

QL401

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Poirieria

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# POIRIERIA



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CONCHOLOGY SECTION  
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MODELIA GRANOSA Martyn

This turbinid mollusc can be found at and below low tide mark in both North and South Islands, though it most frequently occurs in the south of the South Island and at Chatham Islands where it is very common below low water among kelp and other seaweeds. Collectors beachcombing at Stewart Island usually return with some fine large examples - specimens of 3 inches diameter being sometimes obtained. Large numbers wash up after storms at Mason's Bay. Some of the largest seen have come from Chatham Islands. Many specimens are badly encrusted with coralline growth, but clean shells are pleasingly mottled with pink, brown and white and have a distinctly granulated spiral sculpture.

The operculum is heavy, shelly and white with a finely granulated surface and an incised semicircular furrow near the margin



Stewart Island.



Northland.

While it is generally considered to be a southern shell, brightly coloured Modelia granosa are found as far north as Gt. Exhibition Bay, but these specimens are very different in appearance from the southern shells. Seldom do they exceed one inch in diameter and the sculpture is much coarser, with large beads placed well apart. At times this shell is not uncommonly washed up about the Bay of Islands, but live specimens are hard to obtain.

An interesting item  
- from "The Link", February 1973, headed -  
"Snail Trapping Illegal" -

"One of southern Switzerland's most popular weekend diversions, snail trapping, is now illegal. Police in the canton of Valais have been told to watch out for anybody wandering, eyes down, through the fields and woods, and to arrest or summarily fine offenders. The combination of a growing Swiss appetite for the escargot and a marked increase in the number of people taking to the fields to hunt the creatures has threatened the Swiss snail with extinction. The trappers were selling their catch to restaurants and shops at 5 cents a shell.

The ban on this latest of blood sports will last for three years, during which time it is hoped that, unmolested, the snail population will grow to a satisfactory level. Then eating wild escargots will recommence."

\* \* \* \*

Mrs Boswell, Wanganui, writes -

"I was very interested to read Mr Douglas's write-up on the Poirieria.

I have collected these same capsules along our local beaches for a number of years, but still I am not sure just which shell they belong to. I have gone over a lot of them with a strong lens, to try to pick out any tiny juvenile shell that may be encased in them, but as yet have not been able to find any.

As for finding an adult Poirieria shell washed up on our beaches - that is unheard of, even in a very dead state. I have got the odd one or two with hermit crabs in them, but they have been shells washed down from the fossil beds. Ofttimes the capsules have been attached to small pieces of material like dead rush stalks as if they had come from a tidal swamp or estuary."

\* \* \* \*

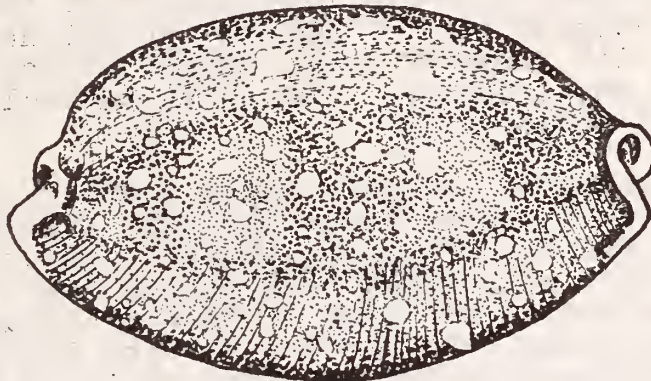
..."A number of years back when I got some dredged debris from one of the local trawler boats, I found a complete Ostrea sinuata shell with a small round hole in the top valve. On prizing the valves apart, I found not an oyster but a small species of Octopus using the shell as a home for her eggs. Each egg was completely round and contained a perfect little Octopus. There must have been 100 eggs as well as the mother in that three inch shell."

\* \* \* \*

CYPRAEA VITELLUS IN NEW ZEALAND

K. Grange

Cypraea (Lyncina) vitellus, the Pacific Deer Cowrie, is a widespread, common Indo-pacific species. Burgess (1970) gives the distribution of this species from Africa in the west to Japan in the north, to Lord Howe Island in the south and to Tahiti in the east.



Cypraea vitellus

Its distribution has been extended recently to New Zealand, following the discovery of a live specimen taken by Mr W. Palmer during a night dive at 90 feet off the west coast of Tawhiti Rahi, Poor Knights. Subsequent dives around the same depth produced three well-preserved specimens, the largest being 59.0 mm long. The Poor Knights remained the sole known locality of this species in New Zealand (Cernohorsky, 1971), apart from a recognisable fragment washed up near Whangaroa. However, very recently (June 1973) two specimens have been found on the mainland, both in only 15 feet of water. Both of these were very freshly dead and could not have been washed more than a few feet, or the gloss to the shell would have been lost. The first was at Goat Island Bay, Leigh, the second near Tutukaka. The Tutukaka specimen was found outside an Octopus lair, so it seems very likely that they are living in this area.

The nearest occurrence of Lyncina vitellus to New Zealand is in Queensland and also in Sydney Harbour, where the more squat sub-species Lyncina vitellus orcina is found.

The shell varies in size and is ornamented with circular white spots on a brown background. The outer lip has vertical striations, cream in colour, which extend up the sides of the shell, while the inner lip shows oblique striations of the same colour. In juvenile specimens the white spots and cream lines are indistinct and there are darker brown bands running across the shell, giving it the appearance of a very large C. carneola. Such a juvenile specimen has been found at 45 feet at the Poor Knights and measured 65 mm in length.

The base of the shell is cream and the aperture ornamented with numerous cream teeth with brown interstices. The New Zealand specimens seem to conform to the general trend of cowries in that the largest members of the Genus become bigger further from the equator. Burgess (1970) gives the size range as 26 - 79 mm and the size of the New Zealand specimens is 40 - 65 mm, lying near the larger members.

Powell (1967) gives no description of the New Zealand animal, but Burgess (1970) says the animal has a mottled grey mantle with numerous long, bright yellow papillae, occurring in small clumps. The foot, tentacles and proboscis are grey.

This species is believed to be a sponge feeder although as yet, nothing is known about its habits in New Zealand. However, the fact that L.vitellus is a colourful and hence conspicuous species, living well within the limit of S.C.U.B.A. divers, means that it will continue to be of interest to many collectors and, with luck, will become as well established on the mainland as it is at the Poor Knights.

References:

Burgess C.M. (1970)

The Living Cowries. Barnes, USA.

Cernohorsky W.O. (1971)

Fossil & Recent Cypraeaacea of New Zealand with Descriptions of New Species.  
Rec.Auck.Inst.Mus. 8:103 - 129.

Powell A.W.B. (1967)

New Zealand Molluscan Systematics with Descriptions of New Species, Part 6, Rec.Auck.Inst.Mus. 6(3):  
185 - 196.

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Mr & Mrs Max Hancock have dredged, in Deep Water Cove, Bay of Islands, a specimen of the Turrid Lophiotoma brevicordata. This is an extra limital species in New Zealand. It is commonly found between tides among the reefs in Fiji and other Pacific areas.

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\* A sinistral Paryphanta! Ever heard of one?

Those present at a recent meeting of the Section saw a fine example of Paryphanta busbyi collected by Mr N. Douglas on the roadside, Mangamuka Gorge.



## A FIELD TRIP TO THE NEW HEBRIDES

L. Price

The New Hebrides - a new Condominium, under joint administration by France and Britain - comprise approximately 80 islands, lying between 12° and 20° S.Lat., and 165° and 170° E.Long. They extend some 550 miles northwest to southeast, from the northernmost island, Hiu, in the Torres Group, to the southernmost, Aneityum. The main centre of business, Vila, on the island of Efate, is about 1200 miles to the north of Auckland, New Zealand.

All are "high" islands, of volcanic origin - indeed, there are several continually active volcanoes scattered throughout and, as may be expected, earth tremors are of frequent occurrence. The mountainous interiors are covered in dense tropical rain forest, while much of the coastal lowlands are devoted to coconut plantations - often in combination with the grazing of beef cattle. The largest island of the Group, Espiritu Santo, is 1500 square miles in area and also contains the two highest mountains, Mt. Tambwemasana, 6195 ft. and Santo Peak, 5566 ft.

Over the past ten years, I have had the privilege of conducting an annual field trip to parts of eastern Australia and various Island Groups of the South Pacific. During these excursions, I have concentrated on collecting living specimens of land and freshwater molluscs for ultimate research by Dr. Alan Solem, Field Museum of Natural History, Chicago. Thus, late in 1972, I spent a period of three months in the New Hebrides - this being the tenth contribution to the series.

On September 22, I boarded a French Airlines DC8 for the 3-hour flight to Tontouta Airport, New Caledonia. After a short pause, and a change to a French Caravelle, in just one more hour I had arrived in the New Hebrides. In the heart of Vila, I booked into Hotel Vate, which was to be my base while visiting several of the larger islands during the course of my collecting. Hotel Vate is one of three large modern hotels in Vila - single daily tariff being \$12 (room only), with meals extra, in the ground floor restaurant. (There is a dual monetary system in operation in the New Hebrides, where Australian dollars and cents and New Hebrides francs freely intermingle - \$1A is the exact equivalent of 100NHF).

Basic collecting equipment consists of pint-sized glass jars, numerous small glass tubes, small cotton bags and ethyl alcohol - all packed into two or three wooden boxes. Normally, these boxes are shipped from Chicago to the appropriate port and timed to arrive shortly beforehand. However, sometimes they go astray - and this happened to

be one of those times. Inquiry at the shipping agency produced nothing. Several days and a telegram later, I learned that the original boxes had been consigned on the wrong boat, but two more would be despatched immediately - by air freight.

In the meantime, I visited the British District Agent in order to arrange accommodation and transport in the outer islands. Also, with some methylated spirits and borrowed glass jars, I spent some time collecting in various localities around the island of Efate. Transport was by foot, by bus, and for five days I hired a small Toyota Corolla car, which cost an average of \$11 per day. Collecting proved to be excellent, with a good variety of species, and an abundance of specimens - these were:

<u>Terrestrial</u>				<u>Arboreal</u>	
Endodontids	2sp.	Omphalotropis	3sp.	Helicina	1sp.
Delos	1sp.	Palaina	1sp.	Partula	1sp.
Gonatoraphe	1sp.	Truncatella	1sp.	Tornatellina	1sp.
Diplomorpha	1sp.	Pythia	1sp.	Dendrotrochus	1sp.
Pupina	1sp.	Succinea	1sp.		
Orpiella	1sp.	Helicina	1sp.		

Of special interest is the genus *Diplomorpha*, with four recognized species. It is closely related to *Placostylus* and, indeed, looks not unlike a miniature *Placostylus*, with a solid shell, thick reflected lip, and orange-coloured aperture. However, unlike the *Placostylus*, they are confined exclusively to the New Hebrides.



*Diplomorpha layardi* (Ancy) 21 x 14 mm.



*Delos gassiesi* (Pfr.) 10 x 4 mm.



*Draparnaudia singularis* (Pfr.) 9 x 9 mm.

On October 16, after more than three weeks of waiting, wondering and woe, the first two collecting boxes finally arrived in Vila - on the wrong Airline - after having got lost somewhere along the way for two weeks. At last all systems were "go" - I lost no time in making arrangements with Air Melanesiae to fly off to the island of Malekula. (Air Melanesiae operates a regular daily service to many of the larger islands within the Group, using a fleet of four Britten Norman Islander aircraft. With twin engines, and accommodation for eight passengers plus freight, these

166° TORRES Is.

168°

170°

# NEW HEBRIDES CONDOMINIUM

# NOUVELLES HEBRIDES

14°

14

PACIFIC

BANKS Is.

Santa Maria

Mere Lava I.

Hiu I.  
Tegua I.

Toga I.

Ureparapara I.

Valua I.

Vanua Lava

Mota I.

ESPIRITU SANTO

AOBA

MAEWO

PENTECOST

AMBRYM

ALEKULA

EPI

SHEPHERD

GROUP

Mataso I.

Nuana I.

Moso I.

Lalepa I.

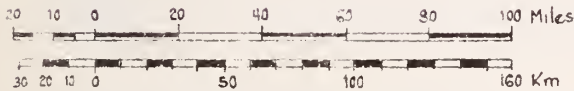
Mat I.

VATE

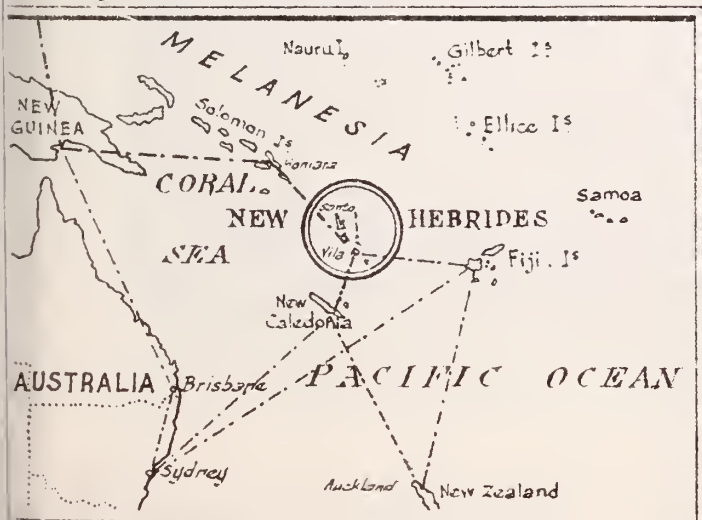


6°

16



8° Tourist Information Bureau.  
Chambre de Commerce, d'Industrie, et  
d'Agriculture des Nouvelles - Hébrides.



OCEAN

ERROMANGO

TANNA

ANEITYUM

18

Futuna I.

Aniwa I.

Volcana  
Port Resolution

Cook Bay

Lenakel Bay

New Caledonia

Brisbane

Sydney

Auckland

New Zealand

Nauru I.

Gilbert Is.

Ellice Is.

MELANESIA

CORAL SEA

NEW HEBRIDES

Samoa

Fiji I.

NEW GUINEA

AUSTRALIA

Sydney

Auckland

New Zealand

15

15

tiny planes are comfortable, fast and extremely manoeuvrable - just perfect for their exacting role of island hopping).

Early on the morning of October 18, we were up and away, heading north for Malekula. After a flight of one hour, a short stop was made at Lamap, on the southeast tip of the island. Another twenty minutes later, we touched down at my first destination, Norsup, on the northeast coast. Just below the airstrip, on the edge of the bay, is situated the Government Rest House - a neat, circular hut, with thatched roof, split cane walls, concrete floor, and containing such mod. cons. as twin beds, bottled-gas stove, and flush toilet. Here, I was quite happy to spend the following week, cooking my own meals with supplies (mostly tinned) from the local store. On most days, I had the use of a Land Rover with native driver, and collected in various likely looking spots in the surrounding hills. Despite very dry conditions, I was pleasantly surprised to find that live snails were quite plentiful - amongst those collected were:

<u>Terrestrial</u>		<u>Arboreal</u>			
Omphalotropis	2sp.	Lamprocystis	2sp.	Trochomorpha	1sp.
Pupina	1sp.	Endodontids	2sp.	Partula	1sp.
Gonatoraphe	1sp.	Diplomorpha	1sp.	Helicina	1sp.
Ouagapia	1sp.	Palaina	1sp.		
Succinea	1sp.	Helicina	1sp.		

In a small stream, I found a good supply of Neritina 4sp., and Melania 2sp., on stones and sunken logs.

Came October 25, and it was time to be moving on. So I caught the daily northbound plane, and after a flight of only twenty minutes, arrived at Luganville. (Luganville, the only other town of any size in the New Hebrides, is situated on the south coast of the immense island of Espiritu Santo). Here, I was looking forward to some rather interesting collecting over the next two weeks.

At the air terminal in town, I had only just gathered my baggage together when, by sheer chance, I was fortunate to meet up with the Proprietor of Lokalee Beach Hotel. And before he knew it, he had a new guest on his hands. I then joined him in his Peugeot station wagon, and together with slabs of beef, cases of lettuce, cartons of bread, etc., we took off at a furious pace back to the Hotel at Hog Harbour - 32 miles away, on the northeast coast. The rambling, ranch-style Hotel is set in acres of trim lawns, amid rustling coconut palms, and overlooks the bay, with glorious views of rugged headlands and distant islands - altogether a truly delightful spot. Although living expenses are about the same as those in Vila, the accommodation, meals and friendly atmosphere in this Hotel are all far superior.

In this part of Espiritu Santo, just inland from the coast, is an extensive 400 ft. high plateau, covered with a dense mat of trees and vines. Judging from the coral limestone outcrops around the edge, the whole block has been thrust up from the seabed in bygone ages. This proved to be an ideal area for my operations, as excellent collecting was to be found, within easy walking distance of the Hotel. Occasionally, I also hired one of the Hotel cars for collecting much further afield. During the two weeks of my stay, I gathered a large amount of live material, which included:

<u>Terrestrial</u>		<u>Arboreal</u>			
Omphalotropis	2sp.	Draparnaudia	1sp.	Dendrotrochus	1sp.
Diplomorpha	2sp.	Orpiella	1sp.	Diastole	1sp.
Palaina	2sp.	Lamprocystis	1sp.	Placostylus	1sp.
Helicina	1sp.	Ouagapia	1sp.	Trochomorpha	1sp.
Gonatoraphe	1sp.	Endodontids	2sp.	Tornatellina	1sp.
Pupina	1sp.	Succinea	1sp.	Helicina	1sp.

Much to my regret, I never did find any live specimens of the arboreal Placostylus, although dead shells were quite common at the foot of large trees. Presumably, they live high up on the trunks, amongst masses of parasitic plants and creepers.

Like all limestone areas, surface water is rather scarce in this vicinity. However, I found a small freshwater spring at sea level, and was delighted to collect 4 species of Neritina, which were in choice condition and abundant supply.

Early on the morning of November 7, I returned to Luganville - the first move on my way to a new collecting ground, on Pentecost Island. In due course, I squeezed into the little aircraft, and we zoomed off into the blue, heading east on the 20-minute flight to the island of Aoba. After brief stops at Walaha, and Longana, on Aoba, it was only another 30 minutes to touchdown at Lonorore, on the west coast of Pentecost. Here, I was met by my hosts, Harold and Mary Finger - a charming, middle-aged Australian couple, who have spent many, many years running a Mission Hospital, and working amongst the people on this and other nearby islands. While the rain poured down, we were soon off in their Land Rover - jolting over boulders, slithering around mudholes, and swooping through numerous open water-courses - finally arriving at their home at Ranmawat, some five miles along the coastline.

Pentecost is a long, narrow island - very steep and mountainous, with the main range rising to an altitude of 3100 ft. Reasonably flat land, suitable for cultivation, is scarce and confined to the immediate vicinity of the coast. Most villages are situated on terraces overlooking the sea. The climate is hot and wet, the forests extensive,

and swift mountain streams provide an abundance of water.

Over the next ten days I was involved in much strenuous exercise, including a hike of twelve miles to Melsisi, and a climb from sealevel to the summit of Mt. Lenbat, at 2700 ft. Happily, my efforts were well rewarded with a fine selection of live specimens:

Omphalotropis	1sp.	Diplomorpha	2sp.	Dendrotrochus	1sp.
Pupina	1sp.	Endodontids	3sp.	Tornatellina	1sp.
Gonatoraphe	1sp.	Palaina	1sp.	Helicina	2sp.
Helicina	1sp.	Pythia	1sp.	Trochomorpha	1sp.
Lamprocystis	1sp.	Orpiella	1sp.		

I was rather intrigued to find here a small species of Pythia which occurs, not along the coast, but in the mountains, up to at least 2400 ft. altitude. Previously, I have always found the genus to be confined to the coast, where it is usually plentiful, up to a hundred yards in from the strand line, on most Pacific Islands. (Subsequently, I again found this particular species, in the same sort of situation, on the island of Erromanga).

In the streams, I collected many choice specimens of Neritina 4sp., and Melania 2sp.

By November 17, it was time to bid farewell to my good friends on Pentecost, and return south to the noise and rush of the "Big Smoke". Around 9.30am, we were on our way. As the visibility happened to be excellent, the pilot very kindly flew us over the 4000 ft. roof of Aoba, where we had a wonderful view of the twin green lakes, which fill the crater of an extinct volcano. And so, with brief stops on Aoba, Espiritu Santo and Malekula, we steadily droned our way south, and eventually reached Vila late in the afternoon.

While in Vila, I soon made arrangements to visit another two of the main islands to the south of Efate. However, I was obliged to delay my departure for several extra days because of accommodation difficulties. Meantime, I took the opportunity to do some more local collecting, and also picked up the two original collecting boxes, which had just arrived - more than two months late.

November 27 dawned wet and gloomy. Nevertheless, I packed my gear and hastened out to the airport - at the same time praying that my flight to Tanna would not be further delayed - weather or no. All was OK. At 6 am, we were off - up through the rain and swirling mist, pointing south to an island in the sun. Indeed, as the miles sped below, the clouds gradually thinned, and by the

time we bumped to a stop on Tanna, the sun was blazing down. At the airport we were met by Bob Paul - the local airline agent, storekeeper and guest house owner. He loaded us aboard a couple of Land Rovers and ferried us down the dusty road a few miles to his store, at Lenakel. After everything was more or less sorted out, I collected a box of food supplies and was driven another five miles along the coast to the holiday camp. This consists of a group of self-contained thatch and cane huts, situated on a grassy slope overlooking a little bay - an ideal setting for the quiet life.

Nearby is a small mountain stream, which I followed inland for some distance, and over the next few days spent a good deal of time collecting along the steep banks, in the dense vegetation. Sometimes I hired a Land Rover and native driver to visit more distant parts of the island. As usual, live snails were plentiful. These included:

<u>Terrestrial</u>		<u>Arboreal</u>			
Lamprocystis	1sp.	Omphalotropis	1sp.	Trochomorpha	1sp.
Pupina	1sp.	Placestylus	1sp.	Partula	1sp.
Helicina	1sp.	Gonatoraphe	1sp.	Dendrotrochus	1sp.
Endodontids	3sp.	Delos	1sp.	Helicina	1sp.

Draparnaudia is a genus of small, dark-brown, sinistral snails, which have the unusual habit of daubing their shells with a thick coating of dirt. Undoubtedly, this is a form of camouflage and is certainly most effective. The genus also occurs in New Caledonia.

The southern half of Tanna is densely forested and mountainous, with the highest peak rising to an altitude of 3500 ft. Also, near the southeast coast is an active volcano - Mt. Yasur, 1200 ft. In the north are extensive grassy plains, on which graze a considerable number of wild horses.

During my week's stay, I had an interesting break from collecting when I joined a tourist party for a trip over to the other side of the island. We climbed the volcano, visited a native village, had a swim and a picnic lunch on the beach at White Sands. Highlight of the day was the volcano. The Land Rover was parked right at the very foot, on a desert of dark grey volcanic grit, and adjacent to a large freshwater lake. A scramble up the slopes and we stood on the rim of the crater, gazing down into the steaming depths. Every few minutes, with a mighty hiss and a roar, a huge brownish cloud of smoke billowed up, filling the crater, while rocks could be heard crashing back to the floor far below. Quite an impressive performance.



Late afternoon on December 4, I once again took to the sky - away north to the neighbouring island of Erromanga. After a scenic flight of half an hour we arrived at Ipota, Cooks Bay, on the east coast. Here, I moved into a comfortable flat with my local host, Tom Fitzgerald - a young New Zealander from Wellington. (He is engineer in charge of logging operations for a French sawmilling company - Societe Agathis - which is currently milling the stately stands of Agathis obtusa, a close relative of the New Zealand kauri).

Erromanga is very sparsely populated, and the forest forms an almost unbroken mantle of green over the whole island, from sealevel to the mountain tops. Consequently, roads, or even tracks, are few and far between. As I was based at the sawmilling settlement, all I had to do was follow up the main logging road, so access was no problem. However, I had to be careful not to wander too far in from the road, as it is an incredibly easy exercise to get lost in such country. Luckily, I never did.

Although there were heavy showers and periods of persistent drizzle during my stay, I was out collecting every day - mostly on foot - up to a distance of four miles inland. Sometimes I hitched rides in the logging trucks, in the maintenance vehicles and even with the overseer in his car. This enabled me to collect up to fifteen miles in from the coast. The best collecting proved to be in thick scrub, around the edges of forest, which had been cut-over many years previously. Living snails were abundant, as follows:

<u>Terrestrial</u>				<u>Arboreal</u>	
Omphalotropis	1sp.	Gonatoraphe	1sp.	Placostylus	1sp.
Pythia	1sp.	Helicina	1sp.	Dendrotrochus	1sp.
Draparnaudia	1sp.	Pupina	1sp.	Trochomorpha	1sp.
Delos	1sp.	Placostylus	1sp.	Helicina	2sp.
Orpiella	1sp.			Partula	1sp.

In the two mountain streams which were available, I found -  
 Navicella 2sp., and Neritina 2 sp.

On December 11, I was due to return to Vila, but the weather was very poor - with low cloud, heavy showers and gusty winds, and the little plane never turned up. According to radio reports, a cyclone was developing in the far north of the Group and most flights were being cancelled. Next day, conditions were still marginal; however, the plane finally arrived, an hour late, at 5pm. We were soon up into the pea soup, groping our way through the gloom towards Efate, and eventually touched down at Vila, just as night was closing in.

As my New Hebrides field trip was about to end in a few days, first thing to do was check on air bookings for the return home. However, with a fuel workers' strike on at Nadi and the cyclone still hanging around, undecided, prospects for an early move seemed rather dim. Meanwhile, as everything grew mouldy in the hot, damp conditions, I did some final collecting, repacked the four boxes of specimens and dropped them at the agency, ready for shipment.

By December 18, all was going according to plan. I boarded an Air Pacific BAC111 and arrived in Nadi, Fiji, around 5pm. After several hours' wait in sweltering heat, I was off on the last leg, and eventually reached Auckland some time after midnight.

Reference:

Solem, A. (1959)

Systematics & Zoogeography of the Land & Freshwater Mollusca of the New Hebrides.

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- \* The small, fragile, foreign bivalve Theora, which seemed to have established itself so well in the Auckland Harbour at and below low tide mark, appears to have disappeared from a few localities in which it was abundant a year ago. Extensive sieving at Island Bay, Birkdale, has failed to bring to light any live specimens - a few small valves were all that could be found. Prolonged southwest winds may account for its absence or perhaps the flounder population has consumed them! Sieving of mud at dead low tide near the Toll Plaza on June 30 showed that a fair number of live specimens of Theora were still flourishing over quite a wide area.

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- \* Limaria orientalis, our other newcomer in the Auckland area, is apparently "exploding" in population and spreading up and down the northern East Coast and well up the Auckland Harbour. Even if rocks are turned over and not put back, Limaria has the advantage of being able to move quickly about in a small pool to find adequate cover. Also, it is unpalatable to most creatures, though crabs will attack young specimens and, judging by the several shells outside lairs on one reef, the Octopus does not mind the sticky substance secreted by the tentacles of Limaria.

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- \* Mr E. Willis reports that Limaria orientalis is not uncommon inside dead horse-mussel shells trawled off the Quarries, Colville Passage, in 10-12 fathoms. Largest specimen seen from here was  $1\frac{1}{4}$  inches in length.

## SOME NEW HEBRIDEAN MOLLUSCS

R. C. Willan

(This article is the first of a proposed series, giving records and a description of some marine species, from New Hebrides, other than those of the more 'classical families'. As so little distributional data is available for this area, it is hoped that the information presented will contribute to this area of research.

The New Hebrides are an irregular Y-shaped chain of islands with a total area of 5700 square miles. They are situated in the southwest Pacific between latitudes 13 and 21 degrees south and longitudes 166 and 171 degrees east. To the northwest lie the Solomon Islands and to the southwest, New Caledonia. Fiji is about 500 miles east.

The New Hebrides chain is situated on the middle portion of a segment of the circum-Pacific Oceanic Ridge system which extends from Matthew & Hunter Islands in the south, through the New Hebrides, to the Santa Cruz Group in the north. In the New Hebrides the ridge rises to over 6000 feet above sea level at Mt. Tambwemasana on Santo and is flanked to the west by an accompanying ocean trench, which is 23,300 feet (7060 metres) deep off Aneityum. To the east the slope is more gentle down into the shallower (10 - 16,000 feet) Fiji Plateau.)

### Part I

#### The Family Limidae in the New Hebrides:

Introduction: The species of Limidae (file shells) recorded by the author whilst in the New Hebrides, from November 1972 to February 1973, are summarised. A description and drawing of each species is given, as a checklist of New Hebridean Limidae has not previously been published. The bulk of species described were personally collected on Efate Island, but one species, Lima lima vulgaris, is also recorded from Tanna Island, on the basis of specimens kindly donated by Mr H. G. Wallington.

The New Hebridean species are compared and some comparisons are made with similar species found in New Zealand; notes on relative abundance and observed habitats and behaviour are also given.

Five species of file shells were found in the New Hebrides extending from intertidal to moderately deep sub-tidal regions. Only one species, Limea fragilis, was found abundantly alive over this whole range, but dead valves of two other species, Limaria basilanica and Ctenoides annulata were common, suggesting that these species also live in shallow water. Limaria basilanica is shown to be a valid species, quite distinct from Limaria orientalis.

Description:

Limaria basilanica (A. Adams & Reeve, 1850) Figure 2

Medium to large sized shell, inflated, white, inequilateral. Anterior margin is straight and oblique, the posterior margin is prominently rounded in the middle. The shell gapes anteriorly and posteriorly, the valves being in contact for a distance below the posterior ear. Valves strongly ribbed, with sharp, straight, raised ribs which project at the shell margins. There are one or more fine intermediate threads between the main ribs. Occasional concentric growth zones are visible; these do not intersect the radial ribs. Prominent triangular ears, the posterior ear strongly excavated.

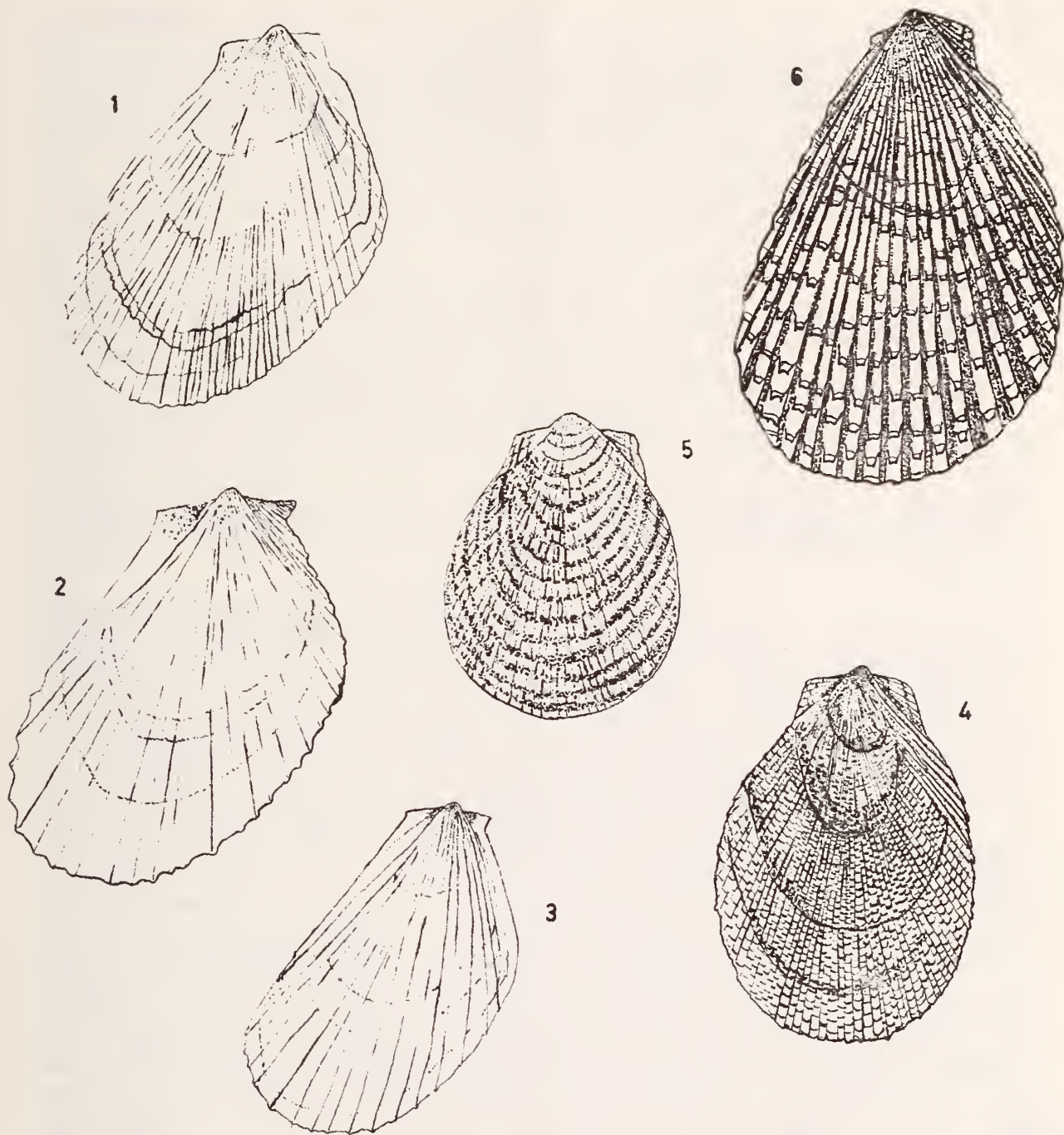
L. basilanica is similar to Limaria orientalis (A. Adams & Reeve, 1850), figure 1. This latter species has invaded northern New Zealand, and established itself very successfully since being first recorded here just over a year ago. Although Limaria orientalis is considered by Habe to be a form of L. basilanica, there appear to be significant and consistent differences, both in the living animals and in shell form, to separate these two molluscs as true species.

The differences are, firstly, that L. orientalis has a more circular margin and is more globose, the valves are more delicate and lighter in texture. An adult L. basilanica is double the size of L. orientalis (max. sizes - L. basilanica 46 x 34mm, L. orientalis 23 x 16mm). There are always fewer ribs in L. basilanica (27 - 34 main ribs). Limaria orientalis has 40 - 50 main ribs. The ribs in L. basilanica project strongly for the whole of the basal and posterior margin, whereas in L. orientalis the basal margin is finely dentate, sometimes even practically smooth. L. basilanica has a much deeper sinus in the posterior ear.

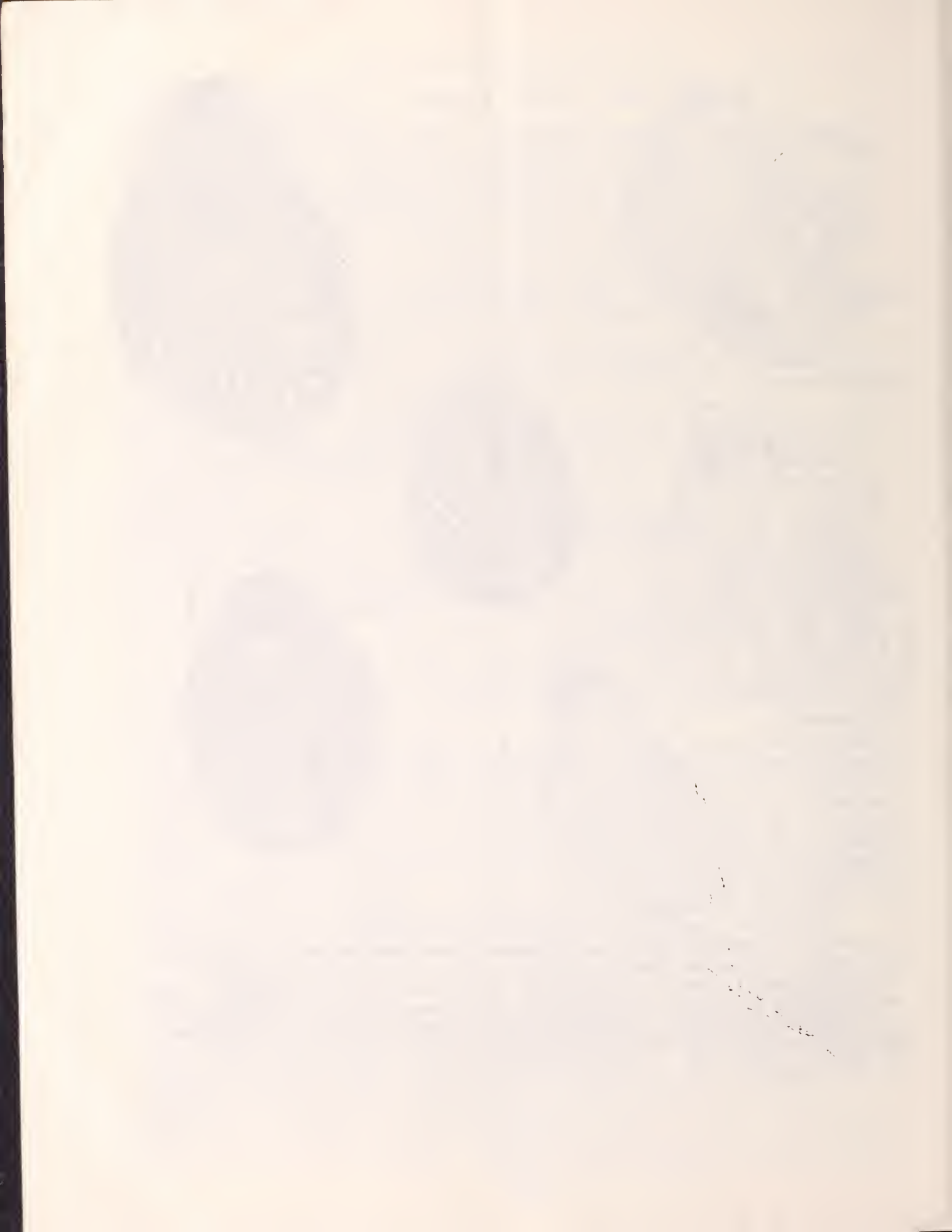
The animal of L. orientalis has long, orange mantle tentacles, and its habit of nest building is well known. In New Zealand this species lives intertidally and subtidally to 80 metres. A single live specimen of Limaria basilanica was collected on sand under a dead coral slab, in 3 metres of water at Le Lepa Landing, on the northwest coast of Efate Island. This specimen had grey-white tentacles and a dark grey foot; no signs of a nest were observed - very likely a specific distinguishing character. Limaria basilanica was common in the New Hebrides - odd valves were abundant in wash-ups and dead shells were often seen while the author was diving.

Limea fragilis (Gmelin, 1791) Figure 3.

Shell medium sized, up to 33mm in length. Valves flattened, exceedingly thin and recurved anteriorly. The valves gape anteriorly and posteriorly for the whole length, the posterior gape being very wide and dorsally arcuate. The only points of contact are the hinge line and at the posterior ventral margin.



1. *Limaria orientalis* (Ad.&Rve.) Mahurangi West, New Zealand, 23x16mm.
2. *Limaria basilanica* (Ad.&Rve.) Efate Island, New Hebrides. 24x19mm.
3. *Limea fragilis* (Gmelin) The Lagoon, Efate Island, N.H. 20x13mm.
4. *Ctenoides annulata* (Lamarck) Black Sands Beach, Efate Is. 26x19mm.
5. *Ctenoides concentrica* (Sowerby) Black Sands Beach, Efate Is. 38x26mm.
6. *Lima lima vulgaris* (Link) Tanna Island, N.H.



L.fragilis, continued:

The valves have 18 - 22 slender curved ribs; there can be intermediate threads between the ribs and on the smoothish areas adjacent to the anterior and posterior margins. The ribs project slightly at the ventral margin, and in profile are seen to be weakly costate. The valves are so thin that it is easy to read print through them; they are shiny internally, creamy-white externally, often with growths of pink coralline algae on the outside.

This is a common species under dead coral slabs on low tidal reef platforms and also subtidally. Living Limea fragilis are immediately noticed by their long deep red or sometimes red-banded tentacles and by the rapid and powerful swimming action which is facilitated by the lightness of the valves. The tentacles can be discarded, even at the slightest touch, leaving the collector with a sticky red handful while the Limea swims off.

Limea fragilis does not build a nest. A synonym of this species is the Australian Promantellum parafragile Iredale, 1939.

Ctenoides annulata (Lamarck, 1819) Figure 4.

Shell nearly equilateral, medium in size (up to 47mm in length), outline variable from almost circular to elongate and oval. Valves moderately compressed. Ears prominent, nearly perpendicular to the longitudinal axis of the shell, the posterior ear is slightly oblique. The anterior ear is rounded and its margin is reflexed, so forming a thickened lip to the anterior gape. The posterior gape is a narrow slit, the ears are not thickened. The anterior ear is separated from the rest of the shell by an oblique furrow. Colour of the shell is white or pale straw-yellow, externally covered with a shiny brown periostracum, which tends to be laid unevenly in bands. Interior shiny, with a translucent glaze, concentric white areas are present and the external sculpture is visible. There is a single large posterior muscle scar. Internally there is a shallow groove separating two broad lateral teeth anteriorly below the hinge line; there are also two weaker flattened posterior lateral teeth below the hinge line (a feature of members of the genus Ctenoides, in which this genus differs from Lima s.str., which has three posterior teeth). The margin is fragile and practically smooth, with a brown unthickened growing region.

Sculpture is variable, consisting of numerous flattened radial striae, which bear either many raised sharp-pointed prickles (rough form) or obsolete flattened scales (smooth form). All intermediate forms are found, with dense or sparse scales. There are five or six more prominent ribs on the oblique anterior slope, bearing weaker scales, the posterior ear is ribbed and scaly. In dead shells the scales and periostracum become worn off to leave a delicate white lace-like external appearance.

C.annulata, continued:

A large number of juvenile (3mm) specimens were found alive at 15 metres under coral slabs resting on weed and sand at Le Lepa Landing. Dead valves were commonly seen washed ashore and empty shells were often seen while the author was diving.

Ctenoides concentrica (Sowerby) Figure 5.

Shell medium in size (up to 36mm in length), somewhat similar to Ctenoides annulata but much more globose and more circular in outline. Junior shells of C.concentrica are inequivalve with short anterior and posterior slopes and a long ventral margin; adult specimens are uniformly circular. In young shells the ears are almost perpendicular to the shell's longitudinal axis. In all shells the anterior ear is separated by a deep furrow, the anterior ear is longer than the posterior ear, obliquely rounded and thickened, so that when the valves close a large  $\cap$ -shaped anterior gape is present. There is a thickened ledge internally, ending in a tooth at the base of the ear. In all shells the posterior ear is small and continuous with the shell surface. There is a narrow posterior slit-like gape, the posterior ear also has a weak internal ridge ending in a tubercle. The hinge line is straight with a central triangular ligament. Below the hinge line there are two anterior and two posterior lateral teeth as in C.annulata.

The sculpture is of numerous fine radially-diverging ribs. These flattened ribs are separated by shallow punctate grooves, which become increasingly obliquely punctate as the shell grows older. There are strong ribs on the ears. The shell is covered by a flaky golden-brown periostracum, laid in concentric bands. The periostracum rapidly wears off after death, first to a smooth mottled brown and then is lost altogether to leave a white punctate exterior. The interior is porcellanous-white, a large posterior muscle scar is present, concentric white bands, the divaricating external sculpture is visible internally.

Ctenoides concentrica is in the New Hebrides an uncommon species, which the author found only while diving - no live specimens were collected.

Lima lima vulgaris (Link, 1807) Figure 6.

Shell large, white, anterior margin is straight and oblique, the posterior margin is circular, with a short posterior slope. There is only a slight gape on both sides. Anterior ear is small and sharply descending, sometimes weak or obscured, the posterior ear is larger, it bears 3-4 strong scaly ridges, it is less oblique than the anterior ear. The shell has 26-30 strong rounded radiating ribs with deep intermediate furrows - no intermediate threads. These ribs bear numerous prickly scales, which become larger towards the ventral margin. The ribs on the anterior slope are



Lima lima vulgaris, continued:

broad and flattened with file-like sculpture. In fresh specimens these file-like markings can be seen on the main ribs also, although more weakly developed. The interior is shining and white, the ribs can be felt internally, there is a single large posterior muscle scar. The margin is strongly crenulate.

This species is uncommon in the New Hebrides, and is the largest file shell found there, it can grow to 65mm. (Cernohorsky).

The New Zealand Lima zelandica Sowerby, 1876 is much more inflated and broader in the anterior-posterior direction, it has fewer ribs and a more circular outline.

The Australian Lima nimbifer (Iredale, 1924) has more numerous and more delicate ribs than Lima lima vulgaris and the intermediate grooves are shallower.

Acknowledgements:

Special thanks to Dr. A.W.B. Powell, Mr. W.O. Cernohorsky, Mrs. D.H. Hole and Mr. K. Grange.

References:

- A. Adams & Reeve - Voy. "Samarang", Moll., P.75  
Anglo-French Condominium - New Hebrides Biennial Report, 1969 and 1970  
Cernohorsky - Marine Shells of the Pacific, Volume II  
Habe - Shells of the Western Pacific in Colour, Volume II  
Kira - Shells of the Western Pacific  
Suter - Manual of the New Zealand Mollusca

\* \* \* \* \*

A specimen of Limalatys reliquus Iredale - the second New Zealand record as far as we are aware - was found by Mr. N. Douglas on Great Exhibition Bay recently. This is a small bubble-shell, tapering each end and with incised spiral lines over the body whorl.

Holotype is from Sydney Harbour dredgings.

7.5mm x 4.0 mm.



## A NOTE ON XENOPHALIUM

N. Douglas

In a review of the Cassididae in "Indo-Pacific Mollusca", Dr. Tucker Abbott lists our Xenophalium collactea as a hybrid between X.pyrum and X.labiatum. This shell is therefore reduced to Phalium labiatum (Perry 1811) forma collactea (Finlay).

I admit I am a very amateurish conchologist, but this really surprised me when I read it. Living so far away from the grounds in question. Dr. Abbott may be at some disadvantage is assessing distributional problems, etc., and this has prompted me to write something of the problem as I see it. The following is a brief summary of some questions without apparent answers -

1. I have shell-combed our local west coast for 40 or 50 years, where X.pyrum is common but X.labiatum unknown. I have not heard of any specimen of X.labiatum being found in my area (of longest study). but X.collactea, the said-to-be-hybrid, is there, although in very small numbers, it seems. Now the obvious question that arises is this: if X.collactea is a hybrid, then either X.labiatum must also be present and unknown, or else the hybrid pelagic juveniles must travel a very long way against the prevailing sea current, i.e. around the North Cape from east to west, then down the coast about 200 miles to the place at Maioro where I found the pair of X.collactea in 1971. Also, they appear, by their relative sizes, to be male and female. Rather strange that a 'pair' should come so far on the diffusing currents, in fact against them, and then wash up at Maioro. These are the only two X.collactea that I know of, taken in my area, and they are certainly easy to identify.
2. X.pyrum has a nodular spire, while X.collactea has no sign of nodules on the spire in any specimen I have seen. If X.collactea is a cross between pyrum and labiatum, why should the nodular feature be cut right out in this hybrid? Why would not the nodular pyrum hand on some of its sculpture to the hybrid?
3. X.collactea has what appears to me to be a unique feature - nodules only on the back of its body whorl. Where would the hybrid get this unique feature from? Certainly not from X.labiatum, for it has no nodules at all. Why would hybridization cut out all the pyrum nodulation - except on the last half whorl?
4. X.collactea shows no sign of pyrum's spiral sculpture (incised lines running around the spire). I think all pyrums show this in some degree. Why would not a hybrid show some of it?

5. Why would hybrids be so exactly similar - and from widely different localities on both East and West Coasts? X.pyrum varies in nodulation considerably within the species, even in one locality. We find them with rows of nodules ranging from one to three, and size of adults varies with locality, e.g. those from Maketu, Bay of Plenty and Paraparaumu on the Wellington West Coast are large, while specimens from Muriwai Beach and Great Barrier Island are quite small though mature.

\* \* \* \* \*

THE NEW ZEALAND CAVE SNAIL OPACUINCOLA PONDER (HYDRODIIDAE)  
AND A NORTH ISLAND RECORD

N.W. Gardner

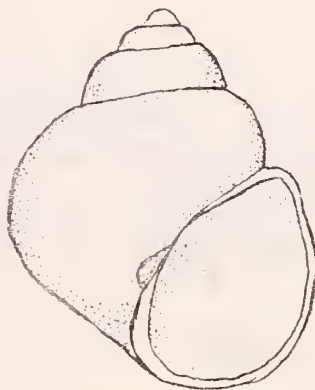
Subterranean snails are known from many parts of the world, but it was not until 1966 that a paper appeared with a record and description of a distinct new genus and species of a true New Zealand form. (Suter in 1905 named a single specimen of a Potamopyrgus from a bore, as P.subterraneus, but this is now generally discounted).

In the paper referred to, Dr. Ponder reports on the occurrence of a minute Hydrobiid species from limestone caves in the Takaka area of Nelson.

\*The first specimens seen were found by our Nelson member, Miss B. Elliott, along the flood margin of the Gorge Stream, East Takaka, and she eventually succeeded in tracing them back to the underground stream higher up. When the opportunity offered, Miss Elliott accompanied a party of "cavers", and at a distance of about a mile underground, was able to secure live specimens for study.

Opacuincola caeca Ponder.  
Gorge Creek,  
Easr Takaka.

3.0mm x 2.0 mm.



Several years later (1970), Mr Taylor of Whangamata sent us for identification a number of tiny shells collected from round the edge of a Soda Spring at Aria, King Country, North Island, and these proved, also, to be Opacuincola caeca Ponder - the second record for this species and the first for the North Island.

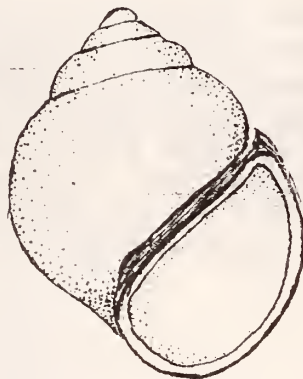
The Soda Spring, according to Mr Taylor, bubbles up strongly into a pond (in which the shells were found) and empties from there into the Mokau River. The first small sample was examined closely to see if any specimens had the animal intact, but every one was empty. The live snails, no doubt, were living well underground and only the spent shells were being floated to the surface. However, we asked Mr. Taylor if further material could be obtained from as close to the opening itself as was possible, and this he was able to do - delivering to us several quarts of water and "sand". The "sand" was fantastic - composed almost entirely of empty shells of Opacuincola - millions of them! No live ones noticed.

For future reference, the locality map, drawn by Mr Taylor, is reproduced below. We understand that shortly after the above sample was taken, a severe flood washed out this pond, but no doubt the tiny shells are still finding their way to the surface.



While the Nelson specimens seem to be fairly constant in profile, the King Country population exhibits a very high percentage of vermiform (unwound) examples, together with a great variation in spire height - a subject worthy of further study. Many specimens are also coated with a rusty deposit frequently associated with soda springs.

Vermiform example  
from Aria.



This is certainly a strange habitat - one of complete darkness, in which one would not expect any amount of plant life to flourish, yet these molluscs must obtain sufficient to sustain them as they are herbivores.

Reference; Ponder W. F. 1966. On a Subterranean Snail and a Tornid from New Zealand. Jour. Mal. Soc. Aust. Vol 1. No 10. Nov. 1966.

\* \* \*

\*From Taputaputa in the Far North, Hunt Seelye reports finding, along the edge of the fixed dune, a number of specimens of the European snail *Helicella caperata*. These are very large examples. There does not seem to be any previous record of this species occurring in Northland, but it does exist at Thames and in a number of localities in the Wellington Province - as well as at Nelson in the South Island - Whitten, Conch. Section Bulletin No. 11, 1955.

\* \* \*

SOME PAPERS ON MOLLUSCS FROM NEW ZEALAND

The Family Acteonidae (Opisthobranchia, Gastropoda)  
in New Zealand

W. B. Rudman

Jour.Mal.Soc.Australia, Vol.2, No.2, Sept.1971

Abstract:

The New Zealand species of the genus Pupa are described. The radula of Pupa kirki (Hutton 1873), a New Zealand species, is described and compared with those of Pupa sulcata (Gmelin 1791) and Pupa suturalis (A.Adams 1854) collected from Fiji and Queensland respectively. A new genus, Maxacteon, is erected for Acteon cratericulatus Hedley 1906 and two new species are also described. The shells of two probable new species are described but not named.

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The Genus Bullina (Opisthobranchia, Gastropoda) in  
New Zealand

W. B. Rudman

Jour.Mal.Soc.Australia, Vol.2, No.2, Sept.1971

Abstract:

A study of shells of the genus Bullina from collections in New Zealand show that there are a number of species in local waters. The shell, radula, jaw plates and external features of Bullina lineata (Gray 1825) and a new species, Bullina roseana, are described. Shells of the specimens collected in New Zealand are described and illustrated, but the author did not feel an attempt at identification or description as new species was warranted at this stage.

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A Review of the Australian Species of Penion Fischer  
(Neogastropoda: Buccinidae)

W. F. Ponder

Jour.Mal.Soc.Australia, Vol.2, No.4, March 1973

Abstract:

The Australian Recent & Tertiary species of Penion Fischer are reviewed. Penion is shown to be used properly for the Southern Hemisphere species previously referred to a number of genera including Siphonalia, Austrosipho, and Verconella. Penion is contrasted with related Australian genera and

is also shown to be closely allied to the Northern Hemisphere genera, Neptunea Roding and Kelletia Fischer. The recent Australian species are reduced to two P.mandarinus (Duclos) and P.maximus (Tryon). The New Zealand P.mandarinus auct is referred to P.sulcatus (Lamarck). Three fossil species and one subspecies are recognised.

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A Kermadec Islands Conus (Mollusca: Gastropoda)  
found living in Northern New Zealand waters

A.W.B.Powell

Rec.Auck.Mus., Vol.9, Dec.1972

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# POIRIERIA



Volume 7. Part 2. September 1973.

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THE GENUS MELANOPSIS (THIARIDAE)IN THE SOUTH WEST PACIFIC

-N.W. Gardner

The freshwater snails of the genus Melanopsis have an unusual-distributional pattern in that the majority of species occur in Spain, North Africa and Asia Minor, with only two or three in far away South West Pacific. None are apparently known from the widespread area between.

Two South West Pacific species, one in New Zealand and the other in New Caledonia, have more or less smooth shells unlike many of the Spanish and Middle East species which are strongly axially ribbed. Several Moroccan species, however, do look very similar to our local ones.

For the New Zealand species, Finlay 1927 proposed a new genus which he called Zemelopsis. This is now credited with sub-generic standing, the radula differences being the only reason for retaining it. Our Melanopsis (Zemelopsis) trifasciata Gray 1843, Fig. I, which grows up to 50mm, is known from much of the North Island, but in the South Island is more likely to be seen in northern parts. More often than not, it is found up streams and rivers subject to tidal conditions, but also occasionally well beyond the reach of brackish water and in fast flowing streams. However, it does not seem to occur far inland - on the Central Plateau for instance.

Young shells are generally smooth and dark olive green in colour, with up to three distinct spiral bands of brown, which are apparent within the aperture of the shell.

In the adult stage some shells lose the spire and become decollated, as do a number of overseas freshwater snails, due no doubt to the acid nature of the fresh water.

There is a considerable amount of variation in the adult size of shells from different areas. For instance, those in the stream at Kapuwairua, Spirits Bay (and they are extremely numerous here) never seem to approach the size of some populations to the South. On the other hand, colonies from running streams further from brackish water are generally fewer in individual numbers, but have much larger shells, heavier in build and a uniform dark colour - almost black. Particularly fine, large examples

occur at Mair Park, Whangarei, at Great Barrier Island and up the Patarau River, West Nelson.

While they can sometimes be seen crawling along on clay stream bottoms in some tidal reaches, usually they seek shelter on submerged logs and roots or around the sides of boulders on stream beds.

Melanopsis retoutiana Gassies 1863, Fig II

Not a great deal of information is available for this species, but the shells I have before me were collected, not long ago (along with several species of Hydrobiids). Compared with M. trifasciata, these shells

Fig. 1.

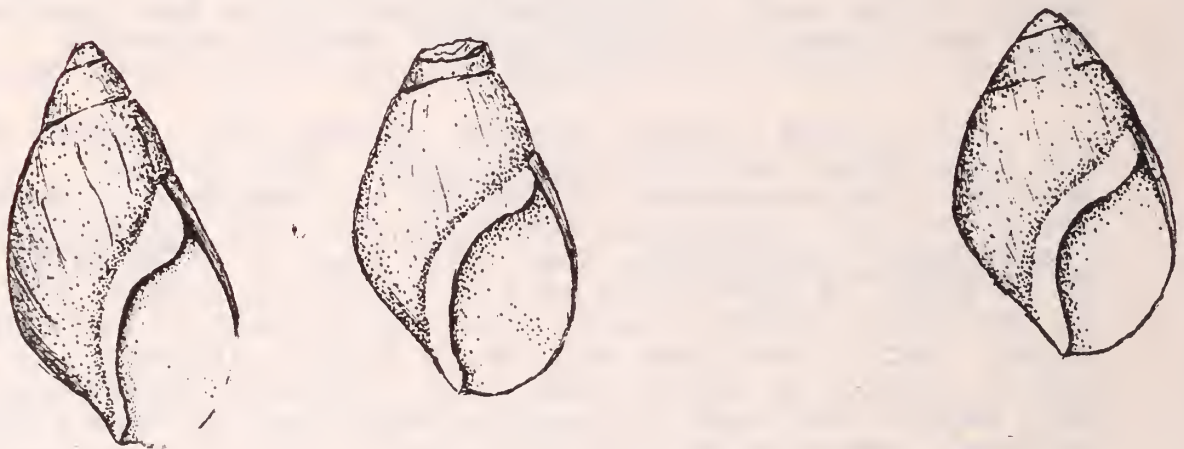


Fig. 2.

are smaller, have a lower spire and are considerably more inflated in profile. They are plain, straw-coloured in the adult, but some juveniles possess an axially zigzag pattern of red-brown.

References:

Finlay 1927 Trans. Proc. NZ Institute  
Vol 57, pp 320 - 485

Gassies 1863 Faune Conc. Nouvelle Calédonie  
Vol 1, p 89, Pl. VI

## SHELL TRAPS - SIMPLE AND EFFECTIVE

Graham Clifford

With the approaching warmer weather and holiday months those collectors fortunate enough to own a boat may consider it time to plan a slightly different approach to collecting. Whilst there is perhaps no substitute for original ideas, other collectors' experiences can often be used to good advantage.

During the past five years or so I have experimented, somewhat haphazardly, with trapping of molluscs and although I've not succeeded in obtaining many species with this method, I am sure there is plenty of potential for success. To begin with I used single traps (one per buoy line) in 30 fathoms on a sandy mud bottom. These traps were 3" diameter steel pipe, 14" long, with steel mesh welded in the opposite end to that where the buoy line fastened. Fish bait (kahawai or bonito) was tied in against the mesh and I soon found Austrofusus glans were very prolific. Hermit crabs with small Tonnas, Xenophalium and Penion shells would also find their way into these pipes, but before long it all became worthwhile when I began to obtain Nassarius aoteanus in small numbers. There seemed little reason why I shouldn't double my chances with two traps per line, separated by 30 feet or so. This worked fine and helped to point up the probable close colonisation of these species in certain areas. How else would one explain an empty trap, with bait untouched, and 30 feet away another with 39 Austrofusus glans and 12 Nassarius aoteanus inside?

