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## Hidden diversity: parasitic gastropods of echinoderms

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Antarctica is a unique part of our planet that boasts a rich diversity of marine life on the continental shelf (Figure 1). Marine invertebrates are especially abundant and diverse here and they serve as interesting study systems in ecology and evolutionary biology since they are involved in intimate host-parasite interactions. Echinoderms are hosts for a number of annelid, crustacean and mollusc parasites, including the hyperdiverse Eulimidae –a gastropod family that comprises more than 4,000 species globally (Warén 1984). Eulimids parasitize all classes of echinoderm (Warén 1984) and occur as both ectoparasites (living on the surface of a host) and endoparasites (living inside the host). My collaborators, Dr. Nerida Wilson (Western Australian Museum) and Dr. Greg Rouse (Scripps Institution of Oceanography), uncovered several seastars in Antarctica that had visible cysts on their arms and discs caused by endoparasitic *Asterophila*. *Asterophila* is a shell-less gastropod with a highly simplified body plan and only four species have been described globally, including one species from Antarctica (*A. perknasteri*) (Warén & Lewis 1994)(Figure 2, p. 3). This species was thought to parasitize only a single genus of seastar (*Perknaster*), but the discovery of *Asterophila* from a taxonomically diverse group of hosts in Antarctica prompted us to dig deeper into this story.

In 2019, we published a paper in *BMC Evolutionary Biology* describing a radiation of *Asterophila* in Antarctica. We used molecular and morphological data to investigate the diversity of *Asterophila* and associated hosts in Antarctica and to describe the coevolutionary events explaining this association. ….**(cont'd p.3)**

**Figure 1:** Drift ice surrounds Peter I Island, Antarctica- a location where we looked for parasitic gastropods on the Antarctic Circumnavigation Expedition. **Photograph: Kara Layton**

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Email: newsletter@malsocaus.org
The deadline for articles for the next issue of the Newsletter is Friday 30 October, 2020.

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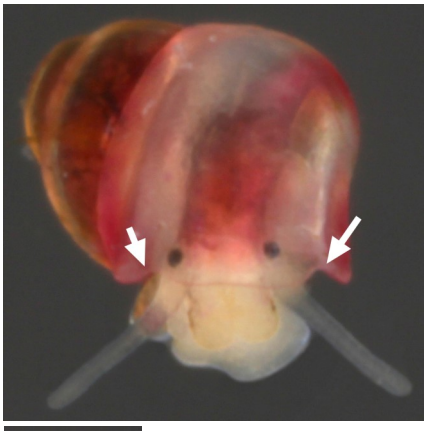

Anterior and dorsal views of *Eatoniella puniceolinea*, Cape Paterson, Victoria, Wed. 14/03/2012. Shell length 1.0 mm. (Photos: P. Vafiadis).

### *Subtleties in shell shape*

*Eatoniella puniceolinea* Ponder & Yoo, 1977 (Eatoniellidae) is a minute gastropod with a smooth, translucent shell that bears pink spiral bands.

The apertural margin exhibits two subtle notches (shown by the white arrows in the main image at left), which correlate with the position of the extended cephalic tentacles, facilitating their protrusion beyond the shell during crawling, whilst simultaneously allowing the shell to be held closer to the substrate. The eyes are held behind the anterior shell margin when crawling (see smaller image at left) but can still detect light through the translucent shell. Subtle shell notching is also seen in other eatoniellid species. Notching and shell translucency illustrate that unobtrusive features in a shell that are easily overlooked can convey significant functional advantages.

In Victoria, *E. puniceolinea* it is not uncommon in fine beach drift, but is less commonly encountered alive. The specimen depicted was sieved from the green alga *Caulerpa brownii* in a lower littoral rockpool.

**Reference:** Ponder WF, Yoo EK (1977) A revision of the Eatoniellidae of Australia (Mollusca, Gastropoda, Littorinacea). *Records of the Australian Museum* 31(15): 606-658, figs. 1-14.

P. Vafiadis

**Continued from page 1 - Hidden diversity: parasitic gastropods of echinoderms**

Like other highly simplified endoparasites, and following an analysis of larval shell morphology, we found a lack of informative morphological characters for species delimitation. However, with data from five molecular markers, we uncovered nine species from the region, including one that matched *A. perknasteri* and eight others that were new to science. Most species were found on a different host genus and when found on multiple hosts these were always from closely related species. Interestingly, despite having sampled at a number of sites around the continent (as part of the Antarctic Circumnavigation Expedition) we only recovered *Asterophila* from the Antarctic Peninsula. This restricted distribution might reflect concentrated sampling around the Antarctic Peninsula in conjunction with a low rate of parasitism, although Anton et al. (2016) also recovered a similar pattern of restricted distribution of endoparasitic copepods despite a wide distribution of their nudibranch hosts in the Indo-Pacific. We also found that host-switching explained most host-parasite associations, challenging traditional views that co-speciation drives coevolution in these obligate endoparasitic systems. This system is one example of hidden diversity, where multiple, similar-looking species are hidden under a single identity, and it demonstrates the importance of molecular data for helping us to better understand biodiversity.

This work has ignited an interest in understanding more about eulimid gastropods more broadly, especially given that there are many species in this diverse family of tiny (<1cm) parasites that await discovery. Over the past several years we have been building a eulimid collection with a focus on the Indo-Pacific where diversity is highest. Some of our specimens include *Stilifer linckiae* that are found embedded in the arms of *Linckia multifora* seastars in northwestern Australia and *Annulobalcis* that are found attached to the cirri and ventral sides of crinoids in Papua New Guinea (Figure 3, page 5). This family displays a range of interesting parasitic behaviours and morphologies but little is known about the evolution of parasitism in this group. As such, we are working towards building a molecular phylogeny for Eulimidae to better understand diversity and evolution in this family.

