

AUSTRALIAN MUSEUM SCIENTIFIC PUBLICATIONS

Hedley, Charles, 1924. Some Naticoids from Queensland. *Records of the Australian Museum* 14(3): 154–162, plate xxii. [26 June 1924].

doi:10.3853/j.0067-1975.14.1924.839

ISSN 0067-1975

Published by the Australian Museum, Sydney

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SOME NATICOIDS FROM QUEENSLAND.

BY

CHARLES HEDLEY.

(Plate xxii.)

The identity of a series of tropical species of Naticoids is unsatisfactory because of defective treatment in Reeve's monograph of *Natica* in the "Conchologica Iconica," which has governed subsequent studies of this group.

To put taxonomy on a better basis, I have here reviewed the nomenclature of several obscure species, and to facilitate their recognition also present figures of them.

The first name given to a group, resembling the Linnean *Nerita mammilla*, of polished massive white or yellow shells, was Humphrey's *Uber*. *Uber flemingianum* Recluz, *jukesii* Reeve, *labyrinthum* Hedley, *mellosum* Hedley and *pyriforme* Recluz, can be associated together.

Those species associated with *U. pes-elephantis*, being large, massive shells with a wide umbilicus containing a stout spiral funicle, may be grouped under *Mammillaria*, Swainson; namely, *U. citrinum* Philippi, *columnare* Recluz, *powisianum* Recluz, and *pes-elephantis* Deshayes.

Lastly, those thinner ovate and variegated shells grouped round *Uber mammatum* can be ranked under *Mammilla* Schumacher; such are *Uber mammatum* Bolten, *melanostomoides* Quoy & Gaimard, *nuxcastaneum* Martyn, *opacum* Recluz, *sebæ* Recluz and *simiæ* Deshayes.

UBER *Humphrey*.

Uber Humphrey, Mus. Calonnianum, 1797, p. 21, first species and type *Nerita mammilla* Linné.

Albula Bolten Mus. Bolt. (2), 1798, p. 20, first species *Albula albumen* Linné (not *Albula* Gronovius, Zooph., i, 1763, p. 102).

Mammilla Schumacher Essai, 1817, p. 190, type *Mammilla fasciata* Schumacher.

Polinices Montfort Conch. Syst. ii, 1810, p. 222, type *Polinices albus* Montfort.

Mammillaria Swainson, Treat. Malac., 1840, p. 345, type *M. lactea* Swainson.

Naticaria Swainson, Treat. Malac., 1840, p. 345, type *N. melanostoma* Mart.

Mamma Mörch, Fortegnelse Hencks Conch., 1854, p. 9, first species and type *N. melanostoma* Lam.

Naticina Guilding, Trans. Linn. Soc., v. 1831, p. 30, type *N. lactea* Guilding.

Naticella Swainson, Treat. Malac., 1840, p. 345, type *N. aurantia* Mart. (not *Naticella* Munster, Beitr. Petref., iv. 1841).

Mr. T. Iredale kindly gives me the following note: "As an item of sentimental interest it may be noted that Meuschen, at that time a non-binomial writer, proposed in the "Naturforscher" (Halle) Vol. xiii, p. 85, 1779, to separate from the *Nerita* of ancient usage, the White Eggshell species (i.e., *Nerita mammilla* Linné) under the name *Neritoides*. A figure of the internal structure of the shell is given (pl. v, fig. 5) to contrast with similar figures of species of *Nerita* (s. str.) pl. v, fig. 2 c, d, 3 g, 4 h."

UBER CITRINUM *Philippi*.

(Plate xxii, fig. 8.)

Natica citrina Philippi, Zeit. Malak., 1851 (15 July, 1851), p. 49. *Id.*, Conch., Cab., 1852, p. 143, pl. 19, fig. 17.

Polinices citrinus Shirley, Proc. Roy. Soc. Queensland, xxiii, p. 98, 1911.