The advantage of these pipe traps was that they were inexpensive, were heavy enough to anchor themselves, were too small in diameter to allow fish in at the baits, and once pulled from the sea bed, all shells were held in the bottom of the pipe and could not wash out. Yet there was plenty of room for further experiment and improvement. I no longer use pipe traps, instead prefer to set a long line of up to a hundred traps made from beer cans. These are made by punching holes in one end with a can opener and cutting the other end out. A 10" length of wire is then attached at the open end, the bait placed inside and the open end squashed to leave only a  $\frac{3}{4}$ " gap for shells to crawl through. If the bait is 1" square it cannot float out and yet doesn't need wiring in place. The can is attached to the backbone line by three twists of the 10" wire and the traps are set about 15 feet apart. Forty traps can catch 350 Austrofusus glans in  $1\frac{1}{4}$  hours during daylight, 50 traps have taken 1400 Cominella quoyana in  $2\frac{1}{2}$  hours. Of course, no one wants this number of these species, but we'd all be happy to find the occasional Nassarius and Penion dilitata and this is why I consider

it worthwhile setting a line of traps occasionally.

To date the only bait used in these traps has been fish, ox liver and crushed pipis (*Amphidesma australe*). Here is one area open for experiment. Perhaps another collector can report further successes with other baits; perhaps crushed cushion stars, salted karaka leaves, or suchlike. Add to this the exploration of different depths, various types of sea bed, a variety of localities, and one can see that there are considerable possibilities.

\*\*\*\*\*

WOULD YOU RECOGNISE TURRITRITON LABIOSA (Wood).

This small cymatiid species found in Pacific regions north of New Zealand is rarely seen here. Only very occasionally do we hear on the "grapevine" that one has been obtained somewhere along the eastern coast of Northland.

The first record for New Zealand was a comparatively large, freshly dead shell picked up by Dr Powell on Tom Bowling Bay away back in 1932. This particular specimen measured 25mm x 16.5mm, and is figured in Vol 65 of the Trans. Proc. NZ Institute.

New Zealand specimens are said to be generally smaller than those from overseas and this would certainly seem to be so, judging by the several live specimens recently dredged from the Bay of Islands and Whangaroa areas. If not examined closely, this species could be confused with Cabestanimorpha exarata minus its usual epidermis. Compared with C. exarata (in this denuded state) T. labiosa appears to be more rounded in profile with a shorter, less acute spire, shorter siphon and with an umbilical chink. The sculpture, however, is quite distinctive, for the whole shell is crowded with raised spiral ribs, all of which are delicately beaded. The ribbing is aptly described as being triple-corded. The varices are not as pinched up as in C. exarata and the colour is a uniform fawn-pink or buff, while C. exarata is more distinctively coloured - red-brown at the periphery, purple and white below. On the latter species there is normally a heavy periostracum which produces hair-like processes on the varices.

The colour pattern on the animals is quite different in the two species - that of T. labiosa is pale cream in colour, but attractively spotted with red; tentacles also spotted, while C. exarata is a pinkish brown ornamented with small chocolate coloured, round spots,

C. exerata.



T. labiosa.



which are in turn narrowly ringed with pale buff.  
Tentacles appear sparsely banded in dark brown.

Acknowledgement: Graham Clifford for kindly providing  
live examples of both species for  
observation.

References: Beu, A. 1971 Jour. Mal. Soc. Aust.  
Vol 2, No. 2

Powell, A.W.B.  
1934 Trans. Proc. NZ Institute  
Vol 63

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NOTES OF INTEREST

\* P. Latham, Papamoa -

"A fortnight ago, I was given a live specimen of  
Umbraculum which was taken on a long line off  
Karewa Island, Bay of Plenty".  
Alas! all most of us seem to be able to catch on  
a line is fish!

\* Bob Penniket -

Another Cypraea vitellus has turned up from the  
entrance to Leigh Harbour - a good fresh shell,  
newly dead, near an octopus lair.

- \* Amongst some small land snails collected by Norm Douglas at Herekino were a couple of specimens of that small freshwater Hydrobiid Paxillostium nanum Gardner. This record enlarges the known range of the species a little more.
- \* Mr and Mrs Hunt Seelye have picked up from a local beach another problem, this time in the form of Malea pomum L., the well known, small, strongly ribbed Pacific tun shell. This was a reasonably fresh specimen, though the spire has been damaged. The aperture is strongly denticulate.
- \* The "Northern Advocate" and the "Northland Age" have featured the first live specimen of Fusinus genticus obtained by Mr Bill Palmer off Poor Knights Islands. This species was illustrated in Poirieria, Vol 6, Part I. During the last few years a number of dead shells have been found. Dr W. Ponder of the Australian Museum, Sydney, writes "this species is really quite a puzzle. It is known from Australia only by the broken juvenile type specimen dredged in Sydney Harbour".
- \* Terebra circumcincta. The several specimens referred to in previous "Poirieria" have survived in a small aquarium of ours for over seven months, and have appeared quite healthy. They have now been returned to the Bay of Islands for release. During their 'vacation' at Auckland, the condition of the shells themselves deteriorated a little, with some erosion of the protoconch and a certain amount of algal growth on the shell.
- \* Hunt Seelye writes that he has had large white Pedicularia on white coral from off Three Kings Islands - red shells on red coral is the usual story!
- \* From Joy and Max Hancock -  
 "Here is that list of shells we found in the Bay of Islands when dredging off Deep Water Cove last March and April. I don't know which was the more exciting - finding a live Maxacteon milleri or the small dead Casmaria perryi. In one dredge load we found 1 Mammilla simiae, 1 Bullina lineata, 1 Notocochlis migratoria. In a later dredge was a live Architectonica reevei. About a fortnight later, we were dredging out in the middle of the Bay, more towards the Black Rocks, and we were lucky enough to find a Zeacolpus maorius, the first ever, and very large Globisium drewi, also another first; also a number of halves of the bivalve Dosinia greyi (no live ones, though - either they live in fairly deep water or we didn't find the right bed).



NEW PLYMOUTH - THE HARBOUR AREA

T. Hook

To anyone visiting New Plymouth with an interest in shells, the casual beach stroll will quickly dampen any thought of a fine shell haul. The shore line locally has the characteristics thus - shallow, very rocky shore extending beyond low tide line. This, combined with an average swell of 4 feet, and in storm conditions, 15 feet, causes a high mortality rate of shells and broken shells seem to be the usual find.

But in a few localities some fine specimens can be found, and it is these spots which may be of interest to visitors.

Ngamouto Beach: Sheltered by breakwaters at Port N.P., exposed to the north, so after any northerly blow is a good time to visit this area. When the Harbour Board dredge is working, the east side of the Port is very productive. At times the following may be obtained from this area:-

West End of beach: Solemya parkinsoni come ashore, usually after dredge working.  
Dosinia subrosea wash ashore in large numbers at any tide; the attractive Myadora striata are here, but though of large size, not in any great numbers. The usual selection of all types of Zediloma abound on the rocky area west of the beach - forming the breakwater area. In the middle of the beach can be obtained our old friend Tawera spissa and also Dosinia zelandica of small size. An interesting feature of these is that they have the shape and markings of Tawera spissa but the raised sharp ribs of Dosinia zelandica. At the eastern end of the sandy area is a small rocky area which is exposed at low tide. Here, several species of Micrelenchus can be found in the tiny rock pools. Trochus viridis abound on the rocks with many limpets as companions. One of these sports a large red paint mark on his shell (for identification) and has resided on the same rock for two years so far.

Patelloida corticata and P.c.corallina also live on the rocks and at low tide mark, fine Maurea punctulata exist but it is a small colony and small shells.

The usual Lunella smaragda, Cookia sulcata are there and 'millions' of Modiolus neozelanicus abound in the crevices, along with some Rissellopsis varia. In sand in the pools Rissoina chathamensis and Chemnitzia zealandica occur and on the algae Eatoniella divacea can be obtained.

Numerous nice clean specimens of the carnivorous Cominella maculosa, clean well-coloured Haustrum haustorium and large specimens of Scutus breviculus with shells of 2" or more are common here. Lepsithais scobina and albomarginata abound. The mussels Mytilus edulis and Perna canaliculus wash in here, along with Protothaca crassicosta from a small mussel reef just offshore.

For those with a little more mobility with boat and small dredge, the harbour bottom will yield Leptomya retiaria in large numbers, with the urchins Echinocardium australe and Arachnoides zelandiae making their spiny presence felt. Tawera spissa and its allies already mentioned are here in live condition, along with an abundance of well-coloured Austrofusus glans and an occasional Xenophalium pyrum.

The hungry Cominella adpersa reach good size and colour in the "Basin", an area at the Wharf end where ships turn. Another species I have dredged here is Philine auriformis - but very small shells.

Due to dredging in the area, the ecology is changing and who can tell - this may in future change the pattern in the harbour drastically.

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#### MUSSELS - MYTILIDAE IN NEW ZEALAND

N.W.Gardner

The rather drab wedge-shaped mussel is not the most popular shell with collectors - no doubt its greatest appeal lies in its culinary possibilities rather than as cabinet specimens. For all that, they are worthy of some notice, especially the smaller members of the family which are less frequently seen and are quite intriguing.

Although we are inclined to take our largest species Perna canaliculus (Gmelin) for granted (it grows to about 7"), we must consider ourselves fortunate to have such a good commercial species here, especially when one sees the tiny shells which are utilised in some countries.

We can recall, too, the remarks of a party of American collectors at Muriwai, who enthused over the local mussels with their magnificent green colour and brown rays. "Now isn't that something" they said, "ours are always a dull blue".

Of course, we, too, have blue ones - the southern species Mytilus edulis aoteanus Powell, which occurs quite plentifully round the South Island, the Southern Islands and the south of the North Island, but is found only in very local spots up this way. They have been recorded from Onetangi, Waiheke Island, Great Barrier Island, Whangarei Heads and the Bay of Islands where they are readily obtainable on the wharf piles at Russell and Opuia in particular. This blue-black species grows to 3 or 4 inches. From Banks Peninsula to Dunedin, albino or partial albino shells (minus the violet-black pigment) are frequently seen - a tendency not observed in this species from northern limits or from the Southern Islands A.W.B.Powell 1958.

Aulacomya maoriana (Iredale) can very easily be identified by the strongly marked ribs which extend from the beaks to the margin and in some cases bifurcate. The beaks are rather sharply pointed, the shell is long and rather narrow and the colour is black or purplish maroon. Young shells are generally light brown. Adult size is about 3 inches - 75mm. This is a southern shell, found in places about Wellington but mostly in the South Island, Chatham Islands and the Southern Islands. Good examples are obtained from Stewart Island which, incidentally, is the type locality. The specimens from the south have coarse, sparse ribbing, while those from the Cook Strait - Nelson area frequently have finer and more numerous ribs.

Modiolus areolatus (Gould) occurs right round New Zealand. Occasionally washed ashore, but the finest and largest examples are those which have been trawled from deep water. These measure up to 4 inches (off Otago Heads). The shell is chestnut brown with a shiny, leathery epidermis produced into a bristly fringe at the posterior margin. It is much rounder in profile than the previously mentioned species and the hinge area is very different. It can be found on rocks just below low water and is occasionally collected at low spring tide - usually seen as individual specimens and does not appear to mass together as do the species already mentioned.

Modiolus neozelanicus (Iredale) is the mussel found in great numbers between tides, clustered together and



covering rocks, jetties and wharf piles. This little blue-black species grows to about 1 inch, but some larger examples can be found. The epidermis is heavy, smooth and shiny. Found throughout both Islands.

Modiolus fluviatilis (Hutton). Larger than the previous species but otherwise rather similar. The beaks, however,

are situated further back and the shell is much more "winged"



posteriorly. Colour is more brownish than blue-black. It inhabits estuarine lagoons and tidal reaches, often attached to submerged logs and roots or rocks.

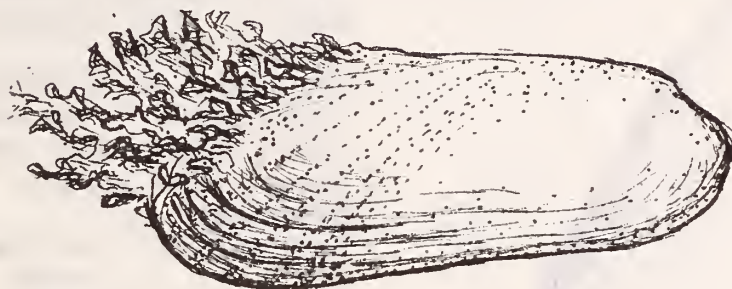
Found in small groups rather than as the tightly packed clusters of the previous species M. neozelanicus. The type specimen is from the Great Lagoon, Chatham Islands, but the species is found throughout New Zealand.

Ryenella impacta (Hermann). A mussel of rather unusual shape. For the size of the shell it is highly convex and has strongly marked radiate ribs at each end, extending from the hinge to the ventral margin, leaving a smooth area in the middle of the shell. The interior is iridescent, usually quite purplish in specimens from Foveaux Strait area.

A cluster of a dozen or more specimens may be seen hidden in a dense nest of byssus threads attached to the underside of rocks at low tide, under ledges or on wharf piles. So closely are the molluscs packed and so dense are the dark brown threads which bind the colony together, that it is easily mistaken for some vegetable growth and so passed over. "When dried, the byssus threads have the appearance of soft wool" - Bucknill.

Grows to  $1\frac{1}{2}$ " and is found throughout New Zealand and the Chatham Islands.

Gregariella barbata (Reeve) is very much smaller than any of the previous species and is therefore probably not so well known.



It grows to just under  $\frac{1}{2}$ " in length and is most frequently seen in a beach drift of small shells. A rather elongated shell, it has distinct radiate ribs at the posterior end and except for growth lines, a smooth

median area. The margin is crenulate. Epidermis light yellowish, produced into bristly processes at the posterior end.

This small mollusc is sometimes seen in crevices of rocks at low tide or in holdfasts of kelp washed up after a storm and not infrequently can be sorted out from shallow water dredgings.

Occurs throughout New Zealand.

Zelithophaga truncata (Gray). This narrowly elongated date mussel is to be found snugly fitted into a hole in



soft rock with only a little cone of cemented debris indicating the whereabouts of the shell. The hole is made apparently by an acid secretion and there is no rotary movement of the shell. This "borer" is said to be attached when young by a byssus as are other

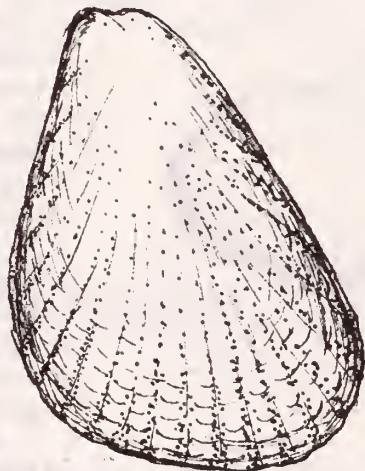
members of the mussel family. It has a thick brown epidermis.

Occurs around both North and South Islands.

(Suter records it as sometimes boring into massive shells of Glycymeris laticostata).

Septifer bilocularis L. New Zealand examples of this Indo Pacific mussel are very small, usually not more than

4 or 5mm. The shell is sculptured with radiating, closely packed flattened ridges and with a distinctive internal deck in the region of the hinge. Colouration is quite attractive - variegated blue, green and red brown. The margin is crenulate.



In northern Australia, where it is found under coral blocks and in crevices, it reaches  $1\frac{1}{2}$ ".

New Zealand specimens have been obtained by dredging and are known from various stations (18 fathoms down to 400 fathoms) from off Three

Kings to Bay of Plenty. (Small specimens are not uncommon in dredgings from the Kermadec Islands).

Crenella radians Suter. A small, finely sculptured shell which seems to be restricted to the northern areas of New Zealand. It

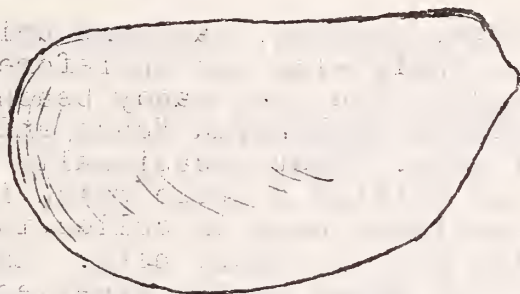
occurred not uncommonly in the dredgings obtained by the Section at Deep Water Cove, Bay of Islands (15 - 25 fathoms).



Sculpture is of fine concentric and radiating ribbing increased by bifurcation. Shell is inflated, semi-transparent with a yellowish tinge. Hinge plate with numerous small plications.

Changes its shape to some extent from being almost round when young, to oval when adult. 5.5 x 3.5mm.

Dacrydium (Quendreda) pelseneeri Hedley. A very rare shell and the only specimens I have seen have been from very deep water (200 fathoms plus) in the Three Kings area.



The shell is semi-transparent, not as large as Crenella radians, more elongated, straight on the anterior side, rounded dorsally and ventrally - umbo projecting. It is

without external sculpture. Hinge with a few anterior teeth. 3mm x 1.5mm. Holotype is from off Great Barrier Island in 110 fathoms.

This mollusc is said to live in an elongated tubular nest woven of byssus threads covered by Foraminifera, Sponge spicules, etc. - H. Suter.

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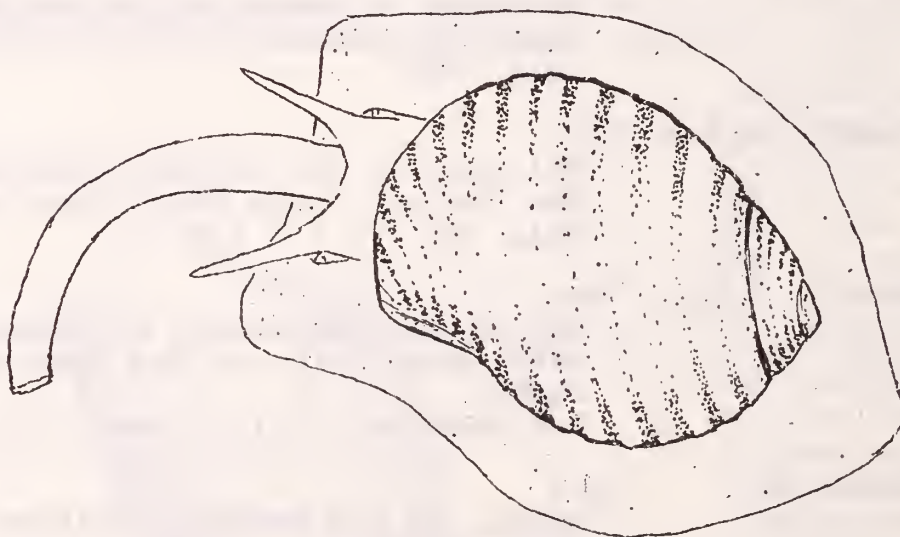
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THE TUN SHELLS (TONNIDAE)  
WHICH OCCUR AROUND NORTHERN NEW ZEALAND

N. W. Gardner

Tun shells are large, rounded, handsome univalves, comparatively thin for their size and therefore are often broken when found on the open sandy beaches after heavy storms - as visitors to Tokerau Beach and other northern beaches will know. Just occasionally the collector is lucky, and obtains a prize which is undamaged, but most specimens seen in collections come by way of crayfish pots or trawl nets. Large hermit crabs seem to find these shells excellent protection for their soft vulnerable tails.

The Tun or Tonna is a carnivorous mollusc which lives partly buried in sandy or soft sea bottom. It has an extremely broad, brown foot and a long cylindrical proboscis which can be extended to a greater length than the shell itself and expanded to engulf quite sizable animals.





The tiny shell of the month-old swimming veliger consists of horny material, different from that of the adult. The larva has an operculum which is lost in the adult stage.



The following six species have been recorded from northern waters and some as washups. In addition, there are occurrences of odd examples of three other species, which are referred to later in this account.

Much of our knowledge of this interesting group in New Zealand is the result of research over the years by Dr A.W.B. Powell. None of the species which occur here are, however, endemic to New Zealand.

Tonna cerevisina Hedley 1919 = haurakiensis Hedley 1919  
This is the species most frequently seen here and is quite well known. It is listed in Huttons Catalogue and Suters Manual as Dolium variegatum Lam. 1822, but that name now applies to the West Australian species. The Eastern Australian species is the same as ours but it varies in colour pattern. The New Zealand specimens are said to have fewer spots than those from East Australia - in fact, a proportion of the local shells are dark brown and entirely without spots. A few giants of 230mm have been obtained, but usually they are about 160mm. Occur off both coasts of Northland and as far south as East Cape.

Tonna cummingi (Reeve 1849) = maoria Powell 1938  
Specimens have been obtained from Houhora Heads (type locality of T.maoria Powell), Great Exhibition Bay and Tokerau. This is not a large species - 70 to 80mm being normal size. It is sculptured with broad, flat, spiral cords with linear interspaces. There are six cords on the penultimate and twenty on the body whorl. Buff or brown in colour, with lighter rectangular patches on certain spiral cords.

Tonna tetracotula Hedley 1919

Recorded in New Zealand by Dr Powell in 1927. Specimens are not uncommon from North Cape to Bay of Plenty from trawl nets or crayfish pots - also found off the Auckland West Coast.

T. tetracotula is of similar size to T. cerevisina = (haurakiensis), but is separable by the presence of a small subsidiary rib between the main ones. The shell is usually a pale buff in colour, with two or three spiral bands of reddish brown. Often, there is a thickened internal ridge to the outer lip.

Tonna olearium (Linnaeus 1758)

Similar in size to the previous species and also has the intercostal, small subsidiary spiral threads. However, the colour pattern is different, being a uniform brown except for a pale whitish sub-sutural area. The interior of the shell and the columella usually have a purplish tinge.

Range in New Zealand is similar to that of the previous species - North Cape to Bay of Plenty, but so far it has not been reported from off the West Coast. A rare shell in New Zealand.

Tonna melanostoma (Jay 1839)

The type locality of this species is Tonga, but it is widely distributed. The shell is easily recognised by its rich dark-brown apertural colour and the incised twin grooves in each of the spiral interspaces. Exterior of the shell is fawn - the spaces between the broad ribs are sharply marked in brown. Size about 100mm. Has only occasionally been taken - North of the Cavalli Islands to North Cape.

Tonna maculata (Lamarck 1822) = dolium (Linnaeus 1758)

This species is also only occasionally seen here. The shell has rather large, bluntly rounded spiral ribs, well separated and fairly evenly marked off with brown spots. Ground colour, pale buff. Usually trawled or in crayfish pots, but there have been several records of the species being washed up on ocean beaches, i.e. Mt. Maunganui to Tokerau. It occurs also off the Auckland West Coast.

Tonna luteostoma (Kuster 1857)

Two specimens of this well known Japanese Tonna are recorded as washups just south of Parengarenga Harbour. They were found by the late A. E. Brookes about 1925. Another probable example is in the collection of S. Turner, Auckland, and came recently from off the Cavalli Islands.

Compared with T. cerevisina, this species is of smaller adult size, with lower spire, more deeply channelled

suture, wider, square cut interspaces to the corrugations, which results in an almost denticulate appearance to the outer lip. Uppermost ridges on whorls are stronger than the rest. Colour pattern rather distinctive - numerous red-brown spots on the ribs, fairly evenly distributed over all whorls.

During the last two or three years, there have also been several instances of other species appearing at odd times on the local scene. The most persistent of these has been Tonna perdix. Fragments and some small shells have been found between the Bay of Islands and North Cape, and it seems likely that this species is here to stay.

At least two specimens (damaged) of a species of Eudolium have been obtained from crayfish pots in the Mangonui area, and just lately a specimen of Malea pomum was picked up at Great Exhibition Bay (referred to elsewhere in this issue). Will we soon have those added to our fauna too?

\* \* \* \* \*

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# POIRIERIA



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LIAREA BICARINATA (Suter)

This operculate land snail, described by Suter (1907) as Lagochilus bicarinata, has subsequently appeared in faunal lists as Cytora bicarinata. After considering the systematic positions of Cytora (Kobett & Moellendorff) and Liarea (Pfr.), Dr Climo (1970) proposed the transfer of the above species to the latter genus, because of the presence of a colour pattern and the characteristic peristome, these features being absent in species of Cytora.

Since its description in 1907, this species has until fairly recently evaded land snail enthusiasts, even though the type locality was essentially correct. Surprisingly enough, it has now proved to be quite a common shell. Of course, much of the collecting in the Whangarei area has been made around the readily accessible Mair Park and Mt Paraheke. It was in the early 60s that bicarinata was found to be very plentiful in the reserves on the opposite side of the city, especially in Coronation Park. This has remained its only known distributional area until quite recently when Mr S. O'Neill of Cape Brett Lighthouse found numbers of these snails in a small area of bush near his house.

Liarea bicarinata (Suter)

Liarea bicarinata is readily identified by its squat appearance. The colour pattern of zigzag axial markings is very similar to that of egea (Gray), which at times, too, has distinct basal carinae or keels. Both species occur together at Coronation Park



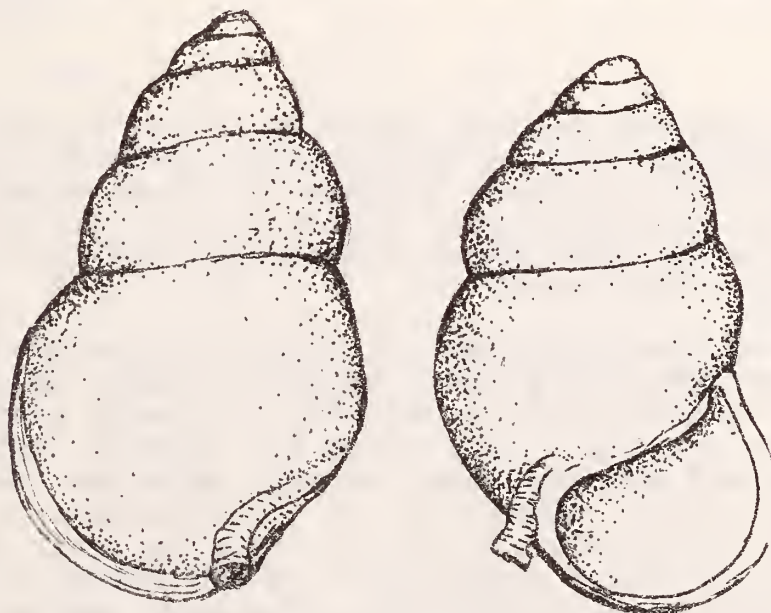
\* \* \* \* \*

NOTES of INTEREST

- \* Many strange things wash up these days and a recent traveller to come ashore was a specimen of Pinctada which had made the journey from tropical waters, on a coconut. (Picked up by Mr & Mrs H. Seelye of Pukenui).
- \* From a small area of bush at Cape Brett Lighthouse, Steve O'Neill has located a number of species of small land snails : Liarea turriculata; Liarea bicarinata; Allodiscus dimorphus; Serphe kivi; Delougapia cordelia; Flammulina perdita; Therasia decidua and Mocella eta.
- \* The limpet-like Montfortula rugosa (Q & G) = lyallensis Mestayer is indeed a rare shell in New Zealand. A number were found several years back at Kaikoura, but nothing has since been heard of this species - until recently, when one of our members visiting Christchurch found a nice specimen on the underside of a rock at Sumner!



- \* From shell sand gathered up by Miss J. Coles at Cooks Beach, Tolaga Bay, two rather unusual records were noted. These were Pyramidellids - Evalea sabulosa Suter and Siogamaia morioria Laws. The former is decidedly a southern species obtained usually from dredgings, while the other is previously known from the Chatham Islands.
  
- \* At last! Live specimens of the Paryphanta from Mt Egmont have been obtained at about 3800 feet. Adult shells are about 2½ inches in diameter and are said to be very similar to the Levin P.traversi tararuaensis.
  
- \* A specimen of the cowrie C.cernica tomlini has been collected at Cape Brett. The dead shell was obtained in 4 to 6 feet of water. (S. O'Neill)
  
- \* One of the strangest snails we have seen for a long time is Ballardiella sp. collected by Graham Annabell at Wewak, New Guinea. This odd-looking operculate snail has an erect tube-like process emerging from the columella near the umbilical region - no doubt to allow the animal to breathe while the operculum is tightly closed.



- \* Large areas of the sand flats of the upper Houhora Harbour are covered by a mat of sea anemones - quite the most we have ever seen. They swarm in beds of cockles even when these molluscs are below the surface. It is perhaps not surprising that there is not much in the way of other live shellfish there, although empty shells of Solemya parkinsoni were not uncommon. These bivalves live well below the surface. A few Atrina zelandica shells were seen near cleaner spots and one or two small Baryspira. The mud beneath the surface was black and putrid, due partly to the decomposition of Zostera, seagrass, in some places in the harbour.
  
- \* In a previous issue (Vol. 6, Part 6, March 1973) illustrations of Poirieria and what was thought to be the egg capsules of this species were featured. It seems that the capsules attached to various shells including Poirieria, Baryspira and Cominella wash ashore in quite large numbers at times and most likely belong to Austrofusus glans, a common shell in shallow to deep water in some areas.

\* \* \* \* \*

#### SMALL SHELLS FROM THE BAY OF ISLANDS DREDGING TRIPS

R.C. Willan

Anyone who has looked at minute shells under a microscope will be impressed at their delicate beauty and often intricate sculpture. Unfortunately their small size frequently detracts from such species and little is known about the biology and ecology of many of our tiny shells.

Members who went to either of the Bay of Islands trips received plastic bags of dredged material and so had an excellent opportunity to obtain small rare deep-water species - only after the initial washing of material and then down to work with the tweezers. This article describes and illustrates some of the more distinctive species to help in their identification. All the shells described here are small to minute (the largest being about 6mm), so a hand lens or microscope is very useful if details are to be observed.

Mr N. Gardner has described the situation on the first dredging trip (24/9/72) in Vol. 6, Part 5 of 'Poirieria', and listed are some of the shells obtained on that occasion. Others to be added to this list, collected from dredgings on this first trip and also on the second trip (7/4/73), are given below :

Crosseola cuvieriana (Mestayer)	Limulatys reliquus Iredale
Epitonium bucknilli Powell	Philine powelli Rudman
Tecticrater compressa (Suter)	Maxacteon hancocki Rudman
Tectisumen clypidellaeformis (Suter)	Austrodiaphana maunganuica Powell
Zeminolia plicatula (Murdoch & Suter)	Nucula strangei A.Adams
Uberella barrierensis(Marwick)	Nucinella maorianus(Hedley)
Marginella vidae Dell	Poroleda lanceolata(Hutton)
Liratilia sinuata Powell	Cyclopecten transennus (Suter)
Veprecula cooperi Mestayer	Austroneaera brevirostris Powell
Cuspidaria willetti Fleming	Austroneaera wellmani Fleming

### Descriptions :

#### Zemitrella regis Powell, 1940 Fig. 1

A small greyish-white columbellid found only in the muddy ooze material dredged in 32 fathoms off Deep Water Cove. The shell appears smooth to the naked eye, but under a microscope, many finely incised spiral grooves are seen covering the whorls and siphonal canal. The protoconch is shiny white and smooth. Weaker wavy axial lines intersect the spiral grooves to give a moderately reticulate pattern. Zemitrella websteri also has spiral grooves on the shell. The type locality for Z. regis is off the Three Kings Islands in 140 fathoms.

Illustrated specimen: length 3.2mm, width 1.8mm.

#### Maxacteon hancocki Rudman, 1971 Fig. 2

This is a small globose Acteon species which differs from the familiar Pupa kirki in being smaller, more inflated, with shouldered whorls. There is a single weak columellar fold and an open umbilicus. The sculpture is

of spiral rows of deeply punctate grooves, stronger and more dense towards the base. The shell is covered by a rusty orange periostracum. Shells are light in weight and not internally thickened as in Pupa kirki, The spiral lines can be seen inside the mouth.

Specimens of M. hancocki were dredged in muddy ooze, from 32 fathoms off Deep Water Cove. This species is named after our Whangarei member Mr Max Hancock, who first dredged it west of Deep Water Cove in 67 meters.

Illustrated specimen: length 2.0mm, width 1.4mm.

Marginella (Microvulina) vidae Dell, 1956 Fig. 3

A tiny species of Marginella, it is porcellanous white, smooth and cone-shaped with a very depressed spire, the outer lip being as high as the spire. The five columellar plaits occupy the lower half of the columellar wall, the anterior three plaits are strongest. In adult specimens the outer lip is thickened and a whitish glaze covers the whole columella. This callous is widest at the anterior end of the columella where it curves towards the siphonal canal.

Marginella vidae was found in the deep water muddy ooze and also dead amongst broken shell and pebbles dredged in 3 to 4 fathoms just off Deep Water Cove. These localities can be added to those given in the description of this species in Vol. 6, Part 5 of 'Poirieria'.

Illustrated specimen: length 2.0mm, width 1.4mm.

Philine umbilicata Murdoch & Suter, 1906 Fig. 4

This species is a small, globose pure-white Philine, quite unlike any other member of the genus in New Zealand. The most distinctive character is the narrow umbilicus. The spire is sunken and there are three to five weak spiral, lighter colour zones at the top of the whorls. The shell is unsculptured but there are numerous concentric paler growth lines on the outside. The aperture is smooth and shiny. Adult specimens show a roughened white callous on the upper part of the columella above the umbilicus.

Philine umbilicata was collected, like the previous species, both in the 32 fathom grey muddy ooze sample and in the broken shell and pebbles taken in three to four fathoms close to Deep Water Cove.

Very little is known about the distribution of this rare species. The holotype was collected in 110 fathoms off Great Barrier Island. This species is also known as

a fossil from New Zealand Tertiary strata.

Illustrated specimen: length 2.9mm, width 2.2mm  
(larger shells were found).

Tecticrater compressa (Suter, 1908) Fig. 5

This species belongs to the little-known, deep-water family Lepetellidae of which there are six recognised species in New Zealand. All are small white shells like minute limpets in shape.

The shell of T. compressa is oval-shaped and laterally compressed with parallel sides, the front and back margins are raised. T. compressa is like a small white canoe. In profile, the apex is high and arched forwards. Sculpture is of weak concentric growth lines, Suter describes and illustrates as "fine rather distant and indistinct radial striae". No such radial striations could be seen on the three specimens obtained - possibly because all were dead shells.

One specimen was collected on 24/9/72 dredged 18 to 20 fathoms off Urapukapuka Island and two others were found in the dredge sample of muddy ooze in 32 fathoms off Deep Water Cove.

Illustrated specimen: length 3.5mm, width 2.0mm,  
height 1.9mm.

Tectisumen clypidellaeformis (Suter, 1908) Fig. 6

Also belongs to the family Lepetellidae, and is again a small white cap-like species. It is rounded in outline and not laterally compressed, more limpet-like than T. compressa. The shell is white, sculptured with weak concentric growth lines, there are no radial striae but broad radial zones of slightly thicker shell material descend from the apex to the margins. In profile the shell is high and saddle-shaped, the apex is not centrally positioned. Internally a distinct semi-circular muscle scar can be seen. Two dead shells were dredged in 3 to 4 fathoms close to Deep Water Cove.

Illustrated specimen: length 2.1mm, width 2.0mm,  
height 1.7mm.

## ILLUSTRATIONS

Figure		
1.	<i>Zemitrella regis</i> Powell, 1940	3.2 x 1.8mm
2.	<i>Maxacteon hancocki</i> Rudman, 1971	3.4 x 2.2mm
3.	<i>Marginella (Microvulina) vidae</i> Dell, 1956	2.0 x 1.4mm
4.	<i>Philine umbilicata</i> Murdoch & Suter, 1906	2.9 x 2.2mm
5.	<i>Tecticrater compressa</i> (Suter, 1908)	3.5 x 2.0 x 1.9mm
6.	<i>Tectisumen clypidellaeformis</i> (Suter, 1908)	2.1 x 2.0 x 1.7mm
7.	<i>Liratilia sinuata</i> Powell, 1937	5.8 x 2.0mm
8.	<i>Badenia semireticulata</i> (Murdoch & Suter, 1906)	3.5 x 1.8mm
9.	<i>Muricid</i> sp.	3.4 x 1.9mm
10.	<i>Uberella barrierensis</i> (Marwick, 1924)	3.9 x 3.0mm
11.	<i>Nucinella maorianus</i> (Hedley, 1904)	2.0 x 1.7mm
12.	<i>Parvithracia suteri</i> Finlay, 1927	3.0 x 2.9mm
13.	<i>Cyclopecten transennus</i> (Suter, 1913)	2.4 x 2.4mm

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### *Liratilia sinuata* Powell, 1937 Fig. 7

A very handsome, high-spired columbellid. It has a tall smooth yellowish protoconch of two whorls and an angulate adult shell of three whorls. The sculpture is of strong raised spiral cords present on the whorls and siphonal canal. One strong cord forms the keel this cord is flanged and knobbed. There are flattened shallow grooves between the cords. Weak regularly spaced axial lamellae are present in the grooves. The colour pattern is of reddish-brown flames and white areas blotched over the adult whorls. The outer lip is sinuous and denticulate within at the middle, the columella has a weak straight callous.

A single specimen was found in the Bay of Islands dredgings, from 32 fathoms off Deep Water Cove (7/4/73). I have other specimens from shell sand at Cape Maria Van Diemen and dredged in 43 fathoms off Cape Reinga.

Illustrated specimen: height 5.8mm, width 2.0mm.

### *Badenia semireticulata* (Murdoch & Suter, 1906) Fig. 8

This rissoid has a small high-spired shell, there are four globose whorls separated by deep sutures, and a smooth rounded protoconch of two whorls. Early whorls bear 20 to 25 strong raised axial ribs extending from suture to suture.







These axial ribs become successively weaker and on the body whorl they are almost obsolete. On the lower parts of the whorls are several raised cords (there can be up to six), the first two are sharp and separated by a flattened groove - they touch the lower parts of the axial ribs. The remaining basal spiral cords are variable, being relatively weak and rounded. There is a shallow umbilical chink, the outer lip is thickened.

Live shells are glassy and translucent in colour, dead specimens become porcellanous white. Both live and dead examples were dredged in 32 fathoms off Deep Water Cove. The type locality is 110 fathoms off Great Barrier Island. I also have this species dredged in 43 fathoms off Cape Reinga. Because of the strong axial ribs, Suter placed this species in the Epitoniidae.

Illustrated specimen: length 3.5mm, width 1.8mm.

Muricid sp. Fig. 9

As yet I have not been able to give this species a name. Several specimens have been sorted out from the deep water muddy ooze samples taken off Deep Water Cove on both dredging trips.

The shell is reminiscent of a tiny Zeatrophon ambiguus under the microscope, with its cancellate sculpture and produced anterior siphonal canal. Sculpture consists of a reticulate pattern of raised spiral cords and axial lamellae. The body whorl has four spiral cords, there are never additional cords between the first cord and the upper suture. The base of the body whorl, from the fourth cord to the tip of the siphonal canal, is smooth. The spiral cords are crossed by raised axial lamellae, about 24 on the body whorl. There are scales at the points of intersection of the axial lamellae and spiral cords.

Illustrated specimen: length 3.4mm, width 1.9mm.

Uberella barrierensis (Marwick, 1924) Fig. 10

A small white globose naticid. There are  $3\frac{1}{2}$  whorls, the protoconch is smooth and low. The remaining whorls are white and polished with occasional shallow growth lines. Fresh shells do show remnants of a fine brown periostracum around the umbilicus. The aperture is ovate. There is a sinuous callous on the upper part of the columella, this callous does not invade the umbilicus nor is there a funicle. No live-taken specimens have ever been described, so the operculum remains unknown, it is probably horny as in species of Polinices. Uberella

barrierensis is very close to the southern Uberella vitrea, both species exhibit globose and slender forms. The type locality is 110 fathoms off Great Barrier Island.

Illustrated specimen (slender form): height 3.9mm, width 4.0mm.

Nucinella maorianus (Hedley, 1904) Fig. 11

This small protobranch bivalve was very common in the grey muddy ooze samples dredged in 32 fathoms off Deep Water Cove. Both live and dead shells were found. Despite its abundance at this locality, it is poorly known by most collectors. Nucinella maorianus is one of the most distinctive species in the family Nuculanidae. Shells are globose, not thickened or nacreous inside as in Nucula or Nuculana, round or oval in shape with an expansion of the anterior margin. The hinge is straight and projects either side of the umbo like the ears of a scallop or file shell. Internally the hinge bears numerous small peg-like teeth which fit tightly into corresponding sockets on the other valve. A raised shelf extends internally to about halfway along the slope of the posterior margin. Dead shells are porcellanous and white, live specimens have translucent valves, covered on the outside by a thin shiny greenish periostracum which is thicker and orange towards the umbos. Internally a posterior muscle scar and pallial line can be seen.

Average specimen: length 2.0mm, width 1.7mm.

Parvithracia suteri Finlay, 1927 Fig. 12

Valves of this species were commonly obtained in the deeper water muddy ooze samples. Shells are small, white, fragile and distinctly triangular. There is a long slightly convex anterior slope, the posterior slope is short and truncated, the ventral margin is straight. The hinge is very small and the teeth are not conspicuous. The shell is quite smooth externally except for a few concentric growth lines and scattered white blotches. The interior is smooth and shiny with a strong arched pallial sinus.

Illustrated specimen: length 3.0mm, width 2.9mm.

Cyclopecten transennus (Suter, 1913) Fig. 13

Shell moderately convex, whitish or greyish, irregularly circular in outline. The left ear is prominent, the right ear merges into the posterior slope. Sculpture consists of wavy radiating cords which become stronger towards the margin, these cords

are crossed by irregular concentric raised cords thus forming a complex reticulate pattern, like lace. There are scales at the points of intersection, the concentric cords can be lamellate. Interior whitish, the external sculpture shows through internally. Three left valves were sorted out of the muddy ooze sample dredged in 32 fathoms off Deep Water Cove (7/4/73).

Illustrated specimen: length 2.4mm, width 2.4mm.

Acknowledgements:

Dr Powell and Mr N. Gardner have helped with identification. I also wish to thank Mrs D. Hole and Mr K. Grange for the opportunity to examine shells sorted out of the dredged material.

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DISASTER AREA

Island Bay, in the Upper Harbour area of the Waitemata, does not have a great number of interesting molluscs, but we visit the bay from time to time on extreme low tides chiefly to see how the two newcomers, *Limaria* and *Theora* are getting along.

On February 6th such a tide occurred and our wander over the mudflat introduced us to an unpleasant and persistent odour. This came from numbers of dead molluscs which seemed to have met with a sudden end. In the mid-tidal area were many dead *Cominella adspersa*, mostly with aperture upwards and animal and operculum exposed.

Toward low tide level many fine *Baryspira australis* had been trapped and killed. It was most surprising to find that such large numbers of this mollusc had been living below the surface in this rather soft muddy little bay, for in an area of a couple of chains we gathered up some 900 specimens. (Hand sieving in this place usually produces just the odd specimen).

Strangely enough, the groups of *Cominella glandiformis*, surface dwellers, did not seem to be affected in any way. Burrowing crabs were also active.

One wonders just what the cause of this mortality was. Perhaps the very hot summer may have been in some way responsible, or had chemical pollution reared its ugly head? It is of note that similar situations

occurred elsewhere, at about the same time. At Bayswater, Cominella adspersa and Baryspira australis were found lying on the mud flats in spent condition and Baryspira were in a similar state at Cheltenham Beach. Further up the East Coast in an area where half a dozen Alcithoe arabica can usually be seen, between 40 and 50 were observed on the surface of the sandflat. The animals, which usually feel cool to the touch, were quite warm.

Plankton in the harbour waters had increased greatly during the particularly hot, humid weather and members were finding that instead of changing water in their aquariums each month or so, it was necessary to replace it after two or three days.

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#### ON NORTH EAST ISLAND, THREE KINGS

The National Museum, Wellington, has just concluded what would appear to be a very successful dredging expedition off the Northland coast and Three Kings area. Some 71 stations were worked.

One of the tasks the leaders set themselves was a landing on the extremely difficult and precipitous North East Island of the Three Kings Group to obtain a few specimens of the land snail Rhytida johnstoni for anatomical study. From Dr F. Climo we have the following interesting account of this landing :

"North East Island, Three Kings: R.V. "Acheron" was off North East Island at 6am on Monday 18th February in a lazy oily swell and dead calm. There was the odd patch of sea mist about, lying to a height of about 100m. Dr Dell and I grabbed a cuppa, some toast and a boiled egg and were then promptly dropped into the aluminium dinghy. The surge on the rock face at the approved landing point was from 6 to 9 feet. Careful judgement and leaps at the right time saw us on terra firma at 6.45 am. A few minutes judging the best path up the cliff and then it was a relatively simple climb to the Meryta forest capping the island. By the time we reached the summit, we were covered in perspiration, the conditions being very humid. The mist layer was below us and the sea only showed in patches, and Great King Island was totally hidden.

We were given till 11 am to collect the island while R. V. "Acheron" and the rest of the party did some dredge stations in Tasman and South East bays. We spent a few moments looking at the Red-billed Gulls, for much of the time perched in their thousands on the cliffs. A break in the mist saw them peeling off the rocks in droves and circling down to the water to feed, presumably on up-wellings of plankton in the tide-rips around the island.

The greater part of the summit of North East Island is a sloping basin covered in Meryta forest lacking an under-storey, there being little more than rows of rocks (probably evidence of occupation by man), the odd fern and deep leaf-litter. In the more open areas (breaks in the Meryta canopy), ferns are more abundant, and particularly so on rock piles in the open. There is one large patch of flax at the lower edge of the basin at the landing end of the island, and, above this, an open area with no vegetation and piles of rocks.

The whole flat surface of the basin of the island was littered in dead Placostylus bollonsi shells and live specimens were very abundant everywhere in the litter. The litter was very rich in minute land molluscs and I collected four large plastic bags of the most rich-looking of this. None of this is sorted as yet, but should contain every species recorded from the island in the minute line.

Live Rhytida (Rhytidarex) johnsoni was difficult to find. In total, only three specimens were found alive, but about 35 dead shells were located. The live specimens were all collected under ferns in association with heaps of rubble. It seems probable that the species is mainly associated with these rubble heaps covered in fern because many dead shells were collected in such habitats. Only two dead shells were found out in the 'open' under Meryta litter.

The litter and rubble heaps were full of the three largest ground-dwelling animals on the island. The Pacific Gecko was very common, as was the very fast, and large, Three Kings Skink (L. fallai). Also making its scuttling presence known (often at the most unexpected and frightening occasions), was the large centipede found on the off-shore islands in the North of the North Island.

Entry into the dinghy was made with a little juggling on top of oceanic swells at 11.20. All objectives had been achieved on this brief visit. In addition to the land snails we collected representative specimens of the reptilian life, plants and insects, and also made a good photographic coverage of the island. The cuppa was welcome back on board R.V. "Acheron", as was the news that the dredge stations, in our absence, were very successful. "

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### THE FEEDING OF TONNA CEVERISINA

K. R. Grange

Tonna ceverisina (Hedley) is the most common New Zealand representative of the Gastropod family Tonnidae. It lives from depths of around 15 fathoms down to at least 60 fathoms on sandy substrates. It is relatively common around the northern coast of the North Island and live animals are occasionally washed ashore after gales on exposed sandy northern beaches.

The specimens obtained for study were collected from two sources: two specimens were found washed up on Tokerau Beach, Doubtless Bay, after Hurricane "Carlotta" in January 1972; and three other specimens were obtained from fishing trawlers working in the Hauraki Gulf and East Cape areas.

The live animal. (Fig.1) was drawn from a specimen trawled in 20 fathoms in the Hauraki Gulf and kept alive in a bucket of fresh sea water until transferred to the laboratory where it crawled actively for a short time before being killed for dissection.

#### External Morphology:

The animal crawls about over the surface of the sand on a very large foot, but neither the foot nor the mantle are reflected over the shell. The foot is too large to be accommodated within the shell aperture when fully contracted and, as might be expected, there is no operculum. There is a distinct head which bears two tentacles and at the base of each is a small eye, placed on the tip of a short pedicel. The proboscis, which cannot be fully retracted, is long and thick, and ends in an expanded area formed by the outer lip

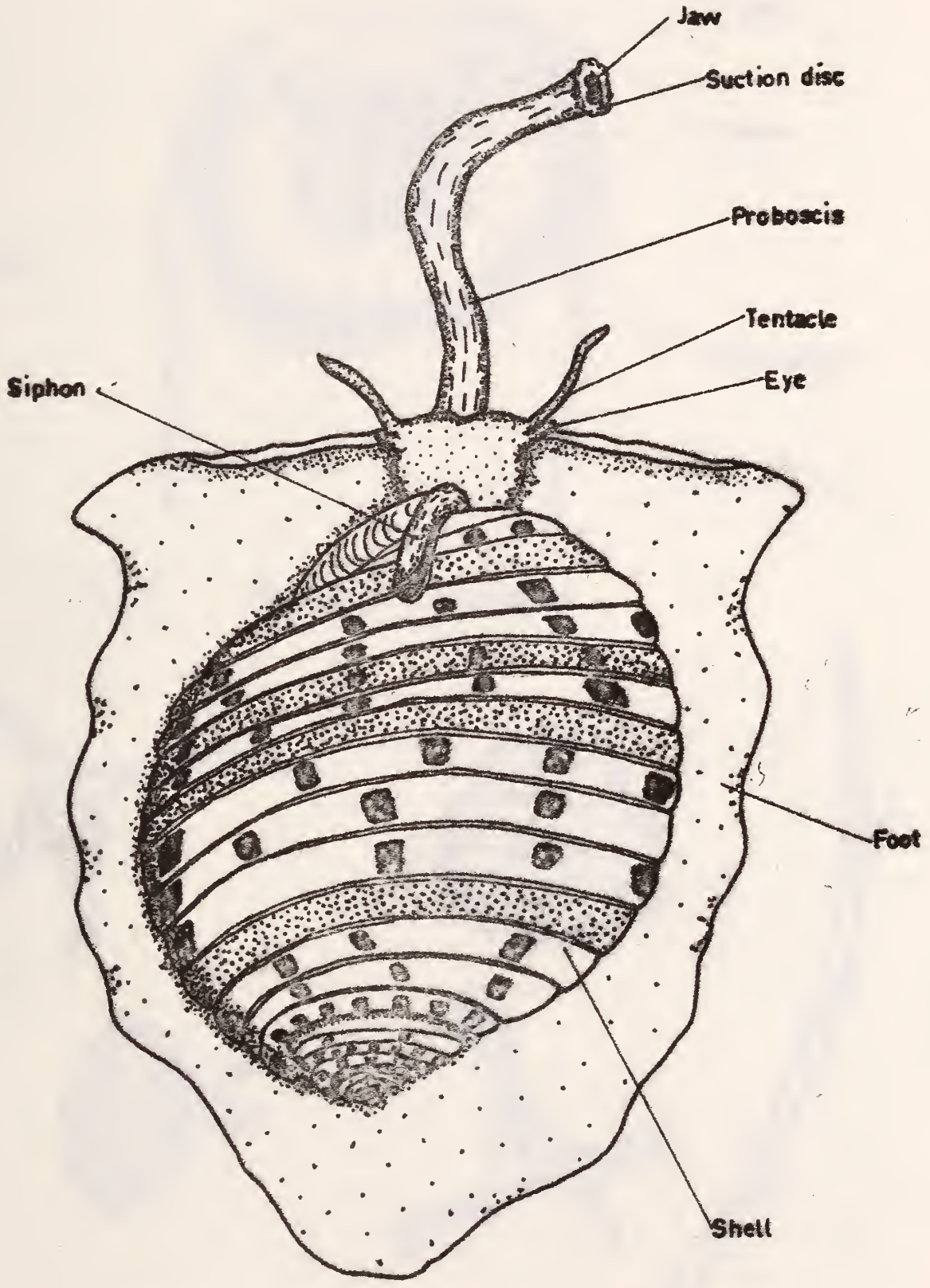


Fig.1. Live Tonna.





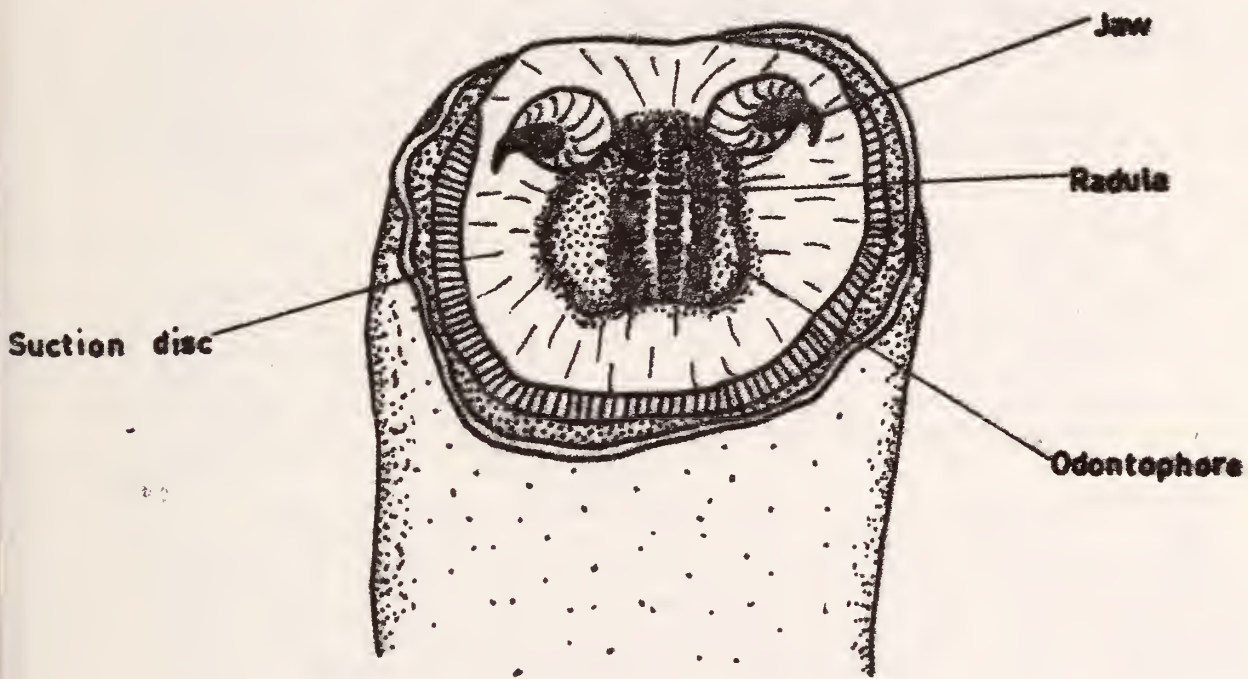


Fig. 2. Feeding Apparatus.

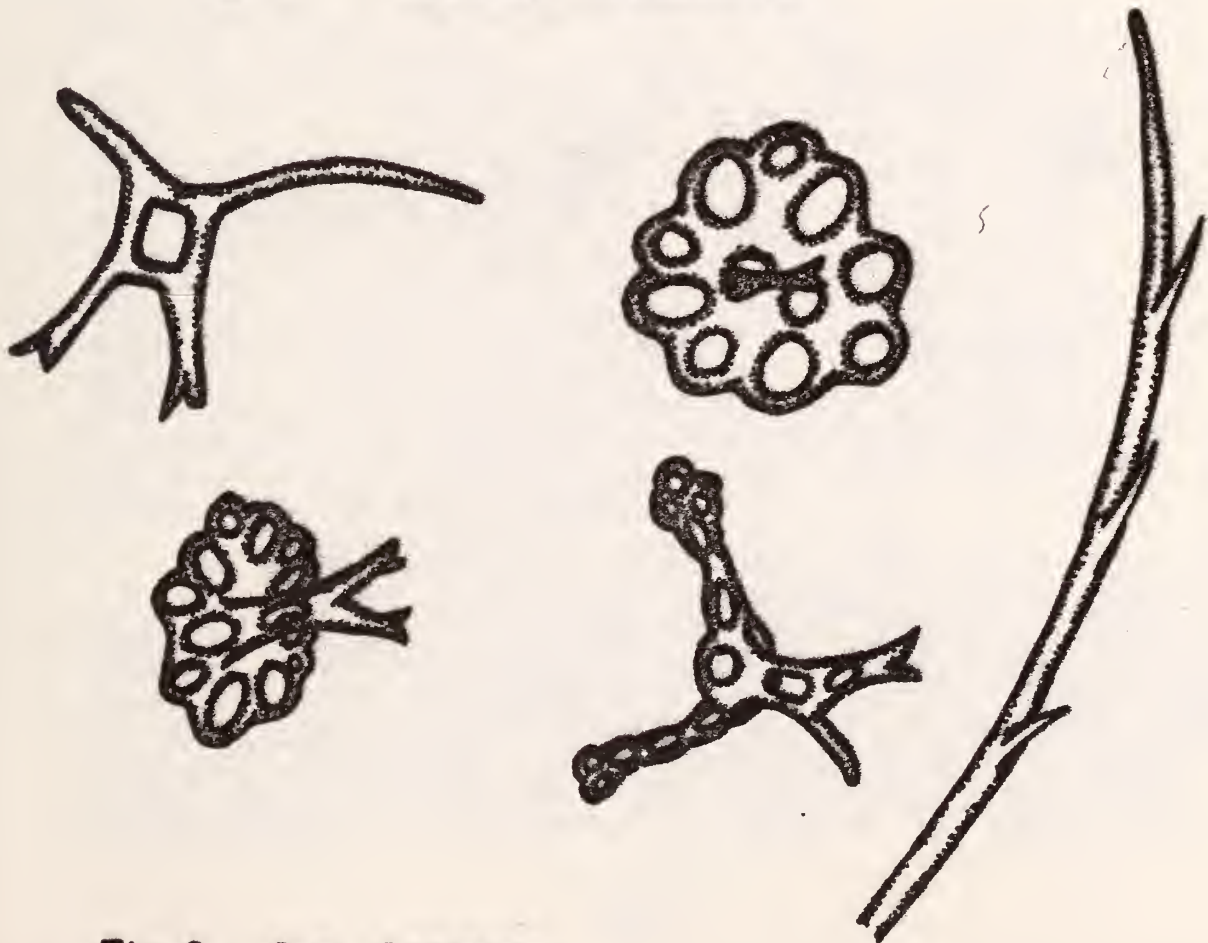


Fig. 3. Gut Contents.



which can exert a suction on objects placed over it. Immediately behind this sucking disc are two well-developed jaws, forming chitinous plates with a projecting spine and resembling a Strombid or Struthiolaria operculum. The siphon is long and extensible, and is normally held upright over the dorsal surface of the shell.

The shell is large, thin and globose with the sculpture consisting of low rounded spiral ribs. The colour is variable but is often honey coloured with dark brown spots on the ribs. The periostracum is thin, horny and, when dry, cracks and is easily peeled off. The spire is short and the protoconch pink, globose and consists of  $2\frac{1}{4}$  smooth whorls.

The feeding apparatus (Fig. 2) is highly specialised for a carnivorous diet. The expanded outer lip forms an efficient sucking disc which can firmly grasp the prey. The two jaws which lie within this sucking disc can then be moved together, slicing off pieces of prey, working as a pair of sharp blades. The relatively small pieces of flesh that are sliced off are carried into the proboscis by the massive radula.

#### Implications of such a Feeding Apparatus:

The whole digestive system of Tonna ceverisina is organised for a carnivorous diet. Although no animals were observed feeding, it is simple to determine at least some of the food eaten. By removing the sand and faecal remains from the rectum and placing under a microscope, it is seen that the gut is packed with siliceous spicules (Fig. 3). These spicules were recognised as similar to those in the skin of sea-cucumbers or Holothurians. It was thought that the most likely species they belonged to was Stichopus mollis, a common sea-cucumber found from low water in rocky areas to moderate depths on sandy substrates. A specimen of S. mollis was obtained while skin-diving at Leigh and the spicules in the skin corresponded to those from the gut of Tonna.

