

New Zealand Molluscan Systematics with Descriptions of New Species: Part 4

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ABSTRACT

In this part two new species of New Zealand mollusca are described, *Maurea turnerarum* and *Exomilopsis hipkinsi*, the latter as type of a new genus. Two other species, *Limulatus reliquus* Iredale, 1936 and *Xenophalium* (*Xenogalea*) *thomsoni* (Brazier, 1875) make new records for the New Zealand fauna. Still another record of an exotic species, *Tenpetasus liberatus* (Pease, 1868), requires confirmation before admittance as a true member of the fauna. The remainder of the paper deals with other New Zealand records of exotic species, most without legitimate claim for inclusion in the New Zealand fauna and finally two items concerning rectifications of nomenclature.

Family TROCHIDAE

Subfamily CALLIOSTOMATINAE

Genus **MAUREA** Oliver, 1926.

Type (o.d.) : *Trochus tigris* Martyn, 1784 = Gmelin, 1791

Maurea turnerarum n. sp. Plate 3, Figures 1-3.

This shell recalls *waikanae* Oliver, 1926, of the *cunninghami* series but is at once distinguished by its thin fragile shell, the outlines of the last two whorls, which are strongly convex as opposed to the lightly convex outlines of the earlier spire whorls, the very sharply and narrowly rib-keeled periphery, overall granulation of the primary spirals and the brown dot and dash pattern, which although confined to the crisp narrow gemmate spirals, resolves into an arrangement of radiate series both dorsally and on the base. In *waikanae*, in addition to the dot-dash markings on the spirals there are regular but diffused maculations both subsuturally and at the periphery.

Post-nuclear whorls about eight, rather straight-sided to the penultimate, after which the body-whorl accelerates and becomes more convex in outline both above and below a sharp peripheral carina. The spire angle of the upper whorls is about 80° but for the whole spire, almost 95°. The aperture is rhomboidal and capacious. Post-nuclear sculpture of crisp, narrow, finely gemmulate cords and threads. Three primary cords on the first four post-nuclear whorls but thence increasing to five in addition to the peripheral carina. Interstitial spirals vary between one and three over the penultimate and eight to nine on the body-whorl, but only one in each interspace is gemmulate. Base densely sculptured with crisp narrow cords and threads, most of which are gemmulate. There is no great difference in strength between the primary and the secondary cords but the tertiary spirals are plain, weak, and irregularly disposed threads. There are about 28 gemmulate cords on the base and 13 of these are considered primary, for they carry the colour pattern. Spire about one and one sixth height of aperture. Umbilical area closed by a thick white callus. Ground colour light brownish buff above

and near white below, speckled with a dot and dash reddish-brown pattern confined to the primary cords. No diffused maculations, as in *waikanae*. The operculum is horny, smooth, thin and highly polished, the coiling ill defined by a smooth low narrow spiral, not lamellate as in *cunninghami*.

Height 42.0 mm.; diameter 56.5 mm. (holotype).

Locality: Off Mayor Island, Bay of Plenty, 200 fathoms.

Holotype presented to the Auckland Museum by Misses Ann and Elizabeth Turner.

Family CAPULIDAE

Genus TENPETASUS Iredale, 1929.

Type (o.d.) : *Capulus liberatus* Pease, 1868.

Tenpetasus liberatus (Pease, 1868).

1868—*Capulus liberatus* Pease, Amer. Journ. Conch., vol. 3, p. 284, pl. 24, f.2.

1915—*Capulus intortus* Lamarck, Hedley, Journ. Roy. Soc. W.A., 1, p. 189 (not of Lamarck).

1929—*Tenpetasus liberatus* Pease, Iredale, Mem. Queensl. Mus., vol. 9, 3, p. 277.

In August, 1960, Mr C. H. Robinson of Kerikeri collected seven examples of the above species from a sandy beach at the western end of Moturoa Island, Bay of Islands.

