to David Haigh (who was after spiders really).

□

In defence of *Limax maximus* – a 'favourite' mollusc

Helen Weideli

██████████, Berkshire ██████████

After planting up my greenhouse earlier this year, I was distressed to find slimy trails within. Anxious to catch their owner, I placed 'a pinch' of a well-known brand of metaldehyde slug pellets near the source of the trails, overnight.

I was delayed in opening the greenhouse next day, which, as it happened was a particularly hot and sunny one. I opened the door, to behold a large but very dehydrated *Limax maximus* caught in my bait. I was very upset to have caught this particular species, because according to H.E. Quick (1960), 'It seems to avoid green leaves and to feed on fungi and decaying matter, though in captivity it readily eats oatmeal, Bemax etc.'

I was also upset to have caught it because this species numbers among my 'favourite' molluscs and is not common in my garden like the pest *Arion rufus*, whose antics I described on page 114 of *The Conchologists' Newsletter*, No. 147, December 1998.

Limax maximus is a much superior beast! It is a very 'handsome' slug, with sleek lines and attractive markings, though this particular one was in a very sorry state. It was curled into a 'C' shape and lying on its side. Its greyish skin was dried up, but with traces of slime, like a netted encrusting of salt grains, over its body. The tentacles were drawn in, and the keel flattened, but the visible black lateral bands along the side and spotted mantle left no doubt as to its identification.

Full of remorse for catching this creature, I decided to try and save its life. Firstly I carried it indoors and washed it thoroughly under cold running water. It was not yet stiff and rigid, so I deduced it was not quite dead. Having established this fact, I then found a plastic container and lined it with wet kitchen paper towel. Into this I placed the slug, and put a lid on, into which I had made 'air-holes'. I then placed the container in a cool, shaded, part of my kitchen and waited.

Several hours later I looked at my captive, and found that it was definitely not dead. Its skin was becoming moist again, and it was not curled into a full 'C' shape, but was still 'hunched-up' and pathetic looking, rather like a dark gelatinous blob. I gave it another wash under cold running water, renewed the wet kitchen paper towel in the container and placed the slug back in it.

Next morning I looked again and found slight improvement in my captive. It was still nicely moist and slightly less 'hunched up', so I thought there was hope that it might recover. I gave it another wash under cold running water, and having replaced the wet kitchen paper towel, put it back in its container.

Later in the day I looked again, gave the slug fresh wet kitchen paper towel, another wash under cold running water, and replaced it in its container, although at this time the slug still looked like a gelatinous blob.

In the evening I looked again and repeated the above procedure. This time there was just a hint of fresh slime on the slug, and the tips of its tentacles were visible like little bumps on its head. There was also a sign of the keel reappearing, although the slug was still semi-paralysed and looked far from well.

Next morning I repeated the 'cleaning' procedure, and found more improvement in my captive, it being less 'hunched up', less dehydrated and altogether looking more slug-shaped than hitherto.

When I looked again later in the day it had defecated, and ridded itself of some of the poison. This seemed to be a turning point in its fortunes. I repeated the 'cleaning' procedure again later, and found the slug to have produced more slime, also the tentacles were gradually extending further and the keel was becoming more pronounced.

This was the third day of my ministrations, which were rewarded in the evening, when my captive began to move, hesitantly, around in the container. This suggested to me that food was required, so I proffered brown bread, carrot and mushroom, not having any oatmeal or Bemax.

By the fourth day my captive was looking much better, and

after the usual 'cleaning' procedure, I put it back in the container to continue to feed and recuperate. It was crawling around quite well now, manufacturing slime, and extending its tentacles. Its keel was raised again and its markings bold and clearly visible. It was looking more like a *Limax maximus* should look, and functioning normally. I had succeeded in saving its life!

I decided to keep it just a few more days, allowing it more time to recover fully from its ordeal, but meanwhile continuing with the 'cleaning' procedure of replenishing the wet kitchen paper towel and food, and washing the slug under cold running water before replacing it in the cleaned container.

All went well until one morning I went to look at my captive and found that it had escaped. I hunted high and low but there was no sign. Perhaps at this point I should explain that I have four cats, and place their feeding dishes on sheets of newspaper to protect my kitchen floor from spilt food during feeding. Later on when I went to clear the paper away, there, nicely pressed beneath it, was, yes, you've guessed – the slug. It seems ironic that my act of compassion in saving a 'favourite' mollusc from death by poisoning, should then be thwarted by finding it squashed on the floor some five metres away from the container.

What I have described above was not intended as a 'scientific' experiment. If it had been, then a much more detailed record would obviously have been kept. However, it seems to me, that the key points to emerge from my 'act of compassion' were:

1. The timing of finding the slug was crucial, i.e. before it had completely dehydrated.
2. Irrigating it initially, and then at regular intervals under cold running water.
3. Keeping it in a moist environment, with adequate ventilation, in a cool, shady place.
4. Monitoring its progress, and providing it with food at the appropriate time.

Following my ministrations above, this slug, to all outward appearances at least, recovered from slug-pellet poisoning in less than a week.

As a footnote I would like to add that it does seem such a pity that illustrations of *Limax maximus* – one of our least harmful slugs – are so often used in articles etc. which portray slugs and snails as 'pests'. Admittedly it is a large, distinctive, 'eye-catching' species, which lends itself well to illustration. However, the problem could be solved if captions were included alongside the illustration, explaining that *Limax maximus* does not eat greenery, but prefers fungi and decomposing leaves, so therefore is not a 'pest' in gardens.

Reference

- Quick, H.E., 1960. British Slugs (Pulmonata: Testacellidae, Arionidae, Limacidae). *Bulletin of the British Museum (Natural History)* Zoology Series, Vol. 6, No. 3, p. 193.



'Snail Watching' in Yattendon, Berkshire

Helen Weideli

, Newbury, Berkshire

Yattendon is a picturesque village mid way between Newbury and Reading, Berkshire. One of its claims to fame is its Christmas Trees, produced on Yattendon Estates land; acres of them in various stages of maturity being visible from the M4 motorway.

The fact that the Yattendon area is good for growing coniferous trees suggests an impoverished mollusc fauna. Mike and I have found this to be so, when surveying the area for the West Berkshire Mollusc Survey.

It is all the more surprising, therefore, that 'The British Snail Watching Society' was founded in Yattendon just after the Second World War! Information about it is rather sketchy, but it is thought to have been started by Mr Peter Henniker Heaton, and that its meetings took place in Yattendon Rectory Garden.

Apparently the Society's aim was 'to promote interest and appreciation of the snail for its own sake'. This appears to have included not only the natural history of the snail, but also its symbolism in art and morals.

Although the Society was short-lived, it is rumoured that it became world famous, even, during its heyday, receiving a mention on Moscow Radio. It is also reported that the Society had a presence at the 1951 London South Bank Exhibition, being featured in the Lion and Unicorn Pavilion. Accounts regarding the date of the disbanding of the Society differ, but agree on the fact that it had achieved its aim.

I am not sure how much serious Conchology or Malacology took place at 'The British Snail Watching Society' meetings. However, it would be interesting to know if there WAS a serious side to this Society, so if anyone can shed any light on it, please let me know.

Whatever the case may be, the only references I have been able to find about the Society are from an article on Yattendon by

Gerald Hunt in the *Newbury Weekly News* dated 10 July 1958, and more recently Penelope Stokes' 'Parish Pump' village series, featuring Yattendon, on page 38 of the April/May 1995 *Out and About Magazine*, which is also published by the *Newbury Weekly News*, to whom I extend grateful thanks.

□

**Atlas of the land and
freshwater molluscs of Britain
and Ireland, 1999**

Michael Kerney

Copies of this book may be obtained
from Colin Gillard, [REDACTED]
[REDACTED] Taunton, Somerset [REDACTED]
[REDACTED] for £24.00 including postage
and packing for UK members. Foreign
members please write to enquire for a
price.

Curio Trade Survey

Martin Willing

[REDACTED], Midhurst, West Sussex, [REDACTED]

Enclosed together with this newsletter you should have received two 'Curio Trade Survey' cards. These have been produced by the Marine Conservation Society in association with the Conchological Society. Both societies have, for some time, been concerned about the sale of shells, shell parts and other marine 'curios' such as corals, dried seahorses and starfish. Most of the shell material that is sold is of tropical marine origin, although some temperate species may be present as well. A proportion of tropical land and freshwater Mollusca may also be encountered, sometimes, rather confusingly, mixed in with marine shells. The suppliers of much shell material usually claim that they are common species and that many shells are the waste, by-products of food production. Whilst this is certainly often the case, there is much evidence that many, usually 'pretty and colourful' tropical species are collected and killed in large numbers simply to supply this trade.

There is no doubt that in certain tropical areas once common and widespread species are now much rarer and even threatened as a result of this trade. It is perhaps most serious when it impacts on populations of large, slow-growing and therefore usually long-lived species such as 'giant clams'. A number of larger tropical land snails may also be at risk and the collection and sale of certain species is particularly worrying if they are island species or local forms with limited distribution.

In order to try to gather a more complete picture of the extent of this curio trade this survey has been launched. As well as finding shells and other 'curios' in predictable outlets like seaside gift shops and garden centres, supplies may also be found in less likely places such as DIY centres. Indeed one of the catalysts that stimulated the Conchological Society to take action in 1996 was the sale of 'shell pictures' by Sainsbury's Homebase.

You are asked to use only one card per shop or sales outlet surveyed. The completed cards should be returned directly to the

Marine Conservation Society at the address given on the card. It might be helpful to note in brackets, next to your name, 'Conch. Soc.' to indicate the Society origin of the reply. If you would like to request more cards then please ring or write directly to the Marine Conservation Society.



POSITION VACANT

The Hon. General Secretary will be standing down at the March 2000 AGM. The Society urgently needs a volunteer to take on this post and any nomination will be welcome, preferably by 31 December 1999. Would anyone who is interested please contact the Hon. Secretary for further details:

Ms Jane Reynolds

████████████████████

████████████████████

London [REDACTED]

Tel. [REDACTED]

Proximal and Distal, again

David Long

[REDACTED], Cheltenham,
Gloucestershire [REDACTED]

The note in the *Conchologists' Newsletter* for September 1999 (No. 150 pp. 223-224) has resulted in two pieces of correspondence. First, Dr Edmund Gittenberger (the Netherlands National Museum of Natural History) writes:

'In prosobranch snails, the tip of the external penis will be considered its distal end by most authors. In pulmonates, the tip of what is usually called the penis papilla may also be seen as the most distal part of the everted so-called 'penis' during copulation. Why should the structure be viewed in its non-functional state in pulmonate snails? Anyway, the ovotestis is not the most logical point of reference here. This is so because in their ontogeny the genitalia do not develop as a single simple entity. The ducts, where the proximal versus distal terminology is most problematic in practice, develop separately. They are ectodermal ducts. Applying the 'point of origin' argument, they most logically have the skin as their origin. This results in the penis and the epiphallus being proximal and distal respectively.'

I also heard from Stella Davies:

'In slugs at least, descriptions of the genital anatomy tend to follow the path from the gonad *down* to the genital opening, and the parts are distinguished as upper and *lower* or *superior* and *inferior* – no problem! Therefore the common tendency to label the *lower* parts as *distal* is unnecessary. In copulating slugs the *upper* parts of evaginated organs become clearly *distal*. The genital opening is the point of attachment to the body *and* the point of origin from which the rudiments grow in the juvenile slug. The argument doesn't seem to have caused any major difficulties, but I think it's a good idea to make people more careful about the use of *proximal* and *distal*.'

I am grateful to both these contributors for the concept, which I did not think of when compiling the original note, that the 'point of origin' is the point from which an organ system develops, rather than, for genitalia, the point of origin for the flow of reproductive products. This seems an attractive idea, and once again readers' comments will be very welcome.

With many thanks to Stella Davies and Edmund Gittenberger for communicating their views and allowing me to make use of them in this way.

□

The Newsletter Editor sends Seasonal Greetings and Best Wishes for the New Year and Millennium Celebrations to every reader.

Many thanks to all contributors to the Newsletter, especially those who have produced articles at short notice.

Environment Agency Species Awareness Leaflets

Martin Willing

Midhurst, West Sussex,

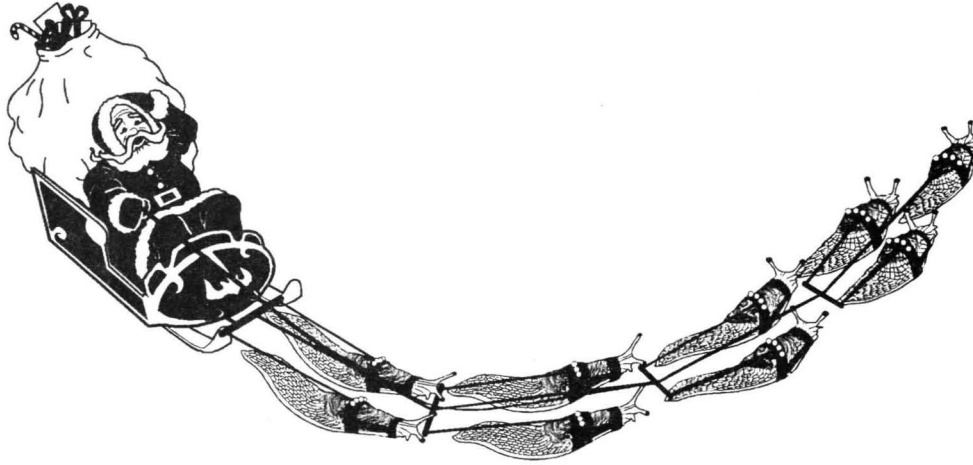
Late in 1998 the Environment Agency produced a series of awareness leaflets describing species of particular interest to Agency staff. Included in this series are two leaflets entitled *River Mussels* and *Snails*. Each leaflet is composed of four A4 pages and includes a selection of national distribution maps and black and white illustrations as well as sections dealing with habitat descriptions and identification notes. Both leaflets limit their choice of species to those freshwater molluscs appearing on the Government Biodiversity Steering Group's Priority Species List (previously known as 'Short List' species). These include *Pisidium tenuilineatum*, and *Pseudanodonta complanata* in the mussels leaflet and *Segmentina nitida*, *Anisus vorticulus*, *Myxas glutinosa* and *Catinella arenaria* in the snails leaflet. The inclusion of the wetland species *C. arenaria* is a curious choice in this otherwise freshwater selection, because other terrestrial snails appear on the Priority List and yet are not included here.

Several members of the Conservation Committee were able to provide help and advice in the production of these leaflets and as a result the Conchological Society has been given a supply to give to any members who might find them of use or interest. A number have already been distributed at indoor meetings, but if you would like to receive a set then please send an A4 (32 mm x 23 mm approx.) stamped (26p) and self-addressed envelope to the above address.

If you request these leaflets then please bear in mind that they were originally intended for internal Environment Agency use and that the contact point names given for certain species are included for the use of E.A. staff. It is likely that a modified, 'general public' version of these leaflets will be produced in the near future. Dr John Murray-Bligh of the Environment Agency is thanked for arranging for the Society to be given supplies of these documents.

□

© by Pryce Buckle 1998



*I knew I should have started earlier
this year!*

Diary of Meetings

This is a listing of all December – March 2000 meetings in date order.

Hon. Programme Secretary:

V a c a n t

Acting Programme Secretary: Ron Boyce

Ideas for speakers for Indoor Meetings and for Field Meetings for 2001 would be gratefully received. Mr Boyce may be contacted at [REDACTED] Reading, Berkshire [REDACTED]

Dates for next year's Conchological Society Field Meetings were not available in time for this issue.

IMPORTANT. Field meetings are planned months in advance, so it is recommended that Members contact the Leader, before the day, to express their interest in attending, and to check that there have been no alterations due to unforeseen circumstances.

Key to meetings

NHM	=	Natural History Museum, London, indoor meeting.
FIELD	=	Field Meeting at outdoor location.
WKSHP	=	Workshop on Molluscan topic
YCS	=	Yorkshire Conch. Soc. events.

NHM – Saturday 11 December, 14.30 hrs. Members' Meeting with the theme of 'My favourite mollusc' OR 'My favourite mollusc book.' An opportunity for Members to bring along a few slides (10 maximum) or a short presentation or exhibit to entertain us on this theme. (See page 200 of June Newsletter No. 149 for details.) Please inform the Hon. GENERAL Secretary by December 1st if you intend to bring along an item of entertainment, so that a schedule for the afternoon can be arranged.

NHM – Saturday 15 January. Speaker: Michael Jackson.

NHM – Saturday 19 February. Speaker: Janet Ridout-Sharpe.

NHM – Saturday 11 March. Annual General Meeting with Presidential Address.

Saturday 8 April 2000

Molluscs in the New Millennium: The Future of Molluscan Studies and Societies in the British Isles

A joint all-day meeting of the Malacological Society (MS) and the Conchological Society to be held at the rooms of the Linnean Society, Burlington House, Piccadilly. Further details will reach members in January.

Contact: David Reid. Tel. [REDACTED]. E-mail: dgr@nhm.ac.uk

MS – Thursday 9 June 2000. Evolution of pulmonate land snails. A joint meeting with the Linnean Society at Burlington House, Piccadilly. Contact: Peter Mordan, Tel. [REDACTED]. E-mail: dgr@nhm.ac.uk.



Subscriptions

Subscriptions for 2000 will become due on 1 January 2000 and members are asked to remit promptly, without further reminders, to the Membership Secretary:

Mr M.D. Weideli

[REDACTED]
Newbury

Berkshire [REDACTED]

Cheques should be made payable to 'The Conchological Society'. Overseas members must pay in sterling. International money orders, Eurocheques, Bankers drafts or transfers to our bank account are acceptable. Our bankers are: National Westminster Bank Plc, Bolton Branch, PO Box 2, 24 Deansgate, Bolton, Lancs. BL1 1BN, Account 0652384602. We regret that we cannot take credit card payments.

Rates are unchanged from 1999 and are:

Ordinary Member	£23.00
Family Members	£25.00
Student Members	£10.00
Institutional Members (UK)	£32.00
Institutional Members (Overseas)	£35.00

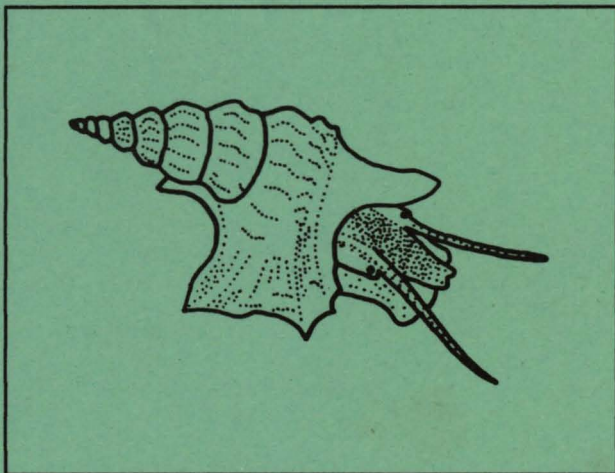
Ordinary Members, Family Members and Student Members may deduct £1.00 from the above if paid before 31 March 2000. **Will all members with Standing Orders please check that the amount they are paying is correct.** The £1.00 early payment discount will not apply if it is necessary for us to request additional payment.

The Conchologists' Newsletter

Volume 9, Part 2

No. 152

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Truncatellina cylindrica in Fife

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Truncatellina cylindrica is categorised in the *British Red Data Book* as declining and 'Vulnerable', with only two known surviving populations, in Bedfordshire and Yorkshire (Bratton, 1991). In Scotland the most recent record appears to be in Edinburgh in the 1930s, either on Castle Rock (Bratton 1991) or Arthur's Seat (Kerney 1999) (probably the latter since it was recorded by Scott (1891) on Salisbury Crag part of Arthur's Seat). In Fife there are only two records: Holocene fossils of dubious date from several sites at Elie on the south coast (Scott 1893), and pre-1840 at Balmerino on the north coast (Scott 1891).

I was therefore delighted in November 1999 to find empty but fresh shells by sieving sand from inside rabbit burrows at Dumbarnie Links Reserve in Largo Bay on the south coast of Fife, a site recently acquired by the Scottish Wildlife Trust (NO 440022). Subsequent search has turned it up throughout the reserve. So far all shells have been empty, but many look very fresh – translucent and with periostracum intact. Single fresh shells have also been found at two other sites further east, between Elie and St Monans, also in rabbit burrows on dunes.

The habitat is stable calcareous dune grassland, dominated by marram (*Ammophila arenaria*) but herb-rich, with abundant calcicole species such as cowslip (*Primula veris*) and purple milk-vetch (*Astragalus danicus*). Shells have also been found by sieving divots of grass from the same areas, but not in the more humus-rich soil in hollows amongst the dunes. They are frequently associated with *Vertigo pygmaea*, *Punctum pygmaeum* and *Vallonia excentrica*; in some burrows also with *Vallonia costata*, *Cochlicopa lubricella* and *Pupilla muscorum*.

Finding only empty shells from November to January suggests that this might be a summer annual – or are we just not finding the hibernation sites? It is perhaps of interest that although *Vallonia excentrica* has outnumbered *Vallonia costata* by about

10:1 at these sites, all the latter have been live, while all the *Vallonia excentrica* have been empty, presumably reflecting a difference in life-cycle.

The distribution recorded so far, covering about 10 km of coastline, almost coincides with the range of *Helicella itala*, which is very abundant here but occurs nowhere else on the east coast of Scotland. A search in the dunes at St Andrews and Tentsmuir (NE Fife) has failed to produce *Truncatellina*, not surprising since these are more acidic dunes, with very few shells of any kind in the sand (but including *Nesovitrea hammonis*, absent from the calcareous dunes at Dumbarnie Links). There are nineteenth century records of *Truncatellina cylindrica* from coastal dunes in Yorkshire and Lincolnshire (Kerney 1999). Has anyone there had their arms down rabbit burrows?

Acknowledgement

I am grateful to William Penrice, recorder for *Fife Nature*, for help in the field and for confirming the identification.

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The identity of alien *Physa* species in Britain and Ireland: an appeal for assistance

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I have been interested for some time in the apparently intractable problem of identifying the alien *Physa* species which occur in British and Irish freshwater habitats. The issue was underlined with the recent publication of Michael Kerney's *Atlas of the land and freshwater molluscs of Britain and Ireland* (1999), in which these taxa have disappointingly had to be lumped together as '*Physa* spp. (introduced species)'.

There is a small ray of hope in this depressing picture, which is why I have written the present article. The recent discovery of an alien *Physa* on Lough Neagh in Northern Ireland allowed me to examine the internal anatomy of fresh material at first hand and to identify the species concerned with what is probably an unusual degree of certainty. This turned out to be the widespread North American taxon *Physa gyrina* Say (Anderson 1996). It so happens that *Physa gyrina* has also been reliably reported from south Wales (Caerphilly and Whitchurch), so there is a possibility that this species may be widespread in Britain (Kerney 1999). At any rate, experience suggests that it can be identified with some degree of confidence on a combination of external and internal characters. Unfortunately, most published records of alien *Physa* in Britain have been based upon conchological characters which we now know are of little value in determining species within the family. Some species of *Physa*, and perhaps particularly the taxon we know as *Physa acuta* Draparnaud, are strongly polymorphic and the use of shell characters alone tends only to confuse the issue of identity.

Recently I received a series of preserved (alcohol) *Physa* from Lancashire and Cheshire through the good offices of Nora McMillan of Liverpool Museum. The internal anatomy of these

tallies well with published accounts of *Physa acuta* Draparnaud, a snail reported widely from Britain (Kerney 1976). Older records of this species have been, I think, determined mainly or entirely on shell characters. Current thinking is that this supposedly European species is in fact an early introduction from North America, since its only close allies are North American and there are no reliable reports of fossil (Flandrian) material within Europe (Te 1978, Brown 1980). I have a feeling that *Physa acuta* will turn out to be the most widespread alien *Physa* in Britain. The situation is, unfortunately, complicated as a number of North American species exist with affinities to *Physa acuta*, including another erstwhile introduction to our area, *P. heterostropha* Say.

Te (1978) compared North American material of *heterostropha* with a small sample of European *acuta*, and could find no reliable distinguishing feature using shell characters. The internal anatomy was slightly different (see table below) but the two axa were undoubtedly very closely related. The situation is complicated by a plethora of other North American 'species' mostly described on shell characters, which belong to the *heterostropha* group and could be implicated. Looking through the few instances where internal characters have been published for this group, it is clear once again that most of these forms are closely allied and could be interpreted as mere conchological variants, geographic races or ecophenotypes, of one species. This leads to the possibility that *heterostropha* is conspecific with *acuta*, the latter being the older name and therefore having priority. I should point out that so far this is pure conjecture and much more work needs to be done on the complex. All that can be said, on the basis of such descriptions as are available of *heterostropha*, is that its occurrence in the British Isles cannot be confirmed. Clearly it would be useful to critically examine more British material. I am therefore taking this opportunity to appeal for assistance in the supply of material in order to try and elucidate the matter.

I shall be very grateful to anyone able to send me preserved (alcohol) material of unknown *Physa* from

their neighbourhood. I am mainly interested in British material but would also be grateful for material from the continent of Europe. Some of this material may ultimately be sent on to North America for examination and comparison with taxa occurring there. The recently set up FWGNA (Freshwater Gastropods of North America) project intends to monograph all freshwater molluscs in that region, but particularly those that are currently difficult to interpret, including the Physidae. I have liaised with Dr Rob Dillon of Charleston, who is the project chairman, to exchange physid material and information. Ultimately, the taxonomy of North American physids will be looked at using DNA analysis with the hope of once and for all clarifying relationships within the group, but this is for the longer term. Initially a broad survey of anatomical and conchological characters is envisaged. This may give early clues to relationships which will be helpful on our side of the Atlantic.

For the study I require grid-referenced locality data. Live specimens should be drowned in fresh water in a stoppered tube from which air bubbles have been excluded. This takes 24–48 hours and death can be ascertained by the appearance of a yellowish stain in the normally clear water which indicates death and leakage of body fluids. Alternatively, material may be anaesthetised by a few drops of alcohol added carefully to the surface of liquid in their container and the percentage of alcohol gradually increased as the animals become insensitive. The specimens should be rinsed and transferred to 70% alcohol for permanent storage. Stoppered specimen tubes must be well protected (bubble-pack and the like) before dispatching in the post. I am not funded in any way for this work but will be happy to refund postage (in the form of stamps) where this is requested. I shall also endeavour to give the sender an opinion on every sample delivered.

Lastly, I offer below a personal interpretation of the current status of British Isles' *Physa* spp. which I hope will prove helpful:

Species	British status	Taxonomic characters
<i>Physa (Physa) fontinalis</i> (L.)	Native, widespread	Low, blunt spire; penial morphology type A ¹
<i>Physa (Physella) gyrina</i> Say	Alien, confirmed, ?very local	Sharp spired; body with large white pigment granules; penial morphology type B ¹ ; penial sheath not kinked
<i>Physa (Haitia²) acuta</i> Draparnaud	Alien, confirmed, probably very widespread in England & Wales	Sharp spired; body with inconspicuous pigment granules; penial morphology type C ¹ ; penial sheath kinked proximally; preputial gland small, adpressed; bursa copulatrix narrowly ovoid
[<i>Physa (Haitia) heterostropha</i> Say	Alien, not confirmed	As per <i>P. acuta</i> but with a larger, unflattened preputial gland, with penial sheath slightly longer than the preputium [it is slightly shorter in <i>acuta</i>) and with the bursa copulatrix more rectangular in shape]

¹According to Te (1978) penial morphology within *Physa* may be of three kinds: type A, penial sheath simple but glandular and usually with a conspicuously swollen terminus (subgenus *Physa s.s.*); type B, penial sheath two-part with glandular and non-glandular sections, neither of which are swollen conspicuously (subgenus *Physella* Haldeman); type C, penial sheath simple but nonglandular and with a swollen terminus (also a proximal kink??) (subgenus *Haitia* Clench & Aguayo).

²According to Taylor (1988) the former subgeneric name *Physodon* is preoccupied and *Haitia* therefore has priority. The taxonomy of subgenera is as embattled as everything else in the Physidae and the line I have taken here reflects only my own, probably partial, understanding.

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My favourite snail – a short talk given at the December 1999 Indoor Meeting

Rosemary Hill

, Reading

It is rather fraudulent of me to give a talk on my favourite snail since I have to admit that every new discovery always becomes my favourite of the moment. This favourite dates from my last trip to New Zealand in November 1998, where I have to confess that most of the planning had gone into my travel arrangements, not into what I would do when I got there. But then what are 26-hour plane flights for, if not for planning one's holiday? So I pulled out Powell's concise paperback edition of *Shells of New Zealand* to browse through. I found myself reading about *Janthina*.

'The violet Snails, or *Janthina*, as these delightful little gems are called, frequently wash up on our West Coast beaches during early summer. Their real home is in the open sea, but prolonged northerly winds bring them to our shores. They usually occur in large colonies, so their appearance is always a sign of wholesale destruction. Frequently the high tide line on the Muriwai Beach is strewn with these shells and their violet colour presents a very beautiful sight.'

The idea of PELAGIC gastropod entirely caught my imagination. One expects gastropods to be slow and heavy, and attached to a surface, not floating in the plankton. I had already heard of the Australasian gannet colony at Muriwai, near Auckland on the North Island of New Zealand but there was now another reason to visit. Although I did not place much hope that I might find *Janthina* on one short visit. I arrived at Muriwai on a superb sunny day, and spent a long time watching the gannets then I went to adjacent Maori Bay, which has one of the finest examples of pillow lava in the world, where a volcanic lava flow hits the sea and its pattern is preserved as the outside cools suddenly before the inside. Maori Bay, like Muriwai Beach, has much black volcanic sand overlying the usual pink sand, and it

provides a neat marker line for the strand line, which stretches for miles. And yes, there was *Janthina*, *J. exigua* to be precise, exactly where Powell said it would be. I picked it up and could not believe how light it was. After washing, sterilising it and drying it I packed it away and did not expect to see more.

Again I was wrong. Later in the trip I visited the local information office at a town called Whangarei, further up the West coast of the North Island. A leaflet there recommended a long volcanic ridge called Bream Head, which had some of the best coastal forest in the North Island, rare *Placostylus* snails and some visitor trails. Unfortunately, the leaflet was out of date and it took a long time to find the new entry point and car park, and then before I could get into the unspoilt forest the path became too precipitous to continue. Reluctantly I turned back and looked at the map for somewhere else to go. The nearest place was Ocean Beach, which is exceedingly exposed and had no shells, but some Portuguese Men-of-War (*Physalia*) had washed up on the beach. Now where had I read about them recently? Yes, in Powell.

'Together with the violet snails, two other organisms usually wash ashore, the *Physalia* ... and *Velella*.'

I have since learnt that *Janthina* eats *Velella*, but there were no *Janthina* that day. However I still wanted to get into the coastal forest at Bream Head, so I looked for another access point and drove all the way back to try the path that led to Smugglers Bay in the hope that it was less steep. I walked over to the bay first, and found myself on top of a large mound, which when the grass gave out, was made of shells, and was an enormous Maori feast midden. I stopped to photograph this and then rushed down to the beach as the tide was coming in. There was a much larger *Janthina* lying on the beach, which turned out to be *J. janthina*, but more remarkably it was still alive, with its raft of bubbles which keeps it afloat. I carefully picked it up, worried that the bubbles would fall off, but they were absolutely solid, rather like the DIY insulation foam that comes out of large aerosol cans after it has set. The live shell was also incredibly light and it was hard to believe that there could be a living animal inside. I

photographed my find but I did not wish to remove it live from the beach so I rolled up my trousers, rushed at the sea and hurled it back in. Moments later it rushed past me back up the beach, bubbles intact! So I threw it in again, and again, before finally stranding it in a large rock pool in the hope that it might float off to sea on the outgoing tide.

It is a small world. Both of these *Janthina* species are cosmopolitan, and may be washed up on the west coasts of Britain!

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Notice to Members

**The Journal of Conchology Vol. 36,
Part 6**

Would members please check their copies for mis-sequenced pages and, if found, please contact:

Colin Gillard, [REDACTED]
Taunton, Somerset [REDACTED]
for a replacement copy.

More shellsand

Christine Street

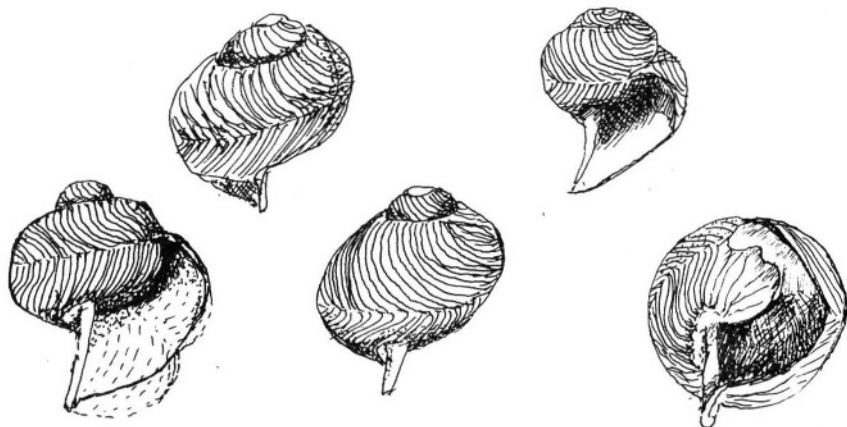
, Barkingside, Ilford

At the end of September we went for a week to Gott Bay, Tiree, in the Hebrides, a haven for shell collecting. I brought back my customary pot of shellsand to look through and was amazed to find a beautiful delicate juvenile *Janthina* slightly damaged at the mouth and apex. Not really looking at it very closely I took it to be *J. janthina* which I have found before in that area. I showed it to my visitor Sarah Longrigg the next night. She phoned back when she returned home, to say that she had looked at the book and thought it might be another, *Janthina exigua*, which had not been reported from the Western Islands before. With another close look I was very pleased to discover that she was right.

There is the rule that one should always expect one's shell to be the more common species of the two possibles, but one should look hard at it first to ascertain the possibles!

I was amazed that such a small fragile shell should have survived my washing and sieving and that I did not spot the bright mauve colour sooner. I must be very careful with my shellsand in future and thank you, Sarah, for your observation.

I have attempted to draw the little shell from various angles as below, having tried to superimpose the broken lip with dotted lines. This missing distinctive feature and small size badly misled me. Its actual size is only 3 mm.



Conchological Society Field Meeting to the National Trust Mottisfont Estate, 4.7.1998: a report of the survey findings

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In 1997 the Conchological Society sought to devote some of its field meetings each year to particular conservation goals. One such initiative was to target selected National Trust properties where few molluscan records exist. This meeting was the first of these targeted field 'meetings with a mission'!

In the fine summer weather of 4 July 1998 eight Society members (Keith Alexander, Ron Boyce, Colin Gilliard, Rosemary Hill, Judith Nelson, Mike Weideli, Terry Wimbleton and Martin Willing – see Fig. 1) gathered to undertake a survey of the freshwater Mollusca of the Test and its tributaries at Mottisfont. One small area of fen and carr was also briefly visited.

The report of the meeting is set out in rather a more formal manner in order to provide the National Trust with objective data.

Methods adopted

The estate was pre-visited on 24 May 1998 in order to plan a suitable itinerary for the forthcoming Conchological Society field meeting. Samples were taken from meeting sites 1, 2 and 3.

Aquatic Mollusca were sampled by various Society members by field netting on 4 July 1999. whilst MJW removed samples (wet-weights approximately 0.75 – 1.5kg per site) of bottom sediments from each of the six locations visited. These were subsequently laboratory wet-sieved into 2 fractions: >2mm and >0.5mm. These were examined under a x10–40 magnification zoom microscope.

Terrestrial Mollusca were surveyed in alder carr and partially shaded patches of fen in the vicinity of location X (see location map) near to the site of former, now largely overgrown fish ponds. Examination of vegetation, litter and fallen timber together with litter sieving (down to >0.5mm) produced a total of 28 species listed below.

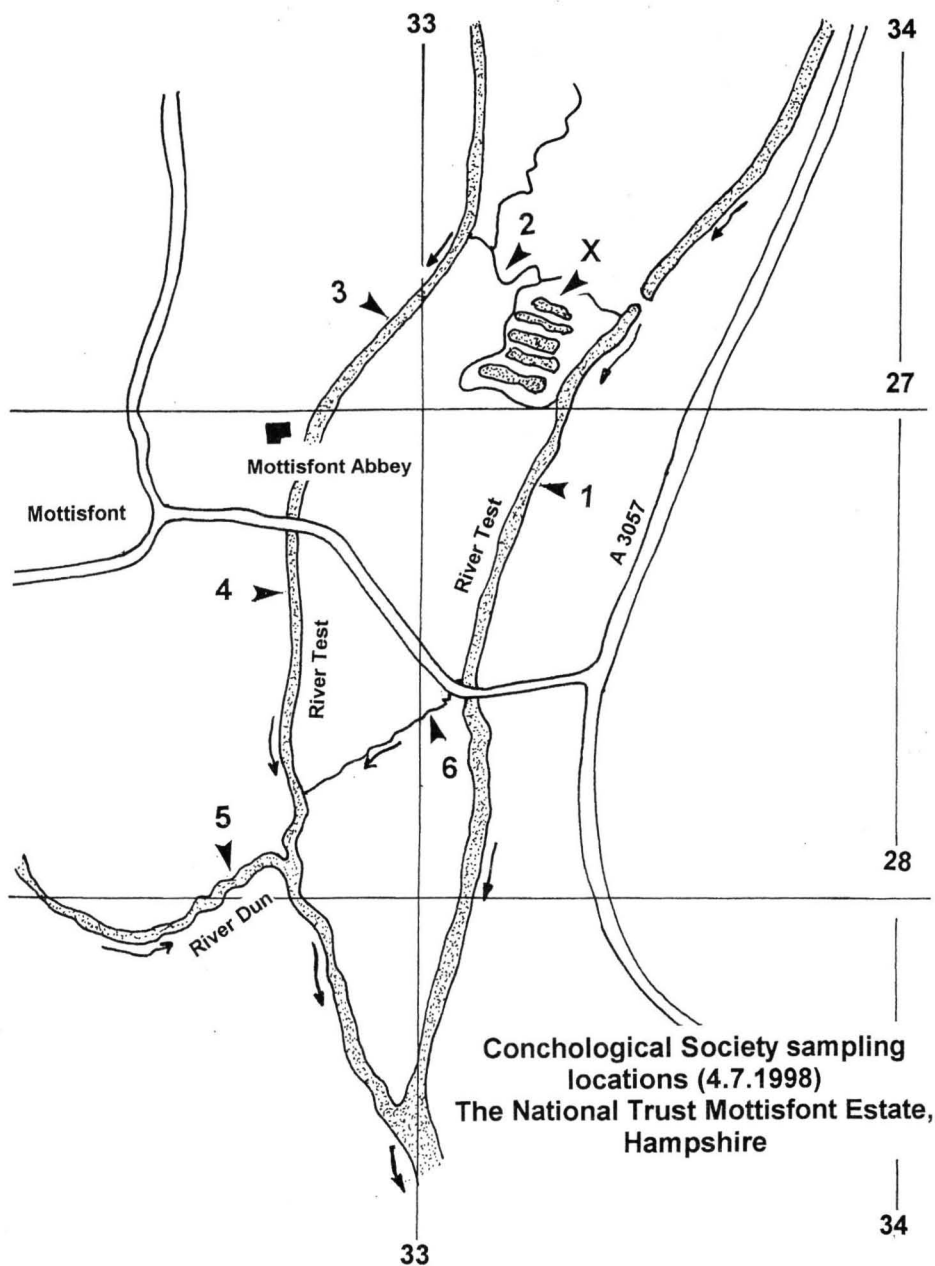




Fig. 1. Some of the participants at the Mottisfont Estate Field Meeting

Results

Aquatic Mollusca are included in Tables 1 and 2 whilst terrestrial Mollusca appear in List 1. In order to give some approximate idea of species abundance, aquatic molluscs are expressed in terms of a simple four-point scale:

R = 1 only found in sample

O = 2–5 found in sample

F = 6–19 found in sample

C = 20+ found in sample

D = dead shell only recovered (therefore age and provenance uncertain).

Brief discussion

Aquatic Mollusca

A total of 27 aquatic molluscs were recorded on the Mottisfont Estate. In general terms these represent a rich fauna typical of running, clean, hard water. The total fauna contains 4 species, *Theodoxus fluviatilis*, *Bithynia leachii*, *Pisidium pulchellum* and *P. tenuilineatum*, often associated with 'good' freshwater habitats (Kerney & Stubbs, 1980). *Pisidium pulchellum* and *Bithynia leachii* are also 'Notable b' and 'local' species respectively, whilst *P. tenuilineatum* is a Biodiversity Steering Group 'Priority' (previously Short List) species, and listed as a category 3 Red Data Book mollusc.

It is interesting that the field survey managed to record all of the larger species present at Mottisfont and only under-recorded the small *Pisidium* species which usually require laboratory examination and identification. The only other species not recorded in the field was the small planorbid, *Armiger crista* and this was only present in very low numbers in the sediment samples. It seems likely that the aquatic lists provided represent a very nearly complete aquatic fauna of the Test and its tributaries at Mottisfont. These surveys may have missed a couple of low frequency *Pisidium* species that may not be important faunal components as a result of their scarcity. A larger number of larger sediment samples may have produced live specimens of the low frequency species *Pisidium tenuilineatum*.

The discovery of *Pisidium pulchellum* at four of the sites is of note as these are the first known finds of this species from a National Trust property.

Caution should be exercised in assuming that dead shells recovered from sediment samples necessarily represent species actually living at Mottisfont. Many shells may have, in the fast currents of the Test, been washed from locations much further upstream. Numerous dead land shells were found in sediment samples (e.g. *Vertigo antivertigo*, *V. pygmaea*, *Pupilla muscorum*, *Vallonia costata*, *Punctum pygmaeum*) indicating that these contain a mixture of terrestrial debris and possibly post-glacial tufa deposits which are widespread in the Test valley flood plain (personal observation). Even dead *Pisidium tenuilineatum* may have a sub-fossil origin as this species has been recorded in tufas on the Isle of Wight (Preece 1979).

Sites 1, 2, 3, 4 and 6 produced very similar aquatic faunas, all typical of fast running, clean, hard water. The slight faunal differences recorded between these sites are probably of little significance and may reflect chance differences in sampling and sediment sorting in relation to changing water currents. This view may be reinforced by the slight faunal differences recorded at sites 2 and 3 between the first and second visits (the differences are no greater between these same sites and the different sites listed above). Site 5, the River Dunn produced rather lower species diversity. The absence of tufaceous concretions in the sediments from this river may indicate that the water contains lower Ca^{2+} levels than present at the other sites. The waters of the R. Dunn were also rather discoloured and a slight 'sewage aroma' noted on the first visit may indicate that the water is rather polluted (an overflowing septic tank or farm effluent?), a circumstance needing further investigation.