It seems reasonable to conclude, then, that one of the principal foods of T. ceverisina is the holothurian Stichopus mollis, since the same spicules were found in the gut of all five Tonna specimens. From observation of the locomotion of these two animals, it would appear that T. ceverisina can move much faster than S. mollis and when the prey is reached, the sucking disc is used to hold the prey while the jaws slice off chunks of flesh as described above. The process is aided by lubrication and

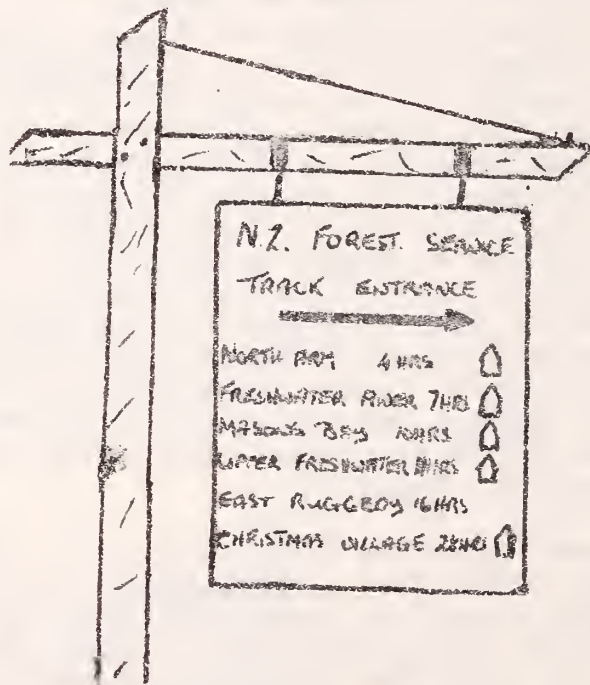
the secretion of toxic mucus by large glands in the proboscis soon renders the prey inactive. The oesophagus has a small pouch which secretes digestive enzymes on to the food as it passes its opening and food is stored in the stomach until broken down completely and absorbed by the digestive glands. Siliceous remains of the food may be stored for a short time in the inflated rectum before being passed out the small anus.

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A SHORT TRIP TO MASONS BAY

J. F. Goulstone

I can never resist a signpost. It conjures up pictures of romantic places I have always wanted to see and entices me around endless corners towards mysterious skylines.



Recently on holiday at Halfmoon Bay, Stewart Island, I found as good a crop as ever I've seen with names on them like Bungaree, Long Harry, Yankee River, Ruggedy Range and Doughboy Bay. The place I'd set my sights on, though, had rather an ordinary name - Masons Bay - twelve miles of open beach on the western side of the Island.

There were three possibilities for getting there : Amphibian (sometimes available if the weather was right) for thirty-five dollars; launch up the Paterson Inlet to Freds Camp and six hours flat walk; or walk all the way - seven hours hilly and three hours flat. After spending two very enjoyable weeks with my family around Halfmoon Bay sorting through buckets full of leaf mould for small land snails and roaming the beaches for sea shells, I didn't seem to be any closer to getting there by any of the easier methods. The "hour of decision" arrived and it was either all walk or convince myself that I didn't really want to go. In the finish I decided on a quick light trip in two days and took my 12-year old son, John.

Now ten hours walking in one day is a lot of walking when you're over forty and it all has to be repeated in reverse the day after. The distance can be divided into three stages, according to the Forst Service Information :

- 4 - 5 hours to North Arm Hut
- 3 hours to Freshwater Landing Hut
- 3 hours to Masons Bay Hut

Three days before our holiday ended, John and I eventually set out - at 7 am - up the Fern Gully track, with the minimum of load and the hope that we wouldn't fizzle out before we attained the goal.

The main obstacle to progress soon became apparent - mud, miles of it, trampled to a lovely oozy consistency by thousands of pairs of trampers' hobnailed boots. And all we had on were sandshoes. No hope of ploughing through it, just an endless skirting of bogs and daintily skipping from one island to another. Nevertheless, we made it to the North Arm Hut in three hours, which was good going.

A friendly Forestry worker told us the next stretch was the worst, a steep climb over the Thomson Range. And so it proved. We thought the top would never come. Although it was all bush, it was straight up until near the summit the bush was replaced with Leatherwood scrub and it flattened out for a while before dropping steeply away again. It took us a tiring three and a half hours for this section.

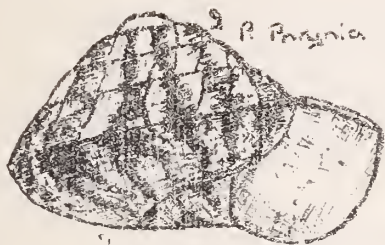
The Freshwater Landing Hut was inhabited by a couple of deerstalkers and a great swarm of blowflies all waiting for a go at the thick chunks of venison roasting over the fire. A good swing bridge over a deep brown river led to the last section, which should have taken three hours but took us four. We were very tired and the rough tractor track which we followed was completely flat, stretching endlessly down a corridor of tall manuka with only an occasional fluffy tomtit flitting across to break the



STEWART ISLAND

monotony. All around was swamp but fortunately the tracks were dry. Our Forestry friend had told us that if the sun was shining this sheltered corridor was hotter than the Sahara. It really felt like the longest track in New Zealand.

Eventually we emerged on to tussock, with a distant view of sandhills and the big mound of Island Hill rising out of the flat near the journey's end. By this time I was carrying John's load as well and the joy had gone for the day. With about two miles to go, we came upon the solitary farmer from the Island Hill Station burning off a fenceline and gratefully flopped down in the tussock to talk with him. Mr Te Aika must have the remotest farm in New Zealand, his contact with civilization being by the Invercargill Aero Club plane which lands on the beach. He reckoned we had done pretty well to make it from Halfmoon Bay in a day.



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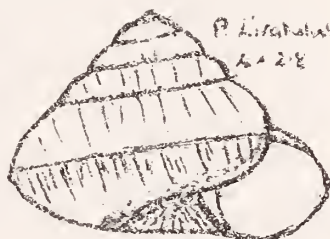
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C. ...



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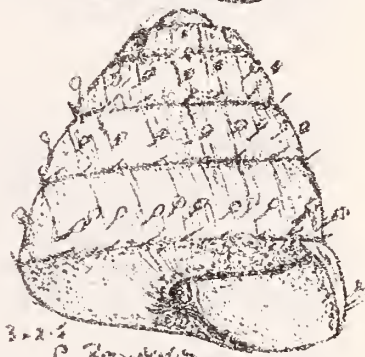


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6



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SOME SMALL LAND  
SNAILS COLLECTED AT  
HALFMOON BAY - THE  
ARTIST HAD THE  
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SOME!



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E



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We tottered down the last bit of track past the homestead and discovered the Masons Bay Hut with its sixteen beautifully sprung bunks. This hut is more like a town house with its wide verandah, smart tiled roof, hot water cylinder, stainless steel sink and formica table. We were its only occupants and felt like lords.

Nevertheless we had one last effort to go and after some food and a rest, splashed down a creek through the sandhills out on to the beach. John read in the visitors book that someone just a few days earlier had seen a seal on the beach and he was keen to find one. We nearly made it to the north end of the beach, about two miles, but darkness was catching us. Just as we were turning back, a tremendous screeching in some muttonbird scrub bordering the beach startled us and we discovered a large grey kiwi snuffling around.

No fresh shells had been washed up, but after winter storms Xenophalium harrisonae; very fine, well-coloured Modelia granosa; and Maurea punctulata ampla are amongst the wash-ups. Dozens of floats littered the beach and as we walked back to the hut, John found a hidden reserve of energy and started throwing them all back into the surf. If only we could have carried them all back home!

The sunset was glorious with colours I've never seen before, but it was quite dark when we groped our way into the hut.

The kiwis must be plentiful there for they woke us again in the morning - a pair calling to each other - one just by the woodshed and the other some distance away. But our hearts were fairly heavy, for after breakfast we had the long walk back and we knew that we'd seen such a small part of a wonderful and remote corner of New Zealand.

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#### CUSPIDARIA

Among the general characters of almost all bivalve molluscs is their ability to filter the sea water for food by means of the gills. In this form, however, the gills as such are replaced by a flexible and muscular membrane which stretches across the mantle cavity to provide a pump by which water and food are taken into the body. The animal is carnivorous and moves over the surface of sand in deeper waters while its siphons, which arise from a special spout at the posterior end of the shell, mouth over the sand to take in dead or dying animals.

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Within a stone's throw of the busy main street of New Plymouth, Kamerao Park runs down to the foreshore where the town's swimming pool is situated. Extending both ways from this area is a reef of boulders, conglomerate rock and mudstone dotted with rock pools which support a great variety of marine life.

For anyone who is "shellshocked", it can be well worth a visit. The most productive area extends directly out from the pool and to the right for some 200 yards where a little overhead bridge gives access back on to the street without one having to retrace one's steps back across the reef.

It is possible with patience to collect up to 80 species in this area. Care is needed, however, around the edge of the rock pools as they tend to crumble. From the pool entrance, the first shells obvious are the high tidal dwellers Melarapha cincta and M. oliveri, the former being of very good size and colour. Many Notoacmea also live here. Other species are Atalacmea fragilis, Patelloida, some Paratrophon and Risselopsis varia, and most Zediloma species, while lower down Cominella, Buccinulum, Lunella, Haustrum haustorium, Neothais, Lepsiella and Scutus breviculus are represented. The bivalves Paphirus, Chione, Protothaca and Modiolus occur here and, as would be expected, a good range of Chitons.

The rock pools hold some very small species, with Zeacumantus subcarinatus being the most common. Here, too, are Chemnitzia zelandica, several Rissoina species, Lyrosiela chathamensis, Eatoniella olivacea and a host of others.

About 100 yards along to the right of the main reef is a small sandy inlet. Where the high tidal rocks reach the sandline, fine and numerous examples of Marinula filholi can be collected.

Directly seaward from here stand the largest rocks on the reef, and around these is a soft mudstone in which rock borers can be found - both Pholadidea spathulata and P. tridens and more sparsely, Anchomasa similis. With a little searching the date mussel Zelithophaga truncata can also be found. Around the low tide line amongst the seaweed, Cantharidus are living along with Maurea. The chiton Cryptoconchus porosus and the giant Eudoxochiton nobilis are easy to find in this area.

For anybody who has an interest in marine life, the reef has many other inhabitants other than shells. I have collected about a dozen different types of crabs from this reef and several starfish; marine slugs are to be found in the rock pools. In the sandy lair of the reef building polychaete Sabellaria kaiparaensis and many odd but extremely beautiful worms can be obtained, both of the ribbon and flat types.

So, whatever your choice, if you happen to be in New Plymouth, then this area is no doubt one of the best to visit for interesting finds.

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THE PAPER NAUTILUS, ARGONAUTA NODOSA Solander, 1786

N. Douglas

One of the most mysterious and fascinating dwellers of the warmer oceans of the world is the Paper Nautilus. It never fails to attract attention when it appears on our shores. What conchologist is not thrilled to find its fragile shell upon the beach? This occurrence may be anywhere from the North Cape to Stewart Island, though the balance is in favour of it being on the northern half of the North Island.

It is here that numbers sometimes come ashore in springtime - October - November - especially on offshore islands, and the irregularity of these visitations provides one of the mysteries. As we are told that the shell is a product of the female only (the male being a very insignificant little shell-less chap) and that it houses her egg-mass, does the irregularity of these appearances mean that they breed only at long intervals? Or does it mean that we need prolonged northerly weather in springtime to fetch these semi-pelagic creatures to our shores? As prolonged northerlies are not common in northern New Zealand, perhaps this is the explanation here.

The writer lives on one of the heights of the Manukau Peninsula where we experience every wind that blows. Prolonged northerly wind followed by westerlies bring the Portuguese man-o'-war and the By-the-wind-sailor on to our beaches by the thousand. Thence comes Janthina violacea and J. exigua, and sometimes J. globosa and Porpita pacifica. The rare ones do not always pass us by, for

what was it that made the "grape vine" wriggle so violently one day in the spring of 1971? Yes, it was an Argonauta nodosa ashore near Wattle Bay at the entrance of the Manukau Harbour - and the lucky finder was the third son of Mr & Mrs Ray Millett of Orua Bay. So that is how it happened that the cleaning of the shell was entrusted to me - and an absorbing interlude it was.

#### Shell growth:

As the shell was washed and dried it became apparent that the animal had added to her shell from time to time (which may have been more or less continuously) by extensions to the anterior end (A. in diagram). The section dotted out as A. seemed newly made as it was glossy and hard surfaced when dry. Section B. was white and clean but not so glossy, while further back (C.), the shell showed the surface roughening and yellowing that we associate with aged shells. The divisions between A., B. and C. were not sharply defined but showed gradual change. As the growth increments were wider at G. than at F., then the shell enlargement must have been circling in the direction of the arrow. The interior of the shell was glossy throughout. How long had it taken to grow 6½ inches? The female apparently starts to secrete the shell as soon as she hatches and adds to it as she grows. She can, it has been noted, repair her shell if it is damaged.

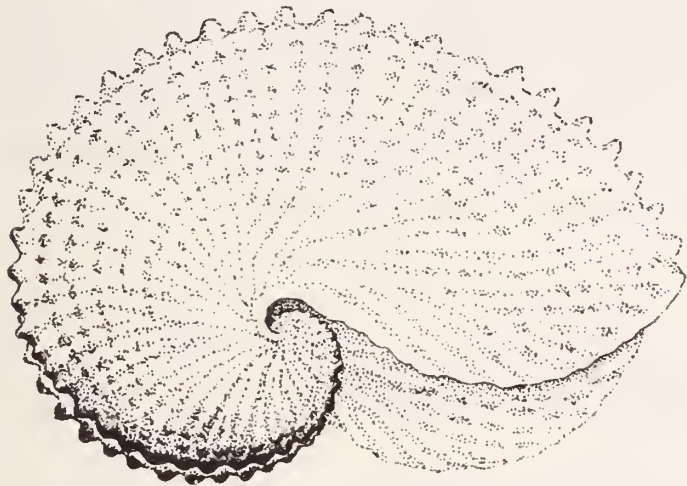
#### Discussion and Questions:

While looking at the wet shell under a large mounted lens and gently rasping the brown nodules of the keel, marked D. E. and F., it was noticed that the brown dirt scraped off easily at the part marked E. Several questions come to mind. Is this the part of the shell which is in contact with sea bottom if the Argonauta rests there for any length of time? (See illustration on page 81 in "Beneath New Zealand Seas" by Wade Doak). Or is it the result of normal body processes such as the expulsion of its sepia which it ejects to confuse its enemies?

Is the Argonauta really a fully pelagic animals of the wide open oceans, belonging properly near the surface hundreds of miles from land, or does it spend a part of its life down below?

Rarely, do infertile females occur and grow on unchecked to reach enormous size? (The world record shell is given as fourteen and a half inches. ("Marine Molluscs of Victoria", Macpherson & Gabriel, page 418).

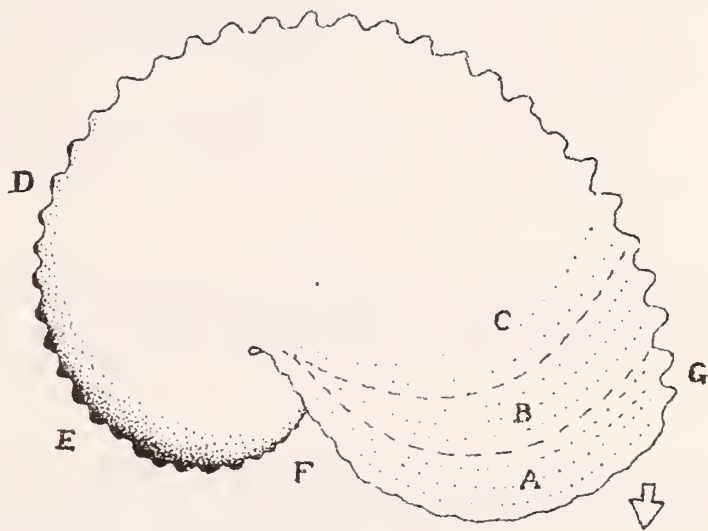
# Argonauta nodosa Solander, 1786.



About half natural size by tracing a photographic projection.

Specimen from Manukau Harbour, Spring, 1971.

Diagram to illustrate features of the shell.  
See text for details.



Showing the position taken up by an Argonaut when resting upon the seabed, or on a rocky ledge.



Like an Octopus, does the female Argonauta breed but once in a lifetime, then die?

The smallest Argonauta nodosa shell known to the writer was from the Manukau Harbour and about one and a half inches in length. It was cast ashore complete with animal and the animal used for fishing bait! And that reminds me of the lad I met on the beach at Orua Bay, who told me that his father found one there which, complete with animal, weighed twenty-five pounds! I thought for a long time about that twenty - and then about the five!

References: "Australian Shells", Joyce Allen, page 457

"Beneath New Zealand Seas", Wade Doak, page 78

\* \* \* \*

#### MORE ON ARGONAUTA

In a most interesting paper, entitled "Observations on Argonauta and especially its Method of Feeding", J. Z. Young gives detailed observations made on a female specimen which was caught close inshore near Mergellina (July 1957) and brought to the Zoological Station at Naples. Here it lived apparently in good health for seven days in a well aerated tank with good daylight illumination.

A series of illustrations in this paper shows the position retained by the shell and animal in life, with the apex of the shell uppermost, aperture down, and the animal sitting with most of its arms turned backwards into the shell.

It would seem that a certain amount of air is captured in the apex of the shell and this was apparently adjusted to allow the Argonauta to float for the most part of its period in captivity, at mid-tank level.

From the observations made, it would seem that it is not a strong or efficient swimmer. Feeding presented no problems, for when small pieces of dead sardine were suspended near, they were seized by the arms of the Argonauta and transferred to its mouth.

The animal twice left its shell. On the first occasion, the creature was found in a sluggish condition on the bottom with the shell floating at the surface.

There were eggs hanging from the dorsal edge of the shell. The Argonauta was lifted up and placed into its shell again, where it rapidly orientated itself into the proper position. The eggs were displaced and the animal ate normally and lived for a further three days.

On the second occasion, the Argonauta appeared to be in good health, in its shell, at 9 o'clock, but at 12.00 was found in a spent condition on the bottom of the tank. The shell with a new egg mass was floating again on the surface. This would seem to point to the probability of death after producing eggs being a normal process as it is with the Octopus.

We are indebted to Ken Grange for bringing this article to our notice.

Ed.

Reference: Observations on Argonauta and especially its Method of Feeding.

J. Z. Young.

Proc. Zoo. Soc. London  
Vol. 133, pp 471 - 479, 1959-1960

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:  
SOME RECENT PAPERS DEALING WITH NEW ZEALAND MOLLUSCA

- \* Occurrence of Bankiva fasciata (Menke) in the New Zealand Pleistocene

A.G. Beu, N.Z. Geological Survey,  
D.S.I.R.

N.Z. Jour. of Geology and Geophysics  
pp 168 - 185, Mar 1972

(Suter apparently listed this species wrongly as occurring near Waiwera, Hauraki Gulf, and West Coast, North Island.

Dr. Beu shows that this common Australian shell was, however, present in the Putikian substage of the Castlecliff stage and this Bankiva fasciata joins with Bembicum melanostomum and Anadara trapesia as species now extinct in New Zealand. Ed.)



- \* Descriptions of New Species and Notes on Taxonomy  
of New Zealand Mollusca

A.G. Beu, N.Z. Geological Survey,  
D.S.I.R.

Jour. Roy. Soc. N.Z. 1973

Vol. 3, No. 3, pp 307 - 332, 51 figs.

(The only item of interest to collectors of recent mollusca would be the brief reference to the collection of live specimens of a species *Acesta* H. & A. Adams, (Family Limidae) by the N.Z. Oceanographic Institute from deep water trawls around New Zealand. Ed).

\*\*\*\*

- \* The Systematics, Biology & Zoogeography of the Land  
Snail Fauna of Great Island, Three Kings Group,  
New Zealand

F.M. Climo  
National Museum, Wellington

Jour. Roy. Soc. N.Z. 1973

Vol. 3, No. 4, pp 565 - 628, 34 figs.

Abstract:

A brief bibliographic account is given of land snail literature relating to the Three Kings Islands. The distribution, ecology, variation and zoogeography of the land snail fauna of Great Island is discussed, eight new species are described, and the anatomy of most species is illustrated for the first time. The opportunity has been taken to figure the types of some New Zealand species of *Paralaoma* Iredale which have never been adequately illustrated.

*Suterilla neozelanica* (Murdoch, 1899) is transferred from the Assimineidae to the Tutuilanidae. *Cytora kiama*, *Pseudaneitea ramsayi*, *P. pallida*, *Delos regia*, *D. striata*, *Paralaoma pagoda*, *Charopa (Egestula) bicolor* and *C.(E.) microgaza* are described as new species. Dissection of the achatinellid snail *Tornatellinops novoseelandica* (Pfeiffer, 1852) has shown that *Tornatellinops* Pilsbry and Cooke, 1915, is best treated as a subgenus of *Lamellidea* Pilsbry, 1910, and that the lamellideine tribes *Lamellideini* Cooke and Kondo, 1960, and *Tornatelloptini* Cooke and Kondo, 1960, are both synonyms of the *Lamellideinae*. *Thalassohelix regia* Gardner, 1968, is transferred to the punctine genus *Laomarex* Powell, 1948, *Paralaoma lateumbilicata* (Suter, 1890) is deleted from the fauna of Great Island and *Therasiella* Powell, 1948, is transferred from the Phenacohelicinae to the Charopinae.

The Three Kings Group of islands have been effectively isolated from the New Zealand mainland by marine straits since the Pliocene, the degree of endemism in the land snail fauna is high (86.2% - 25 of 29 species) and zoogeographic affinities are predominantly with the northernmost tip of Northland, itself an island during the Pliocene.

\*\*\*\*

\* The Patellid Limpets of the World (Patellidae)

A. W. B. Powell  
Auckland Institute & Museum

Indo-Pacific Mollusca, Vol.3, No.15  
Nov. 1973

(The New Zealand section forms an important part of this impressive work and as usual in this series it is dealt with very comprehensively, being beautifully illustrated with a range of colour patterns likely to be encountered in each species.

In the copy before me, the captions of two colour plates have unfortunately been transposed during publication, but no doubt this will be corrected. Ed)

\*\*\*\*

\* The Taxonomy of Benthovoluta hilgendorfi (von Martens) and Allied Turbinellid Genera (Mollusca: Volutacea)

W. O. Cernohorsky  
Auckland Institute & Museum

Abstract:

The turbinellid species Benthovoluta hilgendorfi, believed to be endemic to Japan, is recorded from a specimen collected by Dr Th. Mortensen's Pacific Expedition of 1914-16 at Zamboanga, Philippine Islands. The genera Ptychatractus, Metzgeria, Benthovoluta, Surculina and Ceratoxancus are assigned to the subfamily Turbinellidae. The New Zealand genus Chathamidia is removed from the Muricidae and transferred to the Turbinellidae, in the synonymy of Surculina.

A one-day Symposium on Taxonomic Trends in the Littorinidae was held at the Royal Scottish Museum, Edinburgh, on Tuesday March 19th. The Symposium, the first restricted to this family of the prosobranch Gastropoda, was chaired by Sir Maurice Yonge and attended by 37 people with interests in the Littorinidae. Talks were presented on a range of littorinid topics; probably the most noteworthy contribution was unpublished evidence given by Dr J. Heller that the polymorphic species Littorina saxatilis (Olivi) should be regarded as containing at least four separate species.

The meeting unanimously endorsed the suggestion that an informal Littorinid group should be formed, with an international membership, as far as possible comprising all workers actively interested in these gastropods. This idea had previously received postal support from over 20 others, mostly from abroad, who were unable to attend the meeting. Anyone wishing to learn more about the group should write to the appointed co-ordinator, Charles Pettitt, Manchester Museum, The University, Manchester M13 9Pl, England.

At the meeting Mr Pettitt displayed a proof copy of the Indexed Bibliography of the Family Littorinidae (Gastropoda: Mollusca) 1758-1973 compiled by him and now published by the Manchester Museum (M.M. Publications N.S.4.74). This bibliography, printed in A4 size with 'plasticised' covers, contains about 730 references to world-wide Littorinidae; there is a subject and a general systematic index, with a special index of new generic and specific descriptions. The price is £0.75p., but the author has arranged that individual workers and members of recognised conchological societies may order a personal copy at cost price, £0.50p; to both prices should be added 8p. postage in UK, 15p. overseas. Requests should be sent to Charles Pettitt, at the above address; cheques, etc. should be made payable to Manchester Museum.

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Editors:

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Birkenhead  
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# POIRIERIA



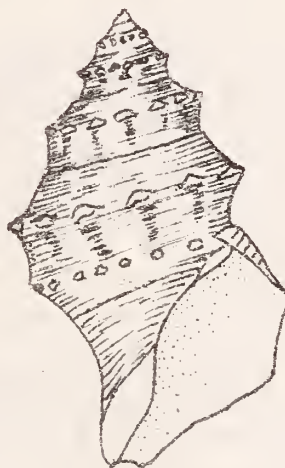
Volume 7 Part 4. June 1974.

CONCHOLOGY SECTION  
AUCKLAND INSTITUTE & MUSEUM



AUSTROFUSUS CHATHAMENSIS FINLAY 1928

Subrecent shells of Austrofusus chathamensis are apparently quite common in the shell banks at Owenga, Chatham Islands, but it seems that recent or living specimens are very rare indeed on these islands. There have been recorded from the mainland, however, a few examples of Austrofusus which seem referable to this species. Some specimens have been obtained from off Palliser Bay in 100 fathoms and also from Lyall Bay, Wellington; West Nelson; Stewart Island; and from the Mernoo Bank, East of Lyttelton in 61 fathoms. A few have been trawled off the West Coast of the North Island.

A. chathamensis.A. glans.

Some differences between A. glans and A. chathamensis:-

- \* On the body whorl of chathamensis, the angulation becomes obsolete and the body whorl may be broadly rounded.
- \* In the glans series, the body whorl often has a series of nodular angulations, sometimes one row, as in typical specimens or with two or three rows below the main one.

- \* There are considerable differences in the type of nodulation on the spire whorls - chathamensis has axial sculpture extending as raised ribs from suture to suture and raised into small nodules at the whorl angle. Such nodules are always axially elongated. This axial sculpture extends across the body whorl as low folds.

Austrofuscus glans Bolten is a common and widespread species with a distribution extending from North Cape to South Otago and across to the Chatham Islands.

Both species are of similar size.

\* \* \* \* \*

A FEW NOTES ON A LIVE FUSINUS GENTICUS DREDGED  
AT THE BAY OF ISLANDS

S. O'Neill

- "It was put in the aquarium on 27th April, along with a few other shells including a 40mm Pallium convexum. On 3rd May the Pallium died and Fusinus was seen to be feeding on the animal. Almost half of the Pallium was consumed except for the tough adductor muscle.

When the Fusinus was mobile it sometimes crawled across the surface of the sand, and at other times it crawled around almost covered. I never saw the shell completely covered, but this was due to the sand being too shallow. At one stage I increased the depth of sand to just over 2 inches, but there was still a considerable portion of shell showing above the sand, and when the aquarium was tilted the animal could be seen clinging to the glass base.

When we dredged the shell the outer lip was fairly thin and fragile, but on 13th May while I was changing the water the lip had noticeably thickened.

We never saw it eat anything after it ate the Pallium, and on 18th May it died. I tried feeding it other marine animals, i.e. sea worms and Haliotis virginea crispata (dead), but it wouldn't be tempted to feed again. Other Palliums were also tried, but with no result.

In the tank at the same time I had a small Monoplex australasiae, and I think that it killed the Pallium which the Fusinus ate, and also another Pallium about a week



later. Both times the Palliums appeared fairly healthy with slightly gaping valves. The Monoplex crawled over and placed its shell between the valves so that they were unable to close; in about half an hour it had entered nearly half its length into the Pallium's valves and had its proboscis thrust deep into the animal. It does not appear to eat much of the animal. I'm not sure if the Monoplex does kill the bivalve, but it definitely gets interested in the Pallium at the time of its death.

Do you think that a Monoplex would prey on bivalves or is it merely a scavenger? I placed a dead Pallium in the tank about a week ago and the Monoplex wasn't interested in it at all."

\* \* \* \* \*

THE GENUS ARTHRITICA Finlay 1927  
- Small Commensal Bivalves

N.W. Gardner

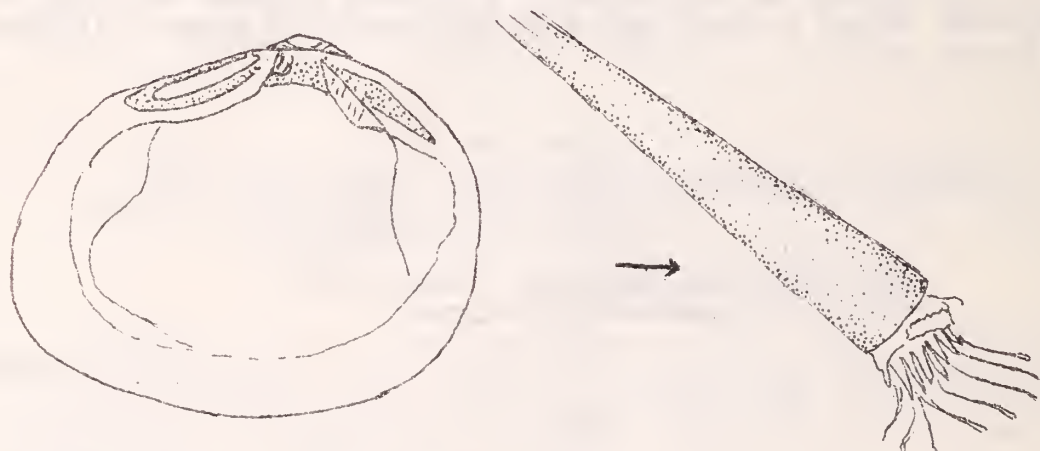
The three species of tiny bivalves belonging to this genus which occur around our coasts are of considerable interest because of their commensal relationships with certain marine invertebrates. They are attached to their hosts with fine byssus threads and they, no doubt, gain from such a partnership although it is not always clear why they do so. The association is certainly not a harmful one for they feed in the normal way with the gill filtering nutrient from the water.

The shells are very small and rather insignificant in appearance. They are roughly round to oval in profile and generally compressed - never very convex. Sculpture, too, is weak with, at most, faint concentric lines and sometimes a few stronger growth periods. There is at least one species a distinct thickening inside the shell below the hinge, resulting in two raised white patches which extend downwards and outwards. However, these limey patches on the inner side of the adductor scar are by no means always present.

Arthritica bifurca Webster

Grows to about 4mm in length, usually pale grey in colour and sometimes stained with brown on the outside. Sculpture is of weak concentric lines with some stronger growth lines. This species has internal limey patches

previously referred to. Odd valves are not uncommon in shallow water dredgings, especially in harbour situations. The commensal habit was described by Wear 1966, who found that it lives on the polychaeta Pectinaria australis (sand-mason worm). Also recorded by Ponder 1965 as a

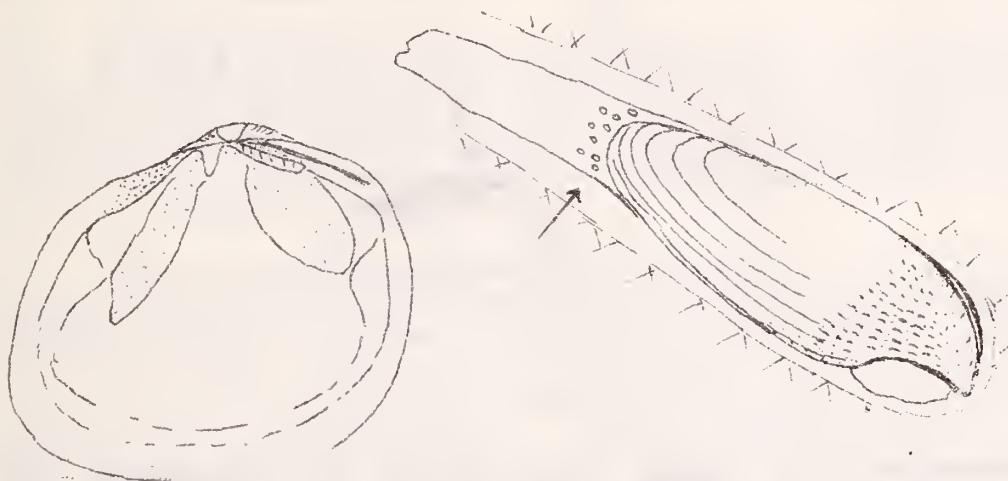


free-living species which does at times burrow into mud. Odd specimens have also been collected from under stones at low tide.

Arthritica crassiformis Powell

Yellowish white and only 2mm long. Proportionally, it is taller than the previous species. Again, the concentric sculpture is very weak with some equally weak irregular radials. This species is associated with the large rock borer Anchomasa similis within its burrow. It has not been seen on any other borer. The tiny bivalves, sometimes in clusters of a dozen or so, are attached to the basal region of the rock borer's fleshy siphon or at times on the mantle edges. In this position they are safe from crushing when the Pholad rotates its shelly valves. There is apparently no direct access to water current drawn in by the borer's inhalent siphon, but it does have access, as the water is forced out of the pedal openings. The enlarged palps of

A. crassiformis allow for the efficient sorting of the large amount of detritus entering the mantle cavity.



Some localities in which Anchomasa similis have been found associated with Arthritica crassiformis are: Kereperu Sound; Maheno Bay, Wellington; Weymouth, Manukau Harbour; Auckland East coast between Takapuna and Long Bay.

Arthritica hulmei Ponder

Larger than the previous species, more oval in profile and also a little more inflated. Yellowish white to light brown in colour. It differs also from bifurca in its larger anterior end and more rapidly descending dorsal edge, weaker hinge, thin periostracum, and the absence of definite sculpture.

Holotype 3.30mm x 2.75mm, dredged off Island Bay, Wellington.

This species attaches itself beneath the dorsal scales or elytra of the sea mouse, Aphrodita australis, which lives on offshore sandy mud flats. Fifteen specimens of A. hulmei were found on the sea mouse from which the type material was obtained. Such an



association is no doubt advantageous in that hulmei lies in the respiratory stream of the animal and is thus provided with a moving current to filter for food.

Has also been taken off Portland Island, Hawke's Bay, in 42 fathoms and from the Bay of Plenty.

References:

- |                  |  |
|------------------|--|
| Morton & Miller  | The New Zealand Sea Shore  |
| Ponder W.F. 1965 | The Biology of Arthritica<br>Trans. Roy. Soc. NZ Zoo. 6 (8),<br>75 - 86  |
| Wear 1966        | Physiological & Ecological Studies<br>on the Mollusc <u>Arthritica bifurca</u><br>Webster 1908<br>Biol. Bulletin 130(1), 141 - 149 |

\* \* \* \* \*

## BEWARE OF THE STRIPPERS

To most of us, strippers are ladies of indeterminate age who make a living by taking off their clothes in cabarets, night clubs and suchlike places. This type is of only academic interest to most shell collectors, who would far rather be admiring the beauties in their cabinets.

Unfortunately, there is another type of stripper, who is not only ruining our hobby, but also having a disastrous effect on the ecology of some of our beaches. I refer to the person who systematically collects a certain species of shell in a given area, taking everything he sees, large or small, living or dead.

We all know that this is happening. A few years ago, there was an extensive, thriving colony of Cellana radians flava located at Waikou Bay on the East Coast. Today there are none left - only a series of empty holes, mute evidence of the way in which the creatures have been dug out of the soft rock. One hears that, having wiped out this colony, the strippers have now moved further afield to Te Araroa.

The same thing has happened to what was once a thriving colony of Pteronotus eos in the Whangarei Harbour. Five or six years ago it was possible to find a specimen without a great deal of trouble. Now they have all gone from the accessible rocks, although some may have survived in deeper water. In the same area, what was once a fair-sized population of Vicimitra maoria has been stripped to the stage where it is now almost impossible to find a specimen. Oil spillage has not been responsible for the decimation of these colonies.

We have all heard of Paryphantas being collected by the bucketful, while the northern Placostylus has also been fair game to many people who are quite unconcerned about conservation. Is it any wonder that collecting is becoming more and more difficult and that some species, once relatively plentiful, are now quite difficult to find?

Of course, there are more collectors now than there were ten years ago, and all collectors are entitled to find a decent specimen to put in the collection. But the new collectors are not the ones who are doing the damage. The culprits are those who put a cash value on the Pteronotus and Vicimitra, as species such as these are the ones most in demand overseas. We never see anyone gathering large quantities of Amphibola crenata or Chione stutchburyi only for their shells.

What can we, as genuine collectors interested in conservation, do about this problem? There is no law to prevent a stripper from plundering a beach of desirable shells, as all regulations relating to the gathering of live sea shells are concerned with edible species such as oysters, mussels, toheroas and scallops. At the present time, anyone finding a colony of a scarce species is at liberty to clean it out, and no one can do anything about it.

Is not our best course of action to keep quiet about the exact location of any new finds, confiding in only those whom we can trust? Most of the strippers belong to shell clubs, not for what they can contribute to the general wellbeing of the hobby, but mainly so that they can be in on field trips and get information on good shelling places.

It is a great pity that we have to bring this atmosphere of secrecy into a shell club, as one of the pleasures of collecting is sharing our knowledge with others, and helping our friends to build up their collections. We can still do this, but I seriously suggest that we give no information to anyone whom we know to be a stripper, otherwise we shall find that it will soon be impossible to collect any good shells in what were once excellent shelling areas.

Anonymous Contributor

\* \* \* \* \*

LAND SNAIL MADNESS ??

P. Jamieson

To many shell collectors, land snailing conjures up memories of long mountainous trips involving some misery and discomfort. To others it means frantic searching in leaf litter - on all fours and in the face of repulsive spiders and other beasties. However, this is not necessarily always the case, as the following examples may show.

When searching for the collapsed Paryphanta at the Wallaceville Swamp, near Upper Hutt, one heads for the nearest bulldozed patch. Unusual? Not really, when one considers the finding of Paryphanta at Shannon Heights, near Levin, living in a grove of radiata pine trees, completely open to sheep and cattle, with nothing more for covering than mounds of pine needles. (Who said Paryphanta were selective in their habitat?!!!)

I have had Schizoglossa novoseelandica living under a piece of tin, the skull of a dead cow, and in a tiny patch of bracken in an otherwise open, completely cleared paddock.

Also, near Kaikoura you can find Rhytida (c.f. stephenensis) living in long grass on the side of the road.

But what must surely beat all the above for originality is a recent find of a Paralaoma lateumbilicata on the underside of a field mushroom in a paddock devoid of bush or any other vegetation normally considered suitable snail cover!

\* \* \* \* \*

### WEST AUSTRALIAN HOLIDAY

D. Thomson

As anyone knows who has taken a trip, a lot of the pleasure is in the planning. Halfway through last year, Alex and I decided to go to Perth for our Christmas holidays to visit our family. We had a very brief stay there two years ago, and we knew there were lots of places to visit.

Perth is a very beautiful, clean city, noted for its clear blue sky, lovely stretches of dazzling white sandy beaches, parks and trees - trees are just everywhere!

During the first week of our stay, there was a strong wind from the north-west and everyone but us thought it was cold. The temperature was 28°C!

When I wrote to Joy Hewitt, another shell friend in Perth, to tell her of our plans, she invited us to stay with her and her husband and family at a cottage on Rottneest Island, 12 miles offshore from Fremantle, and we were very pleased to accept, as we had been told what a lovely place it is, with its beautiful bays and beaches - good for fishing and shelling; it is also a wildlife sanctuary. It can be reached by boat or plane; a day trip can be taken or a cottage can be rented. There is also accommodation at the hotel. The government-owned cottages are so popular that there is a ballot every few months so that the maximum number of people can have a holiday there.

The sea was nice and calm on the morning we set off for Rottneest Island. The boat, which held 700, left the jetty at Perth at 9am and sailed down the Swan River, pulling in at Fremantle at 10am to pick up more passengers, and an hour later we were at Rottneest Island.

We were met by the Hewitts and we all walked to the cottage, for everyone rides a bicycle or walks. The only vehicle is a bus to take people on a sight-seeing tour. We all walked to the Look-Out and had a very good view of the Island, with its salt lakes, airfield and lovely bays. On the way we saw some Quokkas, which are rat-like animals as big as cats, and are quite tame. This is the only part of the world where they live and I believe there are several thousand.

Joy and I went shelling. I collected a lot of shell-sand from The Basin by the lighthouse and also live Melarapha unifasciata, (Gray); Nodilittorina rugosa, (Menke); and some Siphonaria. At Thomson's Bay in front of the cottage, Joy took me to find a Mitrid species. The wind was very strong, and although the shells were covered by 18 inches of water, it was hard to find them as the sand kept covering them over. I collected about 2 dozen and I was very pleased. Its name is Cancilla (Domiporta)citharoideal, (Dohrn, 1862).

From the far end of the Island Joy had collected live Patellanax laticostata, (Blainville) - very big, with a Patelloida nigrosulcata, (Reeve) on the back of each one; Haliotis roei, Gray; two beautiful Hydatina physis, (Linne); and a series of Cypraea caputserpentis, Linne - from juvenile to adult shells.

We enjoyed our stay at Rottneest Island, but with a very rough trip back, we were glad to get on to the mainland. The waves were so high and the boat rolling so much, the stewards issued paper bags to anyone feeling sick!

Our trip to the south was very nice - Albany has a very picturesque harbour and really lovely beaches. I went without lunch one day so that I could collect shells, and although I only found beach specimens, I felt it was worth while.

The next beach where I found shells was Augusta. Augusta is on the Blackwood River and what a cold place - only 10°C. We hadn't gone prepared for cold weather, so we put on two of everything plus a nylon raincoat each and walked a mile to the ocean. I found 6 live Katelaysia scalarina, Lamarck - a very nice Venerid. The wind was blowing so hard that we gave up and hurried back to the motel.

Cape Leeuwin was our next stop and was very scenic, but I couldn't find any shells, so I collected a sample of sand. One beach was strewn with cuttle-bone.



At Busselton we stopped at a shell museum to view a wonderful collection of world-wide shells and rocks and minerals. There was a fine collection of old bottles, too.

Our last night was spent at Bunbury - the second largest town in Western Australia. It was very nice, with lovely beaches. I collected shell-sand, but so far I haven't found many shells in it. Next day we were back in Perth and we all felt that we'd had a very interesting trip.

On the day we left for Auckland, I went very early in the morning to North Beach and collected dozens of small shells, and now I am at home busy sorting and naming my specimens.

Among the families I collected were:  
Fissurellidae, Siphonaridae, Patellidae, Cerithidae,  
Scalidae, Nassariidae, Conidae, Marginellidae, Littorinidae,  
Columbellidae.

If anyone is thinking of going to Western Australia, I know they will enjoy themselves.

\* \* \* \* \*

#### DIPLODONTA - Sorting Them Out

Of the four species of Diplodonta included in check-lists, only two obtain a size of just over one inch.

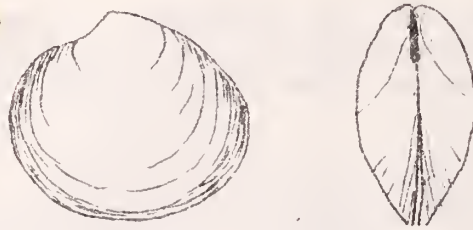
These lenticular or sometimes globose bivalves are generally quite plentiful and easily obtained if one is familiar with the habitats in which they choose to live.

Diplodonta are equipped with a rather long vermiform foot with a terminal glandiform swelling, which is used to probe a respiratory passage through soft sediments. They have no proper siphons - only a concertina-like tube from the edge of the mantle. There are no adductor siphonal muscles and so the pallial line on the inside of the valves is without a sinus. There are two cardinal teeth in each valve, hence the popular name of "Double-tooth shells".

#### Diplodonta zelandica (Gray)

Burrows into silty sand and therefore is found on most of the more sheltered sandy beaches. It is quite a solid

lens-shaped shell up to 25mm across, white or sometimes flesh-coloured but brownish if epidermis remains. Sculpture is of weak concentric lines and stronger growth lines. Beaks just slightly raised. Readily obtainable round the North Island, Northern part of the South Island and also occurs at the Chatham Islands.



Diplodonta striatula Finlay

This thin-shelled, globular species is to be found in old rock borer holes where fine sand has accumulated. Often the old valves of the borer are still there and within them the small bivalve nestles concealed from view, secure from predators. The long slender foot is used to cut a siphonal shaft through the silt above. The shell is much more globose than D. zelandica, in fact you might say it is as round as a pea. Colour whitish to light brown with irregular concentric ridges. Grows to 15mm in length and the thickness of such a shell is recorded as being 11mm. Distributional range much the same as previous species.



Diplodonta globus Finlay

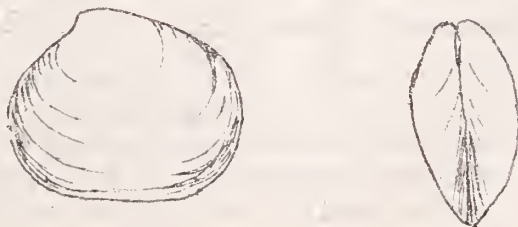
Specimens of over 25mm are known but most are about 18mm in length. Compared with striatula, the shells are smoother with fine concentric sculpture and proportionately are less inflated. Beaks prominently raised and this is a major point for identification. It is probably more common in the South and fine examples are obtainable at Stewart Island. It is perhaps not so plentiful on beaches but is readily obtainable with a dredge in a few fathoms.



Diplodonta rakiura Powell

As the name suggests, this species is from Stewart Island and is apparently confined to that area, where it is said to be not uncommon as washups.

Although close to zelandica in appearance, it can be separated at all growth stages by the position of the beaks which are at the anterior third (in zelandica they are almost central) and by the somewhat flattened dorsal and ventral margins. The surface of the shell is smoother and the shell itself more convex. Length 10.5mm. It is said to bear a close resemblance to Marikellia rotunda (Desh.).



Marikellia rotunda, although belonging to a different family altogether, is often confused with Diplodonta. It is approximately the size of D. striatula and is found sometimes in a similar habitat, i.e. in old borer holes where the dead borer shells have become filled with silt and sand. (They are found also within the empty valves of larger bivalves such as Glycymeris dredged in shallow water).

However, there are several points which should help beginners to separate these shells:-

- \* Marikellia rotunda has a distinctly yellowish thin, shiny periostracum.
- \* The shell is more oval than round.
- \* The hinge teeth are noticeably very different.

\* \* \* \* \*

#### SOME MOLLUSCAN PREDATORS OF COELENTERATES

Among the many marine gastropods which are normally associated with Coelenterates, are some living for preference on hard stony corals, where they feed on the living polyps. Not a great deal is known about the various kinds of Molluscs involved, but prosobranchs seem to be well represented with some twenty-six genera in eight families (Robertson 1966-1967).

While some show preference for stony corals, others feed on gorgonians, black corals, actinarian sea-anemones, etc.

In the four unrelated families and nine genera known to have a liking for the polyps of stony corals, are some genera which occur around our Northern coasts, but little is known of their associations in this country. These are the genera Philippia, Epitonium and Pedicularia.

In the Hawaiian Islands, Philippia has been seen to feed at night on the polyps of Porites coral. However, though some have been found living in big rock pools, our species seem to occur very often in rather sandy localities, where there would be little in the way of hard coral. At least one of our Epitoniums lives on

small sea-anemones which grow around the edges of rock pools at low tide level. Numbers of E.jukesianum have been observed in such situations at Ahipara. Nothing seems to have been recorded on the other species of this family. All generally wash ashore on rather open sandy beaches and not in rocky areas where one would expect such corals to grow, at least in New Zealand.

Live specimens of Pedicularia from Northland waters are found as a rule on the brittle red branching coral which grows at considerable depths (see POIRIERIA Vol. 6, No. 5). Pedicularia makes a deep scar on the branch of coral where it rests. It does not appear to move round much, or if it does it must then return to its home site after foraging. Most Coralliophilids are thought to be host-specific to stony corals, but several are linked with gorgonians or Antipatharian coral (sea-trees). The first record of Linaxis sertata Hed. from New Zealand were found alive on a sea-tree dredged from 30 fathoms between Little Barrier Island and Hen Island.

Volva longirostrata (Sby), which has been found off the Poor Knights Islands, lives and feeds on the gorgonian coral Prinnoides, where it blends in with the shape and colour of its surroundings.

Emozamia lucina (Hedley & Petterd) is a rare mollusc in New Zealand - and apparently in Australia, too. Most of the live specimens obtained here have been concealed in the branches of a strong white stony branching coral, brought up during trawling operations. It seems likely that this species, too, is a predator of coral polyps.

Reference:

Robertson, R. 1970 Pacific Science Vol. XXIV, No. 1

Review of the Predators and Parasites of  
Stony Corals, with Special Reference to  
Symbiotic Prosobranch Gastropods

\* \* \* \* \*

SUMMARY OF A PAPER BY R.A. VAN BELLE WHICH  
APPEARED IN "INFORMATIONS DE LA SOCIETE BELGE  
DE MALACOLOGIE" SERIE 3, No. 2, February 1974

The genus Ischnochiton Gray, 1847 (Polyplacophora)

The genus Ischnochiton Gray, 1847 has been misunderstood. Actually, Ischnochiton is divided into several sections, of which two are based on characters of the articulamentum:

Ischnochiton s.s: central valves having one slit -  
type: Chiton textilis, Gray, 1828.

Radsiella Pilsbry, 1892: central valves having two or several slits - type: Chiton textilis Gray, 1828.

Pilsbry erroneously described Chiton textilis as having one slit only and he created the section Radsiella for the species with several slits. Only it is proven that Chiton textilis has several slits in the intermediate valves. So the subgenus Ischnochiton s.s. must correspond to that character and Radsiella becomes a synonym of Ischnochiton s.s.

For the species having only one slit in the intermediate valves, a new name is proposed: SIMPLISCHNOCHITON nov. subgen. The type becomes Ischnochiton maorianus Iredale, 1914 (= Chiton longicymba Quoy & Gaimard, 1835).

Partial systematic classification of Ischnochiton Gray, 1847 becomes:

Ischnochiton s.s: having two or several slits in the insertion-plates of the intermediate valves. Type: Chiton textilis Gray, 1847.

Simplischnochiton nov. subgen: having only 1 slit in the intermediate valves. Type: Ischnochiton maorianus Iredale, 1914.

\* \* \* \* \*

LYMNAEA COLUMELLA. Say. 1817.

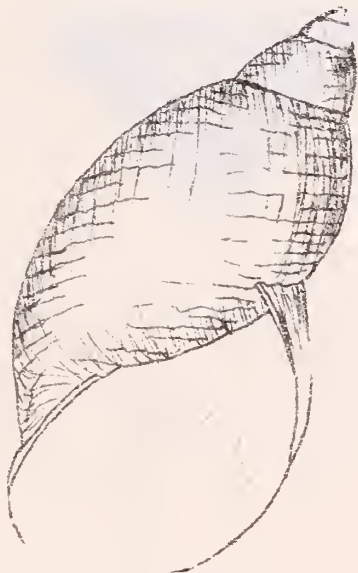
This is another introduced freshwater snail which although it has not been here long is spreading rapidly.

It is thought that it may have arrived about 1940, but was actually first recognised and recorded by Pullen in 1969, from specimens collected on the West Coast of the North Island. It has now spread over extensive areas of the North Island, from Cape Maria to Waikanae on the West Coast and also over the central region north of Lake Taupo. Has been recorded from the headwaters of the Waikato, Mokau, Wanganui, Rangitikei and Manawatu Rivers.

Although the main dividing ranges seem to have been something of a barrier, L. columella has appeared in areas near Gisborne, Napier and Waipukurau. In the South Island

it still seems to be restricted to the Nelson Province near the headwaters of the Motueka and Buller Rivers. Has been found in ponds and swamps near Timaru.

The speed with which L. columella is able to spread lies in its ability to breed very prolifically. It occupies a vacant niche in that it is able to breed on the top of floating water weeds which are so common on many ponds and sluggish streams. This feature also enhances its chance of dispersal by water birds.



The rapid spread of this species is of some importance in that it is also, along with L. tomentosa (Pfr), a vector of *F. hepatica* (liver fluke) in sheep.

Compared with L. tomentosa, L. columella has a taller, more slender shell, often darker in colour. It is, however, easily recognised by its microscopic sculpture of fine spiral lines which cross the growth lines. When the two species are found together, L. tomentosa is generally further under the water.

References:

Climo, F.M. & Pullan, N.B. 1972

A Taxonomic Review of the Family  
Lymnaeidae, (Mollusca; Gastropoda) in  
New Zealand

Jour.Roy.Soc.N.Z., Vol.2, No.1, pp 5-13

Pullan, N.B; Climo, F.M; Mansfield, C.B. 1972

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New Zealand

Jour.Roy.Soc.N.Z., Vol.2, No.3, pp 393-405

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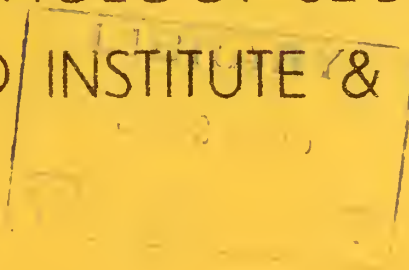
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# POIRIERIA



Vol. 7. Part 5. October 1974.

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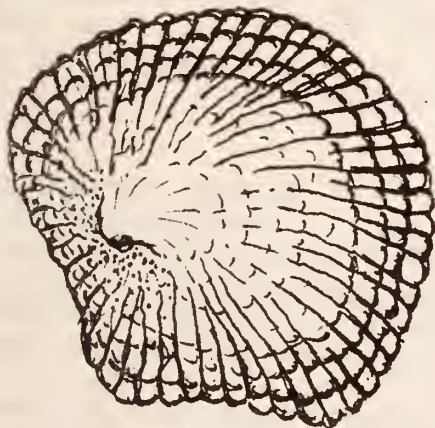
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ON THE OCCURRENCE OF A SPECIES OF HIPPONYX  
FROM NORTHERN NEW ZEALAND

N.W.Gardner

Recent dredging efforts on the western side of Tawhiti Rahi, Poor Knights Islands, in 25 fathoms and close to the vertical cliff face, have produced a number of specimens of a small Hipponyx which seems to be similar to H. foliaceus Q & G - a small species described from New South Wales, Australia.

In all, 65 specimens, varying from 3mm juveniles to adults of 10mm, were obtained from these dredgings. The cap-like shell is white, irregular in outline, with a tilted apex. Sculpture is of raised irregularly radiating ribs which are cut into squarish sections by concentric growth lines - the resultant sculpture is rather like tiles on a roof.



None of the specimens obtained was alive. They were sorted out from among bryozoan and shell remains which had accumulated in rocky runnels directly below the cliff face, and it is assumed that the Hipponyx had been living on the steep face above and therefore out of reach of the dredge.

In the Pacific Islands, Hipponyx conicus is usually attached to larger shells. On these, it leaves a scar at the area of attachment. (W. Cernohorsky 1968).

Our Poor Knights Hipponyx could also so exist, but none of the larger shells obtained showed any scar areas likely to have been caused by Hipponyx. A number of specimens were perforated by a very small neat hole, no doubt the handiwork of some small muricids or thaidis.

References :

1968 W. O. Cernohorsky

Observations on Hipponyx conicus

(Schumacher 1817)

The Veliger Vol. 10, No. 3 Jan 1968

\* \* \* \*

NOTES ON LEPSIELLA SCOBINA (Q & G).

The oyster-borer, Lepsiella scobina, is so common that it scarcely warrants a second glance, for it is often seen in hundreds on northern rock oyster beds or rocky areas with large barnacle populations - it is quite fond of a diet of these as well.

This thaid has perfected the art of boring through its victim's shell to earn a succulent meal. Examination of empty and gaping oyster or mussel shells will reveal the minute, neatly drilled hole which is the work of the oyster-borer's radula. The slender proboscis has been inserted through this hole and plunged into the tissues of the prey.

There is considerable shell variation in this species - in fact, a distributional collection of specimens from a number of localities will show a great variation in size, difference in shape and also in colour markings and sculpture.

It is not surprising, therefore, that two forms have been given names. One, albomarginata, is often used today, but the other seems to have fallen by the wayside.

Lepsiella scobina scobina (Q & G)

Specimens of nearly  $1\frac{1}{2}$  inches - 37mm are occasionally seen, but generally something near 20mm would be the usual size. These large examples are usually quite strongly spirally ribbed and shouldered, but it is generally the smaller specimens from more sheltered areas which exhibit the rough granular sculpture, and have earned this shell its name scobina - derived from scobis, meaning sawdust (Bucknill). The outer lip is strongly crenulate.

Lepsiella scobina albomarginata (Desh.)

Smaller and without the usual prominent ribs, nor is it so strongly shouldered. Sometimes has a smooth rounded profile. The outer lip, which is not deeply crenulated, is white margined, as the name suggests - a feature not restricted to the subspecies! The shell is often spirally banded in black and white. It is much more common in the South Island but occurs also in the North, i.e. Muriwai, Auckland West Coast, where good examples can be found.

Lepsiella scobina var. rutila

Listed in Suter's Manual, this quite interesting colour form differs in being bright orange to light brown. Often the surface of the shell is whitish with the colour showing through but the aperture is clearly coloured. Sculpture typical. Occurs not uncommonly in several localities, namely Kawau Island; Port Fitzroy, Great Barrier Island; Taylors Mistake, South Island; and near Lyttelton.

N.G.

\* \* \* \*

WEST AUSTRALIAN SAFARI

L. Price

Outback travel through Western Australia, in summer, can be an ordeal of heat, thirst, dust, flies and atrocious road conditions - to the keen naturalist it can also be a most rewarding experience, for this vast, sunbaked land supports a wealth of unique flora and fauna. To Alan Solem and myself, it proved to be all of these things - as this account of a recent field trip may demonstrate.

From mid-January to late February 1974, we travelled around 6000 miles by road - from Perth to Port Hedland in the north, to Albany in the south, and Balladonia in the east - the main purpose of our journey being the collection and study of as many species of the land snails as possible.

In addition, Alan is an accomplished photographer and he gathered a fine selection of wildflower studies in all their glorious colours and diversity, as well as many a candid shot of the birds, animals, reptiles and insects along the way.

Although the northern regions of the State are extremely hot and arid for most of the year, coastal areas have a good cover of small trees, shrubs, tussock and coarse grasses. Further inland, the vegetation gradually gives way to ever-increasing deserts of burning red sand and stark rocky outcrops. Despite the harsh conditions, land snails are widespread and often very abundant in suitable habitats. Typical genera are Sinumelon, Rhagada and Pleuroxia - many are white in colour, sometimes with indistinct brown bands and often beautifully sculptured.

After our arrival in Perth on January 10, the first move was to call on a car-hire firm, with whom previous arrangements had been made to hire a suitable vehicle. This was a Land Rover, equipped with an extra 15-gallon fuel tank, a 15-gallon water tank, and two spare wheels. Next came a visit to the mollusc department of the Western Australian Museum, where we inspected the land snail collection, compiled a list of localities, and borrowed a set of large-scale topographical maps. By the time we had added an axe and shovel, collecting boxes, camping equipment and food supplies, we were about ready for the trail.

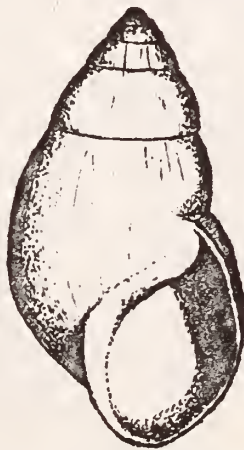
It was decided that our first major scene of operations would be in the Cape Range, on the north-west coast, near Exmouth. So, on January 13, we were off. For the next three days we sped up the main highway - with time off only for two short collecting detours - through Geraldton, Carnarvon, to Exmouth, some 830 miles north of Perth.

In Perth, 34°C in the shade had seemed quite summery, but as we approached the Tropics, above Carnarvon, things began to really warm up, with daily temperatures ranging between 40° and 45°C. Even when speeding along at 60 mph, with all ventilation wide open, we were often in a lather of sweat, and thirst was a constant problem.

The Cape Range is a broad expanse of broken limestone, densely covered in shrubs and prickly clumps of spinifex tussock. Here we camped in a shallow valley, beside a large limestone cave, to which we were able to retreat during the heat of the day. The first evening there occurred a tremendous thunderstorm, with torrential rain for two hours. We were delighted, for next morning the local snails were out crawling in their thousands, and we spent the following three days busily collecting



Rhagada convicta(Cox)  
25 x 18 mm.



Bothriembryon dux(Bfr.)  
60 x 35 mm.



