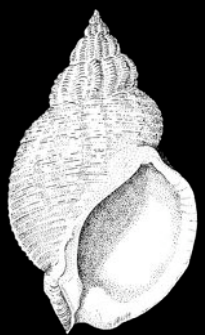
PALLIDULA



The Magazine of the British Shell Collectors' Club

Vol. 42 No.1 April 2012

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Front Cover: *Bolma girgylus* (Reeve, 1845) The dealer shell voted first by members; Dealer Koen Fraussen.

Back Cover: The photograph voted first by members. Title; "Graphic Argonauta: my most beautiful specimen on my mum's duvet." by Sara Cannizzaro.

Camera: Canon 350D digital, Lens: 50 mm, max F/1.8, settings: F/ 5.0, 1/100, iso 400, no flash.

Editorial

Thank you so much for the kind and thoughtful comments that have encouraged me as your new editor. Since my last editorial, I have been sailing around the Greek Ionian Islands and found many beautiful beached specimens, my favourites being *Haliotis*, *Calliostoma* and *Clanculus*. I was also inspired by Colin Goss, writing in the last issue of *Pallidula*, to visit Studland Bay in October. There I saw the American wonders for myself, as well as many other British shells that I haven't collected before, in particular, a large *Mercenaria mercenaria*.

Over Christmas the family treated me to a day trip to the Weymouth area. At Overcombe Bay I found *Gibbula magus*, before meeting up with Colin himself to investigate the rocks and pools near Castle Cove, Old Castle Road, where we both revelled in the large numbers of *Littorina obtusata* in different colours and stripes crawling over the seaweed, *Focus serratus*. Then we looked at Chesil Beach (all shingle) and walked around behind the visitors' centre to see what the seabirds had left for us in a muddy lagoon. There we found huge *Tellina incarnata* but all with a valve damaged by those seagulls and many *Loripes lucinalis*, which I have never collected before. I hope that the articles in this issue will inspire you to go out with other shell club members to find molluscs in the wild!

In the October show at Theydon Bois I spotted many shells I hadn't seen outside a book, e.g. *Serpulorbis colubrinus*, which I found exhibited and also for sale on three dealers' tables (see below). There were members of the club exhibiting for the first time in years: please consider showing some of your own treasures in the future. I was personally amused by the *Crassostrea gigas* dressed up as the 'Ghosts of the merSea' (see below) and I loved the specimen of *Xenophora granulosa* (see page 15) awarded Shell of the Show, as I have never seen a collector shell with dark stones before. I was also tickled pink that the Scotia Shield was awarded to David McKay, as unbeknown to the judges, his shells were collected whilst he was aboard the science vessel *Scotia* (see page 14).

What's new in this issue? There is a letter from a member to the club, asking for other members to write back. Please read and send your comments and any letters on shell-collecting matters for future issues. There is also an article about the club's first show at Chatsworth House (see page 7), which should encourage those who missed it to consider going next year. I am grateful to Margie & Nigel Trewin, who have sent in their photographs of the Big Strand (see page 27). Please think what snaps of UK beaches you have which may encourage the rest of us to get out collecting.On Page 31 you will find new club items (on display at April convention) to consider purchasing.

I do hope you will enjoy going down memory lane whilst reading the article 'History of the club' by Mike Dixon: please send your own reflections on the club's past for me to collate in the October issue. I also hope you will consider attending one or more of the shell meetings this year, as it is the 40th anniversary of the club.

Serpulorbis colubrinus

Crassostrea gigas

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The B.S.C.C. at forty: A potted history

By Mike Dixon

By the time you read this, your Club will be 40 years old. This is not much as anniversaries go The Titanic went down, and Captain Scott perished, a century ago, H.M. The Queen has been reigning for 60 years, and even "Private Eye" magazine recentrly passsed 50. But it's sobering to think that a good number of you were not even born when it started, in 1972.

The club arose out of a combination of loneliness and ignorance (mine). I had been collecting shells for two years. All there was to show was a pair of reference books and a batch of beach-collected British shells and a few tropical craft-pack mixtures. But I could not find another person with whom to ask questions and share my enthusiasm. As a long-suffering colleague more of less said to me: "Why don't you stop moaning on and on and do something about it yourself?" Easier said than done. In those dark, Palaeolithic pre-internet days, there was no information at all available on the subject for the novice. Norah Macmillan, in her "British Shells" did mention the Conchological Society but gave no clue as to who they were, where they were or how to join.

So out of desperation I placed four weekly ads, asking for soul-mates, in "Exchange and Mart." In retrospect, this might seem incredibly naive and naff. But it was the only publication that carried a "Collecting" feature, which put in ads for fossils, minerals and other natural history specimens. The response was overwhelming and two replies flooded in – from Geoff Cox and Eddie Sadler. We would talk on the phone for hours and before long had met up in London. Between us, we placed notices in natural history books in our local libraries, tried to get featured in the local rags and had cards put up in seaside curio shops.

We very soon increased to (not-so-magnificent) Seven; and, by the time we reached a membership of 20, it was thought that we should issue a membership list and some sort of newsletter. This started as an amateurish hotch-potch of notes and jottings on anything vaguely related to shells. It had to be typed onto a wax-coated stencil sheet, and any errors were blotted out with acetate that looked and smelled like nail varnish. We then bribed the office Gestetner printing operator to run off the appropriate number of copies. Then came the fun of collating, stapling, folding, addressing and posting... a minor Dixon family cottage industry. The more members who joined, the more articles we could print on collecting experiences, both home and abroad.

Looking back, the 1970s was a very exciting decade to be starting out as a collector. "Rare" shells were being rediscovered from Philippines, Taiwan and elsewhere. The number of world-wide shell dealers gradually grew during that period, and more shell books were being increasingly published. Also, foreign travel became more widely accessible, thanks to Freddie Laker and his rivals. For me, certainly, snorkelling through the warm, clear coves of Menorca was much more enjoyable and rewarding than glooping about on the mudflats of the Isle of Sheppey.

A number of our earlier members had travelled more extensively. Peter Dance was already an established kingpin of the U.S.A. show-judging circuit. Peter Oliver returned with lots of self-collected material from Singapore and the Gulf. Fred Pinn was an expert on shells he studied while teaching in Kenya and the Bay of Bengal. And Paul Mostyn was sending back gorgeous shells from his teaching assignments in Thailand and the (then) Gilbert & Ellice Islands. A near-neighour of mine, Colin Gregory, had recently served in both Mauritius and Gan (a secret island M.O.D. base in the Maldives.) He showed me my first sight of *Conus zonatus* (below left), *Harpa costata* and *Lambis violacea* (below right).

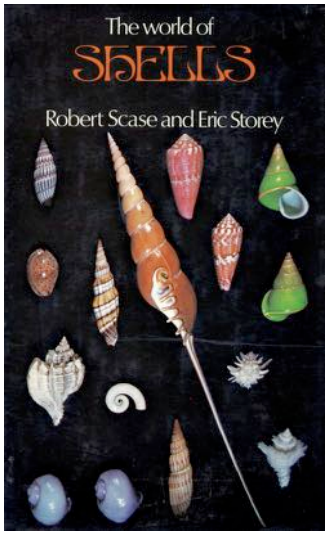
He also gave me useful diving tips, such as "fanning" for *Terebras* and trail-baiting for *Olives*. Graham Saunders was also an early pioneer into Western Africa, mounting a collecting expedition to the Cape Verde Islands in the mid-1970s. (Photo below: courtesy of Kevin Brown)

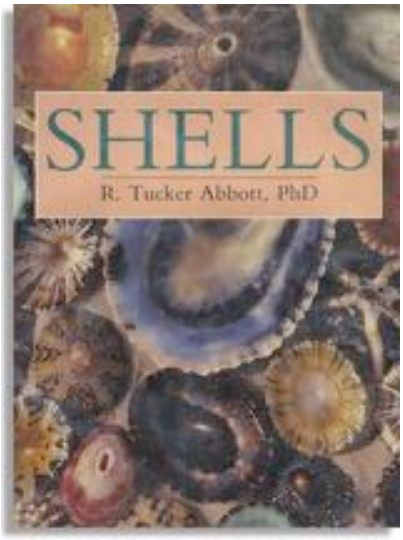
Three Wise Men: Tom Pain, Geoff Cox and Peter Dance

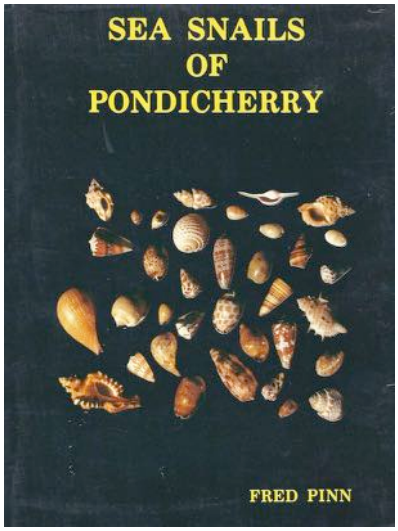
In an earlier article, I have already paid tribule to the enormous contributions which Tom and Celia Pain made in the Club's formative years. Apart from generously providing hospitality for the early Committee meetings and entertaining V.I.P. visitors to the shows, they helped to forge a cordial relationship between B.S.C.C. and the Conchological Society, with mutual invitations to meetings and field trips. Today, still, many of us have a membership foot in both camps. The two organisations have never been seen as rivals. Rather, we believe, they complement each other. Serious conchologists can also be collectors too, just as keen amateur collectors can be serious researchers in their chosen fields. If anything, it would be nice to regard our Club as a bit more informal, friendly and welcoming of shell "fanciers" of all levels. One of our earlier joiners, in fact, was a self-proclaimed "refuge" from the Conch. Soc. They were (and I quote him) "a bunch of weirdos chasing about in graveyards, looking for slugs in the pouring rain." Very unkind and unfair but you sort of know what he meant. (Right Photo: courtesy of Celia Pain.)

