

August 1998

THE SYDNEY SHELLER

Newsletter of the Shell Club of Sydney
NSW Branch, The Malacological Society of Australasia Limited ACN 067 894 848

Shell Club of Sydney Mission Statement:

To appreciate, understand and preserve shells and their environment and to share this with others.

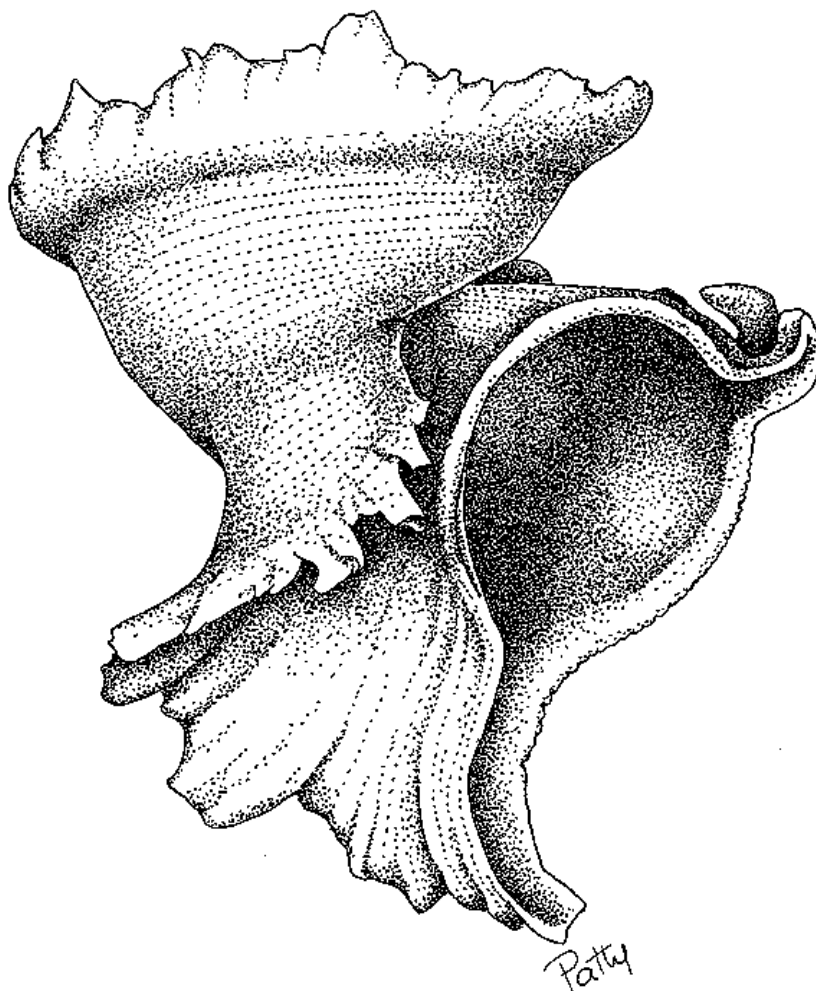
Next Meeting:

Date: 26th Sept. 98
(normally 4th Saturday)
Location: Taronga Zoo
(via staff car park)
Time: 2.00pm
Seminar: Chris Barnes
Tasmania Trip

Contributions:

Please send contributions to:
Steve Dean
166 Narrabeen Park Parade,
Mona Vale NSW 2103
Photos, and disc files of articles by mail, or preferably by email to steve@easy.com.au

If you cannot get your text onto disc, then **Karen Wadwell** may be prepared to type it for you - send material to:
17-9 Severn St
Maroubra NSW 2035



Latiaxis mawae (from Townsville)
Courtesy Patty Jansen

Office - Bearers:

President: Des Beechey
Vice Pres: Patty Jansen
Secretary: Chris Barnes
Treasurer: John Dunkerley
Field Trips: Ashley Miskelly
Sheller Editor: Steve Dean
Executive Management Committee:
Des Beechey, Chris Barnes, Steve Dean and Ashley Miskelly

Some of the topics inside:

- Cone toxins help humans
- \$1M fine for exporting shells
- Beneath Sydney Harbour
- Cowry Web Site
- AGM and other meeting minutes
- International shells for trade

July Meeting Presentation Highlights:

Beauty and the beast, Cone Toxins

Molecular Prospecting for Novel Drugs from the Sea

Dr. Bruce Livett, Dept. Biochemistry and Molecular Biology, University of Melbourne

Editorial comment:: The original articles have been modified, shortened and translated to layman's terms, to better reflect the content of Bruce's talk at our meeting.