**References:** (see next page)

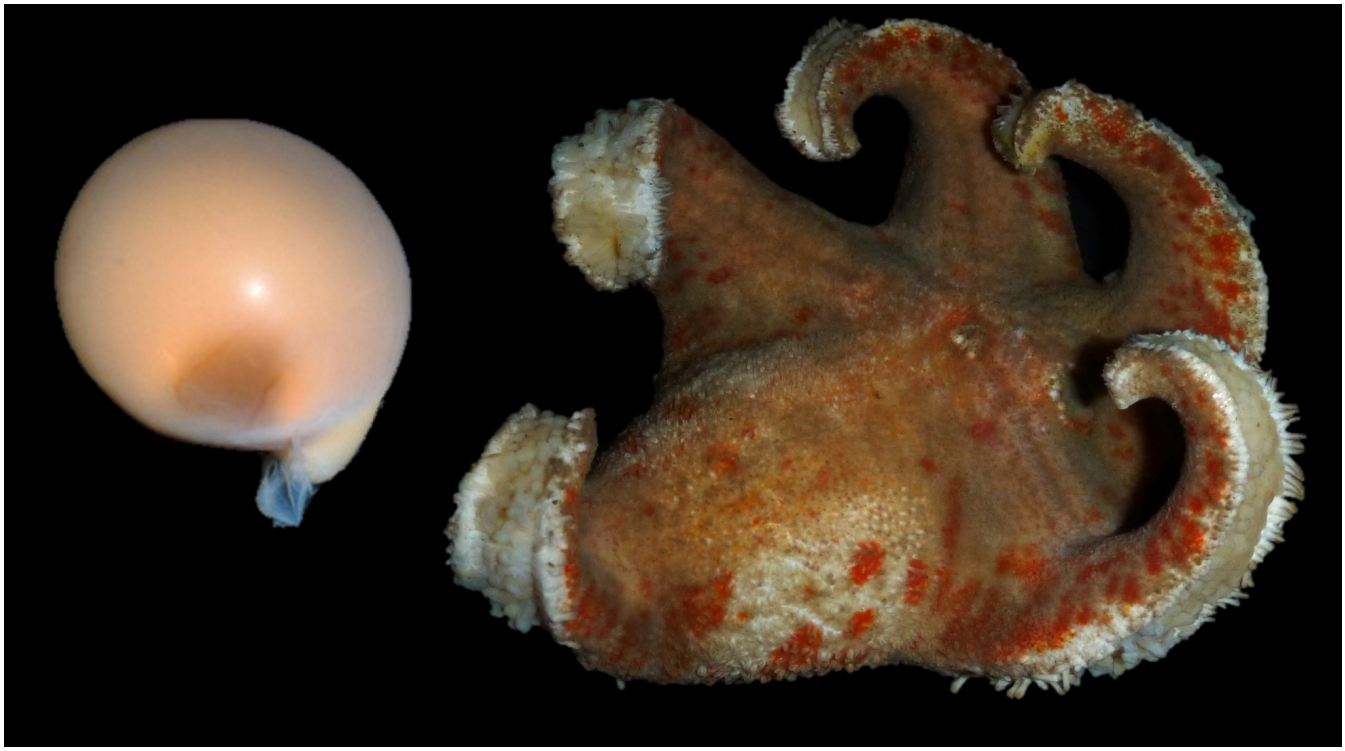

**Figure 2**: Endoparasitic *Asterophila perknasteri* (left) and asteroid host *Perknaster aurorae* with visible cyst (right) from Antarctica. **Photograph credit: Nerida Wilson, Greg Rouse.**

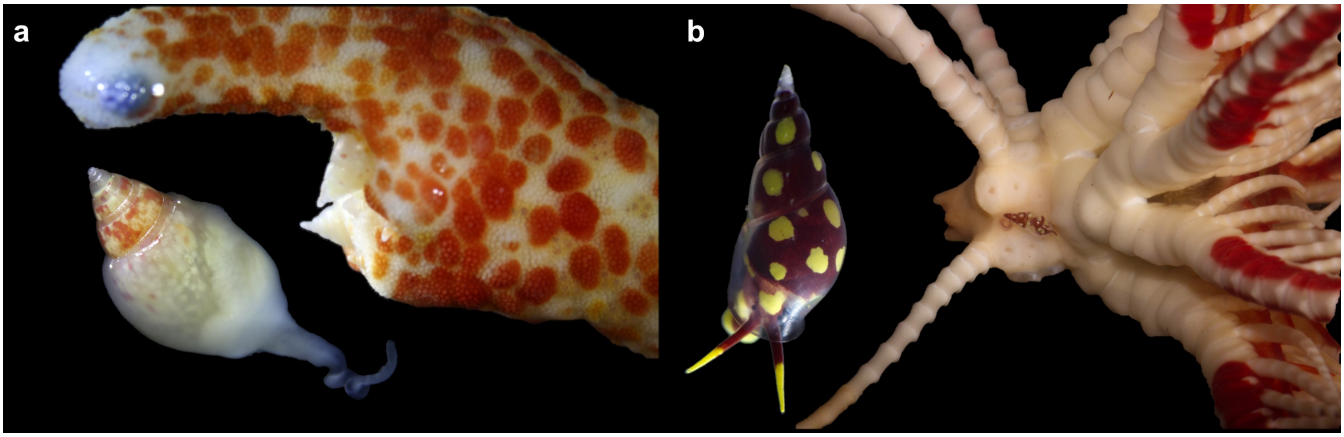


**Figure 3**: **a).** *Stilifer linckiae* (left) and asteroid host *Linckia multifora* with multiple parasites (right) from Exmouth, Western Australia **(Photograph: Kara Layton, Nerida Wilson).**