Pleuroxia polypleura(Tate)  
18 x 11 mm.





specimens, and studying their habits. Of the five species we found, there were 2 Sinumelons, 2 Rhagadas and 1 Pleuroxia, and only two species having previously been identified.

Back in Exmouth, we relaxed for a couple of days with friends, then returned south about 40 miles, and over to the coast at Ningaloo Homestead. Here, I had a rather hair-raising experience. Although we each had a small tent, it was so warm I preferred sleeping out under the stars every night, covered only by a sheet. I was awakened around midnight by a weight on my legs and, raising my head, I could see a dark shape at my waist. Thinking it was a lizard - common in these parts - I gave it a couple of pokes with my hand, but nothing happened. Raising up on my elbows, I could see a long form stretching down past my feet and I suddenly realised - with horror - that it was a snake. I froze. Then, very gingerly, I withdrew my legs, backed off and quickly stood up - only then did it calmly glide off into the nearby vegetation. Well - first thoughts were that I should take to the roof of the Land Rover for the remainder of the night, but after a few minutes I calmed down and decided that the odds were against any repeat performance - and there wasn't, ever again.

From Ningaloo, we drove down the coast towards Coral Bay, but due to a malfunction in the fuel system, we ran out of petrol. Fortunately it was only a 5-mile hike to Cardabia Homestead, where we were able to borrow sufficient fuel to reach the pumps at Coral Bay. After camping and collecting Bothriembryon costulatus (Lamarck), and a small species of Rhagada, in the vicinity, we returned to the Exmouth road, and then across the coastal plains to the main highway to the north. Due to recent thunderstorms, this turned out to be a rather dicey manoeuvre - the dirt road (?) contained numerous washouts, boggy and flooded sections - however, we eventually made it.

Once on the main highway again, it was a comparatively easy run up to Roebourne - apart from several holdups at flooded river crossings. Along the way, we camped and collected at appropriate spots and also visited the iron ore port of Dampier, where the local snails - Rhagada convicta (Cox) - were out in their hundreds, making the most of the damp conditions.

At Roebourne we learned that all roads further inland and to the north were closed by flooded streams, so we moved out to the coast nearby at Port Samson and booked into a motel. Here we spent the new few days relaxing, catching up on various chores, and did some collecting, both land and marine.

As the inland road was the first to be re-opened, we then tackled the 180 dusty miles through to the asbestos mining town of Wittenoom. On the way, we collected a few specimens of another unnamed species of snail, near Python Pool. The deep gorges of the Hamersley Range around Wittenoom were as hot as a furnace, and appeared to be devoid of snails, so we decided to return to the coast, at Port Hedland. This road proved to be a further 180 miles of corrugations, washouts and numerous open stream crossings, but we were happy to find another new species of Sinumelon, which was some compensation, at least.

Inquiries at Port Hedland confirmed that the coastal highway, on both sides, was closed indefinitely - this due to one of the wettest "Wet Seasons" on record. So there remained no alternative but to return south - which we did by stages, collecting in the localities we had bypassed on the way up.

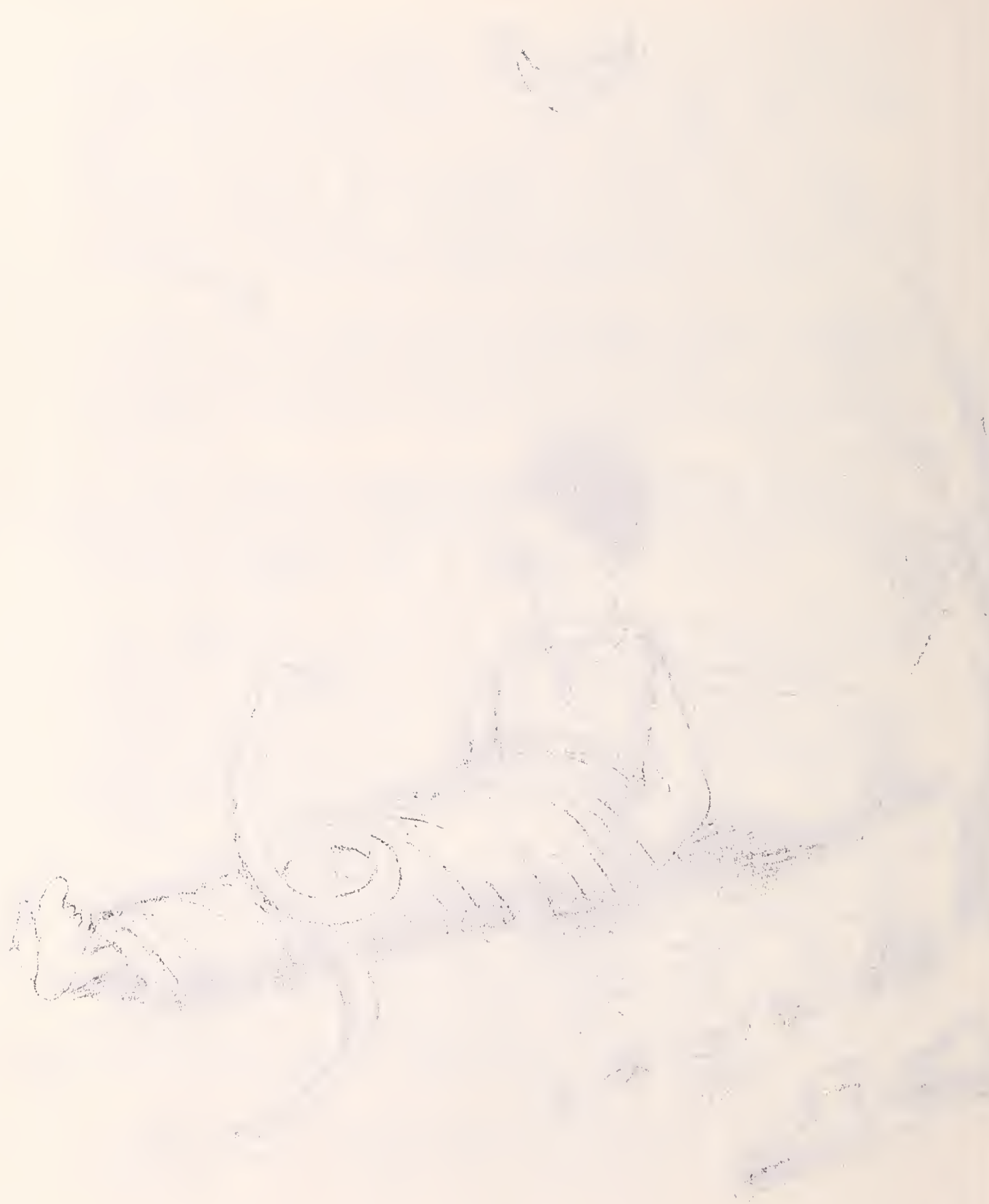
In a cloud of dust we jolted our way back inland to Wittenoom and on to Tom Price (a neat iron mining town, carved out of the wilderness). From here it was 170 miles of pure purgatory, over to the main north highway, then a detour out to the coast at Onslow.

Throughout the northern coastal regions the bountiful summer rains had caused the vegetation to spring forth lush and green, which in turn supplied ample food, water and shelter to a variety of animals and flocks of birds. Amongst the latter, the handsome emu was a common sight - always at least a pair, sometimes as many as eight, and often with several young. Unfortunately, the slaughter along the highways was very high in many areas - the chief victims being kangaroos, wallabies and lizards.

After good collecting under the spinifex, near Onslow, we continued south to Minilya Roadhouse, then out to the coast at Warroora Homestead. Here, amongst limestone outcrops near the sea, we found two species of Rhagada in abundance, estivating in the soil under shrubs. From a short visit to the nearby Scrubb Range, we returned south to Carnarvon and up the coast to Point Quobba - another limestone area. In fierce heat, and swarms of pesky flies, we soon beat a hasty retreat, but not without a sample of the local snails - a Bothriembryon and a Rhagada.

Over the next few days, we made steady progress south, with occasional collecting stops, mainly in limestone areas, along the way. Eventually, on February 8, we arrived back in Perth.





Here we immediately got busy, sorting out our gear and getting things reorganised. Then, after exchanging the trusty Land Rover for a much more comfortable Chrysler Valiant car, we took off for the wide open spaces once again. During the next two weeks we travelled and collected, here and there, around the south-west of the State - particularly in the coastal areas.

The south-west portion is rather mountainous, with many prominent granite outcrops, densely forested with some fine stands of karri and jarrah hardwoods, and several large rivers. The climate is cool temperate, with a good annual rainfall. (We soon noticed the change in the climate - after the extreme heat of the north, the days seemed quite cool and the nights positively freezing).

Many species of land snails in this area belong in the genus Bothriembryon, with a large number of varieties. They are mainly coastal living and concentrated in the south-west corner; however, a few are found up the coast as far north as Coral Bay, and along the south coast as far east as Eyre Peninsula, South Australia. Also, there are two renegades known, far removed from their brethren - one in Tasmania, and the other in Central Australia, near Alice Springs. In the wetter spots, the family Endodontidae is well represented by a number of species and several genera. In the dry inland areas of the east, species of Sinumelon and Pleuroxia again make their appearance.

At Point d'Entrecasteaux we found a large, unnamed fossil species of Bothriembryon. Most specimens were embedded in limestone and sandstone outcrops, but we picked up a few good shells which had weathered out over the ages. A small living species was also abundant here, under shrubs and clumps of coarse grass.

In the picnic grounds at Peaceful Bay we were intrigued to find a number of Bothriembryon kingii (Gray) sitting on the brick walls of a toilet block.

On the outskirts of Esperance, many thousands of dead shells lay around amongst shrubs beside the road, but no living specimens could be found. (This species was Bothriembryon esperantia (Iredale)).

The local golf course at Salmon Gums yielded specimens of Bothriembryon balteolus (Iredale) and Bothriembryon dux (Pfr.). The latter species is the largest in the genus - the shells are dull white, with a pink aperture, and up to 60mm in height.

Near Balladonia, on the Eyre Highway, we found 3 species of Bothriembryon, 1 Sinumelon, 1 Pleuroxia and 1 Pupillid - all living together, buried in soil, under dense shrubs. (Much drier living conditions would be hard to imagine, but from the large numbers present, they were obviously thriving).

And so, after a very successful tour, we finally returned to Perth on February 23. Over the next couple of weeks we spent a good deal of time working in the Museum - then it was time to say farewell to Western Australia.

On March 6, we flew up to Darwin, where we spent four soggy days, collecting in pouring rain. Then we flew south to Alice Springs, for ten sunny days in the "Red Heart". And that was the end of our safari.

Reference :

Iredale, Tom 1939

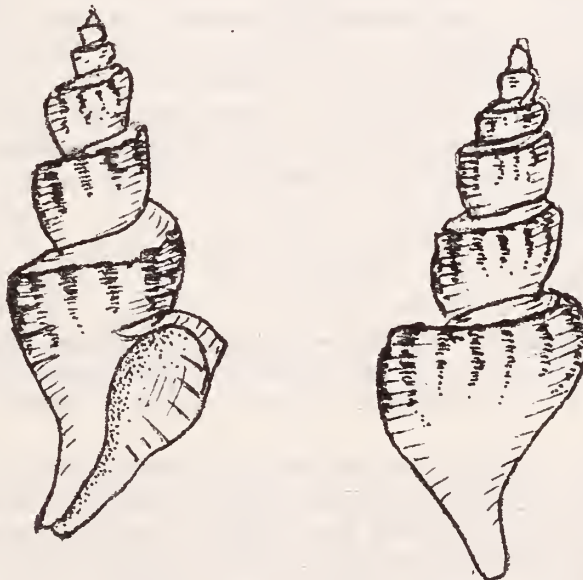
A Review of The Land Mollusca of Western Australia

\* \* \* \* \*

NOTES of INTEREST

- \* A very choice specimen of Hydatina albocincta (van der Hoeven) has been picked up on a beach in the Karekare area of Doubtless Bay. This is a distinctive shell of pale ground colour and four wide mahogany-coloured spiral bands on the body whorl. It is the second specimen to be recorded from Northland - the first was recorded by Dr Powell, a fine specimen cast ashore at Tutukaka.
  
- \* In our last issue, Austrofusus was featured. At a recent meeting a specimen was on display which had been washed ashore after rough weather on the Waiuku coast. This shell has rounded whorls and the strong, long axial folds of typical A. chathamensis.
  
- \* A novelty from Kaiti, Gisborne, sent up by Mrs Wood of Wellington, is a very attractive colour variation of Sigapatella novaezelandiae which has two wide, dark

- \* brown spiralling bands around the shell. It washes up quite commonly. Similar specimens, though not as fresh, can be picked up on Takapuna and East Coast Bays beaches.
- \* Mr P. Latham, Papanoa, reports dredging up specimens of Morula palmeri Powell from the steep bank off the west coast of Mayor Island, where it dips abruptly from 10 to 40 fathoms. The dredge filled with Glycymeris laticostata, scallop shells and other rubbish, but from amongst it, seven specimens of M. palmeri were sorted out.
- \* At our last meeting Steve O'Neill showed a fine live-taken specimen of Proxicharonia palmeri which was dredged off Cape Brett - apparently on rather rough ground, for shortly afterwards he lost his dredge! The specimen was kept alive in his aquarium for a while and the animal was observed to be quite strikingly coloured in pink and red.
- \* The specimen below, sent up for identification by Mr T. Mason of Gisborne, was trawled in 10 - 15 fathoms, Tasman Bay, Nelson. Freak specimens turn up from time to time - most are grotesque and unattractive, but this shell, a Scalariform, or unwound specimen of Austrofusus glans, is well coloured and graceful in shape - reminiscent of some molluscs from oriental seas.



The odd coiling of the shell is caused by perhaps a grain of sand which becomes wedged in the suture at the edge of the aperture, so causing an obstruction to the close coiling of the shell which continues to grow in scalariform or open manner.

- \* Mr W. Taylor had sent up some very interesting photographs and slides of the vast number of Atrina zelandica which had been washing up on Ohope Beach. The wholesale destruction of the species in this area seemed hard to explain as the live shells are very firmly embedded and attached in the mud by a byssus.

Mr Mabey of Great Barrier Island says that the same massive washups of Atrina have been occurring over the past five months at Whangapoua on the East Coast. At times the mile-and-a-half long beach had piles of the shells as high as 4 feet, and spreading a chain both up the beach and out to sea.

\* \* \* \*

### SHELL COLLECTING IN FIJI

I. Rigden

A week spent reef shelling in warm Fijian waters is a great experience, especially when taken in the middle of a New Zealand winter. As two of the five New Zealanders on Mr Walter Cernohorsky's Shell Collectors' Tour in July, we (my husband and I) had a thoroughly enjoyable and rewarding holiday, learning a lot both from what we saw and from the greater knowledge and experience of some of the others in the group.

What if we had to rise early some mornings! It was 3.45am on the first morning, leaving Nandi about 4.30 and Lautoka at 5am. It was pleasantly warm and we saw daybreak from the launch as we headed for Tavarua Reef offloading our luggage at Treasure Island on the way.

A shock for Kiwis when we disembarked! Our landing boat, a 25ft. flat-bottomed punt powered by a temperamental outboard, couldn't take us right to shore and we stepped out more than kneedeep into the water on the reef - thank goodness it was warm! Until the tide dropped we turned rocks at the beach edge of the reef and found "shells needed to be looked for and weren't under every rock".



We saw several clams (Tridacna maxima), mostly too well set in the rock to move but right on target with their jet of water! We collected Trochus (T. niloticus and T. maculatus) and Turbans (T. argyrostomus and T. chrysostomus), Nerita albicilla and small beach specimens of Tonna perdix, and also a few bivalves.

Later we walked right across the reef to the breakers. It was like wandering through a tropical "seaquarium" and so different from anything in New Zealand. We were entranced with the big blue starfish; sea snakes; octopus; and dozens of colourful little fish, electric blue, gold, yellow and black striped, etc., and one at least nine inches long in green and pink, which had difficulty moving in the very shallow water ..... so much to see and many of the "rocks" unturnable, held down by live coral growth ... Fresh coconuts were delicious when we returned to the beach about 1pm.

Namotu, our second day reef, was, according to our Australian neighbours, very like the Great Barrier and near the breakers we became adept at finding Cypraea in the coral crevices and several cones near or under rocks.

Perhaps our greatest variety of shelling experiences was at Malolo where we had two very profitable days, and in retrospect a host of exciting memories - using the sand dredge (as in W. Cernohorsky's first volume of Pacific shells), shaking out the sand after a drag to reveal Olivia carneola and Vexillum sanguisugum; seeing Cypraea tigris with their mantles out, and Limea fragilis looking like a mobile anemone swimming in a pool under a rock; working over the sea-grass (a greenish-grey weed) and discovering the rather rare Cypraea humphreysi with their bright red bodies (too pretty to collect but too valuable as an exchange not to!); looking for treasure at the end of a sand trail and finding big species of Terebra maculata, Mitre mitre, Polinices timidus, and the less common Polinices flemingiana with the J on its operculum.

Reefs varied from those with an abundance of marine life to dead reefs reminiscent of photos of the moon surface. We didn't stay long on those!

The boat trips from one to two and a half hours each way each day passed quickly enough, getting to know fellow collectors, or acquiring a bit more suntan. To allow maximum shelling time we had lunch on the boat and on the return trip compared "treasures" and had some specimens named.

Back at our bures at Treasure Island Hotel, the comparing and naming continued and shells were packed in methys solution for the trip home. And then we were home again, all too soon, and as we clean our collection we wondere where next and how soon?

Shells named so far, from the trip to the reefs of the Mamanuca Group, Fiji, July 1974 :

- Naticidae: Polinices timidus, P.flemingiana, and beach sp. of P. simiae, Natica onca and P.maurus.
- Bullidae: B. ampulla; B. vernicosa
- Atyidae: Atya cylindricus
- Neritidea: N. albicilla
- Tonnidae: T. perdix
- Bursidae: B. rubeta
- Olividae: O. miniacea, O. carneola
- Trochidae: T. niloticus, T. maculatus, T. incrassatus
- Turbinidae: T. argyrostomus, T. chrysostomus
- Nassariidae: N. splendidulus, N. albescensalbescens, N. coronatus
- Turridae: Turris crispa, Lophiotoma acuta, Clavus unizonalis
- Columbelliae: Pyrene scripta
- Buccinidae: Engina funiculata, E. mendicaria, E. lineata
- Littorinidae: L. scabra
- Cerithidae: Clypeomorus moniliferus, Cerithium nodulosum
- Strombidae: Lambis lambis
- Muricidae: Chicoreus ramosus, C. brunneus
- Fasciolaridae: Latirus (Latirolagena) smaragdulus
- Vasidae: Vasum ceramicum
- Cypraeidae: C. argus (beach sp.), C. lynx, C. carneola, C. vitellus, C. erosa, C. eglantina, C. tigris, C. isabella, C. humphreysi, C. erroneus, C. heluola, C. summersi (beach sp.)
- Bivalves (not in systematic order) :

Asaphis violascens, Trapezium bicarinatum (?), Periglypta reticulata, Pinctada margaritifera (?), Codakia punctata, Codakia tigerina, Limea fragilis, Tridacna maxima, Fragam unedo, Fragam fragum, Fimbria fimbriata, Spondylus ducalis, Gafarium timidum, Chlamys squamosa (?) juv., Arcopagia robusta, Arca ventricosa, Fulvia tenuicostata, Tellina virgata.

COLLECTING OVER THE END OF A CITY WHARF

It is not often that one can jump off the end of a wharf and, without getting wet, do some quite interesting fossicking. That is what we have been able to do at Kings Wharf, Auckland as, with reclamation in progress, much of the spoil being used has been dredged from the Rangitoto Channel in 10 - 15 fathoms and barged in to the wharf area.

This spoil has drawn many local conchologists like a magnet and the pickings after rain and the lapping of the sea have been voted as a very well worth while source of specimens.

Not the least of interest is the size of these specimens - far in excess of anything we see washed up on local beaches. Also, it is quite informative in the comparative frequency with which certain species occur in the spoil. Maoricolpus roseus, for instance, occurs in countless numbers, while Glaphyrina turns up only occasionally. Murexsul octogonus of good size is not uncommon and unlike shore collected specimens is clean and quite without any encrustation. Very large Baryspira mucronata are found throughout the spoil, sometimes a little stained, but many in very good condition and very much bigger than anything we see from our own dredging efforts.

Some of the species obtained and their frequency are as follows :

Pension sulcus - common	Struthiolaria papulosa
Buccinum powelli - common	Murexsul octogonus - not uncommon
Buccinum lineata - common	Zeatrophon ambiguus - not uncommon
Cominella adspersa - common	Zeacrypta costata - not uncommon - some very large examples seen
Cominella maculosa - not common	
Cominella quoyana - common	
Glaphyrina vulpicolor - occasionally	
Alcithoe arabica - common	Mactra ovata - common
Trochus tiaratus - very common	Macamona liliana - common
Maurea pellucida - occasionally	Gari stangeri - not uncommon
Sigapatella novaezelandica - common	Zeacopagia disculus - a few
	Paphirus largillierti - common
Struthiolaria vermis - not uncommon	Dosinia zelandica - common
	Chlamys zelandiae - not uncommon

Pecten novazelandiae - common	Tellinella charlottae - odd valves
Pholadidea spathulata - 1 specimen	Angulus edgari - not uncommon
Cleidotherus maorianus - 1 specimen	Leptomya retiaria - common
Glycymeris laticostata - common	Venericardia purpurata - common
	Diplodonta zelandica - common

\* \* \* \*

### THE MYSTERY OF CYTORA STUDERI Suter

N.W. Gardner.

This "land snail", which was described way back in the year 1896, has not been recorded since. The species was erected on the basis of one halfgrown shell, said to have come from the Whangarei area. Even with the considerable amount of collecting that has been done in Northland during the last few years, no land snail bearing any resemblance to it has been found. Cytora studeri, which has an obtuse apex, seems to bear little resemblance to any of the Cytorid species, all of which have a generous epidermal covering and a variety of interesting processes.

The whorls of studeri are rounded and practically smooth except for some faint growth lines, and on shell characters would be better placed in the Hydrobiidae, our species of which have similar rather featureless shells. The obtuse apex is present in some of our freshwater shells too. The fact that it was probably found with land snails is of no great importance for freshwater snails are not infrequently found in leaf litter taken for landsnail sampling - no doubt washed there from small streams and seepages during flooding.

As the type specimen of Cytora studeri is, in fact, only half grown and apparently a dead shell, there is no telling just what a fully grown specimen would look like. It does at that stage of growth appear to be similar to Paxillostium nanum Gardner, but there are some differences in profile and a big difference in size.

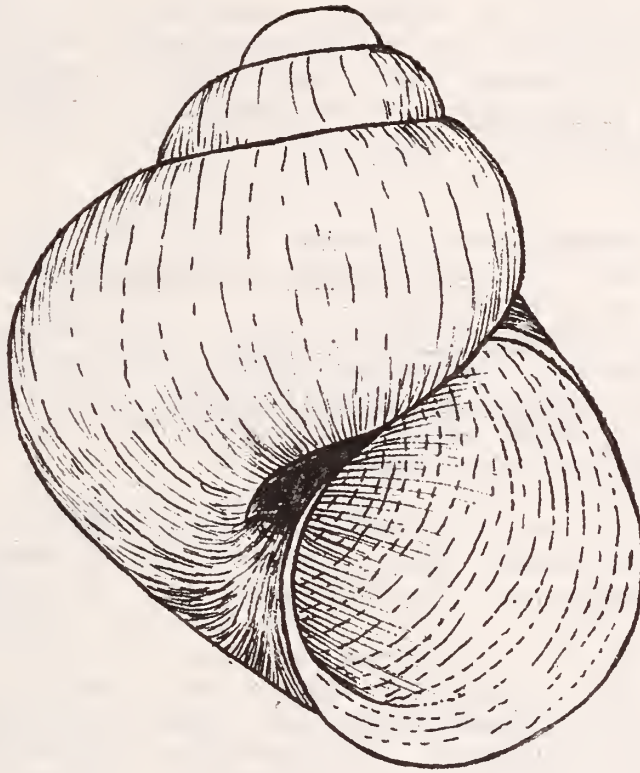


Illustration:

By courtesy of Dr. F. Climo, is of the type of *C. studeri* which is in the Suter landsnail collection, National Museum, Wellington..

\* \* \* \*

MANGROVES and MOLLUSCS

E.N. Gardner

Mangroves have always intrigued me - their roots in soft mud, the masses of aerial roots with their greenish-brown pneumatophores poking up in a wide circle round each tree and the bright green fleshy cotyledons which drop from the tree after popping out of the seed covering. These shelter the quickly growing shoot and tiny sturdy roots which, if conditions are favourable, soon anchor in the mud or are otherwise carried with the currents to be distributed along the coast into other estuarine areas. When the tide recedes, the sticky mud is seen to be full of holes inhabited by small crabs and the mottled slug like

Onchidium but little in the way of molluscs except oysters.

At the edge of such an area where mud becomes firmer and gives way to sandy mudflats, we find several species of molluscs, the largest being Amphibola crenata, Zeacumantus lutulentus - the larger of our two common New Zealand Cerithiums - and maybe the periwinkle Zediloma subrostrata.

Where mangroves persist along the shore about high tide mark, we find Salicornia australis, the small ice plant, and hidden underneath the Ellobiids, Ophicardelus costellaris and Marinula filholi, particularly if there are stones about. Smaller shells, such as Assiminea vulgaris and Suterilla neozelanica, can often be found under stones, wood and decaying seaweeds along with several other tiny molluscs.

While on the Queensland coast recently, I had the chance, for a short time, to poke about among mangroves in various places. The mangrove was obviously a different species and there seemed to be several other trees growing amongst them, with various creepers and perching plants to add to the lush growth. Here, the mangrove roots hooped out in all directions from the main trunk which was often well above the ground. The mud looked thick and sticky, but from the bank in any open areas dozens of large Cerithiums, Telescopium telescopium could be seen, along with Terebralia palustris. Near high tide mark, investigation of groups of mangroves proved most interesting. As the tide dropped, grey striped Littorina scabra settled down to wait until next high tide and either stayed on the underside of leaves or gathered in dozens along the cooler sides of the trunk and branches of the trees. A few bright orange or yellow Melaraphe luteola were seen high up on the leaves. These shells apparently can lower themselves by a thread from one leaf to another. Oysters had established themselves on roots and pneumatophores just as they do here.

The large black ribbed Nerita lineata with a yellow stain on the columella area crawled, as the tide dropped, from the branches down the smooth orangish roots to hide on the sandy mud under the roots below the main trunk of the trees, well out of the heat of the day. The smallish decollated Cerithium obtusa was quite common on trunks and leaves. Round about the mangrove trees were large groups of Terebralia sulcata and nearby Natica sordida and two or three species of Nassarius were crawling through the soft mud. A short distance below high tide was a colourful band, several feet wide, of the small Pictoneritina

oualanensis, striped or mottled in white, grey, black, yellow, orange and pink - a great fascination to the stranger. Under stunted mangroves in one area was another larger species of Neritina. The black shell turns a bright pink when it dies and bleaches out - "Pinkies", the local folk called them.

The murex Naquetia permesta lives in the mud under mangroves in Northern Australia, though we did not come across any. It is very similar to the common NSW shell, Torvamurex denudatus.

Although time did not allow more than a cursory look in any place, over 30 species of molluscs are to be found in, for instance, the vicinity of the Ross River mangroves near Yeppoon. Among the shells which inhabit this area are several species of Teredo, Melampus and Ellobium aurismidae, an attractive white shell with a brown periostracum, rather like a Placostylus snail at first glance. It lives in the soft mud at the base of mangroves, but all we found were dead shells which had been washed down.

In one area where small mangroves grew right down on to the beach we saw a Salicornia very like our New Zealand plant and underneath was an Ophicardelus - for all the world like our New Zealand shells. I half expected to find Assimineae, too, and no doubt had time permitted, small species related to those here would have been found. The Queensland fauna, being tropical, is much richer - more numerous in species and numbers than ours, and if one could bear to get in and scramble about in the soft, black mud and tangle of mangrove roots, I am sure it would be most interesting from the conchologist's point of view.

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\* \* \* \* \* \* \* \* \*

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# POIRIERIA



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CONCHOLOGY SECTION  
AUCKLAND INSTITUTE & MUSEUM



ON A LOCAL OCCURRENCE OF SUBRECENT  
ANADARA TRAPEZIA (Deshayes)

N. W. Gardner

In a previous issue of "Poirieria", mention was made of the Kings Wharf reclamation, and some of the shells found in the spoil barged in from the Rangitoto Channel were listed. The most interesting occurrence was, however, not included in this list, for, since then, quite a considerable number of valves of Anadara trapezia have been gathered up. Over one hundred examples can be accounted for. Anadara, of course, does not live around the New Zealand coastline now, so these valves are subrecent or fossil.

It is assumed that the Auckland Harbour Board's bucket dredge must have cut through a pocket of older strata while scooping up the soft bottom for wharf area reclamation. Most of the valves are quite clean, with ribbing distinct, and not noticeably worn, and a few still had some of the matrix adhering to them. This was quite sandy and rather hard when compared with the soft, bluish sediment which makes up most of the spoil from the area.

There is considerable difference in the size of the valves found. Some are heavy, quite mature shells, reaching 75 mm, but about two-thirds of the total are small and light-weight juveniles of only 40 - 45 mm.

This is not the first record of Anadara from the Auckland area, as a single specimen, found by Miss L. B. Moore, is recorded from baked mud beneath a lava flow on Rangitoto (Fleming 1934). Turner & Bartrum, in a paper published in 1928, suggested that similar old estuarine silts could occur in the Takapuna area not far from Rangitoto, and it appears that their hypothesis has proved correct by the discovery of Anadara in the spoil lately dredged from the Channel.

The extinction of Anadara in northern New Zealand is attributed to a period of Pleistocene glacial cooling. The extinction here is paralleled by that of Tasmania and South Australia, where it occurs in the old raised beaches of the Pleistocene but is not found living around the shores now.

Along the warmer coast of Australia today, it lives half buried in mudflats and appears to be gradually moving south. It has been suggested that such a habitat could have made it vulnerable to exposure to frost at low tide, during a period of glacial cooling, and so contributed to its passing from the local scene. For carbon dating reports on the ages of some of the New Zealand occurrences of this species, see paper by Fleming & Powell, listed in reference below, and also under New Publications in this issue.

References:

- \* Fleming C.A. 1934 Molluscan Evidence of Pliocene Climatic Changes in New Zealand Trans & Proc. Roy.Soc.N.Z. Vol 74, pp207 - 220.
- \* Fleming C.A. & Powell A.W.B. 1974 Three Radiocarbon Dates for Quaternary Mollusca from Northland Rec. Auck. Inst. Mus.11 pp 193 - 195.

\* \* \*

ACTEON VARIEGATUS (Brug.)

A fine live specimen of the above species has been taken from 40 metres at the Poor Knights Islands. This, as far as we are aware, is the first record of this Pacific series from around our coasts and probably represents another addition to our fauna.



The shell, which measures 15 mm x 9mm, is white, with a pleasing colour pattern of reddish wavy patches arranged axially around the whorls. Sculpture is of low rounded spiral ribbing. Suture rather deep, and the spire makes up about a quarter of the height of the shell. The columella has the characteristic twist of this genus. (Specimen checked by Mr W. O. Cernohorsky, Auckland Museum).

\* \* \*

### BEGINNERS' LUCK

L. Witterick

Looking back over the past year, our first attempt at keeping marine aquaria has certainly not been without its share of minor shocks as well as successes. It all started off more or less 'by guess and by God', but these miniature indoor rock pools have maintained a most satisfactory biological balance.

With sex, violence and sudden death, these tanks can compete with TV drama any day! Apart from the entertainment value of such an absorbing pastime, frequent shafts of illumination have penetrated the vast depths of our almost total ignorance of marine life - so many times has 'the penny dropped at last'! Also, we are fortunate in being within easy telephone reach of our long-suffering editors who never mind being pestered for answers to elementary questions.

The fact of life concerning a crustacean's shedding of its coat of mail is shown in a simple but vivid manner when the common shrimp of our tidal pools, Palaemon affinis, struggles to divest itself of the outgrown 'suit' and hardens the new one while trying to remain inconspicuous. The really large hermit crabs frequently seem to leave discarded 'coats' scattered about the floor of their tank, yet we have never actually caught one in the act of shedding it, though their antics at testing a new-seashell home - by rocking it and turning it over and over before finally deciding to execute that swift, sure flip which transfers the soft, vulnerable abdomen into a safe new house - is surely one of the most comical sights to be seen in an aquarium.

We introduced a tunicate into one of the tanks - a lovely Southern Hemisphere - sunset orange in colour - and were amazed a few days later to see one small hermit crab

from inside its shell, balance the squirt nimbly whilst scraping off particles of the leathery test upon which to feed. It was rather like watching a performing seal twisting a rubber ball round and round, only with the size roles reversed because the hermit crab complete with its portable shelter was only about a fifth of the sea squirt's measurement. In due course, all that was left was a thin, flat piece of parchment-like test about the size of a thumbnail.

One of the sea-anemones, a robust specimen of Actinia olivacea, was named "Triffid" on the day we saw it, in a split second, envelop a small crustacean which was foolhardy enough to swim over those menacing, outstretched tentacles. Do-it-yourself science fiction!

The record for the longest meal established in our little circle is that of a large Haustrum haustorium which finally met up with an equally large Lunella smaragda after several weeks of living in the same tank. The Haustrum at last relinquished the Lunella shell (by now as clean "as a whistle") after having feasted upon it for ten whole days.

Searching the beaches for suitable specimens also affords opportunity for observing other sea creatures too large or too difficult to rear in tanks indoors. The day we established our very first tank we saw something quite new to us - a beautiful specimen of the wandering sea-anemone, Phlyctenactis tuberculosa.

Best of all from our point of view, living near to the seashore means that any specimens which do not seem to be thriving as they should can swiftly be returned to the ocean, in the hope that in their true natural environment they might recover and perpetuate their species.

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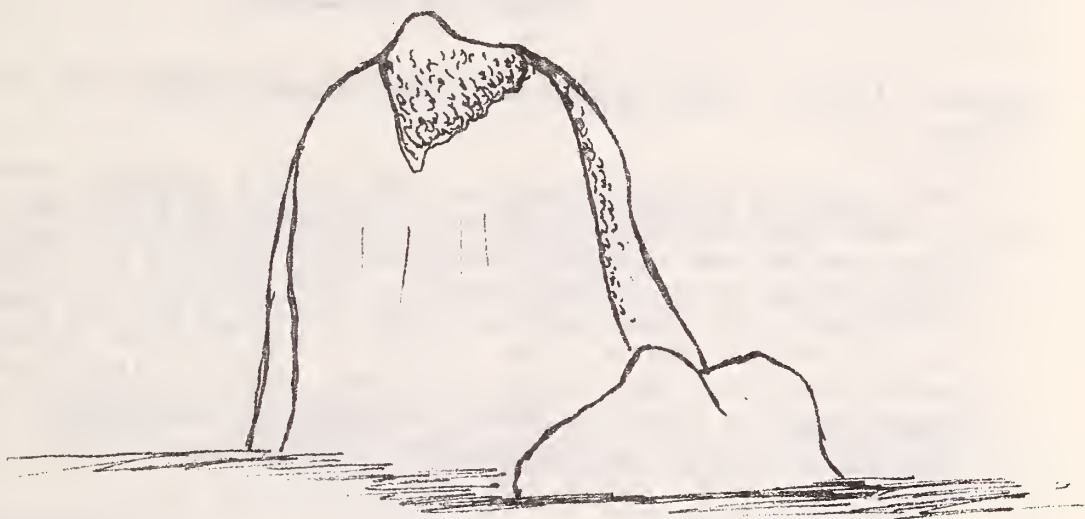
THE LAND SNAILS OF PIERCY ISLAND,  
NEAR CAPE BRETT, BAY of ISLANDS

Steve O'Neill &  
Norm. Gardner

"Piercy is approximately 3-5 acres in area with vertical cliffs rising over 500 ft. above sea level - some dropping another 100 ft. below sea level. The scrub is located from about halfway and continues to the top, mainly on the eastern side. Getting ashore is easy on a calm day but in the slightest swell, it becomes very dicey. Once

ashore, it is hands and feet all the way up. Even in the scrub-line it is very steep and the soft powdery and moving footing makes it very difficult at times. The area is pock-marked with muttonbird burrows, which doesn't help. However, I haven't covered all of the top and am sure that around the north-eastern end it may be a bit flatter.

I had only intended to look and see if Placostylus were there, but when I got to the top and discovered very little earth - only powdery leaf mould - I decided to bring some back in a plastic bag that had fish bait in it and which I happened to put in my pocket - the bag, not the bait!"



#### Contents of Leaf Mould:-

So far as I am aware, no previous attempt has been made to check the land snail fauna of this island. Although only a short distance from Cape Brett, the land snails show greater affinity with those of the Poor Knights Islands, which are some distance to the south.

Two examples of Rhytida, 24 mm and 25 mm respectively, were obtained and these match R. pycrofti Powell, previously considered endemic to the Poor Knights.

The sample of leaf litter, about 1 lb., was rather twiggy and dusty, and in summer would obviously be from a very dry habitat. Nevertheless it contained quite a number of snails, though not many species were present. Further sampling would no doubt produce others.

- \* Allodiscus cooperi Suter 1 specimen 4.5 mm
- \* Laoma (Phrixgnathus) moelendorffi (Suter) 5 specimens
- \* Laoma (Phrixgnathus) paralaomaformis Climo 120 specimens  
(The spire in these examples is taller than in those from Poor Knights Islands)
- \* Paralaoma lateumbilicata (Suter) 4 specimens
- \* Tornatellinops novoseelandica (Pfr.) 1 specimen
- \* Rhytida pycrofti Powell 2 specimens

\* \* \*

#### NOTES of INTEREST

\*Steve O'Neill - on "goodies" that found their way into his dredge -

"The Cypraea cernia tomlini and Morula palmeri were both in the same dredge in 23-25 fathoms at Deep Water Cove. The cowrie was nestled comfortably inside an empty Glycymeris laticostata shell. The bottom was sandy mud littered with dead shell, some shell grit and pebbles. As you would guess, the hills of the Bay of Islands resounded with my yells of glee. Other finds included Xenophora, a dead chipped Umbraculum, Pallium, juvenile Charonia capax, Austrosassia, Poirieria, etc."

\*Further live taken Conus kermadecensis can be recorded. These were found by skin diver Bill Palmer in the vicinity of Whangaroa Heads.

\*This summer seems to have created ideal conditions for a population explosion of the usually quite rare Nassarius spiratus. There have been reports of live colonies flourishing from Paua in the North to areas south of the Bay of Islands. Some have been seen in the littoral zone but most appear to favour sandy areas in about 10-15 feet of water. Steve O'Neill reports, "While diving in the Bay of Islands recently, in a period of about two hours, approximately 200 specimens of Nassarius spiratus were seen, both above and below the sand.

A very high percentage were juveniles but a few larger ones were there too. It seemed strange to be diving down about 10 feet on to a patch of sand, and seeing a shell which is rated as rare crawling in numbers one behind the other - sometimes six in a line about two feet long. When pieces of sea egg were put down, Nassarius popped up in all directions and made a beeline for the food."



\* Two of our keen Junior members, Michael Hull and Jeffrey Johns, have reported a wash up of hundreds of Limaria orientalis at St Leonards Beach, near Takapuna. The recent strong winds must have dislodged an extensive colony of these molluscs which seem to be very well established below low water mark in a number of places. Between tides, Limaria lives concealed in its nest under rocks and ledges in pools but below low tide, an old piece of pipe or tin affords shelter for quite a number of specimens. Although it swims strongly, Limaria appears to dislike being disturbed and we have noticed that, after strong easterly winds, several colonies which had been thriving for many months have disappeared and not returned to that area.

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### SEABORNE TREASURES, MATAI BAY

D. M. Hole

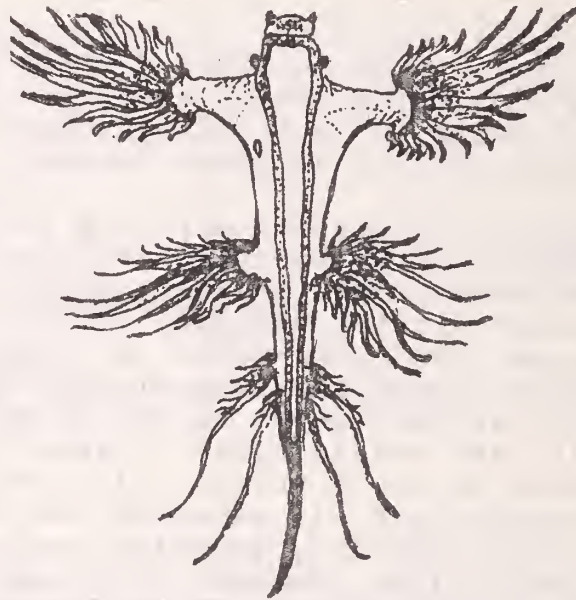
Down on the crescent-shaped sands of Matai Bay, Cape Kari Kari, on a sparkling windy evening, I went to see if anything was "coming in" and spent an hour or so among an entirely pelagic wash up of great beauty.

Among the myriads of half inch glistening lozenges of jelly (salps) were By-the-Wind-Sailors (Velella cyanea) and Portuguese Man-of-War (Physalia utriculus), fresh and splendid in their glowing changing blues, and with them, less conspicuous, the round discs of Porpita pacifica. Spirula and foam formed the highest tide line. And there, amongst it all, in the centre of the curving bay, was a strange little dark huddle which I placed in my bucket and wet with an inch or so of water. Like the Japanese paper flowers of my childhood, it expanded and floated, miraculously beautiful, silver and blue, prussian deepening to navy - iridescent - exquisite. Darker in colour than the Portuguese Man-of-War and their cousins, it was obviously equipped to hide in the ocean. A sea slug! - unlike anything in the books I knew.

Continuing my walk to the bay's end I presently added another one, sadder, half its cerata missing, its activity dimmed, its recovery unsure. Next was a small crab, square backed, palest blue with shades of deep blue speckling over all its upper parts, the back acting as host to two small creatures, one a harnacle with cirra immediately at work, and the other, stalked and brown striped, with cirra also raking the water of my bucket; everything immensely happy to be floating once more.

Too late to swim again, a minute globular fish of half an inch with a very small tail high on its silhouette, a 'non-existent' dorsal fin, and minuscule pectoral fins, turned up. It was also a silver white beneath, with round blue spots outlined with smudgy deeper blue over the upper part of the body, these growing denser near the area where the dorsal fin should have shown. Round prominent eyes edged with cerulean blue and a small round mouth completed it, a puffer fish in miniature.

Back in the camp, with a full bucket of sea-water, the live treasures were tipped into a wide shallow basin. Both the slugs revived and were definitely of the same species, although the smaller was damaged. The larger was very active, twisting as it floated and occasionally turning upside down.



*Glaucus atlanticus* (Forster, 1777)

This lovely creature was one and a quarter inches long and as broad again from tip to tip of the first bunch of cerata, the head, in the middle of the upper line, forming a small rounded bulge with a heart-shaped dip at its centre top. Two pairs of tentacles protruded, the foremost pair short and blunt tipped, being right in front on each side of the head, while the hinder pair, still short and blunt, appeared just below the commencement of the main body, which was completely covered by a tightly blown up float shaped to fit the animal, bowing out over the arm-like parts which carried the first group of cerata, before tapering towards the tail.

The cerata was arranged in four groups of two, the last pairs barely separate, each group exactly duplicated on either side of the body, their size graded to form, from the top to the tail, a broad triangle, equal in width to the animal's length.

It was colour, however, which made this small creature so glorious. Down the back was a brilliant silver outlined with a band of prussian blue, this colour exactly following the swelling bow shape over the region of the arms before continuing towards the tail, which was all blue and exceedingly dark. The head was blue, seeming darker in the middle, so much so that I was unable to distinguish any features here. Tentacles were deepest blue, too. Beneath the float, still very inflated and tight looking, was a silver and highly iridescent body, out of which extended stiffly, fatly, two arms to end with the first flame like group of cerata, arranged in a semi-circle round the flattened ends and making a threefold colour pattern, first blue, then silver, then deepest navy, each of these exactly following in shape the flame form, always, in all movements.

Looked at through the magnifying glass, the blue was stippled on the base of each cerata, which swelling fatly out as it left the arm disc in a crowded fashion, oval rather than round, crinkled rather than smooth, tapered from above down and outwards to form the blunt tip, the blue giving place to purest silver on top with a thin blue line stippled along each side, and this in turn changed and the final length was all blue, the depth of colour defying analysis. The colour pattern was present in this form on all cerata and the flame shape followed in the second groups in a smaller edition of the first.

From time to time the little creature "sprang" other way up, curling the head and tail inwards towards each other and drawing all the cerata round itself. It would rest a moment like this for all the world like a little sloth, with its small round head and relaxed pose. This side, now uppermost, was all pale silver with a pinky patch, almost salmon, at the bottom end - the miserable little specimen having a much darker coloured area.

Each day, morning and night, for the following three days, we brought fresh sea water up and our small friends entertained us. My husband took photographs hopefully, while I watched and made notes and frustratingly inadequate drawings. On the third day, the weak slug died and was placed in meths., a shapeless mess. That same evening, after a trip to Kaitaia, where I had purchased epsom salts and formalin, I sadly anaesthetised then pickled the larger specimen, feeling like a traitor.

The crab was returned to the sea after I had drawn the little striped creature that was attached to its back. This turned out to be a striped stalked barnacle (Conchoderma auritum) pictured in Dr Powell's "Native Animals of New Zealand". Unfortunately, foolishly, I didn't draw the other, which I recognised as a barnacle but cannot now say for certain what species it was.

Home again, a ring to Mr Richard Willan, and the slug was identified from Dr Michael Miller's paper as Glaucus atlanticus (Forster, 1777). Apparently a very rare wash up in this country, it feeds on the Velella and Portuguese Man-of-War.

Its very well blown up appearance is exactly that. Situated in the middle of the face is a hole through which it gulps air. This hole shows plainly under a microscope and probably makes the wee dip in front of the head giving that its heart-shaped outline. Also I learned that what I had thought to be its top was really its underneath. It floats upside down and the anus is on the right side as in the rest of the family.

Now that it is pickled, the whole body has lost the inflated appearance and the "air gulping mouth" is on the front underneath. The brilliant silver iridescence and peacock blues are gone also. In fact, its glory is departed.

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SOME SMALL LAND SNAILS FROM  
WAIPUNGA GORGE, TAUPO - NAPIER ROAD

N.W.G.

Near the roadside in Waipunga Gorge are several stands of bush which seemed worth investigating for small land snails, so Laurie Price and I decided, on a recent trip through the area, to "look it over".

However, once in the bush we found the terrain rather steep and this, of course, is not a good habitat for small snails as the leaf litter does not seem to accumulate to any extent and the sparse amount dries out rather badly in summer months.

Little was actually seen in the leaf litter, and far more profitable were the pieces of bark and the rotting logs amongst ferns. By turning them over and examining the underside carefully, we found a reasonable number of species, though not in any great number.

These are listed below:-

Cytora chiltoni (Suter)  
Otoconcha dimidiata (Pfr.)  
Allodiscus planulatus (Hutton)  
Allodiscus granum (Pfr.)  
Therasiella tamora (Hutton)  
Therasiella neozelanica Cumber  
Flammulina perdita (Hutton)  
Flammulina zebra (Le Guillou)  
Flammulina feredayi (Suter)  
Obanella spectabilis Powell  
Charopa (Ptychodon) pseudoleioda (Suter)  
Charopa (Ptychodon) microundulata (Suter)  
Charopa (Ptychodon) buccinella (Reeve)  
Charopa (Ptychodon) colensoi (Suter)  
Charopa (Mocella) eta (Pfr.)  
Subfectola caputspinulae (Reeve)  
Charopa (Geminoropa) microrhina (Suter)  
Flammocharopa costulata (Hutton)  
Laoma (Phrixgnathus) regularis (Pfr.)  
Laoma marina (Hutton)  
Paralaoma lateumbilicata (Suter)  
Delos coreisia (Gray)

\* \* \* \* \*

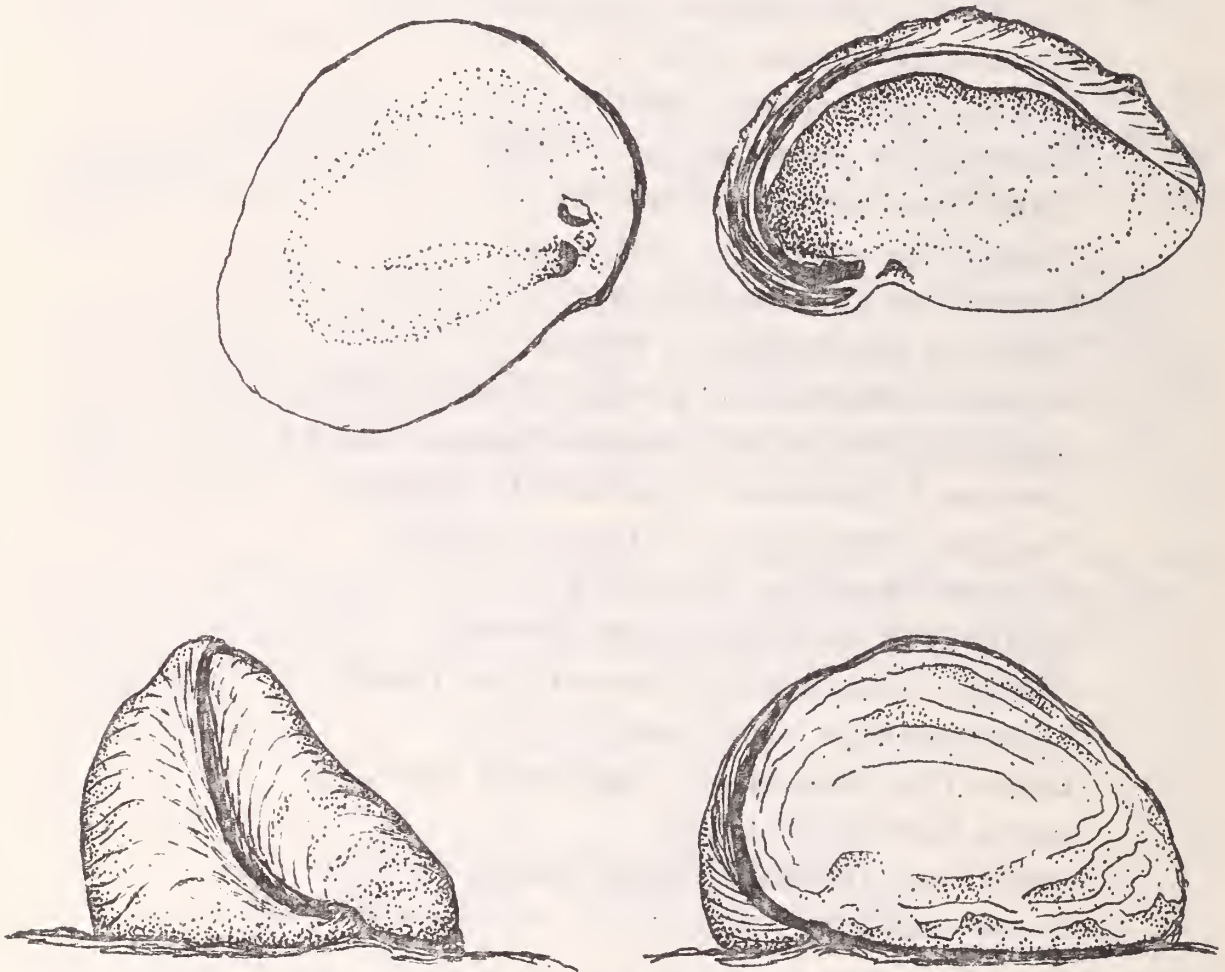
CLEIDOTHAERUS MAORIANUS Finlay 1926

N.W.G.

An odd wedge-shaped bivalve occasionally to be found attached to the rocky tidal platforms, this shell is somewhat oyster-like in appearance, but apart from being very different in anatomy, is distinctive in that it appears to "stand up" vertically. The attached right valve is deeply hollowed out and the left, being smaller and flat, fits on to the other like a lid.

The shell is thick and strongly built with a sculpture of concentric lamellae, but this may only be evident in younger examples which are sometimes pink in

colour. Older shells are often eroded and are frequently attached by boring worms.



The hinge has a small cardinal tooth in the left valve, which is received into the pit in the right. The resilium is internal. Cleidothaerus has two adductor muscles and a fused mantle edge with a pair of short siphons. As the shell is cemented to a rock surface, the foot is functionless but still distinct.

Although it may look like an oyster, end on, it is, however, not even closely related but belongs in quite a different order - the Anomalodesmata which are said to have evolved much later. Myadora, which appears nearby in check lists, has a similar pearly interior to that of Cleidothaerus.

Distribution of *C. maorianus*:

known from the North Island and Cook Strait areas, also Chatham Islands. No uncommon at Bay of Islands, Auckland East Coast, Manukau Harbour and Kawhia.

The family is not a large one, and the few species are restricted to Australasia. Our species is somewhat similar to the Australian chamoides (Stutch.)

\* \* \* \* \*

HERPETOPOMA - OUR BEADED TOP SHELLS

N.G.

The shells of this genus are mostly small, turbin-ate in shape and rather solidly built with distinctive ribbing and gemmules.

Perhaps the most arresting features are the thick outer lip which is strongly crenulated within and the prominent notch and teeth at the base of the columella. The shells are imperforate or nearly so.

The genotype is Herpetopoma scabriusculus Angas, which is from New South Wales. The genus is also well represented in Victoria, South Australia and Tasmania.

In early literature, our first described species was included in the genus Euchelus Philippi 1889, but subsequently listed under Herpetopoma Pilsbry 1889 - one of the distinguishing characters is said to be the presence of a multispiral operculum. This, of course, is Herpetopoma bella Hutton, undoubtedly our best known species which is quite a common mollusc, readily found clinging to the undersides of rocks at low tide. It is not very striking - a mere 6.5 mm and of grey colour, but the sculpture identifies it. This consists of rounded and well "beaded" ribs spirally arranged around the shell. The interior of the aperture is pearly, while the outer lip is distinctly crenulated. The typical processes at the base of the columella are prominent - a tubercle, then a notch followed by another tubercle.

Very often this species is completely covered by a scarlet-coloured sponge which conceals the beaded sculpture - but makes the small shell quite conspicuous.

The type material was from the Chatham Islands. It is relatively common from North Cape to at least Cook Strait.

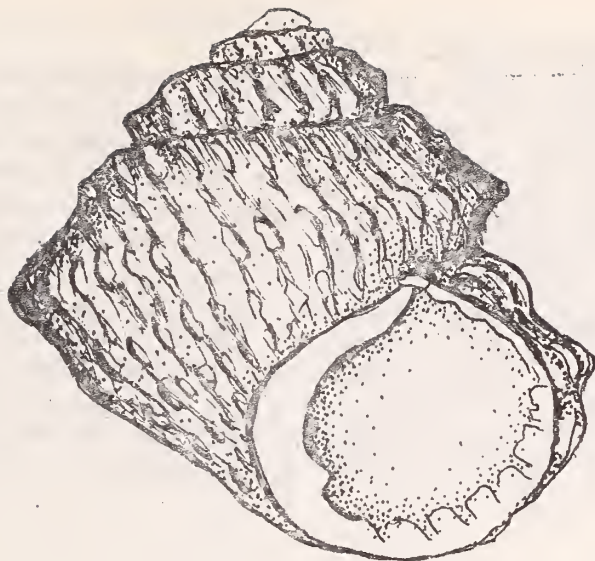


Herpetopoma larochei Powell

Grows to about the same size as bella, but the body whorl is sharply angled at the third spiral rib. There are three ribs on the earlier whorls and three across the base of the shell. This spiral sculpture is crossed by obliquely arranged axials which give a latticed effect with raised rounded gemmules at points of intersection. Also a "solid" shell. Aperture with the characteristic tubercle notch, arrangement and crenulated outer lip. Shell is often creamy colour with purplish spots on a few of the gemmules.

Apparently lives in deeper water than bella as it does not appear to have been taken from under littoral rocks. It is, however, quite frequently dredged in 15 to 25 fathoms around the Northland east coast. Odd specimens wash up in beach drift from time to time. Quite common around the Poor Knights Islands.



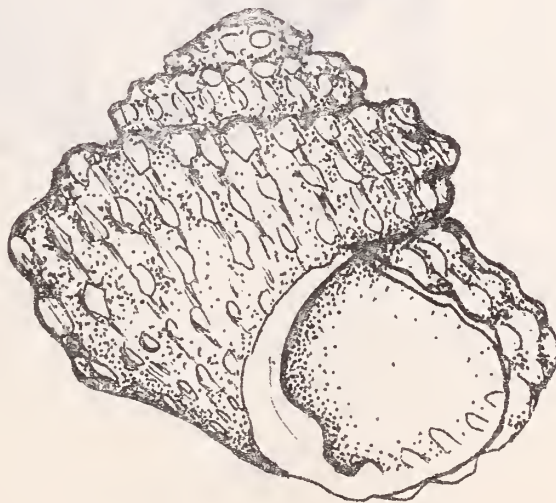


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Herpetopoma larochei alacerrima Dell

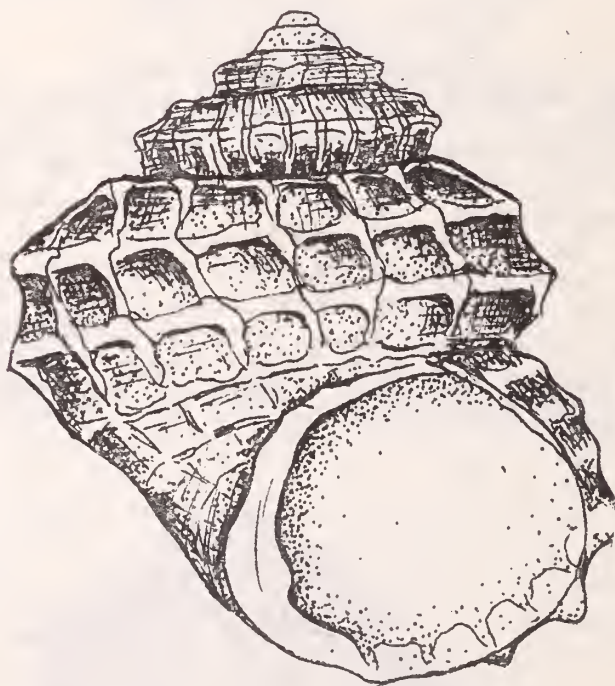
A sturdy little shell which differs from typical larochei in sculptural details and outline. There are 4 spirals on the ultimate whorls and 5 on the body whorl above the aperture. Four are spaced across the base of the shell. In outline, the subspecies is more rounded, the sculpture less oblique and the gemmules more rounded.

The type specimens were from the Cook Strait area in quite deep water. It also occurs in dredgings from the Bay of Plenty and in relatively shallow dredgings along the East coast of Northland. Size of Holotype: height 4.4mm  
diam. 4.5mm



Herpetopoma benthicola Powell†

Small, white and attractively sculptured with crisp lamellose axials which cross the low rounded spirals. Points of intersection raised into spinose scales. Both axials and spirals wider apart than previous species. Interspaces approximately square. Third spiral rib below suture is strongest and this distinctly angles the body whorl. There is only a weak basal notch and tubercles with small weak denticles on the inside of the outer lip corresponding to the terminal points of external ribbing. There is considerable variation in ribbing in this species. Holotype (3.5mm x 3.0mm) is from 260 metres off Three Kings Islands. Occurs not infrequently in more shallow dredgings from Auckland East Coast. Not uncommon at Poor Knights in 50 metres.