Extracting cures for human diseases from other living things is nothing new. Many of the medicines that are on the market today have their basis in some kind of natural product, whether it is from a microorganism - such as penicillin, a plant - such as the vinca alkaloid anti-cancer drugs from the periwinkle, or Taxol, a relatively new anti-cancer drug that comes from the bark of the Pacific Yew tree, or indeed aspirin (acetylsalicylic acid) discovered from the beneficial effects of rubbing sore joints with the bark of the willow tree. In fact, over 45% of all approved anti-cancer drugs are either natural products or such compounds that have been modified slightly by laboratory chemists. Some 50% of all drugs used to fight infections are, or are based on, natural products. The sea is also the home of numerous toxic compounds that have in themselves provided lead compounds for the development of novel drugs and pharmacological tools used in biological and medical research. Two toxins that are well known are tetrodotoxin (from the puffer fish, but produced by bacteria) and saxitoxin (produced by dinoflagellates of genus *Gonyaulax*). Both of these toxins inhibit sodium ion

transport in cells. Tetrodotoxin is the toxic component that is removed so skilfully in the preparation of Fugu by the Japanese and is also present in the Blue Ringed octopus. Saxitoxin is responsible for the "Red Tide" of temperate waters, one of the first descriptions of which was given in the Old Testament : Exodus 7:20 "Aaron raised his stick and struck the surface of the river [Nile], and all the water in it turned into blood. The fish in the river died, and it smelled so bad that the Egyptians could not drink from it."

The project I am currently involved in, funded by the ARC, aims to explore and exploit Australia's unique and diverse marine resource as a means of identifying new classes of compounds that will act as lead compounds for drug design aimed in particular at the treatment of neurological disorders. Specifically we are studying compounds that show pharmacological activity against the nicotinic receptor . (a ligand gated ion channel that controls the entry of sodium and calcium into cells in response to acetylcholine, a neurotransmitter

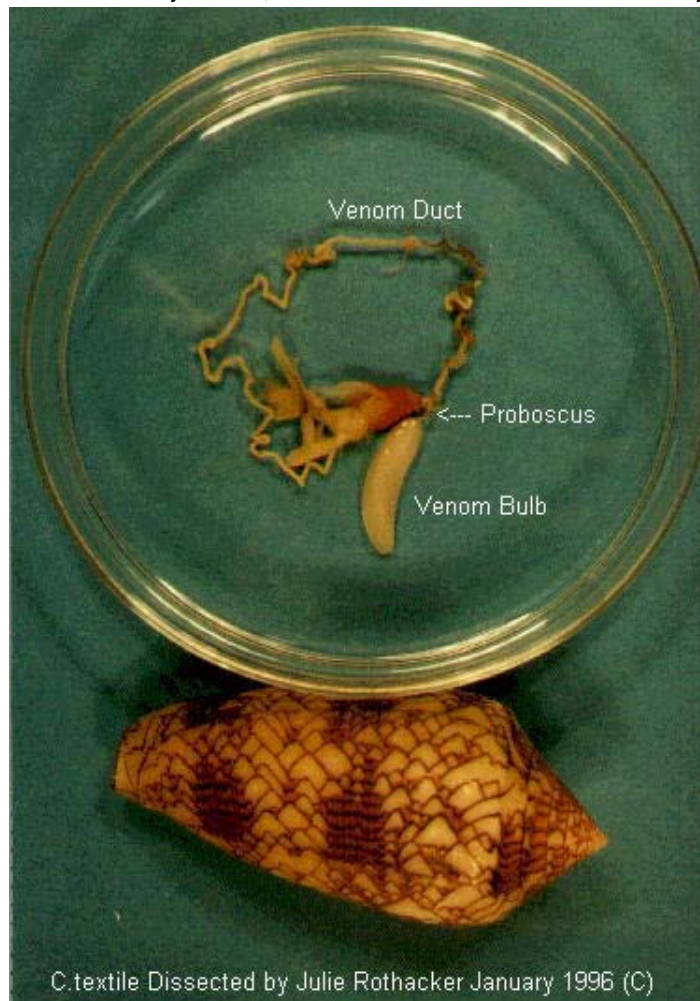
numbing effects of nicotine work the same way but to a lesser degree. The toxins from certain cone shells are of interest because individual toxins within them can affect the brain, or other nerve receptors, without affecting the muscle receptor, giving them great potential in treating various brain diseases, pain, and addictions.

Cone shells are a hard act to follow when it comes to beauty, biological diversity, molecular diversity and selectivity of their component toxic compounds, the conotoxins. There are over 600 species of cone shells worldwide and over 80 of these are present on Australia's Great Barrier Reef. Their habitat extends around the coastline of mainland Australia and Tasmania, with the most venomous being found in the tropics.

The way in which the different patterns on their shells are put down has fascinated theoretical mathematicians and physicists for years. One theory holds that the leading edge of the mantle of the cone shell contains a linear array of cells with "activators" and "inhibitors" that interact in a temporal fashion to lay down the pigmentation. These theories have led to the development of a computer program that uses algorithms developed by Dr Walter Meinhardt, and that can be run on a personal computer to simulate many of the patterns observed in nature. One can even generate through virtual reality a virtual *C. marmoreus* that is very close in appearance to the real shell. Virtual shells are one thing, virtual toxins are another and unfortunately are not yet within the realm of possibility.