**b).** *Annulobalcis* sp. (left) and crinoid host *Pterometra* with parasite (right) from Papua New Guinea **(Photograph: Greg Rouse).**

**References:**

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Warén A, Lewis LM. (1994). Two new species of eulimid gastropods endoparasitic in asteroids. *Veliger* 37(4): 325–35.

## A purple *Merica purpuriformis* (Kiener, 1841) (Cancellariidae)

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The cancellarid gastropod *Merica purpuriformis* (Kiener, 1841) is uncommonly found as a beached shell in Victoria. Macpherson and Gabriel (1962: 225-226) describe its colouration as "cream with very light brown, encircling bands on the body-whorl and a third interrupted band of reddish brown just below the sutures."

Beached shells that I have found in Victoria over the years are a creamy yellow colour with only faint evidence of the encircling brownish-red bands. One specimen, however, found on the beach at Waratah Bay, has lived up to its species name. A somewhat worn shell, it displays a light purple tinge throughout, and it shown alongside a smaller, more typically coloured example found on the same day. Shells of the related *Nevia spirata* (Lamarck, 1822) are occasionally found with purplish hues, and sometimes even as pure white shells.

Time pressures have unfortunately not allowed me to check Kiener's original description—presumably some of the type material must also have been purpuriform?


Beached *Merica purpuriformis*, found at Waratah Bay, Victoria, Monday 29 June 2009. (**Photos: P. Vafiadis**)

**Reference:**

Macpherson JH, Gabriel CJ (drawings by GJ Browning) (1962). *Marine molluscs of Victoria*. Melbourne University Press in association with the National Museum of Victoria. Parkville, Victoria.

# Will the real *Mysella donaciformis* Angas, 1878 (Bivalvia: Lasaeidae) please stand up?

T. Joan Hales, Inverloch Shell Museum email: phasianella@dcsi.net.au

After Angas (1877) described the genus *Mysella* with *Mysella anomala* as type, he received some small bivalves from Professor Tate from Holdfast and Aldinga Bays, St. Vincent Gulf, South Australia, which Tate said belonged to the new genus. When Angas (1878) described those shells as *Mysella donaciformis*, he illustrated the right valve exterior and the hinge area of the left valve:


***Mysella donaciformis*, original drawing (Angas, 1878: 863, pl. 54, fig.13).**

Descriptive words and phrases include equivalve, very inequilateral, white, shining, finely concentrically ridged, umbones somewhat tumid, dorsal margin slightly arcuate posteriorly, short and abruptly descending anteriorly, ventral margin, a little convex and beaks distinct and incurved. Size is about 6 mm.

There is no description of the hinge area but in the remarks (Angas, 1878), reference is made to the genus diagnosis for *Mysella* when he described *Mysella anomala* (Angas, 1877). That diagnosis includes a description of the hinge of the left valve: "Hinge with a small triangular internal cartilage-pit, close to which is a single small, diverging, subcircular flattened cardinal tooth in one valve and with two thin, short horizontal lateral processes in the other valve."

The next reference to the species is by E.A. Smith (1891), who discusses the genus *Mysella*. He said that he had studied the types of *Mysella anomala* and *Mysella donaciformis*, both of which were lodged in the British Museum. He calls Angas's (1878) description of the *Mysella* hinge "inaccurate in more respects than one." The cardinal tooth that Angas called "diverging, sub--circular and flattened" is described by Smith as "the upper side is almost straight and the lower gently curved. In addition to this, there is a second but much smaller tooth on the anterior side of the cartilage-pit, entirely overlooked by Mr Angas." Smith could find no reason to separate the genus from *Tellimya* T. Brown, 1827.

Dall (1900) followed Smith (1891) and, under the heading of *Rochefortia* Vélain, 1877, labelled Angas's (1877 & 1878) illustrations as "very bad". Once again the discussion was on determining which genus was relevant. Dall (1900) proclaimed *Tellimya* as being unavailable and therefore proposed that the shells be referred to *Rochefortia*.

Hedley (1902) added his thoughts, as Angas's (1878) illustrations had been condemned as unsatisfactory by "Dall and others". Hedley references Dall (1900) and an earlier reference to *Mysella donaciformis* by Henn (in Henn & Brazier, 1894), who included the name in a list of species found at Watson's Bay, New South Wales. Due to the unsatisfactory nature of Angas's (1878) illustrations, Hedley decided to do a series of drawings of a 6 mm shell he found and identified as *Rochefortia donaciformis* at Middle Harbour, New South Wales. He gave no explanation as to why he identified that particular shell as such.