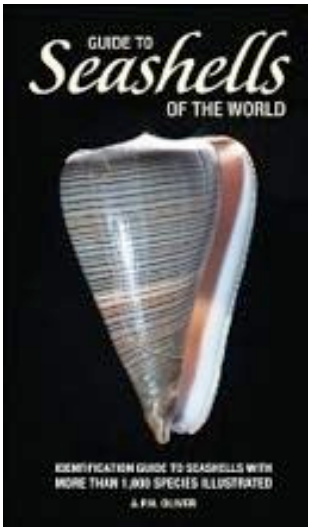

Tom Pain

Right from the early years, it was encouraging that a number of "big names" in conchology chose to join the B.S.C.C. (slumming it, you might say). These included some authors of shell books, such as, -excluding those who are still actively with us – Peter Oliver, Bob Scase, Fred Pinn, and R. Tucker Abbott (associate member).









Throughout our existence, the membership mix has always been very balanced and crossing age, sex, nationality and levels of specialisms. It is really heartening that we still have a healthy proportion of youngsters coming into the hobby, and apparently this is not the case with our European counterparts. During our forty years we have had two members who merited an Obituary in "The Times." Our numbers have included a member of a Top Ten popular singing duo, a world authority on the life and works of Thomas Paine, an historian specialising in the N.E. Indian tea trade, a guest of H.M. Prisons and a defrocked vicar (don't ask!). In an outrageous act of chutzpah, the Club once approached Princess Margaret. We had heard that she developed a love of sea shells, arising from her numerous holidays in the Caribbean, so we wondered whether she might do us the honour of becoming a Patron. The reply was prompt, it was short and it was negative... but at least it wasn't rude.

After we have been going for four years, the B.S.C.C. held its first get-together, an informal Convention and exhibition, held at Napier Hall on 27th March, 1976. This was so well attended that it was decided to hold our first competitive Show. This was held on 30th April 1977, again in Pimlico. There was another good attendance, and this time there were reporters and photographers from two national newspapers to cover the story. In those early years, the various Show categories were wide ranging and eclectic, including micro-shells and self-collected material. There were also separate classes just for Juniors. But in practice we found that a bright upcoming young teenager (a certain Kevin Brown) kept walking off with both the junior **and** adult prizes – so we soon put a stop to that!

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With every year that passes, I have never stopped being impressed by the continuing high quality of the Show exhibits... all that flair, artistry, imagination and knowledge that goes into everyone. I remember them all so vividly, but one sticks out especially, for all the wrong reasons. Ken Wye, in the early 1980s, entered an exhibit entitled; "The Micro-land Shells of Tristan da Cunha." This represented the collection of the Reverend Father Egan, a missionary who had lived on the island in the early 1920s. A large-scale map was displayed, showing all the collecting stations; and the tiny shells themselves were meticulously labelled with species name, author, date and collecting point. Peter Dance happened to be the Chief Judge that day, and he thought that some of the authors' dates somehow did not feel authentic. Closer examination of the actual specimens, under a strong lens, revealed them to the floor-sweepings of Eaton's Shell Shop and composed of broken protoconchs, sawdust, carpet fluff and grit. So, fortunately, the Club was spared a Piltdown Moment.


Eddie Sadler

(left photo: courtesy of Kevin Brown) After that first Show, the meetings followed regularly thereafter, with two main get-togethers in April and October, continuing up to the present time. In the end, Napier Hall proved too inadequate to meet demands on hall space, number of tables available and booking dates. So, in 2004, we migrated the April Convention to Essex, first at Colliers Row, Romford and alternated with the October Show in Napier. This use of two venues occured for three years until in 2007, the club made a final move to the current venue at Theydon Bois. In the early 1980s, to avoid being seen as too London - centric, other meetings were held in cities, such as, Birmingham, Northampton and Brighton and then, later, at Kevin Brown's enjoyable summer conventions by the Thames at Isleworth. Now, of course, there is a wonderfully wide choice of Club meets for members to enjoy: the various "at homes", the Chatsworth event and the Show in Scotland.

The publication of our magazine has also seen a long and varied evolution. In the late 1970s, Bob Morrell took us away from the rough and ready foolscap Newsletter and turned it into Pallidula" (chosen for its literal "shell collector" connotations); and he had access to a professional printing press. Since then, right up to Selina Wilkins taking the helm last year, there has been a noble procession of Editors: Alex Arthur, Peter Dance, Chris Ward, Chris Moncrieff and latterly John Batt. Each and every one of these editors has been instrumental, by their hard-working efforts, in bringing the magazine into the Premier League, with its excellent standards of content and illustrations.


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Conus generalis, Linné, 1767 (General Cone)

Everything which the B.S.C.C. was, and has now become, has depended largely on the diligence and unsung efforts of a relatively small group of people in the Committee, who have never really had the thanks or acknowledgments they deserve. But our group as a whole is only as good as its component parts. I'm referring to YOU, Gentle Reader! You already make a solid contribution, just by paying your subscriptions and attending the meetings. But what else can you do to help to continue its success? Why not make a resolution to contribute an article or "filler" to Selina, for "Pallidula", or to make an effort to produce a Show exhibit, if you have not already done so in the past?

We also have to thank the dealers among our membership. Let's be honest, they are the main reason why we all go to the meeting; and the table fees they pay, and the auction donations they make, add considerably to the Club's revenue. Without them, how else could we obtain the latest, wonderful shell discoveries from such areas as Madagascar, East China Sea and the Philippines?

I do not know what, if anything, the Committee have planned to recognise this year's milestone. But the only previous celebration I can recall is the 25th birthday party in 1997. Daphne Howlett sprung a surprise with a massive decorated cake which she had made for us. I believe that every single person in the hall managed to enjoy a piece.

Now that we have reached Forty, what of the future? By sheer momentum we will easily reach Fifty and, with a following wind, probably Sixty. But with ever-increasing concerns about biodiversity, conservation and the general future of the planet, there is every possibility that collecting shells – alive or dead – will be outlawed on a world-wide scale. Such bans have already been imposed in a number of countries, even though their enforceability is questionable. It may be that future generations will look on a drawer full of shells with the same disgust with which we now view a caged tiger, a birds' egg collection or a "comic" tableau of red squirrels mounted in a Victorian glass case. Let's all hope that I'm wrong!

(Photo above: courtesy of Kevin Brown. In Napier Hall, Mike Dixon conversing with Kevin Brown; in background, Stanley Francis.)

Shell Photos : with kind permission of Guido and Philippe Poppe, images are reproduced from www.conchology.be

Chatsworth Shell Show

By Jonathan Welsh

On the 17th of September, the first ever shell show on the Chatsworth Estate, seat of The Duke of Devonshire and family was held. The day dawned sunny, with the chance of showers and I arrived just before 9, just as it had started to rain. However, this did not dampen anyone's spirits and later on, the sun broke through and it turned into a very pleasant afternoon. The show itself was held in Cavendish Hall which is off the main road on the estate and committee members made sure that there were plenty of signs up to alert the general public, including the banner usually used at Theydon Bois. As a result, a steady stream of unfamiliar faces continued to arrive during the day which meant the hall was very busy!


1

We were also privileged in the morning to have a visit from Her Grace Dowager Duchess and her daughter, Lady Sophia who makes mirrors which are surrounded by shells. Several of these were on display on the day and one from the house was proudly shown in the centre of the stage (photo 1). At the end of the day, this was carefully wrapped up and returned to the main house. Ingrid Thomas was also on the stage with a selection of her amazing shell artwork on display, with her shell book.


2

Many of the regulars from the Theydon Bois shows were present and most of the usual dealers with vast amounts of interesting material on sale. There was also a table selling fossils, something we don't usually see at the other shows. There were also displays by several club members, including Loretta Spridgeon (photo 2) and John Whicher's Ammonites (photo 3) which generated a lot of interest as did all the other exhibits. I especially enjoyed the Nautilus display which highlighted the lesser known examples of this family of living fossils. After lunch, a raffle was held, compèred by Brian Hammond and many happy people won the chance to select things from a table of donations from individuals and dealers.


3

Excellent refreshments (photo 4) were available throughout the day and these were readily patronised by the attendees, the rolls and cakes were especially nice! Many thanks to the catering staff who did a superb job of feeding around a hundred hungry shellers.

All in all, it was a most interesting and busy day and we would like to extend our thanks to Rob Law and Brian Hammond and all of those who made the day possible and to those who attended. It would be excellent if this event could become a regular fixture in the B.S.C.C. calendar. (Photos: Tom Walker)


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Shell collecting in Tenerife

By Craig Ruscoe

Introduction

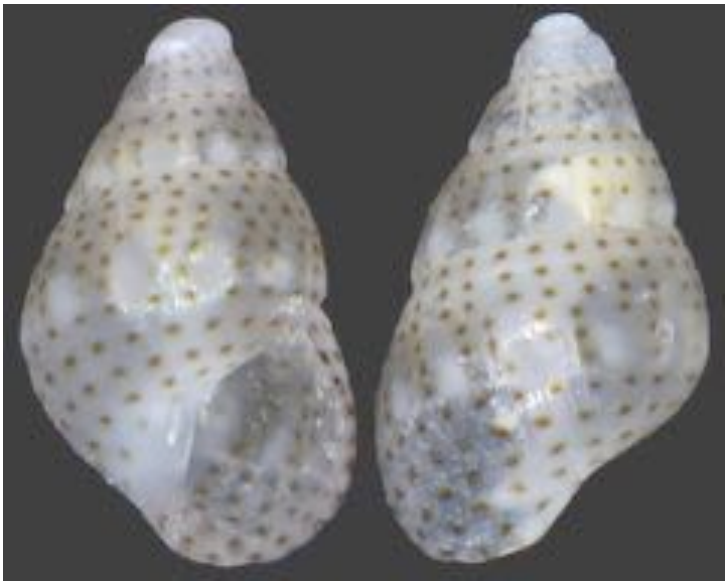
My brother, Carl and I visited the Canary Island of Tenerife in May 2008 to do some shell collecting on a large scale. We were so impressed with the many interesting species that could be found there that we decided to return to Tenerife for another collecting trip in December 2010. We have so far successfully identified more than 160 marine species from the island, some of which are seemingly unrecorded in the Canary Islands. We also collected about 12 terrestrial species on Tenerife, however because of the difficulty in reaching their habitats; I have refrained from discussing these terrestrial (Land) species in this article. During both of our trips we stayed at the main resort in the South of the island called Playa de Las Americas. In total we sampled 10 separate beaches on the island. Only 4 of these beaches yielded a good diversity of shells. I will now tell you about some of our finds from each of these 4 beaches.