Natica mittrei Hombron & Jacquinot, Voy. Pol. Sud., 1853, p. 65, pl. 16, figs. 33-34.

Neverita albumen Brazier, Proc. Linn. Soc. N.S. Wales, i, 1877, p. 238 (not *Nerita albumen* Linn., Syst. Nat., x, 1758, p. 776).

? *Natica draparnaudii* Recluz, Journ. de Conch., ii, p. 198, pl. 5, fig. 11 (30 July, 1851). Not *N. draparnaudii* Reeve, Conch. Icon. ix, 1855, pl. xi, fig. 44.

The specimen here figured is 38 mm. in diameter and was collected 7/6/'23, by myself on Chapman Island, North Queensland, Lat. 12° 53' S.

Hab.—Queensland:—Torres Strait (Shirley), Chapman Island, Murray Island (Hedley), Darnley Island, 30 fathoms (Brazier).

UBER COLUMNARE *Recluz*.

Natica columnaris Recluz, Journ. de Conch., i, p. 394 December, 1850. *Id.*, Reeve, Conch. Icon., ix, 1855, pl. v, fig. 19. *Id.*, Smith, Zool. Coll. "Alert" 1884, p. 57. *Id.*, Hidalgo, Cat. Mol. Test. Filip., 1905, p. 158.

Hab.—Queensland:—Torres Strait, Prince of Wales Channel, 9 fathoms (Coppinger).

UBER FLEMINGIANUM *Recluz*.

- Natica flemingiana* Recluz, Proc. Zool. Soc., 1843, p. 209 (June, 1844).
Id., Journ. de Conch., iii, 1852, p. 171, pl. 7, fig. 2 (operculum).
Id., Philippi, Conch. Cab., 1852, p. 126, pl. 18, fig. 7. *Id.*, Reeve,
 Conch. Icon. ix, 1855, pl. xviii, fig. 80. *Id.*, Melvill & Standen,
 Journ. Linn. Soc., Zool., xxvii, 1899, p. 172. *Id.*, Schepman,
 Siboga Prosobranchia, xlix, 1909, p. 216.
- Neverita flemingiana* Tapparone Canefri, Moll. "Magenta," 1873,
 p. 137.
- Mamma flemingiana* Brazier, Proc. Linn. Soc. N.S. Wales, i, 1877,
 p. 239.
- Polinices flemingiana* Hedley, Proc. Linn. Soc. N.S.W., xxxii, 1907,
 p. 483.
- "Bussor," Jukes Voy. "Fly," ii, 1847, p. 285.

Hab.—Queensland:—Darnley Island (Brazier); Murray Island,
 Boydong Cays (Haddon); Mast Head Island, Dunk Island, Green
 Island, Hope Islands, Piper Island (Hedley).

UBER JUKESII *Reeve*.

- Natica candidissima* Recluz, Journ. de Conch., ii, 1851, p. 87, pl. 2,
 fig. 3. (*Fide* Reeve, not *N. candidissima* Le Guillou, Revue
 Zoologique, v, 1842, p. 105.) *Id.*, Petit, Journ. de Conch., v, 1856,
 p. 36.
- Natica jukesii* Reeve, Conch. Icon., ix, 1855, pl. xix, fig. 84. *Id.*,
 Brazier, Proc. Linn. Soc. N.S.W., ix, 1884, p. 797. *Id.*, Sowerby,
 Thes. Conch., v, 1883, p. 88, pl. 458, fig. 55.

Petit considered that the *N. candidissima* of Recluz, though
 reported from Brazil, was the same as the Tongan *N. candidissima* of
 Dr. Le Guillou, and that Reeve's name was therefore superfluous.

I have not collected this species, but I noted in the British Museum
 that *N. jukesii* was doubtfully distinct from *N. flemingiana*, being a
 little broader in proportion to height than that species.

Hab.—North Australia (Jukes), Western Australia:—Cossack
 (Brazier).

UBER LABYRINTHEUM *sp. nov.*

(Plate xxii, fig. 6.)