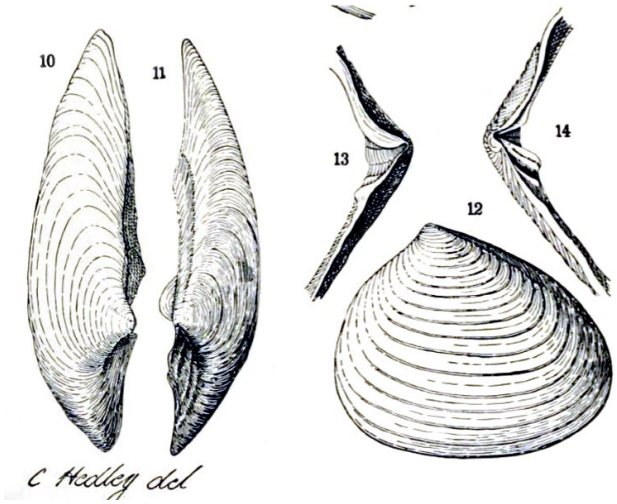



**Illustration of *Rochefortia donaciformis* (Angas, 1878) by Hedley (1902: 7, pl. 1, Figs. 10-14).**

The illustration in May (1923) (as *Rochefortia donaciformis*), and the same illustration in May and Macpherson (1958) (as *Mysella donaciformis*), looks similar to that of (Hedley (1902).

After that, there seems to have been a break, with nothing of great interest until Laseron (1956) published his paper revising the New South Wales Leptonidae. He discusses the genus *Mysella* and the *Mysella donaciformis* question at some length, suggesting that the true *M. donaciformis* does not occur in New South Wales, but

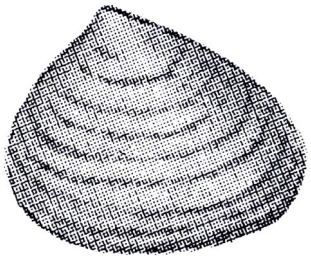


**Illustration of *Rochefortia donaciformis* by May (1923: 20, pl. 8, fig.16).**

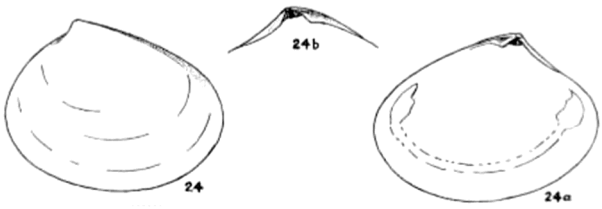
three small *Mysella* species do, none of them conforming to the *M. donaciformis* type. Laseron (1956) described one of these as *Mysella vitrea* at about 3.6 mm, stating that, "This is apparently the species previously identified as the South Australian *Mysella donaciformis* Angas, 1878, and figured as such by Hedley (1902, pl. I, fig. 10-14). It is however not nearly so inequilateral, the true *M. donaciformis* having the umbos nearly terminal." The second was described as *Mysella cretacea* Laseron, 1956, 7 mm in length. Laseron (1956) noted that *M. vitrea* and *M. cretacea* are similar but occur in different habitats, *M. cretacea* being found in more estuarine situations. The third New South Wales species, from deep water, is *Mysella lactea* (Hedley, 1902).

The next author to contribute to the story is Cotton (1961) in his *South Australian Mollusca*. The first half of his description re-iterates Angas's (1878) original description. Added are descriptions of the sculpture and hinge. He suggests that Angas's holotype is juvenile as he has much larger specimens (to 11 mm) from the Gulf of St. Vincent.

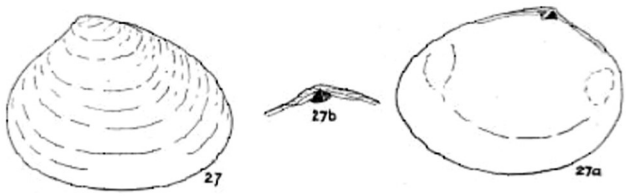
Cotton's figure (size stated as 8.5 mm) is reproduced in Lamprell & Healy (1998), who appear to be have had a bet each way, as underneath, a picture of *M. donaciformis* syntypes from the British Museum of Natural History is added. In Cotton's figure, neither ventral margin nor the umbones concur with the original description.

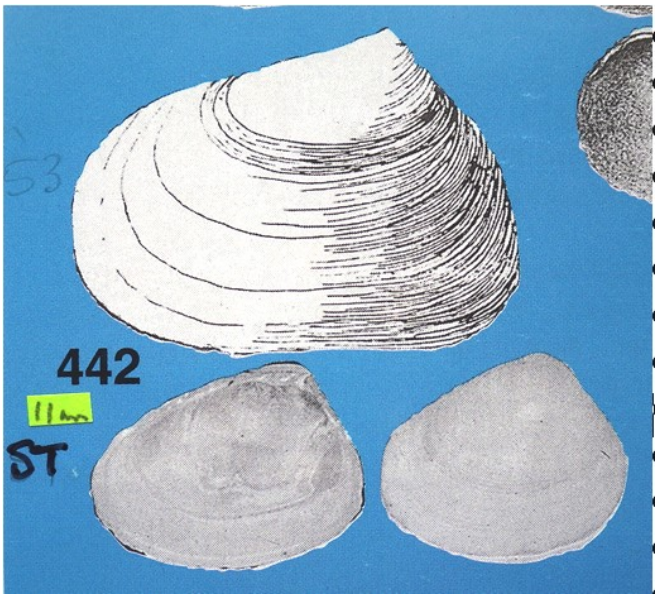
Macpherson and Gabriel (1962) list *Mysella donaciformis* with the note that it is "found on all parts of the coast." Size is given as 1/8th inch, about 3 mm. No illustration is given.