These shells were not found alive but they are in good state of preservation; the largest is 10 mm. x 14 mm. The species has a wide Indo-Pacific distribution, but is most commonly found at Norfolk Island. Hedley (l.c.) recorded it under the name of *Capulus intortus* Lamarck, from Funafuti, Loyalty Islands, New Hebrides, Norfolk Island and Geraldton, Western Australia. I have series from Isle of Pines, New Caledonia and Mauritius.

Iredale (l.c.) restricted *intortus* Lamarck to its type locality, "West Indies," and there is a generic name for it in *Krebsia* Mörch, 1877. Iredale considered that the Indo-Pacific shells were neither conspecific nor congeneric with *Krebsia* and proposed for them the generic name *Tenpetasus*, the nucleus of which is Rissoid-like, not a smooth helicoid as in *Capulus*.

This New Zealand record is possibly the result of a chance spat fall, so further evidence is desirable before considering the species a component of the New Zealand fauna.

Family NATICIDAE

Genus CONUBER Finlay and Marwick, 1937.

Type (o.d.) : *Natica conica* Lamarck, 1822.

Conuber conica (Lamarck, 1822).

1822. *Natica conica* Lamarck, Anim. sans vert., 6 (2), p. 198.

1952. *Conuber conica* (Lamarck), Powell, Rec. Auck. Inst. Mus., 4 (3), p. 174.

At the above reference the writer recorded the finding by Mrs I. Worthy, of two half-grown but well preserved examples of this common south eastern Australian naticoid at Tauranga Bay, Whangaroa. Two further examples, also in a good state of preservation, but likewise small, 12-13 mm. in height, were taken at Takou Bay, Northland, by Mr. C. H. Robinson.

By its scarcity and the fact that no adult examples have been taken in New Zealand waters suggests that the species, upon this evidence, cannot be considered a true member of the New Zealand fauna. Such rare occurrences are probably the result of odd successful spat-falls, but it would seem that owing to adverse physical factors these migrants neither reach maturity nor do they breed here.

Anderson (1960. Journ. Malac. Soc. Aust., 4, p. 24) pointed out that of three species of Northern Hemisphere Naticoids, *nitida*, *pallida* and *catena*, the first mentioned hatches as a planktotrophic veliger but the other two emerge from the egg at the crawling stage. Life histories of Austro-Neozelanic naticoids are unknown but it would seem that both planktonic and sedentary types are represented, the former probably by *Conuber*, *Notocochlis* and *Mammilla* and the latter by *Tanea* and *Uberella*.

Genus **XENOPHALIUM** Iredale, 1927

Type (o.d.) : *Xenophalium hedleyi* Iredale, 1927.

Subgenus **XENOGALEA** Iredale, 1927.

Type (o.d.) : *Cassis pyrum* Lamarck, 1822.

Xenophalium (Xenogalea) thomsoni (Brazier, 1875). Plate 3, figures 4, 5.

1875. *Cassis (Casmaria) thomsoni* Brazier, Proc. Linn. Soc. N.S.W., 1, p. 8.

1927. *Xenophalium (Xenogalea) thomsoni* (Brazier), Iredale, Rec. Aust. Mus. 15, No. 5, p. 342, pl. 31 (not 32), figs. 6, 7.

Type locality—New South Wales, on sandy bottom, 45 fathoms five miles due east of Sydney Heads.

Remarks—This species, which is generally distributed along the continental shelf of New South Wales, can now be considered an established constituent of the New Zealand fauna, for five fresh or live-taken specimens are now known from the shelf of the North Auckland east coast in from 20 to 40 fathoms.

The species resembles *pyrum* but is at once distinguished by the strongly carinate periphery, followed by a weaker carination below it, at about the level of the top of the aperture. Both keels are crenulated by numerous closely spaced nodules, more elongated and weaker on the second keel. A third subobsolete spiral row of closely spaced weak elongate axials is often present at about the middle of the body-whorl.