- Mamma deiodosa* Brazier, Proc. Linn. Soc. N.S.W., i, 1877, p. 239 (not
Natica deiodosa Reeve, Conch. Icon., ix, 1855, pl. 9, fig. 35).

Shell ovate-globose, very solid, glossy. Whorls six, rather rapidly
 increasing, the last descending more than the others. Under the lens,
 fine close radial hair lines are seen to traverse the whole surface.

Colour uniform cream, except the spire, the umbilicus, and the lip-callus which are all white. Aperture oblique, semi-lunate, rather small. The upper angle of the aperture is filled with a mass of callus which projects as a boss beyond the plane of the lip. This callus arches over the upper part of the umbilicus, spreads across the head of the funicle, which it broadly overlaps, and runs into the pillar lip above the umbilical groove. The umbilicus is deep, narrow and spiral; a broad low funicle which partly chokes it is followed on the outside by a deep furrow.

Length 35 mm., major diameter 32 mm., minor diameter 19 mm.

Hab.—Queensland:—Murray Island (type, self), Darnley Island (Brazier).

Viewed dorsally this species is indistinguishable from *Uber mellosum*. In front it resembles *U. flemingianum*, from which it is separable by the yellow colour and by the wider perforation. An example from New Caledonia, supplied by M. Geret, differs from the Torres Strait shells by a shallow perforation.

UBER MAMMATUM *Bolten.*

(Plate xxii, fig. 1.)

Nerita melanostoma var. *gamma* Gmelin, Syst. Nat. xiii, 1791, p. 3674.

Albula mammata Bolten, Mus. Bolt. (2), 1798, p. 21 for *Mamma mulieris indica* Chemnitz, Conch. Cab., v, 1781, p. 284, pl. 189, figs. 1936-1937.

Mammilla fasciata Schumacher, Essai, 1817, p. 190.

Natica fibrosa Eydoux & Souleyet, Zool. "Bonite," ii, 1852, p. 581, pl. 35, figs. 8-11.

Natica filosa Reeve, Conch. Icon. ix, 1855, pl. xvii, figs. 72 a, b (not *Natica filosa* Philippi, Abbild. Beschr. ii, 1845, p. 42, pl. ii, fig. 4). *Id.*, Angas, Proc. Zool. Soc., 1877, p. 182. *Id.*, Sowerby Thes. Conch., v, 1883, p. 98, pl. 457, fig. 74. *Id.*, Hidalgo, Cat. Moll. Filip., 1905, p. 159. *Id.*, Schepman, Siboga Prosobranchia, 1909, p. 217. *Id.*, Odhner, Kungl. Sv. Vet. Akad., Handl., lii, 1917, p. 10.

Ruma filosa Brazier, Proc. Linn. Soc. N.S.W., i, 1877, p. 238.

Hab.—Queensland:—Darnley Island, Cape Grenville 15 fathoms, Low Island, Trinity Bay, (Brazier); Caloundra (Kesteven); Dunk Island (Banfield); Palm Islands, Annam River, Mapoon 10 fathoms, Mornington Island (Hedley). New South Wales:—Farm Cove 5 fathoms, Port Stephens (Angas). Western Australia:—Broome (Mjöberg).

UBER MELANOSTOMOIDES *Quoy & Gaimard*.

Natica melanostomoide Quoy & Gaimard, Zool. Astrolabe, ii, 1823, p. 229, pl. 66, figs. 4-8.

Natica melanostomoides Deshayes, An. s. vert., (2), viii, 1838, p. 652. *Id.*, Philippi, Conch. Cab., 1852, p. 58, pl. 9, fig. 5. *Id.*, Reeve, Conch. Icon., ix, 1855, pl. xxii, fig. 101. *Id.*, Brazier, Journ. of Conch., ii, 1879, p. 190. *Id.*, Troschel, Gebiss der Schnecken, i, 1863, p. 183. *Id.*, Schepman, Siboga Prosobranchiata, xlix, 1909, p. 216.