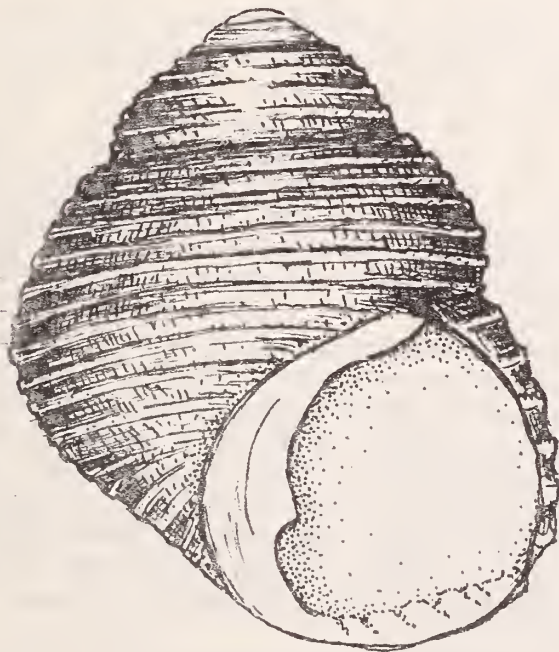
\* \* \* \*

Herpetopoma mariae Finlay

Odd specimens rarely wash up in beach drift near rocky areas in Northland. More have been found at Cape Maria van Diemen than anywhere else in the North and are always considered great prizes. The shell is larger than any of our other species and much more globose, with evenly rounded whorls. Spiral ribbing predominates, with approximately 16 on body whorl. Axials suppressed and barely visible. Granulations on the spiral ribs and just slight thickenings of the growth lamellae. There is a strong tubercle at base of columella but no distinct notch. Pearly inside aperture. Outer lip relatively thin, and not noticeably crenulated as in the other species. A large example will reach 12mm.

Odd specimens are known from Whangaroa, Bay of Islands and off Poor Knights Islands.

This species was listed in Suter's Manual as Euchelus baccatus Menke.



\* \* \* \*

## LIGHT WITHOUT HEAT

B. J. Bowden

(Reprinted from Bulletin No. 6, 1950)

The ability of many organisms to produce light has, from the earliest times, attracted the attention of philosophers, and writings on the subject range from the views of Aristotle, Pliny, Robert Boyle and Isaac Newton to large numbers of papers by present day biologists and biochemists.

While the most striking exhibitions of animal light are given by organisms which occur in vast numbers, such as Protozoan Noctiluca and the Waitomo glowworm, anyone who has seen a jar full of fresh seaweed in the dark will have been amazed at the number and variety of animals which possess a "set of lights". In fact all the major phyla into which the animal kingdom is divided have some luminous forms. A few smaller groups such as the flatworms, brachiopods and rotifers have no luminous forms, but they are the exceptions. Even in the plant kingdom we have luminous fungi and bacteria.

Within the groups which do have luminous forms, however, the distribution is very unequal. Many marine worms and very many crustacea are lit up every night of their lives, but, if we except the squids, which never seem like shell fish anyway, there are only four luminous molluscs. These are a bivalve, Pholas dactylus; two sea slugs, Phyllirrhoe bucephala and Plocamopherus ocellatus; and finally our peculiar freshwater limpet, Latia neritoides. A fairly scanty and random selection.

Latia has further claims to fame. Apart from a few aquatic beetle larvae which grow up into Asiatic fireflies and always have air-filled respiratory systems, Latia is the only known freshwater luminous animal. Why this is so we cannot even guess. The structure of the cells which produce Latia's luminous slime is very similar to that of Phyllirrhoe, and it seems that the absence of luminous forms from most of the world's rivers and lakes must be caused by more than low salt concentrations.

The light of Latia, for those who have not seen it, is pale green and very vivid. The light of half a dozen shaken vigorously in a small bottle is sufficient to distinguish newsprint by, so it is well worth examining next time you are passing a bush stream in the evening.

The luminescence of Latia was first recorded by Henry Suter in 1890, but subsequent writers on bioluminescence have completely overlooked his paper, and in his monograph "Living Light" Professor E. Newton Harvey, probably the greatest authority on the subject, does not even mention our glowing trout food. He is, however, repairing this omission in a new book he is writing.

The use of the light in Latia is at the moment a puzzle. This is not unusual for luminous forms - Pholas, for example, is a filter feeder and never of course emerges from its tunnel in the rock, but in other cases the light is definitely used as a mating signal, as a lure for food, or for other specialised purposes. Latia, however, is a vegetarian, and as it is eaten by trout and eels it can hardly be a "hands off" signal equivalent to the bright warning colours of some distasteful insects. Its use as a mating signal for various reasons seems improbable.

The chemistry of luciferin and luciferase which react together with oxygen to produce this cold light has been studied extensively overseas, and for further information on this subject I heartily recommend Dr Harvey's fascinating and extremely readable book.

\* \* \* \*

#### OBITUARY

Mrs J. Wyatt, who had been a member of the Section for twenty-five years, passed away early in the New Year. There were very few meetings that Mrs Wyatt had not attended over the years and she will be missed by everyone.

Apart from making a good New Zealand collection of shells, Mrs Wyatt carried on a considerable correspondence with overseas collectors and had gained a fair knowledge of the Volutes, Cones and Cowries in particular. In later years, although she gave up adding to her collection, she still kept up a correspondence with quite a number of folk with whom she had exchanged shells for years. Her collection was always a great joy to her and her shells, well housed and labelled, were all beautifully coloured and perfect specimens.

Mrs Wyatt took a great interest in the Junior members coming along and gave them a lot of cheerful encouragement.

E.N.G.

RECENT PAPERS DEALING WITH NEW ZEALAND MOLLUSCA

\*The Occurrence of Limaria orientalis (Bivalvia  
Limidae) in New Zealand

K. R. Grange

The Veliger, Vol.17, No.1, pp 13-18, 1974

Abstract:

A widely distributed Indo-Pacific file shell, Limaria (Promantellum) orientalis (Adams & Reeve, 1850) appears to have established itself very successfully around the east coast of North Auckland. The first specimen found in New Zealand consists of a pair of valves only, found at Goat Island Bay, Leigh, in January 1972. Empty valves have since been found at various localities from Bay of Islands southwards to the Coromandel Peninsula. Live specimens have been found at Goat Island Bay, Wenderholm, Big Manly and Army Bay. The nearest overseas occurrences of this species are in South and East Australia. The New Zealand animals were identified by comparing some shells with those of Limaria orientalis (Adams & Reeve) from South Australia. The shells are also the same as those described by POWELL (1926) as Lima (Mantellum) marwicki (Powell) from upper Pleistocene fossils found at Castlecliff, Wanganui. Specimens of recent New Zealand type material are in the author's collection.

\*Three Radiocarbon Dates for Quaternary Mollusca  
from Northland

C.A. Fleming & A.W.B. Powell

Rec. Auckland Inst. Mus. 11: 193-195, 1974

Abstract:

Shells of the warm-water bivalve Anadara trapezia (Deshayes), no longer living in New Zealand, have been dated as more than 46,300 years old (Hokianga) and more than 40,100 years old (Marsden Point), thus probably Interglacial in age, and there is no evidence that this species returned during the Holocene after its extinction probably in the Last Glaciation.

Placostylus ambagiosus priscus Powell, the oldest known New Zealand Placostylus, from consolidated dune sands near Cape Maria Van Diemen, previously classed as presumably Pleistocene, is dated as  $2140 \pm 90$  years old and is thus considerably younger than previously thought.

\*New Zealand Molluscan Systematics with Descriptions  
of New Species Part 8

A.W.B. Powell

Rec. Auckland Inst. Mus. 11, 197-207, 1974

Abstract:

In this part, an Australian genus and species new to the New Zealand fauna is added, with the recording of Myochama tasmanica from Parengarenga Harbour; a new species of Pterochelus is described; the upper Pleistocene Thracia vegrandis is found to be represented in the Recent fauna; seven species mostly of tropical Indo-Pacific origin are added to our Recent fauna, along with five others on an at present tentative basis; four species previously recorded as new to the fauna are now found to be firmly established; and the paper concludes with some nomenclatural notes.

\*Description and affinities of the subterranean molluscan fauna of New Zealand

F. M. Climo

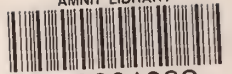
N.Z. Journal of Zoology, Vol. 1, No. 3 (1974): 247-84

Abstract:

The New Zealand subterranean molluscan fauna is described, and its systematic relationships with surface-dwelling species in the Australasian region is superficially investigated. The subterranean elements are related to surface-dwelling taxa in New Zealand, with one exception which shows relationships with a Dalmatian snail, and these New Zealand taxa have relatives confined to restricted areas of the south-west Pacific. The Australasian members of Hydrobiidae (Prosobranchia: Rissoacea) examined in this study are attributed to subfamily Hydrobiinae, and are grouped in three nomenclatively informal tribes.

Literature relating to phreatic and cavernicolous Mollusca from other parts of the world is briefly reviewed. It is concluded that phyletic links between taxa in New Zealand and the Northern Hemisphere rarely exist below subfamily level, and that morphological similarities are matters of convergence or parallelism; the southern genera are regarded, for purposes of this treatment, as endemic.

A new phreatic stylommatophoran pulmonate genus, Hydrophrea, is erected for Laoma (Phrixgnathus) academia Climo, 1970. This is the first record of an aquatic subterranean stylommatophoran pulmonate. The following new taxa are described within Hydrobiinae:



Potamopyrgus cresswelli n.sp; P. manneringi nsp,  
P.gardneri n.sp; Hadopyrgus anops n.gen & nsp;  
H.brevis n.sp; Kuschelita mica n. gen & n.sp; K.inflata  
n.sp; Catapyrgus spelaeus n.gen & n.sp; Opacuincola  
trogloodytes n.sp; O.kuscheli n.sp. Potomopyrgus sub-  
terraneus Suter, 1905 is reconstituted as a valid  
species.

\*Mollusca From a Recent Coral Community in  
Palliser Bay, Cook Strait

A.G.Beu & F.M.Climo

N.Z.Journal of Marine & Freshwater Research  
Vol.8, No.2, 307-32, 1974

Abstract:

From a trawling at 448 - 512m in Palliser Bay, Cook Strait, New Zealand, molluscs associated with Tertiary siltstone concretions and with a large colony of Goniocorella dumosa (Alcock) are listed. A juvenile Acesta, extremely tall and extremely broad forms of Emarginula striatula Quoy & Gaimard, and the animals of Stilifer neozelanica Dell and of Waipaoa marwicki Dell are described. Sculptifer, a new genus provisionally included in the Fossaridae, is proposed for Stilifer neozelanica. New species of Danilia and Pholadidea are described and their relationships discussed. Emarginula lophelia Beu, 1967 is synonymized with E. striatula Quoy & Gaimard, 1834, and the recent New Zealand forms of Emarginula are reviewed.

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Editors:  
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# POIRIERIA



VOL. 8. PART 1. SEPT. 1975.



CONCHOLOGY SECTION  
AUCKLAND INSTITUTE & MUSEUM

# POLYMERIA



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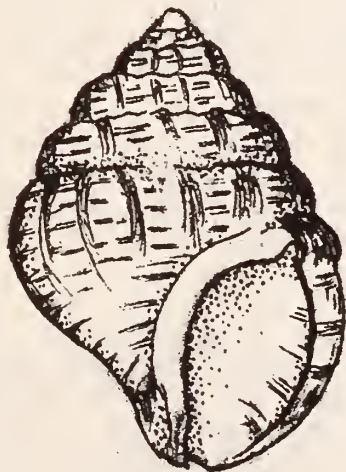
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MORULA CHAIDEA (Duclos 1832)

In most recent issues of Poirieria, we have been able to feature some species of 'extra limital' molluscs which have made their appearance in local waters.

This time we give some information on yet another one which has increased dramatically around some of our northern beaches.

Morula chaidea Duclos, with the previously known range embracing Queensland, New Caledonia, New South Wales, Lord Howe Island, Norfolk and Kermadec Islands, now seems to have become established here. Most specimens so far seen are rather small and not yet fully adult. One from Cape Brett, however, measures 15mm from base to protoconch and is the largest we have seen from New Zealand.



In 1972 Mr H. C. Seelye picked up a live, half-grown specimen at Merita, Doubtless Bay, and another unrecorded example was apparently found about this time. Since then, odd specimens have been picked up, but towards the end of last summer there was a great increase in the number to be found on intertidal rocks on several Northland beaches.

Some of our members report seeing dozens in certain rocky areas.

This mollusc could be overlooked quite easily, and unless examined carefully could pass for young *Neothais orbita* (Gmelin). It is also white and something of the same shape, but the presence of axial ribs identifies it at once.

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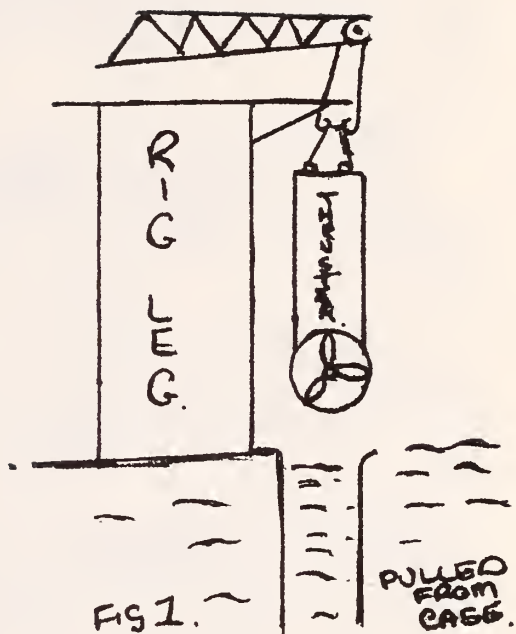
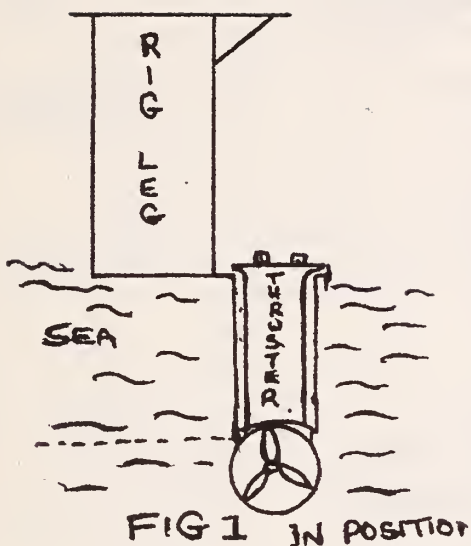
#### COWRIES IN TARANAKI WATERS?

T. Hook

Not a chance, you may say, but wait!

On the 31st of November, the semi-submersible oil rig "Penrod 74" arrived in New Zealand - Whangarei Harbour, to be exact. On board was "yours truly". It was intended, while there, to fit extra buoyancy tanks and to repair a thruster unit, one of which is located at the bottom of each of the rig's four outer legs. This involved tilting the rig five or six degrees to the bow to lift the stern up in the water and allow us to work on the thruster unit without flooding the lower hulls.

The thruster had to be pulled out of its casing to be serviced. This weighs about 70 tons and is 40 feet high, so it was no easy job. The thruster sits in a case with a 4" gap surrounding the thruster housing. (The thruster housing - see Fig.1).



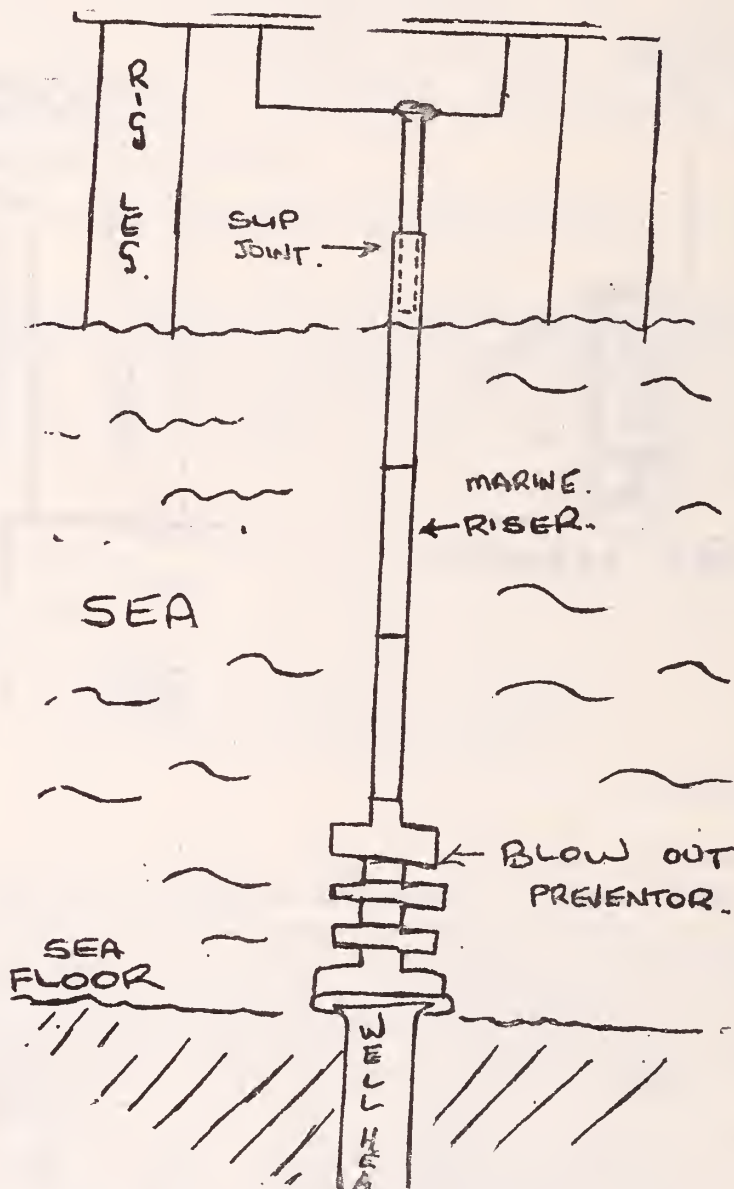
Marine life encrusts itself on the walls of the thruster case, and as the thruster generates heat while in motion, on tow, the water temperature inside this 4" gap could reach 70 degrees and can therefore support any tropical life that chooses to live within its confines. This was proved when the thruster was removed and live cowry shells were found in the marine growth encrusting the unit. These have been identified as Cypraea erosa Lin.

This find did not surprise me, for in 1969, while surveying the bottom hulls aboard "Sedco 135F" - another oil rig, I found dead cowries trapped in the tubes that are normally under water.

These shells still had their animals inside and had not been dead long. No doubt the cowries were aboard the rig when we arrived in Whangarei Harbour, partly due to water temperature around the thruster units.

Six months later, we encountered a very high pressure zone while drilling for Shell Oil off the Taranaki coast. At "Turi 1" location, the water depth was just on 200ft. The very high pressure damaged a piece of equipment called a Blowout Preventor.

This is lowered from the rig by joined lengths of riser (large diameter pipe). Fig.2



The equipment had been cleaned and painted brilliant white and was as bright and shiny as a new pin. When this equipment was raised from the sea bed, it was encrusted with weeds and mud; as my crew was engaged in this operation, I took particular care to be right on the spot when the "stack" (as it is known to rig hands) reached the deck.

My interest in shells and marine life has shown me that marine life is not always fussy where it lives, so when the "stack" reached the deck, I intended to look it over. When it was still 15ft below us, I noticed a small 1" cowry, its black mantle enclosing the shell of then

unknown colour. I nearly fell overboard in my haste to climb on to the "stack" and grab the shell, and then I thought "Well, if there's one, there could be more", and a detailed search revealed five live cowries, all the same species; these were Cypraea caputserpentis Linn.

Questions:

1. The rig had been on location for four months, the water temperature was 58 degrees (average) - too low for Cypraea embryo to survive or, the experts say, for the shells to survive, but live they were, nine months after leaving Singapore.
2. The blowout preventor was perfectly clean when entering the sea and had no contact with the rig's main body 200ft above. It's impossible for shells to leave the main body and travel down to the preventor. How did they get down there?
3. It has been suggested that they have been washed off the rig in rough weather and fallen on to the "stack" 200ft below. Now the blowout preventor has an area of 10ft x 15ft - that's 150 sq.ft. This is 200ft below the rig legs, so it is hard to believe that a 1" shell would fall inwards off the legs to this central position and not get washed away in the turbulence? The possibility of five others doing the same is rather slim, to my way of thinking.
4. The species taken was different from the one found at Whangarei Harbour.

At the time of writing, the blowout preventor has again to be pulled, this time for the rig to shift location, and there will be no prizes for guessing who will be there to see it reach the surface. Who knows? There could be more cowries ..... from Singapore ???

(Specimens of each of the above species sent in by Mr Hook were in first-class condition, of average size and with a very high gloss.

In the case of C. caputserpentis, the shells were dark in colour, almost black. The examples of C. erosa, too, had a darker ground colour than is usual - an overall grey with strong reddish-brown spots. The lip of each shell was only slightly thickened, giving them a sub adult appearance, but we were told by Mr W. Cernohorsky that this is usual in specimens existing in much cooler water than is normal. Similar specimens are obtained from the NSW coast, Australia. eg about Sydney. Ed.)

## NASSARIUS SPIRATUS

G. Henderson

I have holidayed at Bland Bay now for several years and although I was told that Nassarius spiratus had been found there, all I had ever found was an odd broken piece washed up. I had baited rock pools and deep crevices and turned over nearly every rock.

Last year on the very low tides in August and September, I found quite a number of juvenile N. spiratus shells, some very small, inhabited by hermit crabs. Only one live specimen was found under a rock.

One afternoon last Christmas holidays, on a very low tide, I was turning over rocks while waiting for my son who was skin diving, and I found a couple of specimens inhabited by hermit crabs and also one live one. The area at normal low water mark is fine gravel and flat rock, covered in places with gravel and a coralline "turf". When the tide turned, I followed it up, watching hermit crabs and Cominellas moving about, and to my amazement I saw a Nassarius spiratus crawling about with them. My first reaction was to pounce on it, then, when I turned round there were several more pushing their way up through the gravel and "turf". In the area where I stood, I counted seven, all juveniles about the same size. They were very lively and very timid. If I touched them, stirred the water near them or even cast a shadow, they would disappear back down into the gravel in about three seconds. One appeared as though it was being attacked by two much larger Cominella virgata, so I rescued it, to find that the C. virgata were only trying to get their share of the dead shrimp the Nassarius was feeding on.

I've been back twice since, last time at Easter. The N. spiratus have grown bigger and one I picked up was starting to grow a thickened lip, but even so was still smaller than the adults I know have been found in deeper water in the area. I weighted down some fish scraps nearby and specimens surfacing within about two feet of the bait went straight to it, but outside this, they did not seem to sense or smell that it was there. After feeding for a few minutes, they went back to where they had come from and dug down again. They did not stay on the surface long at a time. When picked up, instead of withdrawing into its shell, the animal twisted and turned, and when I placed it on my arm, it crawled around very quickly. Back in the water



it dug straight down immediately. I hope to go up during the winter to see if the shells have matured and how long they stay there.

\* \* \* \* \*

## NEW HEBRIDEAN MOLLUSCS

### Part II : Limpets of the New Hebrides

R.C. Willan

#### Introduction:

This second article on sea shells of the New Hebrides deals with limpets belonging to the families Patellidae and Acmaeidae. The recent publication of Dr Powell's monograph on the patellid limpets of the world (1973), in 'Indo-Pacific Mollusca', has enabled identification of the New Hebridean members of this family, but information on the names and biology of tropical Pacific Acmaeidae is still lacking.

On the rocky shores visited in the New Hebrides, limpets were generally scarce. This paucity was also reflected by most of the other groups of organisms which live between tide marks on temperate shores, and are either attached and zone-forming (e.g. barnacles, oysters, mussels and large sea weeds), or mobile (e.g. top shells, siphon limpets and chitons). This apparent lack of intertidal organisms has many causes, each of which interacts with several others. Physical factors of the environment when the tide has fallen are primarily responsible. The rocks themselves dry out rapidly and soon reach intolerable temperatures beneath the hot sun, few organisms can colonize areas of rock surface that are directly exposed for even relatively short periods.

Repeated cycles of wetting and drying, which are accelerated in the tropics, soon fritter away rock substrates in the intertidal regions in these low latitudes. Other causes of the reduction of intertidal life are desiccation by wind and periodic flooding by downpours. Yet another reason is the narrower vertical range between tidal levels, not more than three feet at springs.

Despite the frequent inhospitality of intertidal rocky areas, certain 'refuge' habitats do exist in which there is a great abundance of familiar groups. The rocky or sandy platform on the inshore side of fringing coral

reefs is one of these regions. This area, called the moat, often retains water at low tides. Many creatures which become exposed by the ebbing tide are to be found in crevices and caves; other shaded areas between tidal extremes, such as mangrove forests or beneath wharfs, provide sufficient shelter to allow conspicuous colonization of the intertidal rock.

Below I have described and figured the nine species of limpets; four patellids and five acmaeids, which can be authentically localized from the New Hebrides. The patellid limpets appear to be divided into two series depending on substrate preferences; the first group (Patella flexuosa, Cellana radiata orientalis) is found on shores of a sedimentary nature; these species are typically inhabitants of limestone substrates. A second group (Cellana testudinaria, C. pricei) inhabits shores of volcanic rock.

Descriptions:

Family Patellidae

Patella flexuosa Quoy & Gaimard, 1834

Fig 1 - 5

Shell exceedingly variable in shape; a typical shell (Fig 1,2) is circular to oval, apex central; exterior rough with eight or nine prominent white ridges, each composed of one to three cords, ridges project beyond the shell margin, numerous weaker cords in grooves between ridges, dark brown colour in grooves, apex often eroded, exterior frequently encrusted; interior smooth, porcellanous white with a cream or orange central area (spatula), dark exterior markings often visible through the whitish layer, particularly near the margins; shells generally less than 35mm in length, exceptionally up to 50mm.

Figs 3 - 5 show an ecovariant of Patella flexuosa whose shell is ovoid, its apex forward of the centre, with a raised 'spout' reaching to the anterior margin, shell constricted on either side of this 'spout'; exterior with cords tending to be of equal strength, not organized into ridges or grooves and projecting equally all round the margin; interior porcellanous white with a white spatula and large crescentic muscle scar, shell up to 35mm in length.

Remarks: This species was the commonest limpet collected in the New Hebrides, with dozens of shells cast on to beaches. Patella flexuosa is a species favouring the rough-water environment of open coasts. Occasionally specimens intermediate between the above two forms were found. Both forms were found in approximately equal numbers at any one locality.

The animals of all Patella species lack a true gill, this organ has been replaced by a delicate respiratory frill (or gill cordon), which forms a complete circle between the foot and mantle. In Patella flexuosa the sole of the foot is creamy orange, the sides white, the head and tentacles are creamy orange also, the gill cordon cream, the mantle is creamy orange with numerous fringing papillae.

Cellana radiata orientalis (Pilsbry, 1894) Fig 6 - 8

Shell nearly circular, thin flattened to moderately convex, apex slightly towards the front end; sculpture of 16 to 23 wide radiating ridges separated by narrow grooves; at the margin, the ribs produce a scalloped effect, numerous fine cords cover the ribs; exterior greyish-white or cream, occasionally with brown lines along the grooves, often obscured by limey encrustations; interior lustrous-white, sometimes brown-rayed or darkly speckled around the edges, spatula yolk-yellow; shells reach 25mm in length.

Remarks: Cellana radiata orientalis is a most attractive species that lives in similar habitats to Patella flexuosa, and is equally abundant. In the animal, the sole of the foot is deep orange, the sides greyish, tentacles and gill cordon grey, head white, mantle grey with white papillae.

Cellana radiata (Born) is a widely distributed Indo-Pacific species for which four subspecies are recognized. Cellana radiata orientalis has been recorded from Indonesia, New Guinea, North Western Australia, Southern Japan, Palau Islands, Solomon Islands, New Caledonia, Loyalty Islands, Fiji, Tonga, Samoa and Marquesas Islands (Powell, 1973). Despite the fact that this species is exceedingly variable over its entire geographic range, all the New Hebridean shells are remarkably consistent in appearance and size.

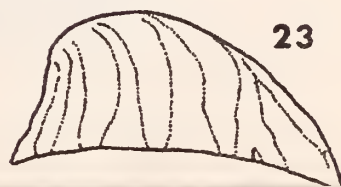
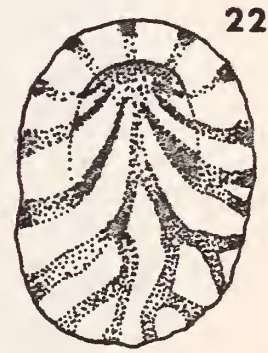
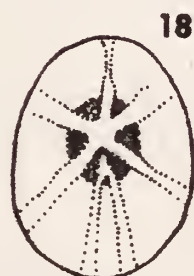
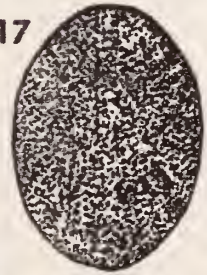
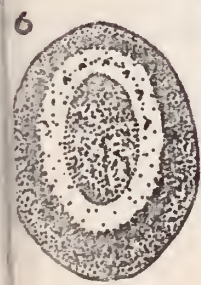
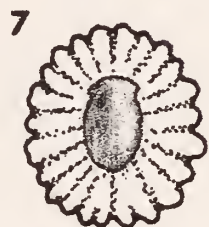
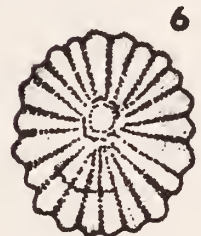
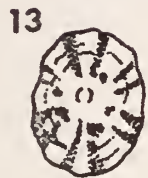
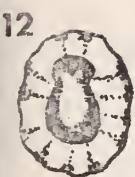
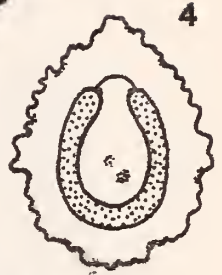
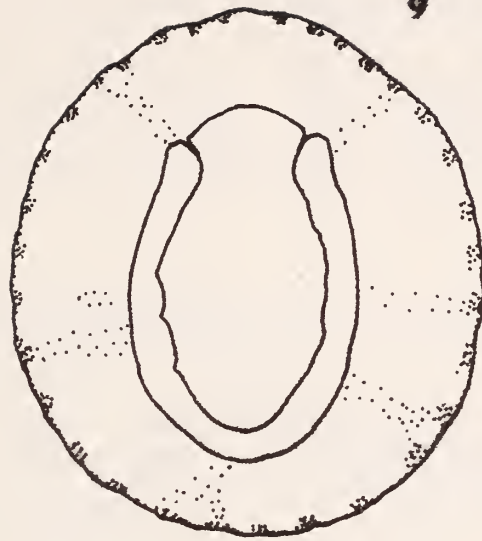
Cellana testudinaria (Linnaeus, 1751) Fig 9

Shell large, solid, circular with the apex forward of centre; exterior smooth, dark greyish-brown in colour with numerous weak concentric growth marks, a large number of small radial riblets cross the shell, these are light blue, some shells show a mottled radiate pattern in dark brown, apex eroded to reveal a chestnut brown underlayer; interior smooth and nacreous, of a light bluish-grey colour with a dirty orange central spatula which is bordered by an opaque, crescentic muscle scar; margin simple, rayed with brown; this limpet can reach 75mm in length and 60mm in width.

## ILLUSTRATIONS

### Figures

- 1, 2 Patella flexuosa Quoy & Gaimard, 1834.  
Typical form, Tanna Island.  
Length 20.5mm Fig 1 interior; fig 2 exterior.
- 3 - 5 Patella flexuosa Quoy & Gaimard, 1834.  
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- 9 Cellana testudinaria (Linnaeus, 1751).  
Gnuna Island. Length 69mm. Interior.
- 10, 11 Cellana pricei Powell, 1973.  
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- 12, 13 Patelloida conoidalis (Pease, 1868).  
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- 14, 15 Patelloida saccharina (Linnaeus, 1758).  
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- 16, 17 Patelloida striata Quoy & Gaimard, 1834.  
Pentocost Island.  
Length 12.9mm. Fig 16 interior; fig 17 exterior.
- 18 - 21 Asteracmea sp. Tessa's Beach, Efate Island.  
Lengths 4 - 5mm.  
Figs 18 - 20 interior; fig 21 profile.
- 22, 23 Acmaeid sp. Tessa's Beach, Efate Island.  
Length 4.5mm. Fig 22 interior; fig 23 profile.





C. testudinaria, continued:

Remarks: No specimens of Cellana testudinaria were found on the shores in the vicinity of Vila, probably because of the absence of the dark volcanic rock on which they normally live. Two shells taken at Gnuna Island, off the northern coast of Efate Island, were given to me by Mr K. Andersen, who explained how the New Hebrideans use these large shells to scrape their vegetables.

Cellana testudinaria extends westwards from New Caledonia and Queensland to the Andaman Islands and north to the Ryukyu Islands.

The specific name 'testudinaria' was used by Linnaeus to liken shells of this species to tortoise-shells, both on account of their mottled colouration and circular shape.

Cellana pricei Powell, 1973 Fig 10; 11

Shell medium-sized, thin, oval to almost circular in outline, apex a little in front of the centre; sculpture weak, consisting of about fifteen primary radial ribs, these ribs are hardly raised above the surface and composed of five or six fine scaly cords; exterior dull brown, darker towards the margin, several of the primary ribs streaked with white; interior highly lustrous, of a dark steel grey interrupted by white rays with some intermediate white marks, spatula cream, blotched with brown; largest shell examined 27mm long by 23mm wide.

This species is named in honour of Mr Laurie Price who first collected it near Apia, Western Samoa. It appears that this species does not live on the limestone coasts of Efate Island, because three months searching failed to reveal even a single dead shell. On the other hand, it has been found at Tanna Island, to the south of Efate Island, here the species is found on dark volcanic rocks. Fig 10 illustrates one of these specimens taken on Tanna Island by Dr F. J. Taylor in 1974.

Family Acmaeidae

Patelloida conoidalis (Pease, 1868) Fig 12, 13

Shell variable, small, solid, flattened, apex central and sharp; exterior either smooth or distantly ribbed, dirty white in colour, often speckled with brown near the apex, sometimes with six or ten brown rays extending to the margin; interior with spatula much-rayed with brown, beyond the spatula the shell is porcellaneous-

white, the margin simple and frequently rayed with dark brown; shell reaching 25mm in length and 20mm in width.

Remarks: Patelloida conoidalis was found commonly, approximately at mid-tide level, hidden in depressions on the pitted surfaces of limestone rock. Shells were very abundant amongst wash-ups on open coastal beaches.

All species on the Acmaeidae possess a true gill, lying behind the head, there is no gill cordon, shells are never lustrous as are those of the Patellidae. In Patelloida conoidalis the sole of the foot is grey with a cream border, the sides are white, the mantle is cream and not obviously papillose, the head is cream, the neck reddish.

Mr Price has sent me four specimens of what appears to be a variety of this species from Espiritu Santo Island. These shells were found alongside typical P. conoidalis; they are more circular in shape, the exterior is crossed by numerous fine, scabrous radiating cords, the interior cream with two brownish blotches within the spatula, the margin is crenulated all round.

Patelloida saccharina (Linnaeus, 1758)

Fig 14, 15

Shell moderately small, oval to elliptic, solid, flattened, apex towards anterior end; exterior with nine to fourteen heavy, rounded, primary radial ribs which project strongly at the margin, ribs separated by large grooves which may contain a weak secondary rib; primary ribs sculptured with numerous finely incised lines; exterior frequently encrusted, but colouration of uniform light or dark brown, sometimes with a lighter pattern giving a zig-zag appearance; interior porcellanous white, faintly bluish, spatula either blotched with purple-brown or with small discrete light brown flecks; margin strongly fluted, dark brown or white; shell reaching 30mm in length and 20mm in width.

Remarks: Patelloida saccharina shells were moderately common amongst drift material on open coast beaches, but no live specimens were found at these localities. Live specimens were taken from the piles of Forari wharf, on the southern coast of Efate Island. The animal has a grey sole to its foot, the sides are grey, the mantle is light grey to cream, the head cream.



Patelloida striata Quoy & Gaimard, 1834 Fig 16, 17

Shell small, thin, flattened, nearly circular, apex near anterior end; exterior smooth, with numerous microscopic radial striae, greenish-brown in colour closely patterned with small lighter markings forming a dense network over the entire surface; interior with a chocolate brown spatula and marginal zone, separated by a broad opaque milky circular area, the spatular region, being the thinnest, shows the external mottled pattern when the shell is held to the light; shell reaching 15mm in length and 2mm in height at the apex.

Remarks: Patelloida striata closely resembles the New Zealand acmaeid Atalacmea fragilis in its shape and the thinness of the shell. But these resemblances may be purely convergent since P. striata is found on the undersides of mobile boulders, just as Atalacmea fragilis is, on our shores. It may be that this circular and flattened shape and thin shell are best suited to such conditions. On the other hand, acmaeid systematics are in such a confused state at present that these similarities between the shells of Patelloida striata and Atalacmea fragilis may indicate a relationship between them at the genus level. The final decision as to the most appropriate generic placing for Patelloida striata must await a study of its animal.

I did not find any specimens of this species on Efate Island, where presumably conditions are not conducive to habitation. Mr Price has sent me specimens collected from the undersides of smooth volcanic boulders at half tide on the west coast of Pentecost Island, New Hebrides. Patelloida striata ranges throughout the tropical Pacific.

Asteracmea sp. Fig 18 - 21

Shell small, oval in outline, apex central or anteriorly-positioned, giving a flattened or steeply conical shell form; exterior generally smooth, with weak concentric lines about the summit; colouration distinctive, exterior with a deep purple-brown apex which is dissected by a four- to six-rayed white star, rest of exterior white, frequently crossed by twelve to sixteen brown bars radiating from the apex, these bars are composed of two to five, tightly-packed and thin, brown lines; interior smooth, whitish and translucent, generally with dark purplish triangular blotches near the centre, vague radial lines, and five brown rays as on the outside; spatula of the same colouration as the rest of the interior; shells reaching 5mm in length and 2.5mm in height.

Remarks: The generic name has been used on account of the pattern and colouration of the shells, which this species shares with the New Zealand Asteracmea suteri.

The above description, and that for the next species, is based on dead shells collected in beach drift; all shells are therefore somewhat worn, with the result that some details of sculpture may have been lost. Seventeen species of Asteracmea sp. were found, of which sixteen were taken at Tessa's Beach, an open rocky shore on the southern coast of Efate Island.

Acmaeid sp.

Fig 22, 23

Shell small, oval in outline, apex well forward of the centre, giving a humped profile, base concave; under magnification the exterior is seen to be covered with dense radial striae; colour pattern very distinctive, consisting of ten to twelve light pinkish-red or purple-pink lines which radiate from the apex, forming a chevron pattern, the posterior lines being wavy and dichotomously branched; interior smooth and white, with the pink pattern visible beneath a lightly nacreous glaze, the anterior wall is almost vertical and forms a marginal flange at the front; shells up to 6mm in length and 2mm in height.

Remarks: Only two specimens were collected, both amongst shell wash-ups on Tessa's Beach.

I wish to thank Mr L. Price, Dr F. J. Taylor and Mr K. Andersen who have given me the opportunity of examining species of limpets not personally collected in the New Hebrides.

\* \* \*

#### SOME COMMENTS ON CLEIDOTHAERUS MAORIANUS

W.E. Perks

"I was interested to read in your recent issue of Poiriera an article on Cleidothaerus maorianus, a species I have collected as a dead shell (long dead, I'm afraid) from the Tamaki Estuary. I have, however, also collected specimens of the related South Australian species C. albidus from the Outer Harbour area near Adelaide. These specimens were also 'dead', but their condition was very much cleaner than my New Zealand examples, and one particular specimen retained intact the peculiar hinge feature which locates this mollusc in the Order Anomalodesmacea.

As your correspondent made no reference to it, I thought that he - and perhaps your other readers - might be interested to be reminded of it. Cleidothaerus has an internal resiliium as described, but it is a unique resiliium which I can best describe as being divided into two sections. Each section is attached to its own valve by means of a 'pit' associated with the hinge area, and these two sections of resiliium are then connected by a (relatively) long and curved bone-like calcareous structure. This is the lithodesma or 'stone hinge' which is referred to in Suter's detailed description of the species on page 1033 of his Manual. It is this 'stone hinge', unique so far as I am aware, which qualifies the Family for inclusion in the Order Anomalodesmacea, a word which may be roughly translated as 'those having an abnormal hinge pattern'.

Unfortunately the lithodesma is all too frequently lost when the animal dies and the shell deteriorates, and it can thus escape notice. I was lucky to find one specimen in which it remained in situ, and there was no doubt as to its function. Your correspondent speaks of younger examples and perhaps he has been lucky enough to collect the species alive. If he has, I wonder if the lithodesma is retained in any of his specimens?

I was most intrigued to discover this feature when studying my specimens in relation to various systems of classifying bivalves and could not resist writing to comment on it. "

\* \* \* \* \*

#### NOTES of INTEREST

- \* Mr J. H. Seddon, Cambridge, reports that a live cone shell was found at White Island on sand at 80ft, close to Club Rocks on the south-western side of White Island - "The animal was yellow with dark brown spots, like a leopard, each spot having a lighter centre. Quite a lot of white growth had to be cleaned off the shell. A faded dead specimen was also found by another diver who found a dead Ellatrivia memorata at the same time."
  
- \* Several Whangarei divers have been keeping this cone in tanks and say that the shellfish is quite co-operative in the matter of diet. They have no hesitation in taking ordinary garden earthworms!

- \* P. Poortman of Hamilton writes -  
 "...recently while exploring some limestone bluffs on a farm in the Aramiro Valley, south of Raglan, I found a Schizoglossa major. Unfortunately the specimen had the lower quarter broken off, but the spiral was still intact. I understand they are quite rare.."  
 (A new locality record - Ed.)
- \* Graham Clifford has found that Limaria orientalis is now quite common offshore at Russell and there has also been a wash-up of many specimens along the foreshore.
- \* Norm Douglas - "The bitter oyster, Anomia walteri, is increasing dramatically in the Manukau Harbour. They occur in clusters in many places. One cluster consisted of sixteen fine specimens attached on to the flat half of a scallop and stacked one on top of another to form quite a pyramid."

: : : : : : : :

#### ABOUT ANADARA

L. Edwards

Further to the article in Poiriera, February 1975, concerning Anadara trapezia, I have come across a patch of old dead shells buried in soft grey mud on Hokianga Harbour. Among the shells are a number of Anadara. Other shells are :

Chlamys zelandiae  
 Venericardia purpurata  
 Dosinia zelandica  
 Cleidothaerus maorianus  
 Charonia capax  
 Monoplex australasiae  
 Cominella adspersa  
 Maoricolpus roseus, plus another similar  
 Penion adusta, plus another Penion sp.

There are probably other species, but I have not disturbed the bed very much and have taken only those shells appearing on or near the surface.

Charonia lampas rubicunda (Perry, 1811)

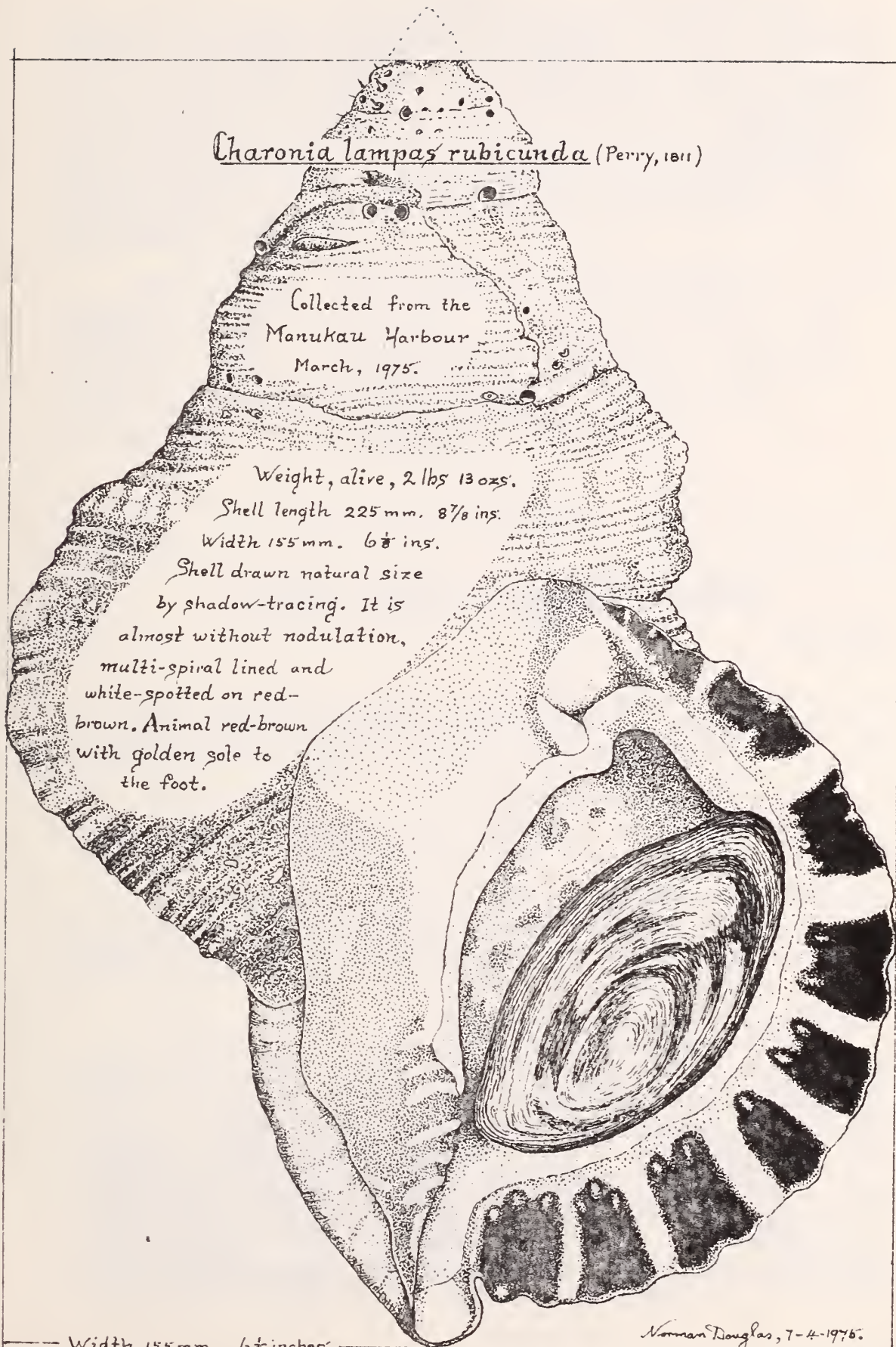
Collected from the  
Manukau Harbour  
March, 1975.

Weight, alive, 2 lbs 13 ozs.

Shell length 225 mm. 8  $\frac{7}{8}$  ins.

Width 155 mm. 6  $\frac{1}{8}$  ins.

Shell drawn natural size  
by shadow-tracing. It is  
almost without nodulation,  
multi-spiral lined and  
white-spotted on red-  
brown. Animal red-brown  
with golden sole to  
the foot.



Width 155 mm. 6  $\frac{1}{8}$  inches.

Norman Douglas, 7-4-1975.



One puzzling feature is that so many varieties are packed so closely together. Possibly the dead shells have been washed together by currents, but the *Dosinia* have both valves intact and I would have expected them to be parted if they had been rolled about. Assuming that they had all died at the same time as *Anadara* and for the same reason, I had wondered why only *Anadara* had become extinct, but apparently being a surface dweller it was more susceptible to frosts (see *Poirieria*, Vol 7 Pt 6).

Some of the *Anadara* are in good condition, especially those found just under the surface. The largest I have is a beach-worn specimen 84mm and the smallest 19mm. I am hoping to find a pair, but my last two visits to the site have found it covered in sand to a depth of 6 or 8 inches. A few good easterlies will be needed to clear it.

= = = = =

#### A FIELD TRIP TO THE CHATHAM ISLANDS

M. Gurr

The Chatham Islands comprising four islands - Chatham, Pitt, Rangitira and Mangere, lie due east 570 miles from Banks Peninsula, South Island.

Mrs Saville and I left the Christchurch Airport at 8.15am, arriving at the Chathams at 11am after a very slow but pleasant trip.

We were taken by bus from our point of touchdown and for the next 35 miles bumped our way to the small township of Waitangi which has one store, one hotel, a police station and a booking office.

March 27th was our big day for shell collecting and we travelled by landrover to a sandy and well sheltered beach, where we were delighted to see a good wash-up of shells such as *Haliotis australis*, *H.iris*, *Cantharidus opalus cannoni*, *Chlamys gemmulata radiata*, *Cominella maculata*, several *Buccinulum* spp., *Melagraphia aethiops*, *Zediloma* spp., *Siphonaria zelandica*, *Papula allani*, *Margarella fulminata*, *Zeacopagia disculus*, *Modelia granosa* and *Gaimardia forsteriana*. Much further along this beach were *Austrofusus glans*, *A.chathamensis*, *Cominella adspersa*, *Eucominia iredalei*, and *Panopea smithae*.

In one small area were simply thousands of the small black shell, Zeacumantus subcarinatus.

Most of our 'shelling' was done in this area, but on one occasion we ventured to another beach near Cape Pattison and there found really lovely specimens of Cellana strigilis chathamensis - some very large and brightly coloured. Given the time, we could have collected many more shells, but we had to be content with these; however, we intend to return as the hospitality is simply terrific and next time we hope to contact local fishermen to find out what shells they may get.

\* \* \* \* \*

#### PAPUINA PULCHERRINA Rench

Most collectors know of the Green Tree Snail of Manus Island. It has a truly handsome shell of bright green with a yellow subsutural line, and must surely be one of the most striking land snails known.

The following information concerning this snail was sent in by Mrs G. Barker:

"It is endemic to Manus Island and was described by Ilsa Rench from a preserved specimen collected by Father Schneider about 1931. A few years later it was collected in some quantity by the Whitney South Sea Expedition.

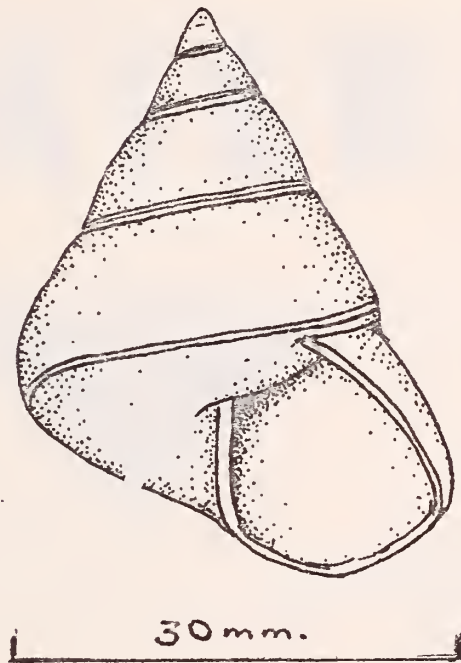
The snails live in the jungle of the south-western part of Manus Island, often 20 ft. or more up in the trees. It is thought that they live on lichens and fungal film on the bark of trees, feeding by night. During the day they find shelter from the bright light by remaining under leaves of a creeper which grows around most trees. Snails have also been found on sago palms in swampy areas.

Specimens are often obtained by natives while clearing sites for food gardens, usually under larger trees which have been felled.

They have been kept in captivity with some success and seem to be quite happy to eat some kinds of paper (as do the Queensland Varahadra which enjoy a diet of old



beer cartons!) They have also been fed on sandwiches  
of blotting paper and condensed milk! "



Sometimes yellow shells of this snail are offered  
to collectors, but we believe that these have been  
bleached.

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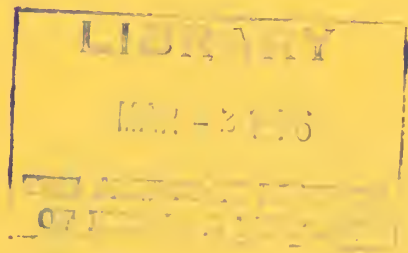


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# POIRIERIA



Vol. 8. Part 2. Dec. 1975.

CONCHOLOGY SECTION  
AUCKLAND INSTITUTE & MUSEUM



AGRICULTURE



DEPARTMENT OF AGRICULTURE  
AND INSTITUTIONS

DILOMA SUBROSTRATA NOVAZELANDIAE (Anton)

The various species of the genus *Zediloma* - as we used to know them - must be amongst our most plentiful molluscs of the intertidal zone, where some species prefer to browse over the rocky surfaces while others inhabit the sandflats or *Zostera* beds. With their similarity of shape and lack of definite colour pattern it is no wonder they are quickly passed over by many collectors.

However, one which is seldom seen because of the remoteness of its habitat, does have a more distinctive colour pattern consisting of heavy black stripes on a yellowish background. This is *Diloma subrostrata novazelandiae* (Anton) which was until recently better known to us as *Zediloma corrosa zebrina* Powell.

It apparently occurs only on one or two rather restricted sand flats in the remote parts of Fiordland. Most of this coastline is very rocky and steep and apparently unsuitable for this shell; even the little sandy beaches further up the Sounds are avoided.

Earlier in the year, while on Resolution Island, I was able to briefly investigate the tidal lagoon at Goose Cove. This is a *Zostera* covered flat of reasonable size which is uncovered at low tide to reveal large numbers of scattered small stones and bits and pieces of driftwood. On this flat there are considerable numbers of *D.S. novazelandiae* with its distinctly striped shell.



Goose Cove, named by Captain Cook, is the the type locality of Anton's species and the type specimens are said to have been collected during Cook's stay in the Fiordland Sounds.

The type locality of the Synonym *Zediloma corrosa zebrina* Powell, is Breaksea Sound, on the northern and opposite side of Resolution Island and which has a similar sand flat.

- References: Cernohorsky, W.O. 1974 The Type Specimens of Molluscs in the University Zoological Museum, Copenhagen. Rec. Auck. Inst. Mus. II.
- Powell, A.W.B. 1974 New Zealand Molluscan Systematics with Descriptions of New Species. Rec. Auck. Inst. Mus. II.

Having recently returned from a three weeks shelling holiday on a coral island some seventy miles off the Central Queensland coast, we thought that members may be interested to hear of our experiences.

We were fortunate in being invited to join a small group of very experienced Australian collectors who camp out on these remote islands each year. A lot of preparation was necessary for the expedition as all the food and water had to be taken as well as camping equipment etc. for the three weeks. Due to the experience of the group nothing was omitted - there was ample food of great variety, first aid equipment, fuel for the outboard and even the wherewithall to mend a punctured lilo. Water would have been adequate, however, we replenished supplies during two days of rain by collecting the run-off from the tents.

We finally set out from Double Head harbour after midnight on a ten hour trip in rather choppy conditions. At mid morning a few trees on the horizon turned out to be our island encircled by a beach of dazzling white coral sand. Landing the party and the gear on to the beach was done with the aluminium outboard boat which we brought with us on the launch. This was fortunately accomplished without mishap, in spite of a surge which could have swamped a badly handled boat. On shore old turtle nests had to be filled in to make a level camp site. Egg shells and remains of dead turtles were evident.

Our camp site was back from the beach sheltered by a grove of Casuarina trees. In the centre of the island the tall Pisonia trees were dominant, while near the beach the well known Pandanus palms grew in large clumps. Associated with these were the Messerschmidia argentia, a low, wide spreading tree with thick, soft, dark green leaves. The latter tree provided excellent fire-wood of which there was no shortage. On the top of the tallest Pisonia tree was a Sea-eagle's nest which was just a huge pile of dead sticks. This island is the nesting place for the White Heron, White Capped Noddy and the Mutton Birds. The only land birds seen were a pair of Wagtails, one Kingfisher, one Peewee? and a large flock of Wax-eyes. As there is no natural water on this sandy island there were no mosquitoes or sandflies. Very few flies were seen and fortunately no snakes.

The extensive reef stretching out from the island was composed mainly of a dead coral platform littered with coral boulders and loose slabs of coral rock of varying sizes, under which were the live shells. To turn these rocks we used a long metal hook and at least one glove. The work was not easy and of course all the rocks were returned to their original positions. During our stay 36 different varieties of live cowries were collected and 19 varieties of cones as well as many other shells, some of which are listed below. There were no Stone-fish sighted nor any Crown of Thorns though many other starfish were evident, the most conspicuous being Linckia laevigata, a vivid blue species. Crabs of many colours and shapes lived in the pools along with urchins, hermit crabs and nudibranchs. Clams dotted the platform with their brilliant mantles of various colours.

On several occasions visits were made to two other uninhabited islands a couple of miles away. These both had lagoons with reefs which had to be crossed on approaching the islands. Turtles of two kinds were numerous on the reefs at low tide and were easily approached when out of the water but in their own

element were soon out of sight. The lagoons were particularly interesting at night when we used pressure lamps and scoops to hunt for volutes (*Pulchra woolacottae* and *Amoria maculata*). Tiger cowries also appeared on the live coral patches at night while cones came up out of the sand. Large hermit crabs mostly housed in fresh *Tonna perdis* shells moved freely on the flat coral tops. We saw many sharks and rays and though curious they were no more trouble than the multitude of smaller brightly coloured fish which inhabit the lagoons.

Fishing offshore from the open boat was very rewarding and the catch very different from the N.Z. fish both in colour and form. Most were good to eat and made a welcome addition to our diet. We improvised a smoke-house and treated our friends to smoked fish N.Z. style. It lacked the Manuka flavour but was well received. Fish also provided shells for us - some *Cyp.* and *Str. terebellum* from Bream which we caught.

Truly these remote coral islands can provide an idyllic setting for a holiday. Our days were regulated only by the rising and setting of the sun and the ebb and flow of the tide. There was time for swimming in the clear water, fishing and shelling every day with plenty of warm sunshine and good company. How fortunate we were with our companions who willingly gave us the benefit of their knowledge and experience of camping on these isles, and shelling the reefs and lagoons. We are grateful to them for making such a memorable holiday possible for us.

The following were found by members of the party during our three weeks stay.

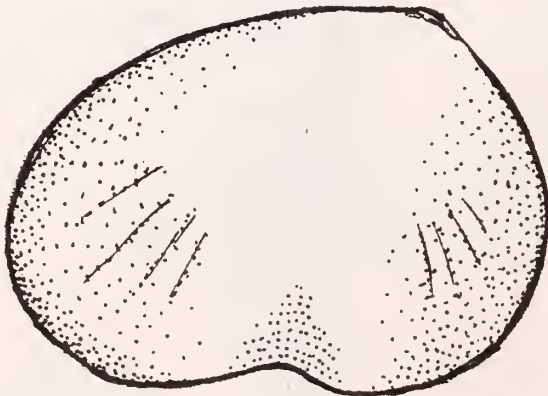
<i>Cypraea annulus</i>	<i>Cypraea punctata</i>
asselus	scurra
arabica	staphylea
argus (dead)	tigris
caputserpentis	talpa (dead)
carneola	teres
catholicorum	vitellus
caurica	xanthodon
cicercula	<i>Conus capitaneus</i>
clandestina	catus
cribraria	coronatus
eglantina	eburneus
erosa	emaciatius
errones	episcopus
felina	coccineus (dead)
hammondae	flavidus
helvola	glans
humphreysii	litteratus
isabella	musicus
keineri	mustelinus
labrolineata nashi	miliaris
limacina facifer	nussatella (dead)
lynx	sponsalis
macula	rattus
melwardi	striatus
minorodens	textile
moneta	virgo
nucleus	vitulinus
palidula rhino	vexillum
poraria	

Tonna pernix	Bursa granularis
cerevisina	bubo (dead)
Malea pomum	Cerith. echinatum
Mitra mitra	aspernum
cardinalis	Drupa morum
Chrysame cucumerina	rubusidaea
Strigatella retusa	ricina
Terebra areolata	Drupella cornus
Pulchra woolacottae	Pteryotus elongatus
Amoria maculata	bipinnatus
Trochus niloticus	tripterus
fenestratus	Nassa sarta
Turbo necnivosus	Thais armigera
Cymatium pileare	Mancinella alouina
Stromb. luhuanus	Pleuroploca filamentosa
gibberulus	Peristernianassatula
mutabilis	Latirölagena smaragdula
microurceus	Haliotus asinia
terebellum	Septa parthenopeum
lambis lambis	also bivalves .... to be named

#### DIVARISCINTILLA MAORIA Powell

Local members have, for years fossicked for specimens on Auckland's Cheltenham Beach and some have attacked vigorously with spade and trowel, many of those "strange holes" which are scattered over the sand flat. Even so, it is unlikely that many have seen there, a small, flat, glassy bivalve which has a strange commensal habit.