Cone snails are molluscs of Class Gastropoda, Order Neogastropoda, and Superfamily Toxoglossa (arrow tooth) which comprises three families, Terebridae, Turridae and Conidae. The only living members of Family Conidae are *Conus* species. They

first appeared after the Cretaceous-Tertiary boundary, 55 million years before the end of the Pleistocene epoch and have shown a remarkable evolutionary radiation. The most



C. textile Dissected by Julie Rothacker January 1996 (C)

released from nerve endings) *Nicotine receptor agents are chemicals that impact a muscle receptor at the base of the lungs, and/or a corresponding receptor in the brain. The slowing and*

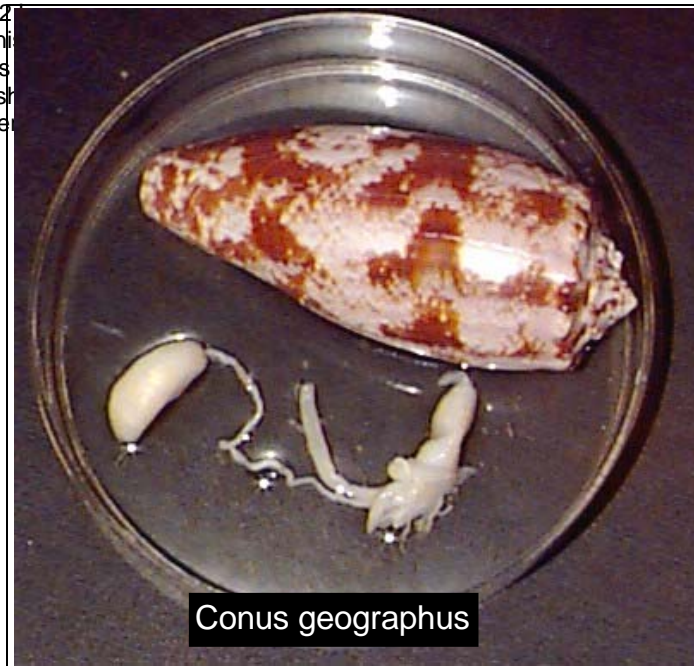
striking feature of *Conus* evolution is the large number of species contained in the single genus that only appeared after the extinction of the dinosaurs. Attempts to explain this rapid evolutionary radiation invoke the hypothesis that some "key innovation", perhaps the development of a venom apparatus containing unique toxins, the conotoxins, are responsible for their adaptive geographic radiation at a time when other species were diminishing. The mollusc with the best chemistry set on the block got to live another day. *Conus* species inhabit tropical and temperate waters at various shallow depths, are nocturnal predators of fish (*piscivorous*), molluscs (*molluscivorous*) and worms (*vermivorous*) and have a very specialised feeding mechanism - a hollow tooth at the end of a proboscis that they use to stab and envenomate their prey. In the case of *C. textile*, a molluscivorous cone, the venom induces peristaltic convulsions in its prey. This is very useful as many molluscs tend to retreat into their shell upon attack, as noted in 1592 by Shakespeare (Venus & Adonis) "the snail, whose tender horns are hit, Shrinks backward in his shell". The convulsions prevent the snail from occurring.

Sir Isaac Newton (1642-1727), English mathematician and physicist, had some appreciation for the beauty of shells and of the ocean of truth beyond when he wrote: "I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me." *Memoirs of Newton*, vol. 2, ch. 27 (ed. by David Brewster, 1855). Robert Louis Stevenson, was more empathetic with the plight of impoverished scientists and provided this encouragement to our endeavours: "It is perhaps a more fortunate destiny to have a taste for collecting shells than to be born a millionaire." R.L. Stevenson - "Lay Morals"

Cone shells have their dangerous side too. Some of the venomous fish-eating cones have caused death in humans. Tales of fatal envenomations are part of the native folklore in the Indo-Pacific region. Over 30 cases have been recorded in the scientific literature. (See elsewhere this issue) On April 4,

1936 in *The Medical Journal of Australia* (page 466) reported on the instance of a fatal poisoning of a young man who was envenomated by *C. geographus* while visiting Haymen Is. on a pleasure cruise with his mother and friends. "The victim was prior to the injury in perfect physical condition and in training for football". He died 5 hours after being stung. The symptoms, which resembled those of poisoning by curare, **alerted the medical world** to the likelihood that this venom contained a toxin that targeted the mammalian nicotinic receptor.

Subsequently, conotoxin GI was isolated, purified, and characterised from *C. geographus* and, with its cysteine loop structural isomers, chemically synthesised and tested on *muscle-type* and *neuronal-type* nicotinic receptor preparations. This conotoxin proved to be selective for the muscle-type nicotinic receptor. Subsequent work by our group has shown that the native toxin conformer



Conus geographus

is the most active of the three structural isomers.

To obtain quantities of live cones for milking of venom and purification of the conotoxins required us to go on regular field trips to Lizard Is., Heron Is., and Lady Elliott Is., three islands on the Great Barrier Reef that have Research Stations and/or marine aquaria. Live cones are maintained by us in marine aquarium tanks in the University of Melbourne and at the 3D Centre in Brisbane. Here we milk them for their venom *by coaxing the cone to fire through a condom stretched over a test tube, using a fish tail stretched over the condom as bait.* and carry out

biological testing on the venom and on the purified toxins.