Playa de Las Americas

The beach at Playa de Las Americas was our first port of call on arriving in Tenerife in 2008. At first, this beach seemed to be devoid of molluscs. The beach here consists of rocky ledges with large tidal pools. After strong tides, in May 2008, some interesting shells could be found trapped behind the rocky ledges. The most interesting species to be found here was *Micromelo undatus* (see below), a beautiful bubble like shell in the family Hydatinidae. About 20 specimens were found in total. Other interesting finds here included 2 Pulmonate species; *Alexia algerica* and a species of Pedipes.

After a short walk southwards towards Los Cristianos, the terrain consisted of mostly rocks with very small patches of sand. Large colonies of Trochids could be found in the rock pools. Many hermit crabs could also be found here, most of which had chosen the shells of locally common gastropod species as their home. However, in December 2010 very few hermit crabs or live Trochids could be found here. Perhaps they come in to the shallows to breed in the spring? Underneath large rocks in shallow tidal pools here, shell grit could be found. The shell grit consisted of a reasonable diversity of species. Most of the shells in the grit were fresh dead shells. I believe that these micro species are living inter-tidally here or perhaps slightly sub-tidally. Probably the most common species in the grit was *Bittium incile*. Most of the other species here were Rissoids and Pyramidellids, most of which are Canary Island endemic species. One shell of *Cylindrobulla fragilis* was also found here, this is a very fragile and rare species of Opisthobranch and seldom collected.

Photo : *Rissoa albugo*



El Medano

In May 2008, we visited a beach close to the airport called El Medano. The beach here consists almost entirely of rocks with many tidal pools. Many hermit crabs could be found here. Most of the hermit crabs were housed in the shells of Trochids, Columbellids and Nassariids. Many good specimens of *Conus guanche* could be collected live on the rocks. Carl collected a very large specimen of *Cantharus vivveratus* (see below) complete with resident hermit crab. This specimen measures 47mm and could be close to world record size for that species. As was the case at Playa de Las Americas, very few live molluscs or hermit crabs could be found here on our return visit in December 2010.

Playa de Las Duque

Playa de Las Duque is a small beach which is to be found north of Playa de Las Americas, in the area of Playa Fanabe. The sand here is partly black volcanic sand and 'white' sand has apparently been imported here from Western Sahara. There are very few shells of considerable size to be found here. However there is an abundance of micro shells on the beach. These micro shells mostly consist of Bittium shells, a small type of Cerith. Also common here are Rissoids including Manzonia, Rissoa, Alvania and Cingula. Many different micro Turrid species are found here, some of which are very beautifully sculptured. Many of the micro shells here are in poor condition, however with many hundreds of thousands of micro shells on the beach, some nice shells can be picked out under the microscope. My favourite micro species found at Playa de Las Duque was *Pseudoscilla bilirata*, (see above) a beautiful Pyramidellid with fantastic spiral sculpture.

Because of the possibility that sand has been imported here from the West African mainland it has to be questioned whether or not some of the fragments of shells or badly worn specimens found here are actually authentic Canary Island shells.

Playa de Las Vistas

Playa de Las Vistas is the main beach at Los Cristianos. In terms of diversity of shells collected, this was by far the most productive beach during both of our visits to Tenerife. Although many of the shells washed up here are in poor condition, the diversity of species that can be collected here is impressive. The beach is very popular with tourists and it appears to have been 'landscaped' so that shell material seldom washes on to the beach. It is necessary to sieve the shell material from the shallow water close to the shore. For information on how to collect in this way and how to prepare your shell material for your return home, please see Carl's article on shell collecting in Benidorm, Pallidula Volume 41 No.1 (April 2011).

Photo: *Nitidella ocellata*

During several visits to this beach, we collected sacks full of shell material from the shallow water, dumped it on the beach above the high tide mark, and sorted through the material on the beach. As soon as it started to go dark, we bagged up about 25Kg each and carried it a mile and a half back to the hotel.

The shell material here seemed to be much better in May 2008 than in December 2010. In December 2010 many shells from here were worn, eroded shells. However, some slightly larger shells were found in December 2010 that were not found in May 2008. These species included *Nassarius denticulatus, Bulla mabillei f. dactylus* (see below) and *Pyramidella dolaborata* a beautiful species of

Pyramidellid which can also be found in the Caribbean and West Africa, but it is rare in the Canaries. In addition Carl found an almost perfect, large specimen of *Cymatium trigonum*, a West African species which is rare in the Canary Islands and a very desirable find.

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Another nice find here was made by myself in 2008. I found a small specimen of *Conus genuanus* (see below)

with a noticeably muted pattern and a more slender shell than the specimens found on the West African mainland. As Tenerife is the most North-Westerly location so far recorded for this species, could the species here (which is rare) be evolving into a distinct form or sub-species? Taking into account the slight differences in climate, food and other factors. Any views on this theory would be appreciated.

Almost all the shells to be found intact at Playa de Las Vistas were gastropods. Because of the strong wave action, only single valves of bivalves could be found on the beach. Several species of bivalves were commonly washed up here, mostly belonging to the families Cardiidae and Veneridae. It is always frustrating to see so many beautiful single valves of bivalves and no specimens with both valves intact. Photo : *Pyramidella dolaborata*

Finds of unrecorded species

At least 2 species were found in the shell material from Playa de Las Vistas which are seemingly unrecorded in the Canary Islands.

A few specimens of Modulus were found, they were mostly in quite reasonable condition, suggesting that these snails could be living locally. They appear very much like *Modulus ambiguus*. However the species *Modulus guernei* Dautzenberg 1900 has been found in the Canary Islands and these shells could also be of that species. Because of their beached condition it is difficult to make a positive ID on these shells.

Three specimens of *Oliva flammulata* were collected. Two of these specimens have retained some gloss and appear to be reasonably fresh. I am therefore confident that this species is living offshore close to the coast of Tenerife.

Oliva flammulata (see above) is a West African species and is unrecorded from the Canary Islands. Only one other species of Olive has so far been recorded from the Canaries, making this species an exceptional find in Tenerife.

One species of Naticid was found at Playa de Las Vistas which is known from the Caribbean province. This species is *Natica tedbayeri* (see below) which normally occurs from Florida to Brazil.

Two specimens were found in reasonable condition. The pattern is partly worn away but I am confident that this is the correct ID for these specimens. Is it possible that these shells have drifted with ocean currents all the way from the Caribbean, or Florida which is on the same latitude as Tenerife? It is possible that live specimens have been dropped from the ballast of a ship and have survived to form a new population in the Canary Islands.

Despite the recent publication of an excellent and quite comprehensive book on Canary Islands Molluscs (Rolan,2011), a great deal of research still remains to be done to record the Mollusc fauna of the Canary Islands. The Canary Islands lie in a very interesting position geographically and because of the climate and other factors, it is quite possible for some temperate and some tropical species to establish themselves there. It is exciting to think what species could turn up in Canary Island waters in the future, particularly with global warming in mind.

If anyone has any information about more finds of the species listed above or any other interesting finds in the Canary Islands then we would be delighted to hear from you.

In summary, Carl and I thoroughly enjoyed our collecting trips to Tenerife. With great weather all year round and friendly people, I would fully recommend Tenerife for a low budget holiday with the opportunity to collect some very nice and interesting shells.

If anyone is planning a trip to Tenerife and would like more information on collecting there please contact me or Carl.

Photo : *Vexillum zebrinum* All Photos by Eddie Hardy

Table 1 : Listing some of the more interesting species found

Haliotidae	*Haliotis coccinea*	Naticidae	*Natica tedbayeri*	Eulimidae	*Parvioris microstoma*
Cocculinidae	*Cocculina corrugata*	Naticidae	*Natica variolaria*	Epitoniidae	*Acirsa subdecussata*
Trochidae	*Gibbula aurantia*	Atlantidae	*Atlanta helicinoides*	Epitoniidae	*Cirostrema pumicea*
Trochidae	*Jujubinus hernandezi*	Ranellidae	*Cymatium trigonum*	Epitoniidae	*Epitonium algerianum*
Trochidae	*Jujubinus mabelae*	Bursidae	*Aspa marginata*	Epitoniidae	*Epitonium tiberii*
Tricoliidae	*Tricolia entomocheila*	Bursidae	*Bursa corrugata f. pustulosa*	Epitoniidae	*Epitonium vittatum*
Anabathridae	*Nodulus contortus f. spiralis*	Bursidae	*Bursa scrobilator*	Epitoniidae	*Opalia helenica*
Anabathridae	*Pissina glabrata*	Bursidae	*Bursa thomae*	Epitoniidae	*Opalia mauritanica*
Rissoidae	*Alvania multiquadrata*	Muricidae	*Cytharomorula grayi*	Pyramidellidae	*Chrysallida dolliolum*
Rissoidae	*Alvania watsoni*	Buccinidae	*Cantharus vivveratus*	Pyramidellidae	*Pseudocilla bilirata*
Rissoidae	*Botryphullus epidauricus*	Buccinidae	*Chauvetia decorata*	Pyramidellidae	*Pyramidella dolaborata*
Rissoidae	*Cingula basteriae*	Columbellidae	*Nitidella ocellata*	Hydatinidae	*Micromelo undatus*
Rissoidae	*Manzonia boogi*	Nassariidae	*Nassarius denticulatus*	Haminoeidae	*Atys macandrewsii*
Rissoidae	*Manzonia castanea*	Fasciolariidae	*Colubraria canariensis*	Bullidae	*Bulla mabillei f. dactylus*
Rissoidae	*Manzonia guitiani*	Fasciolariidae	*Fusinus tenerifensis*	Retusidae	*Cylichnina tenerifensis*
Rissoidae	*Manzonia lirata*	Fasciolariidae	*Latirus armatus*	Retusidae	*Pyrunculus hoernesii*
Rissoidae	*Manzonia wilmae*	Olividae	*Oliva flammulata*	Ringiculidae	*Ringicula buccinea*
Rissoidae	*Rissoa albugo*	Marginellidae	*Granulina guancha*	Cylindrobullidae	*Cylindrobulla fragilis*
Rissoidae	*Zebina parvensis*	Mitridae	*Mitra zonata*	Limacinidae	*Limacina leseurii*
Caecidae	*Parastrophia meditteranea*	Conidae	*Conus genuanus*	Ellobiidae	*Alexia algerica*
Fossaridae	*Fosarus ambiguus*	Cancellariidae	*Axella minima*	Ellobiidae	*Melampus canariensis*
Planaxidae	*Planaxis lineatus (Sub-fossil)*	Terebridae	*Hastula lepida*	Ellobiidae	*Pedipes afer*
Modulidae	*Modulus ambiguus*	Terebridae	*Terebra corrugata*	Spirulidae	*Spirula spirula*
Triviidae	*Trivia candidula*	Turridae	*Crassipleura maravignae*	Mytilidae	*Crenella canariensis*
Cypraeidae	*Luria lurida pulchroides*	Turridae	*Mitrolumna hierroensis*	Pectinidae	*Argopecten commutatus*
Naticidae	*Haliotinella patinaria*	Mathildidae	*Mathilda cancellata*	Pectinidae	*Nodipecten corallinoides*
Naticidae	*Natica adansoni*	Mathildidae	*Mathilda gemmulata*	Lucinidae	*Linga adansoni*
Naticidae	*Natica canariensis*	Triphoridae	*Metaxia cf espinosai*	Corbulidae	*Lentidium mediterraneum*
Naticidae	*Natica rizzae*	Triphoridae	*Metaxia cf metaxae*		