The shoulder area and the space between the peripheral keel and the one below it, are both deeply concave. The shoulder area also bears two or three primary smooth spiral cords and a varying number of weak interstitial threads. The coloration is very constant, consisting of spiral rows of small rectangular reddish-brown maculations on a light pinkish fawn ground. Uppermost row of maculations on the periphery, other two on the base.

Records (New Zealand), trawled off Cuvier Island, Bay of Plenty, in about 40 fathoms (Misses Ann and Elizabeth Turner); trawled 30 miles north of Mangonui; off Stephenson Island, Whangaroa, 20-39 fathoms, in crayfish pots (Mrs. I. Worthy); Great Barrier Island, from crayfish pots; Marsden Point, Whangarei Heads, beach specimen (K. Hipkins).

Measurements (mm.)—

Height	Width	
49.0	34.0	New South Wales (holotype).
54.5	48.5	New South Wales, Ulladulla, 40-50 fathoms.
73.0	51.0	New South Wales, 60-80 fathoms, Twofold Bay.
75.0	53.0	New Zealand, 30 miles north of Mangonui.
78.0	51.0	New South Wales, 60-80 fathoms, Twofold Bay.

Family CYMATIIDAE**Genus CHARONIA** Gistel and Bromme, 1847.

Type (monotypy) : *Murex tritonis* Linnaeus, 1758.

Charonia tritonis (Linnaeus, 1758).

1758. *Murex tritonis* Linnaeus, Syst. Nat., ed. 10, p. 754.

1913. *Septa tritonis* (Linnaeus), Suter, Manual of the N.Z. Mollusca, p. 304.

Suter (1913, l.c.) included this species in the New Zealand fauna with two locality references "Cape Maria van Diemen (Dr. Dieffenbach) ; Ahipara Bay, thrown up after gales", but specimens substantiating these claims are apparently not available.

Smith (1915, Brit. Antarctic "Terra Nova" Exped., 1910, Zool. 2, No. 4, pt. 1, Moll., p. 84) recorded "a young specimen of a Triton in perfect condition, allied to the early stage of the well-known *C. tritonis* (Linn.)", from near the North Cape, 11-20 fathoms. Smith remarked that the specimen did not represent the young of *C. rubicunda* (Perry), another large Triton occurring in New Zealand.

This record, based with reservation, by Smith, upon a juvenile of only 11.5 mm. can be ignored, especially since I was unable to locate the specimen in the British Museum collections.

However I can now record the authentic finding of a near adult sized example of *tritonis* in a fairly fresh condition from Wainui Bay, Bay of Islands County, Northland. This was obtained by Mr C. H. Robinson of Kerikeri from a Maori boy who had just picked it up on the beach.

There is still no evidence that the species actually lives in New Zealand waters and the possibility that the Wainui shell was a dropped specimen cannot be ruled out.

Genus MAMMILLA Schumacher, 1817.**Mammilla simiae** (Deshayes, 1838).

Type (monotypy) : *M. fasciata* Schumacher, 1817 = *Albula mammata* Röding, 1798.

1838. *Natica simiae* Deshayes, Hist. Nat. Anim. sans Vert., 8, p. 652.

1934. *Polinices simiae* (Deshayes), Powell, Trans. Roy. Soc. N.Z., vol. 64, p. 156.

This species, which is common in East Australian and Kermadec Island waters was first recorded for New Zealand on the basis of four beach worn shells from the beaches at Cape Maria van Diemen.

Although this species has not as yet been taken alive in New Zealand waters to my knowledge, further records of freshly dead shells from a number of northern localities indicates the species as an estab-

lished entity in our fauna. These records are:—Taupeka Point, Bay of Islands (K. Hipkins), Takou Bay, Northland (C. H. Robinson), Goat Island Beach, Leigh (K. Hipkins), Oruawharo, Great Barrier Island (Mrs. G. Mitchener) and Waihou Bay, Bay of Plenty (Mrs. K. P. Walker).

Family TONNIDAE

Tonna maculata (Lamarck, 1822).