Arguably the most interesting aquatic species present is *Pisidium tenuilineatum*. Where present, this species is generally found in much lower numbers than most other Pisid species. Its ecology is very poorly known and the apparent scarcity of the bivalve may simply be due to sampling not occurring in the optimum microhabitat of the species. Recent work by I.J. Killeen

and others has shown that the species is much more widespread in England than previously suspected. It is likely that it occurs in all unpolluted waters of the Test catchment (and indeed in most other Hampshire basin rivers (e.g. it has been found in the Avon, Itchen, Loddon and others). Details of the 'expanded' Species Action Plan (Willing, 1977) discusses matters further.

Management to maintain this rich aquatic assemblage chiefly depends upon maintaining the water quality of the Test system. The chief dangers are: (1) chance pollution incidents which are difficult to plan for; (2) eutrophication and low water flows due to drought and water abstraction. All of these are 'whole catchment' issues rather than ones that can be controlled by the estate itself. It is clear therefore that the National Trust has a legitimate interest to be involved in management at the catchment level in order to protect its own interests. The channels and banks of much of the Test are and have been intensively managed for trout fishing. Maintaining traditional management practices would seem to be wise to maintain the present molluscan fauna. With such little understanding of the ecology of *Pisidium tenuilineatum* it is not possible to suggest strategies to maintain or enhance the status of this species at Mottisfont.

Terrestrial mollusca

The carr/fen to the west of the river Test at 'location X' supports a rich wet woodland – wetland molluscan community of 28 species. The most significant find are the populations of *Vertigo moulinsiana*. (RDB 3; Priority List species; EU Habitats & Species Directive, Appendix 2a entry). Although survey work within the last four years has shown this species to be widespread in margin fen habitat on all Hampshire Basin rivers, the species is still a sound indicator of 'old wetlands' of conservation importance. As such the Mottisfont population is worthy of conservation attention. The chief apparent threat to this population is the increased shading of the small areas of open fen by surrounding tree growth (chiefly willow and alder). Opening areas, with minimal use of heavy machinery, would possibly enhance these populations as *Vertigo moulinsiana* is a species intolerant of over-shading (personal observation).

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Acknowledgement

Keith Alexander, Leader of the National Trust Biological Survey Team, is thanked for arranging access to the estate.

List 1: Land Mollusca (chiefly recorded alive from shaded patches of alder fen at map location X)

<i>Carychium minimum</i>	<i>Nesovitrea hammonis</i>
<i>Carychium tridentatum</i>	<i>Aegopinella nitidula</i>
<i>Succinea putris</i>	<i>Oxychilus cellarius</i>
<i>Oxyloma pfeifferi</i>	<i>Oxychilus alliarius</i>
<i>Cochlicopa lubrica</i>	<i>Zonitoides nitidus</i>
<i>Columella edentula</i>	<i>Deroceras reticulatum</i>
<i>Vertigo moulinsiana</i>	<i>Deroceras laeve</i>
<i>Lauria cylindracea</i>	<i>Euconulus fulvus</i>
<i>Vallonia pulchella</i>	<i>Clausilia bidentata</i>
<i>Ena obscura</i>	<i>Monacha cantiana</i>
<i>Discus rotundatus</i>	<i>Ashfordia granulata</i>
<i>Arion ater</i>	<i>Trichia hispida</i>
<i>Arion subfuscus</i>	<i>Arianta arbustorum</i>
<i>Vitrea crystallina</i>	<i>Cepaea nemoralis</i>

Table 1: Mottisfont Survey Results: Aquatic Species (sampled 4.7.1999)

Site number (see attached map)	1 Test main channel	2 Test 'side drain'	2 (sampled 24.5.98)	3 'western' Test branch	3 (sampled 24.5.98)
<i>Theodoxus fluviatilis</i> *		F	F	F	O
<i>Valvata cristata</i> *	O	R	O	O	O
<i>Valvata piscinalis</i> *	R _D	F		O	F
<i>Potamopyrgus antipodarum</i> *	F	C		C	F
<i>Bithynia tentaculata</i> *		F	F	F	O
<i>Bithynia leachii</i> *	O			O	R
<i>Physa fontinalis</i> *	O		O	O	F
<i>Lymnaea palustris</i> *					R
<i>Lymnaea stagnalis</i> *	R _D		F		
<i>Lymnaea peregra</i> *	R _D	R _D	F	R	R
<i>Planorbis planorbis</i> / <i>carinatus</i> (group)*	R		F	O	F
<i>Anisus vortex</i> *	F	F	F	F	O
<i>Bathymphalus contortus</i> *	R _D		R _D		
<i>Gyraulus albus</i> *	C	F		F	C
<i>Armiger crista</i>	R _D	R _D		O _D	
<i>Ancylus fluviatilis</i> *	O	F	O	F	C
<i>Acroloxus lacustris</i> *	R				
<i>Sphaerium corneum</i> *	O	C	C	C	
<i>Pisidium amnicum</i>			O		
<i>Pisidium casertanum</i>				R	
<i>Pisidium milium</i> *	F		O	R	R
<i>Pisidium subtruncatum</i> *	C	C	C	C	C
<i>Pisidium hibernicum</i>					
<i>Pisidium nitidum</i>	C	C	C	C	C
<i>Pisidium pulchellum</i>	R _D			O	
<i>Pisidium tenuilineatum</i>	R _D				
total species count	20	both visits = 19		both visits = 20	

Table 1 continued ...

Site number (see attached map)	1 Test main channel	2 Test 'side drain'	2 (sampled 24.5.98)	3 'western' Test branch	3 (sampled 24.5.98)
Approximate water flow and nature of bank side	'medium flow'; mown, open bank side path	'fast flow', banks with overhanging tall herbaceous vegetation but not tree- shaded	as previous column	'fast flow' away from margins; largely overshaed by tall trees; margin with gravel path by boarded river margins.	as previous column
Approximate sediment descriptions	tufaceous granules, fine calcareous silt and flinty gravel & cobbles.	flint/tufaceou sgravel and tufaceous silt	as previous column	calcareous silts and organic detritus	as previous column

Key: R = 1 only found in sample

O = 2-5 found in sample

F = 6-19 found in sample

C = 20+ found in sample

D = dead shell only recovered (therefore age and provenance uncertain)

* = species also recorded in the field by Conch. Soc. members on 4.7.1999

**Table 2: Mottisfont Survey Results: Aquatic Species
(sampled 4.7.1999)**

Site number (see attached map)	4 'western' Test branch	5 lower River Dunn	6 Wallace's Ditch
<i>Theodoxus fluviatilis</i>	C		O
<i>Valvata cristata</i>	O	O	O
<i>Valvata piscinalis</i>	F	C	F
<i>Potamopyrgus antipodarum</i>	C		C
<i>Bithynia tentaculata</i>	F	C	O
<i>Bithynia leachii</i>			R
<i>Physa fontinalis</i>	O	O	F
<i>Lymnaea palustris</i>	R		F
<i>Lymnaea stagnalis</i>	R		F
<i>Lymnaea peregra</i>	O	O	F
<i>Planorbis planorbis</i> / <i>casertanum</i> (group)	R	O	O
<i>Anisus vortex</i>	F	F	F
<i>Bathymophalus contortus</i>	OD		RD
<i>Gyraulus albus</i>	O		O
<i>Armiger crista</i>	R		
<i>Planorbarius corneus</i>	R		
<i>Ancylus fluviatilis</i>	C	O	F
<i>Acroloxus lacustris</i>		R	F
<i>Sphaerium corneum</i>	C	C	C
<i>Pisidium amnicum</i>		O	
<i>Pisidium casertanum</i>			
<i>Pisidium milium</i>	R		O
<i>Pisidium subtruncatum</i>	F	C	C

Continued ...

Site number (see attached map)	4 'western' Test branch	5 lower River Dunn	6 Wallace's Ditch
<i>Pisidium hibernicum</i>	R?		R?
<i>Pisidium nitidum</i>	F	C	C
<i>Pisidium pulchellum</i>	R	RD	
<i>Pisidium tenuilineatum</i>			RD (fragment?)
<i>Pisidium obtusale</i>	R?		
total species count	23	14	22
Approximate water flow and nature of bank side	'fast flow'; river margins shaded by overhanging herbaceous vegetation	'slow flowing', shaded by overhanging herbaceous vegetation	'moderate flow' shaded by overhanging herbaceous vegetation
Approximate sediment descriptions	tufaceous gravel, and flinty gravel & cobbles.	fine organic silt and flint gravel/cobbles	tufaceous granules and silt

Key:

R = 1 only found in sample

O = 2 - 5 found in sample

F = 6 - 19 found in sample

C = 20+ found in sample

D = dead shell only recovered (therefore age and provenance uncertain)

Predatory tendencies in *Planorbarius corneus* (L)

Ron Carr

██████████, Maidstone, Kent ██████████

During early October last year I collected a number of mature Great Ram's horn snails *Planorbarius corneus* (L) from a small weedy pond at Godstone, Surrey (map reference TQ345518). The snails were added to an indoor aquarium containing three specimens of the large predaceous diving beetle, *Dytiscus marginalis* (L). It was soon observed that the snails were feeding on live earthworms and mealworms which were placed in the aquarium as food for the beetles. Adult beetles *Tenebrio molitor* (L) which subsequently developed from the mealworms were also readily accepted by the snails, and on another occasion one of the *Dytiscids* was noted to have been mysteriously decapitated after apparently becoming stuck in the shell mouth of a *Planorbarius*.

Carnivorous tendencies of the Great Pond Snail *Lymnaea stagnalis* (L) are recorded by Ellis (1926) but I can find no references in the literature to predaceous behaviour in *Planorbarius*. I would be interested to hear of any observations of a similar nature made by others.

It is also of interest to note that the Godstone Pond contained several specimens of the unpigmented variety of *Planorbarius* referred to by Ellis (1926). In this variety, the animal appears bright red owing to the presence of haemoglobin contained within the blood, a peculiarity of the genus *Planorbidae*. Associated molluscs found in the pond included *Physa fontinalis* (L) and *Musculium lacustre* (Müller).

Reference

Ellis, A.E., 1926. *British Snails*. Oxford.

□

Field work at Porth Joke, Cornwall: *Helix aspersa* predated

June E. Chatfield

Alton, Hampshire

During a stay in north Cornwall in January 1999, an opportunity was taken to join up with Hazel Meredith, a Conchological Society member living in Newquay. On 16 January, together with two other friends, we visited Porth Joke (locally known as Poly Joke), a popular sandy bay nearby (O.S. grid ref. 10/7760). The weather was sunny but cold after persistent rain the day before. From the car park a footpath was followed along the valley to the cove and then up on to the headland.

The mollusc fauna was typical of sand-dunes with *Ceriuella virgata*, *Helicella itala* (alive), *Cochlicella acuta*, *Trichia hispida*, *Theba pisana* (alive on dunes by the beach) and *Helix aspersa*. Much wind-blown sand was amongst the grass and there were drystone walls, both along the footpath and the remains of old farm buildings on the headland, where we took refuge from a hail storm. *Theba pisana* had already been found at Porth Joke (Meredith 1998) where a live colony was established. This snail, once only known in Cornwall from St Ives, is now spreading to other sites in the county. Since 1998 further sites for *Theba pisana* have been added at Bude, Porthcurno and Sennen Cove (Meredith pers. comm.). *Potamopyrgus antipodarum* was found in the stream.

The notable feature of this walk was the abundance of common garden snails (*Helix aspersa*) which was hibernating in clusters of up to 70 in large crevices of the drystone walls, both in the cove and on the headland. It was also evident that some had been disturbed, detached from the rock and had large pieces of shell removed from the body whorl and spire and the bodies within were partly eaten. With such an abundance of food the predators were evidently only eating the flesh which was easily accessible. Evidence of this type of predation on hibernating clusters of *Helix aspersa* covered a wide area. By the old farm

buildings, some oval droppings 1.5 cms long were seen by one of the snail clusters and were identified as those of the hedgehog.

Reference

Meredith, H., 1994. *Theba pisana* (Müller) now widespread along part of the north Cornish coast. *J. Conch., Lond.*, 34(6), 394-395.



Fig. 1. Cluster of hibernating *Helix aspersa* in crevice of a wall at Porth Joke, those in the foreground disturbed. Photo. Hazel Meredith.

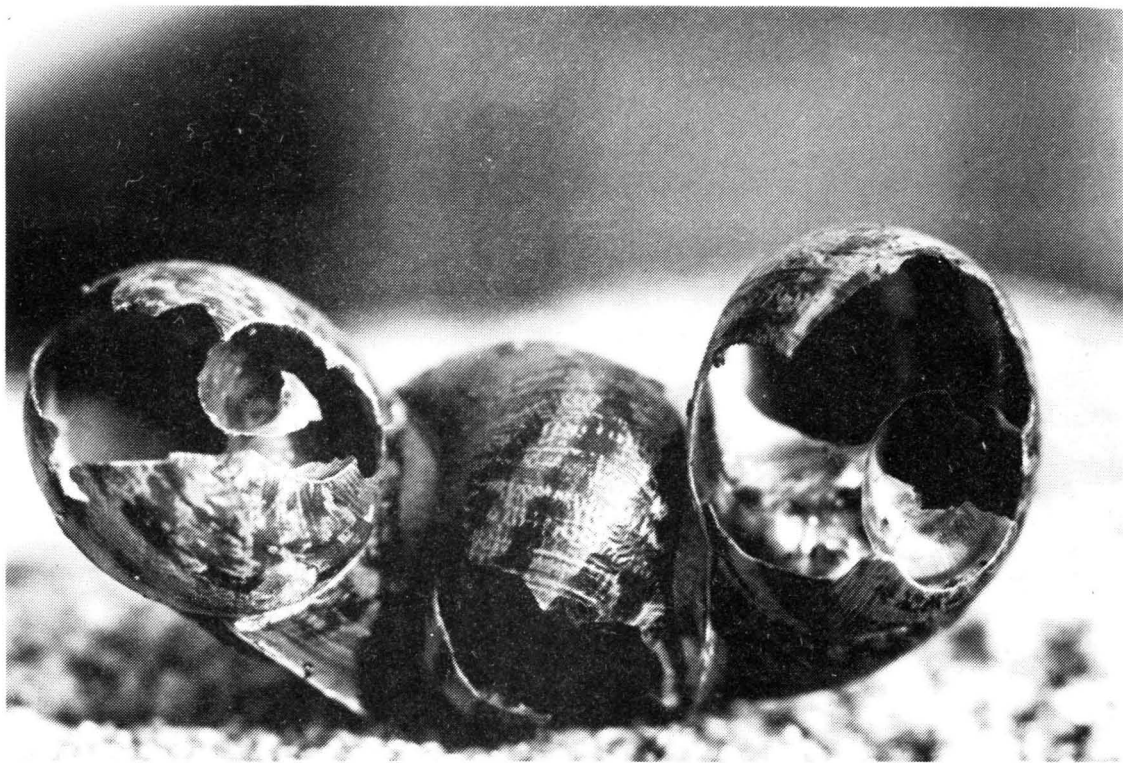


Fig. 2. Empty shells of *Helix aspersa* showing the shell broken by predators, Porth Joke.
Photo: Hazel Meredith

***Lehmannia valentiana* (Férussac) in East Kent**

Ron Carr

██████████, Maidstone, Kent ██████████

On 30 November 1999 I collected an unusual slug from beneath rubbish on waste ground close to my home in Maidstone (Map Reference TQ 755570). The appearance and situation in which the slug was found indicated *Lehmannia valentiana* (Férussac).

Dr Kerney kindly examined the mollusc and its identity was confirmed beyond doubt following dissection by Stella Davies.

Originating from the Iberian Peninsula, *L. valentiana* has been established within the British Isles in greenhouses for a number of years (Kerney 1999). The species has been found in open habitats as far north as Merseyside and Belfast since 1981. In south-east England, *L. valentiana* was recorded in 1993 from a garden in Belvedere, west Kent (VC16) (Kerney, pers. comm.). Its occurrence at the Maidstone site represents the first published record for east Kent (VC15), though Dr A.J. Rundle informs me that the species was abundant on waste ground at Sheerness, Isle of Sheppey, some years earlier.

The Maidstone site is situated near a street corner where garden refuse is regularly deposited for collection by the local Borough Council. Several more specimens have been subsequently collected at the site from beneath concrete blocks, stones and discarded sheets of plywood.

Reference

Kerney, M.P., 1999. *Atlas of the Land and Freshwater Molluscs of Britain and Ireland*. Harley Books, Colchester.

□

Field Meeting to Winchester, Hants, June 1999

June Chatfield

Alton, Hampshire

A field meeting took place at Winchester on 13 June 1999 to record molluscs on two reserves, one at Magdalen Hill Down run by Butterfly Conservation (Hampshire Branch) and the other at Winnal Moors, a wetland site on the Itchen run by Hampshire Wildlife Trust.

Magdalen Hill Down

This downland site, which overlooks the trunk road system around Winchester, is in two parts: 55 acres acquired in 1990 as downland covered with scrub and 32 acres of former arable land acquired in 1994. The new area has been sown and already has an impressive stand of wild flowers. Butterfly Conservation are keen to follow changes to the flora and fauna and to assess the management of the reserve.

The new section of Magdalen Hill yielded 11 species as live records and one species (*Ena obscura*) as shell only. Live records were *Discus rotundatus*, *Arion ater* agg., *A. distinctus*, *A. intermedius*, *Aegopinella nitidula*, *Deroceras reticulatum*, *Candidula intersecta*, *Cerņuella virgata*, *Monacha cantiana*, *Trichia hispida* and *Helix aspersa*. This is, as one might expect, an opportunistic assemblage of slugs associated with disturbed ground, pioneers of bare ground, e.g. *Cerņuella virgata* and of edge habitats e.g. *Monacha cantiana*.

In the original reserve areas of scrub have been cleared and some of the grass kept short by rabbits and there is a mosaic of long and short grass. In this area 10 species of live molluscs were found with a further 12 based on shells only. The hot summer weather did not make snails easy to find, so further field work in autumn and spring would be useful.

With the exception of *Ena obscura*, all the species on the new section were present on the original reserve. Additional species

were *Cochlicopa lubricella*, *Vertigo pygmaea*, *Pupilla muscorum* (shell only), *Vallonia costata*, *V. excentrica* (shell), *Vitrea crystallina* agg. (shell), *Nesovitrea hammonis* (shell), *Oxychilus cellarius* (shell), *O. alliarius*, *Cecilioides acicula* (shell) and *Clausilia bidentata*. A particular feature of the living mollusc population of the original reserve was the abundance of *Vertigo pygmaea* on stones – chalk lumps and flints. Some of the more shade-loving species (*Acanthinula aculeata*) and especially the shell only records, probably relate to pre-1990 when the down was covered in scrub. It will be interesting to follow the changes in the molluscs as the reserve is managed for butterflies of chalk grassland.

Winnal Moors

This site is also in two sections, one owned by Hampshire Wildlife Trust and the other by Winchester City Council, but both are managed by the Trust. This is an extensive wetland site along the chalk stream and River Itchen with sedge beds and wet meadows, some of which are being grazed. The site has a complex past history and there is a network of water meadow channels. As at Magdalen Hill Down, the two sections have a different species lists relating to the differences in past management. The Winchester City Council section, reached off North Walls, had 12 living species of mollusc and a further five based on shells while 12 different species were present on the Hampshire Wildlife Trust reserve, but less time was spent there. Both sites yielded typical wetland examples like *Ashfordia granulata*, *Zonitoides nitidus* and *Succinea putris* with *Deroceras laeve* and *Carychium minimum* in the Hampshire Wildlife Trust reserve. Winnal Moor is a known site for *Vertigo moulinsiana* which is best searched for in winter when the snails are hibernating in the sedge leaves. Time and heat of the day brought an end to the field work before the full potential of the site had been revealed. It was concluded that repeat visits would be useful to explore the freshwater fauna and search for *Pisidium tenuileatum* previously found as a shell in the Itchen and at another time of year to explore the extent of the population of *Vertigo moulinsiana*.

The remaining species found at Winnal Moors were:

Valvata piscinalis
Bithynia tentaculata
Lymnaea palustris
Lymnaea peregra
Anisus vortex
Gyraulus albus
Pisidium
Oxyloma pfeifferi
Cochlicopa lubrica
Columella edentula
Vertigo antivertigo

Punctum pygmaeum
Discus rotundatus
Arion ater agg.
Arion intermedius
Nesovitrea hammonis
Oxychilus cellarius
Oxychilus alliarius
Deroceras reticulatum
Euconulus fulvus agg.
Monacha cantiana
Trichia hispida
Cepaea hortensis

Thanks are due to Phil Budd of Butterfly Conservation (Hampshire Branch) and Hampshire Wildlife Trust for permission to visit these reserves.

□

Russell on Conchology

I have not had the pleasure of knowing any large number of conchologists, but from those who have, I have always understood that the study of shells brings contentment to those who engage in it.

Bertrand Russell in *The Conquest of Happiness* (1930)

'Singapore Shells' and Samuel Archer

Nora McMillan

*[REDACTED] Bromborough,
Wirral, Merseyside [REDACTED]*

The Liverpool brothers Francis Archer (1839-1892) and Samuel (1836-1902), both conchologists, have been written up by F.R. Woodward (1963), and the fate of their collections described,

In 1954 a Mr R.A. Fraser of Ramsbury, Wilts. offered to sell to Liverpool Museum a collection of shells made by Sam Archer, and his letters gave more information on the collector. The following quotations are from Fraser's letters of 1954:

'I expect you know about the Archer collection. Surgeon-Major Archer was stationed for a long time at Singapore and did a lot of dredging, and later I think in the China seas. He sent the shells home to his brother Francis who was then living at Blundellsands. He was the greatest friend I ever had and I helped him to make up the sets of shells of which quite a quantity were sold. This was in the 1880s. I am sending you the list of the Singapore lot which was printed at the time.'

He then went on:

'I am sorry I cannot remember when Sam Archer died. I have for a long time quite lost touch with the whole family. Sam had three daughters and two sons, the elder I know died some years ago. I knew them all very well and was fond of them especially Fanny and Mamie.'

Winckworth once showed me a copy of the 'Singapore list' referred to; it was unsigned and merely titled 'Singapore Shells' and was of 4 pp. printed on one side only. I wrongly attributed this list to the Liverpool conchologist Frederick Price Marrat (McMillan 1985, p. 14). No obituary of Samuel Archer has been traced, and I do not know the source of the date 1902.

References

- McMillan, N.F.**, 1985. Frederick Price Marrat 'Conchologist etc.', *Merseyside County Museums Occasional Papers* 3.
- Woodward, F.R.**, 1963. The Archer Family of Liverpool and their Natural History Collections. *Proceedings of the Birmingham Natural History and Philosophical Society* **20**: 3-14.

□

Courses with the Field Studies Council

The brochure of all courses at the various centres of the Field Studies Council is available from FSC Head Office, Preston Montford, Montford Bridge, Shrewsbury, Shropshire SY4 1HW, Tel. 01743 850674, Web site www.field-studies-council.org.

There are three mollusc courses:

Friday 21 - Monday 24 July 2000 at Malham Tarn Field Centre, Settle, North Yorkshire BD24 0PU, Tel. 01729 830331. *Slugs and Snails: Critical Identification of Terrestrial Molluscs*.

Tutor: Noel Jackson. Course Fee £145 (residential), £113 (non-residential)

Wednesday 16 - Wednesday 23 August 2000 at the Leonard Wills Field Centre, Nettlecombe Court, Williton, Taunton, Somerset TA4 4HT, Tel. 01984 640320. *Shell Life* (time divided between land, freshwater and marine molluscs in North Somerset)

Tutor: June Chatfield. Course fee £286 (residential), £225 (non-residential).

Friday 27 - Sunday 29 October 2000 at Juniper Hall Field Centre, Dorking, Surrey RH5 6DA, Tel. 01306 883849. *The Juniper Hall Snail Course* (terrestrial molluscs of North Downs chalkland).

Tutor: June Chatfield. Course fee £114 (residential), £89 (non-residential)

Further details on each course from leaflets issued at the individual centres.

Children's Song

Chris du Feu

Beckingham, Notts.

This delightful nursery song was sent to Plymouth Library by Charles Gardiner of Evesham, Worcs. He obtained it from Fanny Maunder who was born at Buckfastleigh, Devon in 1849. The words are:

The snail creeps out with his house on his back,
You can tell where he's been by his slimy track,
Creep, creep, creep, Oh how slowly he goes,
And you'd be the same if you carried your house.

You can't see him, but you know where he's been,
He feeds on the leaves of the plants so green,
Creep, creep, creep, Oh how slowly he goes,
And you'd be the same if you carried your house.

Still, still, still in the darkness of night,
He stealeth away ere the morning light,
Creep, creep, creep, Oh how slowly he goes,
And you'd be the same if you carried your house.

With horny eye, how he peereth about,
But the blackbird at last has found him out.
Creep, creep, creep, Oh how slowly he goes,
And you'd be the same if you carried your house.

Tap, tap, tap, on the roof of his house,
He gobbles him up like a cat would a mouse,
Creep, creep, creep, Oh how slowly he goes,
And you'd be the same if you carried your house.

□

Conchological Society of Great Britain and Ireland

MINUTES

1089th (Ordinary) meeting held on the 17 April 1999 in the Demonstration Room of the Natural History Museum starting at 2.30p.m.

In the chair: Mr Eversham with 29 members and friends present.

Apologies for absence: Ms Reynolds, Mrs McMillan, Mr Crowley, Mr Negus, Mr de Bartolomé, Mrs Turk, Mr & Mrs Rands, Mr Pinn, Mrs & Miss Fogan, Mr Killeen, Mrs Light, Mrs Long, Dr Rundle, Mr Gillard, Miss Sawyer, Mr Colston, Mr Tracey, Dr Bishop.

Minutes of the last meeting (of 30 January 1999): Read and accepted.

Matters arising: None

Nomination and election of new members: Four Ordinary members and one Student member nominated and elected.

Ordinary:

Mr Marien Faber

██████████ 1017 GN Amsterdam, The Netherlands

Mrs J.H. Creech

██████████, Northwich, Cheshire ██████████

Mr J.F. Harper

██████████, Penallt, Monmouth ██████████

Dr W.S. Penrice

██████████, Glenrothes, Fife ██████████

Student:

Mr S. Aubrey

Museum of Zoology, Dept of Zoology, Downing Street, Cambridge
CB2 3EJ

Announcements and Correspondence: Details of forthcoming meetings and events were given:

24 April, Field meeting, Gloucester, leader Mr Long; 9 May, Workshop, Reading, leader Dr Chatfield; 15 May, Field meeting, East Sussex, leader Dr Bishop; 21-23 May, Field meeting, N. Lancashire/S. Cumbria, leader Dr Colville; 12 June, Field meeting of the Yorkshire Conchological Society, leader Mr Lindley; 13 June, Field meeting, Winchester, leader Dr Chatfield; 3 July, Field meeting, Suffolk, leaders Mr Baker and Mr Killeen; 24 July, Field meeting, Essex, leaders Mrs Harvey, Mr & Mrs Wilson, 21 August, Field meeting, North Kent, leader Dr Rundle; 4 September, Field meeting of the

Yorkshire Conchological Society, leader Mr Lindley; 18 September, Indoor meeting, speaker Louise Alcock on Antarctic Cephalopods; 23-30 September, Field Meeting, Isles of Scilly, leaders Mrs Light, Mr & Mrs Pain. Advance warning was given that the December meeting was to be a themed open meeting on the subject of 'my favourite mollusc' or 'my favourite mollusc book'. Members are invited to bring along slides or specimens.

The President urged all members to support the programme of field meetings.

Miss Hill appealed for submissions for the September edition of the *Conchologists' Newsletter* to be submitted to her.

Lecture of the day:

Speaker: Dr Keith Alexander (National Trust)

Title of talk: *Mollusc Conservation in the National Trust following the November 1996 Cardiff Conference*

Any other business: In view of the continuing illness of the Honorary Treasurer, Alison Trew, and the fact that Pryce Buckle has been appointed Acting Treasurer, it was proposed that Pryce Buckle is authorised to take over the full duties of Honorary Treasurer and is made a signatory for the purpose of signing the Society's cheques, until Alison Trew is fully recovered and able to resume her duties or relinquishes the position of Honorary Treasurer. This was proposed by the President and agreed unanimously.

Meeting closed at 5.00 p.m.

Chairman

Appendix: Members' exhibits:

P. Dansey	Shell Island, Cardigan Bay
Kevin Brown	1. Article by A. Seccombe, 'Collecting <i>Marginella</i> in the Cape Peninsula'
	2. Specimens of South African Marginellidae
	3. Press cuttings on illegal fishing for <i>Haliotis</i> in South Africa.
	4. Specimens of South African <i>Haliotis</i>
	5. Book, <i>Marine Shells of South Africa</i> by G.D. Steyn and M. Lussi
	6. Press cuttings.
Helen Weideli	Magazine article ref. Limestone Pavements ref. Cumbria Field Meeting May 21-23.

□

Diary of Meetings

This is a list of all meetings in date order.

Acting Programme Secretary:

Ron Boyce, [REDACTED], Reading, Berkshire [REDACTED]

IMPORTANT: Please remember to inform the leader if you are attending a field meeting.

Key to meetings:

NHM = Natural History Museum, London, indoor meeting

FIELD = Field Meeting at outdoor location

WKSHP = Workshop on Molluscan topic

YCS = Yorkshire Conch. Soc. events

NHM – Saturday 11 March at 14.30 h: Conch. Soc. Annual General Meeting. Presidential Address – Brian Eversham: 'Small scale distributions of non-marine species.'

YCS – Saturday 11 March: indoor meeting at Leeds City Museum Resource Centre, Yeadon, at 13.00 h.

WKSHP – Saturday 25 March:

Beginners' Get-Together, hosted by Adrian Rundle, from 10.30 h until as late as you like. Meet at [REDACTED] (OS Grid reference TQ 191759).

This will be a very informal meeting arranged to help beginners to learn how to look at and name shells. Activities will include an introduction to the different groups of molluscs and how to build up and store your collection. Bring along your own shells if you have any. We don't promise that they will all be named, but if not you will certainly know more about them. All members are welcome. Please let Adrian know if you plan to attend (telephone [REDACTED]) to help with the planning. Bring packed lunch; tea, coffee and squash available throughout the day.

FIELD – Friday 31 March to Sunday 2 April:

Isle of Wight

Leaders: Bill Pocock [REDACTED] and Malcolm Symonds [REDACTED]

Another chance to collect from the richly fossiliferous Tertiary Beds exposed on the east and west corners of the Island. The last field meeting took place in April 1996. See Newsletter No. 136 for the notice and Newsletter No. 139 for the subsequent report. (Members who have joined since then, please ask for copies when registering interest.) For this meeting we have allowed 3 days instead of 2, giving the opportunity for longer visits to the same localities and visits to new localities.

By the time you read this in the March Newsletter, full details will have been finalised and a hand-out covering meeting times and places, accommodation and ferry details will be available from either leader. In the meantime the proposed itinerary is as follows:

Continued on next page ...

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Friday. Meet at 10.30 h prompt, Yarmouth Car Park, SZ 354895 for visits to Prospect Quarry and Colwell Bay.

Saturday. Meet at 11.00 h at Sandown Museum SZ 602843 (adequate parking on Sea Front), followed by a visit to Whitecliff Bay and dinner at the New Inn, Shalfleet.

Sunday. Meet at 10.00 h at Colwell Bay Car Park, SZ 327878. Visits to be finalised based on how Friday and Saturday have gone, but likely to be in the Alum Bay: Totland Bay : Headon Hill areas. With the bulk of the time spent at the West End of the Island, accommodation should be found there, with the Lymington/Yarmouth ferry crossing being the most convenient. Details of the three days are given so that members can come to all or part of the meeting. The amount of walking to sites will be kept to a minimum but wellingtons and rough outdoor clothing are essential.

Saturday 8 April – Joint one day meeting with the Malacological Society of London, Linnean Society, Burlington House, Piccadilly. 'Molluscs in the new Millennium: the future of mollusc studies and societies in the British Isles'. See enclosed promotional leaflet for further details.

YCS – Saturday 15 April: Scarborough for *Testacella scutulum* sites. Meet at Mere car park, Grid ref. TA 035859, at 11.00 h. Contact David Lindley [REDACTED]

**FIELD – Friday 12 to Sunday 14 May
Ingleton area, Yorkshire Dales**

Joint meeting with the Yorkshire Conchological Society
to record the land snails of this rich limestone area.

Leader: David Lindley [REDACTED]

The full programme is not fully confirmed but it is hoped to visit the Ingleborough estate on the Friday which has wooded gardens and leads to limestone pavements in the higher areas. On the Saturday English Nature are keen for a survey of the Ingleton falls area to take place, and confirmation is awaited from the owners regarding this. The whole area provides typical dales limestone scenery, and the tarns and flush communities on the upper slopes of the fells may be of interest to some people prepared to walk further. There is ample accommodation in this area; accommodation lists are obtainable from:

National Park Centre Clapham (open April–October): Tel. 015242 51419

Tourist Information Centre Pen-y-Gent Café: Tel. 01729 860333

Tourist Information Centre Settle: Tel. 01729 825192

The nearest stations are at Clapham which is some 2 miles south of the village, and Settle which is about 8 miles east of Clapham.

Meet on Friday 12 May at Clapham National Park car park (Grid ref. SD 745693) at 10.30 h.

**FIELD – Saturday 10 and Sunday 11 June
Kington area, Herefordshire**

Leader: Keith Alexander [REDACTED]

Recording on National Trust properties in this poorly recorded area close to the Welsh Border.

The main object of the meeting is to check out an area of tenanted farmland which held *Lymnaea glabra* in 1984. The snail was present in good numbers in the marshy fringes to two pastureland ponds linked by a drainage line. The farm tenant is keen to be shown this – to him – mystical beast and to talk with conchologists about its conservation needs. There is also an area of ancient woodland SSSI close by, crossed a stream ravine, and which has produced a record for *Limax cinereoniger*. The management plan for the wood is up for review and our thoughts on its future management would be very welcome.

For anyone staying overnight locally there will also be a choice of sites for the Sunday. Options include Bradnor Hill Quarry SSSI (showing a succession from upper Ludlow to upper Downtonian rocks of the Silurian period); Fishpool Valley SSSI (well-wooded stream valley with medieval fish ponds), with a record for *Limax tenellus*; and Brockhampton Dingles – a network of wooded ravines with very well-developed tufa deposits.

Meet at Cwmmau Farmhouse, Brilley (SO277511), 10.45 a.m. The site is in a network of narrow lanes between the A438 (Hereford to Hay-on-Wye) and A4111 (Hereford to Kington), but there are National Trust brown direction signs in the area. Cwmmau Farmhouse offers Bed & Breakfast accommodation – contact Darren & Heather Williams on [REDACTED] – they can take up to eight people in their early 17th century timber-framed and stone-tiled farmhouse. Hereford is the closest railway station.

**FIELD – Saturday 1 July
Shalford, Surrey**

Leader: Martin Willing [REDACTED]

Recording on the River Wey Navigation and surrounding wetlands as part of the Surrey Atlas project.

**FIELD – Saturday 29 July:
Hertfordshire**

Leader: Pryce Buckle [REDACTED]

Sampling the Grand Union Canal in an attempt to re-find *Pisidium tenuilineatum* near its type locality.

FIELD – Sunday 30 July

Leader: David Notton

This field meeting is being organised by David Notton (Curator of Natural History) as a Friends of Reading Museum event. Marshy ground along the River Kennet. Meet at Coley Farm, Reading (SU 704719) at 11.00 h. Contact: David Notton, Museum of Reading, Blagrove Street, Reading, Berks RG1 1QH.

**FIELD – Saturday 2 September
Quiddenham Mere, Norfolk**

Leader: Richard Preece

Recent shells of *Anisus vorticulus* and fossils of *Myxas glutinosa* are known from this old lake – are they still living?

YCS – Saturday 2 September: Kettlewell for Dowber Gill. Meet at car park on Starbotton Road, Grid ref. SE 968724, at 11.00 h. Contact David Lindley

**FIELD – Wednesday 27 September to Sunday 1 October
North Somerset and North Devon**

Leaders: Colin Gillard and Ian Killeen

A field meeting to visit a range of shores in this area during a period of good low tides. Although we shall meet at Kilve near Williton on Wednesday 27 September, participants are recommended to seek accommodation in the Barnstaple area as subsequent days will cover an area from Combe Martin to Hartland Quay. With a low tide at Kilve at 13.20 h BST there will still be plenty of time to drive to Barnstaple for accommodation that evening. Barnstaple tourist office: Tel. 01271 375000 Further details from Colin.

YCS – Saturday 7 October: Driffield area. Meet at pub in Little Driffield, Grid ref. TA 008580 at 11.00 h. Contact David Lindley

YCS – Saturday 21 October: AGM and presidential Address. Leeds Museum Resource Centre, Yeadon, at 13.00 h. Contact David Lindley

NHM – Saturday 21 October: 14.30 h. For our first indoor meeting of the new season we welcome as Guest Speakers Anna McIvor & Stephan Muller from the University of Cambridge, on the subject of 'The Depressed River Mussel in trouble'

NHM – Saturday 18 November: 14.30 h. We welcome as Guest Speakers Michel Hughes & David Bolton from Exeter Museum. Their subject is 'Can scale paint a true picture: the Devon recording experience'.

WKSHP – Saturday 25 November, 10.00 – 17.00 h. The Annual Woking Workshop kindly hosted for us by Judith Nelson offers Members the opportunity to receive tuition on identifying difficult groups.

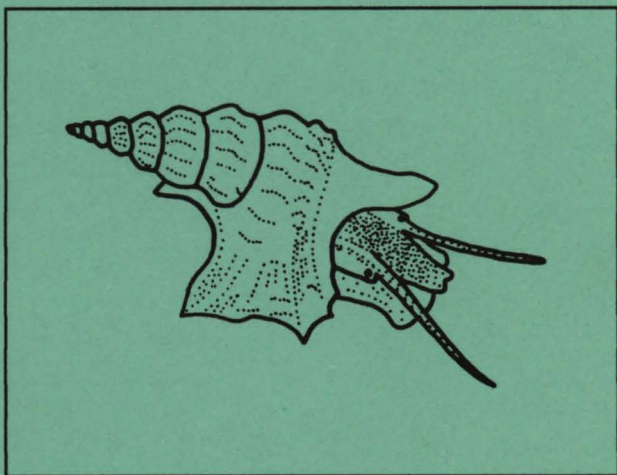
NHM – Saturday 16 December: 14.30 h. We welcome as Guest Speaker Amanda Millar from Hurstpierpoint. Her subject is 'Woodland snails and coppicing: some results from a woodland in Sussex'. □

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Molluscs of Dulwich Upper Wood, south-east London

June Chatfield

[redacted], Alton, Hampshire [redacted]

Dulwich Upper Wood in Farquhar Road, south-east London (Grid ref: 51/336715, see Fig. 1) is a small woodland open space managed, since 1981, by the Trust for Urban Ecology (TRUE). It is a hillside site on London Clay and Claygate Beds of the London basin Tertiaries with a somewhat acid soil of pH 6.5, rather more acid under the yew trees (pH 4.8) and neutral on the sites of former houses (pH 7.0). This had its origin as part of the Great North Wood, an ancient woodland extending from Lewisham to Croydon that functioned as pollard wood pasture and coppice. Some of the old pollards exist today as woodland boundaries with the Major Oak at Dulwich Upper Wood over 350 years old. Pollarding last took place in 1832.

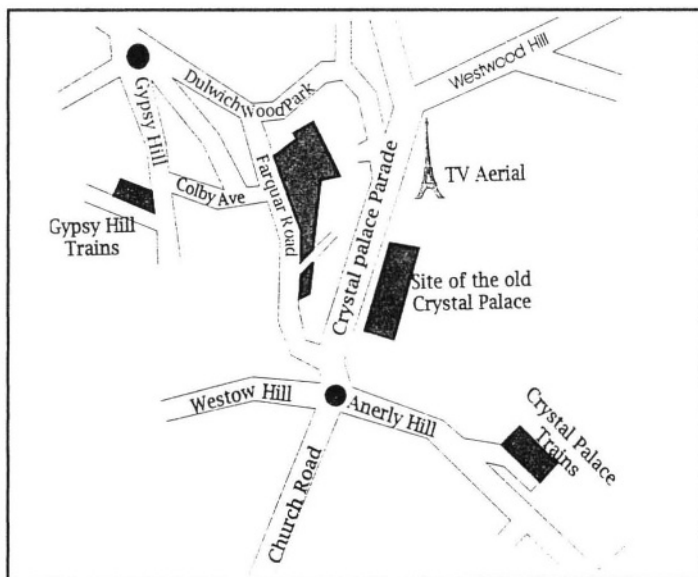


Fig. 1. Location of Dulwich Upper Wood, South-East London

In 1860 a strip of woodland was developed with a row of large Victorian villas and wooded gardens rising up from Farquhar Road to the railway line serving Crystal Palace on the hill above. Some elements of the ancient woodland trees, coppice and ground flora were allowed to remain in the large gardens. During the Second World War most of these houses suffered bomb damage and were demolished. The land owner, Dulwich College, allowed the site to revert to nature rather than being re-developed. Under the management of TRUE, there is a warden on site and the wood is open to the public.

Botanically, a particular interest of Dulwich Upper Wood is the dominance of the Sessile Oak *Quercus petraea* which is more typical of the west of Britain, but is here associated with acid soil. The leaves of this oak have long petioles or leaf stalks, unlike those of the English Oak *Q. robur* which are very short. Other native trees include Hornbeam, Field Maple, Midland and Common Hawthorn, Holly, Ash and Yew while various introduced species, related to former garden use, are also present. They include Sycamore, False Acacia and Horse Chestnut. Like many disturbed woods there are some areas of ivy on the ground and this supports the parasitic plant Ivy Broomrape *Orobanche hederaceae*.

A species list is being assembled for Dulwich Upper Wood and there are plans for demonstration displays in the cabin. As a by-product of preparation for an adult education group botanical visit on 24 November 1999, a 30-minute search provided the beginnings of a mollusc list for the site. Experienced collectors will spot many gaps in the list so there is much scope for London-based members to complete it, visiting on a wet day with further searching under logs, stones and from leaf litter samples.

Dulwich Upper Wood Molluscs

Carychium tridentatum

Lauria cylindracea

Discus rotundatus

Arion circumscriptus agg.

A. distinctus

A. intermedius
Vitrea crystallina
Aegopinella nitidula
Oxychilus draparnaudi (shell only)
O. alliarius
Tandonia budapestensis
Deroceras reticulatum
D. panormitanum (= *D. caruanae*)
Hygromia cinctella (1 shell only)

The mollusc fauna is made up of some typical woodland and leaf litter species e.g. *Carychium tridentatum*, *Arion intermedius*, *Vitrea crystallina* and *Oxychilus alliarius*, together with assemblages of human occupation sites, particularly slugs – *Arion distinctus*, *Tandonia budapestensis*, *Deroceras panormitanum* and *Oxychilus draparnaudi*. An exciting find was *Hygromia cinctella*, a southern European land snail that has been known as a well-established introduction in a limited area of the west country (Kerney 1976) but in recent years has become more widespread in the west, as well as being found in the south-east (Kerney 1999, Willing 1998). This discovery at Dulwich Upper Wood consisted of a single freshly dead shell on the higher part of the site with a scatter of dead wood and masonry.