In Brisbane the purified toxins isolated and structures determined by sophisticated biochemical techniques (HPLC coupled to ion spray mass spectrometry), and synthesise them in the laboratory so that we have sufficient quantities (approx. 5 mg) for our biological testing. These toxins are small rigid peptides (13-30 amino acids in length) severely constrained by 2 or 3 cross-links between sulphur containing amino acids. The cross linking and small length makes the resulting molecule small and stable. *The small size is what allows it to get into nerve and muscle receptors block the passage of nerve impulse chemicals, and the stability makes the toxins robust for longer term medical effect in the body.*

Unfortunately for us, for the last two years we have been able to identify new toxins by taking a tissue sample from a single cone and following the

DNA chains until characteristic conotoxin molecular patterns are found, then synthesising the toxins directly. This technological breakthrough has taken away the need for regular field trips to catch cones for milking purposes.

Our results show that two species, *C. imperialis* and *C. pennaceus* produce alpha conotoxins which are specific for the neuronal nicotinic receptor and do not affect the muscle-type receptor. *These are the ones we are currently investigating.*

Each cone has a cocktail of venoms, some harmful and some useful. Two of the omega conotoxins

(conotoxin GVIA from the Geography Cone, *Conus geographus*, and conotoxin MVIIA from the Magician's Cone, *Conus magus*) are potent analgesics. These peptide conotoxins block neuronal N-type voltage-sensitive calcium channels in nerve cells and by so doing interfere with the transmission of pain impulses. The announcement by *Neurex Corporation* in 1996 of the results of the first clinical trials with conotoxin MVIIA, code named SNX-111, caused great excitement among the biomedical community, received wide coverage in the world press, and took their share value up 500 times its value. SNX-111 has been used to treat neurogenic **pain related to HIV and cancer** and

for the treatment of "**phantom limb syndrome**" in long-term amputees. The substance is by slow infusion directly into the spinal fluid using a surgically implanted Mini-pump that can be controlled externally by the patient. SNX-111 was reported to be 100-1000 times more potent than morphine as an analgesic but unlike morphine it was **not addictive!**

SNX-111 was renamed CI-1009 following purchase by Parke-Davis who are trialing it for the **neuro-resuscitation of severe traumatic brain injury (TBI)** patients (*Comas, and brain re-stimulation after coma*).

These applications provide a challenge for chemical synthesis of designer drugs that retain the selectivity and potency of the cone shell toxins while at the same time enabling a solution to the problem of effective drug delivery. The surgically implanted mini-pumps are required since the conotoxins do not cross the blood-brain barrier. Hopefully these technical challenges will be met in the near future opening the way for further use of synthetic conotoxins in the management of neurological conditions.

By keeping the cones in captivity, a variety of interesting behaviours have been observed, for example:

Conus marmoreus often feeds upside down, strange because it is exposed to predators.



Conus geographus (a fish eating cone) envelops its prey whole with its mouth and then fires multiple radula teeth into its prey, regurgitating the bones next morning.

Conus striatus

Answers to questions:

How far can the cone fire.

There is conjecture as to whether cones will actually fire radula through water to a target. Some say they can, and do up to one meter. Bruce has never seen this. In fact cones often like to feel around with the tip of the proboscis before injecting the radula. The radula once fired is on a fine thread to haul in the prey, so may appear as though it has been fired.



How careful do we need to be when cleaning cones?

The toxins in cone shells are highly stable and not easily destroyed. When cleaning cones we should be extremely careful. Death of the animal, boiling and storing in Methylated Spirits does not destroy the toxins in the venoms.

The toxins are small molecules. If the removed dead animal is handled, toxins stored in various parts of its body coming in contact human skin, could potentially penetrate it directly without injection, and without surface scratches or cuts.

What thickness can the cone fire poison radula harpoons through?

They are fired with some force. There was a recent case where a diver collecting cones and storing them in a bag on his back, was stung on his rear end THROUGH a 3mm wetsuit!

Is the poison actually injected?

No, the radula is hollow and has an open slit along one side. The poison is viscous, and oozes out after the barb has impaled a victim.

Editorial Comment: These answers pose questions about the effectiveness of gloves; and of the risks of subsequent contact with venom from radula imbedded in the surface of collecting containers, including the gloves

Sydney Harbour Underwater Environment

Some Common Misconceptions.

Ashley Miskelly.

Many people who do not scuba dive appear to conjure up ideas of what it must be like in Sydney Harbour and many divers never get to experience the diversity of invertebrate species in Sydney Harbour due the assumption that the visibility is poor and that all that is on the sea floor is a thick layer of mud and discarded rubbish. I wrote this article to give a mental picture of one particular site and to clear up a few misconceptions.

Firstly, the sea floor is not one uniformly sandy or muddy area and at the entrance point at Bottle and Glass Rocks where Ernie and myself go looking for molluscs and echinoids, there is a rock wall which extends down to 6m. Here two live specimens of *Bursa bufo* were recently found and at the base of it there were live brachiopods in shallow caves. Heading East, into Vaucluse Bay, the sea floor gradually slopes down to small patches of seagrass and then to a canopy of brown weed growth which looks like pieces of tangled wire over a wide area of dead shell rubble. Here is where live specimens of *Spondylus tenellus* in incredible condition and colour variety have been found. It is interesting to note that all the live specimens I have found were not attached to rocks or caves but actually were living out in the open, camouflaged exceptionally well by their surroundings. (Usually they are only ever discovered if one looks in the direction of a specimen which happens to shut its top valve when in view). This environment is also where near perfect specimens of *Antigona (antigona) chemnitzii* are collected live and fresh dead. A typical dive usually yields around 8 really good large paired specimens and the live specimens are never buried in the substrate. This weed/shell rubble substrate lasts until about 11m, then a series of sea cliffs exists. Here there are large bright yellow sponges, kelp and large hard corals. *Spondylus* are also still found sitting on top of the cliffs. In summer, dead *Cypraea vitellus* are often found at the base of the cliffs. From 15 to 18m the area is fine mud in which the rare echinoid *Schizaster portjacksonensis* is found.