1822. *Dolium maculatum* Lamarck, Anim. sans. Vert., 7, p. 260.
 1848. *Dolium maculatum* Lamarck, Reeve, Conch. Iconica, 1, pl. 3, f.4.
 1885. *Dolium costatum maculatum* Lamarck, Tryon, Man. of Conch., 7, p. 264, pl. 4, f.21.
 1937. *Dolium maculatum* Lamarck (partim.), Bayer, Zool. Meded., 20, p. 43.
 1952. *Tonna dolium* (Linnaeus) (non Linnaeus, 1758), Tinker, Pacific Sea Shells, Honolulu, figs. facing p. 136.
 1952. *Tonna dolium* (Linnaeus) (non Linnaeus, 1758), Powell, Rec. Auck. Inst. Mus., 4 (3), p. 177, pl. 35, f.5.
 1954. *Tonna tessellata* (Lamarck), Kira, Coloured Illustrations of the Shells of Japan, pl. 22, f.9.

In 1952, at the above reference I recorded this tropical Indo-Pacific shell from New Zealand waters under the erroneous determination of *dolium* Linnaeus, 1758. The correct name for this shell is still subject to some doubt but the figures quoted in the above synonymy will at least fix the New Zealand records to the exact species concerned. In particular I compare the New Zealand shells to Reeve's "*maculatum*" and Tinker's "*dolium*". I follow Bayer, 1937 in separating *dolium* Linnaeus, 1758, with synonyms *Buccinum tessellatum* Bory St. Vincent and *Dolium fimbriatum* Sowerby, 1820, from *maculatum* Lamarck, 1822, based upon Martini-Chemnitz, Syst. Conch. Cab., 3, pl. 117, f.1073.

If this nomenclatural interpretation is correct then *dolium* is the rather small shell (50-60 mm. in height) which develops in its adult state a stout lacinated labial varix, and *maculata* is a similar but much larger shell (80-135 mm. in height) which always lacks the thickened labial varix.

Further records of *maculata* are now known from New Zealand waters—two in fresh condition from south of Parengarenga Harbour (Mrs. J. B. Johnston), one trawled in the Bay of Plenty, and another, evidently taken alive from a trawler operating off Manukau Heads (Mr. G. W. Barker).

Genus **CHICOREUS** Montfort, 1810.

Chicoreus ramosus (Linnaeus, 1758).

1758. *Murex ramosus* Linnaeus, Syst. Nat., ed. 10, p. 747.
 1908. *Murex ramosus* Linnaeus, Moss, Beautiful Shells of N.Z., p. 16.
 1924. *Murex ramosus* Linnaeus, Bucknill, Sea Shells of New Zealand, p. 66.

This well known Indo-Pacific mollusc was first recorded for New Zealand waters by E. G. B. Moss (1908, l.c.) on the basis of two specimens, one said to have been taken alive, from Tauranga Harbour. Dr. C. E. R. Bucknill (1924, l.c.), who verified the specimens, then in the possession of the finder, Mrs. T. M. Humphreys of Tauranga, stated that they were found in the Waikareao Estuary to the west of Tauranga.

It is of interest that two authentic New Zealand records can now be added:—Takou Bay, east coast, Northland, one adult, somewhat bleached but in good condition, collected by Mr. C. H. Robinson, ca. 1936. Same locality; small but very fresh specimen collected by Mrs. I. Worthy ca. 1920.

Despite the above three records there is no evidence that the species actually breeds in local waters.

Family COLUMBELLIDAE

Genus EXOMILOPSIS new genus

Type : *Mangelia spica* Hedley, 1907.

The shell described below is undoubtedly congeneric with, and in fact very close, specifically, to *Mangelia spica* Hedley, 1907, type from 80 fathoms off Narrabeen, New South Wales, and subsequently recorded by the same author (1922, Rec. Aust. Mus., 13, 6, p. 335) from 100 fathoms off Cape Pillar, Tasmania, and 110 fathoms off Beachport, South Australia.