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Pleurotomariidae : Evolution and fossil record

By John Whicher

Following John Batt's excellent articles on the recent Pleurotomariidae and Adrian Brockenhurst's photographs of some fossil ones, I thought it a good idea to try and fill the gap with a little information about what is now known about the evolution of these shells.

The Pleurotomariid gastropods fall within the superfamily Pleurotomaroidea, which is characterized by a modification of the outer lip of the shell to allow escape of the exhalant current. In a number of families, including the Pleurotomariidae, this takes form of a slit which leaves its trace on the growing shell as a band known as the 'selenizone'. It is the oldest undisputed gastropod lineage ranging in the fossil record from the Cambrian, about 500 million years ago (500ma), to the present time.

In the Palaeozoic (542-250ma) there were a great variety of shell forms including uncoiled, discoidal, turriform and turbaniform and one sinistral family from the Devonian–Triassic periods. Those surviving the Permian extinction (250ma) were limited to the more familiar trochiform and turbaniform shape. There are 20 extinct families but only forms that are conical with a broad selenizone near mid-whorl, the Pleurotomariidae, which appeared in the lower Triassic, survive beyond the Jurassic into the present. Until the end of the Mesozoic (65ma) they occupied shallow marine habitats with a global distribution. From the Cenozoic to the present they are found only in deep water, shelf environments which are not usually preserved in the fossil record. An exception is the coast of Oregon and Washington where Eocene (25ma) rocks are exposed that represent a pile up of deep sea sediments along the Pacific margin of this coast resulting from subduction of the Pacific plate under the North American continent. The disappearance of the diverse shallow water faunas of the Cretaceous and subsequent restriction of the Pleurotomariidae to outer slopes and deep water is presumed to be the result of the extreme diversification of predators such as fish and crustaceans that has been called the "Mesozoic marine revolution" which probably wiped out the shallow water communities. Related gastropods such as Trochidae and Turbinidae thickened their shells but the Pleurotomariidae did not. Interestingly they did however develop a chemical defense system using a Navanone-like pheromone which causes crustaceans to release their prey.

Pyrgotrochus elongatus (J Sowerby, 1818)
Inferior Oolite, Bajocian, Sauzei zone, Sherborne, Dorset.

A total of about 1500 species have been described in the Pleurotomariidae of which 25 are living today. Fourteen genera were described in the Jurassic while four are recognised in the present. While such statistics give an idea of diversity it is important to appreciate that, in general, the fossil species that have been described are morphospecies and their number may more reflect the zeal of authors to have their name attached to a new species than the existence of biologically separate species, ie non-interbreeding populations. At one snapshot in time, at one geographical location and with sufficient specimens, statistical approaches can tell us whether a population of fossils represents a morphocline or more than one population. However attempts to follow populations over time are often beset by gaps in the fossil record and inadequate numbers or preservation of specimens.

Inferior Oolite, Bajocian, Laeviuscula zone, Oborne, Dorset.

The naming of 'species' of Pleurotomariids based on one or a few fossil specimens is commonplace and cannot possibly reflect the existence of 'biospecies' and thus serves only to alert other workers to specimens which may fall outside the distribution of described morphospecies. It is a feature of the human mind that we tend to look for differences not similarities and it is very easy for two extremes of a continuously variable population to be named as separate species. Taxa above the species level, such as genera, are quite clearly useful groupings based on similar features but vary according to the characters used to define them. Different criteria have been used for classifying Mesozoic and Cenozoic species and genera, such as the presence or absence of an umbilicus which is a major criterion for separating Holocene species but within a single Mesozoic species may range from absent to large. Ideally genera should reflect genuine genetic relationships and thus shared past ancestors, but this may not always be the case. Unfortunately studies of fossil Pleurotomariids tend to be regionally based with few attempts to assess evolutionary relationships, geographical distribution or species variability. There is a strong tendency to describe new species based on a few specimens from new localities. This is unhelpful.

Pleurotomaria proteus J.A. Eudes-Deslongchamps, 1849

Oolite Ferrugineuse, Bajocian, Garantiana zone, Evrecy, France.

In the Inferior Oolite formation of Dorset (Aalenian-Bajocian, Middle Jurassic, 170ma), my particular interest, there are three genera described, *Obornella, Pyrgotrochus* and *Pleurotomaria* which are useful for classification and innumerable species which are not!! Careful collecting at discrete horizons is beginning to make sense of the chaos. Sowerby's species stand up to scrutiny but it is interesting that some such as *Pyrgotrochus elongatus* (J Sowerby, 1818) show considerable variation in spire height and ornamentation at a single horizon (notionally isochronous) and others such as *Pyrgotrochus punctatus* (J Sowerby, 1818) do not. Evolutionary trends are very slow when compared to ammonites, however over the Aalenian-Bajocian, a time of about 5 million years, it is possible to see consistent change.

Pleurotomariids are unique amongst modern gastropods in having bilateral internal organs, considered to be an ancestral arrangement to the asymmetrical modern gastropods. They have a highly specialised radula with bristle teeth, a feature shared only by Seila, an unrelated Caenogastropod which, like Pleurotomariids, feeds on sponges. The large chitin-lined buccal cavity may also be an adaptation to eating abrasive sponge spicules. Most authorities speculate that the Mesozoic Pleurotomariids, which inhabited shallow water soft substrates, were herbivores. The Pleurotomariidae were originally thought to be the most primitive living gastropods but apart from the bilateral arrangement of the internal organs there is little evidence for this. Studies of deep sea vent gastropods and molecular studies now agree that Patellogastropod limpets (Eogastropoda) are a sister group to all the other gastropods, the Orthogastropoda, in which the Pleurotomariidae are placed in the Vetigastropoda with the Trochoidea, Fissurelloidea, Haliotoidea and Scissurelloidea.

Molecular genetic studies have thrown a lot of light on the validity and relationships of the modern genera. *Entemnotrochus* is a sister group to a clade comprising *Perotrochus* and *Mikadotrochus*. *Perotrochus* reliably splits into two groups one of which has been named *Bayertrochus*. What is particularly interesting is that, based on molecular and fossil evidence, *Entemnotrochus* diverged from the clade comprising *Perotrochus + Mikadotrochus + Bayertrochus* in the Jurassic when the ancestors were shallow water dwellers. Ancestral *'Perotrochus'* split into *Perotrochus* and *Bayertrochus* in the Oligocene. Molecular studies suggest that certain genes have evolved more rapidly than in related gastropod taxa so that the Pleurotomariids have seen considerable evolutionary change since the Jurassic and cannot usefully be regarded as 'living fossils' as many authors in the past regarded them. The genus Pleurotomaria (Defrance, 1826) was erected to describe fossil nodose species and so the modern genera, *Entemnotrochus, Perotrochus, Mikadotrochus* and *Bayertrochus* should not be considered as subgenera within it as none are nodose.The abundance, shallow water habitats and global distribution of the Jurassic Pleurotomariids has been alluded to.

Modern species are limited to continental shelf and tectonic plate margins from 35 deg N to 30 deg S along the western edges of the Atlantic and Pacific Oceans and all but the southern edge of the Indian Ocean, including SE Asia, NW Australia and intervening islands. They were once considered rare but recent evidence suggests they are the dominant large invertebrates in rocky and steep-walled deep water habitats. Species within the same genus appear to have little or no geographical overlap while different genera appear to occupy different depths. The species are thus allopatric, that is they do not occupy the same habitat. For example in the W Atlantic *Entemnotrochus*, *Perotrochus* and *Bayertrochus* inhabit clear cut, non-overlapping depth zones each with a different habitat. In general *Entemnotrochus* has the shallowest range, *Perotrochus* intermediate and *Bayertrochus* the deepest. Despite a decade of observations, species of W Atlantic *Perotrochus* have never been found sympatrically, occupying the same habitat, because they have no geographical overlap. Source literature is listed on Page 28.

Pleurotomaria actinomphala J.A. Eudes-Deslongchamps, 1849

Inferior Oolite, Bajocian, Discites zone, Beaminster, Dorset.