The Marine Research Group of the Field Naturalists Club of Victoria (2006) illustrates a shell that it identified as *M. donaciformis*, with locality data. The illustration shows a shell with the umbones situated anteriorly but not almost terminal as indicated by "short and abruptly descending anteriorly" in Angas's (1878) original description. The size is stated to be up to 6 mm. The locality map is very interesting, as this shell has only been located from Port Phillip Bay and eastwards to Mallacoota, with no records from western Victoria over more than 30 years of documenting living species in the intertidal zone.

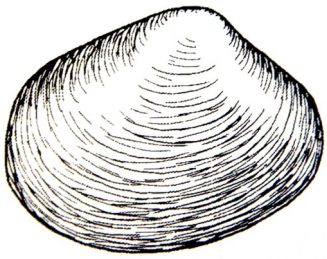



**Illustrations of *Mysella vitrea* (above) & *Mysella cretacea* (below) by Laseron (1956: 16-18).**



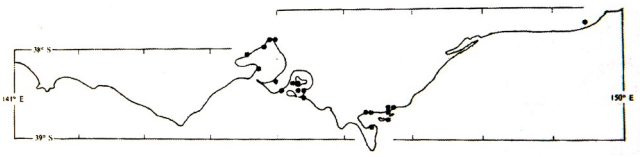




**Above: Illustrations of *Mysella donaciformis* in Lamprell & Healy (1998: 162, fig. 442).**



Left and below:

*M. donaciformis* and its Victorian distribution, as understood by the Marine Research Group of the FNCV (2006: 88)



In his second volume of the *Compendium of Bivalves*, Huber (1915) had very little to say on the subject other than that the figure in Jansen (1995) was actually *Mysella cretacea*. Photographs of a specimen that Huber (2015) had identified as *M. donaciformis*, as well as close

-up photos of the hinge were included, possibly as he had noted the disputes regarding the hinge in Angas's (1878) illustration. The shell pictured appears to be more concave anteriorly than Angas's illustration, although if Angas's shell was juvenile as suggested by Cotton (1961), the earlier growth rings are more in accord with the illustration. There is no size given for Huber's specimen. He notes the size as recorded by Cotton (1961).


Above: Illustrations of *Mysella donaciformis* in Huber (2015: 153) (note species date should read 1878)

All the references to *M. donaciformis* prior to Hedley (1902) referred to the hinge details with particular reference to *M. anomala*, the type of the genus. Hedley (1902) gives no reason for identifying the shell he illustrated as Angas's species. The reason for including Henn (in Henn and Brazier, 1894) as a reference is unclear. Henn had identified a shell from Watson's Bay as *M. donaciformis*, which Hedley may have concluded had also been seen and agreed to by Brazier, whose notes on some of the species were appended to Henn's list. The complete entry for this species is: "139. MYSELLA DONACIFORMIS, Angas. Three valves" (Brazier, in Henn and Brazier, 1894).

Laseron (1956) had no doubts that New South Wales shells were being misidentified, and he regarded *M. vitrea* Laseron, 1956 as the species illustrated by Hedley (1902), although his drawing of his new species does not appear to agree with Hedley's drawing.

No good reason was found as to why Angas's (1878) illustration should not be regarded as a reasonable depiction of his new species, despite the hinge illustration being somewhat suboptimal. Laseron's (1956) assertion that the species does not occur in New South Wales may also apply to Victoria, as 25 years of checking shell sand east of Port Phillip Bay has never revealed a specimen that could be confidently assigned to Angas's (1878) species. The Marine Research Group (2006) data suggests that a more likely proposition is that their Victorian specimens are actually one of Laseron's (1956) species. If that is the case, based on Laseron's (1956) stated habitat details, *M. cretacea* is the most likely candidate.

Tomorrow may be the day that we find a shell that is a good match for the illustration and description of *M. donaciformis* here in Victoria, but if so, it is certainly not going to be a common shell here. In the meantime, that still leaves the question of Hedley's (1902) shell – which species is it?

**Acknowledgement:** Many thanks to the editor, Platon Vafiadis, for his questions and suggestions which have resulted in a much more comprehensive paper than originally planned.

**References:**

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# Hydroids on marine snails

Robert Burn, Malacological Society of Australasia (Victorian Branch)

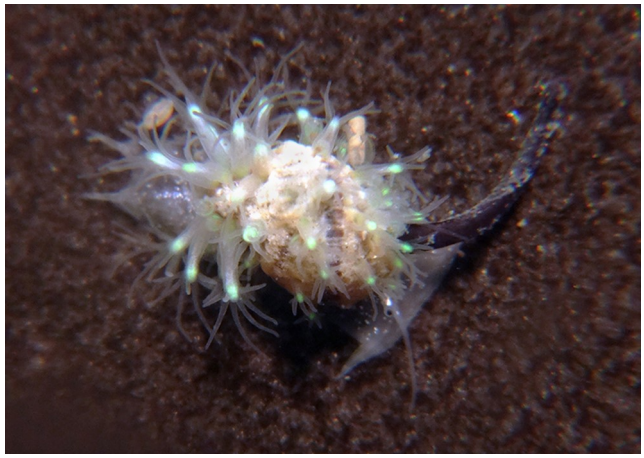
*Nassarius albescens* (Dunker, 1846) is a common, broadly distributed Indo-Pacific species (Cernohorsky, 1972; Wilson, 1994). In Australia, it is reported to be the gastropod host of the athecate hydroid *Stylactella niotha* Pennyciuk, 1959, described from material collected at Low and Heron Islands, Great Barrier Reef, Queensland. In 2010, Platon Vafiadis found and photographed this nassariid alive at Heron island, noting a furry coating on the shell and "at the time wishing the shells were clean to produce a more attractive image of the snail" (Vafiadis, pers. comm). Upon receipt of an earlier version of this note for the Newsletter, titled as above, he re-examined his 2010 images, to his surprise and delight finding his *N. albescens* were almost completely and densely covered with the hydroid *S. niotha*. Graciously, he offered me the opportunity to re-write my original note and to use the best of his images.