Divariscintilla maoria Powell is a distinctive bivalve which although small, is easily recognised by the unusual notch located along the "bottom edge" or ventral margin. Both valves are similar in form, rather flat, thin and fragile.



Although described in 1932 by Dr. A.W.B. Powell, from dead shells obtained from shell sand at Rangaunu Bay it was not until 1970 that live specimens were found by Warren Judd whilst sieving on Cheltenham Beach. He discovered that it was commensal in the burrows of the sand dwelling mantis shrimp Heterosquilla tricarinata (Claus) and at that time recovered up to 35 specimens from a single burrow. Fifteen or so were apparently not uncommon, but of course many burrows were completely without. When present, the bivalves were found attached by a byssus to the firm, well compacted wall of the shrimp burrow up to 50 cm deep.



Divariscintilla prefers the low-spring tide area even though the host shrimp extends to higher levels as well.

The species has apparently lost its ability to burrow on its own accord and has become highly specialized for such a commensal mode of life - for it is well protected from wave action - hazardous for a fragile shell, and at the same time, enjoys a continuous water circulation in the burrow.

It is strange that while the host is an active carnivore, it appears to ignore these small bivalves clustered along its burrow.

References: W. Judd 1971 "The Structure and Habits of Divariscintilla maoria Powell (Bivalvia Galeommaliidae) Pros. Mal. Soc. Land 39, 343.

#### NOTES OF INTEREST

\* Found tucked inside a fine specimen of the cowrie Zoila thersites Gaskoin - the following note: "This cowrie lives amongst a yellow spongy growth 2-20 fathoms. It is one of six sea shells left to South Australia from past tropical times of long ago. The man who named this beautiful shell must have had a bad liver, as Zoila was a nasty caustic critic of all of Homer's writings and Thersites was the ugliest man in Athens".

\* Errol Willis reports that recently, during midwater trawling operations off the Bay of Plenty two live Spirula spirula were obtained in the early hours of the morning. Estimated depth - 150 fathoms.

This is a time when some of these benthic creatures come nearer to the surface. These two specimens were put into a bucket of water where they gave a lively display of swimming. The animals are apparently not a great deal larger than the spiral shells with which we are all so familiar.

\* Steve O'Neill, Cape Brett - "Last weekend I made a trip back to the bay where I found the large colony of Nassarius spiratus, to see how they were getting on. Nearly all the sand patches there have gone, due to the rough weather we have had recently. Only located six in half an hour's diving, but these were slightly larger than most seen at the beginning of the year."

\* On a recent visit to Torpedo Bay, Devonport, I was struck by the big difference in the intertidal zone since the days over 40 years ago when I used to fossick about in the area.

The bay is completely bare of Zostera, the sea grass which covered the oozy mudflat and harboured Neoguraleus sinclairi and Micrelenchus huttoni. One can now walk right across the bay at low tide without getting well bogged. Chione stutchburyi and Mactra ovata along with a few Zediloma subrostrata, Baryspira australis and large Cominella adspersa seemed to be the main inhabitants. There was no sign of Alcithoe arabica or Scallops which used to live in one corner even a few years ago. About the wharf and reef the kelp Ecklonia radiata has increased greatly both in size and amount - in fact the growth of seaweed was noticeably quite lush. Mussels on wharf piles and rocks were large and even the beds of rock oysters seemed to have increased with fine specimens everywhere. The rocks on the reef were covered in various, sponges and algae but few species of molluscs were evident, though

crabs were numerous - especially Cancer novaezelandiae. The large population of Buccinulum vittatum and lineum which was a characteristic of this area has gone - only two or three juvenile specimens of B.vittatum were seen though there were still a few Tugali elegans and Scutus breviculus thriving among low tidal rocks.

E.N.G.

Norm Douglas, with his usual amount of luck, and his eagle eye, managed to find a live Conus kermadecensis in the far North, and so add a further record of this species in N.Z. He also had a fine large freshly dead specimen of Cassis (Semi cassis) sofia which had been picked up near Tutukaka after a storm. This is the first record of this species in N.Z. waters.

#### OUR WENTLETRAPS

N.W. Gardner

The Wentletraps (Epitorium and several closely related genera) have a wide distribution in most seas, from low tide down to depths of 3000!

Most of the 200 or so world wide species are rather small and even though delicately axially sculptured, don't seem to have any great popularity among collectors. However, there are at least two or three species which grow to a reasonable size such as the Indo-Pacific Epitonium scalare Linne (5 cm) and the Carribean species Sthenorytis pernobilis (Fischer & Bernardi) 65 mm and these are always keenly sought.

A number of species are known to feed on sea anemones - sucking the juices of the hosts through their long proboscis. One New Zealand species has been observed doing this. Wentletraps can exude a purple dye and this is often seen around the aperture of specimens which have been washed up along a drift margin.

According to Bucknill, the name Epitonium is derived from Epitonas - the back stay of a mast - just how it relates to these shells is rather difficult to imagine. The common name Wentletrap is apparently a Dutch word meaning staircase.

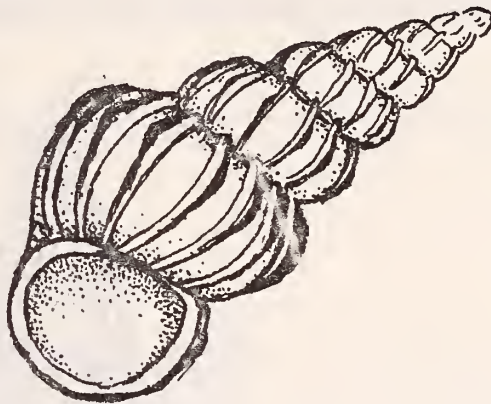


From around our coastline, we have six named species, four of which are not uncommonly washed ashore on some sandy beaches.

Our largest species Cirsotrema zeleborei (Dunker) which reaches 25 mm is the one most frequently seen, and sometimes washes up in fair numbers on northern beaches. Good places for these are Gt. Exhibition Bay, Ninety Mile Beach, Orewa, Whangamata and Bay of Plenty.

C. zeleborei is easily recognised by the distinct spiral cords arranged between the stronger axial ribs. Points of intersection are rather beaded. The shell is white and there is a jet black operculum.

Washed up with the above species, you would almost certainly find examples of the smaller Epitonium philippinarum Sowerby, which seldom exceeds 10 mm. This little shell is pure white with a 'polished' surface. The axial ribs are more widely spaced (10 on body whorl).



Epitonium jukesianum (Forbes)

Pure white, usually a little smaller than philippinarum much more slender in profile with closer, finer axial ribbing - 20 on the body whorl. This also occurs in beach drift. I have seen live specimens of this shell in coralline turf around the edge of rock pools in rocky outcrops on sandy beaches.

These pools usually contain sea anemones.



Occurs at least as far South as Cook Strait.

Epitonium bucknilli Powell

At a glance is very similar to the above species but it has a much greater spire angle (said to be 30° against 20° for jukesianum). Not as slender and grows to a larger size. Between the axial ribs there are minute striations

visible with a lens. Not at all common. Type locality, Bay of Plenty. Also found along Northland and Auckland East Coasts.



Epitonium tenellum (Hutton)

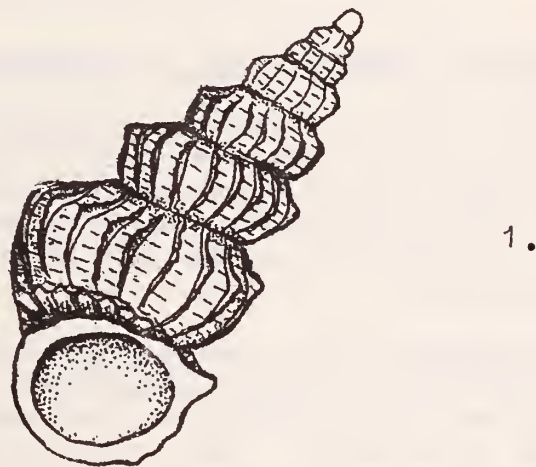
One feature which helps to identify this shell is the colour, which is pale horn with a brown band running just below the suture, and continuing around the base. In addition, there is a second band around the periphery of the body whorl. Grows to 12.5 mm and is proportionally broader than the previous species with about 20 axials on the body whorl. It is also found on sandy beaches and often on softer harbour situations. Occurs at Cheltenham Beach, Orewa, Firth of Thames, Bay of Islands, Tauranga etc.



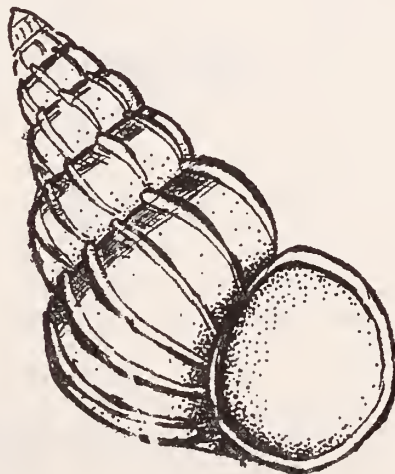
Cirsotrema forresti Dell. Fig. 1.

A deep water species, the type locality being Hawkes Bay in 200 fathoms, has also been obtained from around the Chatham Islands (94 fathoms to 330 fathoms). Size 6.5 mm x 3.0 mm. The whorls have a strongly angled shoulder and a deeply impressed suture. Axial ribs bear a wide-based spine just below the suture.

Some specimens obtained from moderately deep water in the Bay of Plenty are probably referable to this species.



2.



Promiscala perplexa Pease.

Fig. 2.

There have been two or three records of this Pacific species as washups on our northern beaches. The first was that of Mr. Norman Douglas in 1964. The

specimen measured 22.5 mm x 10.75 mm. No further finds have been reported in the last two years.

This species has a colour band just below the suture. Ribbing is rather strong and straight.

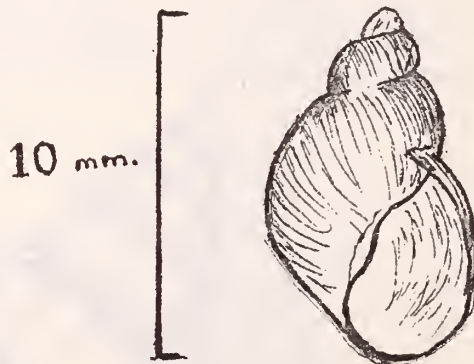
- References: Bucknill C.R. Sea Shells of N.Z. Whitcombe & Tombs  
Dell R.K. 1956 Some New Off Shore Mollusca from New Zealand  
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Powell A.W.B. New Zealand Molluscan Systematics with  
Descriptions of New Species, Part 5.  
Rec. Auck Inst. Mus. Vol 6 No. 2.

PAPUSUCCINEA ARCHEYI POWELL - OUR SEASONAL LAND SNAIL

N.W.G.

The family of snails to which our Papusuccinea belongs is generally known as "amber snails" and this describes them well. They are thin, rather delicate with a short spire and very swollen body whorl. A few are tree dwellers, but most occur in situations which are fairly damp, such as near creeks and ponds. Some prefer sand dune country and this is where you will find our single N.Z. species established.

Papusuccinea archeyi has an extremely specialised habitat as it occurs on fine grained loose sand only in the vicinity of the first and second sand dunes which usually run parallel to the beach and have the rather sparse, mature plant cover intact. This cover usually includes Cassinia, Spinifex, Muhlenbeckia, Coprosma, Pimelia etc. The food plant essential to the snail's survival is a blue-green algae, Anabaena variabilis Kutz, which is available only during the wet winter months, being in a lush state from May to August.



It dries out during September and October and is quite dried up and dispersed by wind from October to March. The availability of this food supply for a fairly short period seems to result in a brief life cycle of just one year for these snails. They reach maturity rapidly during the wet winter season and start dying out in August. However, by this time the next

generation of young snails has emerged and though they find the dry summer conditions hard, seem to survive at the base of Spinifex by partial aestivation and grow scarcely at all until autumn rains arrive.

Live colonies (none of which seem to be of any great size) occur at Spirits Bay and Cape Maria van diemen and also at a number of isolated localities down to the Bay of Plenty. A Subrecent specimen recorded from Ocean Beach, six miles south of Cape Kidnappers, is the southernmost record. Searching suitable sand dune country between these extremities could easily produce further new locality records for this species. Such records are always of interest.

The present records known to us are as follows:

<u>Living Colonies</u>	<u>Sub recent</u>
Spirits Bay	Cape Maria
Cape Maria	-
Taipa	-
Tokerau	Tokerau, with Moa remains
Whananaki	-
Ngungaru	-
Pataua	-
Ocean Beach, Whangarei	-
Waikawa, Port Charles	Oneroa, Waiheke Isle
Whangamata	Slipper Isle R. Willon
Mt. Maunganui	-
Omanu	Ocean Beach
Papamoa	Cape Kidnappers

#### TIMOR TRAVELOGUE

Ailsa Cornelius

When we lived in Gove, a bauxite mining area on the western side of the Gulf of Carpentaria, we spent several holidays in Portuguese Timor, 400 miles north of Darwin. Our only requirement was a valid passport, a visa from the Portuguese Consulate in Darwin, smallpox, cholera and typhoid shots, and at that time, 1971/72, conservative tropical wear - for women, no shorts, no trousers, no bikinis, no mini skirts, and for men, no restrictions.

Timor is a timeless country, slow, hot and beautiful. It is a poor country known mainly for sandalwood, teak and coffee, but it left us wondering whether our modern civilisation, or rat race, was really the way to live. The Portuguese govern it and run the hotels, the Chinese are the shopkeepers, and the Timorese are the native population, existing mainly on what little they can grow and also in employ as houseboys in the hotels and private Portuguese homes earning about Aust. \$3 per week. The Portuguese army also has a number of outposts on the island and in the south near Betanu is a small group of Americans drilling for oil, which has not yet been found in marketable quantities.

Our first Timor holiday took us to a small airport and the town of Baucau, where the animals had to be cleared from the strip before we could land. All customs and clearance facilities took place in a small tin shed filled with

Portuguese officialdom and red tape. From the airport we were taken to a very beautiful Portuguese style hotel, where our room had its own houseboy, a very efficient middleaged Timorese. Mary, then four, very quickly learned to make full use of the houseboy to fetch and carry for her and escort her up the steep flights of stairs. Our tariff of \$10 per adult per day covered three main meals (varying from 3 courses for breakfast to up to 5 or 6 courses for dinner), morning and afternoon tea if we required it, and a daily laundry service, which included beating the clothes on stones, rinsing them, spreading them on the grass to dry, then presenting them later that day, ironed and spotlessly clean. Stained clothing was not returned till the stain had been removed!!

Only one day of this trip was spent at the beach at a picnic put on by the Hotel Manager for his guests. Lunch was set out on tables complete with hotel silver, white cloths, glassware, and a 4 course meal complete with wine, which was served by the houseboy, under coconut palms, by a beautiful white beach and clear tropic sea. Luxury living indeed!

That day I found no live shells, but had plenty of beach worn specimens to choose from. Among those I could identify were two specimens of *Cypraea helvola*, a worn specimen of what could be *Cypraea tigris*, a good specimen of *Conus virgo*, and some I have tentatively recognised as *Conus striatus*, *Conus betulinus* and *Conus lividus*. One small worn Stromb found was bright red round the aperture. I also picked up reasonable washups of *Nassarius arcularius*, *Nassarius coronatus*, *Niotha bicolor*, *Plicarcularia granifera* and *Plicarcularia thersites*, *Mitra cucumerina* and *Mitra lugubris*.

Later at the market where bargaining is a necessary part of buying, I bought 3 large live *Trochus* shells for 1 cent each. Our houseboy cleaned them for me, threw away the opercula, and was horrified when I wanted only the shell and refused to eat the flesh. His English and our Portuguese was limited to one or two words but he made it clear that he thought I was rather odd to want only the shells. Occasionally live specimens of *Cypraea tigris* and *Ovula ovum* and available at the market but unfortunately not on our visit. Large specimens of *Ovula ovum* are hung, along with intricate carvings over the high pitch thatched roofs of the native houses to ward off evil spirits.

Our strongest impression of Timor will be the open air markets with hundreds of Timorese squatting on the ground selling their 50c worth of wares - usually maize, vegetables, sweet potatoes, bananas, betel nut, tobacco (horrible stuff according to John, who smoked some), beautiful pottery bowls and water jars, wover cloths and occasionally shellfish, wood, buffalo horn and tortoise shell artifacts, woven baskets, and silver ware made from melted down Australian 2/- coins. Many Timorese would travel for 2 days on horseback or on foot to take their meagre goods to market, spend a day buying, selling, catching up on gossip, perhaps betting on the cock fight, then spend 2 more days travelling home.

Our last two holidays in Portuguese Timor were to Dili on the coast where Indonesian islands could be seen clearly on the horizon, and then up to Maubisse in the mountains. In September 1972 we spent two weeks at Maubisse (hotel), where our host, an Australian, took us by 4 wheel drive vehicle to remote parts of inland Timor where tourists were unknown. The roadsides were pink with roses planted by a former governor, and it was here that we met two of the wealthiest chiefs in Timor and were offered the now familiar native hospitality - strong black coffee, sweet cakes, buffalo meat and brandy. We



only met these chiefs because of the respect and esteem they held for our Australian host - they hated the Portuguese.

Half a day's drive from Maubisse, over narrow, rough roads, took us to the Timor Oil camp where we were shown over the camp and drilling rig by the Americans there. Another short drive and we were at the beach at Betanu - it looked like paradise. An army camp nearby had 'developed' Betanu as a recreation centre. Their centre was built entirely from bamboo on the sand at the edge of the beach among beautiful sago palms and tropical vegetation. It was three separate buildings, almost camouflaged by tall stands of bamboo - a toilet and washroom, a kitchen hut containing an open fireplace, and a dining and sleeping hut containing table, benches and bunks. Even the table was woven from bamboo canes. We dined by firelight, keeping a wary eye for wild monkeys, slept on the beach and woke at dawn to the sound of waves breaking on the reef. By breakfast the tide was low enough for me to get onto the reef for a brief two hours before the rest of the party decided they had to move on, shells or not.

In that time I managed to collect specimens of the more easily cleaned shells bearing in mind that I had only a few days in which to have them clean, and free of smell before going through customs formalities. As the tide was going out and would not have been low for another hour or two, my collecting was regrettably limited to the edge of the reef where there was a lot of rock and seaweed but little coral. Most of the cowries found were under rocks near the shore and became more scarce as I moved further out on the reef. Cones were much the same - plentiful, crawling about shallow rock pools near the shore and scarce further out. However, I found a number of *Cypraea isabella*, one of my favourite cowries, and took 3 specimens. Another prized specimen was *Cypraea staphylaea* and 2 specimens of *Cypraea lynx*. There were many other common shells there and some of the more common cowries, such as *Cypraea moneta* and *Cypraea annulus*, but because of time limits I concentrated on those specimens not already in my collection at Gove. A large number of the shells on the reefs at Gove were also common to the Timor area so it was simpler to note their existence and leave them alive. Most of the cone shells were small and I managed to collect specimens of *Conus marmoreus*, *Conus imperialis*, *Conus litteratus*, *Conus generalis* and *Conus ebraeus*. Some of these were not completely clean before we left so had to be abandoned. I did not have the use of the kitchen, otherwise might have risked boiling them, but had to rely on the ants to help with the cleaning.

At one stage I did consider taking them back to Australia uncleaned, but the customs men, ever alert to the drug traffic problem give all travellers from Timor a thorough check out so it would have been senseless to smuggle in a handful of 'smelly' cone shells.

We have promised ourselves that we will go back to Portuguese Timor again, but with the present civil strife there, that seems a remote dream. The excellent coffee, delicious Chinese food with lots of garlic and chilli, the whole atmosphere of the island, and for me the reef at Betanu, will lure us back one day.

PLANORBIS CORINA Gray

One frequently sees numbers of tiny black "pointed" fresh water snails along the edges of our streams and ponds, for Potamopyrgus snails are a prolific and successful lot, being quite at home in a variety of habitats.

However, it is mostly in rather tranquil water such as swamps or ponds that one can find specimens of a very different kind of freshwater snail - flatly spirally coiled and sinistral.

Planorbis corina Gray, is a small snail, seldom exceeding 4.5 mm. It has 4 whorls, a sunken spire and a wide umbilicus (so you will have to look closely to see which is top and bottom) - light brown in colour, with fine growth lines covered by a thin epidermis.

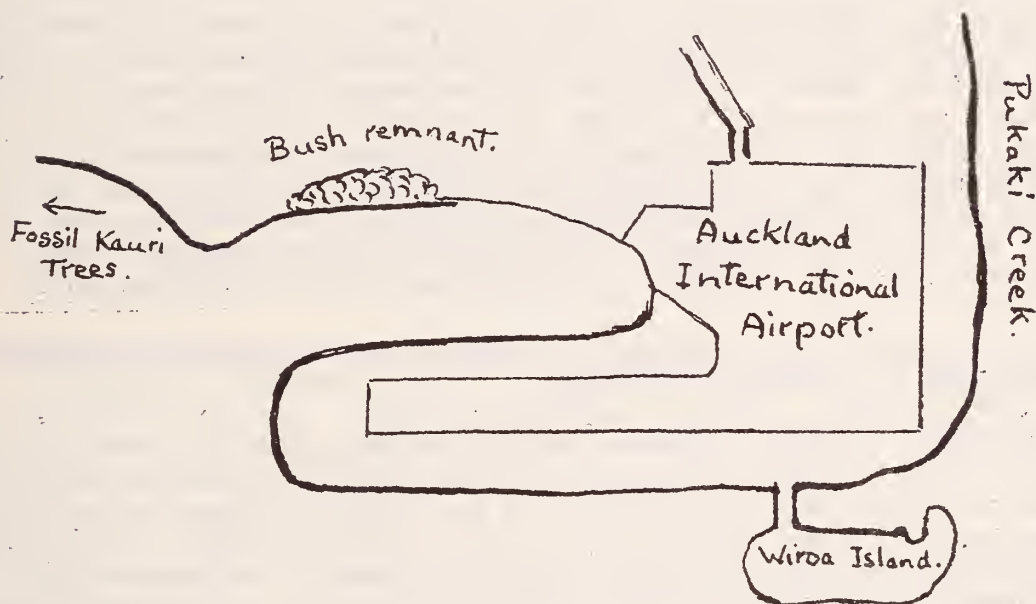
The distribution of this species covers both North and South Island. I have seen it at numerous localities from Cape Maria to Geraldine, South Canterbury.

Round the Auckland area it is quite plentiful:- Lake Pupuke, Auckland Domain duck ponds, Western Springs, Muriwai Lakes etc. A second species was described from Hawkes Bay a number of years ago, but P. kahuica as it was called does not seem to be very different from P. corina.

Freshwater snails are extremely variable, but the differences cited for kahuica are:- more sunken spire, deeper sutures and approximately one less whorl for a shell of the same size. Said to be restricted to Hawkes Bay, this form is very common at Lake Tutira.



The jets roar in from far and near  
 A snail slides steadily along a rotting log  
 A thousand miles and half a yard  
 In a billion years.



I became quite poetic one Sunday evening recently on finding a remnant of bush harbouring a little colony of native snails, not 200 metres from the Airport runway and also about the same distance from large kauri trunks fossilised in the Manukau mud - a reminder of past forest grandeur.

The snails present - of course Phenacohelix ponsonbyi and Phrixnathus celia, both living on flax at the water's edge with Thalassohelix zelandiae up in the leaf mould under the trees; all these species in large numbers.

Also in the leaf mould, though not so plentiful, were Flammulina perdita, Laoma poecilosticta, Tomatellinops novoseelandica, Charopa bianca, Delos coresia. We've circled our globe and stood off and looked at it from afar. I wonder if these denizens of the forest realize how small and threatened is their domain?

Exposed fossil beds about Auckland are not numerous or impressive and offer little that is spectacular. The majority of these are Miocene and fossil remains for the most part, occur rather sparsely in the sedimentary rocks of the Waitemata Beds and the Manukau Breccia which make up this sequence.

In a few places the oldest (and lower) of the Waitemata beds can be seen to contain more material because they are of shallower water origin and have accumulated more slowly.

Some of our members recently visited one small exposure on a Mototapu Island cliff face, after the area had been described to them by Dr. J. Grant-Mackie at a Section meeting. This bed is considered to have been laid down against a block of basement rock and the various fossil remains present are, mostly of such marine life as would exist off cliffs and rocky places. Here they would tumble down after death to be embedded in the bottom silt and debris. However there are a few species which are out of character with the rest of the cliff face fauna and it is thought that these arrived against an older rock face by way of large scale slumping of the sea bottom into a deeper basin.

The bed contains many plates of a giant barnacle Hexalasma aucklandica Hector, which grew to a height of 210 mm.

Other basal Waitemata outcrops occur on Waiheke Island at Oneroa and Church Bay. Here, the siltstone contains quite a rich fauna of molluscan remains, written up by Bartrum & Powell in 1938. It is a difficult fauna to correlate with others found in New Zealand because of its shallow water, even littoral nature. Among those represented are the following genera: *Ischnochiton*, *Cellana*, *Haliotis*, *Turritella*, *Lepsiella*, *Rynella*, *Dosinia*, *Angulus* and *Bankia*.

On Motuihi, a small bed has a deeper water fauna and lacks the shallow water forms, though included are some of the thin shelled bivalves like Serripecten.

Other horizons within the Waitemata beds do contain fossils, for instance, the Parnell Grit has remains of polyzoans, corals and molluscs though most are worn and broken due to movement within the grit while it was being emplaced.

Beside the road east of Papakura in a thin silt-stone are to be found molluscs and a number of solitary corals. Hays Creek, Papakura and Waikopu Stream, Whitford have a comparatively rich molluscan fauna and a few corals in detrital limestone and volcanic sandstone.

From Mr. Bruce Hayward's talk on the Manukau Breccia, we learned, at a subsequent meeting, more of Auckland's ancient past. These beds were laid down to the west of the Waitemata Harbour, also in Miocene times.

The most productive area fossil wise, is at Maori Bay, Muriwai. Here, two distinct beds are visible in the cliff face location, the bottom one being of comparatively fine sediment containing chiefly such remains of bivalves as would favour a soft bottom in rather deep water. Univalves were apparently very scarce. Some very unusual burrows of marine creatures are well preserved.

The matrix of the higher bed is rather stony and coarse - this material apparently originated from around the numerous volcanos in the area. While

this stony matrix contains a few fossil remains of those species which would colonize a rocky shallow water bottom, it also contains a few species normally found in deep water situations. This includes some carnivorous univalves. The inference is, that these two faunas have again been mixed by slumping of an area of shallow sea bottom. The other exposures of fossil bearing rocks of the series in various parts of the Waitakere Ranges (mostly stream beds) - all tell of this slumping to some degree.

The finding of reef corals in the Manukau Breccia, and more recently in the Waitemata Beds of the east coast in an area which is today 15 degrees of latitude south of the southern limit of coral reefs, indicates that the sea temperatures in early miocene times were tropical in Northland, and that Auckland would have had temperatures similar to that of the southern end of the Great Barrier Reef at the present time.

On the Manukau Harbour itself, at Waikowhai a molluscan fauna has been found in beds similar to the Parnell Grit. The species present are from a shallow water environment, possibly intertidal, for here we have the earliest record of an Amphidesma sp. (Dell 1960).

Pliocene shell beds and associated conglomerates and sands of the Kaawa Formation, accumulated in a shallow embayment south and west of the present Auckland isthmus. Samples from this formation have been obtained from drill holes sunk down several hundred feet. Material has also been obtained from outcrops in the Southern Manukau and Karaka areas.

The most important locality is that of a bore site at the Dominion Breweries yard at Otahuhu. When put down in 1945 the bore penetrated shell beds at between 84 and 98 feet, and resulted in a find of about 200 different species - such genera as Macomona, Chione, Tawera, Zenatia, Corninella, Penion, Struthiolaria, Zeacumantus and even Potamopyrgus were represented (Marwick 1948).

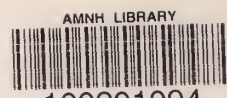
The much later Quaternary deposits have produced quite a different kind of fossil bed in the remains of a fossil forest at Ihumatao on the Manukau Harbour. This is dated at a mere 28,000 years (give or take a thousand) against the 20,000,000 odd of the Miocene age.

Possibly some of the most "recent" of our fossils are those from the western edge of Rangitoto, where lava at one time flowed onto the sea floor and covered a bed of mussels Perna canaliculata. Today, the charred shells can be found in brick-like clay.

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# POIRIERIA



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CONCHOLOGY SECTION  
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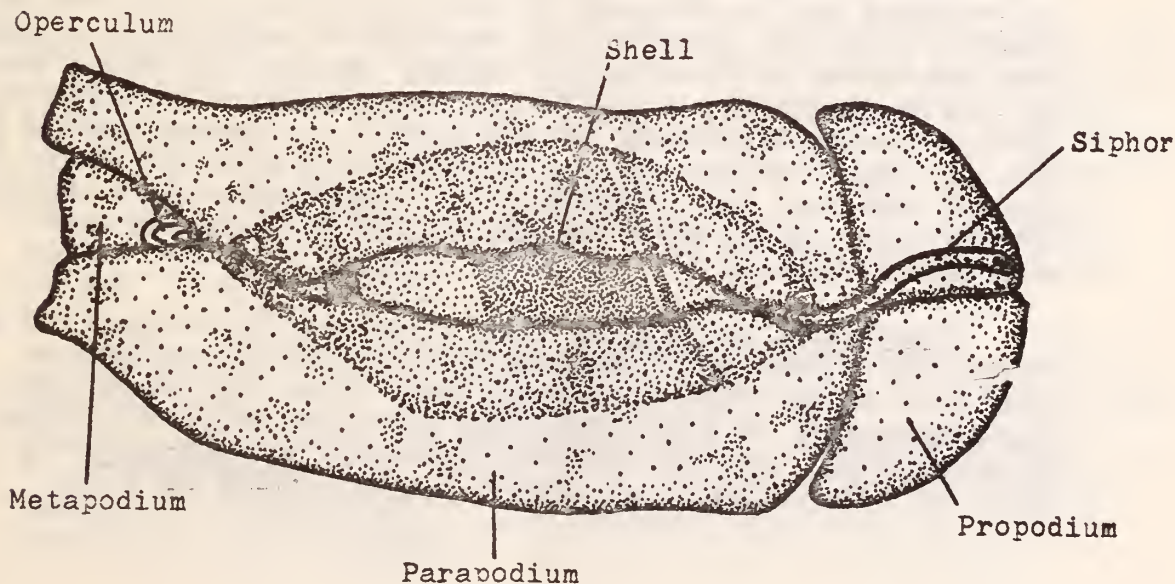


OBSERVATIONS ON THE FEEDING HABITS OF BARYSPIRA AUSTRALIS  
(Sowerby)

K. R. Grange

Baryspira australis is a familiar intertidal gastropod to most people, being found in large numbers buried just below the surface of the sand on protected beaches. It belongs to the family Olividae and has been described as a carnivore by Suter (1913) and Olson (1956), but this has never been verified by direct observation.

Overseas members of the Olividae exhibit a large range of feeding habits, but the majority are active predators, eg Olivella verreauxii and Lintricula auricularia feed on living bivalves such as Donax hanleyanus or on scaphopods and crustaceans (Marcus and Marcus 1959). Live Donax up to one third the length of O. verreauxii may be swallowed whole and the empty shell found in the digestive system upon dissection. Oliva sayana, under aquarium conditions, will eat live bivalves such as Donax and Laevicardium, or pieces of shrimp, fish or steak. The animals, aroused by the food, emerge from the sand and crawl about until the food is discovered.



It is then quickly seized, hidden under the foot, and the animal retreats under the sand head first (Olsson and Crovo 1968). Oliva sayana kills the live bivalve by smothering it in a coating of thick mucus which is possibly toxic, as even if removed from the olive, the slime-coated bivalve will die.

To test if Baryspira australis could feed in a similar manner, various-sized specimens were placed in a tank with aerated water and sand, to which were added several live Chione stutchburyi, Nucula hartvigiana, Myadora striata, the polychaete Phyllodoce castanea and the crustaceans Pontophilus australis and Callianassa filholi. The tank was then left for 10 days before being searched for any dead animals. All the animals offered as food were found alive. By this time, several B.australis were crawling on the surface of the sand so a live Chione was broken open and small pieces placed into the aquarium. Fifteen seconds later, several B.australis were aware of the food and were waving their siphons from side to side. Eventually they pointed directly at the food and began moving rapidly towards it. When the food was reached, the anterior part of the foot (the propodium) was raised, flattened, and brought down to smother the food, fashion it into a small ball and place it just behind the mouth. The proboscis was then extended and the radula used to tear small pieces off the food and convey them into the mouth.

Under normal aquarium conditions, B.australis remains buried during daylight with the siphon just visible above the sand, until food is dropped into the overlying water. The animals immediately emerge and move, guided by the incessant waving of the siphon, towards the food until it is reached and smothered by the propodium, then the animal rapidly burrows beneath the surface to consume its meal. The location of food is performed through chemical sensing by the osphradium, a gill-like structure which lies in the mantle cavity directly in the path of incoming water from the siphon. By waving the siphon from side to side, the animal can use the osphradium to test water from different localities and so move in the direction towards the strongest stimulus.

Baryspira australis thus acts as a scavenger in the aquarium, feeding on dead material, not as an active predator as previously suggested. Even the smallest C.stutchburyi or N.hartvigiana were not killed by starving B.australis. In its natural habitat, B.australis is often seen at night crowding around carrion such as dead

cockles or fish that have been washed ashore, but during the day these groups are replaced by the more familiar large aggregations of Cominella adspersa, while the B. australis remain buried. B. australis and C. adspersa reduce competition for the same food by feeding at different times. The large numbers of dead or dying bivalves found on protected sandflats help to ensure sufficient food for both scavenging species.

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- \* Marcus, E. & Marcus, E. 1959: Studies on Olividae Bolm. Fac. Filos. Cien. Univ. St. Paulo. Zoology 22: 99-188
- \* Olson, O.P. 1956: The Genus Baryspira in New Zealand. NZ Geol. Surv. Bull. 24: 40pp
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- \* Suter, H. 1913: "Manual of the New Zealand Mollusca". Govt. Printer, Wellington. Vols I & II.

\* \* \* \* \*

MYOCHAMA TASMANICA Ten. ~~Woods~~, FROM NORTHLAND.

N. W. G.

This bivalve, until recently known only from South-East Australia and Tasmania, has now been recorded from the Parengarenga Harbour in Northern New Zealand.

The small shells of up to 12 or 14mm are attached by the right valve to larger objects, very often the separated valves of Tawera spissa. They are whitish, roughly triangular in shape, but very irregular in outline, and often distorted so as to make the most of their area of attachment. The fixed valve is flatter and a little smaller, which enables it to fit inside the other - in a similar manner to most Myadora species. Both genera, of course, belong to Myochamidae.

The sculpture is of interest in that there appear to be two separate stages. Firstly, near the hinge there are very distinct raised, even, concentric ribs, marking out what is apparently an evenly triangular juvenile stage of 2 or 3 mm. Abruptly after this, however, the sculpture changes to undulating, low, rounded growth folds and an irregular shell shape.

The inner side of the "upper" valve is distinctly sculptured near the hinge with a series of radiating, but interrupted shallow, rounded grooves. All the specimens taken from Parengarenga Harbour during 1974 have been from dredgings obtained in just a few fathoms, where they are apparently not uncommon - though sorting through and examining the odd valves of myriads of Tawera spissa can be rather monotonous. At first, we were inclined to look at this occurrence in Northland as another new migrant,



but Dr Powell, on searching again through some of his earlier Parengarenga dredgings, 1932, found he had overlooked a single valve of this species, proving that it had, in fact, been about for some time after all.

More recently, R. Willan reports finding an example from a different locality - in 9 metres at Matai Bay.

Reference: Powell A.W.B. New Zealand Molluscan Systematics. Rec. Auck. Inst. Mus Vol 11. page 197.

\* From E. Andrews, Wanganui:-

Reference POIRIERIA, Vol. 8, Part 2, page 26:

"According to Bucknill, the name Epitonium is derived from Epitonas - the back stay of a mast - just how it relates to these shells is difficult to imagine."

I agree, and beg to disagree with Bucknill, my authority being Ainsworth's Dictionary, English & Latin, by Thomas Morell, D.D. (Printed 1854):-

"Epitonium, i (n) - An instrument wherewith cords are stretched; a pin or peg in a stringed instrument, as in

a lute, to set the strings higher or lower".

I suggest that this pin or peg would need to be roughly the shape of an Epitonium, Roeding 1798.

The word is of Greek origin and was introduced through the writings of Marcus Tarentius Varro, who is said to have written 500 volumes on various branches of learning. Only his books on Husbandry and the Latin Tongue have come to us, and neither of them entire - published with other works in 1581 in 8 volumes.

In my three Latin dictionaries, I can find no word "Epitonas".

\* From R. C. Willan:-

While SCUBA diving at Ti Point, near Leigh, in late December 1975, I chanced to examine areas covered by the sponge Polymastia granulosa. This sponge covers numerous sites on near-vertical rock walls in five to ten metres of water, and consists of large encrusting sheets reaching half a square metre in size, with yellow or orange knobs and an overall flattened appearance. Each sheet of sponge had from six to twelve of the dark cerith Lyroselia chathamensis associated with it, ceriths being found in depressions between the raised knobs, and only partially hidden. When extricated they had their pale yellow feet extended and their heads had been buried into the sponge tissue - clearly feeding on it. The largest Lyroselia were 12mm in length, none had Polymastia growing on their shells.

\* \* \* \*

ONE WAY TO COLLECT LIVE FRESHWATER CAVE SNAILS  
(OPACUINCOLA)

Where there is an underground cave which can be traversed, then perhaps the collecting of live specimens need not be considered too difficult if one does not suffer from claustrophobia! However, if there is no sizable opening to a cave and the known point of egress happens to be a small bubbling spring, then the obtaining of material becomes a little more complex.

From David Roscoe we have just learned of how this can be accomplished without any great difficulty. Not long ago he was viewing the bubbling spring with the

farmer on whose property it occurs at Aria, King Country. Previously many dead shells of *Opacinucola* had been gathered from round the edges of the pool, but never a live one. Just how far down were they living?

Nearby a lengthy uprooted sapling, with a bushy tangle of fibrous roots still attached, seemed to offer possibilities. This was inserted into the mouth of the spring and pushed down as far as was possible, then dragged up against the edge of the hole. The tangle of roots collected a mass of weed and debris on the way up and when examined was found to contain quite a number of live specimens of *Opacinucola* - the first record of live specimens in the North Island.

\* \* \*

MOLLUSCAN AFFINITIES BETWEEN THE NORTH AUCKLAND  
AND NEW SOUTH WALES COASTS

R.C. Willan

It is well known that there is a high degree of endemism amongst the New Zealand molluscan fauna. The high proportion of native marine molluscs is the result of the long geographical isolation of New Zealand and the fact that the land mass is physically the most isolated in the world. And yet, moving up the coastline one encounters an increasing proportion of molluscs that transgress the geographical boundaries of the country. The distribution of some species extends northwards into the Pacific basin (Norfolk Island, Kermadec Islands); or to our nearest continent, Australia, to the east.

When in Australia in August 1975, I took special note of those species that also occur in New Zealand. On the New South Wales coastline I visited several beaches within the sphere of Sydney; from the classic collecting locality of Long Reef in the north, through the triple harbours of Sydney (Port Jackson, Botany Bay, Port Hacking) to Woolongong on the south Sydney coast. Over this range collecting methods varied from intertidal work on rocky and sandy shores to SCUBA diving to 12 metres. I did not sample depths greater than this, and therefore this report examines the similarities of intertidal and shallow subtidal molluscs, without reference to species living at greater depths that can only be obtained by dredging.

This small area of the eastern Australian coastline extends roughly through the same zones of latitude as the area between North Cape and the Bay of Islands in the north of New Zealand. I collected some forty marine molluscs which also occur in this region of northern New Zealand where they are indicators of the Aupourian faunal province. This province has the greatest number of marine species in the country, a conservative estimate of the total number occurring here is seven hundred. Therefore northern New Zealand shares only 6 percent of its marine molluscs with this equivalent region of Australia.

Some of the species I found do not appear to have been previously recorded as occurring in both countries, a few others are known from both countries, but I did not find them in New South Wales, eg Cypraea vitellus, Conus kermadecensis.

Below I have listed those species that I found in New South Wales and are also known in New Zealand. One difficulty in compiling such a list is that of nomenclature. In several cases the same species is known under different specific, and even generic, names by collectors on either side of the Tasman; in other cases later studies have shown that earlier names are incorrect. Therefore in the list below I give the most recent names for all species, old names that are still recognized by New Zealand conchologists are given in brackets.

List of Species:

- Sypharochiton pelliserpentis (Quoy & Gaimard)  
Scutus breviculus (Blainville)  
Montfortula rugosa (Quoy & Gaimard) (= M.chathamensis  
Finlay)  
(= M.lyallensis  
Mestayer)  
Nerita atramentosa Reeve (=N.melanotragus (E.A.Smith) )  
Planaxis brazilianus (Lamarck) (=Hinea braziliana  
(Lamarck))  
Zeacumantus subcarinatus (Sowerby)  
Philippia lutèa (Lamarck)  
Janthina violacea Roeding  
Janthina exigua Lamarck  
Trivia merces (Iredale) (= Ellatrivia memorata Finlay)

Polinices (Mamilla) simiae (Deshayes) (= Mamilla simiae  
 (Deshayes) )  
 Phalium (Xenophalium) pyrum (Lamarck)  
 Phalium (Xenophalium) labiatum (Perry)  
 Tonna cerevisina Hedley (= T.haurakiensis Hedley)  
 Charonia rubicunda (Perry)  
 Cabestana spengleri (Perry)  
 Cabestana waterhousei Adams & Angas (= C.waterhousei  
 segregata Powell)  
 Ranella (Mayena) australasia (Perry) (= Mayena australasia  
 (Perry) )  
 Septa (Monoplex) parthenopea (van Salis & Marschlin)  
 (=Monoplex australasiae (Perry))  
 Austrotriton parkinsonianas (Perry) (= Austrosassia  
 parkinsoniana (Perry) )  
 Agnewia tritoniformis (Blainville)  
 Thais orbita (Gmelin) (= Neothais scalaris (Menke) )  
 Nassarius glans particeps Hedley (= N.particeps Hedley)  
 Eumitra carbonaria (Swainson) (=Vicimitra maoria Finlay)  
 Gadinia conica Angas (= Gadinalea nivea (Hutton) )  
 Bullina lineata (Gray)  
 Hydatina physis (Linnaeus)  
 Bulla quoyi Gray in Dieffenbach, 1943  
 Bulla subtropicalis Powell  
 Philine angasi Crosse & Fischer  
 Aplysia dactylomela Rang  
 Dolabrifera brazieri (Sowerby)  
 Elysia maoria Powell  
 Umbraculum sinicum (Gmelin) (= U.botanicum Hedley)  
 Berthellina citrina (Rüppell & Leuckart) (=Bouvieria  
 aurantiaca (Risso) )  
 Pleurobranchaea maculata (Q & G) (= P.novaezelandiae  
 Cheeseman)  
 Dendrodoris niger (Stimpson)  
 Chromodoris amoena (Cheeseman)  
 Aeolidiella takanosimensis Baba



*Mytilus edulis* Linnaeus (= *M. edulus aoteanus* Powell)  
*Xenostrobus pulex* (Lamarck) (= *Modiolus neozelanicus*  
(Iredale))  
*Limaria orientalis* (A. Adams & Reeve)  
*Offadesma angasi* (Crosse & Fischer)

In some species there is enough variation between Australian and New Zealand examples to warrant the creation of subspecific names for populations on the two areas; eg *Littorina unifasciata unifasciata* Gray in New South Wales, and *L. unifasciata antipoda* Philippi in New Zealand.

Some groups, while clearly derived from a common ancestor, appear to have formed genuinely different species on either side of the Tasman Sea; eg *Pteronotus eos* (Hutton) in New Zealand and *P. angasi* Crosse in New South Wales, *Macomona liliiana* (Iredale) in New Zealand and *Macomona deltoidalis* (Lamarck) in New South Wales.

Many species listed above are common in New South Wales, but range from very rare (*Cypraea vitellus*, *Nassarius glans particens*); to moderately rare (*Philippia lutea*, *Trivia merces*, *Eumitra carbonaria*, *Phalium labiatum*); to uncommon (*Agnewia tritoniformis*, *Cymatiidae*); to common (*Thais orbita*, *Nerita atramentosa*, *Zeacumantus subcarinatus*) in New Zealand.

Not only do abundances differ, but also adult sizes, diets and depths were found to be different for some species. To give examples of each:

1. Adult shells of *Agnewia tritoniformis* and *Bulla quoyii* reach a greater maximum size in New South Wales than in northern New Zealand, mean size analysis also favours New South Wales populations.
2. The main food of the trumpet shell *Cabestana spengleri* in New South Wales is the large solitary ascidian *Pyura praeputialis* (kunjevoi); this species does not occur in New Zealand, so *Cabestana spengleri* must employ other sea squirts as a basis for its diet.
3. *Umbraculum sinicum* is not uncommon intertidally in New South Wales, although it is very seldom found in similar intertidal situations in northern New Zealand.

Out of the total of 43 species, 42 occur in the Aupourian province in New Zealand, also extending further south in decreasing proportions. The one anomalous

species is the fissurellid Montfortula rugosa; shells of this species have rarely been taken from the shores of Wellington and the Chatham Islands, more recently the species has been located alive at Kaikoura Peninsula (Dell, 1971). There is no easy explanation for its absence from the north of New Zealand. Montfortula rugosa favours similar environmental conditions to Scutus breviculus, although it occupies a wider zone on the shore, extending higher than Scutus. Since Scutus thrives in the north of New Zealand, one would expect Montfortula to exist there too, but so far not even a single dead shell has been located. Perhaps living specimens will be found in the future.

A few thoughts on the reasons for these joint occurrences can be added to complete this article. From the list of species it is clear that there is a bias towards several groups; a group of tonnacian mesogastropods (Cymatiidae, Tonnidae, Cassidae) and an opisthobranch group. Together these two groups account for 53 percent of the total species found jointly in both regions. Other important families (Buccinidae, Columbellidae, Marginellidae, Olividae, Turridae) completely lack species in common, and the classes Bivalvia and Amphineura have hardly any species in common.

Groups such as the Mesogastropoda and Opisthobranchia are known to have large numbers of species which possess wide distributions, so it is no great surprise to find species of each group occurring in New Zealand and New South Wales. The cause for their co-occurrence is found by examining the life histories of such species. Both groups have long-lived planktonic larval stages (up to 138 days in Septa parthenopea (Scheltema, 1971), which can therefore survive transportation by water currents to float across seas from one continent to another, for example from New South Wales to New Zealand. Metamorphosis takes place only when a suitable rocky habitat is encountered. Two lines of evidence suggest that the migration route from Australia to New Zealand is more probable than the reverse journey; firstly this is the prevailing direction of the east Australian current; secondly many of the species only occur in the north of New Zealand, this being on the periphery of their distribution range. If a reverse colonization were taking place, the species' distributions would be expected to be more extensive in New Zealand. For some species, the range extension to northern New Zealand may perhaps have occurred in quite recent times. To cite a single factor from the dozens of potentially limiting physical and biological reasons

that could allow recent spread: it is possible that warmer water temperatures permit colonization by species that have been excluded previously by lethally low temperatures. And indeed there has been a significant rise of 1 to 2 degrees in New Zealand's temperature over the past five years (Paul, 1975).

After reaching New Zealand, providing conditions are amenable to settlement and growth, a few individuals would establish and form reproductive populations which would then become self-sustaining in northern New Zealand. For every single larva that reaches the shores of a new country, many thousands must perish during ocean crossings. Not only do most members of these groups of widespread species have long-lived larvae, but also they have broad dietary ranges which do not restrict their occurrence to localities where their 'natural' food already exists.

This same method of chance larval transport probably accounts for the joint occurrence of most of the other species besides those of the mesogastropods and opisthobranchs, and explains why molluscs that have short episodes as planktonic larvae (Amphineura, Trochidae) or direct development (Buccinidae, Columbelloidea, Volutidae) have so very few species in common.

#### References:

- \* Dell, R.K.        1971    The Rediscovery of Montfortula (Mollusca: Fissurellidae) in New Zealand. Records of the Dominion Museum, 7(5): 37-41, figs 1-6
- \* Paul, L.J.        1975    Presidential Address, N.Z.M.S.S. N.Z. Marine Sciences Newsletter, 18: 5-7
- Scheltema, R.S.    1971    Larval dispersal as a means of genetic exchange between geographically separated populations of shallow water benthic marine gastropods. The Biological Bulletin, 140(3): 284-322

## NOTES in GENERAL

\* Geoff Foreman, Wairoa, writes:-

Our trip to Stewart Island was certainly worthwhile. We were kept very busy looking for shells and found plenty which were new to us. The thing that impressed me the most was the profusion of life, including seaweeds which extended from above high water down. A few items of interest were the finding of Astraea heliotropium alive, in a couple of feet of water at Port Adventure. All were very large specimens, as were the paua and pipis.

Kelp holdfasts also revealed some interesting shells, especially the Margarella rosea which I found quite fascinating. Unfortunately we could not find any Kerguelenella stewartiana, a species I was keen to get. I found one specimen of Xenophalium harrisonae washed up, and this was very welcome.

\* A further live specimen of Fusinus genticus was washed up a while back, on Great Exhibition Bay. It wasn't during a great storm either!

\* During a week's stay on Cuvier Island, Hauraki Gulf, in November 1975, Mr Bob Penniket was able to spend some time collecting small snails. The ground was rather dry and suitable areas for landsnails were rather scarce. The species obtained are listed:-

Lighthouse Hill:	<u>Therasia ophelia</u> (Pfr.)
	<u>Phenacohelix ponsonbyi</u> (Suter)
	<u>Charopa coma coma</u> (Gray)
Keeper's Garden:	<u>Thalassohelix zelandiae</u> (Gray)
	<u>Charopa coma coma</u> (Gray)
	<u>Mocella eta</u> (Pfr.)
In bush:	<u>Therasia decidua</u> (Pfr.)
	" <u>ophelia</u> (Pfr.)
	<u>Sutera ide</u> (Gray)
	<u>Therasiella tamora</u> (Hutton)
	<u>Phenacohelix ponsonbyi</u> (Suter)

Several specimens of Rhytida greenwoodi (Gray) were also found. These are of the variety with a pale base and seem to have a drooping whorl which accentuates the spire height. See figs. below.

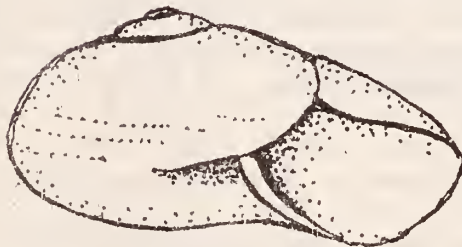
The examples of Phenacohelix ponsonbyi have the spiral ribbing spaced a little wider than is usual.



Cuvier Is. 0 ←



Cuvier Island.



Coromandel.

OUR SIPHONARIA, BENHAMINA and KERGUELENELLA

N.W.G.

Northern collectors are inclined to take for granted our solitary species of Siphonaria which occurs on high tidal rock faces around the northern beaches. However, if you live about the southern part of the North Island or in the South Island, you will have three species of these pulmonates present in suitable areas, and one of these is the distinctive Benhamina obliquata (Sowerby) which can reach 2 $\frac{3}{4}$ " in length (68mm) - a large size for this family. The underside of this shell is usually a warm flesh colour with some dark brown pigmentation.

The colour varies somewhat, and some are greyish brown. In very clean specimens the radiating ribs on the outside are a little raised and marked out in white with darker interstices.

Apart from Siphonia australis (Q & G) (the species which occurs up this way and which for years we called zelandica before it was relegated to the synonymy), there could be present in southern areas the smaller S.cookiana. This is placed in the subgenus Simplisiphonaria Hubendick 1945. It differs from australis in being about half the size, rather circular in shape at the lip, and with a fairly high subcentral apex in adult shells. Whitish around lip with the interior purplish brown.

It is the genus Kerguelenella, however, which I find most intriguing, perhaps because I have not yet been able to find them and see them in their normal habitat. This species is to be found only well to the south - occasionally on Stewart Island, and around the Southern Islands.

These fascinating little pulmonates do not grow to any size and a  $\frac{3}{4}$ " (18mm) specimen would be a big one. As they have the apex of the shell almost above the margin, they look a little like a small Zeacrypta. The sculpture of K.stewartiana consists of radiating ribs of brown on a lighter background. I have been told that on Stewart Island they are to be found on intertidal rock faces generally near high tide level, sometimes in groups, but on the whole are rather uncommon.

Besides K.stewartiana, which also occurs at the Snares and Bounty Islands, there are several other species of this subantarctic genus - amongst these are K.flemingi Powell, Auckland Islands, and K.lateralis macquariensis Powell from Macquarie Island, as the name suggests. (Lateralis in typical form, incidentally, is found around the Straits of Magellan and South Georgia.

Reference:

Powell A.W.B. 1955 Mollusca of the Southern  
Island of New Zealand.  
Cape Exped.Series Bull.No.15, DSIR.

\* \* \* \* \*

FIELD TRIP, TAURIKURA 21-3-76

It is now ten years since the Section spent a weekend at Taurikura, Whangarei Heads. Twenty-five members assembled at the Baptist Camp to investigate the local molluscan fauna during very low tides on March 21st and 22nd.

At the western end of the bay a small island lies just offshore with a narrow, shallow channel of 100 metres or so, which is about knee deep or less during very low tides. This was the area which created most interest, as it was found to contain a most interesting assemblage of bivalves - species which generally are not easily obtained alive in such shallow water. The substrate was inclined to be rather rubbly but with a considerable amount of sand. Scattered about were larger rocks.

It was interesting to fossick in this area again and compare our observations with those made ten years ago.

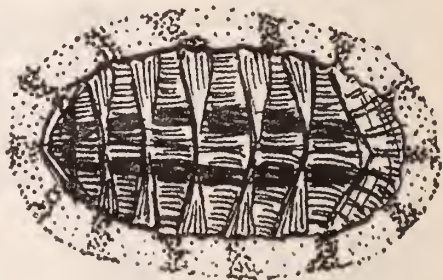
Dosinia maoria was found to be living in reasonable numbers - in fact, they appeared to have increased considerably since our last visit and everyone was able to collect any amount of fresh dead specimens. It was the first time many of us had seen the habitat of the live specimens.

Gari stangeri must exist in some numbers - very strongly coloured shells. A few G. lineolata were also present. These were patterned and coloured far more like southern specimens than the usual northern shells.

Venericardia purpurata were quite numerous, along with Glycymeris laticostata and G. modesta. The former had brightly coloured shells but were not of great size, though old dead specimens were enormous and often sheltered Trochus tiaratus in this area.

The small 'orange pip' shell, Notocorbula zelandica, exists in great numbers amongst the rubble and seemed to have increased greatly over the last few years. Several live Phenatoma novaezelandiae were found in a soft sandy situation at water's edge and also Myadora striata and boltoni. Pale coloured Baryspira australia and odd specimens of Pupa kirki and Baryspira novaezelandiae were seen but were very scarce even in dredgings, though previously Pupa kirki in particular had been very common. We saw very few Nucula, which was surprising.

On the sheltered side of the island life is abundant among the stones. Murexsul octogonus, Struthiolaria vermis and Dosinula zelandica were there and quite large colonies of Limaria orientalis which are recent arrivals here.



Aulachiton haurakiensis.  
Mcstayer.

The outer side of the island is rocky with large boulders which can be turned over. This seemed to be an ideal area for Buccinulum species, but, strangely, specimens were extremely scarce. There were a few Chlamys zelandiae and some fine examples of the 'Arca' Barbatia novaezelandiae, along with large numbers of the solitary coral Flabellum.

Eudoxochiton nobilis were of great size though not numerous. A single specimen of Aulachiton haurakiensis found under a rock at mid tide level measured 57mm - quite the largest of this species we have seen. At extreme low tide level a few Cellana stellifera were clinging to the rocks.

Dredgings produced fewer species than previously. Very few Pupa kirki, Nucula or Maoritomella albula were seen, but large numbers of Notocorbula along with a few Crosseola.

A brisk walk along the Ocean Beach was made by several members and all came back with a number of fine live specimens of Janthina globosa which were washing in with a few J. violacea and exigua, along with the usual Spirula spirula shells. Several other nearby bays were visited by some folk, who reported they had seen several Cymatiids flourishing among the boulders, but it appeared that oil spills had affected some areas where the sandy mud had become black and evil smelling, and only a few very hardy molluscs continued to live.

E.N.G.

\* \* \* \* \*



ABOUT THE GENUS MARGARELLA Thiele.

N.W. Gardner

The small but attractive species of the genus Margarella (Stomatellinae) are inhabitants of the cold southern seas, but we are lucky in having several species living around the coast of Southland and at the Chatham Islands. Even so, many of our members will not have had the pleasure of searching for them along the rugged shores. Apparently, not all the species have the same sort of habitat.

Margarella rosea Hutton,

is the species associated with the holdfasts of the giant kelp, D'Urvillea. It burrows right into and under these large holdfasts and in doing so, makes for itself a safe retreat from the pounding surf. Sometimes there is a cluster of specimens sharing a home with others, including several species of Chiton.

The shell of M.rosea, which grows to 11mm, is generally white or greenish with 4 or 5 blood-red spiral bands and shots of the same colour on the last whorl. There are 5 whorls, the last being rather large.

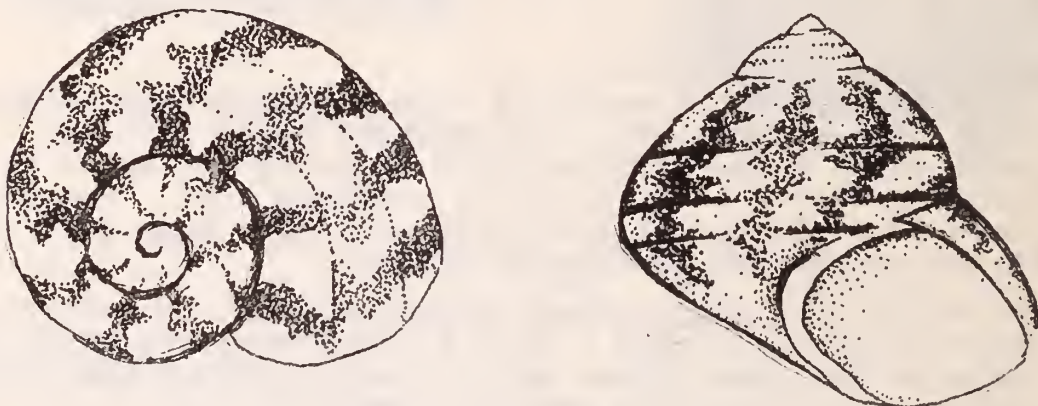
It occurs at Kakanui; Otago Peninsula; Cape Saunders and Shag Point, but is more frequently seen at Stewart Island; also recorded from the Snares . . . . .



Margarella turneri Powell

Always found on seaweed covered rocks near low tide at Stewart Island. It has been recorded from Ulva Island, Patterson Inlet and from Ringaringa.

This species has a constant colour pattern of purplish brown axial bands. It is more turbinate in shape than M.rosea and has a proportionally smaller and more circular aperture. Ground colour is pale cream with a trace of greenish iridescence. Two pink spiral lines on the spire whorls.