The Warden, Jim Murphy (Tel: 0181 761 6230), will be pleased to receive further records. His address is: Warden for Dulwich Upper Wood, c/o Bowley Centre, Farquhar Road, London SE19 1SS.

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- Kerney, M.P.**, 1999. *Atlas of the land and freshwater molluscs of Britain and Ireland*. Harley Books, Colchester, Essex.
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□

Occurrence of the Shelled Slug, *Testacella haliotidea* Draparnaud, 1801 in a Bedfordshire garden

Peter Topley

■■■■■■■■■■, Clifton, Beds., ■■■■■■■■■■

Whilst moving some paving slabs in our small garden on 1st April this year, after a period of showery rain with dry intervals, I noticed that under almost every paving slab was at least one specimen of the carnivorous, shell-bearing slug, *Testacella haliotidea*. The slugs were instantly recognisable as members of the Testacellidae by their distinctive shape and the presence of a small external shell at the hind end, covering the mantle. Since I had never seen this species before, I was very surprised to find it in my own back garden!

Photographs of the slugs were sent to the Society's Non-Marine Census Recorder, Dr M.P. Kerney, who subsequently verified them as *Testacella haliotidea*. He also noted that there had only been two previous records of *T. haliotidea* in Bedfordshire, both from Bedford, which is about 10 miles north of where I live. These are (1) the original Census record of May 1911 from a garden in 'Waterloo Road', collected by E.M. Langley and verified by J.W. Taylor; and (2) a find, confirmed by A.E. Ellis and Michael Kerney, by Mrs. E.B. Rands in 1971 in the garden of a house in Bromham Park, where it was again common at the site. Interestingly, on the web site of the Milton Keynes Natural History Society, at www.hanslope.demon.co.uk/mknhs/testacella.htm, there is a report by Patricia Osborn (1996) of the further common occurrence of both *T. haliotidea* and possibly *T. scutulum* in her garden in Olney, Buckinghamshire, which is about 8 miles west of Bedford.

The paving slabs had been laid straight onto the earth two years previously in a 'temporary' position next to a north-facing fence on the other side of which is a large mature *Pyracantha* hedge. The ground on this side of the garden had previously been

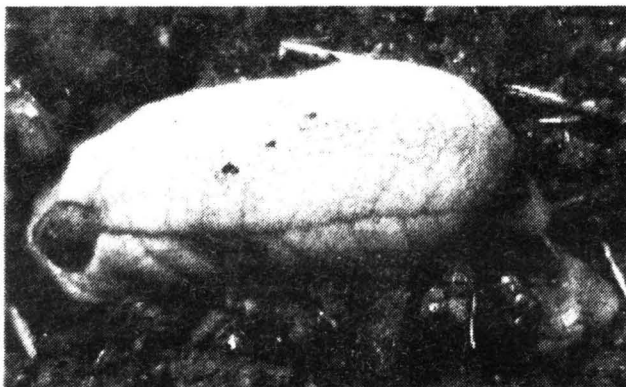


Fig. 1. *Testacella haliotidea* in contracted position.



Fig. 2. *Testacella haliotidea* expanded.

occupied by two compost heaps. Its habitat is generally described by various authors as being usually in gardens or other composted ground. It is thus of interest to note here that our house was built around fifteen years ago on the site of a plant nursery. Evidence of this frequently comes to light whilst digging in the presence of small pieces of greenhouse glass. Fifteen paving slabs were moved in all, under which I found a total of nineteen *Testacella*. The size of the each slab is 45 x 45 cm. Thus the density of slugs was approximately 6.25/m². This density may well be conservative, since other slugs may be hidden in the un-dug ground beneath. I have not discovered *Testacella haliotidea* in any other part of the garden.

Kerney (1999) mentions that due to the subterranean nature of its habitat, due largely to its method of preying upon earthworms, like other species of *Testacella*, *T. haliotidea* is difficult to find and therefore probably seriously underrecorded. An article by John Humphreys in the *Conchologists' Newsletter* for June 1981, cites the discovery of *Testacella maugei*, at a population density on this occasion of 9-10/m² in a garden being renovated in St Ives, Cornwall. However, other articles report the more 'usual' occasional discovery of isolated individuals of *Testacella* (R. Carr 1978; M. Jaques 1979). The *Testacellidae* occur mainly in warmer climates than our own, around the Western Mediterranean. Thus the species which occur in the UK are probably the result of introductions in previous centuries. They also occur on Atlantic coasts (e.g. Portugal – Rodriguez 1993) and islands such as Guernsey (Gray 1857, 1863). It would be interesting to speculate that with milder winters now being experienced, discovery of the occurrence of large numbers of *Testacella* sp. may become more common. This is despite, as reported by Ellis (1969), their ability to 'hibernate in mucus-lined chambers constructed underground ... extending the mantle ... over the hinder part of the greatly contracted body'.

As I worked in the garden, I placed the *Testacella* I found into a margarine tub for later examination. Although mostly greatly contracted when found in their position under the concrete slabs, they quickly became active when brought into a warmer room

temperature (see Figs. 1 and 2). All specimens exhibited the dull creamy-white/yellow upper side and pale foot of typical *haliotidea*, with the point of origin of the lateral grooves separated at the mantle. The mean extended length was around 9 cm. Measurements of six of the shells (in mm) were as follows: 7.6 x 5.2, 7.3 x 5.0, 7.3 x 5.1, 6.7 x 4.3, 6.6 x 4.1, 6.5 x 4.1. Most of the slugs were returned to hopefully suitable sites under the earth near where they were found.

John Gwyn Jeffreys (1862) described *Testacella* as 'scarcely inferior to the tiger, snake, or shark in its cunning and ferocity'. This is one tiger I certainly don't mind having in my garden!

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□

Observations on *Testacella scutulum* Sowerby, 1821 in a Scarborough garden, North Yorkshire

Adrian Norris, Senior Curator, Leeds City Museum, and
C. Ian Massey, [REDACTED] Scarborough, [REDACTED]

Testacella (*Testacella*) *scutulum* Sowerby, 1821, is the most common *Testacella* recorded from Yorkshire, having been recorded from vice counties 61, 62, 63 and 64 in the past. A summary of these records can be found in Norris, 1987. The earliest known record of this species from Scarborough is from a tunnel in Beeforth's Garden Esplanade recorded by J.E. Hargreaves on 11 February 1899. This specimen is now preserved in the collections held at Cliffe Castle Museum, Keighley.

Over the years single examples have been found by gardeners in the grounds of Scarborough Museum and passed to the authors. The slug was therefore known still to occur in small numbers in the Scarborough area. In 1983 soon after one of us (C.I.M.), moved into the house at 4, Whin Bank, individual specimens of *Testacella scutulum* were noted, and in 1993 while a flagstone path traversing the top edge of the lawn was being removed, three more slugs came to light. In recent years due to C.I.M.'s early retirement, a number of new sightings have been made in the garden.

In 1999 we published a short paper on the sightings of *Testacella scutulum* over the period 23 February to 19 December 1998. (Norris and Massey 1999) This was the first instance, as far as we knew, for any location in Britain of detailed records of *Testacella* sightings having been made available.

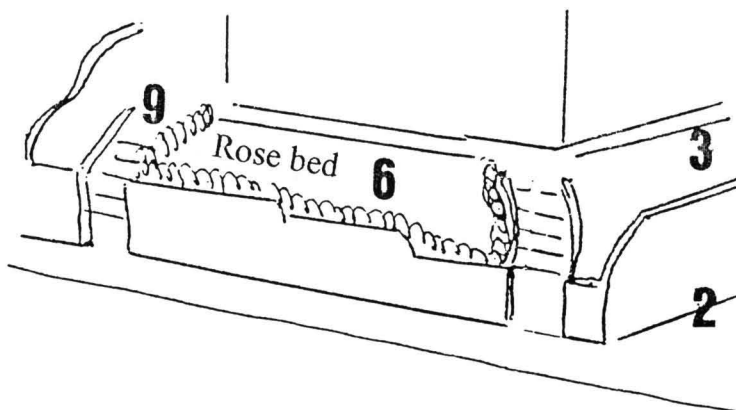
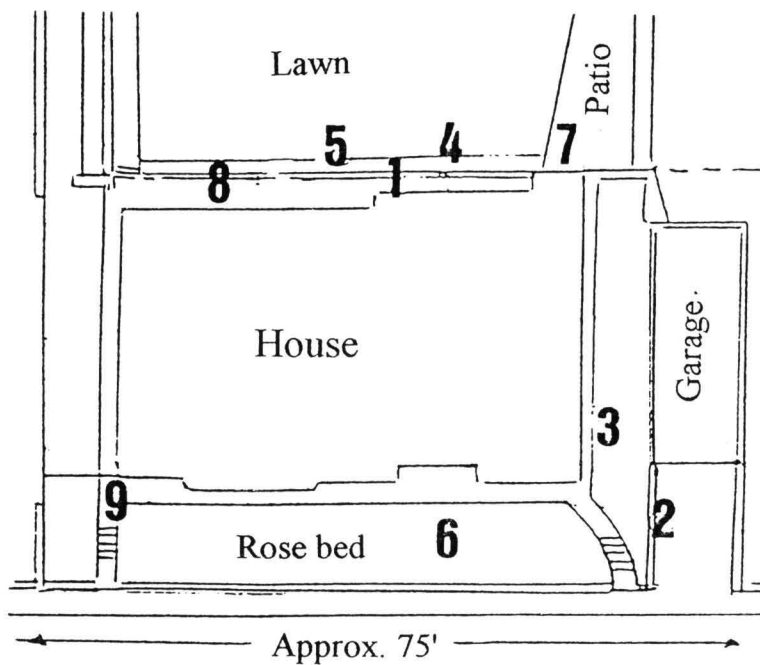
These slugs are usually associated with gardens with long-established lawns. The house and garden, and presumably the lawn itself, dates back to c. 1910. The garden is situated on a wooded bank close to an old brickworks. The topsoil covers a thick layer of clay and has a tendency to become extremely waterlogged after rain, with some areas of the lawn covered with standing water. It has been noted in the past that sightings of this slug

crawling around in gardens often occurred when the land was waterlogged. Most of the sightings occurred in the early morning, and usually after overnight rain.

The following notes list the sightings of *Testacella scutulum* from 4, Whin Bank, Scarborough during 1999. The maximum number of slugs noted on any one day from the garden was six on the 20 April 1998. It is interesting to note that sightings are almost non-existent over the summer period, the time when most people are out in their gardens and might be expected to find these slugs.

The location numbers refer to the illustration of the garden.

- 11 January One on front concrete path near front door step (near 6). Frosty night, ice on path. Garden waterlogged, overnight minimum temperature 33.3°F.
- 30 January One on back concrete path in angle of brick wall (8). Garden very waterlogged. Damp mist overnight.
- 3 February One on concrete path, top of step, at side of house (9), tail end sticking out between path and stone wall. Seen at 8.15 a.m., gone by 10.15 a.m., into ground? No rain since 30 January, overnight temperature 43.2°F. Garden still very wet.
- 23 February One on concrete path, top of step at side of house (5) at 2 p.m. just below surface. Mild, hazy sun. Soil wet but no rain for 36 hours.
- 4 March One crawling across the path at the back (8). Night of rain, after three days of rain the garden is waterlogged with standing water on the lawn. Minimum overnight temperature 37.2°F.
- 9 March One on back concrete path in angle of brick wall (8). Tenth day of rain (97.7 mm since 28 February) garden very waterlogged with standing water on lawn. Minimum overnight temperature 37°F.
- 13 March One on back concrete path in angle of path on house wall, only 75% of animal showing. Wet, mild night, garden extremely waterlogged. Very mild maximum temperature of 50°F, sunny



The garden of 4, Whin Bank, Scarborough showing location of finds in 1998.

- 15 March One at corner of concrete path and brick wall outside back door (between 4 and 7). Dry, warm, sunny overnight minimum temperature 41.4°F maximum 51.4°F
- 17 March Moved 6 pots containing herbs standing on long border at back (5) found under 2 pots, lying on soil surface.
- 24 March One at corner of concrete path and brick wall (1). Garden wet, 1.4 mm of rain in previous 24 hours. Minimum temperature 43.7°F.
- 31 March One in angle of concrete path and brick wall (1). Damp, mild sunny morning. Garden wet, previous 2 days dry and sunny.
- 31 March One at side of house in gap in rock retaining wall at concrete path level, below side garden (above 9).
- 21 April One inside front gate on flat path below steps (right side of house) near hole in brickwork, 6.15pm. Day of sunny periods, light showers, rain all day on 20th. First rain for some days after dull, cold spell with frosts.
- 22 April Two in angle of concrete path at brick wall, about 30" apart (1). Mild, damp morning. One still eating worm that was half out of gap in corner of path and wall.
- 28 April One in corner of concrete path and brick wall (1). Minimum overnight temperature 43.7°F after 11.3 hours of sunshine on the 27th.
- 2 May One in corner of concrete path and brick wall (1) at 12 noon. Found on coming home having been away on May 1.
- 13 May One in corner of concrete path and brick wall (8). Heavy thunder showers with hail over last two days.
- 13 May Two found in long border at back (5) when weeding with trowel. Minimum overnight temperature 48°F.
- 8 July One found while dismantling back wall to create new steps up onto lawn (4).

- 11 August Three found while digging over long border having rebuilt and repointed all of brick wall and built new steps (5).
- 14 August One corner of concrete path and brick wall (1). Heavy thunder storm overnight.
- 26 September One corner of brick wall and concrete path (8). Heavy overnight rain.
- 27 September Two on concrete path at back (one on path, one on wall). (8)
- 27 September One outside front door on concrete path (op. 6) very small (approx. 10 mm) pale lemon colour.
- 27 September One on path top of left side steps at front (9) and one on concrete path at back outside back door (between 4 and 7). Heavy overnight rain and is still raining.
- 28 September One on concrete path corner of house wall (1). Overnight rain.
- 29 September One on concrete path corner of brick wall (8). Two on path outside front door (op. 6) very small (details as above). One very small on concrete path top of left side steps (9) and one very small on concrete path at side of house just above 9) (both details as above). Some overnight rain.
- 2 October One on concrete path near front door step. Very small approx. 10 mm.
- 9 October One at corner of concrete path and brick wall (8).
- 24 October One at corner of concrete path at brick wall (8). Two wet days after very long dry spell.
- 25 October. One on concrete path, top of right hand steps at front. Rained all day 24th, still drizzling.
- 29 October One on front footpath base of wall below rose bed. Found while sweeping leaves.
- 29 October One on soil surface, small bed side of house (above 3).
- 12 November One on concrete path, corner of brick wall (8) and on front path, top of side steps on left (9), damp, mild overnight.

- 14 November One on concrete path at front, near top of steps, right of house.
14 November One on concrete path at left hand side of house at back (above 9).

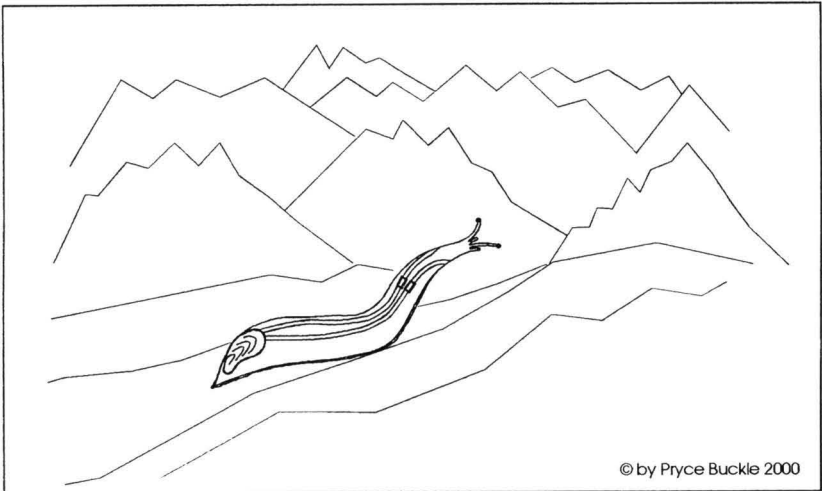
(No further specimens seen until 9 January 2000. Scarborough is enjoying a very dry, mild winter – I have never known the garden so dry at this time of year. Ian Massey).

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Footnote:

Four members of the Yorkshire Conchological Society visited Ian Massey's garden at Whin Bank, Scarborough on Saturday, 15 April 2000. Over a limited period of one hour, the rose bed (site 6) produced two adults and one hatchling, close to a cluster of eggs which we presumed to be *Testacella* eggs, whilst the flower bed (sites 4 & 5) produced a further 17 adults. The garden was waterlogged as a result of the very wet weather and the underlying clay, which is only a few inches below the surface. The garden at Whin Bank is only one of a row of similar gardens, all of which must hold substantial populations of *Testacella scutulum*.



"... I love to go a-wandering, my knapsack on my back ..."

From mollusc to frog

Mr P. O'Dubhlaoidh

, Malvern, Worcs.

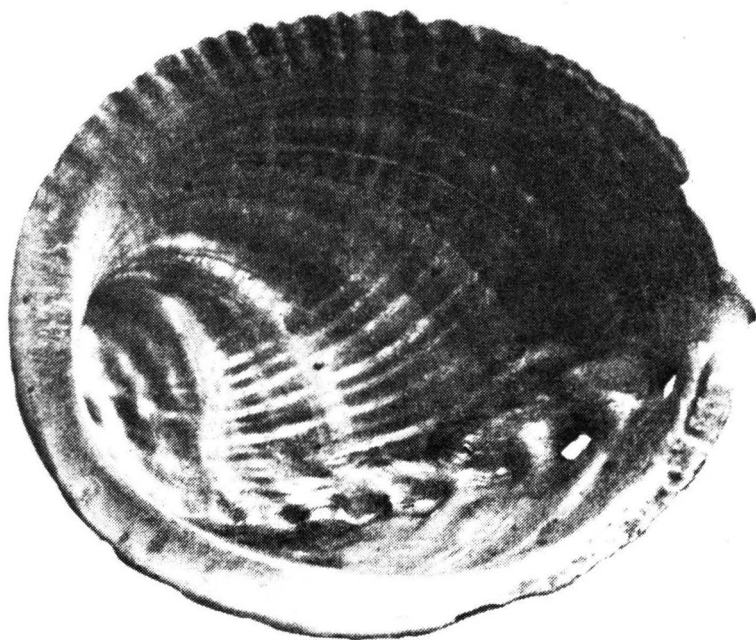
Mother-of-pearl is the nacrenous or iridescent lining of a variety of molluscan shells. It seems ironic that this beautiful material, which remains entirely hidden from view during the lifetime of its inhabitant mollusc, should have enjoyed such a long history of flamboyant display. In Renaissance Florence, wood carvers developed an ornate style of inlay called *pietra dura* using mother-of-pearl in combination with other materials, while instrument makers have used it as a decorative inlay material since the early 17th century.

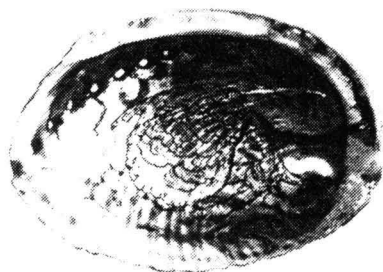
The mother-of-pearl most commonly used in violin bow making comes from the shells of oyster and abalone. The oyster shell is a flattish fan-shaped plate whereas the abalone is oval to circular in shape with a pronounced dome and is pierced by a series of holes used for respiration and excretion. The abalone is a univalve, having just a single shell. It is prevented from falling out by firmly attaching itself to the shell in a region which consequently becomes scarred. There is also a thick turned-in rim on the left side of the shell, on which it rests. A large muscular foot protrudes from the underside; this can be used as a slow, lumbering means of 'walking' but it is more normally used as a sucker of tremendous power, by which it attaches itself semi-permanently to a rock, feeding on algae scraped from the surface by means of a long rasping tongue called a radula.

Oysters are bivalves, inhabiting a pair of complementary shells. They feed with shells slightly apart, filtering water-borne food through specialised gills, and defend themselves against predators by bringing their shells together using a muscle almost as strong as the abalone's. While the abalone acts as a limpet, attaching itself firmly to rocks, the mature oyster is usually found in a seabed environment of rough sand or gravel, although in early life it, too, can form attachments by means of a fine filament known as a byssus.

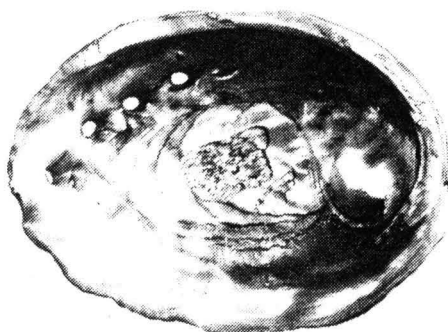


Mother-of-pearl from the *haliotis* shell is difficult to work with, due to the small size of the shell and its row of respiratory holes, but its great visual interest makes it worthwhile. (Above left) *Haliotis margaritifera* (outside view); (right) *Haliotis tuberculata* (outside view); (below) *Haliotis gigantea*.

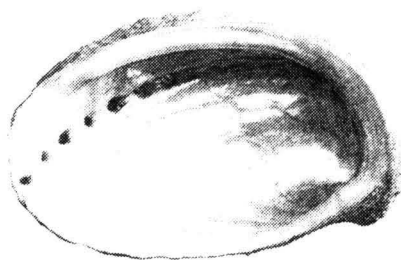




Haliotis fulgens



Haliotis rufescens



Haliotis tuberculata

Both molluscs are described as sessile (settled in one place) and as feeding in a manner known as sedentary grazing. The semi-permanent location of the abalone means that its shell is often encrusted with many other forms of life, some of which burrow into the shell using acid secretions in order to gain a foothold or, in some cases, in order to eat the abalone. Despite these problems, abalone are quite settled and there is no basis to the belief that they migrate.

While shells are occasionally harvested purely for their linings, they usually arrive on land as the by-product of some other activity. Many species of both abalone and oyster are important food products, while in some cultures they are harvested for their supposed aphrodisiac qualities. *Pinctada martensii* is farmed in great numbers as the mother shell for the Japanese cultured-pearl industry, and exotic specimens have attracted shell collectors since the 17th century.

Once on land the shells are used in many ways. The Channel Islanders have used their native species decoratively by cementing them into the outside walls of their houses, and as bird-scarers by stringing them on a line to rattle in the wind. Shell is also widely used for decorative inlay, jewellery and gambling tokens; large abalone shells have even been sold as soap dishes. Before the advent of plastic, natural materials such as shell supported industries providing practical items such as buttons and combs. The provision of cut shell to violin bow makers was merely a sideline to the industry that served these needs, and by this means the violin bow maker was placed at one remove from the primary source of this raw material. Today many violin bow makers buy their shell from specialist bow-parts suppliers and consequently are even further removed from the raw material.

Mother-of-pearl is composed of the same material as pearl itself: calcium carbonate. This is laid down in very thin continuous layers, or lamellae, rather like an onion or very fine plywood, except that any slight undulation in the lower layers becomes increasingly magnified as layers are added, until by the time the outer layers are reached a rough corrugated surface has been formed. This is completed by an external non-nacreous layer, the periostracum, which permits the mollusc to camouflage itself against the rocks.

The mollusc using one basic ingredient produces a multifunctional shell with discrete areas serving different purposes and differing in appearance. This is possible because of the variety of ways in which the calcium carbonate molecules are arranged, hydrated or combined with minor additions to produce, in the case of the nacre, a surface composed of prisms of calcium carbonate, in the form of either calcite or aragonite, laid down within a matrix of the shell protein conchiolin. The interference of light as it is repeatedly reflected through these ultra-thin films is the source of the iridescence for which the shell is prized. Because this iridescence is due to molecular structure rather than the presence of any pigment or chemical, any structural reorientation such as peeling, straightening or bending can only be achieved at the expense of iridescence, in much the same way as glass ground to a powder may retain its chemical formulation but not its transparency.

Precise shell names are seldom known by bow makers. This is partly because the small prepared pieces sold to them are difficult to identify but also because precise species is not relevant to the mother-of-pearl cutter, nor even to the fisherman supplying the cutter. Most confusing are the common names by which these three groups, violin bow makers, mother-of-pearl cutters and fishers describe shells, often producing separate industry names for the same shell. Usually a single characteristic is used for description, thereby risking the inclusion of other species which share this characteristic but perhaps no other. Different countries often have their own common names which gives an illusion of greater variety (see Table 1).

Particular confusion, even controversy, surrounds two particular species of abalone, the ormeaux and awabi, and it may be helpful to place them in a precise context. Awabi is a Japanese word, used in a general sense to indicate abalone of any species, and refers equally well to the shell or its occupant. Its use would not be inappropriate on the menu of a Japanese seafood restaurant. In the Japanese context it invariably indicates *Haliotis gigantea*, the most abundant native species. It has subsequently become known to British mother-of-pearl cutters as Japan shell.

Table 1. Common and scientific names

This table shows common associations between common and scientific names in various countries. It is not intended to show correct translation or even correct usage, only intention; e.g. Weiss Perlmutter in Germany usually *Pinctada margaritifera*, but it could apply to parts of *Pinctada maxima*, so, as the intention is unclear, it is omitted.

Scientific Name	Common Names		
	English	French	German/other
Haliotis family	Abalone Sea ear Ear shells Rainbow shells Aurora shell	Haliotide Oreille de mer (usually tuberculata)	Iris Perlmutter
Haliotis family (central scar area)	Abalone heart	Haliotide iris	Mutterkern
Pinctada family	Mother-of-pearl Nacre Oyster shell	Nacre de perle Nacre	Perlmutter
Pinctada margaritifera	Avicular (Meleagrina) Margaritifera Black lipped pearl		
Pinctada maxima	Gold lipped pearl Gold plate mother-of- pearl		Gelb perlmutter
Haliotis tuberculata	Ormer (Channel Islands) Six eyes Edible European abalone	Ormeau Sileux Oreille de mer	
Haliotis fulgens (Haliotis splendens)	Green abalone		
Haliotis australis	Austral abalone Silver paua		Paua (Maori)
Haliotis cracherodi	Black abalone		
Haliotis gigantea	Giant abalone Japan shell Giant ear shell Awabi flake	Godfich (F. Peccatte)	Awabi (Japanese) Goldfish Silverfish (central scar area)
Haliotis rufescens	Red abalone		

The term ormeaux, ormeau in the singular, is as instantly meaningful to French violin bow makers as it is inscrutable to British violin bow makers, and even to British mother-of-pearl cutters, who have been surprised by and unable to respond to recent demands for supplies of it. The recent introduction of this French term to Britain is just the final twist in a long historical spiral of etymological confusion. Ormeaux is a French common name for abalone derived from or related to the Channel Island name Ormer. This, in turn, is a vernacular constriction of the French term *oreille de mer*, which is the literal translation of the English common name for abalone, sea ear. In the European context, this can only refer to our single native species, the edible European abalone, or to be precise, *Haliotis tuberculata*.

Historically the mother-of-pearl industry is synonymous with the production of mother-of-pearl buttons, knife handles and so on. Although such buttons had been made by hand probably since the Renaissance, mass production began in Britain in the Birmingham area at the beginning of the 19th century and in France in a small town called Méru in the department of Seine et Oise from about 1830 until just before World War II. These were the European centres of the trade and, since the earliest bow slides appeared in about 1810, Méru would have been an obvious source of supply of mother-of-pearl to French bow makers.

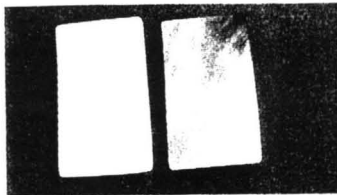
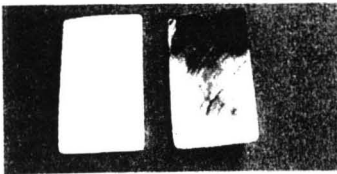
Nature's materials, although abundant, are seldom uniform enough for mass production methods, and careful selection of shells would have been required, on the basis of size, condition, thickness, curvature, visual interest and so on. *Pinctada* (oyster) has many advantages over *Haliotis* (abalone). Being larger and flatter, most of the *pinctada* shell is usable and each shell is more productive in both terms of number and size of pieces cut. Due to its flatter shell and less undulating lamellae, *Pinctada* also tends to be harder and more durable and as such was the favoured material of the ever-practical Hill workshops in London.

In comparison, the *Haliotis* presents more difficulty in working due to its size, curvature and row of respiratory holes, particularly if flat sections are required. Also, there are usually a number of holes bored by parasites to negotiate. Consequently, *pinctada* shells tend to be more expensive but are productive enough to make finished pieces cheap, while the reverse is true of *Haliotis* shells.

Table 1: comparison of average size of mature common shells



Haliotis margaritifera (top) and *Pinctada maxima* (above). *Pinctada*, which tends to be harder and more durable than *Haliotis*, was the favoured material of the Hill workshops in London.



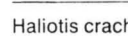
The dramatically different sides of cut *Pinctada* shell. Top: gold lipped oyster (left) and black lipped oyster viewed from the outside. Bottom: the same pieces viewed from the inside.



Haliotis tuberculata 9cm



Haliotis margaritifera 13cm



Haliotis cracherodi 15cm



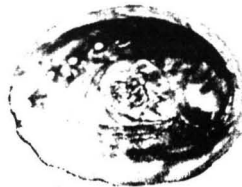
Pinctada maxima 20cm



Haliotis fulgens 20cm



Haliotis gigantea 20cm



Haliotis rufescens 30cm

The main advantage of *Haliotis* over *Pinctada* lies in its greater visual interest. This is largely a product of nature but may be greatly influenced by the skill of the cutter. Using the central area of muscle attachment will produce a confused pattern as a result of the lamellae being drawn in different directions. The remainder of the shell may be regarded as a form of corrugated plywood, with deeper corrugations on the outside and a smoother surface on the inside. Therefore any figure in the lamellae will intensify as more material is ground from the inside surface. This effect can be exaggerated by grinding from the external periostracum, exposing a more highly figured pattern, or more simply by turning a cut slab upside-down, revealing a second surface which may differ from the first as dramatically as the opposite sides of a later Guarneri 'del Gesù' scroll. With a large *Haliotis* where bands of colour or figuration occur, cuts can be made parallel or perpendicular to these or at any angle in between. We may also partly include the muscle scar or cut very curved pieces which become more ground away at the ends, thereby altering the final appearance.

Writers on bow making have very little to say on the subject of mother-of-pearl, but Joseph Roda is braver than most when he suggests in *Bows for Musical Instruments* (William Lewis and Son, Chicago 1959) that, although mother-of-pearl is found in a number of molluscs, the only species to which the term is correctly applied is *Avicula (Meleagrina) margaritifera*. This is confusing not only because it is untrue, but also because this species has subsequently been reclassified as *Pinctada margaritifera*.

John Bolander recommends 'White Pearl' (*Pinctada*) in preference to abalone, which 'although more beautiful lasts only half as long in use' (*Bow making: 1,000 bows and a tribute*, Vitali Import Co., California). He also suggests that abalone was not used by any of the 'early master bow makers'. This is clearly not the case, although he is correct in affirming the greater durability of *Pinctada*. In suggesting that any abalone seen in such a bow is a replacement, he is proposing an incredible scenario of the widespread replacement of a highly durable material with a less durable substitute.

The most interesting and most specific observations on bow pearl come from the British bow maker W.C. Retford, who suggests in *Bows and Bowmakers* (The Strad, London 1964) that mother-of-pearl may be 'straightened under pressure in boiling water'. Strictly speaking it is true that mother-of-pearl can be straightened, but only in a very limited and qualified sense. Despite this, Retford's claim has become the basis of a widely held myth that such straightening is possible in a more general and unqualified sense. For the reasons discussed above, this is not practical, and shell dealers, to whom such a technique would be a boon, know nothing of such methods. They 'flatten' their shell by a process of abrasion and the myth of straightening appears to be entirely a bow makers' one, usually allied to the belief that early makers used tiny shells in preference to larger, more accessible ones.

There is a method, mainly confined to Asian marquetry, whereby paper-thin sheets of *Haliotis gigantea* are delaminated from the shell for use as inlay. Once weakened by an acid, these sheets may be flattened. However, this method applies only to minutely thin layers, which as part of the process are further reduced, losing much of their iridescence on the way. So it is possible to flatten mother-of-pearl, but it is about as advisable as would be a course of chemotherapy as a method of hairdressing.

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□

G.B. Sowerby III's list of Lake Tanganyika shells

Bernard Verdcourt

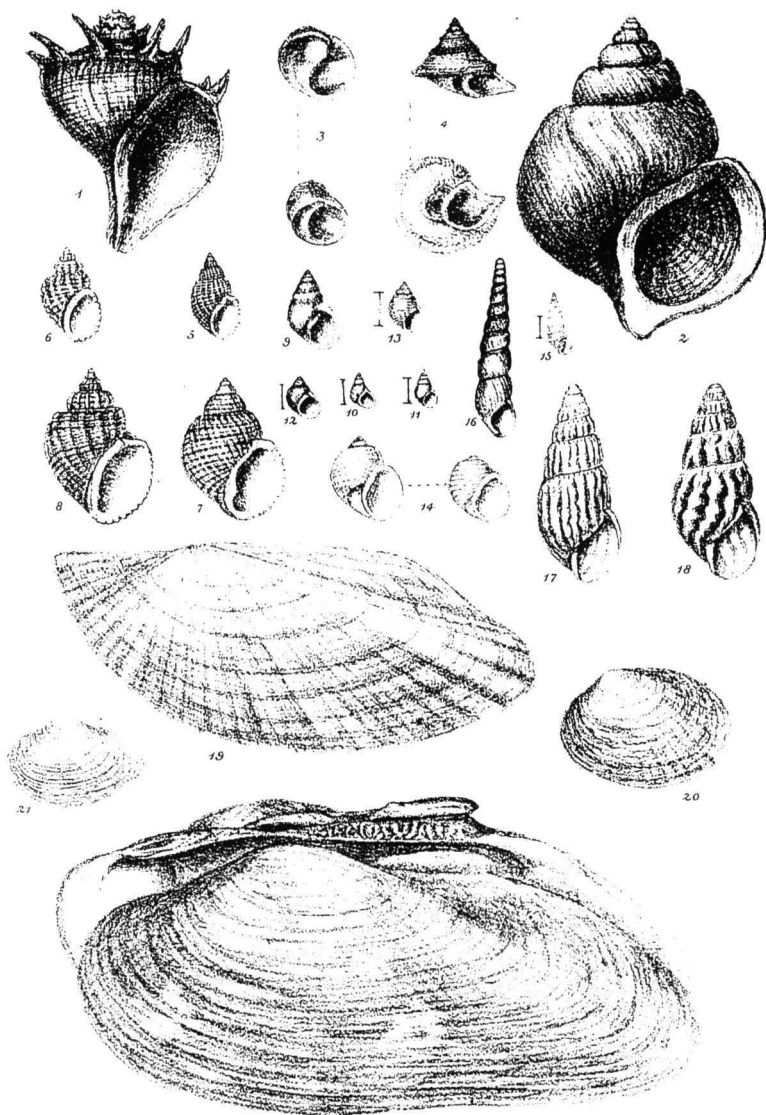
Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AB

In February 1999, Nora McMillan sent me a photocopy of a quite handsome lithographed print with the caption 'Shells of Lake Tanganyika' (sic) (an error which does not sound so odd now that the country is called Tanzania!). She asked me if I knew anything of its history. The plate depicts 22 species of land and freshwater shells from the lake and its immediate environs.

I remembered seeing references to a list of shells by Sowerby cited by Von Martens (1897) and Pilsbry and Bequaert (1927). I was unable to find the text which accompanied the plate in the Mollusca Dept. library at the Natural History Museum but noticing that it was also cited in E. Leloup's great work on the mollusca of Lake Tanganyika (1953), I wrote to the Institut Royal des Sciences Naturelles de Belgique in Brussels. Ms Rose Sablon kindly sent me the two pages of text which accompany the plate. This is entitled 'List of the shells of Lake Tanganyika to be had of G.B. Sowerby, F.L.S. &c. 121 Fulham Road, London, S.W. It is therefore essentially a superior trade list but it gives no prices. The plate was drawn on stone by Sowerby himself and printed by Hanhart about whom I know nothing. It is undated but the Brussels copy has 1890 written by the title. Pilsbry and Bequaert give the date as 1894 and Von Martens as '1890 Marz oder April' ohne Jahreszahl, ein blatt Text und eine 'Tafel, gr. 8°. Clearly 1890 can be taken as the correct date but I expect copies were printed off as required for a year or two.

There is actually a new species; fig. 8 has the caption *Paramelania* sp. 'I am not able to identify this with any of the described species; it is much larger than any of those described by Bourguignat. I should propose for it the name of *P. tabulata*.' At that date the provision of an illustration makes this a valid name but what is it? Zoologists unlike botanists are remarkably reluctant to give full synonymy. It seems clear, however, that this

SHELLS OF LAKE TANZANYIKA.



G.H. Smiley del.

22

Barbier imp.

name is a synonym of what is now called *Lavigeria grandis* (Smith, 1881). There is doubtless type material somewhere since many people and institutions bought from Sowerby. Neither the list nor the new species appears to have been noticed in the Zoological Record nor is it mentioned in Cleevely's bibliography.

As this list is long out of copyright and apparently quite scarce it is reproduced here on a much reduced scale. Since the text might be difficult to read in the reduced original and has extraneous stamps and marks, it has been reset in modern fount. Nora McMillan has asked me to state that the original plate has been presented to the Archives of the Natural History Museum.

References

- Cleevely, R.J.**, 1974. A provisional bibliography of the Sowerby family. *J. Soc. Biblphy. Nat. Hist.* **6(6)**: 482-559.
- Leloup, E.**, 1953. *Exploration Hydrobiologique du Lac Tanganika (1946-1947). Rés. Sci. III(4) Gastéropodes*. Brussels.
- Martens, E. Von**, 1897. Beschalte Weichthiere Deutsch-Ost-Afrikas (in Möbius, *Deutsch Ost-Afrikas* **4**, Abt. 1). Berlin.
- Pilsbry, H.A. & Bequaert, J.**, 1927. The aquatic mollusks of the Belgian Congo, with a geographical and ecological account of Congo malacology. *Bull. Amer. Mus. Nat. Hist.* **53**: 69-602.

(List of Lake Tanganyika shells follows)

L I S T
OF THE
SHELLS OF LAKE TANGANYIKA

TO BE HAD OF

G. B. SOWERBY, F.L.S. &c

121 FULHAM ROAD, LONDON, S.W.

(see accompanying Plate.)

Fig. 1

TIPHOBIA HOREI, *E.A. Smith*. A shell of most remarkable form and character. The several so-called species of *M. Bourguignat* all belong to this one, simply varying slightly in form, and considerably in the number and proximity of the spines.

Fig. 2

NEOTHAUMA TANGANYICENSIS, *Smith*. Of this fine generic form only one species is known, which presents considerable variation, upon which *M. Grandidier* has sought to found five species.

Fig. 3

SPEKIA ZONATA, *Woodward*. This curious genus, at first described as a *Lithoglyphus*, has very much the appearance of a marine shell. There are two very distinct varieties, as figured. Good specimens with opercula.

Fig. 4

LIMNOTROCHUS KIRKI, *Smith*. The most remarkable shell that has been found in this interesting lake. In form and sculpture it is exactly like a *Trochus* of the *Calliostoma* (or *Ziziphinus*) section, only wanting the nacreous interior. For a fresh-water shell it is almost incredible, but goes to confirm the opinion that has been expressed – that this lake was at some remote period an inland sea.

Fig. 5

PARAMELANIA NASSA, *Woodward*. Bourguignat has created twenty-three so-called species of *Paramelania*, all of which Mr. E.A. Smith thinks modifications of one and the same. Having a considerable number of specimens, they seem to me divisible into four sufficiently distinct forms to be regarded as species.

Fig. 6

PARAMELANIA PAUCICOSTATA, *Bourg.* (*P. nassa* var. *paucicostata*, *Smith*) .

Fig. 7

PARAMELANIA GRANDIS, *Bourg.* (*P. nassa*, var. *grandis*, *Smith*).

Fig. 8

PARAMELANIA sp. I am not able to identify this with any of the described species; it is much larger than any of those described by Bourguignat. I should propose for it the name of *P. tabulata*.

Fig. 9

REYMONDIA HOREI, *Smith*. Originally described as a *Melania*, but it is doubtful whether it should even be placed in that family.

Fig. 10

REYMONDIA TANGANYICENSIS, *Smith*.

Fig. 11

REYMONDIA MINOR, *Smith*.

Fig. 12

RAIGEA GIRAUDI. A small shell somewhat resembling *Phasianella pullus* in form.

Fig. 13

HOREA PONSONBYI, *Smith*. Mr Smith has placed this curious little shell as a sub-genus of *Rissoa*.

Fig. 14

TANGANYICIA RUFO-FILOSA, *Smith*. Originally described as a LITHOGLYPHUS. It has much the look of a marine shell. Two varieties figured, the smaller showing clearly the fine red transverse lines, and the larger being nearly white, and having a larger umbilicus.

Fig. 15

SYRNOLOPSIS CARINIFERA, *Smith*. Another very remarkable form closely resembling the marine genus *Syrnola*. The shells vary considerably, some being sharply keeled and others nearly smooth.

Fig. 16

STENOGYRA SOWERBYANA, *Morelet*. This and the two following are land shells from the neighbourhood of Tanganyika.

Fig. 17

LIMICOLARIA RECTISTRIGATA, *Smith*.

Fig. 18

LIMICOLARIA MARTENSIANA, *Smith*.

Fig. 19

SPATHA TANGANYICENCIS, *Smith*. A beautiful delicate semi-transparent species.

Fig. 20

UNIO BURTONI, *Woodward*. A very pretty species, the internal nacre varying in colour from white to bright purple, with intermediate shades, and sometimes a golden tint, as in the beautiful genus *Trigonia*.

Fig. 21

UNIO THOMSONI, *Smith*. Differing in form from the last, and generally white inside. Only a very few specimens in hand.

Fig. 22

PLEIODON SPEKEI, *Woodward*. A fine species of which I have only a very few specimens. □

Chalk and cheese: the East Hampshire snail hunt

June Chatfield

, Alton, Hampshire

Hampshire Wildlife Trust and East Hampshire District Council are collaborating on local Biodiversity Action Plans with various projects for public participation focusing on the under-recorded invertebrate fauna. They have invited June Chatfield (living in Hampshire) and Martin Willing (Conchological Society Conservation Officer living nearby in West Sussex) to provide specialist help.

The fieldwork project involves recording sites for four species of snail in the chalk hanger woodlands of east Hampshire that run from Selborne to beyond Petersfield. These woodlands are all of high conservation status and include sites that are SSSIs as well as a National Nature Reserve. Two of the selected species are rare and the other two more common, the latter to provide an achievable goal for participants.