Interest in "Hydroids on marine snails" arose through the recent discovery and imaging of several juvenile and an adult *N. albescens* at dive sites in the estuary of the Mooloolah River, SE Queensland, each bearing dorsal thickets of the commensal hydroid *Stylactella niotha*. Juvenile *N. albescens* make the hydroids appear very big, but on a 20 mm long adult snail, they appear small. Actual hydroid height is less than 2 mm.

*Stylactella niotha* (note: no gonophores) on a 15mm long adult snail of *Nassarius albescens*, 4m depth, Fish Cage dive site, La Balsa Park, Mooloolah River, Mooloolabah, Sunshine Coast, Queensland, 5 July, 2020. **Photograph: Fran Roberts.**

Curiously, *N. albescens* has been reported from elsewhere to bear commensal hydroids: in southern Africa *Cytaeis nassa* (Millard, 1957) (Kilburn and Rippey, 1982); in Japan an unidentified species (Okutani, 2017). Is it possible that hydroids in commensal association with *N. albescens* might be the one species?

Despite Australia's lengthy tropical and temperate



**Top:** *Stylactella niotha* on a 4-5mm juvenile *N. albescens*, 3m depth, Rotunda dive site, La Balsa Park, Mooloolah River, Mooloolabah, Sunshine coast, Queensland, 17 February, 2020. Note: individual hydroids less than 2mm long, presence of gonophores (egg cells) suggest summer breeding season. **Below:** *Stylactella niotha* on juvenile shell host, 4m depth, same locality data, 11 June, 2020. Note: no gonophores. **Both photos: Gary Cobb.**

coastline, only one other commensal athecate hydroid has been reported on a nassariid host. *Stylactaria betkensis* (Watson, 1978) was first found on the estuarine sand flats of the Betka River, just west of Mallacoota, far-eastern Victoria, forming colonies on the back of the living nassariid *Nassarius burchardi* (Philippi, 1851). Since then, *S. betkensis* has been noted in the estuaries and protected embayments of southern New South Wales (Burn, pers. obs, 1987-2002). It evidently occurs to central New South Wales, possibly even further north.

In 1962, Isobel Bennett published a short illustrated note, with the same title as above, on the occurrence of the nassariid *Tritia jonasii* (Dunker, 1846) and its

commensal hydroid in the wider Sydney coastal area. In Middle Harbour, Sydney, she had found that "at least 90% of the snails collected were covered with what appeared to the naked eye as a fine, white, fuzzy growth of some sort. Under the microscope, this was revealed as a colony of tiny, delicate hydroids." These were subsequently (but incorrectly) identified for her as *Hydractinia epiconcha* (Stechow, 1922), a Japanese species known to be an obligate commensal on the buccinid *Cantharus (Pollia) mollis* (Gould, 1860) (Okutani, 2017). Her photograph of the hydroids on two *T. jonasii* specimens strongly suggests that her hydroid species was *Stylactaria betkensis*, despite being on a different snail host. *Nassarius burchardi* and *Tritia jonasii* are very similar sympatric species in south-eastern Australia, and at times have been synonymised, leading to the possibility that misidentification of the Betka River host snail is involved.

Indo-Pacific malacological literature reports four hydroid/nassariid partnerships from southern Africa (Kilburn and Rippey, 1982) and another four from Japan (Okutani, 2017), both areas including *N. albescens*, as does also eastern Australia. Closer observations of Australia's nassariids will undoubtedly reveal more instances of hydroid commensalism.

A final question: Are aeolid nudibranchs ever to be found grazing upon these mobile thickets of a favoured food?

**Acknowledgements:**
Gary Cobb and Fran Roberts of Nudibranch Central kindly provided the images and data of the Mooloolah River finds. Platon Vafiadis surprised me with images and data from Heron Island, and the necessity to recast this contribution. Dr. Jan Watson, AM, discussed the identification of Isobel Bennett's 1962 material.

**At left:** An adult *Nassarius albescens* entirely covered (except for aperture, outer lip & parietal glaze) with the commensal hydroid *Stylactella niotha*, on edge of coral sand spit, shallow sublittoral zone, Heron Island (northern aspect), Queensland, Friday 2 July, 2010.
**(Photo: P. Vafiadis)**

**References:**

Bennett, I. (1962). Hydroids on marine snails. *Australian Natural History* 14(3): 93.

Cernohorsky, WO (1972). *Marine Shells of the Pacific. Volume 2*. Pacific Publications, Sydney. (Pp. 1-411, 68 pls.)

Kilburn, R. and Rippey, E. (1982) *Sea Shells of Southern Africa*. Macmillan, South Africa: Johannesburg. (Pp 11 + 249)

Okutani, T. (ed) (2017). *Marine Mollusks in Japan. The Second Edition*. Tokai University Press: Kanagawa, Japan. (Pp. 1375 + 2).

Pennycuik, P.R. (1959). Faunistic Records from Queensland. Part 5. Marine and brackish water hydroids. *University of Queensland Papers: Department of Zoology* 1(6): 141-210.

Watson, J.E. (1978). New species and new records of Australian athecate hydroids. *Proceedings of the Royal Society of Victoria* 90(2): 301-314.