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October 2011 Shell Show Gallery

By John Llwelyn-Jones

One species	1st Kevin Brown: *Lyrocrdium tyratum*
	2nd Dave McKay: *Voluptopsius norwegicus* (also won the Scotia Shield)
Foreign	1st Carl and Craig Ruscoe: Wonderful shells of the Philippines (also won the Peter Oliver Cup and the Walter Karo Award)
Shell Photography	1st Sara Cannizzaro: Graphic *Arganaut* (member ballot)
	2nd Sara Cannizzaro: A stranded seashell
	3rd Paul & Selina Wilkins: *Lithophaga lithophaga*
Fossils	1st Simon Taylor: Fossil shipworms
Shellomania	1st J.E.Fray: Brush up your Shakespeare
	2nd Simon Taylor,Derek Howlett,John Fisher: Oysters of Mersea
Junior age 11 and over	1st Theo Tamblyn: Bivalves of the London Clay (also won the John Fisher Trophy)
Non competitive	Jennifer Gallichan: A collection of molluscs from Cardiff museum
Dealer of the day	Koen Fraussen: *Bolma girgylus* (Reeve, 1845) (member ballot)
Walter Karo Award	Carl and Craig Ruscoe: *Xenophora granulosa* Ponder, 1983
COA award	Not awarded

Photos : R. Rodolico, S. Wilkins, R. Llwelyn-Jones


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Judy's Garden

by S. Peter Dance

Sanibel Island, situated off the south-west coast of Florida, is justly famous for shells and bird life, but it has another significant claim to fame. Its lighthouse is one of the more celebrated lighthouses that dot the coasts and islands of the USA. Resembling a fat, rusty brown pipe stood on end, it is certainly not the most picturesque of lighthouses, but it has the aura of a structure that served its purpose well for many years before modern technology made it obsolete. Its great lenses now repose in a local museum. These days a modest light flashes on and off in the dark, helping to guide those who may not know east from west, north from south, including adventurous nocturnal shellers. Towering over the beach at the eastern end of this small island, the lighthouse attracts visitors from far and wide. More than any other beach on Sanibel, the lighthouse beach is known for the number and variety of seashells stranded there regularly. It is known also for the equally colourful gatherings of shellers scouring the shoreline, most of them adopting the legendary, well nigh inevitable, 'Sanibel-stoop' position as they do so. These shellers know that this is where they are likely to find an abundance of slipper shells, augers, two or three different kinds of cone shells, exquisite little wentletraps and other beach treasures too numerous to mention. Few, however, realise how close they are to Judy's Garden or know what it contains.

The lighthouse and associated buildings

Below the lighthouse are two 'cottages' on stilts, each formerly inhabited by men who operated and looked after the iconic structure. The present occupants of one of them are Judy and Dennis Roberts. Husband and wife, they both have jobs on the island and both are well aware of the sheller's paradise on their doorstep. For most of the year, in fine weather and foul, through storm, hurricane and drought, they are in residence. It is no surprise, therefore, that they have amassed a remarkable collection of shells, nearly all collected in the vicinity of the lighthouse. Many have just been picked up off the beach, but many more have been dug out of the sand after having been buried, often in fine condition, during exceptionally rough weather conditions. To find out what shells they have picked up or unearthed it is necessary to go into - and under - their dwelling.

The writer (centre) with Dennis and Judy

A skull lurks among shells and flotsam

Having climbed up the wooden steps to a verandah, you are confronted by rows of baskets and open boxes full of shells, each container often holding specimens of a single species. You begin to understand why you haven't been able to find a lot of different shells during your holiday on the island - they seem to be all on this verandah! If you are fortunate Judy or Dennis may invite you inside. Then, once your eyes have become adjusted to the subdued light, you notice a number of large sweet jars stacked up on a desk or a table. Each jar is packed full of shells and you particularly notice one or two jars containing only specimens of the Alphabet Cone.

Mosaic:True Tulips, Fighting Conchs, Angel Wings and Lightning Whelks

You may have been looking for a specimen of this elusive cone on the beach last night or this morning. Now you know why you failed to find one - they're all here! But the time has come to inspect Judy's Garden below. Judy herself conducts you down the wooden steps and you find yourself under her living quarters.

A small sign painted on a coconut husk welcomes you to Judy's Garden, but you are not really prepared for what you see because there are no flowers to be seen! This is a garden blooming with shells, not flowers, arranged partly in the manner of a formal flower garden, but mostly as an informal evocation of Judy's instinctive reaction to the endlessly varied shapes and colours of shells. Here is invention, thoughtful arrangement and artistic awareness of the beauties and quirks of nature. Here, too, there is evidence of joy and playfulness. The simplicity and innocence of this garden of shells only adds to its beguiling charm. Science is conspicuously absent, as it should be, but there is more than a hint of magic in and around Judy's Garden. You sense that it is the work of someone who, elsewhere and under other circumstances, could have been a successful creative artist, like Georgia O'Keeffe, but an artist wedded to the world of shells rather than to the world of flowers.

Aloe: Van Hyning's Cockles grouped on shell sand

Looking closer you are amazed to see several examples of the Junonia, that quintessential rarity of Sanibel, the finding of which, it is often said, is signalled by the ringing of a bell, although no-one told me why it failed to ring when I found one on the island many years ago! True Tulips and Fighting Conchs jostle for space with Angel Wings and Lightning Whelks. Symmetrically arranged groups of the impressive Van Hyning's Cockle, laid out on glistening white shell sand, contrast strikingly with a solid mass of vermetid worm tubes. A human skull, or at least a model of one, haunts a shady corner, sublimely indifferent to the baskets of shells and assorted flotsam surrounding it.

I have been privileged to walk around and through this conchological extravaganza a dozen times or more. Each time I have been impressed by the way such delightful effects have been accomplished, using shells and little else. After each visit, too, I have come away feeling that love, devotion, and peace are present here, indeed may have helped to create something that is not only a delight for the eyes and the mind, but is also good for the soul. Sanibel Island and its lighthouse I may forget, but Judy's Garden never. (All Photos: S. Peter Dance)

Welcome: A welcome to Judy's Garden painted on a coconut husk

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Shell collecting in the Land of the Chitons

by David W. McKay

In September 2010 I attended a meeting of the Pacific and Northwest Shell Collector's Club based in Seattle, as I wished to do some shell collecting in Washington State and have found over my years as a collector that nothing beats local knowledge. I was made very welcome and soon found out that the PNWSC had a scientific collector's licence which allowed the club members to collect more specimens that are allowed under state law in Washington. They ran a number of field meetings during the summer months and I hoped that one of my regular trips to the Seattle area to visit my son and his family would coincide with one of those meetings. I have not yet been lucky enough to make one of their one-day field meetings but in July 2011 I was to be in the Seattle area when the PNWSC was having a four-day field trip to Port Hardy at the north end of Vancouver Island in British Columbia. With the generous help of members of the PNWSC I was able to organise a lift to Port Hardy and borrow some camping gear.

We arrived in Port Hardy in the evening of 11th July and were to collect on the morning low tides of the 12-15th July. The morning tides are much lower than the evening ones. The collecting locations had been decided with the help of club members who had collected in Port Hardy in the past. We were to collect at a different beach each day. All the shores were sheltered, mostly gently sloping and composed of stones and boulders on a base substrate of sand and gravel with at least one having areas of rocky reefs. One was a much steeper shore composed of boulders and stones where it was hoped we would find some *Trophons.*

Although, as in the UK, there was a core of species that were present on all the beaches, each beach had a slightly different habitat so that new species were encountered each day. On all the beaches, however, my abiding memory will be of a profusion of chitons. I come from Scotland where most of the chitons found on the shore are hardly more than a centimetre long and on a good collecting day a haul of more than half a dozen specimens belonging to two species would be considered excellent. To visit a beach where chitons belonging to a wide variety of species were present on top and underneath almost every stone I examined and specimens in excess of two inches long were not exceptional was simply mind blowing. Not being familiar with the identification of the chiton fauna in the area, with great difficulty I restricted myself to only collecting only a few specimens that would give me a chance to familiarise myself with the various species. (A small aside, for anyone visiting the area to collect chitons: the common UK method of using lollipop sticks or plant labels and thread needs some modification. The Port Hardy locals use rectangles of plexiglas, some three inches by two inches, and strips of cloth or pieces of ribbon. If you wish to collect the giant Pacific chiton, you will need a piece some nine inches by four to attach the animal to.

Mopalia mucosa (Gould,1846)

Cryptochiton stelleri (Middendorff, 1847) Giant Pacific or Boot Chiton about 15cm long

Katherina tunicata (Wood,1815)

Even though this chiton has no external plates and so must be dissected out before its shell can be seen I was informed that it must still be prevented from curling up as this will fracture the plates. As I had gone completely unprepared to collect and dissect this spectacular animal I simply had to content myself with taking photographs.)

Mopalia cirrata Berry, 1919

Tonicella lineata (Wood, 1815)

As well as the chitons many of the beaches had a range of large burrowing bivalves, horse clams (*Tresus capax*) and butter clams (*Saxidomus gigantea*) being the most obvious. Unfortunately, because of a prohibition on clam digging because of paralytic shellfish poisoning I was unable to fully explore this part of the fauna. On the first morning, having spent considerable time digging out a number of live horse clams, I had them confiscated by local fisheries department inspectors as I was leaving the beach. No notices detailing the prohibition were exhibited at the accesses to the beach and even though I assured the inspectors that I had no intention of eating the clams myself or allowing others to eat them they would not be moved. This was a salutary lesson to me and I would advise members visiting any foreign country to try and ascertain the local rules on collection of shellfish while planning their trip and to get the appropriate licences and permissions from the fisheries department once they arrive.

With the advent of the Internet, this is much easier than it was in the past and I would remind you that in most jurisdictions ignorance of the law is no defence. I was, however, still able to collect dead shells and obtained specimens of most of the available species. The most interesting of which was the Northwest ugly clam (*Entodesma navicula*) which I was informed must be kept moist as if they dry out they simply explode.

Mopalia lignose (Gould, 1846)

Unlike the UK there were three species of *Nucella* present on the shore. Two species, *Nucella canaliculata* (Ducolos, 1832) and *Nucella osterina* (Gould, 1852), appeared to show very little difference between the specimens from the various beaches but the other one, *Nucella lamellose*, exhibited considerable variation from beach to beach and had I not been with a group of locals I could easily have thought them different species. They were at their most spectacular at the beach beside the ferry terminal where, by the way, we did find the Trophons we were searching for. Instead of being short and dumpy and of a universally grey colour with a few dark bands the *Nucella lamellosa* were tall and slender and ranged in colour from white to brown with banded ones being not uncommon.

Nucella lamellosa (Gmelim, 1791) in spawning frenzy

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The other group that is present in a profusion of species are the Acmaeidae limpets. On one occasion, I was looking at the top of one largish rock trying to decide how many species there were there when Linda Schroeder, the vice chairman of the PNWSC, came along and put an end to my speculation by informing me that I was looking at four different species. Work is currently underway on the DNA profiles of the Acmaeidae limpets on the west coast of the USA and may result in a radical redefinition of the species present in the area.