Ruma melanostomoides Brazier, Proc. Linn. Soc. N.S. Wales, i, 1877, p. 238.

Hab.—Queensland:—Cape Grenville 30 fathoms, Fitzroy Island (Brazier), Attagoy, Torres Strait (Jukes in Brit. Museum), Murray Island (Hedley).

UBER MELLOSUM *sp. nov.*

(Plate xxii, fig. 5.)

Shell massive, helicoid, very glossy. Colour cream, except the earlier whorls, the basal margin, and the callus, which are pure white. Whorls five, slowly increasing, the last half whorl descending from the plane of the rest. Spire small, acute. Aperture oblique, semilunate, about a third of the total breadth. Callus very large and thick; a rounded lobe fills the whole umbilical area, reaching as far as the opercular nucleus and a prominent boss fills the upper angle of the aperture.

Length 43 mm., major diameter 40 mm., minor diameter 22 mm.

Hab.—Queensland:—Eagle Island (type), Hope Island, Murray Island 5-8 fathoms (self), Home Island, Darnley Island (Brazier).

Apparently this is the species figured by Philippi¹, and is certainly that recorded by Brazier² from Queensland as *Mamma straminea* Recluz. Consulting Recluz³ for the introduction of this name, it is found that both *Natica straminea* and *N. sulphurea* are based on the yellow variety of *U. mammilla* that is mentioned by Linné⁴, so this name must be eliminated from its ordinary usage.

Authors generally have failed to distinguish the cream shell from the orange one. Material before me suggests that *aurantium* and *mellosum* are geminate species, the former ranging westwards, the latter extending from the Moluccas, through Torres Strait to New Caledonia and the Solomon Islands. Because each varies in size and shape, the differential characters are hard to grasp, but besides the

¹ Philippi—Conch. Cab., 1852, pl. 16, fig. 3.

² Brazier—Proc. Linn. Soc. N.S.W., i, 1877, p. 239.

³ Recluz—Proc. Zool. Soc., 1843, p. 211.

⁴ Linné—Museum Ludovicæ Ulricæ Reginae, 1764, p. 675.

distinction of colour, *U. mellosum* has the aperture proportionally narrower, the last whorl descending faster, and the callus knob more prominent than in *U. aurantium* Bolten, as expressed by Chemnitz⁵.

Probably it is this species which under the name of *Natica aurantia* Lamarck was noted from Torres Strait and Port Essington by Melvill and Standen⁶ and by Watson⁷.

UBER NUXCASTANEUM *Martyn*.

Nerita nuxcastanea Martyn, Univ. Conch., iii, 1786, pl. 106.

Natica maura Lamarck Encycl. Meth., 1816, explan. pl. 453, fig. 4.
Id., Sowerby, Tank. Cat., 1825, p. 47. *Id.*, Recluz, Proc. Zool. Soc., 1843, p. 214. *Id.*, Philippi, Conch. Cab., 1852, p. 58, pl. 9, fig. 6.
Id., Reeve, Conch. Icon., ix, 1855, pl. vii, fig. 25. *Id.*, Chenu, Manuel, i, 1859, p. 214, fig. 1173. *Id.*, Sowerby, Thes. Conch., v, 1883, p. 98, pl. 456, fig. 36. *Id.*, Hidalgo, Cat. Moll. Test. Filip., 1905, p. 160. *Id.*, Schepman, Siboga Prosobranchia, xliii, 1909, p. 217.

Ruma maura Brazier, Proc. Linn. Soc. N.S. Wales, i, 1877, p. 238.

Polinices maura Shirley, Proc. Roy. Soc. Queensland, xxiii, 1911, p. 98.

Polinices nuxcastanea Hedley, Proc. Linn. Soc. N.S. Wales, xxxviii, 1913, p. 301.

Hab.—Queensland:—Darnley Island (Jukes & Brazier), Murray Island (Shirley). Perhaps the type was obtained by the naturalists of the "Endeavour" near Cooktown.