Wilson. B. (1994). *Australian Marine Shells. Volume 2 (Neogastropods)*. Odyssey Publishing, Kallaroo, Western Australia. Pp. 1-370, 53 pls.

## Report of MSA Research Grant Committee

Lisa Kirkendale, Dept. of Aquatic Zoology, Western Australian Museum
email: lisa.kirkendale@museum.wa.gov.au

Kerry Walton, University of Otago email: walton.kerry@gmail.com

The MSA Research Grant Committee concurred on the top two applications, both of which scored very highly.

Each successful applicant will receive $2,500 to assist in their research costs.

The winner was our own Secretary, Priscila Salloum, University of Auckland, with her proposal looking at chiton genomics.

Very close second place was Weili Chan, The University of Queensland, who will be looking at the storage of toxins in sea-slugs.

Congratulations to our winners and all those who submitted grant applications.

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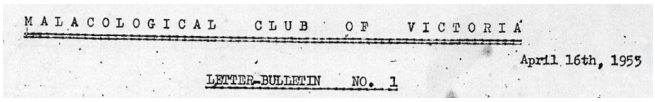
## A brief history of the MSA newsletter, 1953-1972

Platon Vafiadis email: newsletter@malsocaus.org

The newsletter of the Malacological Society of Australasia originated as the Malacological Club of Victoria Letter-Bulletin No. 1, appearing on 16 April 1953:

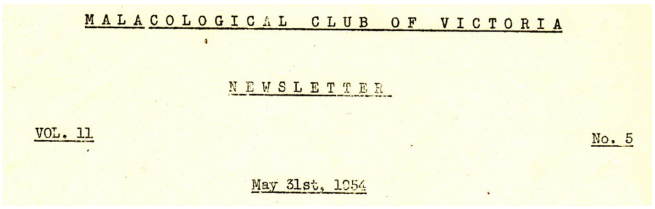


MALACOLOGICAL CLUB OF VICTORIA

April 16th, 1953

LETTER-BULLETIN NO. 1

Letter-Bulletin No. 5 appeared on 31 May 1954 with the 'Letter-Bulletin' subtitle replaced by 'Newsletter', and labelled as volume 2, thus retrospectively assigning Letter-Bulletin Nos. 1-4 to volume 1:



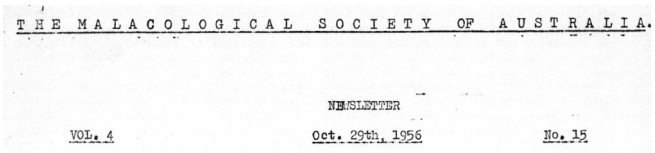
MALACOLOGICAL CLUB OF VICTORIA

NEWSLETTER

VOL. 11 No. 5

May 31st, 1954

Volume 4, No. 15, issued 29 October 1956 was the first issue that bore the title 'Malacological Society of Australia':

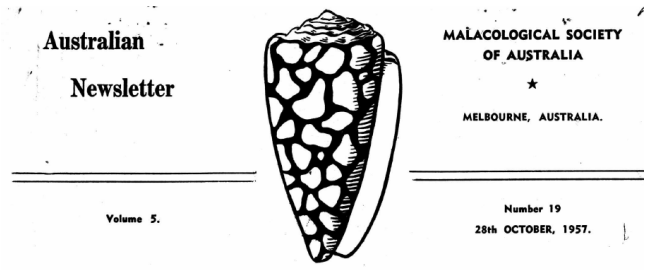


THE MALACOLOGICAL SOCIETY OF AUSTRALIA.

NEWSLETTER

VOL. 4 Oct. 29th, 1956 No. 15

Volume 5, No. 19, issued 28 October 1957, was the first issue to display the MSA's *Conus marmoreus* emblem, and the front page was printed on blue-coloured paper, and was also the first issue to bear the title 'Australian Newsletter':



Australian Newsletter

MALACOLOGICAL SOCIETY OF AUSTRALIA

★

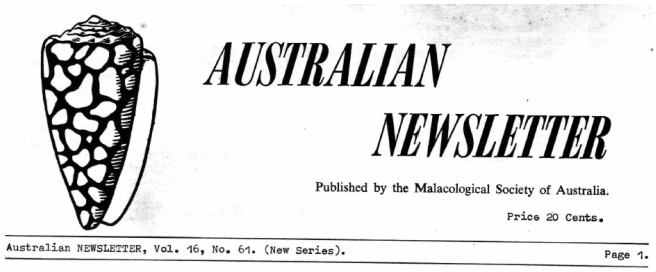
MELBOURNE, AUSTRALIA.

Volume 5.

Number 19

28th OCTOBER, 1957.

This style continued up to, and including, Vol. 15, No. 60 (issued 31 January, 1968). After this, there was a change in style again, with Vol. 16, No. 61 (New Series) (undated, but publication date circa 30 April 1968), displaying a bolder 'Australian Newsletter' title, and the cover was no longer on coloured paper:



AUSTRALIAN NEWSLETTER

Published by the Malacological Society of Australia.

Price 20 Cents.

Australian NEWSLETTER, Vol. 16, No. 61. (New Series). Page 1.

The next issue, of 31 July 1968, was in the same style but its number was simply "New Series no. 2" with no volume reference:


AUSTRALIAN NEWSLETTER

Published by the Malacological Society of Australia.

Price 20 cents.

Australian NEWSLETTER, New Series No.2. 31st July, 1968. Page 1.