Entodesma navicula (A.Adams & Reeve, 1850)

Finally, to as someone coming from the UK, it came as quite a culture shock to have to consider the presence or absence of large carnivorous animals when making one's way to a chosen collecting site. On one morning we were due to visit a beach that was some four miles down a track in the forest. I was not alone in feeling some trepidation, as the evidence of bears in the form of scat (droppings) increased as we got further from the main road. As we had to walk about half a mile, along a narrow track, through the trees to reach the target beach we had a good look round before venturing away from our cars. I did have the great pleasure of seeing a wild black bear with cubs as we were driving back to the campsite. But I did so from the safety of the car.

My thanks go to my companions on the trip Linda, Cheryl, Melissa, George, Graham, Susan and Jack. Linda and George deserve special mention - Linda for finding me a ride and accommodation and George for giving me accommodation in Vancouver and a ride from there to Port Hardy. I enjoyed the field trip immensely, despite the rain and the mosquitoes and am looking forwards to my next opportunity to collect shells in the land of the chiton.

(All Photos : David McKay)

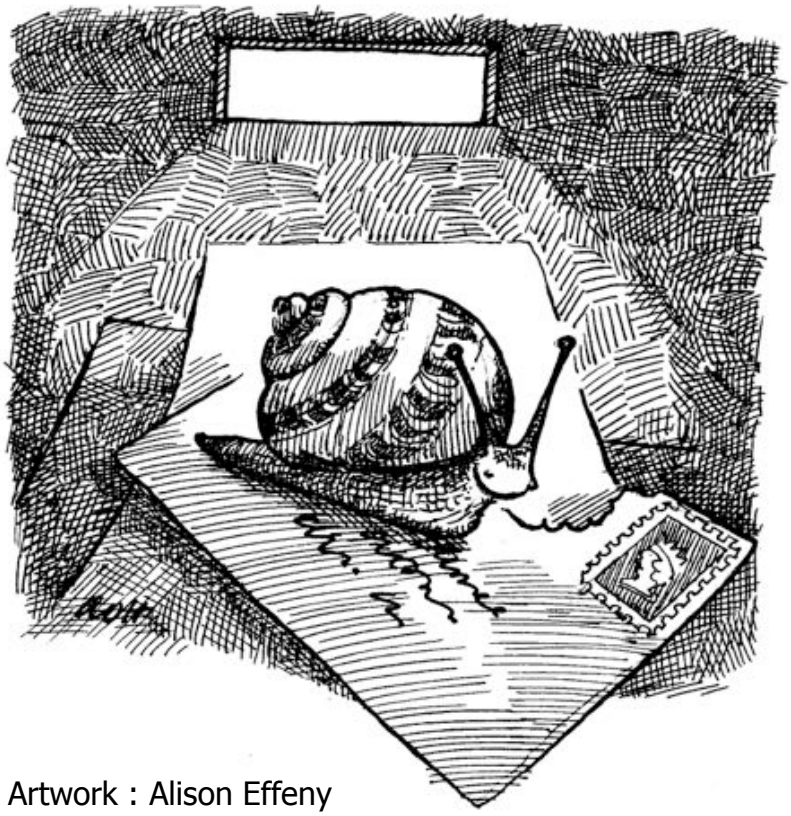
Chitons		Gastropods	
Mopalia cirrata	Berry, 1919	*Diodora aspera*	(Rathke, 1833)
Mopalia lignosa	(Gould, 1846)	*Cranopsis cucullata*	(Gould, 1846)
Mopalia muscosa	(Gould, 1846)	*Lottia digitalis*	(Rathke, 1833)
Tonicella lineata	(Wood, 1815)	*Lottia paradigitalis*	(Fritchman, 1960)
Schizolplax brandtii	(Middendorff, 1847)	*Lottia pelta*	(Rathke, 1833)
Katherina tunicata	(Wood, 1815)	*Lottia persona*	(Rathke, 1833)
		Tectura scutum	(Rathke,1833)
Bivavles		*Acmaea mitra*	Rathke,1833
Mytlis trossulus	Gould, 1850	*Chlorostoma funebralis*	(A.Adams, 1855)
Pododesmus (Monia) macrochisma	(Deshayes, 1839)	*Margarites pupillus*	(Gould, 1849)
Tresus capex	(Gould, 1850)	*Homalopoma luridum*	(Dall, 1885)
Macoma nasuta	(Conrad, 1837)	*Lacuna vincta*	(Montagu, 1803)
Macoma inquinata	(Deshayes, 1855)	*Littorina sitkana*	Philippi, 1846
Mytilus trossulus	Gould, 1850	*Littorina scutulata*	Gould, 1849
Tapes philippinarum	(Adams & Reeve, 1850)	*Stylidium eschrichtii*	(Middendorff, 1849)
Leukoma staminea	(Conrad, 18370	*Calyptraea fastigiata*	Gould, 1846
Saxidomus gigantea	(Deshayes, 1839)	*Crepidula nummaria*	Gould, 1846
Hiatella arctica	(Linnaeus, 1767)	*Garnotia adunca*	(G.B. Sowerby I, 1825)
Penitella penita	(Conrad, 1837)	*Polinices ewisia*	(Gould, 1847)
Entodesma navicula	(A.Adams & Reeve, 1850)	*Marsenina prolongata*	Carpenter, 1864
Nuttallia obscurata	(Reeve, 1857)	*Marsenina stearnsi*	(Dall, 1871)
		Granulina margaritula	(Carpenter, 1857)
		Alia carinata	(Hinds, 1844)
		Ocinebrina interfossa	Carpenter, 1864
		Cerastostoma foliatum	(Gmelin 1791)
		Nucella lamellose	(Gmelin 1791)
		Nucella osterina	(Gould, 1852)
		Nucella canaliculata	(Duclos 1832)
		Boreotrophon multicostatus	(Eschscholtz, 1829)
		Lirabuccinum dirum	(Reeve, 1846)
		Amphissa columbiana	Dall, 1916

Lottia scutum (Rathke,1933)

BREAKING NEWS

A magnificent new species of scallop has been revealed. *Pecten dancei* was discovered by Carol Tompkins (née Dance) and christened on 3rd February 2012 on the occasion of the 80th birthday of the conchologist whose name it honours.

THE SNAIL AND OUR MAILBOX



Artwork : Alison Effeny

Sagely nodding its head
determined come what may
with eye-horns widely spread
to wend its slimy way
along the wall it glides
seeking its holy grail
into our box it slides
and decimates our mail.

It chews all our papers
council minutes as well
our thoughts on its capers
we would rather not tell
but there shall come a day
when justice shall prevail
and our sign board shall say
'Death of a Garden Snail'

S.Peter Dance, 2 November 2011

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Interesting London Clay Bivalves

by Theo Tamblyn

In the last few years I have made several visits to Walton -on-the-Naze, in Essex (Fig. 1), a site known for its London Clay deposits (from Division A2). Interestingly I have collected quite a large number of mollusc fossils.

Fig. 1

I was not aware of mollusc fossils being recorded from the Clay at Walton, with the exception of *Euspira glaucinoides,* a very common small gastropod. Therefore, I was surprised to find, in March 2011, a large and comparatively well preserved bivalve in the middle of a Septarian nodule (Fig. 2).

Fig. 2

It remains unidentified, but further searching produced a nodule containing a specimen of *Euspira glaucinoides* (Fig. 3) and various poorly preserved bivalve fragments.

Fig. 3

In the lower London Clay at Walton, septaria forms as sheets and lumps along bedding planes, often infilling large 'burrows' and other trace fossils. 'Muddy' septaria, less consolidated, is found in-situ in the wave-cut platform at the site, but a lot of other, harder greyish nodules can be found on the foreshore. It seems likely that they have eroded out of slightly younger London Clay from the low cliffs at the back of the site. This material often contains large amounts of fossilised wood and it is these types of nodule that seem to contain fossils. On a return visit I managed to obtain two more species of bivalve.

The first is a single valve, distorted but likely to come from the species of large clam *Arctica planata* (Fig. 4). It is preserved in much the same way as the first mollusc I found, and it was encased in a lump of very hard septaria from the foreshore.

Fig. 4

Next came a more interesting find – scattered on the foreshore further along the beach was a range of larger nodules, covered with an assemblage of fossils (Figs. 5 & 6). I collected six of these nodules on this visit, from one small area on the foreshore; they seem to have originated from a single bed, possibly a large nodule that has been broken up. The inner surfaces are covered with molluscan specimens. The preservation is quite good and they resemble mussels; and besides the mussels,

Fig. 5

which are scattered across the bedding planes of the nodules, there are pieces of fossil wood, tiny fish bones and the shells of the gastropod *Euspira*. It resembles a death assemblage – a great collection of remains washed together by the sea and preserved by falling sediment. The large number of fossils is intriguing.

These specimens seem to be fairly freshly eroded – they show little evidence of abrasion, and some 'outer' surfaces were still covered with substrate when collected. The nodules originate in a layer of bluish-grey outwash made up of mud and clay lumps which had accumulated at the foot of the cliff after washing down from above. This means that they did not come from the lowest deposits exposed on the foreshore, with the muddy brown concretions, but from a higher layer.

However, these specimens have proved hard to identify. They are not included in the most recent book on the subject, by Rayner et al. Neither are any mussel-type fossils included in the most recent checklists of London Clay fossils. The fossil can be matched to a species found occasionally from the clay at the locality, known as *Modiolus* (or *Mytilus*) *undulatus.* Named by S. Wood from two small fragments of shell found at Harwich and Bawdsey, the exact status of the species is difficult to discover, particularly as the name '*Modiolus undulatus'* has been transferred to an extant species living around Indo-China. More work will have to be done to determine the range and occurrence of this seemingly overlooked fossil.