Sydney Harbour is the only known locality for this species. I personally have not dived any deeper than 20m in this area because with the decrease in light at such depths it becomes increasingly more difficult to distinguish between muddy sea floor and water.

Scuba offers many other advantages to malacologists (and echinologists), one is that because at depths in excess of approximately 6m, there is little current so that specimens are nearly always in very good condition. Two classic examples of this are *Turbo exquisitus* (five colour varieties) with its fine sculpturing, totally unscathed by abrasive wave action and two specimens of *Mitra solida* sitting on top of a deposit of dead mussels, one still had some of the periostracum present. I personally find it interesting that one tends not to find any dead littoral species down after about 6m. I cannot wait to find all those "subfossil" species live as I personally believe that they haven't died out. Oh, and finally, on the subject of sharks in Sydney Harbour, I don't worry about them ever since the crocodiles ate them that is!!

\$1 Million fine for exporting shells.

On 24th July 98 the Tennessee-based, Japanese-owned Tennessee Shell Company pleaded guilty to a felony in U.S. District Court in Jackson, Tennessee, and will pay \$1million in restitution for purchasing thousands of pounds of illegally taken freshwater mussels from rivers in Michigan, Ohio, Kentucky and West Virginia.

This is the largest amount of restitution ever paid as a result of a federal criminal investigation into the illegal commercial exploitation of wildlife resources. U.S. Fish and Wildlife Service special agents, state wildlife officers, and the Department of Justice made the case after a 4-year investigation into the company's multi-million dollar trade activities.

The Tennessee Shell Company purchased the large and valuable mussels from independent buyers and divers, with the full knowledge that they had been taken from waters where state law prohibited their harvest. "What this case boils down to is the plundering of America's wildlife, for profit,"

"While freshwater mussels are not cuddly creatures with eyelashes, they are hugely important in the biological scheme of things," said Acting Regional Director Hall. "They are the proverbial 'canaries in the coal mine,' warning us of danger by detecting and filtering out pollutants and toxic chemicals in the water that may affect human health. They are also a food source for other animals and an anchor for plants on the riverbed. But they are being wiped out as a result of human activities, and, in this case, because of greed," he said.

"As commercial quantities of shells became scarce in legal areas of the South, prices soared from \$2-3 to as much as \$13 per pound at the time of this investigation," said Director Myers. "Tennessee Shell and its suppliers began looking for any source of shells, legal or otherwise, which led them to the protected mussel beds. Today, however, the company is paying a high price for its illegal activities," he said.

A Federal Grand Jury in Jackson, Tennessee, has indicted 20 individuals for 136 counts of violating the Lacey Act, with regard to fresh water mussels. To date, 19 defendants have pleaded guilty, and one has entered a pre-trial diversion agreement in U.S. District Court in Jackson, resulting in a total of nearly \$67,000 in restitution ordered to be paid to the State of Michigan (from whose waters many of the mussels were harvested), along with prison sentences and periods of supervised release or probation for these individuals.

The \$1 million in restitution from Tennessee Shell will be paid to the National Fish and Wildlife Foundation to establish the Freshwater Mussel Conservation Fund for mussel research and recovery. "This is an important event in the annals of wildlife conservation history because it ultimately returns a significant amount of money to wildlife agencies to work on the task of protecting and restoring the exploited species," said the Foundation's Director of Conservation Programs, Whitney Tilt. The Foundation is an organisation established by Congress to assist the Fish and Wildlife Service and others in raising funds for wildlife conservation.

Special agents of the Fish and Wildlife Service worked with state officers in Tennessee, Kentucky, West Virginia, Ohio, Michigan, Alabama and Louisiana, to follow the trail of

evidence from the Ohio, Muskingum, Green and Grand rivers to the company's headquarters in Camden, Tennessee, and from there through West Coast ports to Japan.

Making the case involved analysing 200,000 documents seized from Tennessee Shell Company, reviewing records, conducting interviews, and developing witnesses. Through this effort, we were successful in gathering overwhelming evidence against Tennessee Shell Company. The stolen shells were shipped to Tennessee Shell, where they were mixed with shells from legal sources, loaded into sacks, placed in 22-ton freight containers and exported to Japan by way of West Coast ports, including Los Angeles. Records recovered during the investigation revealed a \$50 million annual domestic business for shell companies in the United States and a \$5 billion annual foreign trade to meet the demands for pearls, fine jewellery and other products.

Director Myers pointed out that shelling can be and is done legally, including by Tennessee Shell Company, and provides jobs and livelihoods for about 10,000 people, primarily in the Mississippi River Basin.