---

Margarella puysegurensis Powell

Differs from M.turneri in being a little more depressed, having an umbilical cleft, a different colour pattern and in being of consistently smaller size. It is smooth and polished except for a few sub-obsolete basal spirals.

Colour pattern consists of broad pink spirals or wide, zigzag, dark purplish to greenish brown axial bands, so merged that the shell appears almost uniform by dark. The type locality is Sealers Beach, Puysegur Point, South-west Otago. It is found in seaweed in rock pools near low tide. Size up to 9mm. Illustration : page 57.

---

Margarella fulminata (Hutton)

From the Chatham Islands, this species is brightly coloured, and can be pink, orange, purplish or brown, but usually has a series of white blotches alternating with dark ones below the sutures.

Size up to 8mm. Shell sand from the Chatham Islands

Margarella fulminata, continued:

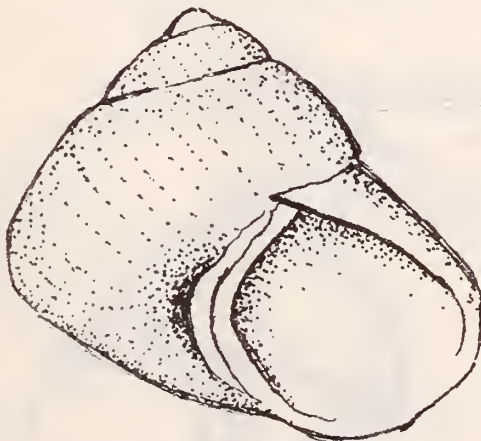
...invariably contains numbers of this species.



Margarella antipoda Hom & Jac.

The predominant colour of this species is dull brown, leaden purple with a white parietal callus and iridescent green within the aperture. Shell small, with compact whorling resulting in a relatively small circular aperture.

Type locality is Auckland Islands, but it also occurs on Campbell Island, Antipodes, where it is found on small algae in low tidal pools.



Margarella hinemoa Pcell

Has the shape of rosea combined with a deep umbilical cleft and a perforation which is more open than in antipoda. Colour - buff to light brown with two narrow red spiral bands on the upper surface of the whorls. Interior of aperture iridescent.

Size 9.5mm.

Found at Ringdove Cove, Antipodes (under stones and holdfasts of D'Urvillea R.K.Dell 1950).



Margarella macquariensis Hedley

This species grows a little larger than all the previous ones (14mm), and lacks any distinctive colour pattern. The shells are most uniform flesh colour or a very light grey.

It occurs at Macquarie Island under stones at low tide and also in deeper water (Lusitania Bay in 67 metres) BANZ.ARE Exped.1930). (Not illustrated).

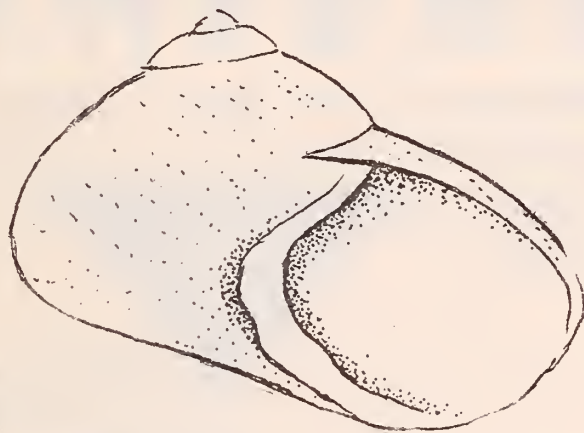
Margarella puysecurensis Powell.

See page 55.



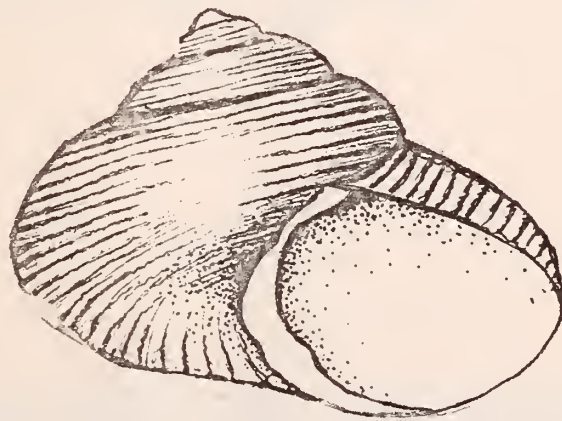
Margarella expansa Sow.

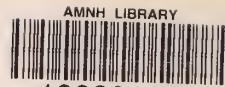
A pale creamy species of up to 15mm from Kerguelen Island. It has a fairly depressed profile, and like most species, lacks any noticeable sculpture. Examples before me are from Royal Sound, Kerguelen Island, apparently dredged from 1 - 5 metres.



Margarella (Promargarita) tropidophorsides Strebel

Is of similar shape to the previous species, but larger and light brown in colour. It has quite distinct spiral sculpture, but this is not regular in strength. Occurs at South Georgia. Specimens before me are from Cumberland Bay in 26 -18 metres (Discovery II).





100201095

NEW PAPERS

Identity of Penion dilatatus (Quoy & Gaimard 1933)  
(Mollusca: Buccinidae)

Note. W.F. Ponder.

N.Z. Jour. of Marine & Freshwater Research 9 (4), 69-71

Abstract:

Examination of the type of Penion dilatatus  
(Quoy & Gaimard) has shown it to be conspecific with P.  
adustus (Philippi 1845); over which it has priority. The  
next available name for dilatatus auct. is Penion cuvierensis  
(Powell 1927).-

( alas this means you will now have  
to re-label your specimens of adusta  
to read Penion dilatatus and your  
specimens of dilatatus to P. cuvierensis. Ed.)

-----

Editors :  
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Birkenhead  
Auckland 10  
New Zealand.

2701.16

# POIRIERIA



Vol. 8. Part 4. August 1976.

CONCHOLOGY SECTION  
AUCKLAND INSTITUTE & MUSEUM

# FOURTEEN



CONCORD  
AUCKLAND



CYCLOMACTRA TRISTIS Reeve, 1854, LIVES IN THE MANUKAU HARBOUR

Norman Douglas

Although shells of *Cyclomactra* sometimes litter our shores, and at least three forms have been named as species from the New Zealand scene going back to as far as the Pliocene, these molluscs appear to have excited little reaction from both our malacologists and shell collectors alike. Relevant literature is scarce. Perhaps their drab, chalky-white shells do not impress, or maybe their favoured habitat fails to invite! In any case, the author of this article is still very ignorant about them. I trust you will be indulgent. To me *Cyclomactra williamsi* (Marwick, 1948) is just another name in the fossil book and, until recently, *Cyclomactra tristis* was another fossil-like shell found when farmers dug wells in the Aka Aka swamp, or channels were cut through Manukau Harbour mudflats. I had not thought of it as a living species. And indeed it may not be anything more than an ecological form, for all I know. On the other hand, *Cyclomactra ovata* (Gray, 1843) is common enough. It is easily found living at low tide, buried in the sandy mud of harbours and other sheltered waters. At one time Maoris could be seen gathering this 'Kuha Kuha' for food.

A find

And so back to our intriguing *tristis*. On 8 September 1975, I noticed a *C. tristis* shell at Te Toro, Manukau Harbour, and the valves were still connected by the ligament. Obviously this was not a sub-fossil shell, thousands of years old. But it did seem out of station - just sitting there alone on shelly mud at low tide. Where had it come from? Surely some must live near at hand.

Dragline

In November 1975, a dragline machine began spasmodic work extending the foreshore near the Waiuku wharf (extreme southern reach of the Manukau Harbour and about seven miles from Te Toro). The scoop was swung out into the deep soft mud, dragged in, and the mud spread along the bank edge to dry and harden. Hundreds of the old *C. tristis* shells could be seen in this mud, as usual, looking very dead. Can you imagine the interest sponsored by sighting a shell with periostracum showing along the outer edge! And the thrill of finding two with some of the soft animal matter still inside the shells! The home of *C. tristis* was

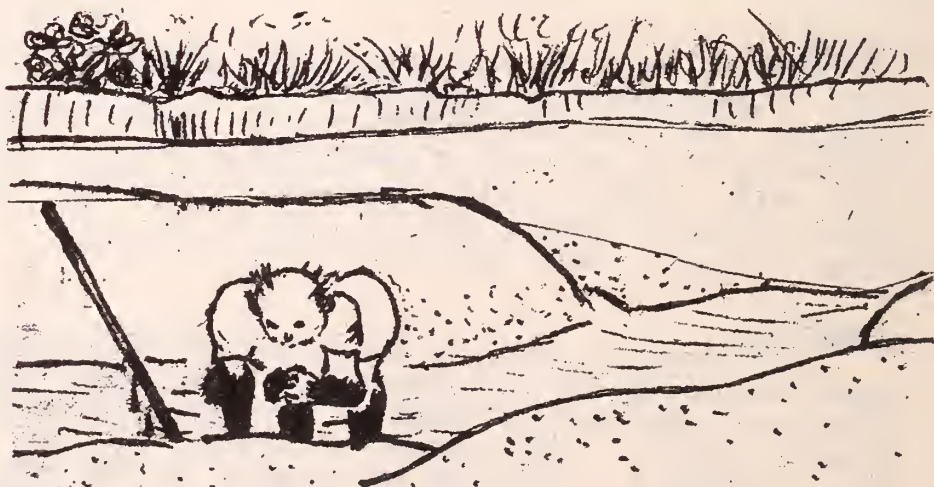
disclosed. But what a place to live in! What a spot to invite a collector! One can almost disappear into this soft high-tidal estuarine grey mud! Take care!

"It's in the Bag"

On 30 March 1976, the author came out with a smile and over twenty live specimens. These were extracted by long-handled shovel and hand-scooping the soft black ooze. One-inch long specimens were found to be buried about six inches, while two-and-a-half-inch ones were at least a foot beneath the surface. It was found that their siphons can be extended at least six times the length of the shell!

Tidal coverage

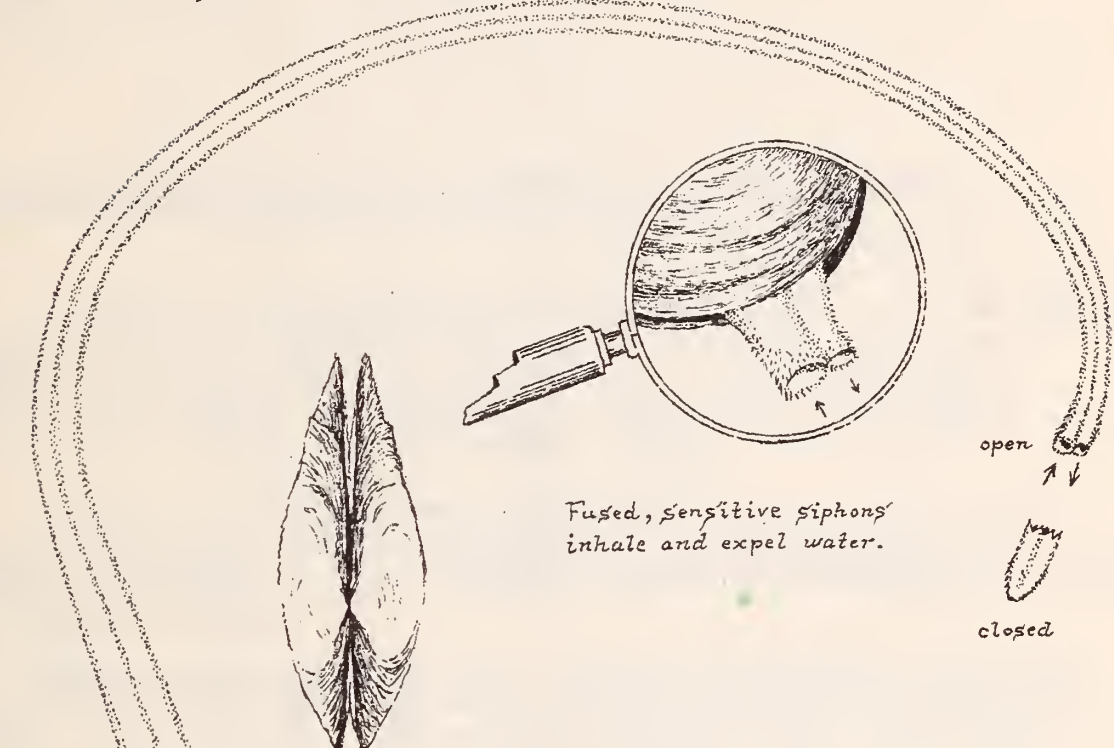
On 5 May, the incoming tide rose to the point of creeping across the C. tristis bed at 1.15pm. High tide was around 2.50pm there at the Waiuku wharf. This means the C. tristis have about three hours of water coverage, whereupon the tide leaves them for approximately nine hours before a repeat process takes place. In other words, the mud is exposed to the air for eighteen hours per day. In summer the midday sun must beat long upon the exposed mud; in winter a cold vice versa would take place. Perhaps the deeper in the mud the shells live, the more even the temperature experienced. The deeper a shell lives, the longer its siphons need to be. And so we shall leave them - leave them to live down there in the deep high-tidal ooze amongst the crabs and slender, slippery yellow eels.



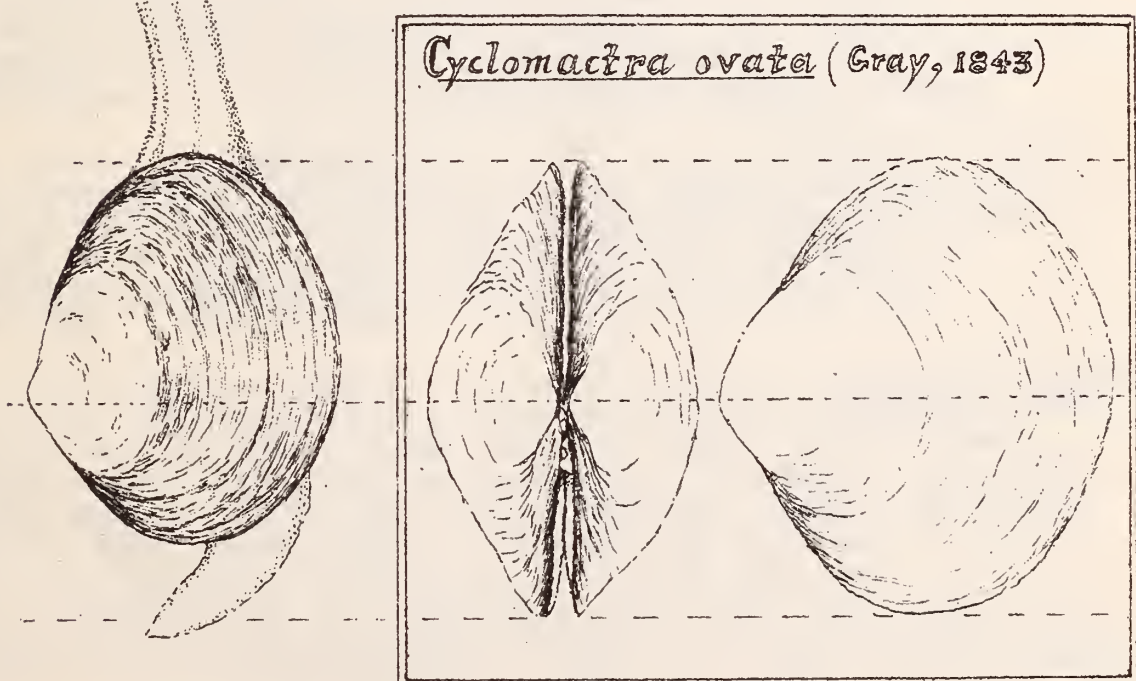
Soft grey mud on top, black underneath.  
Watch your step! You may disappear!  
Digging Cyclomactra tristis Reeve, 1854.  
Alive. Alive Oh!

26-3-76. N.

Cyclomactra tristis Reeve, 1854.



Cyclomactra ovata (Gray, 1843)



Some Manukau Harbour specimens for comparison.  
Illustrated natural size by shell-tracing and by caliper.

Norman Douglas 30-6-76.



Cyclomactra ovata shells are heavier and more inflated than C. tristis, although less inflated specimens from unknown stations are sometimes found ashore. Apparently C. ovata is not so uniform. The ovata hinge is set further back and the hinge-teeth stronger than for tristis; also the pallial sinus is shallower, no doubt to match its shorter siphons.

\* \* \* \*

### AN UNRECORDED PATELLID LIMPET FROM AMERICAN SAMOA

N. W. Gardner

A number of specimens of a Patellid limpet of the genus Cellana were collected in 1975 by Mr L. Price on Manua Island, American Samoa. The species is an unrecorded one for this group of islands; in fact, it would appear to be quite foreign to the marine fauna of this area.

Limpets previously recorded from here are not particularly impressive or numerous - just three species: Patella flexuosa (Q & G), Cellana radiatus orientalis Pilsbry and Cellana pricei Powell.

Cellana testudinaria Lin., which occurs over much of the Pacific, does not appear to extend eastwards as far as Samoa. It is known from New Hebrides and New Caledonia with a related species, vitiensis Powell, from Fiji Is. It is with testudinaria that this Samoan occurrence is best used for comparative purposes. The Samoan specimens are fairly small, more elongately oval, lower in profile, and with much finer closer radial ribbing.

While testudinaria has a mottled grey colour pattern, the unrecorded species has a series (about ten) of reddish, fairly wide colour bands, radiating from the apex. The spathula is dark brown, rather long and "pinched in" laterally under the apex. Size of largest specimen available - 40mm x 21mm.

This species appears to be identical to Cellana toreuma (Reeve, 1855) which hails from the Northern Hemisphere and has a distributional range which includes Japan, Taiwan, Philippines, China and the Marianas. The Samoan specimens match very well the fine ribbed examples figured by Powell in his Patellid monograph (Indo-Pacific Mollusca, Vol.3, No.15, Plate 138). Size, too, is about average. The occurrence of this species so far South and West of its usual distributional zone can hardly be a natural one, and with its recent appearance in Samoa one might well ask "Why?"

Dare one suggest, again, that shipping could have been instrumental in this transportation? This is, of course, the area in which Japanese tuna fishing boats are based and where they offload their catches for processing.

Mr L. Price states that the specimens he collected were on smooth boulders at extreme low tide at Malisinalau Point on the West coast of Manua Island. He did not see it elsewhere in this group.

This species appears to be a foreigner in these parts and it would be of interest to record its progress or decline over the next few years.

Reference: Powell A.W.B. 1973 The Patellid limpets of the World. Indo-Pacific Mollusca, Vol.3, No.15

\* \* \* \*

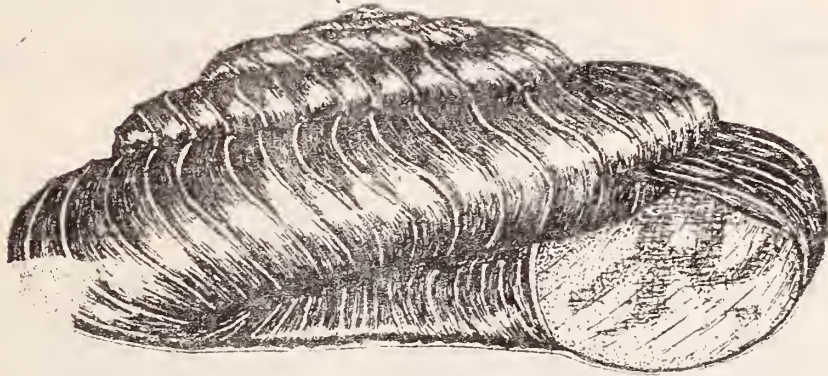
CHAROPA COMA (Gray) - ONE OF OUR SMALL LAND SNAILS

N.G.

Henry Suter states, in his manual, that the small land mollusc, Charopa coma (Gray) "is the most common of our land snails living under bark, wood and dead leaves in native bush". Although reasonably common, this could perhaps be refuted, for some of the even smaller species exist in really great numbers through the leaf litter of the bush floor - every square metre seems to hide scores of tiny specimens no larger than 1.5mm. These, of course, are the Paralaoma snails, and hard they are to see, with the naked eye!

Charopa coma grows to a much larger size - sometimes to 8.0mm, so is easily seen in the places mentioned above, but especially under the bark of rotting logs. This seems to be a favourite haunt of this particular species and half a dozen specimens may be found grouped fairly closely together.

It is not seen so frequently in leaf litter of the bush floor, just occasional specimens, but seems to exist in greater numbers in more scrubby, fringing areas, though here it is harder to detect. On several occasions I have walked over a farmer's fresh burn of hillside scrub. Each time, in the remaining black ash, there have been hundreds of burnt, powdery remains of Charopa coma shells - far more than one would expect in such scrub and bracken fern.



The above illustration, by J. Goulstone, is of a specimen 6.5mm in diameter from Garden Pt., Te Anau - one of 30 found under one log. Distribution is from Northland to Stewart Island. The species has been written up in detail by Cumber 1962 and Climo 1970.

Dr Cumber suggests that the bimodal riblet frequency pattern within the species noticeable in the Manawatu area population may have paleo-geographic significance - the population may have become separated into North and South zones by the Pliocene depression which produced the "Manawatu Straits", later to be reunited after a period approaching that necessary to permit productive isolation. Result would appear to be - two distinct forms of C. coma within this area.

Dr Climo, in his more recent Revision of the Genus Charopa, considers that, on the basis of riblet frequency counts, which are very variable, pseudocoma Suter and multicostata (Murdoch) are best included within the species coma.

References:

- Climo F.M. 1970 A Revision of the Genera Charopa Albers, 1860 (excluding sub-genus Ptychodon), Phenacharopa Pilsbry, 1893 and lammocharopa N.gen. (Endodontidae, Endodontinae). Rec.Dom.Mus. Vol.6, No.18
- Cumber R.A. 1962 Paleographic History Trends in Speciation Trends of the New Zealand Ribbed Pulmonate Charopa coma (Gray) (Charopidae). Trans.Roy.Soc.NZ.Zoo.Vol.1, No.30
- Suter H. 1913 Manual of New Zealand Mollusca Govt. Printer

\* \* \* \* \*

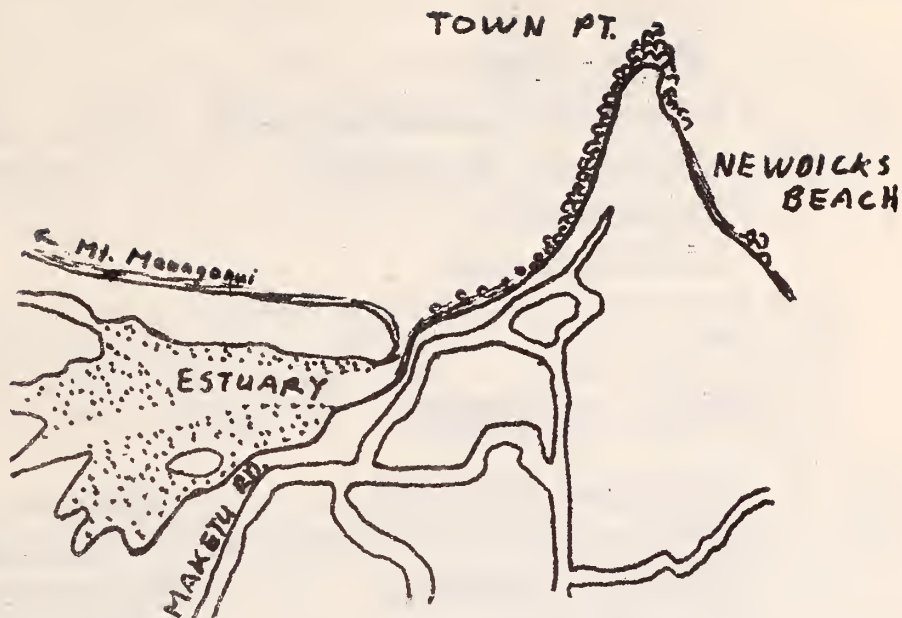
SHELLS FROM MAKETU

Hamish Spencer

Many members will have hunted for shells at Maketu, which is about 25 km. from Mt Maunganui, as the crow flies. Maketu is a very interesting collecting spot, in that there are three distinct environments within five minutes' walk of each other.