The subsequent issues continued in the same style (all with no volume reference), up to and including 'Australian Newsletter, New Series No. 18, 31 July - 31 October, 1972.'

Beyond this, on 31 January 1973, the publication was re-named 'Australian Shell News', commencing as number 1. Although the newsletter title has changed over the years, the current newsletter numbering has continued unbroken from *Australian Shell News* No. 1 to the current issue.

The table below lists all of the 78 newsletters preceding the first *Australian Shell News*, with volume and issue numbers, dates of publication and title, and with some selected annotations.

*Australian Shell News* is a topic to be covered at another time.

| Volume | Number | Date | Title |
|---|---|---|---|
| (1) + | 1 | 16-04-1953 | Malacological Club of Victoria, Letter-Bulletin |
| (1) + | 2 | 31-07-1953 | " |
| (1) + | 3 | 30-11-1953 | " |
| (1) + | 4 | 25-02-1954 | " |
| 2 | 5 | 31-05-1954 | Malacological Club of Victoria, Newsletter |
| 2 | 6 | 01-09-1954 | " |
| 2 | 7 | 29-11-1954 | " |
| 3 | 8 | 28-02-1955 | " |
| 3 | 9 | 30-05-1955 | " |
| 3 | 10 | 29-08-1955 | " |
| 3 | 11 | 28-11-1955 | " |
| 4 | 12 | 30-01-1956 | " |
| 4 | 13 | 29-04-1956 | " |
| 4 | 14 | 30-07-1956 | " |
| 4 | 15 | 29-10-1956 | Malacological Society of Australia, Newsletter |
| 5 | 16 | 16-01-1957 | " |
| 5 | 17 | 29-04-1957 | " |
| 5 | 18 | 31-07-1957 | " |
| 5 | 19 | 28-10-1957 ** | Australian Newsletter, Malacological Society of Australia |
| 6 | 20 | 27-01-1958 | " |
| 6 | 21 | 28-04-1958 | " |
| 6 | 22 | 28-07-1958 | " |
| 6 | 23 | 27-10-1958 | " |
| 7 | 24 | 26-01-1959 | " |
| 7 | 25 | 27-04-1959 | " |
| 7 | 26 | 27-07-1959 | " |
| 7 | 27 | 26-10-1959 | " |
| 8 | 28 | 25-01-1960 | " |
| 8 | 29 | 30-04-1960 | " |

**(table continued on next page)**

| Volume | Number | Date | Title |
|---|---|---|---|
| 8 | 30 | 31-07-1960 | Australian Newsletter, Malacological Society of Australia |
| 8 | 31 | 31-10-1960 | " |
| 8 | 32 | 31-01-1961 | " |
| 9 | 33 | 30-04-1961 | " |
| 9 | 34 | 31-07-1961 | " |
| (9) **#** | 35 | 31-10-1961 | " |
| 9 | 36 | 31-01-1962 | " |
| 9 | 37 | 30-04-1962 | " |
| 10 | 38 | 31-07-1962 | " |
| 10 | 39 | 31-10-1962 | " |
| 11 | 40 | 31-01-1963 | " |
| 11 | 41 | 30-04-1963 | " |
| 11 | 42 | 31-07-1963 | " |
| 11 | 43 | 31-10-1963 | " |
| 12 | 44 | 31-01-1964 | " |
| 12 | 45 | 30-04-1964 | " |
| 12 | 46 | 31-07-1964 | " |
| 12 | 47 | 31-10-1964 | " |
| 13 | 48 | 31-01-1965 | " |
| 13 | 49 | 30-04-1965 | " |
| 13 | 50 | 01-07-1965 | " |
| 13 | 51 | 31-10-1965 | " |
| 14 | 52 | 31-01-1966 | " |
| 14 | 53 | 30-04-1966 | " |
| 14 | 54 | 31-07-1966 | " |
| 14 | 55 | 31-10-1966 | " |
| 15 | 56 | 31-01-1967 | " |
| 15 | 57 | 30-04-1967 | " |
| 15 | 58 | 31-07-1967 | " |
| 15 | 59 | 31-11-1967 | " |
| 15 | 60 | 31-01-1968 | " |
| 16 | 61 (New Series no. 1) | (30-04-1968)* | Australian Newsletter |
| + | New Series no. 2 | 31-07-1968 | " |
| + | New Series no. 3 | 31-10-1968 | " |
| + | New Series no. 4 | 31-01-1969 | " |
| + | New Series no. 5 | 30-04-1969 | " |
| + | New Series no. 6 | 31-07-1969 | " |
| + | New Series no. 7 | 01-10-1969 | " |
| + | New Series no. 8 | 31-01-1970 | " |
| + | New Series no. 9 | 30-04-1970 | " |
| + | New Series no. 10 | 31-07-1970 | " |
| + | New Series no. 11 | 31-10-1970 | " |
| + | New Series no. 12 | 31-01-1971 | " |
| + | New Series no. 13 | 30-04-1971 | " |
| + | New Series no. 14 | 31-07-1971 | " |
| + | New Series no. 15 | 31-10-1971 | " |
| + | New Series no. 16 | 31-01-1972 | " |
| + | New Series no. 17 | 30-04-1972 | " |
| + | New Series no. 18 | 01-10-1972 | " |

**Key:** **+** - no volume number is assigned to the issue

****** - first appearance of *Conus marmoreus* on the cover

**#** - erroneously labelled as Volume 8

***** - issue is undated; the 'New Series' was initiated after the interstate move of council from Melbourne to Sydney.