Hedley (1922, l.c.) included this species with seven others—*Mangilia anxia* Hedley, 1909, *Mangilia cancellata* Beddome, 1882, *Terebra dyscritos* Verco, 1906, *Donovania fenestrata* Tate and May, 1900, *Mangelia lutraria* Hedley, 1907, *Drillia pentagonalis* Verco, 1896 and *Drillia telescopialis* Verco, 1896—in a new genus, *Exomilus* Hedley, 1918; type (o.d.) : *Mangelia lutraria* Hedley, 1907 (Journ. Roy. Soc. N.S.W., 51, p. M79).

This group of species occurs in the temperate waters of the continental shelf of Australia, ranging from New South Wales to Tasmania and South Australia. There is a superficial similarity in all these species in that they are small, cylindrical, attenuate and rather angulate shells, with a narrow rectangular aperture, but as Laseron, 1954 (The New South Wales Turridae, pp. 48, 49) has already pointed out—"It will probably be found when the whole of the southern Australian species at present included in *Exomilus* are examined together that several distinct groups are represented."

The type of *Exomilus*, *lutraria* (Hedley), has a moderately deep subsutural sinus as a rounded excavation in the labial varix and the protoconch is of three whorls, the tip blunt and concave, the third cylindrical and narrower than the second whorl.

In *spica* the anal sinus is not present and the protoconch is narrowly conical to cylindrical of $2\frac{1}{2}$ whorls, with a small rounded tip, smooth except for very faint axial threads. The present writer (Powell, 1944, Rec. Auck. Inst. Mus., 3, 1, p. 62) disassociated *spica* from the *Turridae* and suggested its inclusion along with *Etrema trophonalis* Chapman and Crespin, 1928 and *Aesopus semicostatus* Tenison-Woods, 1880 in the Columbelloid genus *Retizafra*. To this group also, belong the above mentioned *dyscritos* (Verco) and *fenestrata* (Tate and May). The remaining species may at present be retained in the Turrid genus *Exomilus*.

The new genus *Exomilopsis* is characterised by its strong superficial resemblance to the Turrid genus *Exomilus*, i.e. attenuate spire, sagged, low keeled whorls, crossed by axial folds, and a narrow rectangular aperture, but without an anal sinus.

The genus *Retizafra*, to which *spica* and its allies have most in common, has a fewer whorled more broadly conic protoconch and the shell is of more conventional fusiform shape, the sculpture being axial reticulated by spiral cords.

Exomilopsis hipkinsi n. sp. Plate 3, figure 7.

Shell small, white, attenuated, with tall spire, twice height of aperture plus canal. Whorls 5, plus a tall narrowly conic to pupoid protoconch of $2\frac{1}{2}$ -3 whorls, tip small, globose, slightly asymmetric; succeeding whorls tall with lightly convex outlines and terminated abruptly with a vertical slightly variced lip; smooth and glossy but showing faint axial threads over the last whorl. Post-nuclear whorls loosely coiled, sculptured with distinct to prominent spiral cords, those from the middle of each whorl downward, rendered regularly gemmate by otherwise weak axials. In detail, the spire whorls are sculptured above with three narrowly rounded spiral cords with interspaces of slightly greater width. The middle of each whorl is weakly angulated by the uppermost of three stronger and regularly gemmate spiral cords. On the body-whorl, the lowest of the three gemmate cords, which is just emergent at the lower suture, becomes the most prominent and forms a peripheral flange, below which the base is deeply excavated. The base is occupied mostly by a disproportionately large and flexuous pillar which is sculptured with 14 crisp narrow cords, widely spaced above but more crowded towards the tip of the canal. The aperture is narrowly quadrate and terminates below in a short broadly open canal. Outer lip with a vertical profile and no vestige of an anal sinus, but variced within, bearing four tubercles. Just below the lowest tubercle the outer lip is strongly angulate at the termination of the lowest carina. The whole surface of the shell, except for the cords, is densely and delicately striated.

Height 9.75 mm.; width 2.8 mm.

Locality—Cape Maria van Dieman, between the island and the mainland in 3-4 fathoms.