Species are:

- *Helicodonta obvoluta*, the Cheese Snail, which in Britain is restricted to woodlands on the western end of the South Downs.
- *Helicigona lapicida*, the Lapidary Snail which is more widespread nationally and local in Hampshire but found in the same habitats.
- *Ena montana*, the Mountain Bulin, a fairly rare snail of calcareous woods in the south that can be recorded when looking for the other two.
- *Pomatias elegans*, the Round-mouthed Snail or Land Winkle, which is restricted to calcareous soil and more typical of woodland edge, but is much more common, easy to recognise and both widespread and abundant in the east Hampshire hanger woodlands, and which all participants will be able to find.

A handout sheet is being prepared which will give details for identification, outline some look-alike species with which these may be confused, e.g. *Trichia striolata*, the Strawberry Snail, and also highlight the best season and weather conditions to survey. The training day for the project will be **Sunday 16 July** at Buriton near Petersfield. This will include fieldwork. It is anticipated that much of the individual survey work will be done in the late summer/early autumn.

Conchological Society members, especially those with land snail identification skills, are most welcome to take part. It is hoped that more sites will be recorded for these species than are currently known.

For details, contact Debbie Wicks or Martin Harvey, Hampshire Wildlife Trust, 8 Romsey Road, Eastleigh, Hants SO50 9AL, Tel. 01703 613636. Other contacts are June Chatfield, Tel: [REDACTED] and Martin Willing, Tel. [REDACTED].

□

Ashtead Common, Surrey

June Chatfield

Alton, Hampshire

The Conchological Society field meeting in October 1998 added substantial data to the mollusc species list for Ashtead Common, a National Nature Reserve in Surrey (Chatfield 1999). This data has been included in the appendix to the new Management Plan currently being prepared by the Ashtead Common staff, employed by the Corporation of London, who manage the common. They are most grateful to the Society for the results of the field meeting.

We still have some gaps, which Surrey-based members might like to tackle. As the common was ancient pasture woodland with large old pollards, there is a chance of finding the large slug *Limax cinereoniger*, which has a tripartite sole and pointed keeled tail. Also the freshwater life needs further study, both *Pisidium* in the Rye Brook and anything in the two more distant ponds which the field meeting did not reach. Maps of the common are obtainable from the estate office in Woodfield Road behind Ashtead Railway station.

Further records should be sent to: Ashtead Common Estate Office, Woodfield Road, Ashtead, Surrey KT21 2DU, Tel: 01372 279083.

Reference

- Chatfield, J.E.**, 1999. Field meeting to Ashtead Common, Surrey: October 1998. *The Conchologists' Newsletter* Vol. 9, Pt. 1, No. 148, 146-149.

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Conchological Society of Great Britain and Ireland

MINUTES

**1090th (Ordinary) meeting held on the 18 September 1999
in the Demonstration Room of the Natural History Museum
starting at 2.30p.m.**

Announcement of deaths: The death of Mr T.E. Crowley, BSc, MICE, (Honorary) member since 1951, past President, Secretary and Treasurer was announced.

In the chair: Mr Eversham with 27 members and friends present.

Apologies for absence: Mrs McMillan, Mr Negus, Mr de Bartolomé, Mrs Turk, Mr & Mrs Rands, Dr Willing, Mrs Weideli, Mr Killeen, Dr Aldridge, Dr Preece, Mrs Platts, Mr & Mrs Long, Mrs Buckle, Mr Dance.

Minutes of the last meeting (of 17 April 1999): Read and accepted.

Matters arising: Mr Buckle was now signatory on the Society bank account and undertaking full Treasurer's duties..

Nomination and election of new members: Three full members nominated and elected:

Ordinary:

Mr J. Taplin

████████████████████, Dartford, Kent ██████████

Mr M. Rich

████████████████████, Marlow, Bucks ██████████

Mr L.D. Harfield

████████████████████, Charmouth, Dorset ██████████

Announcements and Correspondence: The Secretary read out a letter from new member David Harfield inviting members for fieldwork to his local Heritage Coast Centre, near Charmouth, Dorset.

A postal auction of books bequeathed to the Society by the late Terry Crowley raised well over £1000 for Society funds. In addition Mr Crowley left a bequest of £1000 to the Society. The post of Hon. Programme Secretary is vacant and a volunteer is needed for election at the forthcoming AGM. A nominee is also sought for the post of Hon. General Secretary. Three nominations for ordinary Council members will also be needed and anyone who is prepared to stand/has a nomination should approach the Secretary. The deadline for nominations is 31 December 1999.

A volunteer is needed to take over the running of the indoor meetings merchandise sales.

Forthcoming meetings and events: 23-30 September, Field meeting (Marine), Isles of Scilly, leaders Mrs Light, Mr & Mrs Pain; 9 October, Field meeting, Wicken Fen, Cambridge, leaders Dr Preece, Mr Eversham & Mr Colston. The next indoor meeting will take place on 23 October, where it is hoped that the speaker will be Guido T. Poppe. Members wishing to contribute to the December meeting on the theme of 'my favourite mollusc/mollusc book' should inform the Secretary.

The new *Atlas of the Land and Freshwater Molluscs of Great Britain and Ireland* was now published and Mr Weideli had brought along copies for those members who had ordered them in the Spring. Additional copies were available from Mr Gillard at the cost of £20.50 in person or £25 including postage.

A small working group is being set up to look at membership recruitment and retention. Anyone who wished to participate or had comments/suggestions to make should see Mr Weideli.

Lecture of the day:

Speaker: Louise Alcock (Edinburgh)

Title of talk: *Antarctic Cephalopods*

Papers to be read: None

Any other business: None

Meeting closed at 5.15 p.m.

Chairman.

Appendix: Members' exhibits:

P.T. Wimbleton

1. Home made field sieve – after Cameron & Kerney
2. Land snails collected from Hampshire/Sussex during 1999
3. Specimens from Conch. Soc. field meetings at Sussex May 1999 & Winchester June 1999
4. A new site for *Cerastoderma glaucum* (Poiret 1789) – Southsea, Hants, July 1999

C. Street

Thracia & Cochloidesma

J. Sawyer

Lambidae

Kevin Brown

1. Book – F.W. Lane, *Kingdom of the Octopus*
2. Book – D.G. Steyn & M. Lussi, *Marine Shells of South Africa*

	3. Specimens of <i>S. African Sepia</i>
	4. Book – J.F. Spry, <i>Sea Shells of Dar Es Salaam</i>
	5. Obituary notice re. J.F. Spry
	6. Press cuttings
P. Dansey	Norfolk freshwater Mollusca – recent articles
Adrian Rundle	Love darts and some finds from Herne Bay meeting
R.E. Hill	Two recent papers on land snail dispersal
	Marine shells from Herne Bay, Kent
J.E. Reynolds	1. Institutional members publications
	2. BBC <i>Gardeners World Magazine</i> September 1999
	3. <i>Sphere</i> by Michael Creighton (lots of squid!)
	4. Soft toy octopus
Zara Breese	Some shells for naming

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**1091st (Ordinary) meeting held on the 23 October 1999
in the Demonstration Room of the Natural History Museum
starting at 2.30p.m.**

In the chair: Mr David Long with 23 members and friends present.

Apologies for absence: Mr Eversham, Mrs Light, Dr Willing, Mrs McMillan, Mr Negus, Mr de Bartolomé, Mrs Turk, Mrs & Miss Fogan, Mr & Mrs Rands, Mr Gillard, Mr Killeen, Dr Bishop, Dr Aldridge, Mr Tracey, Mrs Long, Mrs Weideli, Dr Rundle.

Minutes of the last meeting (of 18 September 1999): Read and accepted.

Matters arising: The bequest from Mr Crowley was for £500 and not £1000 as previously stated. Mr Boyce had agreed to stand as Hon. Programme Secretary, but nominations for the post of Hon. General Secretary and three Ordinary Council members were still sought. A volunteer is also still needed for the indoor meeting bookstall.

Nomination and election of new members: No list was available.

Announcements and Correspondence:

- Next indoor meeting would be on 20 November. Due to an unavoidable

personal commitment the advertised speaker, Dr Michael Barker, was not now able to attend, but he had volunteered to provide a replacement speaker.

- Mr Pain would be writing an obituary of Mr Crowley for the *Journal of Conchology*.
- Submissions for the *Conchologists' Newsletter* are sought.
- Mr Boyce had provided cakes for the meeting as it was his birthday.

Lecture of the day:

Speaker: Jane Reynolds (London)

Title of talk: *Welcome to the House of Snails*.

Papers to be read: None.

Any other business: None.

Meeting closed at 4.40 p.m.

Chairman.

Appendix: Members' exhibits

- | | |
|---------------|--|
| Kevin Brown | 1. <i>Conchologists' Newsletter</i> No. 9, Pt. 2, Sept. 1999, article on <i>Spondylus princeps</i> |
| | 2. <i>Spondylus princeps</i> Broderip, 1833. |
| | 3. Book – J.F. Safer & F.M. Gill, <i>Spirals from the Sea</i> (includes article on anthropological use of <i>Spondylus princeps</i>). |
| | 4. Press cuttings. |
| | 5. <i>National Geographic Magazine</i> July 1992 illustrating live <i>Ilyanassa obsoleta</i> . |
| | 6. <i>Ilyanassa obsoleta</i> . |
| David Long | Snail/shell ornaments. |
| Jane Reynolds | 1. Institutional members' publications |
| | 2. Snail/mollusc scrapbooks |
| | 3. Snail/mollusc greetings cards. |

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**1092nd (Ordinary) meeting held on the 20 November 1999
in the Demonstration Room of the Natural History Museum
starting at 2.30 p.m.**

Apologies for absence: Mrs McMillan, Mr Negus, Mr de Bartolomé, Mrs Turk, Mr & Mrs Rands, Miss Sawyer, Mrs Light, Mrs Weideli, Dr Barker, Dr Chatfield, Mr Dance, Dr Kerney, Mrs Long.

Minutes of the last meeting (of 23 October 1999) Read and accepted.

Matters arising: Mr Long congratulated the Hon. General Secretary on an excellent lecture at the previous meeting.

Nomination and election of new members: One full member was nominated and elected.

Ordinary:

Mr K.W. Machin

[REDACTED], Aylesbury, Buckinghamshire [REDACTED]

Announcements and Correspondence: The next indoor meeting will take place on 11 December when the theme would be 'My favourite mollusc or mollusc book'. Anyone wishing to put their name forward was invited to see the Hon. General Secretary during the break.

Nominations for two Ordinary Council members and Hon. General Secretary were still sought. Anyone interested was asked to approach the President or Secretary during the break.

The Hon. General Secretary had received a letter from Ms Julie Field, who was Research Assistant within Natural History at The Potteries Museum and Art Gallery in Stoke-on-Trent. She was seeking information on William Hill, who was a member of the Society from 1929-1947. In particular, she was seeking a copy of an article by Mr Hill which was published in the *Journal of Conchology*. The letter was placed on display.

Lecture of the day:

Speaker: Gia Pendred (Guildford)

Title of talk: *Salinity and Molluscs*

Any other business: A request was made for contributions to the *Conchologists' Newsletter*. Places were available at the forthcoming workshop; anyone interested in attending was invited to see Miss Nelson.

Meeting closed at 5.15 p.m.

Chairman.

Appendix: Members' exhibits:

- | | |
|-----------------|--|
| Gia Pendred | Molluscs of Bangladesh |
| Terry Wimbleton | <i>Helix aspersa</i> (Müller 1774) – a series of models showing various aspects of the life of the Common Garden Snail. |
| Kevin Brown | <ol style="list-style-type: none">1. <i>Conus vexillum</i> Gmelin, 17912. The Genus <i>Harpulina</i> Dall, 19063. Book – F.E. Wells, <i>A Guide to the Common Molluscs of South-Western Australian Estuaries</i>4. Press cuttings |
| P. Dansey | <i>Ensis minor</i> characteristics |
| D.C. Long | <i>Cerithiidea</i> etc. |
| Malcolm Symonds | Fossil Nerites and Colour Banding |
| Adrian Rundle | British love darts |
| M.J. Willing | <ol style="list-style-type: none">1. JNCC leaflet2. Draft species conservation list from London Biodiversity Partnership (displayed for comment). |
| Ron Carr | Unidentified Helicids from Picos de Europa. |
| Jane Reynolds | <ol style="list-style-type: none">1. Bookstall.2. Institutional members' publications.3. Letter requesting information on William Hill.4. Programme of meetings 2000. |

□

Diary of Meetings

This is a list of all meetings in date order.

Programme Secretary:

Ron Boyce, [REDACTED] Reading, Berkshire [REDACTED]

IMPORTANT: Please remember to inform the leader if you are attending a field meeting. If you are held up in traffic or your public transport is delayed, it may be possible to ring the Programme Secretary on 0794 109 4395 on the day of the meeting for information on the location of the field site being surveyed.

Key to meetings:

NHM = Natural History Museum, London, indoor meeting

FIELD = Field Meeting at outdoor location

WKSHP = Workshop on Molluscan topic

YCS = Yorkshire Conch. Soc. events

MSL = Malacological Society of London

MSL – Thursday 8 June. Joint meeting of the Malacological Society of London and the Linnean Society, at the Linnean Society, Burlington House, Piccadilly, 17.30–19.40. 'Pulmonate land snail evolution and diversity.' Four speakers. Conch. Soc. members cordially invited. For further details contact Peter Mordan [REDACTED].

FIELD – Saturday 10 and Sunday 11 June Kington area, Herefordshire

Leader: Keith Alexander [REDACTED]

Recording on National Trust properties in this poorly recorded area close to the Welsh Border. The main object of the meeting is to check out an area of tenanted farmland which held *Lymnaea glabra* in 1984. The snail was present in good numbers in the marshy fringes to two pastureland ponds linked by a drainage line. The farm tenant is keen to be shown this – to him – mystical beast and to talk with conchologists about its conservation needs. There is also an area of ancient woodland SSSI close by, crossed a stream ravine, and which has produced a record for *Limax cinereoniger*. The management plan for the wood is up for review and our thoughts on its future management would be very welcome.

For anyone staying overnight locally there will also be a choice of sites for the Sunday. Options include Bradnor Hill Quarry SSSI (showing a succession from upper Ludlow to upper Downtonian rocks of the Silurian period); Fishpool Valley SSSI (well-wooded stream valley with medieval fish ponds), with a record for *Limax tenellus*; and Brockhampton Dingles – a network of wooded ravines with very well-developed tufa deposits.

Meet at Cwmmau Farmhouse, Brilley (SO277511), 10.45 a.m. The site is in a network of narrow lanes between the A438 (Hereford to Hay-on-Wye) and A4111 (Hereford to Kington), but there are National Trust brown direction signs in the area. Cwmmau Farmhouse offers Bed & Breakfast accommodation – contact Darren & Heather Williams on [REDACTED] – they can take up to eight people in their early 17th century timber-framed and stone-tiled farmhouse. Hereford is the closest railway station.

**FIELD – Saturday 1 July
Shalford, Surrey**

Leader: Martin Willing [REDACTED] and Ian Killeen

Please ring only Martin if you intend to come. Meet at 10.30 h at Godalming railway station on the Waterloo line (SU 966439). It is not possible to give precise grid references for field work but we are likely to be working the Navigations to the north of Shalford.

The River Wey was one of the first British rivers to be made navigable and opened to barge traffic in 1653. The River Wey and Godalming Navigations run for 20 miles between Godalming and the River Thames at Weybridge. This waterway and many associated marginal areas belong to the National Trust and at this field meeting it is intended to gather more data for the National Trust biological records as well as contributing to the Surrey Atlas project, investigating the River Wey and associated wetland areas between Shalford and Guildford. Please bring wellingtons, a suitable water net, and sieves for sampling litter from wetland areas. If there is sufficient interest we may visit a waterside hostelry for lunchtime refreshments.

FIELD– Sunday 16 July: East Hampshire Snail Hunt. See June Chatfield's article on pages 349–350.

**FIELD – Saturday 29 July:
Hertfordshire**

Leader: Pryce Buckle [REDACTED]

Sampling the Grand Union Canal in an attempt to refind *Pisidium tenuilineatum* near its type locality.

Meet at 11.00 h at the British Waterways car park at Startop's End, Marsworth (SP 919141). The current parking fee is 50p per day. Anyone travelling by rail should contact the leader beforehand so that arrangements may be made to meet them at Berkhamsted station.

Members attending are cordially invited to a small buffet/reception in Leighton Buzzard after the meeting, courtesy of Tony Swann of Wheldon and Wesley Ltd, when it will be possible to examine their stock of molluscan books and periodicals. Please contact the leader beforehand so that numbers for the reception may be obtained.

**FIELD – Sunday 30 July
Marshy ground along the River Kennet,
Berkshire**

Leader: David Notton [REDACTED]

This field meeting is being organised by David Notton (Curator of Natural History) as a Friends of Reading Museum event.

Meet at Coley Farm, Reading (SU 704719) at 11.00 h. Contact: David Notton, Museum of Reading, Blagrove Street, Reading, Berks RG1 1QH.

**FIELD – Saturday 2 September
Quidenham Mere, Norfolk**

Leader: Richard Preece

Meet at Thetford railway station at 10.30 h. Quidenham Mere is at TM 040875. We will be searching for wetland and freshwater molluscs, in particular in the hope of finding live *Anisus vorticulus* since dead shells have been found at the site. Fossil specimens of *Myxas glutinosa* have been found in the lake sediments, so there are probably surprises in store. Bring wellingtons and nets.

YCS – Saturday 2 September: Kettlewell for Dowber Gill. Meet at car park on Starbotton Road, Grid ref. SE 968724, at 11.00 h. Contact David Lindley

**FIELD – Wednesday 27 September to Sunday 1 October
North Somerset and North Devon**

Leaders: Colin Gillard and Ian Killeen

A field meeting to visit a range of shores in this area during a period of good low tides.

Although we shall meet at Kilve near Williton on Wednesday 27 September, participants are recommended to seek accommodation in the Barnstaple area as subsequent days will cover an area from Combe Martin to Hartland Quay.

With a low tide at Kilve at 13.20 h BST there will still be plenty of time to drive to Barnstaple for accommodation that evening. Barnstaple tourist office: Tel. 01271 375000. Further details from Colin.

YCS – Saturday 7 October: Driffield area. Meet at pub in Little Driffield, Grid ref. TA 008580 at 11.00 h. Contact David Lindley

YCS – Saturday 21 October: AGM and presidential Address. Leeds Museum Resource Centre, Yeadon, at 13.00 h. Contact David Lindley

NHM – Saturday 21 October: 14.30 h. For our first indoor meeting of the new season we welcome as Guest Speakers Anna McIvor & Stephan Muller from the University of Cambridge, on the subject of 'The Depressed River Mussel in trouble?'

NHM – Saturday 18 November: 14.30 h. We welcome as Guest Speakers Michel Hughes & David Bolton from Exeter Museum. Their subject is 'Can scale paint a true picture: the Devon recording experience'.

WKSHF – Saturday 25 November, 10.00 – 17.00 h. The Annual Woking Workshop kindly hosted for us by Judith Nelson offers members the opportunity to receive tuition on identifying difficult groups.

NHM – Saturday 16 December: 14.30 h. We welcome as Guest Speaker Amanda Millar from Hurstpierpoint. Her subject is 'Woodland snails and coppicing: some results from a woodland in Sussex'.

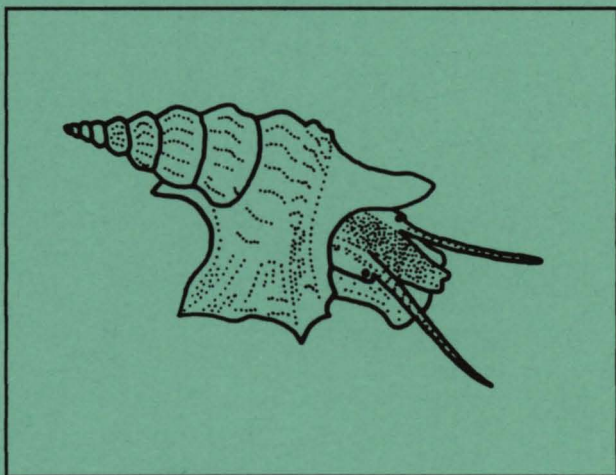


The Conchologists' Newsletter

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Wreck of Mollusca and *Ascidrella aspersa* (Müller, 1776) in the Firth of Forth

S. M. Smith

Carlisle, UK

By chance we went on the shore at Portobello on the south side of the Firth of Forth, just east of Edinburgh, 55°57.1'N 03°06.2'W, 11 April 2000. The shore faces north-east and is sandy, partly man-made (Smith, 1974) with subsequent maintenance and frequent mechanical cleaning on the upper part to remove dog mess and other litter. There was a very noticeable absence of litter washed in from the sea. The shore is backed by a promenade and has groynes at approximately 250 m intervals.

It was a neap tide and fairly far out at 17.30 hours. There had been onshore (north-easterly) gales previously but now it was merely windy. Between Pipe Street and John Street, at approximately high water neaps, there was a triple strandline. The upper, about 1 metre wide, was composed mostly of small (up to 10 mm) rolled fragments of coal (sea coal or waste from shore bings), dead and freshly wrecked molluscs, and *Lanice conchilifera* (Pallas, 1766) tubes. The lower line was similar. Between these the middle strandline, up to 3 m wide, was composed almost entirely of flattened tests of *Ascidrella aspersa*, which looked like used tea bags. A patch chosen at random indicated that there were at least 100 individuals per 1 m²; however at the north-west end of each section, near the groynes, this deposit was enlarged to at least 20 m square and the squirts were at least 5 deep. Thus the area of the wreck must have contained about 500,000 dead individuals of this species alone.

Additional species in low numbers included *Asterias rubens* L., 1758 (severed arms only), *Alcionium digitatum* L., 1758, worn. There were 25 mollusc species, of which *Spisula subtruncata* (da Costa, 1778) was the commonest with about 5 individuals per 1 m². *Modiolarca tumida* (Hanley, 1843) occurred in the *Ascidrella* tests with up to 36 individuals per test so the loss of these ran into many millions. Apart from this latter, all molluscs were sand-

dwelling and came from nearby offshore. The combination of the sand habitat of the molluscs, the hard bottom of the *Ascidiella* (presumably from reefs as there is not a very local habitat to be fouled) and the coal, shows complicated water dynamics required to bring these elements together on the shore.

The strandline described occupied about 500 m of shore. To the north-west and south-east although the shore looked much the same, the strandline had very few *Ascidiella* and was mostly a single line composed of fucoids, chiefly *F. vesiculosus*, and *Laminaria digitata*.

In order to make further checks on the wreck, the area was revisited the next morning at 06.30 hrs. There had been onshore gales in the night. The situation had changed. Most of the *Ascidiella* had gone, apart from some of the thicker patches against the groynes. So had most of the coal and mollusc lines. All that was left was a thin line of the weeds, partly covered with blown sand.

Mollusca found cast-up living

Species and comments in square brackets refer to previous records noted here for comparison. Rocky shore species such as *Littorina* spp are not discussed here.

<i>Buccinum undatum</i> L., 1758	5 large specimens seen, probably a few more
<i>Turritella communis</i> Risso, 1826	1 specimen only, numerous worn dead shells [not normally cast-up, further east below low water]
[<i>Euspira catena</i> da Costa, 1778]	Older record, common further east]
<i>Philine aperta</i> (L., 1767)	23 specimens collected, probably 1 or 2 per m ² [not normally cast-up but wrecked 1 January 1979]
<i>Mytilus edulis</i> L., 1758	8 specimens collected, not common [common on rocky areas and sometimes on groynes and stones]
[<i>Modiolus modiolus</i> (L., 1758)]	Offshore, cast-up further east]

<i>Modiolarca tumida</i> (Hanley, 1843)	36 small specimens in one test, probably millions wrecked. Not previously recorded from this part of Firth of Forth, but found cast-up further east. Only record from <i>Ascidrella aspersa</i> .
<i>Aequipecten opercularis</i> (L., 1758)	11 specimens collected, not common, size range 10-50mm. [Found cast-up, here and to the east]
<i>Lucinoma borealis</i> (L., 1758)	1 only found [usually offshore]
[<i>Mysella bidentata</i> (Montagu, 1803)]	offshore]
<i>Acanthocardia echinata</i> (L., 1758)	7 specimens collected, not common. Most specimens small (1 year). Occasionally cast-up, lives close inshore
<i>Cerastoderma edule</i> (L., 1758)	2 only found [Common]
<i>Macra stultorum</i> (L., 1758)	21 collected, probably 2-3 per m ² (1-4 years old) [Occasionally cast-up, wrecked here 1 January 1979]
[<i>Spisula solida</i> (L., 1758)]	off Musselburgh, wrecked 1 January 1979]
<i>Spisula subtruncata</i> (da Costa, 1778)	42 collected, about 5 individuals per lm ² (1-2 years) [In sand to east]
<i>Lutraria lutraria</i> (L., 1758)	4 juveniles collected, a few broken (trodden on) adults, not common [Occasionally cast-up, usually juveniles, usually further east]
<i>Ensis americanus</i> (Gould in Binney, 1870)	1 live, several dead shells, not common. New record for Sea Area 7.
<i>Ensis arcuatus</i> (Jeffreys, 1865)	2 live, several dead shells, not common. [Not previously from here. Occasionally cast-up further east, not common]

<i>Ensis siliqua</i> (L., 1758)	1 live, many dead shells, not common. [Occasionally cast-up, the commonest <i>Ensis</i>]
<i>Angulus tenuis</i> (da Costa, 1778)	3 specimens collected, possibly 1 per m ² [Fairly common]
<i>Fabulina fabula</i> (Gmelin, 1791)	16 specimens collected, probably 3 per m ² [Common below water]
<i>Macoma balthica</i> (L., 1758)	1 only found. [Locally common, not here]
<i>Abra alba</i> (W Wood, 1802)	10 specimens collected, probably 3 per m ² [Below low water]
[<i>Abra nitida</i> (Müller, 1776)]	Offshore only]
[<i>Abra prismatica</i> (Montagu, 1803)]	Offshore only]
[<i>Phaxas pellucidus</i> (Pennant, 1777)]	Offshore only]
<i>Chamelea gallina</i> (L., 1758)	13 specimens collected, probably 3 per m ² [Common on the shore further east]
<i>Venerupis senegalensis</i> (Gmelin, 1791)	2 live specimens only, many dead shells [Wrecked 1 January 1979]
<i>Dosinia lupinus</i> (L., 1758)	2 only found [Not previously from here. Occasionally cast-up further east, not common]
<i>Mysia undata</i> (Pennant, 1777)	5 live specimens, some dead shells. [Wrecked 1 January 1979]
<i>Mya truncata</i> L., 1758	4 live specimens, many dead shells, not common. [Cast-up further east]
<i>Mya arenaria</i> L., 1758	several live specimens, trodden on, many dead shells, not common. [Wrecked 1 January 1979]
[<i>Corbula gibba</i> (Olivi, 1792)]	Offshore]
[<i>Hiatella arctica</i> (L., 1758)]	Cast-up beneath <i>Alcionium digitatum</i>]

- | | |
|--|--|
| [<i>Barnea candida</i> (L., 1758)] | Living at Joppa, 1967, now extinct] |
| [<i>Zirfaea crispata</i> (L., 1758)] | Probably living at Joppa, 1967, now extinct] |
| [<i>Thracia phaseolina</i> (Lamarck, 1818)] | Occasionally cast-up] |

[Also 4 species of cephalopod]

Thus it can be seen that the chief species wrecked were *Philine aperta*, *Aequipecten opercularis*, *Macra stultorum*, *Spisula subtruncata*, *Fabulina fabula*, *Abra alba* and *Chamelea gallina*, together with the unfortunate *Modiolarca tumida*. Apparently it was a larger and more devastating wreck than in 1979. It is probable that *Spisula solida* is now extinct in this area as no live specimens or even fresh shells have been seen since 1979. These comments may be in part erroneous as I have not visited Portobello and Joppa for many years. Only 45 mollusc species have been recorded living in this part of the Firth of Forth (McKay & Smith, 1979). Specimens of *Ensis americanus* have been checked by Jan Light and Ian Killeen. *E. americanus* was first discovered in the Wash and has now spread south into the Channel as far as Rye and northwards as far as the Humber (Jan Light, *pers. comm.*). This new record represents a further significant extension of its range in British waters.

References

- McKay, D.W. & Smith, S.M.**, 1979. *Marine Mollusca of east Scotland*. Royal Scottish Museum. Edinburgh.
- Smith, S.M.**, 1974. Mollusca dredged off Musselburgh, Firth of Forth, Scotland in 1972, with particular reference to the populations of *Spisula solida* (L.). *Journal of Conchology, London*. **28**: 217-224.

□

Some observations on *Testacella*

Jane Reynolds

, London

I read with interest the two articles on *Testacella* spp. in the last issue of the *Conchologists' Newsletter* (No. 153), and thought that readers would like to know how this compares with my experience. Being a gardener I have probably had more opportunities to find this beast than other conchologists, but so far have only come across it in two of the gardens where I have actually worked.

I was a Kew Diploma Student between 1990-1993, and found *Testacella scutulum* Sowerby, 1821 in a number of areas of the garden, including the Dutch House, Grass Garden and the conservation area. The first location was during double digging in January, the second during heavy rain and the last on a CSGBI field meeting (see *Conchologists' Newsletter* No. 126). I am now Head Gardener at The Holme, a private garden in the centre of Regent's Park and have found several specimens of *Testacella scutulum* in the Flower Garden. This location bears a remarkable similarity to that described by Adrian Norris and C. Ian Massey, and some similarities to that described by Peter Topley (*Conchologists' Newsletter* No 153).

The Flower Garden is situated at the south end of the house, and consists of two parts enclosed by a yew hedge. The far end has two roughly triangular beds surrounding a fountain pond, whilst the part nearest the house is sunken about one metre below the existing level. Small walls surround a flower border about one metre wide, and there is a row of 30 cm wide paving slabs all around the inside of this with a formal lawn in the centre. I have not found any specimens in the upper part of the Flower Garden, despite double digging in the winter of 1997. This digging revealed that the original layout of these beds consisted of a number of paths radiating out from the central pond, thus the soil type (brick rubble interspersed with loam) was not particularly conducive to the presence of *Testacella*. However, the

sunken part of the garden is a much better habitat. Despite being south facing, the house, yew hedge and walls all contribute to it being quite shady, and the fact that it is sunken means that the beds are on the original clay subsoil and close to the water table. The corners in particular flood frequently in winter, and the row of paving slabs and lack of any drainage system means that water cannot easily escape. I have found *Testacella scutulum* frequently in this area, not always during digging, but often when the garden was waterlogged.

In the Footnote to the article by Adrian Norris and C. Ian Massey, it is stated that some specimens were found 'close to a cluster of eggs which we presumed to be *Testacella* eggs'. I have kept some specimens in captivity for short periods in order to more closely observe them. During this time eggs have been laid and I can confirm that these look nothing like most other slug or snail eggs that I have encountered so far. They are about 3 mm in diameter, and a beige or tan colour. Usually they are stuck together in a cluster and are quite hard. I was struck by the remarkable similarity to the commercial fertiliser Osmacote! Any 'ordinary' looking eggs found near *Testacella* are likely to be its lunch, as I can also confirm from captive rearing.

Finally Peter Topley's quote from John Gwyn Jeffreys comparing *Testacella* to 'tigers, snakes or sharks' brings to mind another experience which readers might find of interest. During my time at Kew, I was given some extra 'botanising time' principally because it had been raining persistently for three days. On walking around the garden I found a large specimen of *Testacella scutulum*, and knowing that some of my colleagues would be interested to see it, I picked it up and placed it in the pocket of my cotton jacket, having nowhere else to put it at the time. My jacket was, like myself, soaking wet, so I was not worried about the animal dehydrating, but had to be careful not to crush it. About two hours later I met a fellow student, and took the slug out to show him. As soon as I placed the specimen on my hand it bit, or rather rasped, my palm.

The pain was quite excruciating, comparable to having crushed glass ground into one's hand, causing me to swear loudly

and shake the slug off. No blood was drawn, but the area did sting for some minutes. The poor slug, which I can hardly blame for this reaction after such ill-treatment, was promptly released into the Grass Garden after being picked up again (on a piece of card, I hasten to add). Therefore it is worth noting that some degree of caution should be exhibited when handling these animals.

References

- Norris, A. and Massey, C.I.**, 2000. Observation on *Testacella scutulum* Sowerby, 1821 in a Scarborough garden, North Yorkshire. *Conch. Newsl.* **153**: 328-333.
- Reynolds, J.**, 1993. Conchological Society Field Trip to Kew Gardens – 6 March 1993. *Conch. Newsl.* **126**: 226-229.
- Topley, P.**, 2000. Occurrence of the Shelled Slug, *Testacella haliotidea* Draparnaud, 1801 in a Bedfordshire garden. *Conch. Newsl.* **153**: 324-327.

□

Mother-of-Pearl fishing

Mr P. O'Dubhlaoidh

[REDACTED], Malvern, Worcs. [REDACTED]

It has always been difficult to identify anything precisely from written sources, particularly when different names are used to describe the same objects. The task of discovering which kind of mother-of-pearl was used by bow makers in the 19th century is particularly hampered by this problem. There are more than a hundred known members of the abalone family (*Haliotis*), and the oyster family (*Pinctada*) is almost equally large. As discussed in 'From mollusc to frog', scientific names were seldom used to describe shells, while loose, convoluted or illogical etymology makes it hard to know exactly what type of shell is being referred to in the surviving sources.

The sparse words of William Retford, the most authoritative voice on this subject, need careful weighing. According to him the early bow makers 'old Tourte' and John Dodd used white mother-of-pearl (*Pinctada* from the Pacific region). From about 1810, when François Tourte had refined the bow to its modern form, until about 1850, he claims that : 'A highly coloured and figured shell was used, which is now unknown to and unobtainable to pearl traders.' He also states that: 'About the time of Voirin [c. 1850] and for what we may assume to be economic reasons, the old type of pearl was abandoned and Japanese and shell from tropical sources became of general use.' (*Bows and Bowmakers*, The Strad, London 1964, reprinted 1998.)

There is no evidence in shell literature of any species becoming rare or extinct during this period, and any shell used before Voirin should still be available, although the manner of its production may have altered. In 1847, at precisely the period in question, the mother-of-pearl-cutting industry in the French town of Méru was changing from a cottage industry where shell was hand-cut to an industrial mass-production process using machines. As observed in Part 1, the manner of cutting a shell is all-important and it is reasonable to suppose that the appearance of a shell might alter,

given such a drastic change in methods of cutting. This could explain any differences Retford observed in mother-of-pearl used after this time.

Retford also tentatively mentions black abalone (*Haliotis cracherodi*) in connection with shell used before Voirin. This would seem unlikely as it is one of the smallest and hardest of the abalone shells and is one of the few species not considered edible due to the unappetising colour of the meat. However, black abalone, with its distinctive greenish nacre, may well have been the source shell for one maker and his circle, who did immediately precede Voirin: Etienne Pajeot (1791-1849).

Retford's main candidate for the type of shell used at the time of Tourte, however, is encapsulated in his statement that: 'There is reason to believe the type used by the older makers to have been the small shells from the Channel Islands, highly coloured and figured. Scales cut from these are of little more than paper thickness and may be in the form of an arc. They can be straightened under pressure in boiling water; they are then suitable for restoration work on valuable old bows.'

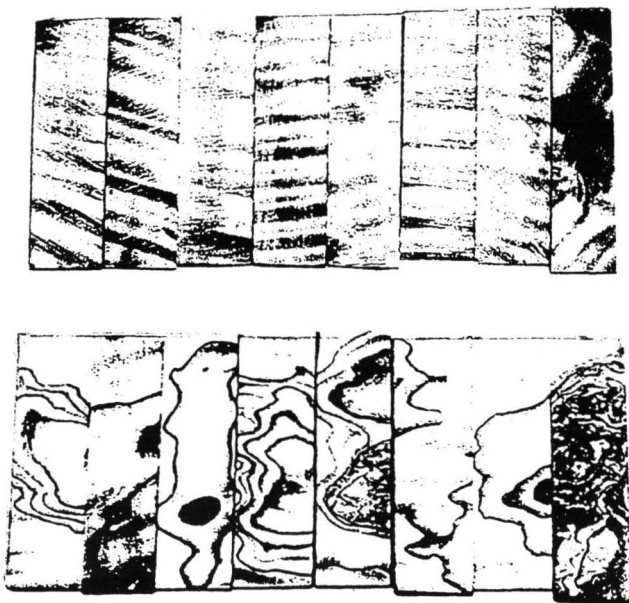
Here Retford is initially referring to *Haliotis tuberculata*, which is the only species found in the Channel Islands. He then describes features untypical of this species which, although small, has a quite thick and not all that highly coloured shell. What he is describing sounds rather like a material called akoya, which is paper thin and in the form of an arc, although it appears not to come from any species of abalone.

Retford's belief that *H. tuberculata* was the shell used in the 19th century is widely held. However, it is unsubstantiated and the only factor I have found in favour of it is the proximity, if not the availability, of the source. All the evidence suggests that *H. gigantea* is a far more likely source. The suitability of both these candidates may be tested by comparison of appearance, size and availability, and by examining the survival records.

On appearance alone, the claim that most 19th century French bow makers used *H. tuberculata* is not sustainable. The nacre of *H. tuberculata* is not particularly varied or vividly coloured. It may be dyed with difficulty, but the results cannot



Left: *Haliotis gigantea* , a likely source of the shell used in many 19th century bows. William Retford's description of shell from the Channel Islands sounds rather like the paper-thin material akoya (**right**) although this does not seem to come from any species of abalone.



Top: Selection of *Haliotis* slabs, probably viewed from the inside. The same slabs viewed from the other side (**bottom**) are markedly different.

mimic iridescence and appear unnatural. And although it may be difficult to identify positively a small piece of cut shell, it is relatively easy to say what it is not, and a brief survey of 19th century French bows reveals a great many that bear shell which is certainly not *H. tuberculata*.

Unlike *H. tuberculata*, *H. gigantea* with its stronger, more varied colouration offers more variety in the manner of its cutting, allowing it to present a variety of effects, including a plainer appearance. Of course its appearance can be altered – by wear, as reduction of the layers affects refraction, exposure to ultraviolet light, which can cause fading, and over-exploitation of the sea, which by disturbing habitats and altering the diets of molluscs can affect colouration. The thickness of the pearl used and the colour of the background also affects appearance. Bow expert Bernard Millant describes the mother-of-pearl decoration on early Tourte bow frogs as 'blue-white', whereas later examples are always 'green-rose' (VSA Journal vol. X no. 2 and vol. XV no. 2). The green-rose coloured pearl which Tourte seemed to prefer is certainly consistent with the use of *gigantea*, while the blue-white colour may well have resulted from gluing an originally very thin, or subsequently very eroded, piece of *Pinctada* to a dark ebony background. All these factors could result in a species such as *H. gigantea* being mistaken for another, such as *H. tuberculata*.

H. gigantea also has a size advantage over *H. tuberculata*. Before about 1810 bow-making requirements for pearl related mainly to the occasional decoration of the sides of the frog, itself curved, so that even a small shell such as *H. tuberculata* may have sufficed. In the absence of an organised mother-of-pearl cutting industry, bow makers would probably have used that nearest to hand, perhaps even *H. tuberculata*. After 1810, however, their requirements became more difficult to satisfy with small shells, particularly since early slides extended the full length of the frog.

H. tuberculata is by far the smallest *Haliotis*. It is also far from flat and if we ignore the most curved part in the centre of the

shell, the rim, which is unusable, and the area pierced by the respiratory holes, its useful area is very limited. By the time the bow slide was becoming common the French mother-of-pearl cutting industry was also becoming established. It would be unrealistic to assume that specialist pearl cutters would waste time on such difficult and unproductive shells while larger, flatter, more colourful alternatives such as *H. gigantea* were available. However, such is the conviction of many that *H. tuberculata* was widely used, that the possibility of past specimens being much larger than their severely overfished descendants was investigated, and it was discovered from records dated 1840 that the species was no larger then than today.

The argument that *H. tuberculata* was used because it was easily available implies that 19th century France was an isolated place with few trade links. However, although the great era of colonial trade was over, foreign trade was established with many parts of the world. This was the era of the great exhibitions and the inventions of Vuillaume, and such was the Renaissance-like clamour for novelty that any imported shell would have been far more appealing than a domestic one, particularly a larger, more easily worked one such as *H. gigantea*. Also, by the time the pearl slide appeared bow makers had already spent 50 years using pernambuco from the rain forest of Brazil, plus African ivory, Icelandic or Japanese whalebone, Galapagos tortoiseshell and so on.

It might be supposed that British makers, as islanders, would be more provincial at this time. However, the recollections of Dr Selle, a violinist from Richmond, who often saw John Dodd (1752–1839) walking home with his pockets full of oyster shells begged from various market stalls, suggest otherwise (*The Bow, its history, manufacture and use*, H. Saint-George, The Strad, London 1895, reprinted 1998). If Dodd's oysters were native this would have been *Ostrea edulis*, the common European oyster, which is of no use to the bow maker as its shell, which can be white or greyish, is porcellaneous not nacreous. Nacreous oysters are found in the Pacific, the same marine province as *H. gigantea*. Access to one implies access to the other.



Three typical pearl slides:
From left to right:

c. 1900 Hill model bow
with *Pinctada* shell;

c. 1850 Nicolas Maline bow
with shell resembling
Haliotis gigantea;

German 19th-century
Markneukirchen bow with
shell from the muscle-
scarred area of a
Californian abalone.

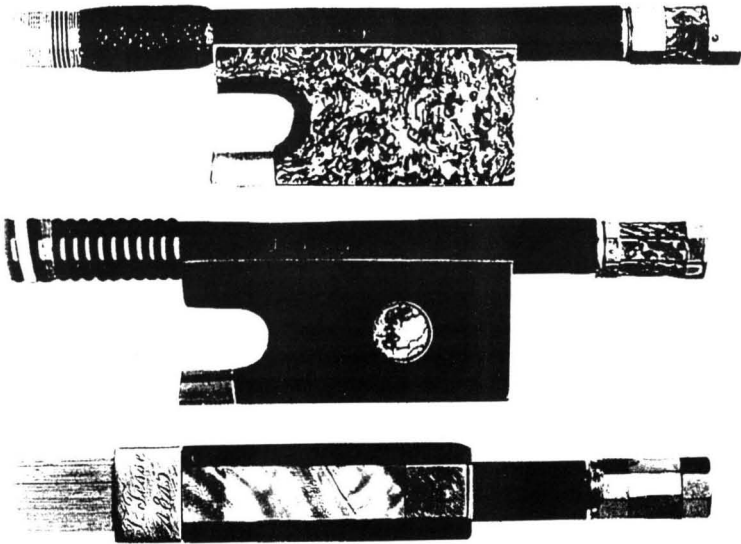
We also know that Dodd was not shy of exotic materials, as seen in an example from about 1800, mounted in gold, tortoiseshell and whalebone, on which the frog and adjuster are decorated with what appears to be the heart section of a Californian *Haliotis*. Frogs by Pajeot, Maire and Voirin entirely covered in mother-of-pearl also exist which, although made at later dates, could certainly not be *H. tuberculata* judging by size or appearance. So, whether *H. tuberculata* was used or not, alternatives were certainly available and were used.