Freshwater mussels are one of the most endangered families of wildlife in America. While found on every continent except Antarctica, freshwater mussels are most diverse in the Mississippi and Ohio River drainage's of the United States. Of the approximately 300 known species of mussels, 30 are extinct and another 70 are listed as threatened or endangered. An estimated 70 percent of the nation's mussels are at risk from a variety of threats, reflecting an unparallel level of collapse of a family of wildlife. Human-induced habitat loss is considered the major reason for the collapse.

State conservation agencies and U.S. Fish and Wildlife Service biologists became alarmed at the loss of the mussel resources from poaching in recent years and requested that special agents of the Service's Division of Law Enforcement get involved to help them stem the interstate and international illegal trade.

Due to their larger size and greater thickness, shells of mussels from the South and Midwest are in great demand in the Orient. Most of the shells end up in Japan, where shell pieces are rounded into beads and implanted into live oysters. The bead is

an irritant to the oyster and, in defence, the oyster secretes "nacre," a pearly substance, around the bead. After 2-3 years, a cultured freshwater pearl is formed. The larger the original bead, the larger the resultant pearl.

NOTE TO THE PUBLIC: Recent studies indicate that more than \$100 billion per year is generated in the United States economy directly from activities related to our public fish and wildlife resources. Unfortunately, analysis of world wide criminal activities conducted by Interpol and published in the November 1994 Time Magazine story "Animal Genocide, Mob Style" also reveals that the international illegal trade in wildlife trafficking is the second largest form of black-market commerce in the world, behind drugs and ahead of illegal arms. The public can help stop wildlife law violations by reporting suspicious activities to State or Federal wildlife officers and by refusing to purchase products made from protected wildlife.

Shell exporter's subterfuge

Friday, August 14, 1998

It is worth noting that the Tennessee Shell Company financially co-sponsored symposia on the conservation and management of freshwater mussels in the past, which once again clearly demonstrates some industries will toss some money towards various conservation-related activities for public relation purposes and still be damaging the resource they claim to want to help protect. BEWARE!

Cowry Web Site

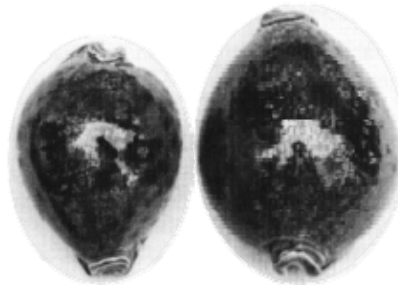
Aloha, makuabob (a.k.a. Bob Dayle)

THE CAPTURED COWRY's Archive web site has the cowry-related articles from the 1977 issues of the HAWAIIAN SHELL NEWS added to its previous 17 years of information from this publication. The site also includes items from Griffiths' THE COWRY, plus Groves' CYPRAEACEAN & TRIVIAECEAN LITERATURE (augmented with links to articles in THE CAPTURED COWRY's Archive site) and two indices to the Archives by Author and by date of publication.

The URL is The URL is **Error! Bookmark not defined.** for the Archive site and **Error! Bookmark not defined.** for the most recently completed year.

The HSN was beginning to 'hit its stride' about this time. This year has a couple of 'travel logs'; one to American Samoa, with a splendid list of families found, where they were found, and a map of Pago Pago harbour; another take you to the Cape Verde islands.

Also, the final issue is dedicated entirely to the 'new' cowries (twenty years ago) with plenty of images. In fact, be prepared for an extended loading time unless you're on an E1 or T1 line.



1997 rare Shells from the Net: "Cypraea valentia Perry, 1811, is the ultimate dream of every cowry fancier. Recently, a number have been collected alive in the Western Pacific and South East Asia. The two shells here repose in the collection of Olaf Christensen Nth. Brighton, Melbourne"



Humans Poisoned by Conus to 1935

The Medical Journal of Australia, April 4, 1936, page 464-466.

Some examples summarised by sheller editor:

- *Conus aulicus* The pain was compared with the burning of phosphorus beneath the skin. In this instance the cone hung on like a leech.
- *Conus textile*. The hand and arm were considerably swollen and severe pain persisted for some time.

- *Conus tulipa* The long slender proboscis punctured a finger, causing sharp pain not unlike the sting of a wasp.
- *Conus geographus* A native on the island of Matupi., New Britain, who had been bitten had at once cut small incisions with a sharp stone all over his arm and shoulder. The blood flowed freely and the native explained that, had he not done so, he would have died.
- *Conus geographus*, Locally caused a bluish discoloration near the side of the nail. A local numbness spread rapidly up the arm which became paralysed. The paralysis spread rapidly throughout the body. Not only was general muscular control abolished so that even the head had to be supported to permit breathing, but there was loss of sensation, with numbness and "pins and needles" beginning in the arm and becoming generalised, disappearance of muscular. Utterance was thick and indistinct. The cardiac and respiratory apparatus functioned poorly. At its worst, 3 - 4 hours after the patient was bitten, the condition distinctly affected the throat and distress was caused by the difficulty in removing accumulated fluid. The worst was past in about six hours, but the paralysis persisted with diminishing intensity until next day. Numbness lasted considerably longer in the injured finger, and for a month afterwards she experienced a shock in the little finger on hard impaction, as when playing the piano.
- *Conus textile* Immediately felt a painful sensation running up his right arm to the shoulder. He went home. The pain increased until he writhed in agony The body swelled to an enormous size, and by daylight he was a corpse.
- *Conus geographus* Haymen Island, June 27, 1935 Just a small puncture mark was visible. Local symptoms of slight numbness started almost at once. There was no pain at any time. Ten minutes afterwards there was a feeling of stiffness about the lips. At twenty minutes the sight became blurred with diplopia; at thirty minutes the legs were paralysed; and at sixty minutes unconsciousness appeared and deepened into coma. No effect was noted upon the skin, lymphatic, alimentary or genito-urinary systems. Just before death, the pulse became weak and rapid, with slow, shallow respirations. Death took place five hours after the patient was stung. A post mortem examination showed