Holotype and one juvenile paratype presented to the Auckland Museum by Mr. K. Hipkins.

The New South Wales *spica* is closely related to the above new species. It differs in having only two spirals above the carina and only 6-7 on the base. Also the axials are much stronger and render all the spire whorls gemmate to some extent.

Family ATYIDAE

Genus LIMULATYS Iredale, 1936.

Type (o.d.) : *L. reliquus* Iredale, 1936 = *Tepidatys* Iredale, 1936;

Type (o.d.) : *T. tremens* Iredale, 1936.

This genus is now added to the New Zealand Recent fauna by the finding of a fresh specimen of the New South Wales *reliquus* in a dredging off Whangaroa, Northland. A New Zealand Tertiary member of this genus is *Atys* (*Aliculastrum*) *lacrimula* Laws, 1939 from Pakaurangi Point, Kaipara (Altonian, Miocene).

Another New Zealand Tertiary species, *Atys improcerus* Marwick, 1931 from the Ihungia Series (Miocene), of Gisborne is more happily

placed in *Pyrunculus* Pilsbry, 1895 (nom. nov.) for *Sao Adams*, 1854 non Billberg, 1820 (Crustacea), non Barrande, 1846 (Trilobita).

Apart from the two New South Wales species, *reliquus* and *tremens* Iredale, the following Japanese Recent species were referred to *Limulatys* by Habe, 1952 (Illust. Cat. Japanese Shells, No. 20, p 138)—*angustatus* (Gould, 1859), *constrictus* Habe, 1952, *muscarius* (Gould, 1859), *okamotoi* Habe, 1952, *ooformis* Habe, 1952 and *scrobiculatus* A. Adams, 1862.

The genus and species are diagnosed by Iredale as follows—"Shell small, shining, thin, elongate oval, not pinched apically, no apical umbilicus, but umbilical fissure at opposite end. Coloration white, with milky spiral lines, but otherwise smooth. The apical depression is not perforate, the outer lip longer than the body of the shell, joining the apical hollow with a downward twist. Columella a little sinuate, thin, but umbilical chink clearly shown. Outer lip thin, aperture narrow, a little broadened anteriorly."

***Limulatys reliquus* Iredale, 1936. Plate 3, figure 6.**

1936. *Limulatys reliquus* Iredale, Rec. Aust. Mus., 19, 5, p. 328, pl. 24, f.20.

Localities—Australia, Sydney Harbour, dredgings (holotype).

New Zealand, 2 miles east of Stephenson Island, Whangaroa, 16-17 fathoms, fine grey sand with shell (K. Hipkins and A. W. B. Powell, Oct. 22nd., 1960).

Height	Width	
7.0 mm.	4.00 mm.	(holotype)
5.7 mm.	3.0 mm.	(Stephenson Island)

Holotype in Australian Museum, Sydney.

Family HYDATINIDAE

Genus HYDATINA Schumacher, 1817.

Type (monotypy) : *Bulla physis* Linnaeus, 1758

***Hydatina physis* (Linnaeus, 1758).**

1758. *Bulla physis* Linnaeus, Syst. Nat., ed. 10, p. 727.

1924 *Hydatina physis* (Linnaeus), Powell, N.Z. Journ. Sci. Tech., 6 (5, 6), p. 284.

In 1924 I recorded the first known New Zealand occurrence of this wide ranging Indo-Pacific mollusc, based upon a specimen in the collection of Mr. C. Osborne, who found it some years previously, alive, at Shoal Bay, Tryphena, Great Barrier Island.

At long and irregular intervals the species has been subsequently collected at a number of Northland east coast localities. These records are Takou Bay (about 25 adult specimens; Mr C. H. Robinson), Port Fitzroy, Great Barrier Island (5 adult specimens, largest 51 mm.; Mrs. Mabey) and Whangaroa Harbour, on mud flats near the wharf, 29th May, 1961 (Mr. R. D. Murray). In addition to the above, colonies have been reported within recent years from both Parengarenga and Houhora Harbours.