Two rare records mentioning bow mother-of-pearl survive from the period in question. These are the applications of Etienne Pajeot and François Peccatte to exhibit in the Expositions Universelle of 1834 and 1844 respectively. Pajeot describes a bow with a slide of 'haliotide' (abalone) and one with a frog of 'nacre' (oyster). He also mentions a frog of 'haliotide', which certainly cannot be *H. tuberculata* as this is too small to be used for a whole frog, and a slide of 'haliotide iris'. Iris being an old French word for rainbow, we may assume this is a colourful slide possibly from the muscle scar of one of the larger abalone. Nowhere in his description, which includes three distinct French terms for mother-of-pearl, does Pajeot use the common term *ormeaux* (*tuberculata*), even though it is equally present in French dictionaries and is actually more likely to be used where appropriate than a scientific term such as haliotide or even nacre. (*The Bows of Etienne Pajeot*,

Paul Childs, The Strad, April 1993.)

Peccatte's application is even more revealing. He uses the terms 'nacre' and 'nacre de perle' in connection with shell that he quantifies by weight, which would be an appropriate way to describe pinctada shells, most of whose material is usable. He also uses the curiously German-sounding term 'coquilles de Godfich' (goldfish shells), this time numerically quantified (400 coquilles), an appropriate way to describe *Haliotis* shells where only portions of each shell are usable. The nearest common term is the word goldfish (English) or Goldfisch (German). Goldfisch is used by German pearl suppliers to describe material also referred to as awabi (*H. gigantea*). It would appear, then, that at least one leading French bow maker was using *H. gigantea* as a main source of pearl in the first half of the 19th century, with *Pinctada* as a secondary source and without any mention of the local shell *H. tuberculata* or ormeaux. Although Peccatte's spelling is variable (maillechort, an early alloy of nickel, copper and zinc, is given as 'melchior'), Godfich is so close to Goldfish and so far from any other possible term that no other meaning is likely. (*The Bowmakers of the Peccatte Family*, Paul Childs, Magic Bow Publications, 1996).

Another source of recorded evidence, should it exist, would be records of the export of ormers from the Channel Islands. However, research at the Priaulx Library in Guernsey has found no evidence of this, other than the single sentence 'at one time there was an export in the shells which were used by cabinet makers for inlaying and for making pearl buttons' (*The Ormer*, Carel Toms). *H. tuberculata* are found in the few square miles of barren reefs of Les Minquiers and Les Ecrehous, the ownership of which was disputed by France and England for well over a century until in 1953 they were declared British at the international court in The Hague. Armed French vessels cruised in this area and 'exercised against the English and Jersey fishermen the most wanton and unwarrantable acts of violence' (*Incidents Connected with the Oyster Factory at Gorey 1797-1871*, Ralph Mollet). Such hazards restricted commercial exploitation, but by 1869 Jersey boats dredging the Channel were selling only to France,



Top: Bow c.1780 by Nicolas Maire with sides mounted in *haliotis* shell. **Middle:** John Dodd c. 1800 bow. He was not shy of using exotic materials and this example has *haliotis* decoration on the frog and adjuster. **Bottom:** François Tourte 1815 bow. Some Tourte pearl has been described as 'blue-white', possibly the result of gluing a thin or eroded piece of *pinctada* to a dark ebony background.

and any export of ormers probably dates from then. This is too late, unfortunately, to fit in with the theory of use by early French bow makers.

Although they are not as numerous as those who seek Stradivari's 'lost' varnish, there are many who seek Tourte's 'lost' mother-of-pearl. At least they have the advantage of seeking a single material from a limited number of possibilities, none of which are now unavailable. Given enough shells, a saw and a file, it should be possible to match the pearl work of any maker. Those who seek is lost mother-of-pearl are apt to be disappointed. Violin and bow dealer Kenneth Warren spoke of such disappointment at a Violin Society of America convention in 1981. He was discussing the mother-of-pearl in a bow made between 1880 and 1890 by James Tubbs and described the material which he called 'gold plate' mother-of-pearl in the following terms:

'That is a kind of mother of pearl we have been trying to get for years, but thus far unsuccessfully. It seems to have

vanished from the face of the earth; there is none available. We once had an idea that it came from one of the Channel Islands and even went there to look for it; but there was nothing there.' (VSA Journal vol. VI no. 4)

As previously shown, no nacreous-shelled molluscs have become extinct since Tubbs or indeed since mother-of-pearl was first used in bows: accurate records have existed since Linnaeus published his classifications in 1758, and he would certainly have known if any species had become extinct in living memory. We also know from contemporary sources that the Hills used *Pinctada* and visual examination confirms this. Furthermore, the species *Pinctada maxima* (gold lipped oyster) yields a high-quality mother-of-pearl, a feature of which is that material from its outer edge, when ground and mounted appropriately, retains an attractive golden tint. Without seeing the bow I cannot say if this is what Tubbs used, but it certainly fits the description 'gold plate' rather better than an *X-Files*-type disappearance of a species of shell.

Further exploration of the properties and working qualities of other shells will aid recognition and correct historical restoration work in the future. Meanwhile, in the absence of any evidence, it seems wise to abandon the theory of widespread use of *H. tuberculata*, to accept the historical evidence that shells from the Californian and Indo-Pacific regions were available to bow makers, and by careful study of each maker's work to arrive at historically appropriate materials for restoration in each case. In many cases I believe *H. gigantea* will prove the right candidate, although we may have to study the manner of its cutting and use by various makers in order to achieve similar results.

Acknowledgements

Thanks to Alison Trew and Chris Meecham of the Department of Biodiversity and Systematic Biology at the National Museum and Galleries of Wales, Cardiff, for permission to photograph their specimens and for their expert advice.

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Correction: In 'From mollusc to frog' in No. 152, the shell *Pinctada margaritifera* was wrongly labelled *Haliotis margaritifera* in captions and in table 2. Also in the 2nd table the top shell, labelled *Haliotis tuberculata*, was in fact *Pinctada margaritifera*. Apologies for any confusion caused. □

A thank-you

At the March 2000 AGM, I was surprised and pleased to be given so many warm wishes from members on my retirement as Hon. General Secretary. I was presented with a card signed by everyone present (and even by some members who weren't, although I'm still not sure quite how this was arranged!) as well as some lovely gifts, principally a snail-shaped cookie jar and a hand-made plate with a picture of a snail and inscribed with the legend 'Jane Reynolds who was Hon. Secretary of the Conchological Society of Great Britain and Ireland 1994-2000'.



I would like to express my warmest thanks to everyone who contributed to this gift and for the many kind thoughts I have received. I hope that everyone will be as supportive of the new Hon. General Secretary, Mr Colin Gillard, as they were with me. Thank you all for a rewarding six years.

Ms J. E. Reynolds Dip. Hort. (Kew)

London, [REDACTED]

Shells from the Ancient Aegean

**Based on a talk given to the Society on
19 February 2000**

Janet Ridout Sharpe

Wallingford, Oxfordshire

Anyone who has visited archaeological sites in the eastern Mediterranean region may have noticed shell fragments scattered on the ground, mixed with all the potsherds that litter these sites, and may have wondered what the shells were doing there.

Marine, land and freshwater shells can occur on archaeological sites for a variety of reasons. They can occur naturally, in which case they may serve as environmental indicators, or they may have been introduced by man or by animals. Introductions may have been accidental, in cases where molluscs were introduced with some other commodity, such as vegetation or sand, or they may have been deliberately introduced for all sorts of reasons. Molluscs are known to have been used in the past, as now, as food and their shells as tools, ornaments and 'ritual objects' (this term is usually applied in archaeology to define an object for which no other explanation is apparent).

However, in many cases, no obvious function can be assigned to shells from archaeological sites and, in the case of seashells, it seems probable that many were collected simply out of passing interest – something to show the wife, perhaps, or as toys for the kids. Despite the Victorian hang-ups that still predispose us to think of prehistoric people as somehow inferior, archaeology can show us just how similar our predecessors were to us in many ways.

I have studied Neolithic and Bronze Age shell assemblages from several sites in Cyprus and Crete; although not strictly in the Aegean, these sites show a strong resemblance to other contemporary sites throughout the eastern Mediterranean, including the Aegean proper, Anatolia and the Levant, and North Africa (Fig. 1).



Fig. 1. Map of the eastern Mediterranean showing the sites mentioned in the text.

Food

On Cyprus, and probably elsewhere, limpets and topshells jostle for first place, numerically speaking. For example, at the 3000 BC Chalcolithic (Late Neolithic or Copper Age) site at Kissonerga, north of Paphos, limpets and topshells each accounted for about 25% of the total marine assemblage (Ridout Sharpe, 1998). Their relatively large numbers, together with their fresh condition and almost universal presence in rubbish pits – and the known eating habits of Mediterranean people today – indicate almost undoubtedly that these species were eaten.

Monodonta turbinata accounts for the vast majority of topshells at Kissonerga, although a few *Monodonta articulata* and smaller *Gibbula* species were also found. It is interesting to note that in Neolithic sites the *Monodonta* shells were crushed in order to extract the meat, whereas in the later Bronze Age the shells usually remained intact – suggesting that the ‘winkle pin’ had been invented by this time. In the case of limpets, damage to the

shell margin indicates how the animals were prised off the rocks. At Kissonerga and Lemba, also in western Cyprus, the average size of the limpets decreases with time which suggests that the population may have been overexploited, the young animals being collected before they had time to reach a good size.

The number of actual meals represented by shellfish on archaeological sites is often very small: 500 limpets spread over a few hundred years do not account for very much protein. It is possible that the empty shells were buried downwind well away from the site, or were dumped back into the sea, and so have not been recovered.

The dye industry

The presence of large numbers of fresh-collected shells does not necessarily imply that they were used for food. The purple dye industry has a very long history in the eastern Mediterranean and was particularly important in Roman times. This industry is usually associated with *Bolinus brandaris* but in Crete, at least, the rock murex *Trunculariopsis trunculus* was the main species exploited. In Classical times, the dye industry in Crete was centred on the tiny island of Kouphonisi (Ridout Sharpe, 1998a) which occupies a strategic position just off the south-east corner. There is a substantial Roman settlement on the island and the ground here is littered with *Trunculariopsis trunculus*. Many of them are still largely intact and show that the shells had been holed consistently in the same place, presumably in order to extract the dye gland.

The dye industry seems to have developed during the Bronze Age. None of the Neolithic or Chalcolithic sites in the eastern Mediterranean have yielded murex shells in quantities beyond that which might be expected to form the occasional meal. In contrast, murex shells – nearly all *Trunculariopsis* but also some *Bolinus* – frequently occur on the ground surface of Minoan sites in Crete. Unlike the holed Roman examples, the earlier shells appear to have been crushed in order to extract the dye.

Ornaments

After food, the main use of seashells was probably for decoration. *Dentalium* shells form ready-made beads and are quite common

on early sites, where they are almost always associated with burials and appear to have been strung as necklaces. At Lemba, most are *Dentalium vulgare* but other species occur, including the strongly ribbed *Dentalium rectum*. The narrow ends of *Dentalium* shells sometimes turn up in rubbish deposits, which suggests that the bits that were too fine for threading were removed and discarded (Ridout Sharpe, 1985).

Dentalium shells were not the only ones used as beads. Almost any type of small marine gastropod could be holed and strung, and in Cyprus *Arcularia gibbosula* seems to have been particularly popular. The holes were often roughly punched out of the body whorl but sometimes they were carefully ground into the shell. This treatment was often accorded to bivalve shells, especially *Glycymeris* spp. At Kissonerga, for example, deliberately ground umbonal holes were found in ten *Glycymeris*, two *Callista chione*, two *Barbatia barbata*, three *Loripes lacteus*, one *Chamelea striatula* and one *Acanthocardia tuberculata*. Two other *Glycymeris* shells showed signs of grinding but had been discarded before holes appeared. In addition, one large *Glycymeris* had an irregularly punched-out umbonal hole, two had been neatly holed near the umbo by the gastropod predator *Natica* sp., and three appeared to be naturally holed. At first sight these shells would not appear to make ideal beads or pendants, but it is possible that they had some special significance as even badly worn beach specimens were deliberately holed. Possibly they were sewn onto garments or used as rattles.

Ritual objects

It is not always clear what shells might have been used for and these shells are sometimes included in the category of 'ritual objects'. One such shell is *Charonia variegata* [= *Charonia sequeenzae*], the Triton's trumpet, which can grow up to 300 mm (12 inches) in length. Large shells of this species which are in good condition are quite rare in nature. In a large and long-lived species such as *Charonia*, damage caused by the boring sponge, *Cliona celata*, is often very marked. The sponge penetrates the shell surface through a series of pinhole-like perforations and then eats away the underlying shell structure so that this acquires a

honeycomb-like appearance. This weakens the shell, which often loses its outer surface and then appears worn and eroded. It is therefore interesting to record that good quality *Charonia* shells – usually *variegata* but sometimes the smaller and less handsome *nodifera* – occur in archaeological sites at a far greater frequency than might be expected from their occurrence in nature. In other words, they were carefully sought out.

Charonia shells are best known for their use as trumpets and this has been well documented for the Bronze Age (Renfrew, 1985). They also tend to occur in special contexts. A pristine example of *Charonia variegata* from Kissonerga was found in a pottery bowl together with an assortment of other objects. The bowl was no ordinary bowl but a model of a round house or temple building with a tiny modelled doorway. Among the objects in the bowl was a clay female figurine which is represented sitting on a low stool in the act of giving birth. The bowl and its contents had been placed in a special pit that contained many fire-cracked stones. This deposit was interpreted as the remains of a birthing event (Peltenburg, 1991), during which a sauna was produced by pouring water over the heated stones. The precious shell could, perhaps, have been the ladle used to pour the water over the hot stones. Like most other examples of *Charonia*, it showed no obvious signs of use.

At the other end of the scale from *Charonia*, the tiny dove shell *Columbella rustica* is extremely common on eastern Mediterranean sites. This shell is only about 15 mm high. It was the third most frequent marine species at Kissonerga, after limpets and topshells. Of the 195 specimens found, over 90% were obviously beach-worn but only eight had been holed, perhaps naturally, and only two of these had signs of wear showing that they had been worn as beads or pendants. The very wide contextual distribution of this shell suggests that it may have been used as a personal amulet. Its significance appears to lie in the slightly curved, inwardly rolled lip and slit-like aperture. Shells with slit-like apertures are associated with the female sex world-wide – cowries are the obvious example of this and 27 (14 *Cypraea lurida* [= *Luria lurida*] and 13 *Cypraea spurca* [= *Erosaria spurca*] were found at Kissonerga.

Environmental evidence

Some of the more insignificant looking marine shells can yield valuable environmental evidence. Crete, for example, has undergone major sea level changes since the Bronze Age and shells can indicate the former presence of a type of coastline that no longer exists in the area. At Kissonerga, the presence of shallow-water species such as small topshells (*Gibbula* spp.), slit limpets (*Diodora gibberula*) and rissoids in house contexts suggests that seaweed was used in house construction. The Chalcolithic village at Lemba, north of Paphos, has been successfully reconstructed using seaweed to bind the mud superstructure of the round houses.

Land and freshwater shells can account for a far larger proportion of the shell assemblage than marine species. These, especially tiny juveniles, can be difficult to identify to species level. However, even identification to family level can provide useful information. An increase in the relative proportion of xerophilous species observed at the Neolithic/Bronze Age transition at Kissonerga, for example, could indicate the development of an impoverished landscape, perhaps as a result of overgrazing and/or deforestation. Some of the larger *Helix*-type shells occur in midden deposits and may have been eaten. However, in Cyprus, the synanthropic landsnails *Eobania vermiculata* and *Helix aspersa* appear to occur only in disturbed or surface deposits at Neolithic and Bronze Age sites and this suggests that these now ubiquitous species were relatively late introductions to some of the Mediterranean islands.

Freshwater shells can indicate the presence of permanent water courses where today there are none. An analysis of tiny freshwater and brackish species from house contexts at the Neolithic site of Vrysi in northern Cyprus (Ridout, 1982) suggested that here freshwater rushes may have been used for flooring, and coarser estuarine or saltmarsh grasses for thatch.

Conclusion

The relationship between man and shells is a fascinating one. There has always been a tendency to try to explain the presence of shells from archaeological sites in terms of their utilisation – but

often there is no evidence for this. Just as we find shells fascinating today, our predecessors surely did also. There has perhaps been too much emphasis in archaeological reports on the practical use of shells, while their purely aesthetic appeal has been largely ignored.

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Calling all malacoarchaeologists!

'Malacoarchaeology' is the study of molluscan remains from archaeological sites. One of its prime functions is the reconstruction of past environments: the species represented can show the change from woodland to grassland, landscape impoverishment through overgrazing and erosion, and the presence of permanent water sources where today there are none. And much more besides. In addition, shells can provide information on what people ate in the past and how they decorated themselves, and even give some insight into their customs and religious beliefs.

Are you interested in this aspect of malacology/conchology? Malacoarchaeology is a relatively new field of study and there is a lot of exciting work to be done. A small group of us (three, actually) is looking for kindred spirits with a view to forming an informal Malacoarchaeology Group as a means of exchanging information and keeping in touch. Who knows, we may even run to a newsletter with details of forthcoming conferences and current research. If you would like to join us, do please get in touch. Depending on the response, we'll take it from there!

Please write to: Janet Ridout Sharpe, [REDACTED] Wallingford, Oxfordshire [REDACTED].

Occurrence of *Ponentina subvirescens* (Helicidae) inland in Cornwall on spoil from china clay quarries

Geraldine Holyoak

Tuckingmill, Camborne,

Ponentina subvirescens (Bellamy, 1839) is well known for showing a coastal pattern of distribution on sea-cliffs in Britain, although it penetrates inland along a few estuaries (Kerney 1999). In a review of Cornish land Mollusca, Turk (1984) mentioned its occurrence a short distance inland on 'high moorland above Zennor' and at Davidstowe Moor where 'one solitary example was found inland, 5 miles from the sea in 1966'. Similarly, recent detailed molluscan surveys in Devon by Michel Hughes have disclosed only a single record of the species a short distance inland.

During 1998 and 1999 I had the opportunity to search for Mollusca at china-clay quarries and on their spoil heaps in both East and West Cornwall. These acidic habitats had very few snails, but surprising inland finds of *P. subvirescens* were made at seven sites. Table 1 gives details of the locations, distances from the coast and altitudes. The seven sites range from 1.9 km (Trewellard Common) to 19.5 km inland (NNE of St Neot) from the nearest coast. The St Neot site was the highest at 250 metres above sea level. These finds combined with the record at Davidstowe Moor in 1966 indicate that *P. subvirescens* occurs inland in Cornwall more widely than had been realised.

The newly found inland sites for *P. subvirescens* are on or beside china-clay spoil heaps. typically, they were sparsely vegetated with patches of bare clay among low grasses (combinations of *Agrostis tenuis*, *Dactylis glomerata*, *Festuca ovina*, *Holcus lanatus*) and herbs (e.g. *Lotus corniculatus*, *Trifolium repens*). Patchy heather (*Calluna vulgaris*) and gorse (*Ulex europaeus*) were often also present. All of the vegetation cover at site 6 had developed from 'hydro-seeding' four years previously. *P. subvirescens* often occurred at very low densities at these inland

sites, so that it is easily overlooked. Only one or two specimens were located by a full hour of searching at some of the sites, with a maximum of 20 (19 of them dead shells) at the most productive of them (Table 2). Oldham (1933) noted that at coastal sites *P. subvirescens* is normally associated with few other species of shelled molluscs.

The same is true at the inland localities (Table 2), where it was associated with 0-4 other snail species and 0-2 slug species. The associated snails inland were most often species that tolerate low calcium levels, notably *Vitrina pellucida* and *Oxychilus alliarius*, but with occasional records of various others. Like *P. subvirescens*, the associated snails normally occurred at low densities. These observations are not surprising given the low age of the china clay spoil, its acidity and the sparse species-poor vegetation. *P. subvirescens* can evidently colonise artificial slopes of china-clay spoil within a few years of them being created. It is uncertain how the snails are dispersed inland from the coasts or from site to site inland. However, Herring Gulls (*Larus argentatus*) may well be involved. These birds are regular visitors from the coast to china-clay quarries inland. They are commonly fed by quarry workers, they bathe on freshwater pools in the quarries, rest on slopes of china-clay spoil, but normally return to roost on the sea each night and they nest mainly on coastal cliffs.

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(Tables 1 and 2 follow)

Table 1: Characteristics of sites inland in Cornwall with *Ponentina subvirescens*

Site no.	Location	Grid Reference	Distance (km) from nearest coast	Elevation* m (A.S.L.)
1	Trewellard Common	SW 382335	1.9	180
2	NW of Melbur	SW 916554	12.5	*
3	NW of Melbur	SW 916556	12.5	*
4	SW of Treviscoe	SW 941546	9.8	150
5	S of Treviscoe	SW 943552 & SW 944551	9.8	*
6	SE of Roche	SW 977582	9.1	247
7	NNE of St Neot	SX 197708	19.5	250

*Note: Elevations on many of the spoil tips are not shown on the Ordnance Survey maps.

Table 2: Finds of *Ponentina subvirescens* and associated molluscan species at sites inland in Cornwall. See Table 1 for numbering and location of sites.

Site No.	Date	Numbers of <i>P. subvirescens</i>	Associated molluscan species
1	9 Jan 1999	2 living	<i>Arion ater</i> agg., <i>Cepaea nemoralis</i> , <i>Deroceras reticulatum</i> , <i>Helix aspersa</i> , <i>Limax maximus</i> , <i>Oxychilus alliarius</i> , <i>Vitrina pellucida</i>
2	16 Feb 1999	2 living	<i>Deroceras reticulatum</i> , <i>Oxychilus alliarius</i> , <i>Vitrina pellucida</i>
3	16 Feb 1999	2 living	<i>Oxychilus alliarius</i>
4	3 Apr 1999	2 living	<i>Ashfordia granulata</i> , <i>Clausilia bidentata</i> , <i>Perforatella subrufescens</i>
5	13 Mar 1998 & 1 Jul 1999	2 living 1 dead shell	<i>Arion ater</i> agg.
6	1 Jul 1999	1 living, 19 dead shells	<i>Arion ater</i> agg., <i>Cochlicopa lubrica</i> , <i>Oxychilus alliarius</i> , <i>Vitrina pellucida</i>
7	1 Jun 1999	2 living 1 dead shell	<i>Arion ater</i> agg., <i>Deroceras reticulatum</i> , <i>Nesovitrea hammonis</i> , <i>Oxychilus alliarius</i>



Further findings on 'The Yattendon Snail-Watchers'

Helen Weideli

██████████, Newbury, Berkshire ██████████

An article which I wrote, entitled 'Snail Watching in Yattendon, Berkshire', was published in *The Conchologists' Newsletter*, No. 151, December 1999. It set out the few facts that I had been able to glean about the 'British Snail-Watching Society', and asked if any readers could tell me more.

I was surprised and delighted to hear from two highly respected Senior Members of the Conchological Society, who could remember the 'British Snail-Watching Society' from their younger days, and who kindly sent me items relating to it. I have now been able to write this second article, based on information received from them.

My curiosity about the 'British Snail-Watching Society' was aroused some years ago after reading that it had held meetings in the Rectory Garden at Yattendon, a village within the West Berkshire Mollusc Survey area. I wondered just who these snail-watchers were, and decided that when time permitted I would try and find out more.

The 'British Snail-Watching Society' was co-founded by Mr Peter J. Henniker Heaton, a classical scholar and civil servant, and his wife, a singer, sometime in 1945. Apparently the society was born one sunny morning when Mr Henniker Heaton observed a colony of snails crawling about on a grassy bank. He was delighted by 'the grace and harmony of their movements', and suddenly realised that the snail was a fascinating creature worthy of study.

The society's aim was to 'promote interest in and appreciation of the snail for its own sake, and for its contribution to the harmony of nature'. It had as its logo, an extended gastropod snail facing to the right (possibly *Helix aspersa* or *pomatia*?) with the words 'SEMPER DOMI' beneath it. The Society's headquarters were in Ladbroke Square, London W11.



SEMPER DOMI

The snail was consequently championed by the Snail-Watchers in a number of ways, not least by their conversing about it on all suitable occasions; encouraging amateur naturalists to undertake original biological research projects; monitoring 'all published matter' for mention of the snail, and writing letters of 'appreciation, protest or correction', in response; exhorting gardeners and allotment holders to use 'humane' methods of snail slaughter – namely to drop them into boiling water; and in general hoping 'to bring about a considerable change in the public's attitude towards the much maligned snail'.

At the time of its first anniversary in 1946 the 'British Snail-Watching Society' had about forty members, who were mostly artists, civil servants, clergymen, and musicians. Members variously studied and discussed British snails and their habits; gathered information about snails as emblems, metaphors and symbols; collected snail artefacts, books, and poems, which they exchanged with one another; found examples of snails in art, architecture and heraldry; investigated into snail place names, like Snailbeach, Snailsden and Snailwell; and amassed snail facts, such as, 'The Roman snail, stewed in milk, is delicious, and very good for the lungs. The Newcastle Glassblowers used to have an annual snail feast'. It seems that some of the Snail-Watchers even favoured the setting up of Snaileries for the breeding of Roman snails in the hope of restoring them to the national diet!

Mr Henniker Heaton was briefly a member of the Conchological Society of Great Britain and Ireland, his name being in the 1947 list of members, but not in the one for 1953.

Information kindly supplied by Mr S. P. Dance confirms that Mr Henniker Heaton knew the late Arthur E. Ellis, (of *British Snails* fame), and did much to promote his book, as well as exchanging snail poetry and verse with him.

Dr Bernard Verdcourt recalls that as a young scientist, just after the Second World War, he wrote to Mr Henniker Heaton, angry that the respectable science of Conchology should have fun poked at it. He remembers receiving a very pleasant letter in reply, and also a Christmas card bearing the B.S.W.S. logo, which I described earlier.

During its heyday, news of the 'British Snail-Watching Society' spread far and wide. Mr Henniker Heaton himself referred to it receiving 'honourable mention in the columns of Punch' magazine. It was also the subject of an article entitled 'A Snail for Your Coat-of-Arms' on pages 439-441 in *Lilliput* Magazine, 1946. It even received comment on Russian radio, almost certainly from the famous writer Ilya Ehrenburg (1891-1967) who was scathing about how the upper classes in Britain could engage in such things as 'Snail-Watching' when most of Europe was in ruins after World War Two.

Although the society was short-lived, it was very active, concerning itself with the snail in all branches of learning, and championing the cause of this 'much maligned' creature. Perhaps after the fear, hardship and violence of the war years it was therapeutic to study something as calm and inoffensive as the snail?

I am very grateful to Mr S.P. Dance, and Dr B. Verdcourt for supplying me with information and allowing me to make use of it here, particularly the *Lilliput* 1946 article referred to above.

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Liverpool's share in the trade of money-cowries

Nora McMillan

Department of Zoology, Liverpool Museum, Liverpool.

Much has been written about the use of the money cowry (*Cypraea moneta* and *C. annulus*) for money in Africa (see especially Marion Johnson, *J. African History*, Vol. XI, Nos. 1 and 3, 1970) but little, as far as I can ascertain, of Liverpool's share in supplying the 'currency'.

In 1873 the four-masted barque *Glendowra*, en route from Manila to Liverpool ran ashore in fog on the Cumbrian coast at Seascale. No one was lost, but the ship could not be salvaged and was eventually blown up with explosives. Her cargo was jute, sugar and cowries (600 bags of them!). For many years cowries were washed onto the Cumbrian shores (there are a few in the Jackson collection in Liverpool Museum).

The Rev. Charles Crawshaw was interested in the occurrence of these tropical shells and wrote of them in *The Naturalist* of 1890, p. 324: 'I find, by counting the cowries in a given weight, that there would be in the 600 bags lost in the sea about 70,000,000 shells' and added 'The best cowries come from the Maldive Islands, and are taken to Ceylon to be shipped to England, and thence are exported to Africa, chiefly to the river Niger. An inferior kind reaches this country via Zanzibar, and is sent to Lagos. One Liverpool firm transmits from 20 ton to 30 tons per annum.' Unfortunately, the firm's name was not given.

The Rev. Crawshaw's note prompted me to enquire of Liverpool's Maritime Museum (Liverpool being in the 19th century a centre of trade with West Africa) if any information was available of shipments of cowries into and out of Liverpool and on to West Africa. I am indebted to the Keeper, Dr M.K. Stammers, for the only reference found in *The Commerce of Liverpool* by Braithwaite Poole (1854, pp. 190-191) as follows: 'Cowries, small sea shells, imported from Calcutta, Ceylon and Bombay, generally in bags of about 2 cwt., chiefly for re-exportation to the West Coast of Africa, where they pass current for payment in barter. Last year 1,056 bags were imported into Liverpool; weight 105 tons, value £5,000.'

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Conchological Society of Great Britain and Ireland

MINUTES

**1093rd (Ordinary) meeting held on the 11 December 1999
in the Demonstration Room of the Natural History Museum
starting at 2.30 p.m.**

In the chair: Mr Eversham with 36 members and friends present.

Apologies for absence: Mrs McMillan, Mr Negus, Mr de Bartolomé, Mrs Turk, Mr & Mrs Rands, Mr & Mrs Weideli, Mrs Platts, Dr Willing, Dr Preece, Mrs Buckle, Mr Dance.

Minutes of the last meeting (of 12th December 1999): Read and accepted.

Matters arising: Nominations for all the Council posts had been received. Mr Wimbleton had been able to supply a copy of the article by William Hill, which had been forwarded to Ms Field. Her response to Mr Wimbleton was placed on display.

Nomination and election of new members: None.

Announcements and Correspondence: The next indoor meeting would take place on 15 January 2000. A full copy of the Programme for next year was on display.

For the benefit of Council members present, it was announced that the next Council meeting would be prior to the February meeting, when there would also be a meeting of the Publications Committee. There would also be a Council meeting in March and a meeting of the MCGBI prior to the Annual General Meeting.

Ms Reynolds said that as an experiment she had organised a 'self-sort Christmas cards' system – members could place cards in piles and collect cards addressed to them at the end of the meeting.

Lecture of the day:

Speaker: Various:

Ron Boyce
Kevin Brown
Ron Carr
Peter Dansey
Rosemary Hill

David Long
Julia Nunn
Tom Pain
Jane Reynolds
Adrian Rundle
Tony Smith

Plus Judith Nelson with 'Guess who the Conchologists are?'

Title of talk: *My Favourite Mollusc or Mollusc Book.*

Any other business: None.

Meeting closed at 4.50 p.m.

Chairman

Appendix: Members' exhibits:

- | | |
|------------------|--|
| J. Nelson | Guess the members on boat trip on Scilly Isles |
| P. Dansey | Razor shells |
| Adrian Rundle | A British bivalved gastropod and others |
| | Slide No. 98-117 <i>Berthelinia elata</i> Middle Eocene: Barton, Hants |
| | 99-041 1-16 <i>Berthelinia elongata</i> Middle Eocene: France |
| | 17-22 <i>B. elegans</i> |
| | 23-24 <i>B. elata</i> |
| | 30-32 <i>Gougerotia orthodonta</i> |
| | 97-122 <i>Gougerotia orthodonta</i> Lower Eocene: France |
| | 99-094 <i>Hemiplicatula pissaroi</i> Middle Eocene: France |
| | 99-106 <i>Candinia pliocaenica</i> Pliocene: Italy |
| | 98-116 <i>Julia barbonica</i> Recent: Seychelles |
| Kevin Brown | 1. Book, Leonard Hill: <i>Shells: Treasures of the Sea</i> |
| | 2. Book, S.P. Dance: <i>Shell Collecting an Illustrated History</i> |
| | 3. <i>Cypraea pantherina</i> Lightfoot 1786 |
| | 4. Articles by P. Ó. Dubhlaoidh on mother of pearl used in violin making – <i>Strad</i> magazine October and November 1999 |
| | 5. Article by P. Ó. Dubhlaoidh on mother of pearl in Newsletter of the British Violin Making Association Autumn 1999 |
| | 6. Millennium musings on molluscs |
| Ron Carr | A surprising mollusc |
| Tony Smith | Site of discovery of <i>Testacella maugei</i> in Bristol |
| Ron Boyce | Shells from Omana, New Zealand |
| Rosemary E. Hill | Shells from Muriwai, New Zealand |
| | Leaflets for Muriwai Regional Park and Bream Head Scenic Reserve |
| | <i>Shells of New Zealand</i> , A.W.B. Powell |
| David Long | Turridae |
| Rupert Honnor | My favourite mollusc – an early influence <i>Polinices tumidus</i> (Swainson, 1840) |

- J. Chatfield *Hygromia cinctella* (alive) from a garden in Beckenham, Kent found by Graham Hemington
Field Studies Council Programme 2000 – Shell Life at Nettlecombe in August, Juniper Hall in October
- Janet Sawyer Extract from RSPB *Birds* magazine about a rock pipit consuming *Littorina littorea* at a rate of 14,300 (sic) per day
- Jan Light Who's Who and Who Was Who? in Cornish and Scillonian Marine Conchology by Stella Turk (Draft Document)
- Jane Reynolds Programme Card 2000
Self-Sort Xmas Cards
Institutional members' publications
News cuttings.



1094th (Ordinary) meeting held on the 15 January 2000 in the Demonstration Room of the Natural History Museum starting at 2.30p.m.

In the chair: Mr Long with 25 members and friends present.

Apologies for absence: Mrs McMillan, Mr Negus, Mr de Bartolomé, Mrs Turk, Mr & Mrs Rands, Mr & Mrs Weideli, Dr Willing, Mr Tracey, Mrs Long, Mrs Light, Mr & Mrs Buckle, Mr Dance, Mr Howlett.

Minutes of the last meeting (of 11 December 1999): Read and accepted.

Matters arising: None.

Nomination and election of new members: No list was available.

Announcements and Correspondence: Registration Forms for the joint meeting with the Malacological Society should be arriving with the March *Conchologists' Newsletter*.

Havant Museum will be having a shell exhibition from 8-18 April, where the Society Display Boards would be on display along with shells from the Earl collection and those belonging to Mr Wimbleton. More details could be obtained from Mr Wimbleton.

Two researchers have collated all relevant data from the *Conchologists' Newsletter* for the forthcoming publication *Fauna of Britain*, edited by Stefan Buczacki. However, members with data which has not appeared in the *Newsletter* are still welcome to contact the publishers (details given in Dr Chatfield's article in the December *Newsletter*).

Dr Colville had received a letter from Henrik Waldén, who recently suffered a stroke which has left him with some minor disabilities. He had been able to more or less complete his studies of the ecology of terrestrial molluscs in swampy woods and rivers in Sweden which he is expecting to be published. He has also mostly completed the Swedish distribution maps. However he is unable to complete his work on taxonomy and variation of Madeiran molluscs, which includes several new and undescribed species. Dr Colville asked if anyone could assist Dr Waldén with this project. Suggestions were several of the Molluscan team at Cardiff, including Dr Seddon, and Drs Cook and Cameron, who have an article on Madeiran molluscs in the current *Journal*.

Lecture of the day:

Speaker: Michael Jackson (Chiswick)

Title of talk: *Freshwater molluscs of the River Waveney grazing marshes*

Any other business: None

Meeting closed at 5.02 p.m.

Chairman

Appendix: Members' exhibits:

- | | |
|-----------------|---|
| Janet Sawyer | Free pet rocks |
| E O Bishop | National Snail Farming Centre, Herefordshire |
| Kevin Brown | 1. <i>The Wentletrap Book</i> by Art Weil, Leonard Brown & Bruce Neville |
| | 2. Specimens of <i>Epitonium</i> (S.L.) |
| | 3. <i>National Geographic</i> magazine Feb 1986 featuring living <i>Epitonium tinctorum</i> |
| | 4. Press cuttings |
| Terry Wimbleton | Gastropod eggs on dinosaur bone from Lower Cretaceous flood plain, lake or pond, Isle of Wight. |
| J Chatfield | 1. Newspaper cutting on the British Fauna survey – Dr Stefan Buczacki (Daily Telegraph 8.1.00) |
| | 2. Northern Wey Trust Newsletter (Hants/Surrey) |
| | 3. Request from Haslemere Museum for source for moulds to make fossil moulds for education. |
| Ron Carr | <i>Cychrus caraboides</i> L. – a snail eating beetle |
| Adrian Rundle | Some papers on British non-marine molluscs |
| D C Long | a) Land and Freshwater molluscs from the Waveney Valley (VC 25) |

- b) 2 cuttings from the Times
- c) 2 blocks of Lower Lias Limestone, one with a bivalve showing a boring

Jane Reynolds

Institutional members' publications
Model *Partula* snail.



1095th (Ordinary) meeting held on the 19 February 2000 in the Demonstration Room of the Natural History Museum starting at 2.30 p.m.

Announcements of deaths: The death of Mr Glen R. Webb, member since 1964, was announced.

In the chair: Mr Eversham with 29 members and friends present.

Apologies for absence: Mrs McMillan, Mr Negus, Mr de Bartolomé, Mrs Turk, Mr & Mrs Rands, Dr Bishop, Dr Colville, Mrs Platts, Mrs & Miss Fogan, Dr Chatfield, Dr Kemey, Dr Preece, Mrs Long and Mr Tracey.

Minutes of the last meeting (of 15th January 2000): From Announcements and Correspondence, Mr Wimbleton said that the exhibition of shells at Havant Museum would be taking place on 8-18th April, not the 29th as stated, and that the shells on display belonged to the late Major Earl, who was a member of the Society. The minutes were then accepted.

Matters arising: None.

Nomination and election of new members: None.

Announcements and Correspondence: Forthcoming meetings were the AGM on 11 March, joint meeting with the Malacological Society on 8 April at the Linnean Society Meeting Rooms and the first Field Meeting of the year would take place on the Isle of Wight on 31 March to look for fossils. Dr Rundle explained that his forthcoming event on 25 March would not be a workshop in the conventional sense. This was intended for beginners to look at how to go about identifying shells, and anyone wishing to attend should contact Dr Rundle for details. Further details of all these events would appear in the *Newsletter*; in the case of the joint meeting this would be in the form of a leaflet to be distributed with the March *Newsletter*.

Mr Long asked for a volunteer to produce the Index for the *Journal of Conchology*. Mr Long had completed the index for Volume 35:1 but could not continue. Anyone who thought that they might be able to assist should see Mr Long.

Anyone with suggestions for meetings for the year 2001, in particular suggestions for speakers, should see Mr Boyce, who is standing for the post of Hon. Programme Secretary.

Lecture of the day:

Speaker: Janet Ridout Sharpe (Wallingford)

Title of talk: *Shells from the Ancient Aegean*

Any other business: None.

Meeting closed at 4.57 p.m.

Chairman.

Appendix: Members' exhibits:

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|---------------------|--|
| Janet Ridout Sharpe | Some archaeological samples from the Chalcolithic site of Kissonerga, Western Cyprus (c.3000 BC), including <i>Charonia sequenzae</i> , holed <i>Glycymeris</i> , <i>Arcularia</i> beads and a worked <i>Phalium</i> lip. |
| Jan Light | 'Holed' <i>Glycymeris</i> shells from Romano-British site, Fistril Bay, Cornwall. |
| Kevin Brown | <ol style="list-style-type: none">1. <i>Bolinus brandaris</i> (Linne 1758)2. <i>Hexaplex trunculus</i> (Linne 1758)3. Extracts from E Edet 'The Sea Traders' &4. J E Walsh 'The Bones of St Peter' relating to Tyrian Purple Dye5. Book – C Claassen, <i>Shells: Cambridge Manual in Archaeology</i> |
| Adrian Rundle | Some suppliers details |
| Ron Carr | <i>Lehmannia valentiana</i> (Ferussac) from Maidstone (east Kent) |
| Colin Gillard | <ol style="list-style-type: none">1. Visit to Steep Holm Island 3 June 20002. Visit to N. Somerset & N. Devon Sept 2000 |
| Jane Reynolds | Rubber <i>Partula</i> snails
Snail sweets
Institutional members' publications. |

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Diary of Meetings

This is a list of all meetings in date order.

Programme Secretary:

Ron Boyce, [REDACTED] Reading, Berkshire [REDACTED]

IMPORTANT: Please remember to inform the leader if you are attending a field meeting. If you are held up in traffic or your public transport is delayed, it may be possible to ring the Programme Secretary on 0794 109 4395 on the day of the meeting for information on the location of the field site being surveyed.

Key to meetings:

NHM = Natural History Museum, London, indoor meeting

FIELD = Field Meeting at outdoor location

WKSHP = Workshop on Molluscan topic

YCS = Yorkshire Conch. Soc. events

MSL = Malacological Society of London

YCS – Saturday 2 September: Kettlewell for Dowber Gill. Meet at car park on Starbotton Road, Grid ref. SE 968724, at 11.00 h. Contact David Lindley [REDACTED]

FIELD – Sunday 17 September

Waverley, Surrey

Moor Park, nature reserve of the Surrey Wildlife Trust in a meader loop of the River Wey at Waverley

Leaders June Chatfield [REDACTED] and Isobel Girvan (Warden, Surrey Wildlife Trust [REDACTED])

Joint meeting of the Northern Wey Trust with The Farnham Society. Meet in the car ark for Waverley Abbey on B3001 SE of Farnham at 11.00 hrs (OS Grid ref. SU/870455). We then cross the river by the road bridge and follow the public footpath upriver past Stella's Cottage to the reserve (SU/867459). It is a good example of an alder carr with wetland plants and is a wintering area for birds. Wellingtons are likely to be needed as it may be wet underfoot.

FIELD – Wednesday 27 September to Sunday 1 October

North Somerset and North Devon

Leader: Colin Gillard [REDACTED]

A field meeting to visit a range of shores in this area during a period of good low tides.

Although we shall meet at Kilve near Williton on Wednesday 27 September, participants are recommended to seek accommodation in the Barnstaple area as subsequent days will cover an area from Combe Martin to Hartland Quay.

With a low tide at Kilve at 13.20 h BST there will still be plenty of time to drive to Barnstaple for accommodation that evening. Barnstaple tourist office: Tel. [REDACTED]
[REDACTED] Further details from Colin.

YCS – Saturday 7 October: Drifffield area. Meet at pub in Little Drifffield, Grid ref. TA 008580 at 11.00 h. Contact David Lindley [REDACTED].

YCS – Saturday 21 October: AGM and presidential Address. Leeds Museum Resource Centre, Yeadon, at 13.00 h. Contact David Lindley [REDACTED].

NHM – Saturday 21 October: 14.30 h. For our first indoor meeting of the new season we welcome as Guest Speakers Anna McIvor & Stephan Muller from the University of Cambridge, on the subject of 'The Depressed River Mussel in trouble?'

NHM – Saturday 18 November: 14.30 h. We welcome as Guest Speakers Michel Hughes & David Bolton from Exeter Museum. Their subject is 'Can scale paint a true picture: the Devon recording experience'.