KEY  
 ~~~~~ rocks  
 ~~~~~ mud flats  
 ~~~~~ sand



The first area one comes to is the estuary of the Kaituna river. At low tide there is a large expanse of mudflats from which the evening's meal of tuangis may be gathered. Found here are large colonies of:

Amphibola crenata

Mactra ovata

Ophicardelus costellaris

Baryspira australis

Cominella glandiformis

Cominella adpersa

Macomona liliana

Zeacumantus lutulentus

Washed down the river are:

Hyridella menziesi

Potamopyrgus corolla

Melanopsis trifasciata

The open sand beach is the most difficult area to get to. One must wade across the sand bar over the river mouth at low tide to reach an island created by the man-made Kaituna Cut in the direction of Mt. Maunganui. Here there are:

Phalium pyrum ( nice large specimens )

Phalium collecta ( the odd one )

Zethalia zelandica

Struthiolaria papulosa

Zenatia acinaces ( paired valves with animal still inside. )

Resania lanceolata ( - ditto - )

Dosinia anus

Tawera spissa

Amphidesma subtriangulatum (again, enough for tea)

Glycymeris laticostata (not eroded)

Bassina yatei

Spirula spirula

The rock pools stretching towards Town Pt are frequented by the locals on their way to the mussel beds. Perhaps the rarest shell I have found here was a broken specimen of Eumitra carbonaria. (I keep hoping for a whole one). Also living here are:

Cominella maculosa

Cominella virgata

Thais orbita (small specimens) Haliotis iris

Haliotis australis

Haliotis virginea crispata

Cellana ornata

Cellana radians

Lunella smaragda

Lepsiella scobina (small)

Cantharidus purpureus

Cantharidus opalus (big)

Ranella (Mavena) australasia Anisodiloma lugubris (large)

Emarginula striatula

Murexsul octogonus

Nerita melanotragus

Melartharpha oliveri

Buccinulum vittatum

Buccinulum pallidum powelli

Sypharochiton pelliserpentis

As can be seen, there is a wide variety of shells to be collected at this beach resort.

\* \* \* \*

### NOTOCOCHLIS MIGRATORIA Powell

The first specimens from New Zealand were collected by Mr La Roche, back in 1925, from the sand banks of Parengarenga Harbour. Shortly after, he reported finding about 20 specimens, cast up on a beach in the same harbour.

In view of this, it would seem that this mollusc still occurs there in similar numbers today. At the present time the species can be seen alive quite frequently; on the Zostera-covered banks which are exposed at low tide - or more especially in the shallow pools or in places where there is still an inch or two of water. Here they can be observed crawling along. Once the water goes, they dig in until the tide starts to come in again.

On a recent Club trip, about 30 specimens were seen and the flat, almost circular egg masses were not uncommon.

It seems that Notocochlis migratoria occurs in two colour forms. On the pale shells, which have a pink tinge, there are usually two narrow spiral bands around the body whorl. Sometimes these are cut up into a chevron pattern. Other specimens are grey, sometimes dark grey, over the body whorl except for a distinct white umbilical zone.

\* \* \* \*

### ITEMS OF INTEREST

- \* \* The recent survey of bottom fauna off Wanganui and Cook Strait areas, carried out by the National Museum, had some surprises apparently - for Bruce Marshall writes:  
"On the West Coast we did 6 or 7 stations on hard Bryozoan bottoms off Wanganui. I have only sorted one of these as yet and it contained twelve Pterynotus zelandicus. We estimate, from the size of the samples we got ( $\frac{1}{4}$  ton at a time), that we threw about 200 specimens over the side !"
  
- \* \* If live taken rare tropical specimens such as 'Glory of the Sea Cone' are out of your reach, maybe this would be the next best line of approach:

#### Santo's Sea Shell Fossils

A recent discovery of fossils in the New Hebrides would have gladdened the heart of the most discerning palaeontologist. The best site, on South Santo, yielded particularly good fauna, including more than 100 species of molluscs, as well as corals, sea urchins, crabs, bryozoa and foraminifera. Preliminary examination by experts at the United States National Museum suggested that the shells were unlikely to be less than 50,000 years old; they could be as much as 1 million years old.

The first sampling of the site indicated that the deposit was exceptional in that the shells were particularly well preserved. For example, wrote Dr D.I.J. Mallick, senior geologist, in spite of the shells being true marine fossils found some kilometres inland, the colour markings of some specimens were still visible. Also, the delicate spines on some of the murex gastropod shells were preserved undamaged.

More extensive sampling of the site produced some particularly rare shells, including the Glory of the Sea and others, not previously recorded as fossils or previously known in the New Hebrides, although a number

of specimens had been collected live in the Solomon Is. The rarest of the shells identified was the Cypraea porteri, previously known only from one solitary specimen taken live in the Philippines. Other rare species include Conus sowerbii and Conus kimioi, which were usually only collected by dredging. This suggested that the deposits containing the South Santo fossils probably accumulated in fairly deep water.

The fossils were discovered during a mapping operation by the Geological Survey Department of the British National Service.

Pacific Islands Monthly  
February 1964

\*\* From R. C. Willan:

There is a correction to make to the note on feeding of Lyroselia chathamensis which appeared in the last edition of POIRIERIA (page 42). The sponge with which Lyroselia is constantly associated and from which it feeds is Cliona celata and not the related Polymastia granulosa.

Since the last edition of POIRIERIA where I first noted the association at Ti Point, I have now also seen it subtidally at three other areas around Leigh: Goat Island, Maori Island and Leigh Harbour. At these localities Lyroselia occurs in densities of two to four per square metre of Cliona which is less than that noted at Ti Point.

Cliona celata is a rock-boring sponge which first appears as a series of scattered yellow pustules, occasional Lyroselia can be found feeding on these discrete pustules. The pustules later coalesce to form the extensive yellow sheets which are so conspicuous subtidally.

\*\* Theora lubrica in Golden Bay, Nelson :

As part of a marine survey of Golden Bay, Nelson, in November 1975, Richard Willan obtained a large wooden crate of material taken by a scallop boat in a dredge hard off Pakawau. The material is normally returned to the sea minus the legal-sized scallops. The sediment was a fine mud with large whole and broken shells. Numerous live specimens of Theora lubrica were found in the mud of this sample.

Fortunately a list of molluscs dredged in Golden Bay was compiled before the 'Theora invasion'. Written by Miss Beverley Elliott, it appeared in POIRIERIA, Vol.2, Part 1, published early in 1964. The two lists, made from samples of the same ground taken eleven years apart, show almost complete overlap of 'native species', Theora lubrica is the exception.

Since the sudden arrival of this Japanese bivalve in 1972, Theora lubrica has subsequently been found in many Northland east coast localities, ranging from the Bay of Islands to the upper reaches of the Auckland Harbour, and, more recently, the Manukau Harbour.

\* \* \*

NOTES ON SOME EARLY WORKERS ON N. Z. CONCHOLOGY -  
from an article by T. P. Warren  
Reprinted from Conch. Sec. Auck. Mus.  
Bulletin No. 13, 1957

The first scientific collection of New Zealand shells was made during Captain Cook's first voyage in 1769-1770, the collectors being Sir Joseph Banks and Dr Solander. On the second voyage - 1773-1774, the collectors were Dr Reinhold and Mr George Forster. Shells were collected at Bay of Islands, Dusky Sound and Queen Charlotte Sound, some 40 or so species being collected and many were named by Thomas Martyn ("Universal Conchologist" 1784) and by Perry ("Conchology" 1811). A critical list and review of the shells was published in a German paper in 1872 by Dr E. von Martens. Some of our best-known shells were among the first collected, such as Maurea tigris, Cantharidus opalus, Haliotis iris, Cookia sulcata, Astraea heliotropium and Strutholaria papulosa, to mention but a few.

R. P. Lesson voyaged with Duperry on the ship "Coquille" during a world cruise which lasted from 1822-1825, and collected mollusca at the Bay of Islands in April 1824. Of the species described by Lesson in papers published between 1826 and 1832 on the results of this voyage, a well-known example is Sigapatella novaezelandiae.

From 1826-1829, Dumont D'Urville made his notable world voyage in the "Astrolabe" and accompanying him were the French naturalists Quoy and Gaimard, whose names are very familiar to New Zealand collectors by their adaptation to many genera and species, a fitting tribute to these pioneer workers whose published results show well their care and foresight. Their collections were made mostly at Queen Charlotte Sound, the Thames Estuary, some off-shore islands and dredge stations. Their shells are preserved in the Paris Museum.

In 1835, the Rev W. Yate, an intrepid missionary, sent a collection of 29 east coast shells to the British Museum, where they were catalogued by the Conchologist, Dr J. E. Gray, who described 10 new species. One of these is our well-known Venerid, Bassinia yatei, named in compliment to the discoverer.

An American expedition collected in New Zealand between 1838 and 1842. The conchologist of the party, J. B. Couthoy, fell ill during this time, and the shells were ultimately described by Augustus A. Gould in 1847-1848. Included in the species were numerous fresh water ones, and also molluscs from the Auckland Islands.

In 1840, Dr Dieffenbach collected at the Chatham Islands and the North Island and forwarded 58 species to Dr Gray who published a commentary with descriptions of new species in 1843. One is the Toheroa (Amphidesma ventricosum), others include Hyridella menziesi, Melanopsis trifasciata, and Sypharochiton sinclairi. This last was named after Dr Sinclair, whose collection of New Zealand shells was sent to the British Museum in 1842 by Dr Stanger.

The French ship "Astrolabe", accompanied by the "Zeelee", revisited New Zealand in 1841, calling at the Bay of Islands, Akaroa, Port Chalmers and the Auckland Islands. The records of the mollusca were written by Hombron and Jacquinet, the authors of Cellana strigilis and Margarella antipoda, two very characteristic Sub-antarctic shells.

A second expedition arrived in 1841 when the British ships, HMS "Erebus" and "Terror", commanded by Sir James Clark Ross, visited Campbell Island, the Auckland Islands and Russell. The mollusca were eventually published in 1874 by Dr E. A. Smith of the British Museum. As well as describing new species, Dr Smith at the same time illustrated some type specimens not previously figured.

During the years 1847-1849, HMS "Acheron" was engaged in surveying the New Zealand coastline and in 1849 the conchologist, Frederick Strange, visited the country aboard her, collecting at Auckland, Wellington and Banks Peninsula, as well as carrying out some dredging experiments. The collection was purchased by Hugh Cuming, a well-known conchologist of the period, and some new species contained in the collection were described by A. Adams and G. P. Deshayes in various numbers of the "Proceedings of the Zoological Society" published in the 1850s. Our prized Coluzea spiralis was amongst those described for the first time during this period.

Dr Greenwood collected some land mollusca near Auckland which were sent to the British Museum, and some were described by Dr Gray in 1849 ("Proceedings Zoological Society") and by Dr L. Pfeiffer ("Malak. Blatter"). Of the new species Rhytida greenwoodi perpetuates the discoverer's efforts.

The Austrian expedition on the frigate "Novara" arrived in 1859. Notable members were F. von Hochstetter, G. von Frauenfeld and J. Zelebor, whose names have been given to mollusca and also been adopted as place names, etc. in the Dominion. Collections made by them were worked on by Dr Pfeiffer and Professor W. Dunker in 1861, and by Frauenfeld in 1867. Some later lists published in 1869 are somewhat inaccurate as many of the shells are wrongly ascribed to New Zealand.

During 1874 and 1875, Drs Filhol and Krone collected at Campbell and Auckland Islands respectively, and subsequently Dr Filhol collected in several parts of New Zealand. The results were published in 1885, and some new shells described are, I understand, located in the Paris Museum of Natural History.

A notable event in 1874 was the visit of the famous "Challenger" expedition which carried out deep-sea dredging and trawling off the New Zealand coast and which produced many hitherto unknown species. The results of the expedition, which was a global one, were published in several volumes; and the mollusca were written up by several competent workers of that time, with each one doing a separate class, such as Smith (Pelecypoda), Watson (Gasteropoda), and so on.

Captain F. W. Hutton, who lived from 1836 to 1905, is regarded as the founder of New Zealand Conchology as we know it today. After active service with the British Army in the Crimea and India, he came to New Zealand as geologist to the NZ Survey. In 1873, he published a Catalogue of Mollusca, and in 1880 his "Manual of NZ Mollusca", both unfortunately without illustrations, though he did, however, realise the need for the introduction of new genera to accommodate the endemic fauna, and so introduced quite a few new names. A very capable and clever man with wide interests and vision, he named many new species of land and marine mollusca, and did much research into their dentition and anatomical details. Without the modern scientific aids we now have, his work is all the more to be admired. In 1876, Hutton became Professor of Natural Science at Otago University, and in 1883 Curator of the Canterbury Museum. One of his daughters became the wife of Mr John Grigg of the well-known Longbeach estate near Ashburton.

T. F. Cheeseman was a contemporary of Professor Hutton, and though primarily a botanist of international fame, he did some valuable work on mollusca in his early life. His anatomical work on Nudibranchiata is still taxonomically correct, and his other work continues to stand on its own merits. From 1874 until the time of his death in 1923, he was intimately connected with the Auckland Institute and Museum.

Henry Suter (1841-1918) came from Switzerland in 1886, and though a chemistry technician by profession, he tried farming for five years without much success. Fortunately he became a friend of Professor Hutton, who encouraged his studies of New Zealand mollusca and was able to aid him in finding more congenial employment. He was later detailed by the Government of that time to compile his "Manual of NZ Mollusca", for which he was paid £500 in three years, though the work actually took nearer six years to complete. The "Manual" was published in 1913, followed by the "Atlas of Plates" in 1915. Though both works are now out of date, especially regarding molluscan names, they are still a help to the amateur collector, and stand as a monument to a lifetime of careful research. After the "Manual" was published, Suter did relieving work at Museums and was later appointed Paleontologist to the Geological Survey, but unfortunately his work there was marred by many errors and has had to be subjected to very heavy revision.

During the early years of the present century, research and collecting were carried out by a number of people, all of whom did good work in various spheres. Notable among them were: Captain Bollons, of the Government steamers "Hinemoa" and "Tutanekai", who for many years collected and dredged in various parts of the Dominion, thus materially helping to increase our knowledge of species and their distribution; the Rev W.H. Webster who described many new species and did excellent work on small land snails; Miss M. Mestayer, who was for a number of years the Conchologist at the Wellington Museum, and whose work is since receiving the recognition it deserves; Mr W.E. La Roche, a marine engineer, who discovered many new shells in dredgings he made in the Aupourian marine faunal province; the Hamiltons, father and son, who will always be remembered for their Macquarie Island expeditions and research; Robert Murdoch, whose careful research and fine drawings make one regret that he was actively connected with Conchology for only a comparatively short period of his life. Two Australian conchologists of the period also considerably advanced our knowledge of New Zealand mollusca. These were Charles Hedley and Tom Iredale. Iredale's "Commentary" on Suter's "Manual" did a great deal to clear up much of the confusion surrounding New Zealand genera.



SOME NOTES ON THE TROCHOID GENUS THORISTELLA Iredale

N.W.G.

The four rather small species grouped in this genus are collectively dispersed over most of New Zealand from the far North to the sub-antarctic islands - from low tidal zones to moderate depths.

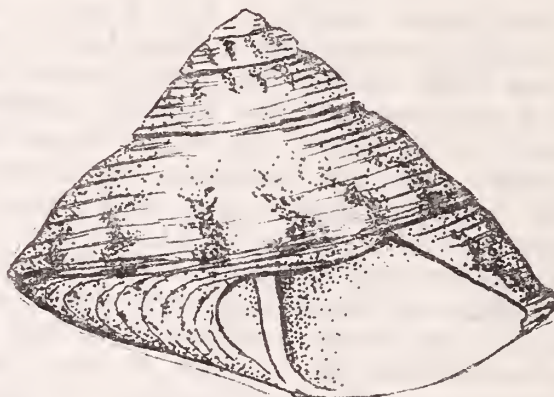
Three of the four species are found in Northern waters and collectors who have examined the underside of rocks at low tide along the Auckland East Coast will no doubt have come across the small, low-spired Thoristella opressa Hutton - sometimes three or four under one rock. Possibly our most common species, at least up this way, it seldom exceeds 8mm in diameter. This species exhibits quite a difference in colour pattern from place to place; normally it is dark olive brown, sometimes greenish, and this is especially so in specimens from the Bay of Islands area. Attractive yellow specimens occur at Leigh, while from Spirits Bay there is a fine colour pattern of brown axial markings on a pale buff ground colour. A solitary specimen which I picked up on Three Kings, N.W. landing slope, years ago, has a similar colour pattern.



The sculpture consists of fine and numerous spiral striations, with a pronounced shoulder below the suture. The umbilicus is typically open and funnel-shaped. Sometimes the spiral ribs on the base are somewhat granular.

Thoristella carmesina Webster

A rare species which is only occasionally seen in collections. Although still rather small (8 - 10mm), it has nevertheless quite an attractive shell of pinkish colour with radiating crimson streaks. Around the periphery of the body whorl there is a series of small, semi-circular, white "dots". The somewhat depressed shell is spirally striated.



The aperture is iridescent, umbilicus deep and extending up to the initial whorl; periphery more or less angled and the base almost flat.

The type specimen was found at Russell. Specimens have also been found at Cape Maria, Spirits Bay (Shell sand) and in the Whangaroa Harbour and Poor Knights dredgings.

Recorded by Suter in his Manual, from Cape Palliser, but this record probably refers to T. chathamensis cookiana Powell.

We are not aware of other records from outside Northland, but would like to hear of any.

Thoristella crassicosta Powell

Described from material dredged by R.R.S. Discovery II in 1932 off the northern extremity of New Zealand. A very scarce species, apparently restricted to the far North.

T. crassicosta.



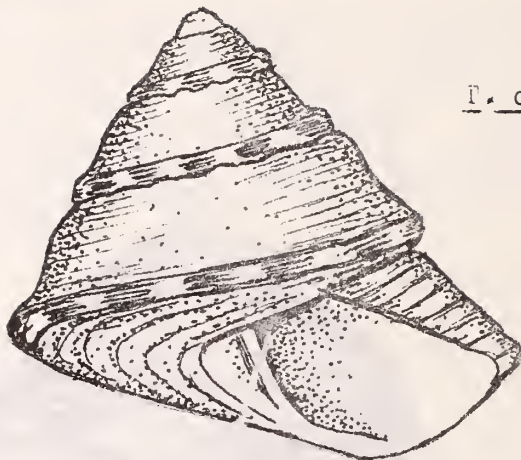
This is a small species, a mere 4.5mm in height. The shell is more conical in shape than the previous species, but still has an angulation at the periphery. Sculpture consists of a few quite strong spiral ridges. There is no umbilicus, just a callus area. Colour pale buff, with costal spaces light brown.

Thoristella chathamensis Hutton

The southern species of this genus, it has quite a wide distribution and a number of sub-species have been described.

Thoristella chathamensis chathamensis Hutton

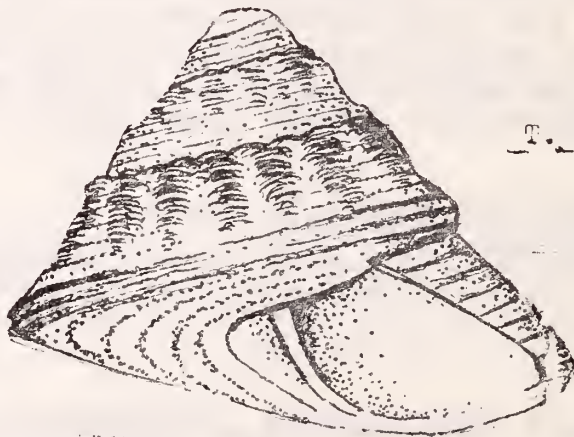
From the Chatham Islands and grows to 10 - 12mm. It is a keeled shell, with a thickened cord around the periphery and above the suture on earlier whorls. There is a shallow "false" umbilicus. Sculpture of 5 or 6 low spiral threads. White or buff ground colour with brownish markings.



T. chathamensis chathamensis.

Thoristella chathamensis aucklandica Smith

Occurs at the Auckland Islands (type locality), also Campbell Island, Bounty Island and the Antipodes. A small shell of 8 - 10mm, purplish or pink in colour, it has a sculpture of spiral threads on the body whorl; 8 above the angle of the body whorl and 10 or 11 on the base. Spire conical, higher than the aperture. Outline straight. Umbilicus covered.

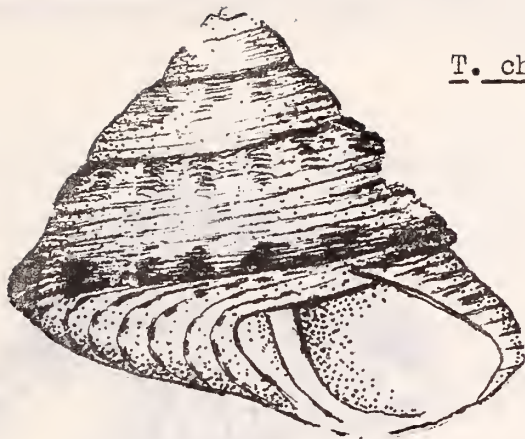


T. chathamensis  
aucklandica.

Thoristella chathamensis dunedinensis Suter

Said to be distinguishable from the typical shell in having the "cord" of the spire whorls less prominent, so that the last whorl is just slightly angled. This however, does not seem to be so, for specimens from Stewart Island do have a quite strong peripheral "cord". It is a fairly common shell in this area.

T. chathamensis dunedinensis.

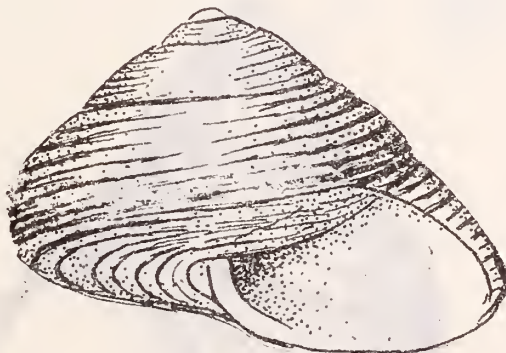


The spire is nearly always bright pink and the later whorls whitish or buff with irregular blotches of dark brown.

Thoristella chathamensis cookiana Powell

Occurs on both sides of Cook Strait, Island Bay, Wellington is the type locality.

"This sub-species is characterised by its fine, regular and numerous spiral cords, evenly conical spire with obsolete shoulder and no peripheral ridge".



T chathamensis  
cookiana.

Thoristella chathamensis benthicola Finlay

Usually tall spired, with the sides almost straight and only slightly stepped. The basal keel is strong.



There are some twenty prominent axial ribs, strongest below the suture. Buff or pinkish, without colour markings. This is from deeper water. The type locality is off Otago Heads in 60 fathoms.

Thoristella chathamensis profunda Dell

Differs from the other sub-species of chathamensis in having the spirals distinctly nodulous. The body whorl is sharply angled at the sutural level with a strong cord on the angulation.



❖  
Pink colour. Spire turreted. Size 3.5mm.  
Found in 300 fathoms off East Otago.

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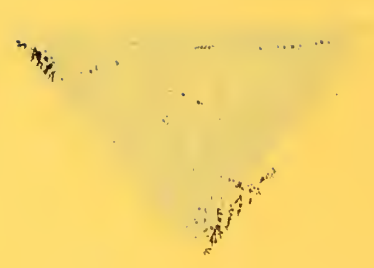
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# POIRIERIA

VOL. 5

Part 5

November 1976

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## "DOING THE POOLS" - NATURAL HISTORY STYLE

L. Witterick

Our second year of keeping local sealife as 'pets' has given us plenty of interest and, indeed, a few puzzles. The highlight of that period was being asked to give a home to a rather splendid specimen of the hairy triton, Monoplex australasie (the new name is Septa parthenopea). This animal was placed in the tank in November 1975 and was fed occasionally with cockle taken from our deepfreeze, thawed out and chopped up. Live cockles and pipis were left near, and on New Year's Day we were pleased to observe the Monoplex opening its own cockle for the first time - from then on there was no problem. On reading that these hairy beasties are predators on the commercial oyster beds in Australia, we tried bringing back live rock oysters from Cheltenham Beach, and the message was received and quickly understood. The Monoplex (I like the old name!) is still alive (June 1976), but now it will feed well for a time and then have long rests, burrowing partially in the gravel. Whether there is any connection between this 'hibernation' and the winter weather, who knows? Of course, such shells do lose their attractive colouration when kept under aquarium conditions, but we would rather let the animal live and observe it than kill it just for the sake of an interesting shell specimen in the cabinet.

Another 'first' for us was being able to view a live scallop (Pecten novaezelandiae) at close quarters. On two occasions, at extreme low tide on Takapuna Beach, we have found a specimen stranded in a rock pool. The first lived for over three months and the second, larger one, has been with us now for two months and is apparently thriving. Viewed through a

hand lens, the minute eyes round the rim of the shell sparkle like tiny sequins, and when the scallop flutters about the tank, one can readily agree with the fanciful idea of 'butterflies of the sea'.

When clumps of tube worm growth are introduced, these often house tiny crabs not noticed at the time of collecting. One such crab, oyster-grey with a carapace no bigger than a fingernail, rapidly became acclimatised to its new home, moulted three times within a few months, and finally reached a carapace spread of about one and a half inches. Its colour now is greyish-yellowish-green. I was fortunate enough to be on hand to witness the second moult, an event which I had never seen before, not even on film, and to witness the sight of this crab shrugging out of its outgrown exoskeleton as though it were divesting itself of a tight corset was indeed a sight to be seen. After the third moult occurred - in March this year - the cheliped on each side was missing, and these have not grown again. However, it boldly accepts food from tweezers with the other, smaller, claws and does not appear to be handicapped in any way. Of course, the chelipeds are used for defence as well as for feeding, so probably nothing else in the tank is a potential enemy to the crab. We have not been able to make up our minds to which species this crab belongs. It burrows like the common tunnelling mud crab (Helice crassa) is described as doing, but it is much larger - perhaps it is one of these and is only larger because it has grown under aquarium conditions. I have 'pickled' the two last moults and really must find out the name of this creature. (I do wish I hadn't left it so late in life to begin studying these fascinating sea creatures!)

Another unusual find at low water was a handsome, clean specimen of Struthiolaria papulosa - this one had suffered a worse fate than being stranded in a tidal pool, it was firmly wedged between two large boulders. If we hadn't taken it home, no doubt sooner or later an enterprising seagull would have dined on it! Unfortunately, it only lived for a few weeks, and as soon as it died those scavengers of the sea, the hermit crabs, shrimps, starfish, etc. moved in purposefully and picked it clean. The empty shell obviously made a 'desirable residence' and soon attracted the attention of a hermit crab looking for grander quarters, and the crab moved in. (I had always assumed that these hermit crabs changed shells only when they needed a larger form of protective covering, but in aquaria they even switch to smaller shells if the fancy takes them. One hermit was for ages a regular 'commuter' between shells at opposite ends of the tank).

The pleasing thing about such tanks is that there is always some activity to be seen - tube worms, bristle worms, scale worms; cushion stars, brittle stars; chitons and the delicate little Acanthochitons with their tufts of bristles, to mention but the barest few.

Colour variation is provided ... the handsome red waratah anemone, Isactinia tenebrosa, which resembles a blob of blackcurrant jelly when closed ... the green-blue sheen of the dainty little half-crab or porcelain crab, Petrolisthes elongatus, always sweeping the water to strain food into the mouth ... and so on.

These winter evenings, the chore of feeding the creatures with tweezers dipped into the tank's chilly seawater is a real labour of love. What makes me shiver is the thought of the supply of live cockles, etc. running out before this year's unusually cold weather does. Who's for an invigorating paddle at low tide at Cheltenham Beach?

## COLLECTING AT LOTTIN POINT

G.A. Foreman.

Lottin Point is about midway between East Cape and Cape Runaway, and could probably be considered as part of the Bay of Plenty. It is still within the Aupourian zone, though only a few miles from the theoretical boundary of East Cape.

Unlike the remainder of the East Cape block which comprises various sedimentary rocks, a small area of the northern coast from Cape Runaway to Hicks Bay, and including Lottin Point, is of volcanic origin.

My first visit to Lottin Point was a couple of years ago while looking for good surfcasting water and the chance to find some good shells. First impressions were not very favourable for shells, with a massive rock wall and outcrops of volcanic rock the length of the coast. It looked good for fishing though, but first impressions were deceiving. I had a job catching dinner but found what has continued to be a very productive spot for shells.

Only two species, Nerita Melanotragus Smith and Melarihapha oliveri Finlay are plentiful in the intertidal area, but there are a few colonies of Cellana denticulata (Martyn), and a few scattered specimens of Crassostrea glomerata (Gould) fairly well back from the sea where they can find shelter. Washups seem to be confined to a few battered specimens of Cookia sulcata (Gmelin) and Haliotis iris Gmelin. This is the case for almost all of this coastline with one exception - an area of fairly flat rock, well back from the sea, where pockets of sand and small shells have collected during storms. The area occupies only a few square metres but is a real goldmine.

On climbing over some rocks to this spot the first shell I saw was an Ellatrivia merces Ire, then shortly after a Mitra carbonaria (Swainson). Sorting through the pockets of shellsand soon brought to light a large number of small shells which included two Philippia lutea (Lamarck).

I am unable to visit the area very often but Bert Lee, who lives at Tolaga Bay, manages to get there occasionally and with his eagle eye has found many very good specimens. These have included numerous Mitra carbonaria, Philippia lutea and a fine specimen of Paraclanculus peccatus Finlay. Then he came to light with the best specimen so far, a Pterochelus paupereques Powell. The first Proximitra obscura (Hutton) also came Bert's way. This is a shell we have found quite good numbers of since. He also found the first Marginella maoriana Powell, quite a distinctive species which we were surprised to see in this area as it has apparently only been recorded from Northland waters before. I have since found three more specimens, two of them quite large and in perfect condition.

My last visit, a few weeks ago, was again successful with two more Ellatrivia merces and the biggest Mitra carbonaria so far. A Philippia lutea in perfect condition had only recently come ashore. On this occasion a few larger shells were ashore and included the first good sized specimens of Maurea punctulata, some Cominella quoyana, C. virgata, Cantharidus opalus and a couple of Manrea tigris. Another interesting specimen later sorted from shellsand was a single Uttleya Williamsi.

The limpets are well represented with thirteen species recorded so far. Cellana stellifera would be the most plentiful of those limpets which are washed ashore and at times the small Notoacmea subtilis and Asteracmea suteri are in good numbers.

Throughout the period that we have visited Lottin Pt species new to us from that area have continued to turn up. The list from this one tiny spot now totals 121 species but increases with every visit and will no doubt continue to do so. The water off this part of the coast is quite deep, in some places 20 fathoms just off the rocks, so the potential is certainly there.

A few interesting species not mentioned in the text are:

|                                      |                                   |
|--------------------------------------|-----------------------------------|
| Emarginula striatula (Q & G)         | Notosinister infelix (Webster)    |
| Notoacmea scopulina Oliver           | Eulina perspicua (Oliver)         |
| Fossarina rimata Hutton              | Trichosirius inornatus (Hutton)   |
| Herpetopoma larochei Powell          | Zeatrophon tmetus Finlay          |
| Herpetopoma larochei alacerrima Dell | Liratilia Subnodosa Powell        |
| Dolicrossea Vesca Finlay             | Buccinum robustum Powell          |
| Argalista nana Finlay                | Murexsul octogonus Q & G          |
| Pellax huttoni (Pills)               | Marginella mustelima (Angas)      |
| Merelina gemmata Powell              | Acar sociella (Brookes)           |
| Merelina taupoensis Powell           | Coas serratocostata dispar Powell |
| Zaelys sarissa (Murdoch)             | Chlamys zaelandona (Hertlein)     |
| Notosinister aupouria Powell         | Costokidderia lyallensis Finlay   |

\* \* \* \*

### THE SEYCHELLES

Ross Wallace.

After a year of working in Tanzania, the family decided unanimously to take our annual holiday in the Seychelles Islands. They are situated approx. 1000 miles from the East African coast and there is a direct air link with Dar es Salaam. The main group of app. 30 islands are centred on Mahe which is largest, being 140 sq. miles. The population of Mahe is 50,000 and the people are a mixture of Creole African and Arab. Over the last 5 years a great deal of tourist development has taken place with the result that there are some magnificent beach hotels with magnificent prices! However, we managed to find a small guest house which offered full board for the family of 5 for the equivalent of NZ\$280 a week. The islands are nearly all granite and rise steeply to 1100 metres. The vegetation is lush and tropical but as you climb it becomes similar to that found in the far north of New Zealand. All the islands are surrounded by coral reefs which extend out in many places to 400m.

We were looking forward to examining the reefs but were informed that the most prolific were closed for shelling as they had suffered badly from indiscriminate shelling and attempts were now being made to effect some recovery. We were soon to find this a hard cold fact as some of the reefs were completely dead, apparently caused by the continual turning over of rocks.

Although disappointed we set out, and after much patient searching were rewarded with some interesting discoveries. The low tides provide ample opportunity to work most of the reefs and with a face mask you can work nearly all the areas. We were warned that Stonefish abound in the shallow water and this was confirmed on the first day when reaching down for a rock, a stonefish moved out from under my hand. Their camouflage is perfect and only after careful inspection will you see them. We met a considerable number during our stay but as they are timid they do not pose such a threat as the Lionfish.

There are 42 species of *Cypraea* found in the Seychelles group with app.70% of these being classed as uncommon or rare. *C. annulus* and *C. moneta* were in abundance and these hardy little cowries have survived the ravages of over-collecting. It says a lot for their durability as for thousands of years they were used as currency and it is said a good bride could be bought for 100,000! *C. lynx* were present in some numbers and nearly always in groups of 2 to 6. On the outer edge of the reef, *C. histrio* and *C. arabica* were found but because of their size and colour they have been sold in large numbers. *C. feres* and *C. Caurica* were uncommon but the colour patterns differ substantially from East Africa. Patient searching yielded some of the small cowries, *C. helvola*, *C. kieneri*, *C. fimbriata* and *C. staphylaea* but all could be classed as uncommon and except for a single specimen of each, the rest were left. Unlike our own Tanzanian coast, which is completely virgin, the Seychelles have been so obviously overshelled that we found ourselves happy just to observe. The Cones have prospered much better than the cowries as many of the poisonous varieties are present and after several nasty accidents they have been left alone. *Conus leopardus*, *tesselatus*, *cornatus*, *fulgetrum*, *musicus*, *chaldeus* and *ebraeus* were plentiful but the best find was a huge *C. geographus* (160 mm) and very evil looking. The children had an interesting time with the beach washups, especially where live shelling was prohibited, and their collection yielded many species which we didn't find.

If you are a dedicated conchologist, the Seychelles will not provide you with an ideal holiday but the climate and people are delightful and as our prime objective was a rest, we were satisfied. At a later date I hope we can tell you of our shelling exploits here in Tanzania which from this angle is a paradise.

\* \* \*

#### A WEEK IN RAROTONGA

H. & M. Seelye.

This was much too short a visit to explore the shelling potential even though the island is only 20 miles round. A reef almost circling the island is only partly exposed, depending on wind direction and size of the tides. Inside this is a lagoon of varying size and depth, which could provide interesting night shelling.

For our part we worked the most obvious areas of the reef and some of these were reached after several attempts to wade the lagoon. The reef platform was of dead coral with plenty of slabs to turn. Unfortunately many of these had been previously turned and not replaced. As we had not expected much in the way of shells we were not at all disappointed with the lack of material on the reef, which could not compare with similar ones off the Queensland Coast.

Max Hancock who is at present in Rarotonga directed us to an area which he had previously shelled. Here we had some success. Crown of Thorns starfish were in evidence though most of those seen were juvenile. Reef eels of various colours were in the pools and moved easily over the dry coral when disturbed.

Between low tides there was plenty to do with many good beaches to search and an interesting countryside to explore. We found that the only way to make the most of our short stay was to hire a rental car which was reasonably priced.

The motel accommodation was adequate though not up to the best N.Z. standard. Being almost on the beach it suited us well and dinner was available at the nearby hotel if required, transport being provided.

We would not recommend Rarotonga for anyone entirely bent on shell collecting, but for a leisurely holiday in a friendly and relaxed atmosphere it would be hard to beat.

The island is covered with luxuriant growth with rugged mountains in the centre rising over 2000 feet. The coastal road gives ever-changing views of the beach, lagoon, villages, beautifully kept gardens and plantations. The climate is warm and sunny and the Islanders friendly and hospitable.

A week was much too short for us. We should like to return for a longer period to enjoy the charm of Rarotonga and explore the reef and island more fully.

|                      |                             |
|----------------------|-----------------------------|
| Conus catus Hwass    | Harpa amouretta Roding      |
| chaldeus Roding      | Thais tuberosa Roding       |
| cononatus Gmelin     | Drupa ricinus Linne         |
| eburneus Hwass       | Malea pomum Linne           |
| ebraeus Linne        | Turbo nuvosus               |
| flavidus Lam         | Cymatium muricinum Roding   |
| imperialis Linne     | Cymatium nicoboricum Roding |
| lighoglypus Hwass    | Bursa granularis Roding     |
| lividus Hwass        | Latirus sp.                 |
| miliaris Hwass       | Strombus gibberulus Linne   |
| musicus Hwass        | Strombus mutabilis Swain    |
| pulicarius Hwass     | Calliostoma sp.             |
| sanguinolentus Q & G | Cerithium nodulosum Brug.   |
| sponsalis Hwass      | Cerithium sinensis Gme.     |



|                                                     |                              |
|-----------------------------------------------------|------------------------------|
| Cypraea annulus L.                                  | Cerithium echanitum Lam.     |
| caputserpentis L.                                   | Cerithium sp.                |
| erosa L.                                            | Tonna perdix Linne           |
| isabella L.                                         | Cantharus sp.                |
| lynx L.                                             | Mitra viriabilis Reeve       |
| maculifera Schild.                                  | Mitra nucea (Gmelin)         |
| moneta L.                                           | Strigatella litterata (Lam.) |
| obuelata Lam                                        | Astrea sp.                   |
| poraria L.                                          | Morula uva Roding            |
| vitellus L.                                         | Lepsiella sp.                |
| talpa L.                                            | Nassarius papillosus         |
| scurra Gmelin                                       | Mamilla simiae Desh          |
|                                                     | Notocochlis sp.              |
| Fragum fragum Linne                                 | Nerita albicilla Linne       |
| Tridacna                                            | Abella aurivularia Solander  |
|                                                     | Lentillaria tigerina Linne   |
| (Some beach and hermit crab<br>specimens included). | Periglypta Chemnitzia Hanley |

\* \* \* \*

IN WINTER - GO NORTH

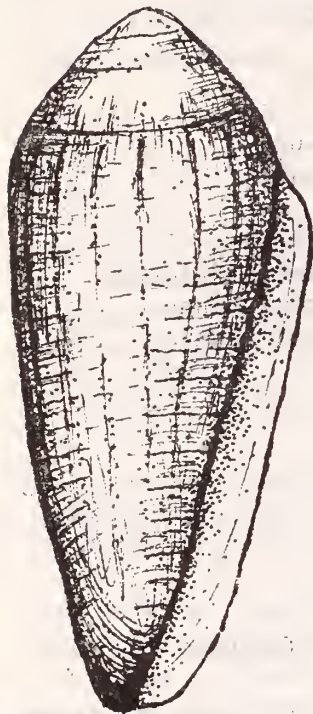
N.W. Gardner.

With the grey wet days of winter dragging on, it is very easy to dream of the much warmer climes of the North, so when an opportunity occurred, Stan Turner and I did a little more than dream - we packed our bags and headed in that direction - to Cairns and beyond in Northern Queensland. Of course we timed it so that we would be there for the July low tides. In fact, we thought we had everything organised - boats to take us out to distant reefs, a set of wheels for land transport, etc., but we forgot to organise one vital thing - the weather! "You should have come later," we were told, "it always blows this time of the year," and that is just what it did, every day until we left - then they had calm, sunny days.

The base for our stay in Queensland was at Palm Cove some 20 miles north of Cairns, a delightful spot with coconut palms lining a sandy cove and high bush clad hills behind. Although a lovely area, it was poor for shelling "All you ever get there are small Cardiums and worn Architectonicas," the local folk told us. A sand bar offshore, though always covered with water, apparently deflects the current and little of interest reaches the sandy shore. Rocks at the northern end, however, proved more rewarding with Cellana, Turbo, Morula, Mancinella and of course Monodonta, to be seen.

For the first few days we travelled north some distance along the Cook Highway to likely looking beaches. As the road skirted the shore in numerous places, we investigated sand flats and rocky shores. In the latter places we set to with a will and turned over tons of rock in search of those tropical goodies one hears about.

It was in this situation that we came across several Conus terebra Born, quite the largest we have seen - a whitish shell with unusually heavy



Conus terebra Born.



Conus glans Hwass.

black periostracum. Some large C. figulinus L. were found in areas where there was both sand and rock. There were lots of C. parvulus and the common C. lividus. The rocks on the shore about here are very dark in colour, and this is reflected in the cowries - all were very dark in colour too, some almost black, especially tiger cowries and Cypraea eglantine, a very plentiful species.

YULE POINT is well known to local collectors and others, as being a good collecting area. On one day there were eighteen enthusiasts doing the area over very thoroughly. We left them to it and travelled several miles north to a dead reef. This was quite an interesting place. Here, we located Conus glans Hwass in some numbers. "A rather scarce shell," we were told, "You will be lucky to find a couple." We did - a couple of dozen, living deep down in coral rubble along the edge of coral blocks. Some were very large specimens.

Conus miles, verillum, textile striatus and capitaneus were there, usually tucked away in some deep crevice in the dead coral. It was here that we saw large colonies of Torinista variegata Gmelin (Heliacidae) clustered over a fine, finger coral on which they were feeding - some hundreds were observed. When picked up these small molluscs left a long sticky thread.

For one of the low tides, we were able to join members of the Cairns Club on a trip out to Michaelmas Cay. With so much wind, the sea was rather rough and after travelling for about two hours, some were ready to turn back. However, the more hardy souls insisted on pressing on and we found conditions not so bad on the leeward side of the reef. Two other New Zealanders were on the boat - Mr & Mrs F.J.H. Johnson of Whangarei Shell Club. The highest point of the Sandy Cay is about 10 metres above the sea and is a bird sanctuary.

From the surrounding sand flat we were able to dig up several species of Terebra (crenulata Linne, guttata Roding, affinis Gray, triseriata Gray, etc.) Oliva annulata Gmelin and tessellata Lam, Polinices mellosum Hedley, Notocochlis arachnoidea Gmelin, Strombus dilatatus Swainson and others. Some very large clams, alive but sitting by themselves on a sandy silted up bed, looked strangely out of place. The coral reef itself offered a

a number of Cones including good colourful specimens of C. litteratus and C. ammiralis. Large blocks of dead coral sheltered a fine series of Vitularia miliaris (Gmelin) amongst other things but wind made it difficult to see things in the water. With the tides now easing off and becoming low late in the day, we turned our attention to Mangrove areas north of Port Douglas. It is a very interesting community that lives amongst the Mangroves (apart from sandflies). There were, as usual, several species of Cerithium (sulcata Brug, and kieneri along with very large Terebratalia palustris Born and quite a number of Murex permaestus Hed, all on the sand under the arched Mangrove roots. Where it was softer, Telescopium telescopium L. flourished in great numbers. On the roots of the trees were Nerita lineata and N. planospira and Cassidula further up the trunks. Higher up still on trunks and foliage were large numbers of Melarapha scabra Linne, many grey but some buff or yellow in colour. In the soft mud in more brackish situations, the large bivalve Cyrena coaxans protected by a heavy eipdermis, was found.

We were told that the Mowbray River, just south of Port Douglas was a good place for fresh water species so we made a point of spending an afternoon there. A very pleasant river above the tidal influence with a canopy of green overhead, it is stony and shallow for the most part and by wading knee deep we were able to get extremely large specimens of Melania loebecki - about 7 cm when decollated, and Thiara armaruloidea 38 mm.



Murex permaestus Hedley

Remains were seen of a freshwater mussel but not a single whole specimen could be found in that section of the river. Naturally, the opportunity was taken, to hunt for land snails in the rain forest towards the Atherton Tableland. We carefully skirted around stinging trees, having previously been warned that even the tiny seedlings are potent. By rolling over logs and piles of twigs we found Varahadra bipartita, Feruosca, one of the largest of the genus. Rocks tipped up produced only scorpions and not a single snake was seen. In the leaf mould around the buttress roots of large trees we found a number of Rhynchotrochus macguillivrayi Forbes, a species one would expect to be well up in the foliage of trees. One species of the carnivorous snail Strangesta was not uncommon, as was a large rotund Helicarion.



2.



1.

1. Thiara armaruloidea.
2. Melania loebecki.

As with most trips, the last couple of days were spent in the task of cleaning specimens - at the bottom of the garden. This operation was watched with interest by two Kookaburras. No doubt they thought there should be something in it for them as they frequently get "hand outs" from the local residents. It was a most interesting trip and we duly arrived home with over 300 different species.



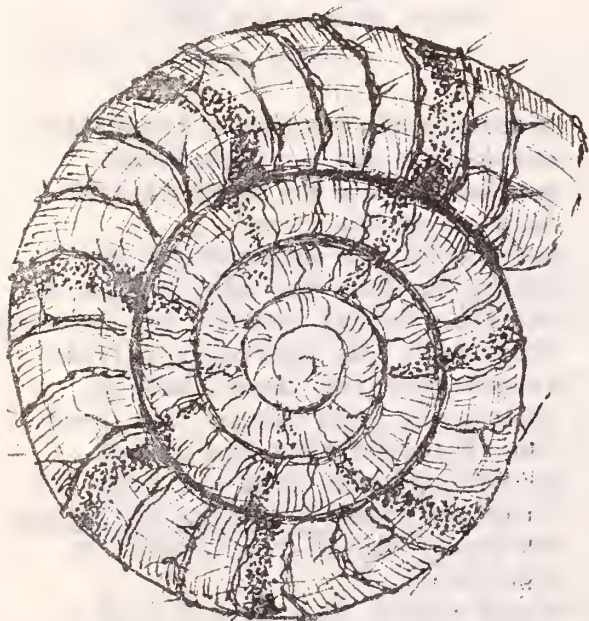
*Rhynchotrochus macgillivrayi*

\* \* \*

SUTERIA RARICOSTATA CUMBER

Although described in 1962 from specimens found at Awakino Gorge, Tranaki, there has been little further information to date on the distributional range of this species. At the type locality both S. ide Gray and S. raricostata Cumber, are found together but the latter is much more scarce; the wider spaced ribbing and the sparse arrangement of hairs on the ribbing identifies this species. Both grow to about the same size. Specimens have also been taken from the summit of Mt Messenger, again with S. ide but is still rather scarce.

Recently while identifying cave material from the Waitomo area, the writer came across a series of *Suteria* shells from a locality known as Ben's Hole, which contained both species. Here, S. raricostata outnumbered S. ide and some seemed to be comparatively fresh, no hairs, but retaining some radiating brown streaks across the upper side of the whorls. It seems as if it would be worth looking for live snails in nearby bush. From the series of shells present it appears that there is no inter-gradation of ribbing frequency - they are either wide spaced, or close as in ordinary S. ide Gray.



S. raricostata.



S. ide.

N.W. Gardner.

For a while during 1972-73 new records of "migrant" molluscs around our northern coastline, became commonplace with new sightings from month to month. However, in the last twelve months, there seems to have been fewer Milluscan records and in the case of some species, no further records at all.

Not all of these can by any means be considered newcomers to our shores. With more intensive collecting - there are a good many more people combing the shoreline - and with the advent of skindiving, much rugged bottom, which previously was out of reach of commercial trawl nets, is being investigated and "new" species are bound to turn up, though probably many have been here all the time.

Some occurrences are not so easily explained, and our records of a certain number of species suggest that their appearance could be tied in with chance spat fall, or chance arrival of free swimming veliger. The authenticated rise in temperature in this country given as from 3 to 4 deg. which has occurred in the last few years, could well be responsible for an upsurge in the numbers of some species.

In the case of oysters, temperature is apparently critical for reproduction and a degree or two makes all the difference between a successful spat fall and a failure, as was shown by Dr P. Dinamani at the recent Symposium.

How else, other than by varying temperature, can the rise and fall in numbers of Nassarius Spiratus, be explained? Since first recorded by Dr Powell in 1952, there has been a fairly even pattern of sightings until a couple of years ago - which was about the time many of these apparent newcomers appeared on the local scene, and it has increased greatly in numbers, being often seen intertidally at some localities. Some of these beaches have been checked from time to time by Mrs G. Henderson, a Whangarei member of the section (see notes from her diary following this article). At the same time divers reported large active populations on sandy bottom, often in about 15 feet of water. But, this year, there has been a decline in the numbers observed. Have they dispersed over a wider area to ease competition for food after a very successful breeding period, or has this generation passed on, leaving fewer progeny - the result of a temperature fluctuation? Was it colder in the last twelve months than in the preceding two or three years?

Although Hydatina physis has been known here for many years - since 1924, only spasmodic occurrences have been reported until the last three or four years. Since then I have heard of some 20 specimens taken in Northland. This could, perhaps, be the result of increased collecting, but maybe the temperature increase of 3 or 4 degrees has made things easier for this mollusc. We have been told that the occurrence of this species is the result of occasional introduction of veliger on favourable currents and that it does not breed here because there are no records of juvenile shells being found. While this may be so, there must at least be juvenile specimens

about, for the embryonic bubble shell to grow to the large mature size of Northland specimens. Perhaps Hydatina physis does breed in Northland waters but only in increased numbers during warmer seasons. It seems hard to believe that a mollusc which grows to maturity and is apparently well nourished, should fail to reproduce because the habitat is unsuitable. Borderline temperature would seem to be of some consequence. So far, the second species, Hydatina albocinata Van de Hoeven, with only a couple of records for New Zealand could well be a recent arrival and not yet established here. Its future pattern could well be like that of H. physis with more sightings during warmer periods.

Three species at least, can be considered new arrivals, Crassostrea gigas made its appearance at Mahurangi in 1971. No one seems to know just how it got there. The nearest occurrence to N.Z. of the species, is in Southern Australia where it was purposely established. With a 2-3 week larval stage and 1200 miles to travel it would be a major hurdle for this oyster to establish itself here naturally. It is now increasing rapidly in the Mahurangi area - very much faster than the endemic O. glomerata. Because of the transporting of spat boards by oyster farmers, it seems to be established in the Bay of Islands, and the Kaipara on the West Coast. It would seem that this species is not likely to suffer an eclipse. The progress of the small bivalve Theora lubrica has been followed with interest since its initial appearance in shallow water dredgings in the Bay of Islands (1971). Since then, it has been reported from many areas to as far south as Akaroa - which is surely an achievement for this species in such a short time.

In the Waitemata Harbour, where in 1973-74, it could be sieved from soft mud intertidally with 20-30 specimens in each sieving, today, they have thinned out greatly with just a few specimens to be seen. Often, in winter months, as a result of strong southerly winds and scouring tides, not a single specimen can be found in sievings. Certainly there has been a decline in numbers in the littoral zone, but is it still occupying the deeper mud in similar large numbers as before?

Just how we gained this fragile bivalve is pure conjecture, but many think it is a natural spread with favourable conditions aiding it. What is intriguing is its occurrence in California, having come, presumably, from Asia. If it is a natural invasion, surely it is a terrific feat to get across several thousand miles of ocean in the allotted time of the larval stage. However, perhaps it Island-hopped up around the Aleutians and Alaska!

Limaria orientalis, the third species, also seems to have suffered a decline in numbers, at least in the littoral zone about Auckland, where it was possible to find colonies of specimens, living under rocks in many bays; now, there is only an odd specimen - sometimes juvenile and sometimes large adult. Strong, persistent, easterly winds seemed to be responsible for disturbing some well established groups and in most cases these molluscs have not returned even after a year or two. Colonies reported in sheltered areas in the north appear to be thriving and it is not unusual to see half a dozen specimens of various sizes swimming in a pool under one small rock, while others occupy nests built along the edges of the pool or underside of the rock.

It is probable that Limaria still exists in some numbers below low tide level in the Auckland area, as during a severe storm last year, hundreds were washed up in masses of seaweed etc. on Takapuna Beach, though between tides none had been seen for some time. It remains to be seen if quantities come ashore after similar storms in the near future. Now that the flush seems to be over, perhaps this species is settling down to a more balanced pattern of dispersal at a lower level.

Morula chaidea Duclos, for a while after its appearance, built up in numbers in several localities but seems to be dwindling in numbers again. Just an odd specimen is now being reported. Morula appears to be in direct competition with Neothais. Of the score or more species which could qualify as newcomers, none seem to have increased permanently as far as collecting records go.

\* \* \* \*

NEW PAPER:

A Neotype of Buccinum linea Martyn 1781  
(Mollusca, Buccinidae)

A.G. Beu, W.O. Cernohorsky, F.M. Climo, R.K. Dell,  
C.A. Fleming, B.A. Marshall, P.A. Maxwell, W.F. Ponder &  
W.B. Powell.

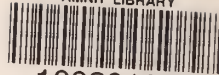
Jour.Roy.Soc.N.Z. 1976 Vol. 6 No.2 pp.221-225. 8 figs.

Abstract:

A neotype is erected for Buccinum linea Martyn because of differing interpretations of this species in recent publications. The neotype chosen makes Murex lineatus Gmelin 1791, the type species of the genus Buccinulum Deshayes 1830, a synonym of Buccinum linea.

\* \* \*

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Birkenhead,  
AUCKLAND, 10.



ON NASSARIUS SPIRATUS (A. AD.) AT BLAND BAY.

G. HENDERSON.

July 1974. Very juvenile shells, approx. 6 -8 mm, inhabited by hermit crabs. Area rocky with coarse sand to gravel. A mild winter.

August and September '74 : More juvenile shells inhabited by hermit crabs. One live one found under a rock; size up to 10 mm. Same area as before. Extra low tides.

December '74 to January '75 : Found colony of juveniles living at low water in corraline turf on gravel over flat rock. Rocky area and approx. half mile from first finds. When covered by incoming tide to about a foot of water they emerged from turf covered gravel and crawled around in search of food. Very active but timid. Size: 12mm to 16 mm. Weather very hot.

April '75 : Colony still there and grown to almost adult size and lip starting to thicken. Approx. 20 mm. Still very active and timid. Weather still warmer than average.

October '75 : Adult sized Nassarius spiratus have gone area again inhabited by juveniles approx. 10 mm. Searched another area half-way between the two previous ones and found some twenty adult shells of 20 to 22 mm. inhabited by hermit crabs. Shells were clean and well coloured.

December '75 to January '76. : Colony seems to have gone - no sign. : of any Nassarius although I searched the areas thoroughly. Found only two juvenile shells with hermit crabs. Weather very cold with several hail showers. Water temperature lower than average and sea rough.

April '76 : Still no sign Of Nassarius. Cold weather, sea rough.

September 4th. '76. No sign of Nassarius spiratus alive, or shells inhabited by hermit crabs or even beach specimens although I searched all areas thoroughly. Localities not very much affected by storms over winter.

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# POIRIERIA



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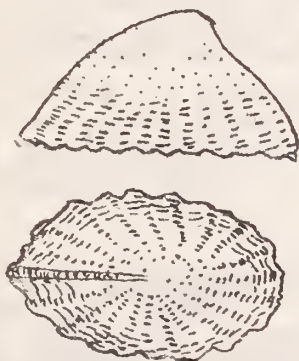
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MONTFORTULA RUGOSA (Q & G)

Small and limpet-like (up to 15mm), this species rather resembles our slit-limpet, but is not as high at the apex and is without the distinctive slit in the margin. There is, in its stead, a raised rib running from spire to margin. The shell is white, but because of the habitat, is often stained green.

Literature on this shell includes the names lyallensis Mestayer for specimens from the Wellington area and chathamensis Finlay for those from Chatham Islands; however, rugosa (Q & G) is shown (Dell 1971) to be the correct name for the New Zealand shells, along with the intertidal species found from New South Wales to South Australia.

Montfortula rugosa is looked upon as being a rare shell in New Zealand with only sparse locality records, ie Chatham Islands, Stewart Island, Sumner, Kaikoura and Wellington. However, just prior to 1970, Mr I. Mannering located numbers of live specimens in small mid to high tidal pools holding 1 or 2 gallons of water in the limestone at Kaikoura. These pools were fairly clean except for some coralline turf and the odd plant of Hormosira.



More recently, December 1976, Beverley Elliott found that this mollusc is still living there in reasonable numbers.

It is likely that Montfortula exists in similar 'pockets' along the South Island coast or the Southern part of the North Island. So far there does not seem to be any indication of its occurrence in the more Northern areas - either alive or in beach drifts.

Reference:

Dell R.K. 1971 The Rediscovery of Montfortula  
(Mollusca: Fissurellidae) in  
New Zealand  
Rec. Dom. Mus., Vol 7, No.3

\* \* \* \* \*

SHELLING AT ATIA POINT,

KAIKOURA

B. Elliott

November 19th was a grey and gloomy day but, undeterred by the weather, I set off for Atia Point, 1½ miles walk across the paddocks from our home on Kaikoura Peninsula. Many limpets live on the rocks here, the largest and most common being Cellana denticulata up to 78mm in size, also C.radians, C.radians perana, C.radians flava and C.redimiculum are common, though C.stellifera is rare. The C.radians flava are the nicest I have seen; although they do not attain the 65mm of Cape Campbell specimens, they are much more beautifully coloured. Large Benhamina up to 65mm are also found here and other limpet-like species such as Siphonaria zelandica, S.cookiana and Galinalea nivea. Many of the small limpets also occur, eg Radiacmea inconspicua, Notoacmea daedala, N.parviconoidea, N.scopulina, Atalacmea fragilis, Patelloidea corticata and P.corallina. In crevices at low tide large Scutus are common. Haliotis australis is plentiful here, too, but most have chosen their homes well, being out of reach of collectors, in the narrowest and most inaccessible crevices. H.iris is less common - very beautiful specimens up to six inches in size.

Large clean Lunella smaragda are plentiful, as are fine large Melagraphia. Other rock-dwelling univalves include Zediloma atrovirens, Z.digna, Anisodiloma lugubris lenior, Melaraphe oliveri, large M.cincta, Risellopsis varia and Lepsithais lacunosus. The pale Buccinulum

generally known as kaikouraense is common under inter-tidal rocks, while fine B. pallidum and the form of lineum previously known as B. sufflatum decoratum are uncommon at extreme low tide.

Three Octopus had their morning meditations rudely disturbed as I couldn't resist tossing them out of their rock pools and watching them ooze their way back. Three large seals flopped clumsily into the sea, snorting their protest at the intruder in their midst, while a fourth was so soundly sleeping on the rocks that he didn't even realise I was there. A group of Black-fronted Dotterels flew off and many Red-billed Gulls scolded me, as they were nesting not very far away.

Turning over rocks, I found a live Zemyllita stowei, a Zeatrophon tmetus and a strange Chiton I had never seen before. Later I identified this as Notoplax websteri. Although this seems rather unlikely from the "A.\*" in SHELLS OF NEW ZEALAND, it appears to be exactly the same as several valves of this species from a fish stomach in the Bay of Plenty. Other chitons found at Atia Point included Diaphoraplex biramosa, Guildingia obtecta, Maorichiton caelatus, Onithochiton neglectus and large Amaurochiton glaucus up to 57mm in size.

Several large starfish were seen on the rocks. Astrostole scabra (Seven-Armed Star), Stichaster australis (Reef Star) and Asterodon dilatatus (Brooch Star), while under low tidal stones live three species of Brittle-Stars, Ophionereis fasciata, Ophiomyxa brevirima and Pectinura gracilis. Among the crabs observed here were Pilumnus novaezelandiae, P. lumpinus, Petrolisthes spinosus, Elamena producta, Halicarcinus pubescens and other Halicarcinus species.

I found six live Argobuccinum tumidum, and picked out the three best, leaving the others behind. Bivalves are rare here, the only common ones being Protothaca crassicosta and, if one looks very carefully, clusters of Lasaea hinemoa can be seen among barnacles at low tide. Under stones there are occasional Hiatella australis and Cardita asteana, plus a few very tiny species in shell sand.

Out at the end of the Point are many sponges and sea-anemones in a profusion of brilliant colour. My favourite anemones are lime green with magenta tentacles. Getting down on hands and knees to peer under a rocky shelf at a particularly dazzling display of colour, I received my greatest thrill of all, for there was a pair of the most beautiful sea-slugs I have ever seen. The larger was about 2½ inches, the smaller 1½ inches. The foot was orange, second pair of tentacles and body iridescent

light blue, but very little of the blue could be seen between the numerous orange papillae. They were living on feathery bright orange bryozoan. With the help of Suter's Manual, I identified these beautiful creatures, Aeolidia gracilis (Plate 23, fig 19), but on a later trip to Atia Point, I found a specimen of the real A. gracilis. Light orange with papillae tipped with bluish-white, this one inch of shimmering beauty is nevertheless quite drab and insignificant compared with the mating pair of orange slugs. Perhaps someone who knows more than I do about sea slugs will recognise them from my description and let me know their real name.

My problems with sea slugs do not end there. I have never seen as many as there are at Atia Point, but identifying them is not at all easy. Commonest is the one I call the 'Sandpaper Slug' because of its rough texture. The colour ranges from pure white, with or without a few black blotches, through pale brown, pinky-grey to light orange. Although it is widespread in New Zealand waters, I have never been able to find out its name.

With the aid of Suter's Manual, I can make a guess at the others: Pleurobranchaea novazelandiae granulosa (Berg) grey; Dendrodoris citrina (Cheeseman) bright golden yellow; Aphelodoris luctuosa (Cheeseman) creamy white with a few brown blotches; Aeolidia leptosoma (Hutton) greyish-lilac. A. leptosoma, when curled up, resembles a sea-anemone with its papillae looking just like the anemone's tentacles. I was puzzled by the first one I found, and watched in amazement as the "anemone" slowly extended into a beautiful little sea slug, very similar to Suter's illustration of A. gracilis. With no satisfactory way of preserving these lovely creatures, I could only take a good long look and leave them behind. One little orange and black slug was not so lucky. I had a feeling it might be Lanellaria cerebroides Hutton and, sure enough, when I took it home and dissected it, that is just what it was! I wonder how many collectors have overlooked living specimens of this rare mollusc, as there is absolutely no indication that this slug contains an internal shell.

It was raining as I turned towards home. I got damp, but even a cloudburst couldn't have dampened my spirits as I climbed the hill to our home on top of the Peninsula. I recalled that a few weeks earlier a C.S.A.M. member had been sympathetic because I was moving from Nelson to Kaikoura. "You are leaving all the good beaches behind", he told me!

A bag of shell sand from Atia Point yielded the following species: Tugali suteri Thiele, Thoristella chathamensis cookiana Powell, Rissoina chathamensis (Hutton), Herpetapoma bella (Hutton), Paxula paxillus (Mur.), P. transitans (Murdock), Macrozafra subabnormis (Suter), Merelina, Chemnitzia, Eatoniella olivacea (Hutton), E. albocolumella Ponder, E. roseocincta (Suter), Marikellia rotunda (Deshayes), Verticipronus mytilus Hedley, Costokidderia lyallensis Finlay, Notolepton sanguineum (Hutton), Cosa and Austrosarepta.

"In six days the Lord made heaven and earth, the sea and all that in them is" (Exodus 20:11) - and what a profusion of beautiful and fascinating creatures he made in that short time!



Zemyllita stowei.  
13 mm x 7 mm. (Hutton).



Xymene huttoni (Murdoch).  
= tmetus Finlay.  
Distribution: throughout New Zealand including Stewart Island and sometimes collected in the intertidal zone but never abundant.  
Often covered with coralline growths. Usually encountered in the sublittoral. 18 mm x 9.5 mm.

## UNUSUAL WASH-UP AT WAIKANAE

Most members call in hopefully at Waikanae Beach and, if they are in luck, may pick up one or even two Maurea waikanae among the usual M.selectum, Austrofusus glans, Alcithoe and Semicassis pyrum, but how many have ever come across a wash-up such as this at Waikanae River mouth, recorded by C.A.Fleming on 5 December 1976!

At high tide near the tip of the growing spit on the North side of Waikanae River mouth, a concentration of molluscs had occurred. Among the common bivalves and the usual gastropods were a number of shells which are only occasionally found there.

All were dead, but not badly worn. Some carried eggs of Alcithoe (both species), many had Zeacrypta monoxyla within the aperture with the large barnacle Balanus decorus alive or dead on the outside along with sponges and epiphytic molluscs including Gregoriella barbata, Musculus impactus, Monia zelandica (Juv.) and Ostrea lutaria. The brachiopod Waltonia inconspicua, Forminifera (Rosalina) and Bryozoa were also attached to the shells. A number of the Starfish Astropecten had been washed up as well.

The most numerous 'specials' were 53 Maurea waikanae and others included 14 Maurea pellucida, 12 Astrea heliotropium, 6 Alcithoe fusus, a couple each of Aeneator otagoensis cookianus and Pellicaria vermis forma powelli Neef, and one each of Poirieria zelandica, Murexsul octogonus, Argobuccinum tumidum, Maurea punctulata and Phenatoma novaezelandiae. About 15 pairs of Bassina yatei, some with animals, were also washed in.

Some of these shells (M.punctulata, Astrea, Murexsul) represent a hard-bottom high-energy environment probably in the tidal scour channel between Kapiti and the Golden Coast beaches where they are very rare indeed. Others (Maurea pellucida, M.waikanae, Pellicaria, Alcithoe fusus, Aeneator, Bassina) represent sandy habitats only occasionally represented by beach drift, probably at some considerable distance since none were still living. Finally the "normal" offshore fauna was represented by M.selectum (fewer than usual), Semicassis, and A.arabica, all of which included live specimens.



It is interesting to speculate on the special conditions that led to transport of shells about 4 km from a depth of 30 - 40 fathoms to high tide mark at Waikanae. Possibly they started their journey in September, when storm waves from the North-west. . . . exceptional amplitude and eroding power, attacked the coast. Such waves may have brought the shells into shallower water where the normal waves were able to take over and shift them gradually on to the beach.

: : : : :

ON THE LAND SNAILS OF THE GENUS OBANELLA

N.W. Gardner

Because of their minute size, a mere 1 or 2 mm, the land snails belonging to this genus, being so securely 'tucked' away in leaf litter, tend to evade detection. With persistence, however, a small series can usually be obtained from areas where they are known to occur.

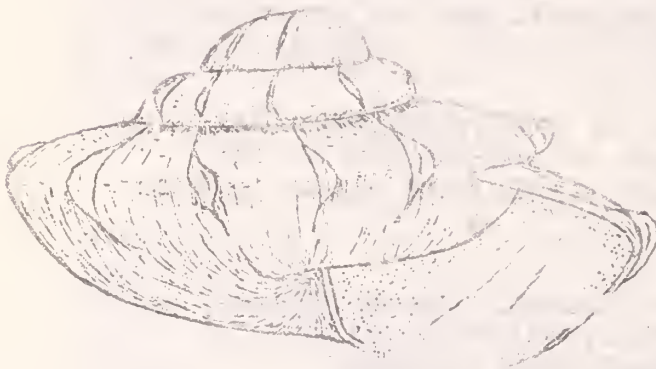
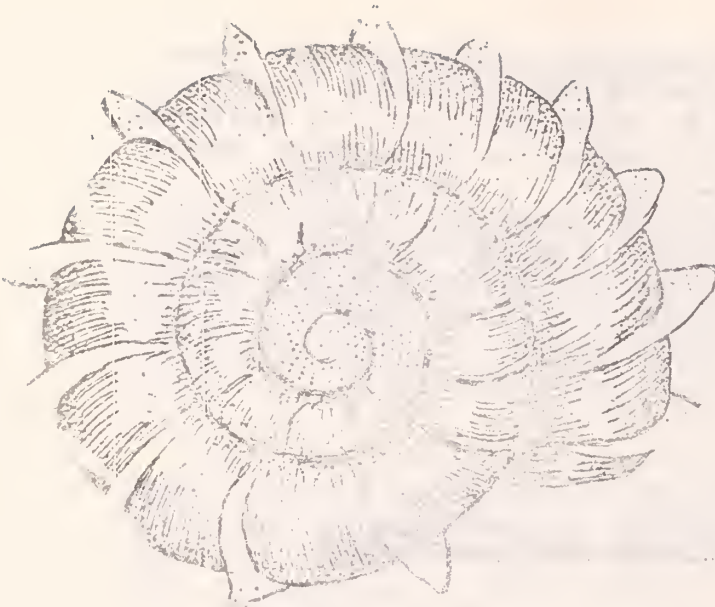
The shells of these snails are reminiscent of small Therapsiella - angled or sub-angled at the periphery, and with distinct, lamellose axial 'plates' around the body whorl.

The genus has long been looked upon as being more Southern in distribution, with Obanella spectabilis Powell, described from Nelson; O.allanae Dell from Stewart Island; and the species O.rimutaka Dell - as the name suggests, from the Rimutaka Range, near Wellington.



Fig. 1.  
O. spectabilis.

O. spectabilis.

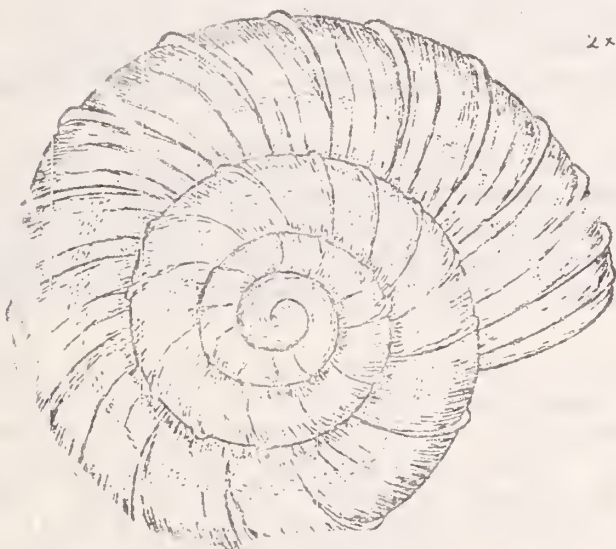


Obanella n. sp. ?.  
1.8 x 1.0 mm

More recent collecting has extended considerably the known range of some of these species. For instance, O. spectabilis is now known to occur through the Wairarapa, in considerable areas of the King Country and into the Southern Waikato.



O. rimutaka.  
2 x 1.3 mm.



x 12

During the last year or so, Jim Goulstone has sorted out from leaf mould taken in several parts of the Hunua Range, just south of Auckland, quite a number of examples of two species belonging in this genus - records we did not expect, but certainly of interest in that one species is undoubtedly O. rimutaka and the other an unrecorded new species not unlike O. spectabilis but having a distinctive raised spire. O. spectabilis is quite flat across the top. See Fig. 1.

## PREPARATION AND STORAGE OF CHITON SPECIMENS

Patricia Vause

Chitons are best collected directly into a container of seawater, allowing them to relax and lie flat until they can be dealt with at home. I find it a useful practice to keep a large plastic container of seawater at home where it is always on hand if required, particularly for the large specimens. Any chitons not already lying flat and natural in appearance are placed in a shallow dish of seawater. If they are not injured or dead they will usually flatten out nicely.

Tie Chitons on thin boards wide enough to display the complete girdle. Giant Chitons usually flatten best by placing the boards outside in a cool place for a day or two. Cotton or linen thread is satisfactory for most species, but cloth strips are best where whole animal specimens of fleshy Chitons such as Cryptoconchus porosus, Notoplax violacea are required.

If internal valves are wanted for display, boil the animal gently for a few minutes, open the body and remove all eight valves, taking careful note of their correct position. Traces of remaining flesh can be removed by a quick soak in household bleach, followed by thorough rinsing.

The tied-down Chitons on boards are placed in the freezer to kill them. After thawing, they can be untied and carefully placed in a container of methylated spirits for several days or several weeks. Then the animal can be cut out and any stubborn pieces of tissue removed when dried. Soak or brush Chitons with glycerine and leave them to dry. The large Chitons can have the cavity stuffed with paper to hold the natural shape, then they are tied down again and more glycerine applied as necessary.

Even old, curled or shrunken specimens can be considerably rejuvenated by soaking them in water for several days and gently working plenty of glycerine into the girdle until it becomes pliable. The cavity can be firmly stuffed and the Chitons tied down to a board as for fresh specimens. I have done this successfully with specimens that looked beyond hope.

A most convenient method of storing well glycerined specimens, to maintain their pliable, natural appearance, is to obtain a supply of conveniently-sized self-seal plastic bags. Some bags have an opaque band across them, where any data can be permanently recorded on the exterior; alternatively, a data tag can be stapled to the bag. The moist, glycerined Chitons are well sealed inside and prevented from drying out.

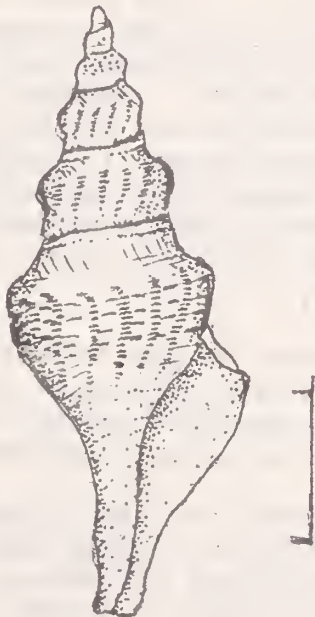
Some people prefer to put the fresh, tied-down Chitons into a solution of one-third isopropyl alcohol, one-third water and one-third glycerine for 24 hours before cleaning them and drying out. They can also be placed in fresh solution and kept as 'wet' specimens.

\* \* \* \* \*

ANTIMELATOMA BUCHANANI MAORUM (E.A. Smith)

From time to time specimens of this small turrid are sent in for identification. It is not a rare species - not uncommon in shallow water dredgings and at times odd specimens are washed ashore in beach drifts in Northland and the Bay of Plenty. Several picked up at Onetangi, Waiheke Island, measured 18mm in length.

There seems, however, to be no readily available illustration of this species. True, there is one in Suter's Manual, but this lacks detail and is not much help. The only good impression I know of is a photographic one of the type specimen in the British Museum, which appears in a paper by Dr R.K. Dell entitled "Some NZ Molluscs in the Brit.Mus." Trans. Roy. Soc. Zoo. Vol.13, No.17, 1963.



Antimelatoma buchanani is a fossil species and the subspecies maorum a recent shell. It is said to have a shorter canal and is a slender shell with strong, spiral sculpture and sloping or oblique axial ribs. Colour is buff or light brown, sometimes with a slightly darker band around the shoulder of the body whorl.

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-201-

### SHELL COLLECTING IN PERU

Alison and Les  
Hosking

The main reason for our trip was to visit our second son, Murray, who was in charge of the New Zealand Forest Service team sent to assist Peru under an aid project in the use of indigenous forest and planting of exotic softwoods. He and his wife, Patsy, and sons David (8) and Paul (6) have been based on Chiclayo about 500 miles north of Lima for the last two years. We flew from Auckland to Tahiti by Air New Zealand DC 10 and then by Air France Boeing 707 on a 9-hour flight to Lima, arriving about 5am, and delighted to find the family, fit and well, waiting at the airport.

We spent two days in Lima where the climate is almost invariably hazy, the fog being caused by the cold Humboldt Current coming up the South American coast and meeting the warm air of the land mass. Rainfall is high in the interior, but this results in a very arid strip along the western coastline where there is practically no rain. Agriculture in this area is dependent on a series of river valleys and irrigation schemes both ancient and modern. Where water is available, however, the land is highly productive.

Peru has the fourth largest fishing industry in the world, mainly in the rich pilchard resources off the coast. So rich that in most coastal areas there is a characteristic fishy smell from the decaying plankton.

Our first outing was to the fishing village of Pucusana about 40 km south of Lima. Here there is a sheltered boat haven and a blowhole where the waves shoot through a deep chasm about 50 metres long. Large chitons could be seen clinging to the sides of the race, but it was impossible to get these. The intertidal area along the sheltered bay

was more productive. Two species of mussel were plentiful. One is a handsome dark brown variety hard to separate from our *Perna canaliculus* (see derivation from *Perna magellanica* Retzius) and is probably a southern form. The other occupies the same niche as our *Aulacomya maoriana* with longitudinal ribbing and is immediately recognisable. It tends to be a richer dark brown and rather larger than the New Zealand species. As expected, a carnivore is also present, in this case a trophon and a most attractive shell. The sand in this area is a very fine dark grey. When the weather clears later in the day, everything looks marvellous with the same old Pacific rolling in on some fine beaches, but there are no clear outlines on the horizon, just a merging into the haze. Fish in Pucusana were plentiful. The results from a trawl were lying on the breakwater, principally a dark grey fish like a very large mullet, also bonito and porpoise. Several wayside salesmen had held up strings of a large-sized flatfish and these turned out to be linguado and as fine a fish as you would find anywhere.

After leaving Lima (the women and children went by air), Murray and Les drove north to Chiclayo with the rest of the luggage. We went by the Pan American coastal highway. On the whole this was a very good road with one or two marked exceptions. We were not far from the sea at any stage and the playa grande as they call it continued for most of the distance, broken by eight or nine river valleys and a few sheltered bays and harbours.

Most of the distance was across the coastal desert and this was a strange and wonderful place with barren hills weathered and eroded over countless years to hard bedrock. In places sand had blown in from the beaches, advancing in the typical crescent-shaped dunes of Barcan formation like an army of science fiction monsters. When these come to the smooth asphalt road they do not engulf it but a thin scattering of sand blows across the road at ground level, forms into a dune on the other side and then moves on. In places they have piled right up the side of the hills further inland looking just like glaciers.

Getting back to shells, the commonest bivalves found in the playa grande appeared to be

- (1) the handsome brownish-blue clam *Tivela hians*, triangular in shape and, as the name suggests, gaping slightly at the posterior end. This is found right down into Chile and is the colder water form. Towards Panama and up through Mexico and southern California it gives place to *T. planulata* which is tightly closed, with radial brown colour bands.



Gulf of Guayaquil →

ECUADOR

Rio Marañon → AMAZON.

P. Pisardo  
TUNDES

ZORRITOS

CABO BLANCO

SULLANA

PAITA

PIURA

BAYOVAR

PIMENTEL  
ETEN

CHICLAYO

HUANUCO

TRUJILLO

MAP OF  
NORTHERN PERU

LIMA



- (2) The lovely little Donax peruvianus, shaped like a small tuatua, up to 30mm long but with coloured rays and streaks. Many are a shiny pink with fine radial sculpture. To show that Donax has been around for a long time, we later dug a number of shells out of the ruined walls of Chan Chan, thought to date back to about the 11th century.

Chan Chan was visited during an excursion south to the important industrial city of Trujillo (pop. 250,000), about 150 km south of Chiclayo. Nearby Chan Chan was a vast walled enclosure containing living quarters, pens for animals, reservoirs, storage areas, and was the centre of the Chimu culture which flourished during the 11th to the 15th centuries. The Chimu people were coastal dwellers, worshipping a moon goddess (how natural for fisher folk to venerate a being who controlled the tides). They were also skilful workers in gold, silver and pottery, skills they had to some extent taken over from older cultures. In the 14th and 15th centuries they in turn were conquered or absorbed by the Incas, sun-worshippers, who came down from the southern hills and finally controlled the "three Perus", mountain, coast and jungle fringes, extending as far north as Quito which is now in Ecuador.

The close relationship of the Chimu with the sea is vividly shown in the decorations on the walls of Chan Chan. Motifs based on fish, fishnets, other sea creatures, cormorants, pelicans are strikingly preserved.

The pleasant little coastal resort of Huanchaco lies just north of Trujillo. Here we saw children having great fun in the surf with reed boats. They call them caballitos (little horses). We also acquired two species of cowry, Cypraea cervinetta (the little deer cowry) 68mm, and the small Cypraea arabicula 23mm. These are believed to have come from Paíta, further north.

PART II : describing a trip covering the northern areas from Chiclayo to the border of Ecuador

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Our principal safari was to the northern coastal areas. Our first objective was Piura (pop. 280,000), the chief agricultural centre of the province of that name. The main highway detours east into the higher country where there is a certain rainfall, consequently the condition of the road deteriorated with 30 - 40 km of potholes.

The country here is of the open savannah type; trees, mainly eucalypts, giving shelter for cattle, goats, llamas, mules, donkeys; but mainly open grass-land though dry rather than green in appearance. Then, heading due east again, a gradual descent into the dry desert.

Near Piura the country improved and we put up for the night at a so-called tourist hotel. Before dinner we drove some miles to a village called Catacaos, noted for leatherwork, silver and other jewellery, basketware, etc. sold in "artesanía" shops - a kind of craft co-operative venture.

The local port is Paita and this name occurs frequently in shell literature as being the southern boundary of the Panamic faunal province which extends northwards to the top of the Gulf of California. Our experience showed that, as in New Zealand, no such hard and fast delineation can be made.

We set out next morning, travelling due north on a road built on Roman lines, ie dead straight for miles, with high road-cuttings and built up in the hollows. It is probably the route taken by the Incas who were first-class roadbuilders. There is considerable fossil material in these road-cuttings. Owing to the time factor, we could not linger as much as we should have liked. The Jacobs family (Harold Jacobs is the New Zealand expert sent over to advise on the establishment of forest parks) found a quantity of fossils in an earlier trip in this area. While the desert is always interesting, it was a relief to emerge at last at Sullana on to the banks of a wide river and the change in scenery after crossing this was quite remarkable. Large fields (100 acres or more) intensively cultivated with cotton, rice, bananas and coconut palms provided a complete contrast. We now headed north-west and arrived towards mid-day at Talara which is a port servicing a fairly extensive oilfield lying to the north. We had previously come upon one of the automatic oil pumps which are dotted all over the countryside, sometimes in the most unexpected places. They vary greatly in size and consist of a centrally pivoted beam with a pump shaft at one end and a counter-weight at the other. At a distance they look like a group of pecking birds. From another angle they remind you of a little man pumping up a tyre with a hand pump.

We did some shopping at Talara and watched a dolphin playing in the water near the oil wharf. Back up the coast again to El Alto where the road rises steeply to approximately 1000 - 2000ft. We passed little oil pumps

working away even in some of the steep passes. The road descends sharply again to the coast with a beautiful view of the coastline stretching northwards, something like the view from Paekakariki Hill. At sea level again we found the village of Los Organos, clean and neat little houses specially built for the oil-workers, largely the foreign executives. We lunched in an open beach shelter - open, that is, to a fresh breeze while protecting us from the sun. The flat, open beach was rather bare but the tide was high. A very pleasant prospect to the north, beaches as far as you could see.

Cabo Blanco, a promontory near El Alto, is a high-class deep-sea fishing resort where Ernest Hemingway stayed at times. Two currents are supposed to merge here, which should have interesting results.

The coastal strip narrows from this point on, with the hills close to the road on the right and the beach on the left. We passed through a rather untidy fishing village called Mancora, but note this name. We decided to have a closer look on the way back. Passing through Zorritos, we finally reach Tumbes, notable as the place where the Spanish conquest of Peru began. In view of the historic significance of the town it was disappointing, the market area dirty and the hotel accommodation poor. To make matters worse, it rained heavily that night, and with maximum humidity and temperature about 35 degrees C we spent an uncomfortable night. It must be remembered that we were now only about 3 degrees from the Equator.

Morning, however, was fine and sunny and we went firstly to Puerto Pizarro. This is the little estuary where Pizarro first set foot on Peruvian soil. We were now entering the Gulf of Guayaquil and significantly the sandy beaches tapered off and mangroves appeared. We were fortunate to obtain some fine specimens of Malea ringens,



Malea ringens  
Swains.  
(Up to 150 mm.)

the Grinning Tun, not unlike our own tonna in general appearance but with a deep groove in the aperture. Two species of Anadara were picked up on the beach and two different kinds of Chione.

We should have liked a longer stay here but time did not permit. We edged up to the Ecuador border marked by a bridge across the River Zarumilla and looked across. Tourist shops abound on each side to waylay travellers. Then regretfully we set out on our return journey south. At Mancora, however, after much enquiry, we discovered quantities of the two other large shells which seem to be the only ones traded very much, probably because they are spectacular. Hexaplex brassica, the Cabbage Murex with an orange-pink interior up to 150mm. Also the same-sized blue-brown Murex seemingly identical with M. muricanthus nigritus found further north. A pile about 3ft high of these was discovered in the back of a little shop. We made our choices but would willingly have brought back a sackful if we had had room.

We backtracked south again, this time with the miles of beaches on our right. Light balsa rafts, something like small catamarans, were seen from time to time, also a congregation of hundreds of pelicans at one point. We decided to push on without spending another night on the way and arrived back in Chiclayo after a rather exhausting day.

SUMMARY: While we used our available time to the best advantage, our sampling of such a long coastline was of necessity only superficial. Given a secure base to work from, there is much of interest in this wide range of temperature, altitude and climate. Apart from marine life, there are some attractive land snails, including the large 100mm Strophocheilus lichsteini from the San Ignacio Valley in the north. Fossil ammonites are on sale in the markets and there is evidence of important deposits here and there.

The writers would like to hear from other Club members with an interest in the region and would be glad to offer advice and assistance to would-be collectors.

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A. Myra Keen - 2nd Edition  
The Conquest of Peru Wm. H. Prescott  
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The Conquest of the Incas  
John Hemming Abacus 1970

## SCHIZOGLOSSA - OUR PAUA SLUG

Although quite widely dispersed over the northern half of the North Island, the 'Paua Slug' is apparently not often seen. Nowhere does it seem to occur in any great number.

The more heavily bushed areas are preferred, especially where there is a reasonable amount of leaf litter and fallen logs.

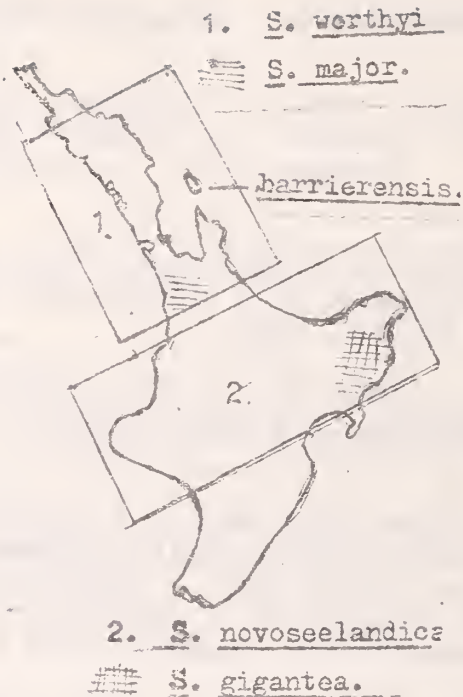
Seldom is it seen in the more scrubby situations - places where Rhytida, its near relative, is quite at home.

The name 'Paua Slug' aptly describes this mollusc, as its reduced shell, much smaller than the animal, is not unlike a tiny brown paua - minus the row of holes, of course! It belongs to a carnivorous family, but nothing much seems to be known of its feeding habits.



Two distinct forms of recent Schizoglossa are recognisable over the territory presently occupied by the genus and each is known to have a Pleistocene ancestor of much larger dimensions.

Each recent form occupies a separate area of this territory.



Schizoglossa novozeelandica (Pfr.) has a rather narrow, oblong shell of some 20mm x 12mm. This species occurs at Wanganui, through the King Country, Kawhia, Southern Waikato, Taupo and across to East Cape. S. novozeelandica occurs also in Waitomo limestone caves (eg Ben's Hole, Auc.Un.Station 4970). Size about the same as recent specimens from the area.

A sub-species, S.novozeelandica barrierensis Powell has been recorded from Gt.Barrier Island. This form is a little more ovate than the typical shell - perhaps it is worthyi that is a little narrower!

A similar form occurs on Cuvier Island.

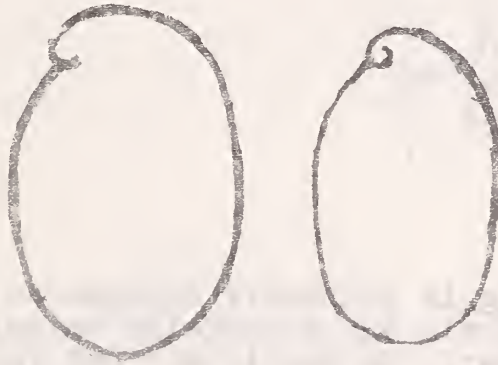
novozeelandica.



worthyi.

Specimens of the subrecent ancestor of S.worthae, Schizoglossa major Powell, have been collected in limestone country from Pukemiro to Waikaretu, south of Waikato Heads. (Up to 40mm in length from the latter locality).

S. major.



O. Gigantea.

The other subrecent species, S.gigantea Powell, has the narrow, oblong profile of novozeelandica and has been recorded from caves near Tahora (Gisborne area) and Waikaremoana where it occurs with Moa bones. Size 32mm x 19mm. (Recent specimens approaching the size of gigantea are said to have been taken from near East Cape).

\* \* \* \* \*

SOME COLOUR PATTERNS IN PROXIUBER AUSTRALE Hutton

N.W.Gardner

This small naticid, or moon shell as it is sometimes called, exists quite commonly just offshore in a few fathoms where there is a sandy bottom and can be taken by hand dredging over the side of a small boat. Because it occurs so close inshore, the dead shells are at times seen in beach drift in certain areas. I can remember finding a number around Devonport Wharf some years ago.

Moon shells are very active gastropods - they always seem to be on the move, searching the sandy bottom for suitable bivalves on which to feed.

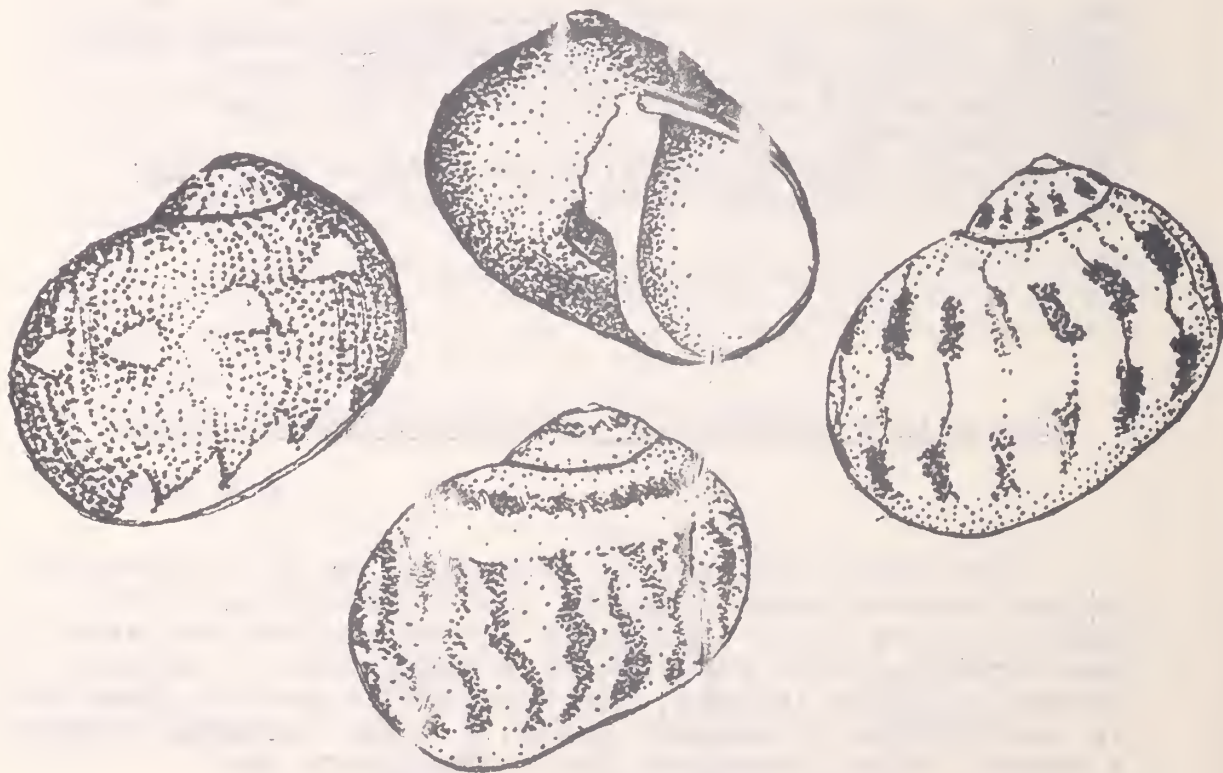
The small neat, round 'countersunk' hole one sees in the odd valves of dredged material is no doubt the work of some member of this family.



Proxiuber australe

(after Morton).

Proxiuber australe is generally considered to have a chocolate brown shell and a speckled animal of brown and yellow; however, the shells are not restricted to this uniform colour. There are a number of patterns which occur quite frequently and some are shown below.





P.australe exists at moderate depths, too, but deeper down, a shell with a different colour pattern occurs. This has been called hulmei Powell, but perhaps it is only a benthic form of australe which bears almost the same colour pattern in specimens washed ashore at Kapuwairua, Spirits Bay.

P.hulmei is, maybe, a little smaller, and the colour pattern consists of two rows of rectangular blotches in red-brown around a white body whorl. This form is not uncommon in dredgings on sandy bottom in the Bay of Plenty and East Coast areas.



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NEW PAPERS ON NEW ZEALAND MOLLUSCA

- \* On the Considerable Influx of Warm Water Molluscs That Have Invaded Northern New Zealand Waters Within Recent Years

A.W.B. Powell

Rec. Auck. Inst. Mus. 13: 141-164  
Dec 10th 1976

Abstract:

The purpose of this paper is to bring together the numerous scattered records of tropical and subtropical molluscs that have invaded northern New Zealand waters within recent years and to attempt their evaluation individually as accidental, temporary, intermittent or permanent additions to the fauna. Seventy-six species of these new arrivals are discussed, but



~~excluded are the considerable number of species~~  
 Australian or Indo-Pacific origin that are now  
 well established here that they have become an  
 integral part of the fauna.

- \* Arrival of Semicassis pyrum (Lamarck) and  
 Other Tonnacean Gastropods in the Southern  
 Ocean During Pleistocene Time

A.G. Beu

Jour. Roy. Soc. NZ. Vol No. 4  
 Dec 1976

Abstract:

Xenophalium Iredale, 1927 and Xenogalea Iredale,  
 1927, are synonymised with Semicassis Morch, 1952.  
Semicassis pyrum (Lamarck) forma hamiltoni Powell in  
 early Nukumaruan (earliest Pleistocene) sandstone in  
 southern Wairarapa district is the earliest record of  
 the genus in New Zealand.

Semicassis pyrum and the closely related S. labiata  
 (Perry) (first record late Castlecliffian) are  
 extremely similar to the European Miocene and Pliocene  
S. laevigata (Defrance), suggesting that smooth forms of  
Semicassis evolved in Europe, migrated through the  
 Atlantic to South Africa, and were dispersed around  
 the Southern Ocean in the circumpolar current during  
 earliest Pleistocene time.

Smooth forms of Semicassis occur in the Southern  
 Ocean and in Japan but not in the intervening central  
 Pacific; they and several other tonnaceans (Charonia  
lampas, Septa exarata, Septa parthenopea, Bursa  
 (Tritonoranella) ranelloides, and possibly Tonna  
variegata) with similar distributions in space and  
 time are Pleistocene migrants replaced by other species  
 in the Central Pacific. Several other widespread Southern  
 Ocean Tonnacea (Argobuccinum pustulosum, Fusitriton  
cancellatus, Ranella olearia) have a Northern Hemisphere  
 Tertiary record but did not reach New Zealand until latest  
 Pleistocene time, or later, and are unknown in Japan. Thus  
 lengthening of their larval lives by sea cooling enabled  
 several teleplanic tonnaceans to make major changes in their  
 distributions during Pleistocene glaciations. Species enter-  
 ing the Southern Ocean at Africa arrived in New Zealand several  
 glaciations earlier than did species entering it at South  
 America.

\*\*\*

Editors: N and N Gardner, 6 Tui Glen Rd., Birkenhead,  
 Auckland 10, New Zealand



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