Source literature:
Rayner, D., Mitchell, T., Rayner, M., & Clouter, F. 2009. London Clay Fossils of Kent and Essex. Medway Rock and Mineral Society, Rochester
Edwards, F. E. & Wood, S. V. 1849-1877. A Monograph of the Eocene Mollusca of England. Palaeontographical Society, London

(All Photos: T. Tamblyn)

Auctioneer's report for 2011

By John Fisher

For the first time, this year has seen the introduction of a 50 lot auction, at both the April and October shows. Both of these proved successful and a total of £2,246 was raised, giving the B.S.C.C. £224.60 to add to its funds. Only 3 items were withdrawn for failing to reach the reserve price. By sending out the auction lists with Pallidula and by putting them on the website I have attracted a lot of pre-auction bidding from non-members as well as members who could not attend the shows. I even had a bid from the United Arab Emirates for 2 particular lots. Overall it has been a very satisfactory year.

After giving the matter a lot of thought I have decided that April 2012 will be my last auction as Auction Manager. Over my 6 years tenure I have been fortunate in obtaining various collections to dispose of, as well as a lot of material from members who are downsizing their collections. This has given me the opportunity to assemble very varied auctions with something for everybody. As auctioneer I have had some memorable moments, not least to have Carl and Craig bidding against each other for the same shell; £95 for a bottle covered with *Crepidula fornicate;* £150 for the exoskeleton of a lobster and many others. I have really enjoyed my spell as your Auction Manager.

I should like to say a big thank you to all the people who have supported me, those who have contributed the items for the auction and those of you who have bought the shells at the auction.

Also, thank you to all the dealers who generously donated items for the auction. Finally, the biggest thank you of all goes to Derek Howlett, who has spent hours with me, helping to sort, identify, clean and assemble the auction lots. His help was greatly appreciated. I wish my successor the best of luck and I hope they enjoy things as much as I have.

Note from John Llwelyn-Jones: The April Convention will be John's last auction and this will be a great loss to the club. He has organised this event with incredible efficiency and made a lot of money for both the Contributors and the Club. I would therefore like to wish him all our thanks and best wishes for the future.

Taxonomy of "Trochoidea": recent changes

by Simon Taylor

One conundrum faced by anyone who collects anything is how to arrange the collected items. Stamp collectors, for example, will typically arrange their collections geographically and/or chronologically. Other collections may be arranged alphabetically - CDs by the recording artist or group, books by author - or by colour, or perhaps size, even chemical composition (as with minerals).

Biological collections are generally arranged taxonomically, by which in basic terms we mean in some kind of order reflecting natural evolutionary relationships, with the more primitive forms at the beginning and the more evolutionarily advanced at the end. Most monographic shell books are laid out this way as every collector will be familiar. Most will also recognise that the accepted order has changed significantly over time as opinion has varied and research has brought new knowledge to light, both on the larger scale (reflected, for example, in the order in which mollusc families are grouped and arranged) and on the species scale, and at all levels in-between. Over recent decades, cladistics theory exploded much of the established order and brought with it a hierarchical structure which meant that classical classification, often unchallenged since the 19th century, had to be rethought and redrawn. Such theory fills entire books and need not be detailed further here. Over the last 20 years or so, genetic analysis has facilitated much further insight into the inter-relatedness of taxa, providing as it does a mechanism to compare and contrast organisms at the molecular level, rather than just using morphological characteristics.

Calliostoma haliarchus (Melvill, 1889) Japan, 42mm. Now in Calliostomatidae.

Tectus niloticus (L., 1767) Fiji, 120mm. Now in Turbinidae?

Tegula regina Stearns, 1892 California, U.S.A., 45mm. Now in Turbinidae?

The superfamily Trochoidea (formerly referred to as "Trochacea") provides a wonderful illustration of all the above. It is a cohesively recognisable group of marine gastropods with the classically top-shaped shell, nacreous inside, operculate and with a number of recognisable shared anatomical features. It is also a very large group, with considerable diversity within its basic template, huge radular variety, rife with examples of convergent evolution, and consequently has long been recognised as one of the most difficult of all the gastropod superfamilies to confidently and accurately arrange systematically.

Various students of the group have fought over the years to make sense of it all and as a result the more assiduous collectors have spent much time stoically rearranging their drawers of specimens to fit the latest classification. On a personal level, it was this complexity which first attracted me to the superfamily, one of my first shell books (Lindner, 1977) including a detailed version of the accepted classification at the time. This attraction was enhanced by the publication (Hickman & McLean, 1990) of a wonderfully scholarly work on the superfamily, fundamentally reviewing its arrangement subject to cladistics principles and answering, or so it was thought, many of the outstanding questions posed by the group. Certainly at the time collectors of tops and turbans were arranging their collections feeling confident that many of the subfamilies and genera were now in an acceptable and true order.

At about the time that Hickman and Mclean were publishing, genetic studies were beginning to appear. Many will know that I am a keen student of the Haliotidae and even within a relatively small family such as that, molecular investigation was throwing up some interesting results and raising a few eyebrows. Throughout the 1990s and into the new millennium, genetic study, both the practical work and subsequent data analysis, became more and more accessible and sophisticated, hence an increasing number of mollusc groups were subject to such scrutiny.

Over recent years in particular this has included the Trochoidea, and one of the key workers has been Dr. Suzanne Williams, based at the British Museum of Natural History in London. Her work, and that of her peers and collaborators, has thrown new light on the relationships between and within the groups of the Trochoidea, using the new genetic data to more accurately and evidentially depict the inter-relatedness of the species and groups of species and hence produce a detailed phylogenetic classification or evolutionary tree. They have even, in one or two cases, demonstrated that some groups

don't belong in the Trochoidea, or even any of the related superfamilies, at all.

So how are such studies actually conducted? I'm sure Dr. Williams would be the first to concede that much of the work is rather laborious. Obviously specimens with soft parts preserved (generally in alcohol) are required and these need to have been confidently identified to species level. In principle, what is then done is that the same parts of the genome of each specimen are isolated, their genetic code sequenced and then compared. The nucleic acid is purified from the tissue samples using chemical kits and centrifuging, then the specific genes being used in the study are isolated within the DNA sample using primers of known matching base sequences, then amplified and sequenced to provide the codes of those specific genes in the study species. Those codes are then logged onto an international database and can be used, along with codes previously generated and logged, in specialist software which compares the level of similarity in the codes of different species, using various algorithms to determine a level of 'relatedness' or, more correctly, phylogenetic distance. This data is then usually represented in the form of phylogenetic trees showing how the species in the study group together, the pair of taxa with the least distance between them being pair, then that pair being grouped with the next closest taxon, and so on.

The results of Dr. Williams and her collaborators' studies have been hugely interesting. Over the course of numerous papers published since 2006 they have established a phylogenetic taxonomy which confirms many previous conclusions while at the same time driving a horse and cart through many others, and leaving a few other tantalising questions as yet unanswered, without resorting to the sort of 'lumping' based on a few prominent morphological characteristics which used to be commonplace.

At the time of writing, what was the Trochoidea of Hickman & McLean is now 4 or even 5 superfamilies: Table 1 provides a summary of them and the families/subfamilies within them. A future article is planned to discuss the genera comprising each (sub)family, many of these being relatively new groups, in a few cases with very new names. Some basic 'rules of thumb' have been dismissed, principally the distinction that trochids have horny opercula while those of turbinids are calcareous; note in Table 1 the presence of Margaritinae and Tegulinae within

Table 1: Modern Phylogenetic Classification of extant former "Trochoidea"

Superfamily	Family	Subfamily
Phasianelloidea	Phasianellidae	Gabrieloninae
		Phasianellinae
		Tricoliinae
	Collonidae	-
Seguenzioidea	Seguenziidae	-
	Chilodontidae	Chilodontinae
		Calliotropinae
	? Cataegidae	-
Trochoidea	Trochidae	Alcyninae
		Cantharidinae
		Chrysostomatinae
		Fossarininae
		Halystylinae
		Monodontinae
		Stomatellinae
		Trochinae
		Umboniinae
	Calliostomatidae	Calliostomatinae
		Thysanodontinae
	Turbinidae	Liotiinae [="Cyclostrematidae"]
		? Margaritinae
		Prisogasterinae
		? Skeneinae
		? Tegulinae
		Turbininae
	? Solariellidae	-
Angarioidea	Angariidae	-
	New Family [ex "Areneinae"]	-

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Turbinidae. Indeed, the latter subfamily is now thought to include the genus *Tectus*, often considered in the past as almost interchangeable with *Trochus*. Similarly, many will remember the British species *Osilinus lineata* (da Costa, 1778) formerly being placed in the genus *Monodonta*, indeed in many sources the former genus was considered a subgenus of the latter. Now *O. lineatus* is placed in an entirely different subfamily (Cantharidinae) to *Monodonta*.

The Pheasant Shells of the Phasianellidae used to be considered a subfamily of the Turbinidae but have now been recognised as a distinct superfamily. Similarly, many taxa recognised in the past as classic trochids, such genera as *Granata*, *Euchelus* and *Bathybembix*, are now placed in a further separate superfamily, the Seguenzioidea.

There are still some areas of uncertainty, concerning relationships among the families within Trochoidea and the status of some of the subfamilies tentatively assigned to Turbinidae, although Dr. Williams and colleagues have been working on this recently. Generically, there also remains some uncertainly regarding the true composition of the now turbinid subfamily Tegulinae, the initial indication being that it may contain further genera previously considered as bona fide trochids such as *Cittarium*, *Chlorostoma* and *Norrisia*. A final enigma, the genus *Gaza* continues to resist being placed with any level of comfort within any (sub)family. Unsurprisingly, these groups are the focus of publications currently in preparation by Dr. Williams.

In summary, thanks to the immensely valuable work of

Lischkeia alwinae (Lischke, 1871)
Japan, 47mm. Now in Chilodontidae.

Dr. Williams and her colleagues around the world, the "Trochoidea" as was (nowadays perhaps the nearest thing to a correctly-used collective word would be "trochiform vertigastropoda") can, with a higher degree of confidence, be placed in a correct phylogenetic order which simultaneously demonstrates the evolutionary history of that group of marine gastropods. Or you could just arrange them alphabetically…

Sincere thanks are extended to Dr. Williams for reviewing this article prior to publication and for all her marvellous work on the Trochoidea and their allies. Photos: Dave Rolfe. Source literature is listed on p28, with additional photos on P29.