WKSHP – Saturday 25 November, 10.00 – 17.00 h. The Annual Woking Workshop kindly hosted for us by Judith Nelson [REDACTED] offers members the opportunity to receive tuition on identifying difficult groups.

NHM – Saturday 16 December: 14.30 h. We welcome as Guest Speaker Amanda Millar from Hurstpierpoint. Her subject is 'Woodland snails and coppicing: some results from a woodland in Sussex'.

NHM – Saturday 27 January 2001: 14.30 h. Date of first indoor meeting next year.



Annual General Meeting 24 March 2001

Members are reminded that they can nominate candidates for election to the Council.

Rule No. 12. Candidates for nomination to the Council shall be paid-up members of the Society and shall be nominated by two members. Nominations, other than those made by the Council itself, shall be sent in writing to the Hon. Secretary at least six weeks before the AGM, and shall be accompanied by a signed declaration of the candidate's willingness to serve.

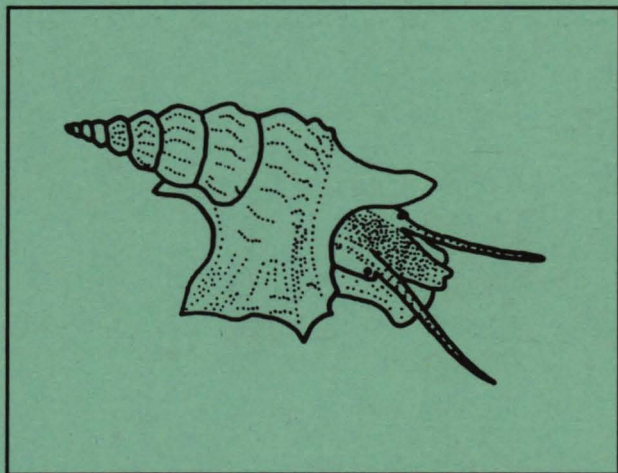
Note: Nominations must be received by the Hon. General Secretary NOT LATER THAN 31 December 2000.

The Conchologists' Newsletter

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Molluscs in the New Millennium

**Joint Meeting with the Malacological Society of
London and the British Shell Collectors' Club
8 April 2000**

David Long

██████████, *Leckhampton, Gloucestershire* ██████████

This meeting, for which the brunt of the arranging fell to David Reid, was held at the Linnean Society's rooms. It was called because, in David Reid's words, 'the dawn of the new millennium' focuses minds on the future. This is an exciting but also challenging time for the study of molluscs and for the societies that exist to promote it. The meeting had the following aims:

- To consider future developments in molluscan studies
- To discuss the role of the societies, and of their professional and non-professional membership, in the promotion of molluscan studies
- To promote mutual understanding and collaboration between the societies.

The audience of about 60 from all three societies involved had a very informative day with 11 speakers. This account is an amalgam based on the summaries kindly provided by speakers and on Bill Bailey's and my notes. Any errors are mine.

Three keynote speakers in the morning gave 40-minute talks on the present state and future of:

- molluscan conservation programmes (**Paul Pearce-Kelly** and **Trevor Coote**, the Zoological Society of London);
- marine molluscs; their role in marine ecosystems and use in basic biomedical research (**Steve Hawkins**, the Marine Biological Association), and
- molecules, models and molluscs – one systematist's perspective (**Mikael Tholleson**, University of Göteborg).

Paul and Trevor's talk was concerned with breeding programmes and trial re-introductions for island land snails which have been threatened by introduced predators. A captive breeding

programme for the enid *Pachnodus fregatensis*, from Fregate Island in the Seychelles, which was threatened by accidentally introduced rats, has succeeded in increasing the original population at London Zoo from 20 to 400. The well-publicised international programme for the Polynesian partulid tree snails is much more complex. There are captive breeding programmes for 30 species of *Partula*, many of which have been exterminated in the wild by the introduced predatory snail *Euglandina rosea*. Work aimed at maintaining a population of 250 adults from each species (which should maintain 90% of starting heterozygosity for 100 years) can both draw on and feed back to conservation programmes for other groups of animals, including vertebrates. In addition attempts at reintroductions to the wild have shown that these need careful scientific monitoring and efficient reserve maintenance, and there is a need to determine the status of such partulid snails as survive in the wild.

Steve pointed out that most work on the role of molluscs in marine ecosystems has concentrated on benthic species. For instance experiments have shown that grazing limpets are important in structuring rocky shore communities, as are predatory 'whelks', while filtering by bivalves can control phytoplankton and improve water quality in enclosed waters, for instance in San Francisco Harbour and Liverpool docks. Intertidal molluscs can also indicate climate change, which could be monitored by recording schemes; for example in recent years *Patella depressa* has become relatively more common in relation to *P. vulgata*, on shores around Britain. In biomedical research there has been extensive use of marine molluscs. Steve cited work on learning in *Octopus*, on nerve conduction (using Squid), on memory (Sea Hares, *Aplysia*), and control of feeding movement (in, for example, the opisthobranch *Pleurobranchia*). But he warned that care must be used in experimenting, especially on such intelligent animals as cephalopods, that breeding programmes may be needed for over-fished species, and that ecological research needs to guard against disrupting communities and ecosystems.

Mikael looked at the increasing impact of molecular methods on systematics and taxonomy. Allozyme electrophoresis, which

assesses the variation in proteins, was first applied to natural populations in 1966, and remained the main molecular technique for 20 years. The Polymerase Chain Reaction (PCR) was introduced in 1985; this enabled selection and amplification of a specific segment of DNA for the purpose of, say, sequencing. The technique is of great value in systematics, biogeography, ecology, and whenever a historical aspect is of interest for a study. Use of PCR only involves a small amount of tissue so the histories to be inferred relate to single gene copies in single specimens rather than the histories of species. This causes the history of a species to become a secondary inference, which highlights the use of models in biology. One such model is the species concept, for which there are several versions all of which start with a vague idea of what a species is rather than basing the concept on what would be useful for scientific research. The molecular tools now being used increasingly describe patterns and processes in more detail within lineages and populations than between 'species' so there is an increasing gap between (earlier) species concepts and studies done today. Mikael cited a study of the nudibranch *Dendronotus frondosus* which indicated two discrete populations in what was previously considered to be 'one species', and a study on Polychaetes which abandoned the species concept altogether, only naming clades. In 2000 a working group released an alternative to the International Code of Zoological Nomenclature, the Phylocode, for further discussion. The outcome is uncertain, though Mikael thought it most likely that species-less systematics and the Phylocode would not replace the present system. I wonder how best one should define the 'units' we use in the Conchological Society's mapping schemes, where collecting specimens is minimised.

There were two sessions of shorter (20 minute) presentations in the afternoon. The first, between lunch and tea looked at the roles of specialist societies, in particular the Malacological Society of London, the Conchological Society and the British Shell Collectors Club and at teaching with and about molluscs. The second, dealt with distribution studies, mapping, and the future of publishing on molluscs.

First, **Robert Cameron** (Sheffield University, and President of the Malacological Society) spoke about 'Specialist Scientific Societies and their Membership in a Changing World'. He said that in the past, specialist societies have relied on the combination of voluntary work by professionals, and on a buoyant market for their journals. Now, professionals are subject to increasing pressure at work, and the journals are threatened both by the flood of new specialisms (with associated journals) and by restrictions on library budgets. Analysis of societies' membership suggests that slow declines and increasing average ages are common. But specialist societies still have vital roles to play: in promoting basic systematic research, in retaining and disseminating holistic knowledge of their chosen taxa, and in providing expertise and a focus for survey and conservation work. One way of meeting the challenge is to look to the contribution that informed amateurs can make, both in research and in the retention of skills and knowledge. The combined membership of the molluscan related societies in Britain is a mere 0.06% of that of the Royal Society for the Protection of Birds (RSPB). With only 1%, we would have 10,000 members between us!

I (**David Long**) followed this by looking at where I hoped that the Conchological Society would go. The Society has as its aim: 'the promotion for the benefit of the public of the study of Mollusca in its widest aspects' (Society Rules, Rule 2). Stemming from this the Society can set three major spheres of action (in effect policies), all needing participation by members. These are to promote:

- work on the diversity and conservation of molluscs, with a particular view to monitoring the effects of environmental changes including global warming;
- interest in the diversity and beauty of molluscs;
- and work on the taxonomy of molluscs.

The activities to realise these policies should include the following:

- (for diversity and conservation) The Society should continue and develop its non-marine and marine recording schemes (including the DOMMIC project). These can be thought of as the Society's corporate activities. Smaller schemes and special

studies should be encouraged and participated in. Examples might be studies of the segregates of *Lymnaea palustris*, of Red Data Book species, and of individual sites. There should be more inter-working between paid workers (for example ecologists) and unpaid workers such as field recorders. A field meetings programme will be needed to support these schemes and to train recorders.

- (for diversity and beauty) The Society needs to continue with indoor meetings, which are also essential to carry on the Society's business, as these provide opportunities to demonstrate the diversity and beauty of molluscs through the lecture programme and the exhibits. Workshops are also invaluable in this respect, as are the Society's publications.
- (for taxonomy) The Society should encourage publication of results in the *Journal of Conchology*. This entails maintaining and improving the quality of the *Journal*.

Computerisation will play an increasingly important part in the Society's activities. The Society needs to develop new ways of making data available, but at the same time the Society will need to ensure that members without information technology are not left out in the cold.

None of the above is achievable without resources. Resources means members, income and capital. Better membership recruitment and retention is vital. The Society needs to improve existing and find new ways to get, **involve**, and retain members. These include use of, for example the Web for recruiting such groups as young people, students and active retirees, and people who are providing data to Society recording schemes but who are not members. And there needs to be much better communication with members, especially new ones.

Finally the activities must lead to outputs (all part of the communication process): the *Journal of Conchology*, the *Conchologists' Newsletter*, Distribution Atlases and special publications. A revival of 'Papers for Students' needs to get off the ground. All these will also need to be supplemented by data available electronically.

Bill Bailey (Manchester University) then spoke on 'Gauging the Future of the Malacological Society.' The society (MSL for short) is an international society of some 300 mostly professional members (only one third of whom live in the UK). It retains strong links to the Natural History Museum, has a leading journal in the field, offers small awards and grants, holds 2–3 short meetings each year (often jointly with other societies) and has the ability to run major international symposia.

Despite the 'professional' tag, it is estimated that members spend only one third of their working time in solely malacological pursuits. Biology is making its greatest strides in integrative biology, searching for and finding a commonality across a wide range of organisms. Molluscs will be chosen where they provide a useful model. One example is molecular processes in learning – where the sea hare has replaced Pavlov's dog. But these researchers regard themselves as neurobiologists, or marine biologists, etc. and malacology is for most a second string to their bow. Bill thought that scientists and artists have something in common – the biologist may be attracted by the beauty of form and colour exhibited by molluscs, and is also awestruck by the design of, for example, the tooth of a *Conus*, and, in a further abstraction, in the concept of underlying patterns such as the cladistic relationships of a group of organisms.

Looking at research interests and undergraduate courses, one might even question whether malacology still exists as a discipline. Nevertheless the diversity of molluscan species and their expansion into many niches, together with their excellent fossil record, and good soft body characters, offer so many opportunities for study that they cannot be ignored. If we consider the applied areas of pest and disease control, shellfish culture, conservation, pharmaceuticals, etc., continuing malacological expertise becomes even more significant.

What should MSL do in the future? From an analysis of strengths, weaknesses, opportunities and threats, MSL needs to develop an Action Plan. This might include the following:

- Protect their international professional membership through the *Journal* and international symposia.

- Provide for members, especially the younger and the retired, through topical local meetings with a social element and training workshops.
- Provide support for isolated members, especially those with no national society, through an interactive website and Bulletin.
- Collaborate with other societies to organise meetings of joint, topical interest.
- Employ new technologies fully, but with low-level back-up to put them in easy reach of all.
- Provide practical assistance for members to acquire familiarity with new techniques.
- Provide a resource base for members carrying out voluntary activities, e.g. in conservation. This might include contacts lists, databases, computer statistics packages.

Kevin Brown (President of the BSCC) covered 'Sharing shells with the British Shell Collectors Club' including some personal thoughts about the role of shell collectors in the field of molluscan studies.

The British Shell Collectors' Club was formed in 1972 to a point of contact between collectors for the exchange of specimens and information. Since then it has evolved, and its stated aim is now 'To promote the study of shells, and the animals which produce them, both living and fossil, land and marine, British and foreign.'

Today the Club has over 200 members, both in Britain and abroad, ranging from amateur collector to professional scientist, and including more than 20 junior members. The majority of members are interested exclusively in tropical marine shells.

The Club publishes a magazine twice a year with articles on shells, shell collecting, book reviews etc., and has also produced lists of recommended books and information sheets about shells/molluscs for general use. There are three regular meetings each year: a competitive shell show, a club convention and a summer get-together, and all these meetings are open to the public.

The potential contribution of shell collectors to molluscan studies can be divided into three areas:

- Overcoming the bad image of molluscs with the general public – the ‘ugh it's slimy’ factor – by giving talks, exhibiting their collections and sharing their enthusiasm.
- Fieldwork and research. Worldwide there are far more shell collectors than museum specialists in molluscs. Some collectors build a detailed picture of the molluscs of a particular area, often over a long period. Those who specialise in a particular group may become acknowledged experts.
- New publications. The last 30 years has seen a boom in the publishing of books on shells. Some of these have been written by advanced amateurs but, apart from this, many of these new books would not have been viable publishing propositions without the worldwide market among shell collectors.

Provided that collectors act in a responsible way, ensuring that molluscs are appreciated by the public, and that their habitats are not affected by excessive development, pollution or over-collecting, then since molluscs and the shells they produce are a living, renewable resource there should be no reason why we should not continue to collect and enjoy shells in the future. Professional scientist and amateur collector should work together to share our enthusiasm and interest in shells with one another and with the wider public.

Georges Dussart (Canterbury Christ Church College) covered ‘Teaching with and about molluscs’. Molluscs can be part of the teaching process for a number of reasons, e.g. strategic (an institution decides molluscs are important and should be included in the curriculum), pragmatic (molluscs are regularly encountered and are therefore studied) or economic (importance as pests or as resources).

There are perhaps three extreme views of the future of malacology in education. Some consider molluscs an intrinsically interesting group that will always attract devotees. Some appear

resigned that malacology as a specialist science is dying. George took the optimistic third view that malacology can be promoted as a productive, lively activity, yielding intellectual, job, economic and medical benefits.

George had carried out a survey on the uses of molluscs in teaching. Teaching can be **about** molluscs, or **through** molluscs.

Teaching about molluscs

At universities malacology is taught as part of courses on invertebrate biology, evolution and systematic biology. In systematic zoology molluscs may be seen as an essential component of a systematic curriculum. In some institutions they are emphasised for historical reasons. In invertebrate zoology courses they may simply be used 'because they're so darn nifty' (Baker, Florida). Abundant molluscs lend themselves to practical work on physiology and behaviour, and many molluscs are intrinsically easy to work with in the laboratory. Seashore molluscs are frequently studied on field courses, providing examples of ecological principles, and taxonomic case studies.

In museums, malacology is involved in education. Shell collections are commonly exhibited since they are aesthetically pleasing and there is usually a clear taxonomy based on morphology. Exhibits of economic malacology can also be found in museums. On the Internet there are general interest sites, but molluscs are often presented in the form of image galleries.

There are some specialist courses in applied malacology training.

Teaching through molluscs

In primary schools molluscs could be used in the National Curriculum in relation to keys but, currently, published cards focus on plants and pond life and molluscs are merely seen as a step in the food chain. However, examples of interesting malacological practice include lessons on: the ecology of *Lymnaea stagnalis*, minibeasts (e.g. occurrence in litter, and snail crawling over the edge of a knife); life cycles (e.g. *Helix aspersa* which can be maintained individually in upturned beer glasses), and parasites (*Arion* spp. and *Helix aspersa* being often infested with the mite

Riccardoella limacis). The attractions of molluscs in these contexts are clear, they are easy to obtain and to maintain, it is easy to illustrate principles, and children encounter them out of school.

In secondary schools molluscs are sometimes used for the 'yuck!' factor. However, they have been used constructively; for example, *Lymnaea peregra* (socialisation of new adult classmates), *Achatina* (population growth potential), *Hydrobia ulvae* (GCSE project work on salinity and emersion).

In field study centres molluscs can be used as a focal point in themselves, or as a focus for discussion. In the media, 'Horizon' and other programmes periodically feature molluscs, for example 'Devilfish' (1990).

At undergraduate level there are both studies about molluscs and teaching through molluscs. The former include for example work on behavioural responses to salinity change in *Mytilus edulis*, the relationship between size, form, and ecological function in *Nucella lapillus*, and the surfacing behaviour of *Lymnaea peregra* (pulmonate) compared with *Bithynia tentaculata* (prosobranch). The latter includes intertidal sandflat dispersion analysis using *Salinator fragilis* (in Tasmania), use of conchiolin for amino acid chromatography, looking at *Dreissena* as a biological invader.

Some fundamental issues need to be resolved, such as should malacology be promoted as an intellectual discipline, or as a 'fun' occupation, or in order to achieve other aims, such as preserving museum collections.

Finally, George believed that malacological societies could each promote interest in molluscs by having a statement of intent in their rules to include the educational dimension and by making serious attempts to involve more young people in their activities. Societies might collaborate to produce and disseminate materials such as identification guides, 'curious facts' sheets, 'slug and snail watch' groups similar to the Bat and Badger groups, joint surveys, and 'pet' set ups such as the Frances Smith beer-glass culture system for terrestrial molluscs. Following a suggestion from Ian Wallace (Liverpool), molluscs could be promoted as 'ambassadors of their habitats'.

However, this educational promotion of malacology requires a widening of the current remit of the malacological societies since they tend to have a particularly academic perspective. It also requires an engine of enthusiasm to push the project forward, the financial fuel might come from bodies such as the Royal Society.

Ian Killeen (Malacological Services) brought it home that Distributional Studies are more than dot maps and data bases. They can be of use for monitoring global warming, for instance, to check on frost sensitive species like *Helix aspersa* and *Monacha cantiana*. He said that mapping of *Cepaea* on a fine scale has indicated a decline of *C. nemoralis* in Suffolk and apparently in the Isle of Wight, the Marlborough Downs and Derbyshire with increase in *C. hortensis*.

Importantly there is change in that the focus of recording is shifting more and more to the needs of end users. They want added value from surveys such as increased knowledge of exact ecological requirements. Examples include *Vertigo geyeri* where mapping is on a very fine scale with sampling of sites at 10 metre intervals, studies of *Segmentina nitida* which is a poor coloniser, and the differential distribution of *Pisidium tenuilineatum* in the River Wharfe where water chemistry appears to be a determining factor.

Nigel Brown (Centre for Ecology and Hydrology, Monks Wood) covered 'Beyond mapping – GIS and the future.' This presentation gave an overview of some of the latest developments in Geographical Information Systems (GIS) illustrated by several data sets covering a range of scales. Although not related directly to molluscs these examples demonstrated the type of data that are now being used within GIS in the environmental arena. The data have been and continue to be used by the Centre for Ecology & Hydrology (CEH) for many GIS related projects. They include the Land Cover Map of Great Britain (LCMGB), national land use data etc. Some current technology was described which is used to analyse data including computer software packages that are closely related to GIS. The issue of scale was discussed and how this can be addressed by GIS. Internet issues were briefly discussed and some source web pages suggested (see below). It

was emphasized that GIS is now relatively straightforward and not necessarily expensive.

Suggested Web Pages

Centre for Ecology and Hydrology	http://www.ceb-nerc.ac.uk/index.html
Countryside Information System	http://www.cs2000.org.uk/
Example of GIS application to molluscs:	http://turtle.gis.umn.edu/HyperNew/get/fw5620/assignments/34.html
Spatially orientated research in ecology:	http://userzweb.lightspeed.net/~ipthomas/spore3.html
Future of GIS:	http://www.usgs.gov/research/gis/application7.html
Tutorial on uses of GIS:	http://www.rz.uni-hohenheim.de/rz/app/gis/tutorial/Gis/gis4.html
Association for Geog. Info.	http://www.agi.org.uk/

John Taylor's address 'Publish or perish?' looked at the future of molluscan society publications. There are four reasons for publishing: to communicate and disseminate science, to provide a glue for society membership, to create a profit for society (and publisher if separate), and to promote the careers or reputations of authors.

With some 40 molluscan journals in the world libraries cannot afford all of them. At the same time the number of pages published on molluscs has increased as new specialist fields continue to emerge (for example, sperm morphology) and more countries are providing contributing authors. In this more crowded milieu it is necessary to think of balancing content with respect to sales especially as libraries use performance indicators and impact factors based on citation from the last two years of journals to select which journals will be subscribed to. In consequence administrators urge scientists to publish in journals which have a high impact factor.

For the immediate future publication would continue to be through hard copy print, but this would co-exist with electronic publishing and Web sites, but the future balance between printing and electronic publishing is less clear in the long term. There is also the effect of new style molluscan publishing which can include new taxonomic descriptions among for example poems and pictures. And it can all impact on the journal publishing societies.

Some significant points were made in the **final discussion** at the end of a thought-provoking day:

- Both the Conchological Society and the Malacological Society of London are registered charities, so their objectives and activities must be for the public good, not solely for the benefit of members.
- The Societies at the meeting are the custodians of the molluscan skills and knowledge data base rather than universities and museums, particularly in that members can often more freely exercise their knowledge through the societies than elsewhere, and the societies have a vital role in respect of the quality and accuracy of recording.
- Engaging the interest of children and students is vital, and is part of the need for the societies to concentrate on recruitment, education and public awareness.
- The societies should continue with regular joint activities.

Acknowledgements

With many thanks to David Reid and the sub-committee who organised this event, to all the contributors, and to the Chairpersons for the various sessions – Robert Cameron, Adrian Rundle, David Reid, and Jan Light.

□

A large Cornish and Scillonian wreck of cuttlebones *Sepia officinalis* and *S. orbigniana*

Stella M. Turk¹, Jan M. Light² and Pamela E. Tompsett³

¹ [REDACTED], Camborne, Cornwall, [REDACTED]

² [REDACTED], Godalming, Surrey, [REDACTED]

³ [REDACTED], Redruth, Cornwall, [REDACTED]

From early May to early June 2000, very large numbers of cuttlebones were floating off the Cornish coast as well as strewn on the beaches of Cornwall and the Isles of Scilly. Most years there are some 'bones' to be found on strandlines, especially from May onwards after the 'spent' females die. Previous large 'wrecks' are recorded on the coasts of SE England (Lane 1950), the Isle of Man – in April (Moore 1937), the Channel Isles (Pamela Tompsett, pers. comm.) and Cornwall – (in various months, including December and January). However, we can find no analyses of any such strandings, so we hope that these notes will encourage beachcombers to record the species of *Sepia* present, their size range and their numbers.

The quantity floating in Mount's Bay was said to be 'huge' by a fisherman, Mike Harvey, whilst records of those stranded extended from Land's End to the Camel Estuary on the north coast, as well as from many places on the south of Cornwall. A careful count by Matt Stribley gave 550 on a 500 m stretch of sand, below Upton Towans (between Hayle and Gwithian). Hazel Meredith reckoned there were c.1000 on Fistral Beach, Newquay, and similar numbers were strewn on the strandline at Porthcothan, near Padstow where they were monitored by Nick Darke and Jim Roberts. Jim measured 600 shells (that were sufficiently entire) of *S. officinalis*. They varied in size from 5 to 27 cm and grouped into distinct cohorts, leading him to the conclusion that there had been 'a brief but large-scale mortality'. The common cuttle when fully adult can reach 30 cm (measured by mantle length which approximates to the size of the shell), but can mature when as little as 6 to 8 cm long (males) or 11 cm (females) (Arkley *et al.* 1996). Thus the size range does not

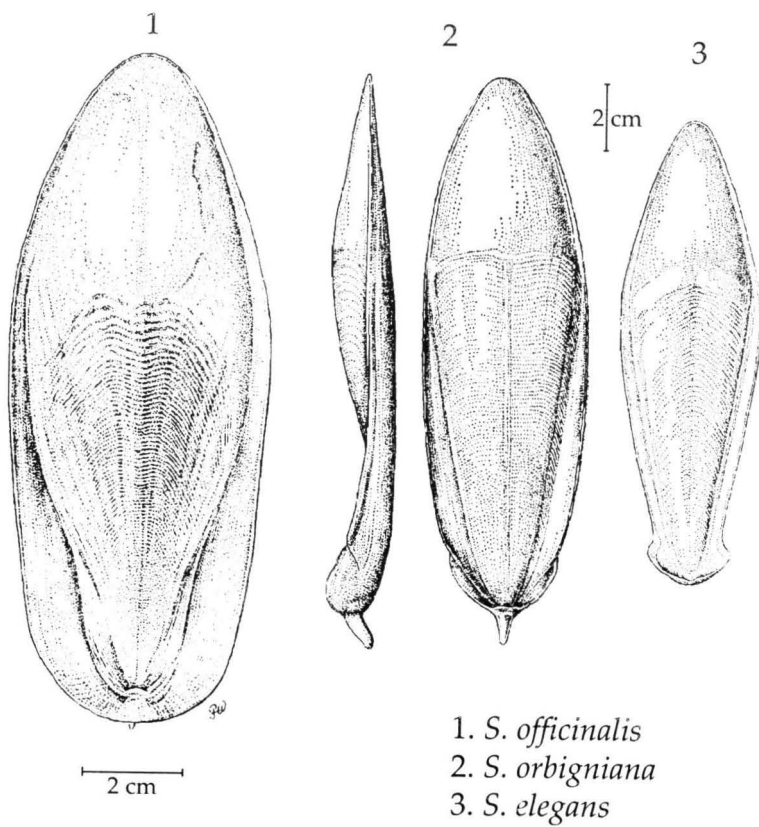


Figure 1: Bones of *Sepia* species (from Muus 1959)

preclude this particular incident being a post-breeding wreck. It was suggested by Prof. Roddy Williamson and concurred by Dr Ludovic Dickel that they may have been fishery discards, but according to Phil Lockley, correspondent of *Fishing News* (per Pamela Tompsett), even small ones are used for the table and for bait in mainland Europe. Indeed they are also served by at least one London restaurant (Dr Dave Smart, pers. comm.). During May 7 tons a day were being handled at Plymouth market, with a greater tonnage at Brixham (Douglas Herdson, pers. comm.).

The presence of a second species, *S. orbigniana*, was not appreciated at first, so it was not separately counted on all the beaches. From the data we have, it would seem to have made up between 4 and 5% of the total wreck.

Porthcothan	20 May – a few percent	Nick Darke
Bosahan Cove	21 May – 3 of 100	Pamela Tompsett
Poldhu Cove	27 May – 4 of 100	Matt Stribley
Porthtowan	30 May – 3 of 120	Matt Stribley
Chapel Porth	31 May – 10 of 150	Matt Stribley
Below Upton Towans	2 June – 25 of 550	Matt Stribley

Over the years, various collectors have recorded all small 'bones' with a pink flush on the dorsal side, as *Sepia elegans*, but re-examining past specimens collected by the authors, as well as by Paul Gainey, shows that at least some of these were misidentified as *S. elegans*. There has also been some confusion over names in the past literature, so it is difficult to be sure of the accuracy of former records. A brief summary for each species is given as follows and the bones of the three species are illustrated in the figure:

***Sepia officinalis* L. 1758**

Bone white, reaching 20 or more cm. Almost straight-sided, ending with only a minute spine.

Ranges from S. Norway to the Mediterranean and S. Africa. It is extensively fished – as it has been for some 3000 years. Common and readily obtainable during most of the year. Breeding in March to June and hatching two months after eggs are laid (Arkley *et al.* 1996). [Breeding is given as July and August, with hatching in October in the Plymouth Marine Fauna (Marine Biological Association 1931; 1957)].

***Sepia orbigniana* Férussac in Orbigny 1826**

Bone with pink flush on the upperside, reaching nearly 10cm. Slender, ending with an obvious spine. 'Rare off SW Britain, south to Mediterranean and W. Africa' (Hayward *et al.* 1996).

Former records

'Oxwich Bay near Swansea (J. G. J.), and Guernsey (F. C. Lukis); one entire shell and the greater part of another' (Jeffreys 1869 as *S. elegans* de Blainville). Hampshire 1926; Cornwall 1928 (Natural History Museum collections *fide* Fred Naggs and Richard Williams). Channel Isles (Seaward 1982).

***Sepia elegans* d'Orbigny 1826**

Bone with a pink flush on the upperside, and less than 8 cm. Slender, ending with a minute keel on the back of the shell. 'On sandy and muddy substrata, offshore, uncommon in coastal waters. W. Britain, S. to Mediterranean and SW Africa' (Hayward *et al.* 1996).

Former records

S. elegans as (*S. bisserialis*) with *S. orbigniana* (as a synonym) is recognisably described and figured as one species, with a note that it has never been found alive in British waters and that shells have been found at Magilligan, N. Ireland by Mr Hyndman and on the Northumberland coast by Mr Alder: these two records (Forbes & Hanley 1853) are repeated by Jeffreys. 'Polperro (Laughrin; shells only on sandy beaches at Mawgan Porth in Cornwall, and Oxwich bay near Swansea (J. G. J.), Guernsey (F. C. Lukis) Northumberland (Alder), and Magilligan in Derry county (Hyndman).' (Jeffreys 1869 as *S. bisserialis* de Montfort). Not uncommon on the trawling grounds. Eggs capsules on a hydroid *Nemertesia* sp. and a bryozoan *Cellaria* sp. (Marine Biological Association 1931, as *S. elegans* (d'Orbigny)). Egg capsules trawled in 27 fm in 1938 (Marine Biological Association 1957 as *S. elegans* (d'Orbigny)). Plymouth Sound, live; Galway Bay, Sennen, Plymouth area, shells (Natural History Museum collections *fide* Fred Naggs and Richard Williams). Live in Sea Areas 16, 17, 18, 19, 20, 29, 33, 36, 37; shells in 9, 15, 21, 24, 29a, 32, 35, 53 (Seaward 1990).

Details of the records for 2000 can be found on Cornwall Wildlife Website <http://www.wildlife.org.uk/cornwall>, and additional coloured photographs are on http://www.stribley.redhotant.co.uk/sepia_web/sepia.htm.

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The records of *Sepia officinalis* & *S. orbigniana* in 2000

Note that on most of the beaches there was also a large quantity of thongweed (*Himanthalia elongata*).

4 & 5 May. A few dozen, of various sizes, on Gillan and Flushing beaches SW7825.

10 May. Many on Mousehole Beach SW including some *S. orbigniana*: John Humphreys.

11 May. Huge number of all sizes floating in Mount's Bay: Mike Harvey per Ray Dennis.

19 May. Many on Pentreath beach SW6912: Paul Gainey.

19 May. Small numbers on North Devon beaches: David Jenkins.

20 May. About a 1000, mixed sizes from 6 to 22cm on Fistral Beach SW7961-7962: Hazel Meredith.

20 May. About 1000 (and more coming in on succeeding days) Porthcothan Beach SW8572: Nick Darke and Jim Roberts.

20 May. Large numbers also recorded at Watgate (SW8364; Constantine SW8574; Treyarnon SW8673 and Booby's Bay SW8575: Nick Darke.

21 May. About 100 on Bosahan Beach, Helford River SW76256, ranging from 6 to 18cm: Pamela Tompsett.

27 May. About 100 at Poldhu Cove SW665199. These were left by the morning tide – there were many more on the higher strandline, left by the previous tide. Four were *S. orbigniana*: Matt Stribley.

30 May. About 120 at Porthtown SW692481 at 20.00 hours – three were *S. orbigniana*: Matt Sibley.

31 May. Chapel Porth (SW6949) 150 counted in a range of sizes and 10 shells of *S. orbigniana*: Matt Sibley.

2 June. 550 on a 500 m stretch of sand, below Upton Towans, between Hayle and Gwithian. 25 were *S. orbigniana*.

□

Subscriptions

Subscriptions for 2001 will become due on 1 January 2001 and members are asked to remit promptly, without further reminders, to the Membership Secretary:

Mr M.D. Weideli

Newbury

Berkshire

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High Altitude Mollusca

Adrian Norris

*Leeds Museum Resource Centre,
1 Moorfield Road, Yeadon, Leeds LS19 7BN*

On Saturday 19 August 2000, David Lindley and I visited the Upper Teesdale National Nature Reserve, on Mickel Fell, by kind permission of the Strathmore Estate. The visit was undertaken under the auspices of the Yorkshire Naturalists' Union, who had organised a field meeting to study this little visited area of vice-county 65, Watsonian Yorkshire. (Since the last local government reorganisation, this area is no longer under the administration of the North Yorkshire County Council.)

The Upper Teesdale National Nature Reserve is situated 10 kilometres due north of Brough, and 12 kilometres west of Middleton-in-Teesdale. This area of the fells has very limited access and very few public footpaths, part of the area being used as a military firing range. The area we visited is situated two hours walk off the B6276 Brough to Middleton-in-Teesdale road, and consisted of three kilometres of south-facing limestone crags, topped with a limestone plateau. The base of the limestone crag is situated at an altitude of 2,400 ft and extends up to a maximum altitude of 2,487 ft.

We did not expect very much in the way of mollusca at this very high altitude, particularly as only nine species of mollusc have been recorded at an altitude of over 2,000 ft in England.

At the base of the crags several calcareous springs and flushes emerged. In this area, at an altitude of 2,400 ft, we found *Lymnaea truncatula*, *Carychium minimum*, *Columella aspera*, *Vertigo substriata*, *Arion ater* agg., *Arion circumscriptus*, *Arion intermedius* and *Deroceras laeve*. In the grassland above these flushes, and under stones at the base of the scree, at an altitude of 2,410 ft, we found large numbers of young *Deroceras agreste*. The scree, and the cliff face, produced the remaining species, mostly from an altitude of approx. 2,425 ft.

We felt the area deserved a much more detailed study, particularly of the calcareous flushes. We also felt that several other species could be added to the list of 22 we found, with even the possible addition of one or more of the rare *Vertigo* species, known to occur not too far from this location.

The list of species found is as follows:

	NY35/ 80-24-	81-24-	82-24	Previous Altitude Record
<i>Lymnaea truncatula</i>		X		1,350
<i>Carychium minimum</i>		X		?
<i>C. tridentatum</i>		X	X	1,550
<i>Cochlicopa lubrica</i>	X	X	X	1,400
<i>Pyramidula rupestris</i>	X	X	X	3,054
<i>Columella aspera</i>		X		?
<i>Vertigo substriata</i>		X		1,230
<i>Lauria cylindracea</i>	X	X		1,800
<i>Discus rotundatus</i>			X	1,400
<i>Arion ater</i> agg.	X	X	X	3,000
<i>A. circumscriptus</i>		X		1,250
<i>A. intermedius</i>		X		1,325
<i>Vitrina pellucida</i>	X	X		?
<i>V. subrimata</i>		X		?
<i>V. contracta</i>	X	X	X	1,325
<i>Nesovitrea hammonis</i>		X	X	1,400
<i>Aegopinella nitidula</i>		X		1,400
<i>Oxychilus alliarius</i>		X		1,400
<i>Deroceras laeve</i>		X		1,230
<i>D. agreste</i>	X	X	X	?
<i>Clausilia dubia</i>		X		2,350
<i>Arianta arbustorum</i>	X	X		2,400

The altitude records are those quoted by S. Peter Dance in the paper published in the *Conchologists' Newsletter* No. 36, March 1971, pages 193-195.

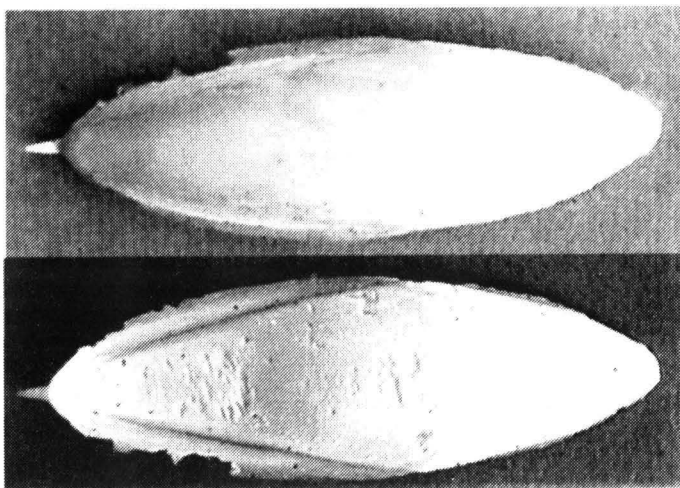
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***Sepia orbigniana* Férussac in Orbigny, 1826:
first recorded occurrence from the Isles of Scilly**

Peter Topley

3 Sears Close, Clifton, Bedfordshire, SG17 SHG

Internal 'cuttlebones' of the common cuttlefish, *Sepia officinalis* L., are frequently encountered along the shoreline, and numbers of beached specimens can occasionally be high following storms, when so-called 'wrecks' of cuttlebones sometimes occur. Although the vast majority of specimens will be the cuttlebones of *S. officinalis*, the coasts of south-west England will also see cuttlebones of two 'rarer' species, *S. elegans* Blainville, 1827 and *S. orbigniana*. Bones of these two species together may comprise <5% of the total number of beached specimens (Jan Light – pers. comm.). *S. elegans* is a smaller species than *S. officinalis*, the animal having a maximum mantle length of 80 mm, around five times smaller than that of the latter. Whereas the shell of *S. officinalis* is oval, almost parallel-sided and smoothly-rounded posteriorly, that of *S. elegans* has a lanceolate outline and is distinctly narrowed close to the posterior end (Hayward & Ryland, 1995). Both these species have been recorded from the Isles of Scilly as 'occasional' (Turk, 1991).



The third species which has an appreciable internal cuttlebone, *S. orbigniana*, has been much less often recorded. The type locality of *S. orbigniana* is recorded as the Bay of Biscay. The animal has a maximum dorsal length for the mantle of 100 mm (Muus, 1963 in *Conch. Newsl.* 1985). The cuttlebone is easily distinguished by the presence of a conspicuous apical spine and an overall pinkish tinge. *S. orbigniana* was stated by Turk (in 1973) as 'not known living in British waters'. However, since then cuttlebones of this species have been found around the coast of Cornwall.

Whilst on holiday in the Isles of Scilly in August I noticed that cuttlebones were fairly common along the higher strandline of some beaches. In all cases, with one exception, these consisted of *S. officinalis* (for example, on Porthcressa beach, St. Mary's, SV903104). The size of the majority of these 'shells' was small (c.85–76 mm). This compared with beached cuttlebones I had collected in April from Atherington, West Sussex (TQ005005) where the shells measured from 200–240 mm in length. The smaller size of the Scilly cuttlebones perhaps indicated a past 'wreck' of juveniles, although I also observed one or two recently beached adult animals.

Amongst the cuttlebones of *S. officinalis* found on the high strandline of Appletree Bay, Tresco (SV892136), was a specimen measuring 100 x 30 mm, pinkish in colour with a pronounced spine. This was later identified as *S. orbigniana* by the Society's Marine Census recorder, Jan Light, and confirmed as a new record for Scilly by Stella Turk of the Cornwall Wildlife Trust. I was also informed by Stella that there had been a big wreck of cuttlebones in the Isles of Scilly in May this year (this also occurred on mainland shores in the West Country). I did not come across any 'bones' of *S. elegans* in the samples I took on this occasion.

Acknowledgements

I am most grateful to Jan Light and Stella Turk for their advice and help with identification.

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*The Newsletter Editor sends Seasonal Greetings and
Best Wishes for the New Year to every reader.*

*Many thanks to all contributors to the Newsletter,
especially those who have produced
articles at short notice.*

Terrestrial molluscs associated with ancient woodland in North-east Yorkshire

A.A. Wardhaugh

[REDACTED], Middlesbrough [REDACTED]

This note is based in part on a talk given in February 1999 at the conference in Cardiff on Biogeography and Distribution of European Land and Freshwater Molluscs, for which a brief abstract has appeared elsewhere (Wardhaugh 1999).

Kerney and Stubbs (1980) listed nine terrestrial mollusc species as being associated with primary woodland. Seven of these species occur in North-east Yorkshire: *Vertigo substriata*, *Leiostryla anglica*, *Spermodea lamellata*, *Limax cinereoniger*, *Perforatella subrufescens*, *Acicula fusca* and *Malacolimax tenellus*. It has been shown previously that five of these may be associated with ancient semi-natural deciduous woodland in North-east Yorkshire in woodlands thought to have been in continuous existence since at least 1600 AD but probably for much longer (Wardhaugh 1997). Since then, more information has been gathered on the occurrence of these seven and other species in the vice county, the records having been divided into three habitat categories (Tables 1 and 2). More details about the records upon which these tables are based are available elsewhere (Wardhaugh 2000).

Although data are few, the seven species listed by Kerney & Stubbs (1980) do in general show a clear association with ancient semi-natural woodland (Table 1). This seems to be especially so for *S. lamellata*, *L. cinereoniger* and *P. subrufescens*. Of these, *L. cinereoniger* is of interest because as more information has become available at a national level, it has become apparent that it is not always restricted to ancient semi-natural woodland in at least some parts of Britain (Kerney 1999). For *P. subrufescens*, the one 'Other Habitats' record is for a wetland site very close to ancient semi-natural woodland, the same being true for the 'Other Habitats' records for *A. fusca*, *V. substriata* and *L. anglica*. The two instances in which the latter species was found in secondary

woodlands refer to two small populations each in damp, seemingly less disturbed pockets within these sites.

A similar analysis to the above was carried out by Chater (1998) for Cardiganshire (vice county 46) with markedly different results. Here, the only species largely restricted to ancient semi-natural woodland was found to be *S. lamellata* for which 95% of records were for this habitat type. For other species the corresponding figures were, *A. fusca* 60%, *V. substriata* 13%, *L. anglica* 50%, *L. cinereoniger* 68% and *P. subrufescens* 31% (for *M. tenellus*, no data). Cardiganshire and North-east Yorkshire are similar in that both are areas of largely non-calcareous rock covered in places by glacial drift. Both have a July mean temperature of about 14 to 15°C and similar January means of 3 to 5°C. One major difference is in the amount of rainfall received by each. For Cardiganshire this is 1,000 to 2,500 mm annually but for North-east Yorkshire only 750 mm (Kerney 1999). Thus lower annual rainfall could be a possible factor leading to the restriction of these species to ancient semi-natural woodland in North-east Yorkshire, where open habitats, or areas open in the historic past such as secondary woodland, may be (or at some period may have been) too dry to support these species.

In addition to the species listed by Kerney & Stubbs (1980), a number of others were found to show an association with ancient semi-natural woodland (Table 2). Of these, Paul (1978) found *Azeca goodalli* and *Columella edentula* to be characteristic of ancient woods in Cambridgeshire.

One cautionary note should be added in that the categorisation of woodlands as ancient or secondary in the present study is based upon survey work carried out by the Nature Conservancy Council, now English Nature (Carter 1897a and 1987b, Cooke 1987). This was considered by the authors to be a provisional survey rather than definitive, with the extent and reliability of the evidence available for each of the woods acknowledged to be variable. In any event division of woodlands into two such categories is rather simplistic with every site having a unique history. These points should be borne in mind when considering the data provided.