that all the organs, heart, lungs et cetera, were quite healthy.

AGM Minutes

**Of the NSW Branch of the Malacological Society of Australasia Limited
ACN 067 894 848**

Held in the rooms of the RZS of NSW at Taronga Zoo on 27/06/98

The meeting was opened by the Chairman M. Keats at 2.53pm. The minutes of the previous AGM held 28/06/97 were published in the May 98 edition of the "Sheller". Moved approved by R. Moylan, seconded D. Woodhouse. It was noted that the annual Chairman's report is published in the June 98 edition of the "Sheller". D. Woodhouse moved Chairpersons report be accepted. The Treasurer reported a current balance of \$467.04, with money still due from MSA National. I. Myers moved that the treasurers report be accepted, seconded K. Wadwell. I. Myers moved a vote of thanks, for M. Keats efforts over the last seven years. The meeting was then handed over to the Returning Officer - Karen Wadwell. A proxy was received from Carey Beebe. Nominations for Office Bearing Positions were called for, the results of the elections were declared by the Returning Officer as follows.

Election of President:

P. Jansen - nominated for president, though declined. C. Barnes - nominated for president, though declined D. Beechey - nominated for president. Des put forward a policy statement, which he handed to the meeting. Des proposed a committee to manage the NSW Branch with himself to act as President. Des' proposal was unanimously accepted by the meeting. Thus D. Beechey was unanimously elected President.

P. Jansen was elected Vice President unopposed.
C. Barnes was elected Secretary unopposed.
J. Dunkerley was elected Treasurer unopposed.
A. Miskelly was elected Field Trips Officer unopposed.
Bob Reed was elected Assistant Field Trips Officer unopposed.
I. Myers was elected Raffles Officer unopposed.
K. Wadwell was elected Assistant Raffles Officer unopposed.
S. Dean was elected Editor of "The

Sydney Sheller" unopposed.
K. Wadwell was elected Assistant Editor of "The Sydney Sheller".

The meeting was handed over to the new President D. Beechey. Des formed a committee to help steer the NSW Branch. The committee is to meet every 2-3 months, with the Secretary to handle correspondence and other administrative matters. The committee is as follows :-
D. Beechey - President
C. Barnes - Secretary
S. Dean - Editor "Sheller".
A. Miskelly - Field Trips Officer.

Des also prepared a program Schedule, considering meeting organisers and proposed speakers (See previous Sheller, Note November Speaker & Organiser Michael Keats)

The meeting was closed at 3.40pm.
C. Barnes Secretary.

27/6/98 Minutes

Held at Taronga Zoo

The meeting was opened by M. Keats at 2.00pm.

Apologies were received from P. Pienaar, J. Dunkerley, E. Uhle and other standing apologies. The Minutes of the meeting held 23/05/98 were taken as read.

Matters arising: Program details: a discussion about the future proceeded for some minutes until it was decided to wait until the AGM to resolve programming issues. M. Keats tabled a draft letter to the President of the RZS, with regard to the continued use of the rooms (by NSW branch of the MSA) and negotiation of an appropriate fee. The letter was to be handed on to the incoming President at the AGM, following the conclusion of the monthly general meeting. The 1st prize winners of the Sydney Shell Show raffle had not yet claimed their spoils. Once contacted by phone they have agreed to do so. Ten more Shell posters have been sold (Kathy Emmery). There are still 789 shell posters to be sold.

Correspondence: Con Moutoudis: x2- regarding his position with the NSW branch of The MSA. Michael Keats (President, NSW branch MSA) response to C. Moutoudis' letters. Chris Bunyard (Secretary) Port Phillip Bay Shell Group, Re- Debate over National Shell Show. Ernie Uhle: Re-

Response to the request from Dr Ponder for input on threatened marine species. M. Keats: Letter to Dr Peter Duncan, new editor of Australasian Shell News, Re - Gertie Thornley. American Conchologist (Vol. 26,NO.2) Re - Patty Jansen's report on The 2nd ANSS Sydney. PADI dive magazine Re - The 2nd ANSS Sydney. Daily Telegraph, 16/06/98 " History comes out of its shell". Study of Scaphopoda by Kevin Lamprell and John Healy. Newspaper article: "Tropical shells pay us a visit" (contributed by R. Moylan).