Letter to the Editor

Dear Editor,

I realise that immediately after a rather poorly attended Shell Show at Theydon Bois on 28th October many people will think it odd that I am about to advocate that the Shell Show should become a two day event. But I have no doubt that the fact that attendance was down was not lost on the Committee and that discussions will be taking place to explore why. Let me immediately say that I am not advocating two days of the present format but that we should have a second day that is given over being a Shell Collectors Club rather than simply a shell mart.

I admit that I am a fairly new member to the Club but would lay the claim that since I started attending at Theydon Bois I am the member who travels the greatest distance to get there. If I were not selling shells I would not be attending on a regular basis. I collect only NE Atlantic shells and buy very few so a shell mart at which I am not selling shells has few attractions. I might come occasionally if I had a display to enter but even then I would think twice as it's a long way to travel to hang around all day.

I firmly believe that the Club need to do something to put more interest into its meetings and would advocate a second day to do just that. There are many issues to do with mollusc taxonomy, biology, etc. that would be of interest to members. Currently there is neither the space nor the time for members to get together to explore these. I see a second day as giving that opportunity. There are all sorts of expertise within the membership. I think that consideration should be given to asking members to give lectures, organise workshops and demonstrations.

I am also conscious of the wider feeling in the biological community that shell collecting might not be politically correct. There are more and more initiatives to protect the environment all of which involve stopping people engaging in particular activities at designated sites. Many in the environmental agencies would advocate no take zones in national parks, sites designated under the habitats directive, local nature reserves etc. We can already see in this country the type of draconian legislation that has been introduced under the Wildlife and Countryside Act which not only bans the collection of live shells but dead ones as well. If the Club is to be successful in lobbying against future restrictions it must raise its scientific profile so that it is taken into the consultation process. At present because of the nature of its only public events the Club is widely seen as a trading organisation for shells.

That perception needs to be changed as a matter of urgency.

Yours sincerely,
David W. McKay.

Response from Editor: The Editor's Social in 2013 will be Sunday 28th straight after the Convention on Saturday 27th April 2013. This will enable people to chat further and share more information. The committee are investigating booking the April convention for two days in 2014. Members please respond and inform the committee if you would like a two-day event and in what format.

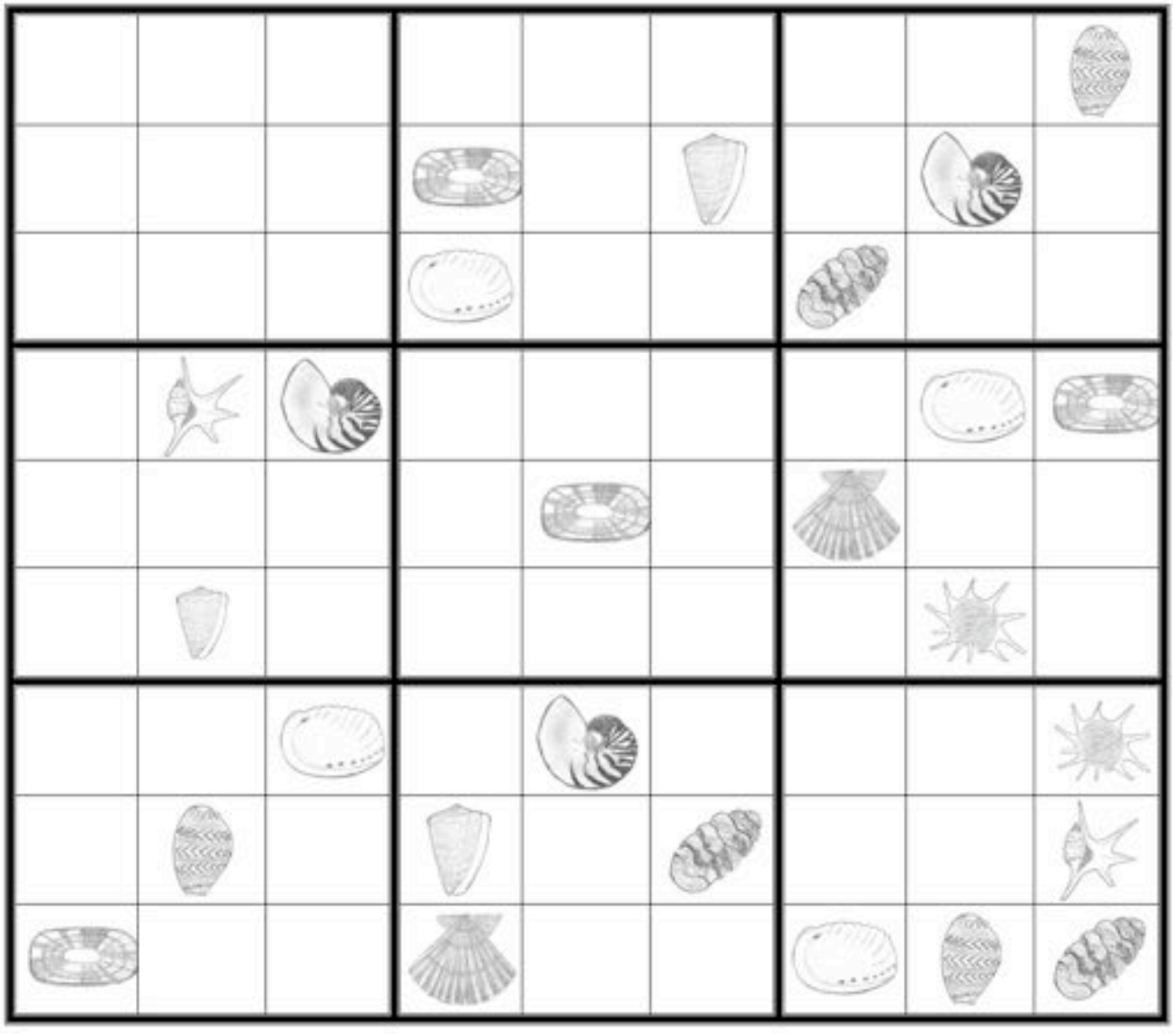
'The Big Strand' Laggan Bay Isle of Islay

After reading the October 2011 issue of PALLIDULA, Margie & Nigel Trewin sent in this wonderful photograph.

Please send to the Editor your photographs of beautiful British beaches and bays. Digital images can be emailed. Non-digital images can be sent in the post, to be scanned by the Editor and will be returned.

SHELL DOKU

Fill the Shell Doku grid below so that every column, every row and every 3x3 box contains the nine different shells.



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Dates for your Diary

17th March 2012
Editor's Social at Selina's home: RG40 2LT Tel: 0118 9786380

24th March 2012
Conch. Soc. AGM, Angela Marmont Centre, Darwin Building, Natural History Museum, London. 2.00pm. Bas Payne: *Changing Distributions, Climate Change, and Conchological Society Records.*

28th April 2012
Shell Convention at Theydon Bois Community Centre: CM16 7E For directions please look on the club website.

7th-8th July 2012
Howlett's Weekend at NR14 7HP Tel: 01508 538553

4th August 2012
Yateley Summer Get together at John Batt's home: GU46 6BY

8th September 2012
Chatsworth Shell Fayre: DE45 1PP. Contact Brian Hammond for more details. Tel: 01461 701096

6th October 2012
Conch. Soc. AGM, Angela Marmont Centre, Darwin Building, Natural History Museum, London. 11.00 am.
Robert Cameron: *Cepaea megalab project.*

27th October 2012
Shell Show at Theydon Bois Community Centre: CM16 7E For directions please look in the club website.

24th November 2012
Conch. Soc. Workshop at Judith Nelson's home:

8th December 2012
Conch. Soc. AGM, Angela Marmont Centre, Darwin Building, Natural History Museum, London. 2:00 pm.
Miranda Lowe: *Blaschka Nudibranch Models.*

27th April 2013
Shell Convention at Theydon Bois Community Centre: CM16 7E For directions please look on the club website.

28th April 2013
Editor's Social at Selina's home: RG40 2LT. Tel: 0118 9786380

For further information please check our website : www.britishshellclub.org and also see Conch. Soc website: www.conchsoc.org

Pleurotomariidae: Evolution and fossil record Cont. from page 13. Source literature:

Conti, M. A. & Monari, S. (2001). Middle Jurassic gastropods from the central High Atlas, Morocco. *Geobios*, **34**, 183-214.

Das, S. S. (2002). Two new pleurotomariid (Gastropoda) species, including the largest Bathrotomaria, from the Berriasian (Early Cretaceous) of Kutch, western India. *Cretaceous Research*, **23**, 99-109.

Harasewych, M. G. (2002). Pleurotomarioidean gastropods. *Advances in Marine Biology*, **42**, 237-294.

Hickman, C. S. (1976). Pleurotomaria (Archaeogastropoda) in the Eocene of the Northeastern Pacific: A Review of Cenozoic Biogeography and Ecology of the Genus. *Journal of Paleontology*, **50**, 1090-1102.

Taxonomy of "Trochoidea": recent changes Cont. from page 26. Additional photos on Page 29.

Source literature:

Hickman, C.S. & McLean, J.H., 1990. Systematic revision and suprageneric classification of trochacean gastropods. *Natural History Museum of Los Angeles County Science Series* No. 35

Lindner, G., 1977. *Seashells of the world.* Blandford Press, Poole, Dorset.

Williams, S.T. & Ozawa, T., 2006. Molecular phylogeny suggests polyphyly of both the turban shells (family Turbinidae) and the superfamily Trochoidea (Mollusca, Vertigastropoda). *Molecular Phylogenetics and Evolution* 39: 33-51

Williams, S.T., Karube, S. & Ozawa, T., 2008. Molecular systematics of Vertigastropoda: Trochidae, Turbinidae and Trochoidea redefined. *Zoologica Scripta* 37: 483-506

Williams, S.T., 2008. The calcareous operculum as a character for defining subgenera in the marine gastropod genus *Turbo*. *Vita Malacologica* 7: 1-13

Williams, S.T., Donald, K.M., Spencer, H.G. & Nakano, T., 2010. Molecular systematics of the marine gastropod families Trochidae and Calliostomatidae (Mollusca: Superfamily Trochoidea). *Molecular Phylogenetics and Evolution* 54: 783-809

In the next issue ...

There will be an article on the changes to the molluscan fauna of the foreshore of West Mersea, Essex and an interview of Mike Filmer giving an insight into his passion for conidae.

Shell Doku Answer