Finally it is worth noting that within the woodlands investigated, the area occupied by populations of the species considered is often very small, sometimes just a few square metres. Consequently, the total land area occupied by most of these species must be a minute fraction of North-east Yorkshire as a whole, which emphasises their vulnerability and the significance of ancient semi-natural woodlands as refuges for them in the future. Recently, similar emphasis has been placed on the small size and precarious nature of many butterfly populations in Britain (Cowley et al. 2000).

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Table 1

Species associated with ancient semi-natural woodland in North-east Yorkshire

Species	Ancient Semi-natural	Secondary Woodlands	Other Habitats
<i>Acicula fusca</i>	6	0	1
<i>Vertigo substriata</i>	6	0	2
<i>Leiosstyla anglica</i>	16	2	3
<i>Spermodea lamellata</i>	15	0	0
<i>Limax cinereoniger</i>	11	0	0
<i>Malacolimax tenellus</i>	3	0	0
<i>Perforatella subrufescens</i>	15	0	1

Table 2

Further species associated with ancient semi-natural woodland in North-east Yorkshire

Species	Ancient Semi-natural	Secondary Woodlands	Other Habitats
<i>Azeca goodalli</i>	5	0	0
<i>Columella aspera</i>	9	0	0
<i>Columella edentula</i>	14	1	2
<i>Cochlodina laminata</i>	25	1	3
<i>Ashfordia granulata</i>	13	2	0
<i>Oxychilus alliarius</i> *	28	13	25
<i>Deroceras reticulatum</i> *	27	12	33

*These species have been included to indicate that enough data are available for any obvious patterns in habitat preference to be evident.

□

***Spermodea lamellata* and other uncommon land snails in East Cornwall**

Geraldine Holyoak

[REDACTED], Camborne, Cornwall [REDACTED]

Spermodea lamellata is a rare and declining species throughout southern Britain that has hitherto been known in south-western England only from a single site in north Devon (Kerney 1999). On 22 April 2000 I visited Peter's Wood in East Cornwall (grid reference SX 11-90-; v.-c. 2) to record land and freshwater Mollusca for my tetrad surveys. Peter's Wood covers a steep north-facing slope over slaty rocks of the Lower Carboniferous Yeolmbridge Formation. Both Peter's Wood and the adjoining Minster Wood consist of deciduous woodland dominated by oaks (mainly *Quercus petraea*). My interest focused on an area along the bottom of a narrow side-valley with basic flushes that are marked by extensive stands of opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*). A quick search of the ground vegetation here revealed numerous *Leiostyla anglica*, with up to 15 individuals of the species on a single fallen branch. Field-sieving soon revealed *Spermodea lamellata* which has never been recorded in Cornwall before, and also *Acicula fusca*.

Further searching in the field and analysis of samples (about eight litres in total) of leaf litter and ground vegetation produced the following list of molluscan species:

Acicula fusca, *Carychium minimum*, *Carychium tridentatum*, *Cochlicopa lubrica*, *Columella edentula*, *Columella aspera*, *Vertigo substriata*, *Leiostyla anglica*, *Lauria cylindracea*, *Acanthinula aculeata*, *Spermodea lamellata*, *Discus rotundatus*, *Arion ater* aggregate, *Arion distinctus* or *A. hortensis*, *Arion awenii*, *Arion intermedius*, *Vitrina pellucida*, *Vitrea crystallina*, *Nesovitrea hammonis*, *Aegopinella pura*, *Aegopinella nitidula*, *Oxychilus cellarius*, *Oxychilus alliarius*, *Oxychilus helveticus*, *Zonitoides excavatus*, *Lehmannia marginata*, *Deroceras reticulatum*, *Deroceras panormitanum*, *Euconulus fulvus*, *Clausilia bidentata*, *Balea perversa*, *Ashfordia granulata*, *Perforatella subrufescens*, *Trichia hispida*, *Arianta arbustorum*, *Cepaea nemoralis*, *Cepaea hortensis*.

In addition the small clean stream held *Potamopyrgus antipodarum*, *Ancylus fluviatilis* and *Pisidium personatum*.

The assemblage of snails from the flushed ground in this wooded stream valley is remarkable for a larger overall molluscan fauna than is normal in the county. It not only provides the first record of *Spermodea lamellata* in Cornwall, but also has three other species that are rare in Cornwall (*Leiostryla anglica*, *Acicula fusca* and *Vertigo substriata*). These four species had 'almost universal distributions' in southern England during the Flandrian climatic optimum around 5000 years BC (Kerney 1966). Since these species are easily exterminated by disturbance of their habitats, their very local modern occurrences in southern England (e.g. at Peter's Wood, and near Balcombe in Sussex) can be regarded as isolated relicts from their formerly widespread ranges. *Spermodea lamellata* is thus recognised as a 'useful indicator of ancient woodland' (Kerney 1999).

Ancient and stable woodland sites with a rich molluscan fauna were hitherto almost unknown in Cornwall. Fortunately Peter's and Minster Woods are owned by the National Trust. They have been advised of these findings so that sympathetic management of the woodland should be assured.

Acknowledgments

Thanks are due to Dr M. P. Kerney for confirming the identification of the *Spermodea lamellata* from East Cornwall.

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□

***Testacella* again – in Hampshire**

June Chatfield

[REDACTED], Alton,
Hampshire [REDACTED]

The shelled slug *Testacella* featured in three articles in recent issues of *The Conchologists' Newsletter* (Topley 2000, Norris and Massey 2000 and Reynolds 2000). This is a slug which one does not come across very often and it is extremely difficult to find one to order. In the mid-1970s Michael Chinery wrote to me asking for help in obtaining a *Testacella* for the artist to use in making an illustration for a book *The Natural History of the Garden*, which he was then writing (Chinery 1977). He explained that, short of taking up employment as a jobbing gardener, he was not likely to find one himself. *Testacella* lives underground in the soil where it feeds on earthworms and finds of this slug are usually fortuitous when digging in humus-rich compost heaps, clearing garden rubbish in a neglected corner or on allotment plots. As it happened, a Conchological Society indoor meeting exhibit provided Michael Chinery with his specimen.

One of the reasons for the recent finds described in the last two issues of the Newsletter has been the very heavy rainfall of 1999 and 2000. This has caused the soil to become waterlogged, bringing *Testacella* to the surface, as indeed heavy rain does also for earthworms.

Chawton

A field meeting of the Alton Natural History Society on 21 May 2000 to the grounds of Chawton House near Alton (home of Jane Austen's brother Edward) was preceded by a deluge and members had to seek shelter in their cars waiting for this to pass over. It had also rained the previous day and the small lavant below the church, which is normally dry, was full of water. One specimen of *Testacella* was found at the base of a flint ha-ha wall at the edge of the churchyard in Chawton (41/707370). This was identified as *T. haliotideae* on the basis of the branching pattern of the lateral grooves which were only just separated (Kerney and Cameron

1979). However, as indicated in the latest *Atlas* (Kerney 1999), *T. haliotidea* and *T. scutulum* may not be separate species.

Selborne

The maps for both of these species of *Testacella* show very few records in Hampshire, especially since 1965, except for the Isle of Wight which has records in most 10 km squares. The only mainland Hampshire square record for *T. scutulum* (41/73) was probably that made during a Joint Conchological/Malacological Society meeting in Selborne during April 1980 (Chatfield 1981) when a single specimen was found under garden rubbish behind the Gilbert White Field Studies Centre in the Museum yard (41/741336), the same 10 km square as the Chawton record above.

Petersfield

A further recent record in Petersfield, Hampshire (41/764233) has come to my attention through David Ball, Ranger for the Ashford Hangers National Nature Reserve. He recorded it (*in litt.*):

'The only place I have found it [*Testacella*] was in my garden at 122 Clare Gardens, Petersfield. On 27 March 1991 I moved my dog kennel and the paving slabs it was on. Under these I found four *Testacella scutulum*, two adults and two juveniles, plus a cluster of eggs. Somewhere I have an out-of-focus photo! There were also large numbers of the red brandling earthworms, presumably attracted by the high fertility from the dog kennel. The soil in my garden is partly made up from when the house was built in the mid 1970s. The site before 1930 was wet heath/birch woodland on Lower Greensand.

Testacella is an elusive slug and clearly under-recorded. It would be useful for members to keep an eye out for it in gardens after heavy rain which could bring specimens to the surface.

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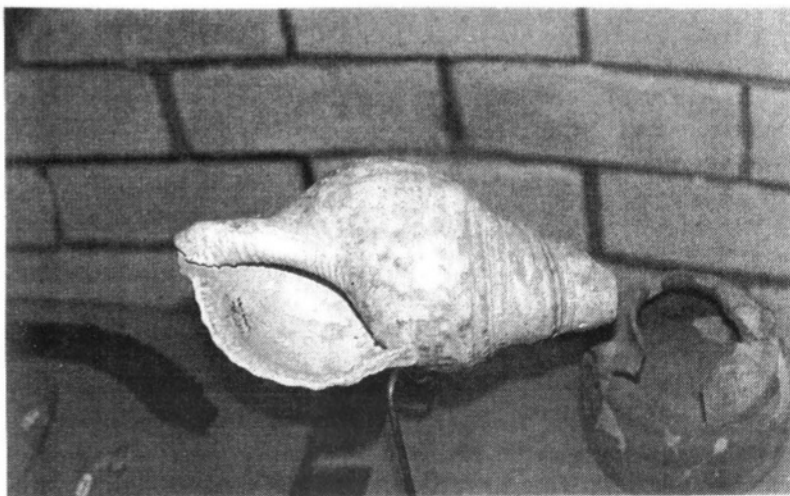
[Editor's note: *Testacella maugei* was found by me in a garden in Barnstaple, Devon on paving slabs after very heavy rain during the late September Marine field meeting.]

The Trumpet of Hazor

Fred Pinn

, London

Hazor in Upper Galilee (Israel) near the Sea of Galilee has a history going back to the second millennium BC. Its site on an ancient trade route between Egypt and Babylon gave it great importance. In the Bible it is called 'the capital of all kingdoms' (in Canaan) and its king is given the title 'King of Canaan'. The city is thought to have had 20,000 inhabitants in 1500 BC. Jabin, King of Hazor, at the head of a federation of local 'kings', was defeated by Joshua and his city was destroyed. Rebuilt at a later date, it was fortified again by King Solomon and became one of his important fortresses. Its final destruction took place during the conquest of Galilee by the Assyrian King Tiglat Pileser III in 732 BC.



Tell Hazor was excavated by Professor Yigael Yadin between 1955-58. It was during those excavations that an object of gripping interest to conchologists was brought to light. Having described the city walls with their casemates, Yadin tells of a 'piquant' find in one of the soldiers' rooms dated to the time of King Solomon (c.950 BC) – a large conch shell (*Charonia tritonis*?)

with its apex knocked off for blowing and a hole in the side for hanging it up. It had obviously been used as a trumpet by the watchmen on the wall to sound the alarm when necessary. One of the elderly workmen on the site, an expert ramshorn (shofar) blower at his local synagogue, demonstrated that several different sounds could be produced on the shell. The audience listening to the performance were very moved at the thought that the sound of the trumpet had been last heard some 3000 years ago!



The shell's provenance and species seem to be in doubt. The colours and pattern are very faded and not too helpful. Yadin suggests it was brought along the ancient trade route from the Red Sea, in which case it would be *Charonia tritonis* and would have come from several hundred kilometres away. A look at the map, however, shows Hazor to be almost in a straight line with Akko (Acre) about 30 kilometres from the Mediterranean. It is therefore more likely to have come up this short distance and is a *Charonia variegata*.

(Kevin Brown, one of our members, thinks it is *Charonia tritonis*, and therefore the shell would have made the long haul to Hazor from the salomonic harbour of Ezion Geber near present-day Elat in the Gulf of Aquabah.)

Reference

Yadin, Yigael, 1975. *Hazor*. □

Conchological Society of Great Britain and Ireland

MINUTES

**1096th (Annual General) meeting held on the 11 March 2000
in the Demonstration Room of the Natural History Museum
starting at 2.30 p.m.**

In the chair: Mr Eversham with 35 members and friends present.

Apologies for absence: Mrs McMillan, Mr & Mrs Negus, Mr de Bartolomé, Mrs Turk, Mr & Mrs Rands, Dr Chatfield, Dr Oliver, Dr Willing, Mr Gillard, Rev. Long, Mrs Buckle, Dr Aldridge, Mr Dance.

Appointment of Scrutineers: Mrs Platts and Mrs Pain were elected.

Minutes of the last Annual General Meeting (of 15th March 1999): There were two corrections, under the Report of the Hon. Treasurer. This should have read 'This report was prepared by Mr Weideli due to the illness of the Hon. Treasurer and was still subject to examination. Read and accepted subject to the Examiner's recommendations', in place of the words 'audit' and 'auditor's'. The minutes were then accepted.

Matters arising: None.

Nomination and election of new members: None.

Report of the Council by the Hon. General Secretary: Read and accepted.

Report of the Hon. Acting Treasurer: Read and accepted, subject to Examination.

Report of the Hon. Membership Secretary: Read and accepted.

Report of the Hon. Non-marine Recorder: Read and accepted.

Report of the Hon. Marine Recorder: Read and accepted.

Report of the Hon. Conservation Officer: Presented by Mr Killeen, in the absence of Dr Willing. Read and accepted.

Report of the Trustees: Read and accepted.

Announcements and Correspondence: Next indoor meeting would be a joint meeting with the Malacological Society of London on 8 April. Fliers have been distributed with the March Newsletter.

Dr Rundle would be holding an informal gathering at his house on 25 March to look at shell identification.

The first Field Meeting of the year would take place from 31 March-2 April on the Isle of Wight to look for fossils. The leader would be Mr Bill Pocock. Details of the full programme of field meetings for the summer

period could be found on the Programme Card and in the *Newsletter*. In addition, Dr Chatfield said there would be a workshop at Havant Museum in April on the subject of snail-killing flies which is organised by the Hampshire County Museums Service.

Miss Hill made an appeal for articles for the *Conchologists' Newsletter* over the summer period. A letter had been received from a Mr J W Brown regarding Dr Gascoigne, who was a member of the Society for many years. He was resigning from the Society as poor eyesight made it impossible to read, but wished to be remembered to members of the Society. Mr Weideli had acknowledged the letter.

Dr Chatfield said that as part of the Biodiversity Action Plans initiative Hampshire Wildlife Trust and East Hampshire District Council were organising a molluscan recording scheme. This was called 'Chalk and Cheese' and was to look for the species *Pomatias elegans*, *Ena montana*, *Helicodonta obvoluta* and *Helicigona lapicida*. A training day would be held near Petersfield in July, and more details would appear in the *Newsletter*.

Ms Reynolds was presented with a card and gifts to mark her retirement as Hon. General Secretary after six years.

Presidential Address:

Speaker: Mr Brian Eversham

Title of talk: *Small Scale Distributions of Non-marine Species*

Election of Examiner of the Accounts: Mr Nick Light was proposed by Dr Colville and seconded by Mr Smith. This was agreed, with Mr Light being duly elected.

Results of the postal ballot:

President	Dr A J Rundle
Hon. General Secretary	Mr C L Gillard
Hon. Membership Secretary	Mr M D Weideli
Hon. Treasurer	Mr P U Buckle
Hon. Editor (<i>Journal of Conchology</i>)	Dr P G Oliver
Hon. Newsletter Editor	Miss R E Hill
Hon. Non-marine Recorder	Dr M P Kerney
Hon. Marine Recorder	Mrs J M Light
Hon. Programme Secretary	Mr R Boyce
Hon. Conservation Officer	Dr M J Willing
Ordinary Council Members	Dr K N A Alexander
	Mr R Carr
	Miss A L McIvor

Two vacancies had been created on Council by the election of Dr Rundle and Mr Gillard to the posts of Hon. President and Hon. General Secretary respectively. Council had already nominated Mr Tony Smith to be co-opted to fill one of these vacancies. Mr Eversham proposed from the Chair that Miss J M Nelson be co-opted to fill the other vacancy. This was agreed. Mr Eversham formally handed over the Chair to Dr Rundle.

Any other business: None.

Meeting closed at 5.09 p.m.

Chairman.

Appendix: Members' exhibits:

- | | |
|-----------------|---|
| Terry Wimbleton | Molluscan predation |
| Kevin Brown | 1. Book: <i>The Genus Chicoreus & Related Generas in the Indo-West Pacific</i> by R. Houart |
| | 2. Book: <i>The Murex Book</i> by R Fair |
| | 3. Book: <i>Murex Shells of the World</i> by E Radwin & A D'Attilio |
| | 4. Specimens of <i>Chicoreus</i> (s.s.) Montfort 1810 |
| | 5. <i>Fasciolaria trapezium</i> (Linné 1758) |
| | 6. Press cuttings |
| I J Killeen | Madeiran <i>Leiostryla</i> – how many taxa? |
| Adrian Rundle | Somerset & N. Devon Field Meeting details and handouts from Colin Gillard |
| | Maps for Get-together meeting |
| D C Long | a) Reports with small scale maps of mollusc distribution |
| | b) 'Turrids' from the M. Eocene of Grignon, Yvelines, France |
| J E Reynolds | 1. Institutional members' publications |
| | 2. <i>Megabuliminus oblongicus</i> young and eggs |
| | 3. Cards and gifts from members |
| | – commemorative plate |
| | – snail shaped cookie jar |
| | – earrings (from Dr Willing) |
| | – framed prints (from Mr Weideli) |
| Ron Boyce | Organisation of Field Meetings |

□

Diary of Meetings

This is a list of all meetings in date order.

Programme Secretary:

Ron Boyce, [REDACTED], Berkshire [REDACTED]

IMPORTANT: Please remember to inform the leader if you are attending a field meeting. If you are held up in traffic or your public transport is delayed, it may be possible to ring the Programme Secretary on [REDACTED] on the day of the meeting for information on the location of the field site being surveyed.

Key to meetings:

NHM = Natural History Museum, London, indoor meeting
FIELD = Field Meeting at outdoor location
WKSHP = Workshop on Molluscan topic
YCS = Yorkshire Conch. Soc. events
MSL = Malacological Society of London

NHM – Saturday 16 December: 14.30 h. We welcome as Guest Speaker Amanda Millar from Hurstpierpoint. Her subject is 'Woodland snails and coppicing: some results from a woodland in Sussex'.

NHM – Saturday 27 January 2001: 14.30 h. We welcome as guest speaker Professor Robert Cameron from Sheffield. His subject is 'Changes in the land mollusc fauna of the British Isles over the 20th century'.

NHM – Saturday 17 February 2001: 14.30 h. We welcome as guest speaker Dr David Aldridge from Cambridge. His subject is 'Bivalves as pests.'

MSL – Monday 19 – Tuesday 20 March 2001. Freshwater bivalves. A conference with the possibility of a field outing. Contact Dr David Aldridge, Aquatic Ecology Group, Department of Zoology, University of Cambridge, Downing Street, Cambridge CB2 3EJ. E-mail: d.aldrIDGE@zoo.cam.ac.uk. Tel. +44 1223 334436. Fax: +44 1223 336676.

NHM – Saturday 24 March 2001. Annual General Meeting with Presidential Address on the subject of 'Love Darts'.

FIELD – Saturday 31 March 2001

Barton-on-Sea, Hampshire

Leader: Bill Pocock [REDACTED]

A field trip dealing exclusively with fossil molluscs, revisiting the internationally renowned type section of the Barton Clay (Palaeogene). The fossils are numerous, well preserved and easy to extract. The quality of collecting varies from visit to visit, but everyone will see a representative fauna. A packed lunch should be brought and carried. For collecting, an old knife or similar for lifting the fossils out of the clay and plenty of plastic bags, tubes, etc. will be needed. It will be a fairly strenuous day, and members should bring warm and waterproof clothing and be prepared to get very muddy. Meet at 10.30 h on the road along the sea front (OS Grid Ref. SZ 240930).

FIELD – Saturday 19 May 2001: Morden Hall Park, London. Meadowland, woodland and riverside habitat in the flood plain of the River Wandle. Leader: June Chatfield [REDACTED]

FIELD – Saturday 9 June 2001: Ightham Mote, Kent. Recording on this National Trust property and in nearby woodland areas. Leader: Ron Carr [REDACTED]
[REDACTED]

FIELD – Saturday 23 June 2001: Kimmeridge, Dorset. Marine recording in a species-rich area. Leader: Rosemary Hill [REDACTED]

**FIELD – Sunday 16 September to Friday 21 September 2001
Fife, Scotland**

Leader: William Penrice (01592 566138) (home)
(provisional notice)

A week-long meeting to study the marine mollusca of the Fife coast, including dredging trips and a possible visit to the Isle of May NNR. There may also be the opportunity to do some land recording, but details still need to be finalised. Information on meeting places will be provided later on. Please note that the spring tides are rather early in the morning at this location.

The most convenient centre to seek accommodation will be Anstruther. The tourist information office at Anstruther (01333 311073) is open only from April to September. At other times of year its function is provided by the office at St Andrews (01334 472021).

□

**Annual General Meeting
24 March 2001**

Members are reminded that they can nominate candidates for election to the Council.

Rule No. 12. Candidates for nomination to the Council shall be paid-up members of the Society and shall be nominated by two members. Nominations, other than those made by the Council itself, shall be sent in writing to the Hon. Secretary at least six weeks before the AGM, and shall be accompanied by a signed declaration of the candidate's willingness to serve.

Note: Nominations must be received by the Hon. General Secretary NOT LATER THAN 31 December 2000.

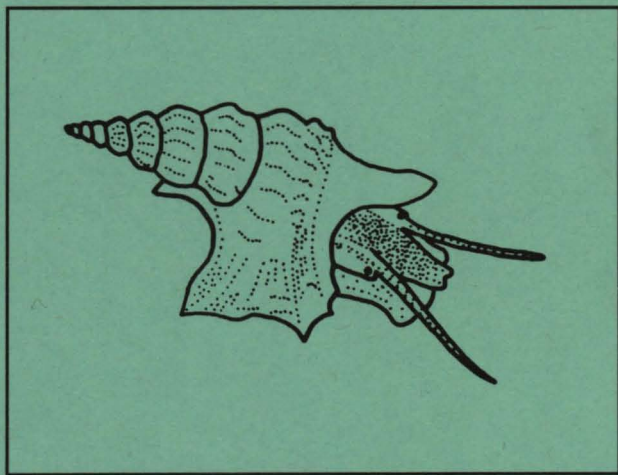
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Conchological Society of Great Britain & Ireland
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SLIME!

A proposed exhibition on molluscs

Leeds Museums Natural Science Collections were designated as being of National and International Importance in 1998, partly due to the size and strength of the museum's molluscan collections.

As a direct result of being designated, the Natural Sciences Department received a substantial grant from the Designation Challenge Fund. This grant has paid for new storage equipment, in the form of roller racking housing 4,000 trays, a new computer system with a central server plus one extra member of staff, a two-year contract post. The grant has also freed me from most of my administrative duties as Senior Curator, for a period of two years. This will allow me to work almost exclusively on the museum's shell collections.

One expected outcome of this grant will be a travelling exhibition on mollusca. This exhibition is still in its early planning stage, and we would like your help.

The council of the Conchological Society of Great Britain and Ireland have agreed to co-operate with the production of this exhibition, and have given full access to the society archives, and a contribution towards its production. We would like to produce an exhibition that has evolved from the thoughts and requests of members and the public, who may become future members of the society. With this in mind the exhibition needs to appeal to 'Children of all Ages', thus the working title:

Slime! A History and Mythology of Slugs and Snails.

It is hoped that the exhibition will cover some, or all, of the following topics.

1. What are Molluscs?
2. Fossil Origins
3. Giants of land and sea
4. Decoration
5. Shell Craft
6. The Pearl, a treasure from the sea
7. Royal Purple
8. Food
9. Shell Collecting
10. The Mapping of Slugs and Snails
11. Slugs and Snails, the common enemy in the garden?

12. Projects
13. Shell Money
14. Killers of the Sea

The exhibition will be made up of a number of graphic panels, one for each of the subjects chosen, plus a number of cases for original objects.

How can you help?

I would be interested in knowing what you would like to see included in the exhibition.

- Do you have any objects, specimens etc. that may be of special interest, and could be used in the exhibition? (Some items will be photographed, or in some cases the original item may be used in the exhibition.)
- Do you have any photographs taken at meetings?
- Do you have a venue, which could house the exhibition? (Venues chosen would be required to meet museums standards of security etc.)

It is expected that the exhibition would start its tour after being shown in Leeds, in the summer of 2002.

The design and concept of the exhibition is still in its early stages, we could include almost anything relevant to the study of Conchology, or associated crafts etc.

If you would like to help, or have any photographs or other material than can be used in the exhibition please write to me

Adrian Norris,
Senior Curator, Natural Sciences,
Leeds Museum Resource Centre
Moorfield Road,
Yeadon,
Leeds, LS19 7BN

or E-mail me at 

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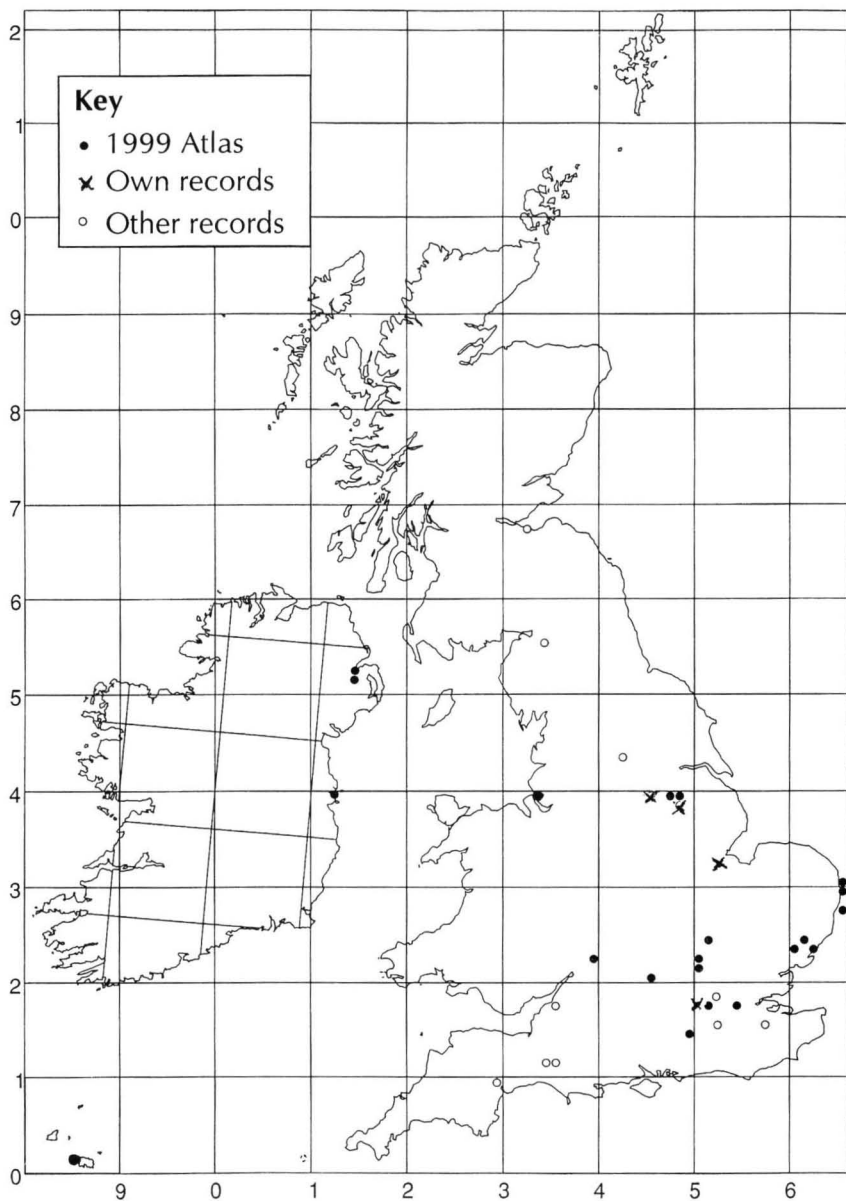


Figure 1. The current recorded distribution of the Spanish slug, *Lehmannia valentiana* (Férussac) in Britain.

Some recent observations of *Lehmannia valentiana* (Férussac) the Spanish Slug

Chris du Feu, [REDACTED], Beckingham, Notts. [REDACTED]
[REDACTED]

The Spanish Slug, *Lehmannia valentiana* (Férussac), is the most recent addition to our free-living slug fauna and, like *Boettgerilla pallens* (Simroth) and *Deroceras panormitanum* (Lessona & Pollonera) before, it is spreading fast. It was first seen in a greenhouse in Belfast Botanical Gardens in November 1948 (Quick 1960) and the first outdoor record was in 1981 in Portmarnock, County Dublin. By the time of printing of the 1999 Atlas (Kerney 1999), there were 21 ten-kilometre records on the national map. Since publication of the atlas there has been a number of new records of this species including Somerset (ST41, ST51) (Buckle 1998), Kent (TQ75) (Carr 2000), Leeds (SE23) (Norris 2000).

In addition to these are more records which have been reported to the national mapping scheme – Bristol (ST57), Banstead (TQ25), Exeter (SX99), Regent's Park (TQ28) (all four from John Hutchinson) and Carlisle (NY45) (via Adrian Norris). Figure 1 shows the current recorded distribution. The account below is of colonies which I have observed, in chronological order. The first observations have been included in the atlas.

Gainsborough SK89 2/12/1997 First record in Lincolnshire

This colony, in a derelict urban cemetery, was discovered by Philip Wain, a student at Queen Elizabeth's High School, Gainsborough (QEHS). Some individuals were sent to Stella Davies who confirmed their identity. Since then, the colony has been observed regularly and it has remained extant, although it may be hard to discover individuals in December or January. The colony was first discovered at the base of a rotting tree stump and, since then, individuals have been found only within 50 m of the stump. The cemetery backs onto terraced and semi-detached houses and there is some tipping of garden waste into the cemetery. Although many of the slugs we have observed in this colony have been of the

typical coloration, a few have been darker than normal with almost no trace of the high lateral bands or mantle bands. The darker individuals did, however, have a more prominent pale region around the respiratory pore.

Beckingham SK79 3/12/1997 First record in Nottinghamshire
The first adult slug was found in a patch of prostrate bramble, *Rubus tricolor*, in my garden. This was a day after the nearby Gainsborough find, but there is no possibility of cross-contamination from the Gainsborough site for I had not, at that stage, visited it myself. Small numbers of slugs have been present in the same patch since then. They have often been seen feeding, at night, on sap oozing from the bark of a Turkey Oak, *Quercus cerris*, in company with *Limax flavus* (L.). About a year later, a slug was found in the back garden some 50 m from the original patch and thereafter a colony appeared in the compost heap. It remains there, with individuals to be seen almost every night.

St Peter's WV55 23/8/1998 First record in Jersey
This colony was found under one Jersey granite stone in a gravelled drive, adjacent to a flower bed and granite garden wall. The following morning, when the press arrived to photograph this new addition to the Jersey fauna, all but one of the individuals had gone elsewhere! The colony was still there on my next visit some 15 months later in October 1999. This time, slugs were present along the whole garden wall (west facing, granite and about 1.5 m high and 25 m long). The evening was damp but windy. Although Kerney and Cameron (1979) note that this species is terrestrial, not arboreal like the tree slug, *Lehmannia marginata* (Müller), on an adjacent wall there were tree slugs. In Jersey, with its wet maritime climate, tree slugs may be seen almost anywhere, including bare, exposed walls, and down to ground level. Here, at least, their ecological niches do overlap and there is opportunity to observe both the differences and similarities between the external appearances of the two species.

Kew Gardens TQ07 21/8/1999 London
The species has been long known at Kew. Two adults were seen

outside, under a gardener's hose-reel lying on one of the flower beds near the Victoria Gate.

Tickhill SK59 14/11/1999 First record in Yorkshire

A small number of slugs were found by Andrew Jackson, student at QEHS, in his garden in Tickhill. Occasional searching thereafter failed to uncover any more until May 2000. These latter specimens were sent to Adrian Norris at the Leeds Museum and he confirmed their identity.

Edinburgh NT27 11/5/2000 First in Scotland

A number of individuals ranging in size from newly hatched to full grown, were found by Richard du Feu on 24/4/2000 in a glasshouse in the ecology department of the University of Edinburgh. Some of these specimens were lodged at the Scottish Museum in Edinburgh (specimen reference NMSZ: 2000.133). We assumed they were *Lehmannia valentiana* until, on returning home, we discovered that a similar species, *Lehmannia nyctelia* (Bourguignat), had been observed in the Edinburgh Botanic Gardens by Waterson 'some years before 1949' (Quick 1960). In order to check that these specimens were, indeed, *Lehmannia valentiana*, Adèle du Feu carried out another search some days later and discovered individuals living outside the greenhouses. These were sent to Adrian Norris who confirmed them as *Lehmannia valentiana*.

Spalding TF22 31/5/2000 Lincolnshire

Some individuals were found under flower pots in Baytree Nurseries. This was the first time I had hunted slugs in these nurseries, but their presence here may help explain the Beckingham colony. The *Rubus tricolor*, under which the Beckingham slugs were first found, had been bought at these nurseries two months before being first seen in Beckingham in October 1997.

Gainsborough SK89 22/7/2000 Lincolnshire

A second colony of slugs was found about by David Jeffries, student at QEHS, half a kilometre from the original cemetery colony. This colony is in an area of terraced housing with small gardens. Individuals have been seen on low garden walls and the

pavement after dark. On subsequent nocturnal perambulations, David located yet another colony on the south-eastern edge of the town. Again these were in a garden with individuals being active after dark. Strictly speaking, this record was in square SK88, the house being a few metres south of the 10 kilometre demarcation line.

Stow SK88 27/7/2000 Lincolnshire

Robert Hill, another slug-hunting student from QEHS, reported a few individuals in a garden in his village. This was at the start of the school holidays and it was not until after school restarted that he was able to bring me several individuals for confirmation of specific identity. Those he brought to me, collected on 7/9/2000, were of typical appearance and included both small and moderately well grown individuals. Some days later, after the first wet spell for some time, he observed the slugs in several places around the village, both in gardens and low on garden and house walls. He collected two individuals for closer examination. The larger one, he noted, was rather watery and the tail end becoming a little translucent. This made it more similar in appearance to the tree slug than is usual. The whole body colour was paler than that of the smaller individual. This lightening of the colour as the slug grows also occurs in the Beckingham colony.

Comments

It is likely that *Lehmannia valentiana* is now spreading very fast in Britain. The searches we have made since the first colony was found have been no more widespread than, nor different in nature from, those made in the previous few years before the species was found. It is clear that it has had opportunity to invade the country since human trade between Britain and the Iberian peninsula began, certainly well before the attempted invasion by the Spanish Armada. Why is it that it has only been recorded in the open in the past few years?

Although under-recording may, at first, seem a plausible explanation, it is not satisfactory. The slug hunters of the mid 20th century were aware of its existence and had observed it in glasshouses. It is unlikely they would have failed to notice it outdoors if it had been present in any numbers.

Another tempting explanation is that of global warming – climatic amelioration will now allow this southern species to survive. This explanation, too, is far from proven. Adrian Norris (pers. comms.) has suggested that the recent succession of mild winters has allowed populations to survive from year to year. Undoubtedly there has been such a succession of mild winters and this seems to be the most likely cause of the increased number of sightings of the species. However, the succession of mild winters does not necessarily result from global warming.

The emergence of a new genotype which can cope with the British climate could explain the sudden increase. Two bird species have made spectacular colonisations of the British Isles. From the north, over the last century, came the fulmar, (*Fulmarus glacialis*). From the south-east, over the last half century, came the collared dove (*Streptopelia decaocto*). Although they have both been the subject of more intensive observation and study than *Lehmannia valentiana*, in neither of those cases has any cause of their dramatic expansion been identified for certain (Gibbons *et al.* 1993). A new genotype remains a possibility, but one which is difficult to prove in the case of these birds. In the case of slugs the situation is more complicated for two reasons. First is that slugs may self-fertilise (although I am not aware of any observations of the mating procedures for *Lehmannia valentiana*). Second, it is very likely that many British populations have been established independently from different importations from abroad. A new, British adapted, genotype would have to be fairly widespread elsewhere in Europe for populations to appear in so many places. It is interesting to compare the public interest and awareness of the invasion of Britain by these two bird species with the almost complete lack of awareness of the slug invasion – which is certainly happening just as rapidly.

Establishment of colonies appears to be a haphazard event. For example, the known Jersey colony lives at one farmhouse. A mere kilometre distant is a similar farmhouse where there is a population of *Limax flavus* (L.) but not yet any sign of *Lehmannia valentiana*. Both farms have been inhabited by close relatives for the past half century and they frequently visit each other, often

bringing farm produce or garden plants with them. *Limax flavus* has not managed to colonise the first farmhouse.

Lehmannia valentiana does not seem to have high self-dispersive powers, otherwise the existing colonies would spread more rapidly over a wider area than the 50 metre range which has been noted above. However, once a population is established it generally seems to thrive.

Because of the unpredictable nature of colonisation, the species could possibly be found anywhere in suitable habitats. Garden centres may provide one route through which the species is able to spread over long distances very rapidly. They can also be productive places to search for the slugs. Other good places for searching include gardens, places where garden waste may be discarded and areas subject to human disturbance.

In spite of the apparently sharp differences in habitat requirements and behaviour of the two related species, *Lehmannia valentiana* and *Lehmannia marginata*, occasionally they may be found in the same place. Such places are likely to be wet with low exposed rock or stone surfaces or trees and near to human habitation. *Lehmannia marginata* is often active by day in the wet whereas I have never seen *Lehmannia valentiana* active by day.

The account above includes 10 separate colonies of the slugs, in eight different 10-kilometre squares. Much as I am fascinated by *Lehmannia valentiana*, I would find it hard to believe that I have a particular nose for it and am able to home in on populations as surely as a Jack Russell after a cat. I will admit to having turned over many stones, logs, flower pots and other artefacts in search of slugs in general and the *Lehmannia valentiana* finds have resulted from this opportunistic general slug recording. I believe it is very likely that *Lehmannia valentiana* is very widely spread in Britain but grossly under-recorded. (There are several reports of the species, which are awaiting full confirmation or documentation from Surrey, Devon and Cornwall.)

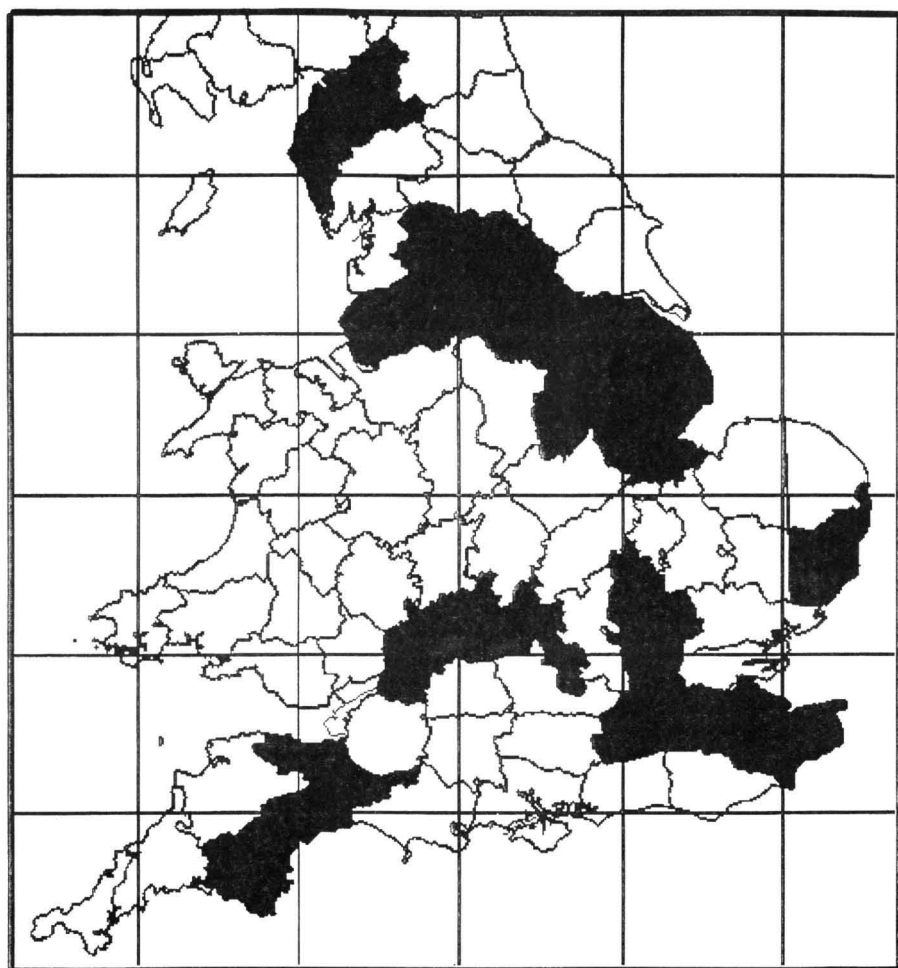


Figure 2. Vice-counties in England and Wales in which the Spanish slug, *Lehmannia valentiana* (Férussac) has been recorded.

Lehmannia valentiana may also be at the stage of very rapid colonisation. The past year has produced far more than its fair share of new records. The slug is easy to identify and can be found in habitats which require only the briefest of excursions to visit. Now is the time to document its real current distribution and to record how fast and far it spreads over the next few years. If it is global warming that is driving its range expansion, we will not have another opportunity to record the event. If we are merely suffering a short-term run of mild winters, we will not be able to record its range contraction, or possible extinction, when the run ends unless we have recorded its presence first. Global warming or not, a good national record of this invasive species will be invaluable.

I would not be surprised if, even casual, searching would reveal populations in every English county (Figure 2). Why not go hunting tonight? Leave no stone (or flower pot) unturned.

Acknowledgements

Stella Davies, Michael Kerney, Adrian Norris, Brian Eversham and John Hutchinson for their help; slug-hunting students and ex-students of QEHS including my long-suffering offspring Adèle and Richard; Reinhard Beihler of Baytree Nurseries, Spalding; Alan Morton of DMAP (which was used to produce the maps).

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A visit to Steep Holm Island, Bristol Channel, Saturday 3 June 2000

Colin Gillard

, Taunton, Somerset,

Steep Holm Island was purchased by the Kenneth Allsopp Memorial Trust in 1976. The Trust runs a series of day trips to the island from Weston-super-Mare and it was there that seven members and a guest met and joined about sixty other visitors on Saturday morning.

This was to be the first successful visit of the year, as five previous sailings had to be cancelled or aborted because of adverse weather conditions. As the boating programme was not available, it had not been possible to publicise this visit in the March Newsletter, but details were made available at Indoor Meetings. As well as taking a general look at the island, its views, Victorian cannons, Second World War fortifications, medieval priory remains and general wildlife, the main purpose of the visit was to survey marine mollusca and, in particular, to seek evidence of *Paludinella littorina*.