Treasurers Report (Unavailable)

The Sydney Sheller The editor, D. Woodhouse issued the June edition of the " Sydney Sheller". David announced this was his last "Sheller", and drew the attention of the meeting to his retirement letter in the current edition. M. Keats', and the annual President's report. In Michael's concluding comments he mentions he won't be standing for any office bearing positions at the next AGM.

Raffle: Ashley Miskelly reported the raffle had raised \$24.00 An auction of a "Vita Brits Album" raised \$7.00 (sold to M. Keats).

General Business: R. Moylan donated some solitary corals to any interested members.

Presentation: Bob Reed, gave an informative and sometimes amusing presentation on the location and or whereabouts of the family Olividae. As Bob has been collecting and studying shells for some years, he was able to impart first hand knowledge. Whilst in Australia and overseas Bob has gained experience in a number of techniques for collecting Olividae and other predatory molluscs. Bob handed around a number of Olividae species (some rare and unusual) which he had collected primarily from the Solomon Islands and Vanuatu. It was added that a good pair of gloves are required when collecting, as a number of fish and shellfish may have painful, poisonous and sometimes fatal, stings. Michael Keats offered a vote of thanks on behalf of the meeting for Bob's efforts.

Next Meeting 25/07/98 at 2.00pm, RZS at Taronga Zoo.

The meeting was closed at 2.45pm.
C Barnes Secretary

Minutes 25/7/98

Held at Taronga Zoo

The meeting was opened by this months acting Chairperson, P. Jansen at 2.00pm. No apologies were received other than standing apologies. Minutes of the meeting held 27/06/98 were not available at this time.

Reports

K. Wadwell reported that she had been informed that Ms Marie Burnett had passed away. The family member who contacted Karen also requested that the "Sheller" subscription be halted.

Ashley Miskelly gave an update of his presentation on Sydney Harbour, in particular Bottle and Glass Rocks. Ashley handed around a number of fine specimens including-

Charonia lampas rubecunda (Perry, 1811), **Cypraea fimbriata** Gmelin, 1791 and

Monilea callifera (Lamarck, 1822). Ashley reported that he had currently collected 33 species of urchin from the harbour and a specimen yet to be properly examined could make 34 species.

Ashley mentioned that a dredge might be useful because of mud on the bottom stirring up easily and making visibility difficult.

M. Keats reported that John Franklin had contacted him and was rekindling his interest in molluscs. John has a large boat and is interested in doing some dredging.

R. Moylan reported that there was an art exhibition in Paddington from 24/07/98 to 14/08/98 showcasing some of the works of recently departed shell enthusiast Paul Jones.

The Sydney Sheller

New Editor of the "Sheller" Steve Dean reported, colour pictures and photo copying expenses have changed. One edition - forty five copies of the "Sheller" will now cost approximately \$100 dollars. M Keats and I Meyers each offered to sponsor colour costs of one edition per year. A. Browne offered to do colour photo copying for the Sheller at \$1 dollar a page. A discussion about the frequency and content of the "Sheller" lasted some time, though it was decided to wait and see what the committee could come up with. The Editor advised that if quality content is not available, "Sheller" printing will be deferred until there is sufficient material.

Correspondence

Letter to Dr Chris Dickman, President RZS of NSW - Re -Confirmation of a fee for the rooms.

Waves Vol. 5 No. 2 Winter 1998.
NSW Regional Ripples Vol 5, No 2 Winter 1998.

Treasurers Report - (July ' 98)

John Dunkerley reported:
Opening balance + \$865.99
Current Balance +\$896.57

Presentation: Dr Bruce Livett an NH&MRC biochemist at Melbourne University gave a fascinating and informative presentation on the family Conidae, (*see article*) Dr Livett discussed neurotoxins produced by various species of cone, the cones that were known to be fatal to humans and current research. Dr Livett is investigating and synthesising the peptides of the neurotoxins that form *Conus* venom, which it is hoped will add to the available pharmaceutical drugs. **Conus magus** Linnaeus, 1758 (The magicians Cone) has a peptide in its venom which is being used as an analgesic that is non addictive and 100 to 1000 times stronger than that of the narcotic Morphine.

Dr Livett also demonstrated via slides, the method used by the *Conus sp.* for capturing their prey.

Dr Livett is a member of the MSA and confessed that his hobby is becoming a sustaining interest.

P. Jansen offered a vote thanks on behalf of the meeting, for Dr Livett's efforts.

Next Meeting Saturday 22/08/98 at 2.00pm. Meeting closed at 3.25pm.
C. Barnes Secretary

Trade of Shells

Luis Wolman
Casilla de Correos 13034
Montevideo
URUGUAY

The above is interested in exchanging sea, land fresh water and fossil shells. A list of their shells will be tabled at the Miskelly meeting. The person does not speak English, so you would need to write.

Jaime Paiva
R. Macau, 33 - R/C D.
2780 Oeiras - PORTUGAL

Tel/Fax (351) (1) 442 84 52

This person is a member of the Portuguese Malacological Society, and is very interested in exchange with Australia. Looks like they speak English. Their list is many pages, also tabled at our meeting. It includes Shells from Portugal, Europe, Canary Islands Cuba. As well as snails, there are many Microshells, Bivalves, and Land and Fresh water shells.