It is doubtful if the species breeds in New Zealand waters. The probable pattern is of a series of successful spat falls from time to time. The individuals apparently reach maturity and then the small colony disappears from the area.

Following are measurements of the five largest examples taken at Takau Bay:—

Height	Diameter
57.0	46.0
55.0	45.0
51.0	44.0
49.0	42.5
33.5	27.0

Genus NAUTILUS Linnaeus, 1758.

Nautilus pompilius Linnaeus, 1758.

1758. *Nautilus pompilius* Linnaeus, Syst. Nat., ed. 10, p. 709.

Empty shells of *Nautilus macromphalus* Sowerby, 1849, usually in a battered state, are by no means uncommon on Northland beaches, especially Spirit Bay and the Tokerau Beach, Doubtless Bay.

A second species, the common Indo-Pacific *pompilius* Linnaeus, 1758, can now be recorded on the basis of a fairly complete shell from Matakana Island, Bay of Plenty, collected about 1935 by Mr C. H. Robinson, and now in the Auckland Museum.

The two species are readily distinguishable in that the umbilicus is widely open in *macromphalus* but closed by callus in *pompilius*.

These two records have no faunistic significance since the chambered shell renders them permanently buoyant, but the New Zealand occurrences do indicate ocean current trends. The species *macromphalus* is the common one at New Caledonia and since that island group is situated in the vicinity of the source of the East Australian Current then the Northland occurrences are clearly derived through that agency. On the other hand the Bay of Plenty *pompilius* record indicates a source from a different South Pacific location.

Family ARGONAUTIDAE

Genus ARGONAUTA Linnaeus, 1758

Argonauta nodosa Solander, 1786.

1786. *Argonauta nodosa* Solander, Cat. Portland Mus., p. 96.

1791. *Argonauta tuberculata* Shaw, The Naturalist's Miscellany, vol. 3, p. 995.

1885. *Argonauta gracilis* Kirk, Trans. N.Z. Inst., 17, p. 58, pl. 13.

1933. *Argonauta nodosa* Solander and *tuberculata* Shaw, Powell, Rec. Auck. Inst. Mus., vol. 1, p. 207.