Steep Holm Island is composed of Lower Carboniferous Limestone, is oval in shape and 825 metres (east to west) by 315 metres (north to south), this extending to 1230m by 360m at low tide. In profile the island rises to a domed plateau, reaching 78 metres above the high water mark. The tidal range is considerable, to a maximum of 13 metres, caused by the funnelling effect of the narrowing estuary. Rapid and turbulent currents keep a very large amount of silt and mud in suspension. This, together with the reduced salinity, proves hostile to marine invertebrate species.

The party was able to enjoy a 'cruise' around the island before landing on the shingle beach, very aware of the 6 knot tidal ebb. As low tide was scheduled for 14:10, refreshments were enjoyed at the Island's Barracks before the party descended to the shingle beach. Here the upper shore and rock outcrops were examined, also an emerging shingle spit with quite extensive

Sabellaria reefs. Samples of this were taken, later revealing the live presence of *Noemiamea dolioliformis* which has been found to associate, though not necessarily exclusively, with this polychaete host (Killeen and Light, 1998).

As the tide rose, the group made further explorations of the island, taking care to avoid numerous gull nests with eggs and fledglings. Visits included the 12th century priory ruins and the gun battery underground magazines, inhabited by fine specimens of *Meta menardi*, the Culvert Spider, with their white egg sacs suspended nearby. Later, all day visitors descended to the shore, where our group searched again for evidence of *Paludinella littorina* and other species associated with the upper shore crevice fauna (Light, 1998). Only *Littorina saxatilis* was found, and that in abundance. At 18:30 all visitors re-embarked for the return to Weston, to disperse after a day which, though not productive in marine molluscs, was considered a unique experience.

Species list:

<i>Leptochiton asellus</i> R	<i>Onchidoris muricata</i> O
<i>Lepidochitona cinereus</i> O	<i>Nucula</i> sp S
<i>Emarginula fissura</i> SR	<i>Macoma balthica</i>
<i>Patella vulgata</i> C	<i>Tricolia pullus</i> S
<i>Littorina obtusata</i> C	In the Sabellaria:
<i>Littorina saxatilis</i> A	<i>Noemiamea dolioliformis</i> LR
<i>Nucella lapillus</i> C	<i>Mytilus edulis</i> L 2 juveniles
<i>Buccinum undatum</i> S	<i>Sphenia binghami</i> LO

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Liverpool's urban Mollusca

Nora McMillan and Chris Felton

Department of Zoology, Liverpool Museum, Liverpool

In his *Ecology of Urban Habitats* Dr Gilbert (1989) comments (pp. 88-89) how poor Liverpool is in 'urban commons' (wastelands). Therefore, a good-sized site off Scotland Road (inner Liverpool) which has lain undeveloped for some thirty years is of interest for its flora and fauna.

The site in question (North Market: SJ349916) was opened in 1841 as a wholesale fruit, vegetable, and hay market. Extended in 1877-78, by 1952 it covered 2.5 ha (about 1.25 acres) and was bounded by busy streets (Great Nelson St to N, Juvenal St to S, Great Homer St to E, and Cazneau St to W. Two 1935 photographs show the market in action (see Paul 1997: pp 71,75).

The Victorian tenements which once surrounded the market have gone, the Mersey tunnel (Wallasey) runs beneath the site now extended to 3.98 ha (nearly two acres). In the OS *Street Atlas* of 1997 the site optimistically appears as 'Kingsway Industrial Park'.

Such long neglect has allowed a large and varied fauna and flora to develop. Of trees there are sizeable sycamores, willows (*Salix* spp.), *Rosa* spp., *Cotoneaster* spp. and domestic apple. Curiously, bracken was very scarce.

A surprising sight was the abundance of *Saxifraga tridactylites* flourishing on concrete slabs breaking down and presumably supplying a suitably calcareous habitat. Bee orchids (*Ophrys apifera*) also appeared in some numbers, in keeping with the recent occurrences of the species about Merseyside.

Chris Felton, a Liverpool Museum colleague, paid many visits to the site from 1990 to 2000 and collected invertebrates (in his own time). In the following list of Mollusca obtained names are those of Kerney's *Atlas* ... (1999). Starred names indicate determinations by Miss S.M. Davies:

Cochlicopa lubrica (Müller), *Discus rotundatus* (Müll.), *Arion subfuscus* Draparnaud, **A. hortensis* Férussac s.s., *Vitrina pellucida* (Müll.), *Oxychilus cellarius* (Müll.), *O. draparnaudi* (Beck), *O. alliarius* (Miller), *O. helveticus* (Blum), **Tandonia budapestensis* (Hazay), *Boettgerilla pallens* Simroth, *Limax maximus* L., **Lehmannia valentiana* (Fér.), *Deroceras reticulatum* (Müll.), **D. panormitanum* (Lessona & Pollonera), *Candidula intersecta* (Poiret), *Trichia striolata* (C. Pfeiffer), *Helix aspersa* Müller.

Some other sites in Liverpool also yielded molluscs; these additional sites are listed alphabetically:

- a) Acornfield Wood, Kirby (SJ437978). **Arion flagellus* Collinge, and in a pond (SJ437979) *Bithynia tentaculata* (L.), *Lymnaea stagnalis* (L.) and *Sphaerium corneum* (L.).
- b) Everton Hill, central Liverpool (SJ355913). **Arion ater* (L.) juvs. **Limax maculata* (Kaleniczenko), *Tandonia budapestensis* (Hazay), **Deroceras panormitanum* (Lessona & Pollonera).
- c) Garston, south Liverpool (SJ395845). **Arion flagellus* Collinge, and **Limax maculata* (Kaleniczenko).
- d) Leeds Street waste site (sometimes called Vauxhall site). Only accessible to wildlife for c. 3 or 4 years. (SJ344941). Now built over (1999). *Vallonia excentrica* Sterki. fresh shells, *Discus rotundatus* (Müll.), *Arion hortensis* agg., *Oxychilus alliarius* (Miller), *O. cellarius* (Müll.), *Deroceras reticulatum* (Müll.), *D. panormitanum* (L. & P.), *Candidula intersecta* (Poiret), *Helix aspersa* (Müll.).
- e) St James Cemetery, Liverpool Anglican Cathedral (SJ355894). *Oxychilus helveticus* (Blum), *Tandonia budapestensis* (Hazay), *Deroceras reticulatum* (Müll.), and *D. panormitanum* (L. & P.). A small pond (spring-fed) held *Potamopyrgus antipodarum* (Gray) and an alien physid *Physella acuta* (Draparnaud) (McMillan 1999) determined by Dr R. Anderson.

Altogether 28 spp. of molluscs were found from six Liverpool sites 1990-2000. We are grateful to Miss S.M. Davies for much help with slugs and to Dr R. Anderson for determining physid material.

P.S. *Lehmannia valentiana* (the 'Spanish slug') was first noted in Liverpool (the North Market site) on 11 August 1997, and specimens identified by Miss Davies.

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Sphaerium and newts

Amanda Millar

Hassocks, West Sussex,

On 29 April 2000 the newts in my small garden pond, which is no more than 2 m x 2 m, were actively pairing on the water plants near the surface and much more approachable than usual – having other things uppermost in their minds! At one stage there were 11 newts visible; palmate and smooth, male and female and two were encumbered with *Sphaerium corneum* firmly attached to a toe. One male palmate newt had one attached to its rear toe and a male smooth newt had one on its front finger. These two were moving with great difficulty through the weeds, with the *Sphaerium* frequently becoming lodged and they were the only two not actively pursuing females. The *Sphaerium*, which were about 1 cm across, were clearly relatively heavy as the limb affected generally was pulled down straight. When swimming as they do with a few rapid movements of their tails and then slowly sinking until they rest on a water plant, these affected newts sank more quickly and in the direction of the *Sphaerium*.

I imagine that the habit of the newts of moving forward through open water and then slowly coming to rest on the vegetation would make it quite easy for it accidentally to come to rest with a toe in the open bivalve, which would then close rapidly, trapping the toe. For as long as the newt is moving about with the *Sphaerium* bumping along the *Sphaerium* is unlikely to open its valves. I believe *Sphaerium corneum* are sometimes found on vegetation which they can climb (Clegg 1974). I saw one the following day just 4 inches from the surface of the pond on a stem. I tried to test how strong its hold was by touching it with a thin strand of vegetation and I was able to lift it off its stem but then it slipped to the bottom of the pond; possibly the strand of vegetation broke or slipped out.

I would like to think there was a happy ending and the two parted without damage but the reality is probably less pleasant.

Most of the newts I looked at had one or more short toes on each hand or foot. It is likely that the circulation is cut off from the toe and it atrophies at which point the newt is set free. It was not difficult to imagine that having been caught in a *Sphaerium* the newts not only have their reproductive success compromised but also require more energy to move around.

There is even a strong possibility that if the unwanted attachment became stuck in weed the newt could drown. Meanwhile the *Sphaerium* would be unable to filterfeed, possibly for several days, as I spotted one of the newts the next day with the *Sphaerium* still attached. They have been found attached to the feet of water birds and by this means are transported to new sites, however I was responsible for introducing them to my pond and they seem to be flourishing.

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Herefordshire Weekend, 10-11 June 2000

Keith Alexander

National Trust, 33 Sheep Street, Cirencester, Glos GL7 1RQ

The Herefordshire meeting was not well-attended – only four members – but proved to be an enjoyable and productive weekend. We assembled outside of the ancient Cwmmau Farm near Brilley in the north-west of the county, very close to the Welsh border. The objective of the morning was to check on the local population of mud snail *Lymnaea glabra* which had been discovered in two field ponds here by the National Trust Biological Survey Team in 1984. This Red Data Book species is particularly scarce in this part of the country.

The pond on Cwmmau Green (SO272512) is heavily silted and little more than waterlogged silt, almost completely covered with floating sweet-grass *Glyceria fluitans*, and moderately poached by the grazing cattle. It is partially shaded by four tall poplars and a small ash on its south-west side. Very few molluscs could be found: a single live *Lymnaea truncatula* and single shells of *L. peregra* and a *Pisidium* sp, probably *P. personatum*. The slug *Deroceras laeve* was present at the grassy margins.

The second pond, in a sheep grazed field at Little Penlan (SO272515), is similarly covered in *Glyceria fluitans* but with open water to a depth of about 50-70 cm, suggesting that this pond does not dry out. However, marshy grassland occurs at the outlet end and was probably the area where mud snail had been found. The water in the pond was full of algae. *Lymnaea palustris* was found in the wetter centre of the pond while *L. truncatula* was found around the margins. There are remarkably few records for *L. palustris* across the Welsh border counties, although this is presumably more to do with under-recording.

Mud snail and the other interests of these ponds – newts and scarce water beetles – are dependent on:

- access by livestock – light poaching is needed to keep the water and margins free from taller vegetation, gently-shelving and wet;

- protection from agrichemicals, especially anything which increases nutrient levels.

The loss of *Lymnaea glabra* is most likely due to the second of these, as the Cwmmau Green pond in particular still looks suitable structurally. The present farming system is more intensive than in 1984 when the snails were discovered here. It seems highly probable that nutrient enrichment of the ponds has occurred following fertiliser applications and increased stocking levels. Another possible contributory factor suggested by the farm tenant at Cwmmau is that cattle are no longer out-wintered.

After lunch, a third pond was briefly examined. This lies by Cwmmau Farm at SO277511 and is a seasonally flooded hollow retained by an old concrete-reinforced embankment. The main finds here were on the embankment, with *Vallonia excentrica* and more widespread species in the finer grassland on the concrete edge and under pieces of decaying wood.

Most of the afternoon was then spent in Cwmmau Moors (SO285513), a large expanse of ash-hazel, former coppice woodland with a dense bramble understorey. The wood forms the major part of the Bushy Hazels & Cwmmau Moors SSSI, and is believed to be at least partially ancient in origin. The 1984 NT survey found ash-black slug *Limax cinereoniger*. We decided to concentrate on Pentre Coed Dingle, a wooded dingle along the western side of the wood. The most interesting find was the rare *Acicula fusca*, found by David Long in damp earth of a low-lying area back from the stream. Wet seepages on steeper slopes held *Columella edentula* and *Carychium minimum*, and tufts of vegetation overhanging more vertical banks held *Perforatella subrufescens*. A total of 25 mollusc species were found in the wood.

Sunday was spent on the NT Brockhampton Estate, outside Bromyard in the far east of the county. Little was known of the mollusc fauna of this 700ha estate. The main glory of the estate is the extensive system of ancient semi-natural woodland along the small stream valleys which cut into the Devonian strata of red and grey marls, sandstones and occasional narrow calcareous cornstone horizons. Sections of the streams have good development

of tufa. Rosemary Hill and Ron Boyce had visited Hyde Dingle (SO691554) earlier in the year and had found *Phenacolimax major* – an excellent find and the northernmost record in GB.

The first site investigated was Paradise Wood (SO688563). Mollusc numbers were low overall, probably reflecting nutrient-enrichment from the pheasant rearing activities. The highlight was the discovery of *Macrogastra rolpheii*, there being very few records in the region. Other species noted include *Perforatella subrufescens*, *Acanthinula aculeata*, *Columella edentula*, *Ena obscura* and *Cochlodina laminata*.

After lunch we moved on to a section of Brockhampton Dingle (SO685559) which was less affected by pheasant rearing. Slopes of *Mercurialis* and *Chrysosplenium* on deep soil produced *Macrogastra rolpheii* in numbers, while *Perforatella subrufescens* and *Columella edentula* also featured strongly and the weekend's only *Arianta arbustorum* also turned up.

The day's tally finally reached 32 species. The total for the whole weekend was 44.

Table 1

List of species found at the Herefordshire Meeting
(L = Live, D = Dead)

	Cwmmau Farm	Cwmmau Moors	Brockhampton Dingles
<i>Potamopyrgus antipodarum</i> (Gray)			L
<i>Acicula fusca</i> (Montagu)		L	
<i>Carychium minimum</i> Müller		L	
<i>C. tridentatum</i> (Risso)			L
<i>Lymnaea truncatula</i> (Müller)	L		
<i>L. palustris</i> (Müller)	L		
<i>L. peregra</i> (Müller)	D		
<i>Ancylus fluviatilis</i> Müller		L	
<i>Oxyloma pfeifferi</i> (Rossmässler)		L	L
<i>Cochlicopa lubrica</i> (Müller)	L	L	L
<i>Columella edentula</i> (Draparnaud) seg.		L	L
<i>Vallonia excentrica</i> Sterki	L		
<i>Acanthinula aculeata</i> (Müller)		L	L

	Cwmmau Farm	Cwmmau Moors	Brockhampton Dingles
<i>Ena obscura</i> (Müller)			L
<i>Punctum pygmaeum</i> (Draparnaud)		L	
<i>Discus rotundatus</i> (Müller)	L	L	L
<i>Arion ater</i> agg.	L		L
<i>A. subfuscus</i> Draparnaud	L	L	L
<i>A. circumscriptus</i> Johnston			L
<i>A. silvaticus</i> Lohmander	L		L
<i>A. distinctus</i> Mabilie			L
<i>A. intermedius</i> Normand		L	L
<i>Vitrina pellucida</i> (Müller)		?D	
<i>Vitrea crystallina</i> (Müller)		L	L
<i>Nesovitrea hammonis</i> (Ström)			L
<i>Aegopinella pura</i> (Alder)		L	L
<i>A. nitidula</i> (Draparnaud)		L	L
<i>Oxychilus alliarius</i> (Miller)		L	L
<i>O. cellarius</i> (Müller)		L	L
<i>Limax maximus</i> L.			L
<i>Lehmannia marginata</i> (Müller)		L	L
<i>Deroceras laeve</i> (Müller)	L		
<i>D. reticulatum</i> (Müller)	L		
<i>Euconulus fulvus</i> (Müller)		L	L
<i>Cochlodina laminata</i> (Montagu)			L
<i>Macrogastra rolpheii</i> (Turton)			L
<i>Clausilia bidentata</i> (Ström)		L	L
<i>Perforatella subrufescens</i> (Miller)		L	L
<i>Trichia striolata</i> (C. Pfeiffer)			L
<i>T. hispida</i> (L.)		L	L
<i>Arianta arbustorum</i> (L.)			L
<i>Cepaea nemoralis</i> (L.)		L	L
<i>C. hortensis</i> (Müller)		L	L
<i>Pisidium personatum</i> Malm	?D		

□

***Gyraulus laevis* (Alder) on the North Kent Marshes**

Ron Carr

██████████, Maidstone, Kent ██████████

Whilst recently carrying out a survey of water beetles on the RSPB reserve at High Halstow, north Kent, I collected a single specimen of *Gyraulus laevis* from a large, slow moving and slightly brackish dyke (map reference TQ 774770). Although widely distributed throughout the British Isles, *G. laevis* is regarded as very local by Kerney (1999) with few modern records being available for southern England. Other species recorded during the survey included *G. cristata* (L), *Planorbis planorbis* (L), *Anisus vortex* (L), *Potamopyrgus antipodarum* (Gray), *Lymnaea palustris* (Müller) and *L. peregra* (Müller).

Reference

Kerney M.P., 1999. *Atlas of the Land and Freshwater Molluscs of Britain*. Harley Books, Colchester.

□

Looking behind the outer shell: the chemical structure, care and conservation of mother-of-pearl

Padraig Ó Dubhlaoidh

[REDACTED], Malvern, Worcestershire [REDACTED]

Any modern violin maker could easily be forgiven should he or she begin to show early signs of paranoia. Almost all the materials of their trade, except perhaps horsehair, have become increasingly difficult or even impossible to obtain. Some might even suggest that the next entry on the CITES register of endangered species could be the bow makers themselves.

This is all rather unfair to bow makers who are seldom wasteful in their use of natural resources; it is hard to imagine elephant poachers justifying their unpleasant and dangerous trade merely on the basis of supplying bow makers with tiny fillets of ivory for headfaces whose life expectancy, barring accidents, is about 80–100 years. However, although the bow makers' shortages are mainly due to over exploitation by others, there is still every reason to promote good conservation practices in relation to whatever supply of materials remains. With mother-of-pearl this means conservation of the natural environment of the living molluscs, safe storage of the harvested shell material, and caring for the finished shell in bows in everyday use. Each environment poses particular threats and mechanisms of decay which must be considered in context for effective conservation.

Oyster and abalone

The mother-of-pearl normally encountered in bows is the lining or nacre of shells of the oyster (*Pinctada*) or abalone (*Haliotis*) families. Apart from the fact that the oyster is a bivalve (two shells) and the abalone is a univalve (one shell), they differ in many other respects including their shell structure.

Calcium carbonate (CaCO_3) is the second most abundant mineral found in the earth's crust, where it occurs as chalk,

limestone and marble. It is responsible for such diverse wonders as the white cliffs of Dover, the Great Barrier Reef, and the sea shell. Although calcium carbonate is the basic material of the lining of a molluscan shell, it is used in a very complex and differentiated way. Two crystalline forms are found. The most common is calcite or calcspars which forms colourless rhombohedral or trigonal crystals. The other form is aragonite whose crystals are orthorhombic and are commonly red-brown or yellow in colour. Calcite is the main substance in oyster shells and aragonite in abalone, although many molluscs alternate layers of both.

The terms rhombohedral (trigonal) and orthorhombic are almost impossible to describe without diagrams, but they refer to two of the seven regular crystal shapes that may be packed together to fill a space completely. Calcite is the more stable of the two forms, both of which are laid down within a matrix of the shell protein conchiolin. The crystals form in a horizontal plane only and the shell lining consists of numerous very fine layers or lamellae of about 0.0002 mm thick or c.5,000 laminations per millimetre. As the crystals fit together so well on a molecular level, the outer surface is smooth and polished.

Iridescence

The distinctive light diffracting ability of mother-of-pearl is the main quality of the shell requiring conservation. This results from the optical activity of the calcite crystal and the anisotropic nature of the shell, meaning that because it is layered, it has different properties along the layers and across the layers. Crystal lattices because of the regular spacing of their atoms (at distances in the range of optical wavelengths) have an ability to diffract light beams of particular wavelengths. A nicol prism, which is an optical device incorporating a crystal of calcite, is commonly used to obtain plane polarised light. This is light which, in passing through the crystal, is forced to vibrate in a single plane only, as opposed to normal light which vibrates in every possible plane. If light polarised in this manner is passed through a second calcite prism, it will be rotated, that is, the plane of its polarisation will be rotated. It will continue to be further rotated as it passes through further calcite prisms. Since different wavelengths of light

are rotated to different extents, normal light becomes broken down into separate colour components, which are themselves further rotated through the layers, producing the effect of shimmering iridescence. Where the lamellae are more parallel, such as in the flatter shell of the *Pinctada*, the effect is less pronounced, whereas in the highly curved and undulating layers of the *Haliotis* shell the effect is quite dramatic. Reducing the number of lamellae will also reduce this effect.

In the wild

Although the oyster and abalone are really vegetarian in diet, they are subject to predation by others, less vegetarian. Those inhabiting the intertidal zone have to contend with large sea birds and rats, but those dwelling deeper have many additional predators. While crabs and other large life forms favour a physical approach to removing the mollusc from its shell, many smaller creatures affix themselves parasitically to abalone or even try to burrow through its shell. These include red boring sponges, boring bivalves, whelks and moon snails who bore a neat circular hole in the shell of their prey using a long rasping tongue, similar to the abalone's, called a radula. There is also a species of octopus who, with the efficiency of an assassin, bores one precise hole just above the area of shell attachment, then injects its saliva which loosens the grip of the abalone to its shell and exposes it for consumption. Many of these predators owe their success to the shell's vulnerability to even the mildest acid.

Pollution threat

Despite a variety of scary natural predators, oyster and abalone would be superabundant today, were it not for the threat of man-made pollution. Since the advent of plastics, themselves a major pollution source, molluscs have generally escaped overfishing for industrial use. Instead, countries with less plastics technology, such as some in the Far East, exploit their natural resources of shell, to provide us with cheap jewellery, and even fertiliser.

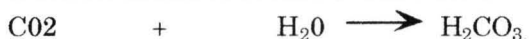
Large numbers of shells and large quantities of limestone are burned to make lime which, in turn, is used to make cement, and in steel and glass making. Unfortunately, burning limestone in a

lime kiln produces carbon dioxide.



limestone + heat = lime + carbon dioxide.

This gas, which is a major pollutant, causes further damage when combined with rain or sea water.



This chemical, a major contributor to acid rain, also offers a specific threat to mother-of-pearl, which, as we have seen, is sensitive to even the mildest acid, and in making the sea more acidic, we make it a more hostile environment for shell-producing molluscs.

The collection of many species is now having to be controlled because of reduced populations. Some species of abalone are now commercially farmed, but like farmed salmon, they differ from wild specimens, in this instance by their tendency to produce more meat and less shell.

Collecting abalone

Abalone present particular problems in collecting, due to the firmness of their attachment to rocks. A method has been devised to overcome this, which it would be unwise and unnecessary to describe, but it should be borne in mind that careless or unskilled harvesting may be fatal to the living abalone, since they are haemophiliac and can bleed to death if injured.

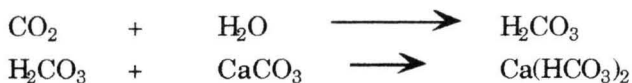
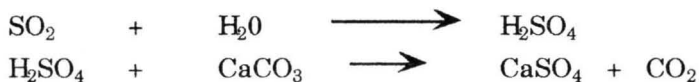
Collecting of living specimens is usually restricted to certain months to avoid the spawning season, and to full sized specimens to allow the population to grow. On the west coast of America, protected areas have been established since the 1970s and very strict regulations have been in force in the Channel Islands to protect their native species, *Haliotis tuberculata*. These are still to be found on the menus of the island's restaurants, but permits are required to sell what I presume are farmed abalone. Should two Channel Island divers be found in a boat containing a single live specimen, they are liable to a fine of £1,000 each, and confiscation of their equipment which could cost a great deal more.

In the bow

It is obvious to those who work on old bows that certain types of shell outlast others. As previously mentioned, *Pinctada* shells are not only constructed of the more stable calcite, but being flatter they produce slides whose lamellae are more continuous and parallel to its surface, whereas *Haliotis* especially from the muscle-scarred area, presents less continuity and more 'end grain', making it more open to chemical attack and erosion. Very broad undulations or 'figure' in the pearl would have a similar effect.

The deterioration of mother-of-pearl begins with contact with the perspiring bow hand of the player. As perspiration is saline, a solution of sodium chloride, a strong electrolyte, is absorbed by the highly hygroscopic ebony of the frog. As the liquid evaporates, the salt is deposited as a contaminant on the frog and shell.

Salt is a deliquescent material, which can attract moisture from the atmosphere to form a concentrated solution on these surfaces. At 25°C there is a critical humidity of 75% below which the salt is stable, and above which it will absorb moisture. This level is easily reached in use. In itself, this situation is not very different from the shell's natural environment. Unfortunately, it is now also surrounded by air, which is far from pure, containing pollutants such as carbon dioxide and sulphur dioxide. Since mother-of-pearl is very sensitive to acidic corrosion, it is at particular risk from these pollutants, both of which give rise to acids as part of a mechanism of chemical change as shown below.



In this reaction the atmospheric sulphur dioxide combines with the water to form sulphurous acid which attacks the pearl to produce calcium sulphate with carbon dioxide gas as a by-product. This carbon dioxide as well as atmospheric carbon dioxide

combine with the moisture to form carbonic acid which acts on the pearl to produce calcium hydrogen carbonate, which is soluble in water. Erosion results. All perspiration is acidic at first and potentially corrosive in its own right. The formation of ammonium compounds allows the solution to become alkaline in time; however, new acidic input is soon added. This may also contain enzymes which could have a catalytic effect on the erosion of the shell. It is often observed in shared workshops that the perspiration of particular people may have a far more corrosive effect on the common tools, than that of their colleagues. This is presumably a function of diet and metabolism.

Excessive erosion

In the case of highly-figured shell or muscle-scarred material, where it is possible for saline solutions actually to penetrate between the lamellae by means of the discontinuities or 'end-grain' erosion becomes even more rapid due to the effect of the salt solution drying out and crystallising, thereby exerting pressure between the layers. With each subsequent encounter, the salt will become more and more deeply embedded.

The best solution for delicate shell materials such as this is to cleanse it entirely of salt. This may prove quite difficult as ideally it should be removed from its backing, which may not be possible if the pearl is too delicate. It should be repeatedly washed in purified water until no salt is detected in the residue. If the material is very precious or from an important bow, intended for continued use, despite its delicacy, the pearl may be strengthened by the careful introduction of a very dilute solution of nitrocellulose adhesive. Otherwise, more general protection may be afforded to pearl in use, by the application of renaissance microcrystalline wax, which forms a harmless and removable barrier to moisture, providing it is regularly renewed. A light varnish on a disassembled slide will also afford protection, although if not thoroughly cleansed of salt first, not only will the erosion continue, but future cleaning will be more problematic, particularly on muscle-scarred areas. On relatively healthy pearl, a wipe after use with a clean tissue or cloth should greatly help to preserve it.

In the case

Having survived a hostile marine environment and the demanding conditions of frequent performance in a humid, polluted environment, one would hope that a mother-of-pearl slide might at least be safe when stored in a violin case. Unfortunately, this is not always so.

The materials of the case and its lining, particularly organic materials such as wood or felt, can inadvertently contribute to the decay of its contents. The potential for chemical change or decay of such materials is high, due to their more complex molecular structures, rich in available reactive sites by means of which they may react with each other or their environment. These reactions may be very slow but in the case of gaseous pollutants emitted by the materials of the case, the intensity of reaction can become accelerated if the concentration of gases is allowed to build up through lack of ventilation. Silver-mounted bows, for example, rarely tarnish in use, although they frequently do so in the case. If the case is felt-lined (wool), the proteins making up the natural fibre contain a group of sulphur-bearing amino acids which break down to release hydrogen sulphide gas. If the felt is dyed the situation worsens as certain dyes contain sulphur.

Tarnishing

It is the combination of the freed gases with the microscopic layer of moisture ubiquitous on most surfaces, including the surface of the silver, that leads to the black silver sulphide tarnishing often seen on stored silver bow fittings. Unfortunately, even without the dyed felt, all cases contain, by virtue of the instrument itself, large amounts of protein-based animal glue and various timbers which may or may not liberate gases, not to mention adhesives and coatings of unknown chemistry.

Wood, even well-seasoned wood, is most unstable to the extent that gaseous pollutants continue to be released long after seasoning. Even a piece of oak from 800 BC has been shown still to liberate sufficient acidic vapours to corrode lead.

The main pollutants released are known as carbonyl compounds due to the presence of a molecule containing one

carbon atom double bonded to one oxygen atom. These are methanal, ethanal, methanoic and ethanoic acids (formaldehyde, acetaldehyde, formic and acetic acids). It is these last two acids to which mother-of-pearl is particularly sensitive.

The usual effect on the shell is marked by the appearance of white crystalline salts or efflorescence on the surface. The effect of this reaction is to deface and disintegrate the shell, lamella by lamella, until it eventually subsumes and destroys it. Hygroscopic salts, such as those deposited by perspiration have been found to favour the appearance of such efflorescence, as they increase the relative humidity in the vicinity of the shell surface.

Although this form of corrosion has been noted since the end of the 19th century its causes are only now beginning to become fully understood. Early studies by a researcher called Byne have now largely been revised and his unfortunate remarks of the time, that the efflorescence spread like a disease from shell to shell and drawer to drawer, have led to the now common but misleading term 'Byne's Disease' for such corrosion, and to the mistaken belief among some, that the source is bacterial.

Hygiene solution

Luckily, the solution is merely a matter of good hygiene. First the efflorescence must be removed. The usual calcium acetate and formate salts are easily dissolved in water, and a thorough series of rinses in purified water has the additional benefit of removing any previously deposited hygroscopic salts, which may have resulted from contact with either sea water or perspiration.

Work on the pearl of the slide is best done when it is free of the bow, as during rehairing. This is because of the obvious risk of introducing moisture to such moisture sensitive areas of the bow as the wedges, adjusting screw or underslide. Once free of residue, the slide may be lightly coated with the renaissance wax mentioned earlier. This should be repeated occasionally and the whole frog wiped with a clean dry cloth or tissue after each performance or practice. With severely eroded examples it may be necessary to consolidate fragile shell material in the manner previously described.

The provision of adequate ventilation to such polluting gases is also, yet another excellent reason for opening violin cases more often.

Acknowledgements

Thanks to Mrs J.M. Vidamour, Priaulx Library, Guernsey; Andrew Dobber, Jersey sub-aqua Club; George Hook & Son, Smethwick, W. Midlands. Mr K.J.T. Brown, Hon. Sec. British Shell Collectors Club; Frank Minney, Conservation Department, British Museum; Alison Trew and Christ Meecham, Dept of Biodiversity and Systematic Biology, in the National Museum and Gallery of Wales, Cardiff.

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Conchological Society of Great Britain and Ireland

MINUTES

**1097th (Ordinary) meeting held on the 21st October 2000
in the Demonstration Room of the Natural History Museum
starting at 2.30 p.m.**

Announcements of deaths: The deaths of three members were announced:

Mr Francis de Bartolomé member since 1949; past President

Dr Alex Comfort, member since 1939

Mr Geoff Cox, member since 1973

Various members made short statements and reminiscences about the above.

In the chair: Dr Rundle with 32 members and friends present.

Apologies for absence: Mr Alexander, Mrs Fogan, Mr Gillard, Dr Kerney, Mr Long, Mrs McMillan, Mr Negus, Mr Norris, Mr Pinn, Mrs Rands, Mrs Turk, Mr Weideli, Dr Willing.

Minutes of the last meeting (of 19th February 2000): The minutes were read and accepted.

Matters arising: None

Nomination and election of new members: None

Announcements and correspondence: In the absence of the Hon. General Secretary there were no announcements or correspondence.

Lecture of the day: Speakers: Anna McIvor and Stephan Muller
Title of talk: The Depressed River Mussel: in trouble?

Any other business: Janet Sawyer informed members of her recent contact with the Countryside Alliance and the influence such an organisation might have should there be pressure from the environmental lobby against the collection of molluscs.

Meeting closed at 5.14 p.m.

Chairman

Appendix: Members' exhibits

- | | |
|----------------|--|
| Ron Carr | Larger bivalves from various locations in the UK, including River Medway, Maidstone (photographed 13 October 2000). |
| Ian Killeen | Posters on <i>Margaritifera margaritifera</i> presented at a European Pearl Mussel Meeting, Germany October 2000. |
| Peter Dance | Specimens of <i>Helix aspersa</i> var. <i>alba</i> collected in 1850 by Fanny M. Hele of Bristol, a collector who was very fond of albinistic non-marine shells and well known as a collector of <i>H. aspersa</i> var. <i>alba</i> , and a letter from her to J W Taylor, 1876. |
| Ron Boyce | Photographs taken at field meetings, including a picture of <i>Testacella maugei</i> . |
| P.T. Wimbleton | Photographs of Shell Exhibition at Havant Museum, Hampshire. April/May 2000 and a plan of exhibits. |
| Paul Dansey | American clams and miscellaneous molluscan press cuttings and publications. |
| Jane Reynolds | Summer season snaily snippets – some silly, some serious. |
| Kevin Brown | Recently reviewed books on Australian bivalves, specimens of Australian bivalves, press cuttings and Journal of the Israeli Malacological Society <i>Triton</i> , Issues 1 & 2, 2000. |
| June Chatfield | Photographs Snayleslynch Farm noticeboard, Farnham and <i>Arion</i> specimens and issue of BBC <i>Wildlife</i> Magazine with letter on enlargement of tentacles due to parasitic fluke. |



MINUTES

**1098th (Ordinary) Meeting held on the 18th November, 2000
in the Demonstration Room of the Natural History Museum
starting at 2:30 p.m.**

In the chair: Dr Rundle with 23 members present.

Apologies for absence: Mr Boyce, Mrs Buckle, Dr Colville, Mr Dance, Miss Hill, Dr Honnor, Mrs Light, Mr & Mrs Long, Miss McIvor, Dr Oliver, Mr & Mrs Pain, Mr & Mrs Weideli, Mr Worth.

Minutes of the last meeting of (21st October, 2000): The minutes were read and accepted.

Matters arising: None

Nomination and election of new members: 7 full members were nominated and elected:

Mr C Damant

██████████, Swanbourne, Bucks, ██████████

Mr C Goss

██████████, Watford, Herts

Mr R Houart

██████████, B.3400 Landen (EZEMAAL), BELGIUM

Mr K W Machin

██████████, Aylesbury, Bucks, ██████████

Mr C Moncrieffe

██████████, Gillingham, Dorset, ██████████

Ms F Stuart

██████████, London, ██████████

Mrs I Thomas

██████████, Oxford, ██████████

Announcements and Correspondence: The next indoor meeting will take place on Saturday 16 December.

The speaker will be Amanda Millar on 'Woodland snails and coppicing: some results from a woodland in Sussex'.

There will be a Workshop at the home of Miss Judith Nelson on Saturday 25 November. The main topics are:

'Love Darts' and 'Isle of Wight Fossil Molluscs'

Lecture of the day:

Speakers: Michel Hughes & David Bolton

Title of talk: Can scale paint a true picture: the Devon recording experience

Any other business: None

Meeting closed at 5.15 p.m.

Chairman.

Appendix: members' exhibits

- | | |
|---------------|--|
| Jane Reynolds | <i>Megabuliminus oblongicus</i> juveniles |
| A Norris | Book: Turton's <i>British Mollusca</i> , with extra photographs dating from the 1860's. |
| Ron Carr | 1. Shells from the Mediterranean Genus: <i>Rumina</i> .
2. Letters from Francis de Bartolomé. |
| Adrian Rundle | Variation in the shipworm from a single log. |
| J Chatfield | <i>Hygromia cinctella</i> (photograph) in the garden of Juniper Hall Field Centre, Surrey (28/10/00). Note: white peripheral line and minute umbilicus. |
| Kevin Brown | 1. <i>Calliostoma annulatum</i> (Lightfoot, 1786)
2. John Edward Gray: 1800–1875; bicentenary of birth of this Conchologist |
| Colin Gillard | 1. Photographs from N Somerset/N Devon Field trip 27 September–1 October 2000
2. Article on <i>Corbicula fluminea</i> in Independent on Sunday 30 July 2000.
3. 'On the trail', an article on snails in <i>Country Living</i> , November 2000
4. Correspondence and publications:
a. A Sheller's Directory
b. BTCV Conserver, Summer & Autumn, 2000
c. Information leaflet from 'at Bristol'
d. Meiji Techno – new address. |



Diary of Meetings

This is a list of all meetings in date order.

Programme Secretary:

Ron Boyce, [REDACTED], Reading, Berkshire [REDACTED]

IMPORTANT: Please remember to inform the leader if you are attending a field meeting. If you are held up in traffic or your public transport is delayed, it may be possible to ring the Programme Secretary on 0794 109 4395 on the day of the meeting for information on the location of the field site being surveyed.

Key to meetings:

NHM = Natural History Museum, London, indoor meeting

FIELD = Field Meeting at outdoor location

WKSHP = Workshop on Molluscan topic

YCS = Yorkshire Conch. Soc. events

MSL = Malacological Society of London

YCS – 10 March: Indoor meeting 10. a.m. Leeds City Museum Resource Centre, Yeodon. Collection work.

MSL – Monday 19–Tuesday 20 March 2001. Freshwater bivalves. A conference with the possibility of a field outing. Contact Dr David Aldridge, Aquatic Ecology Group, Department of Zoology, University of Cambridge, Downing Street, Cambridge CB2 3EJ. E-mail: d.aldrige@zoo.cam.ac.uk. Tel. +44 1223 334436. Fax: +44 1223 336676.

NHM – Saturday 24 March 2001. Annual General Meeting with Presidential Address on the subject of 'Love Darts'.

FIELD – Saturday 31 March 2001

Barton-on-Sea, Hampshire

Leader: Bill Pocock [REDACTED]

A field trip dealing exclusively with fossil molluscs, revisiting the internationally renowned type section of the Barton Clay (Palaeogene). The fossils are numerous, well preserved and easy to extract. The quality of collecting varies from visit to visit, but everyone will see a representative fauna. A packed lunch should be brought and carried.

For collecting, an old knife or similar for lifting the fossils out of the clay and plenty of plastic bags, tubes, etc. will be needed. It will be a fairly strenuous day, and members should bring warm and waterproof clothing and be prepared to get very muddy. Meet at 10.30 h on the road along the sea front (OS Grid Ref. SZ 240930).

YCS – 7 April: Cromwell Bottoms Local nature reserve. Recording and Workshop. Meet 11.00 a.m. at the car park on A6025, grid ref. SE 124225.

YCS – 5 May: Beast Cliffe Woods. Classic site for *Acicula fusca*. Meet 11.00 a.m. at the car park at Ravenscar, grid ref. TA 981018.

FIELD – Saturday 19 May

Morden Hall Park, South London Area

Leader: June Chatfield ()

Morden Hall Park is a former deer park on the edge of London which was privately owned until 1941. It is now a National Trust open access site managed for nature conservation and amenity. The park has, as its focus, the River Wandle and associated sedge beds. Because of use of the river in the past for mills of various sorts there is a complex pattern of waterways. Such wetland species as *Ashfordia granulata* and *Succinea putris* are known from Morden Hall Park. Patches of woodland are found at the periphery of the park. Records from the field meeting will add to the National Trust data for the site.

Meet at 10.30 a.m. by the National Trust tearoom in the car park for Morden Hall Park situated in the walled garden off Morden Hall Road (A297) – TQ 266684.

Public transport is well served by buses to Morden, the London Underground (Northern Line) station at Morden and the new Tramlink (Beckenham via Wimbledon) which has a station at Phipps Bridge at the rear of the park.

FIELD – Saturday 9 June

Ightham Mote and surrounding woods, Kent

Leader: Ron Carr ()

Ightham Mote and much of the adjacent deciduous woodland comprises National Trust property. The nearby site of One Tree Hill provided the first British record for the slug *Tandonia rustica*. This area is located on the Greenland escarpment and contains both woodland and freshwater habitats.

Meet 10.30 a.m. at One Tree Hill car park (map reference TQ559531 – Landranger map 188; Maidstone and the Weald of Kent). After meeting, it is proposed to work in an easterly direction in order to investigate sites at Shingle Hill and Wilmot Hill prior to arriving at Ightham Mote. Nearest station is Sevenoaks (approx. 3 1/2 miles). Bring lunch or use local pubs.

FIELD – Saturday 23 June

Kimmeridge Bay, Dorset

Leader: Rosemary Hill ()

A visit to the Purbeck Marine Wildlife Reserve. Meet at 11.00 h at the first car park at SY 909791. There is a toll road at the south end of Kimmeridge village; the charge at this time of year should be about £2 per vehicle, which serves as a parking fee. Proceed down the toll road and take the first turning at the white house. The area where the car park is should be marked on the map as Gaulter Gap.

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Ecologically, the more interesting area is to the west of the car park underneath the firing range, which we are assured does not operate on Saturdays, but the area to the east is still worth surveying. Fortunately, Kimmeridge Bay has two low tides, the first at about 12.30 h and the second, which is the lower, at about 16.00 h, with not much change in water levels in between, so it will be possible to study both these sites. Care needs to be taken after 16.40 h as the tide here rises extremely rapidly.

FIELD – Saturday 28 July 2001

Gloucestershire

Leader: David Long ()

Provisional arrangements: I hope to visit the Gloucester-Sharpness Canal and the Purton timber ponds in the morning by permission of British Waterways. The canal produced fresh shells of the introduced *Sphaerium transversum* in 1993 as well as other sphaeriids, but there has been no recent examination of the adjoining timber ponds.

Meet at 10.00 at the British Waterways car park in Purton SO/692063. There is a pub at Purton (to be reconnoitred).

Given the permission of the trustees, the afternoon venue will be Walmore Common, SO/73.15. – 74.15 (parking details to follow) at c. 14.30. This is a marshland SSSI not examined for molluscs since the late 1960s. It may not turn up rarities but there are now few sites like it in Gloucestershire.

If time and conditions permit we may look at the River Severn at Wainlode (SO/849258) in the early evening. There is also a pub here which serves food.

FIELD – Sunday 16 September to Friday 21 September

Fife, Scotland

Leader: William Penrice ()
(provisional notice)

A week-long meeting to study the marine mollusca of the Fife coast, including dredging trips and a possible visit to the Isle of May NNR. There may also be the opportunity to do some land recording, but details still need to be finalised. Information on meeting places will be provided later on. Please note that the spring tides are rather early in the morning at this location.

The most convenient centre to seek accommodation will be Anstruther. The tourist information office at Anstruther (01333 311073) is open only from April to September. At other times of year its function is provided by the office at St Andrews (01334 472021).

YCS – 1 September: Arncliffe for Littondale. Meet at village green at 11.00 a.m., grid ref. SD 931718.

YCS – 6 October: Gargrave for Leeds and Liverpool Canal and River Aire. Meet at 11.00 a.m. in pub car park on A65 west of Gargrave, grid ref. SD 925542.

YCS – 20 October: AGM and Presidential Address. 1.00 p.m. Leeds City Museum Resource Centre, Yeadon.



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