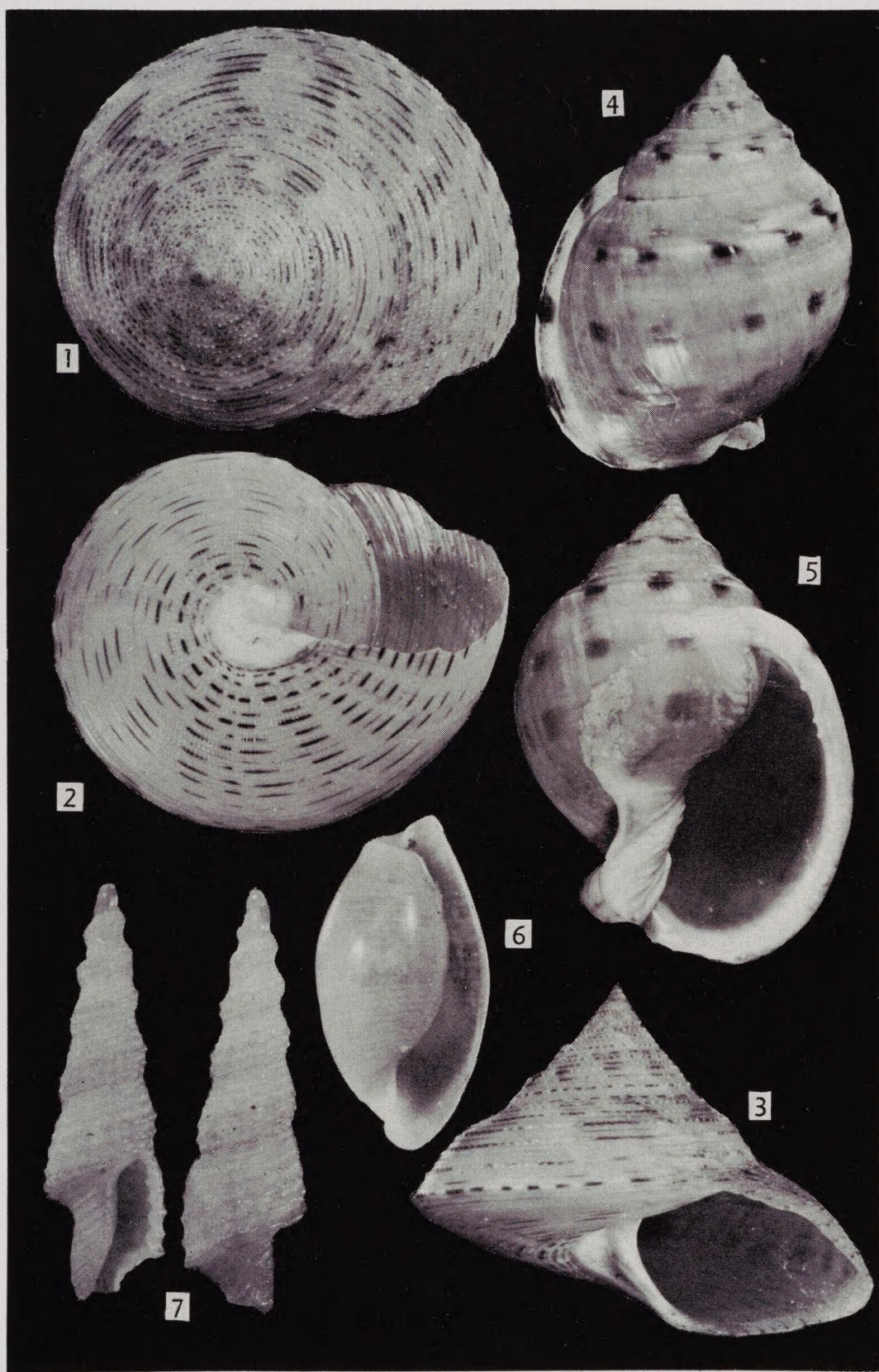
1952. *Argonauta nodosa* Solander, Dell, Domin. Mus. Bull., No. 16, pp. 53-67.

The "eared" and "non eared" forms in the tuberculate Argonauts have long been the subject of discussion (see Powell, 1933, l.c.), whether or not that there are two species, one with ears throughout growth and with coarse tubercles, the other without ears but with fine tubercles.

Dell (1952, l.c.) put up a good case for assuming that only one variable species is represented, for in a large series of specimens, the above suggested distinctions did not hold. In Dell's own words "Some eared juveniles do develop into eared adults. Many more grow into straight-sided adults. Most of the adults with well-marked ears have strong tuberculations, but intermediates exist." Dell further pointed out

that the shell of an Argonaut is the product of one of the most variable parts of that animal, namely the dorsal arms.

A very large Argonaut from Pouto, Kaipara Heads, recently acquired by the Auckland Museum, serves to endorse Dell's argument in favour of one variable species, for this particular specimen is asymmetric in that it has a well marked ear on one side but is non eared one the other side. The shell measures 253 mm. (10 1/8 inches) in length and the "ear" projects 14 mm. from the arcuate sweep of the lip, the condition exhibited on the other side of the aperture.



Figs. 1-3. *Maurea turnerarum* n. sp. 40.0 x 56.5 m. (holotype).

Figs. 4, 5. *Xenophalium* (*Xenogalca*) *thomsoni* (Brazier, 1875), of Cuvier Island, 40 fathoms, Bay of Plenty.

Fig. 6. *Limulatys reliquus* Iredale, 1936, 5.7 x 3.0 mm., Stephenson Island, 16-17 fathoms, Whangaroa.

Fig. 7. *Exomilopsis hipkinsi* n. sp. 9.75 x 2.8 mm. (holotype).



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