UBER OPACUM *Recluz*.

(Plate xxii, fig. 3.)

Natica opaca Recluz, Journ. de Conch., ii, 1851, p. 199.

Natica melanostoma Reeve, Conch. Icon., ix, 1855, pl. viii, sp. 30 a, b
(not *Nerita melanostoma* Gmelin, Syst. Nat., xiii, 1791, p. 3674).

Neverita melanostoma Tapparone-Canefri, Moll. "Magenta," 1873, p. 136.

Ruma melanostoma Brazier, Proc. Linn. Soc. N.S.W., i, 1877, p. 238.

Natica melanochila Philippi, Conch. Cab., 1852, p. 56, pl. 9, fig. 3.

This species seems to have been usually confused with *U. melanostoma*. The glossy surface and deep furrow, bounding the funicle, which ascends the umbilicus, serve as useful recognition marks. The specimen figured is 45 mm. long, I took it, 17/6/'23, alive on the sandy beach of Chapman Island, North Queensland.

⁵ Chemnitz—Conch. Cab., v, t. 189, figs. 1934-5.

⁶ Melvill & Standen—Journ. Linn. Soc. Zool., xxvii, 1899, p. 172.

⁷ Watson—Zool. Rep. Chall., xv, 1886, p. 451.

Hab.—Queensland:—Murray Island, Palm Island, Green Island, and Chapman Island (Hedley). It is also in the Museum collection from Lord Howe Island (Bell), Buka, Solomons (Capt. Burrows) and New Caledonia.

UBER PES-ELEPHANTIS *Deshayes*.

Natica alba Gray, in King's Survey, ii, 1827, p. 482 (not *Uber album* Humphrey, Mus. Calonn., 1797, p. 21, nor *Natica alba*, Potiez and Michaud, Gal. Douai, i, 1838, p. 289, nor *Natica alba* Loven, Zool. Soc. Cuv., 1843, p. 118).

Mamillaria lactea Swainson, Treat. Malac., 1840, p. 345 (not *Natica lactea* Guilding, Trans. Linn. Soc. v, 1831, p. 9).

Natica pes-elephantis Deshayes, Anim. s. vert., (2), viii, 1838, p. 650. All based on Chemnitz Conch. Cab., v, 1781, p. 275, pl. 189, figs. 1922-23.

Mamma pes-elephantis Schmeltz, Cat. v, Museum Godeff., 1874, p. 107 (not *Natica pes-elephantis* Pfeiffer, Wiegmann Arch. Naturg., 1840, p. 254).

I have not seen an Australian specimen of this shell.

Hab.—Queensland:—Port Denison (Godeffroy Museum).

UBER POWISIANUM *Recluz*.

Natica powisiana Recluz, Proc. Zool. Soc., 1843, p. 210 (June, 1844). *Id.*, Philippi, Conch. Cab., 1852, p. 46, pl. 7, fig. 4. *Id.*, Reeve, Conch. Icon., ix, 1855, pl. vi, fig. 22.

Natica cumingiana Smith, Zool. Coll. "Alert," 1884, p. 58 (not *N. cumingiana* Recluz, Proc. Zool. Soc., 1843, p. 210).

The name of *Natica cumingiana* has a complicated history due to exchange of Cumingian shells. In 1844 Recluz fully described *Natica cumingiana*, a uniform golden yellow shell, 46 mm. long, from the Island of Cayo in the Philippines. In 1845 Philippi figured a dissimilar shell under this name, but recognising the error he figured in 1852 a shell which better agreed with the original description. In 1855 Reeve figured for *cumingiana* a shell which he said was *N. pallium* Recluz, and which may be *N. gruneriana*, but cannot be *cumingiana* Recluz. In 1884 E. A. Smith ranked *N. powisiana* and *N. draparnaudi* as varieties of *N. cumingiana*, and next year Cooke reduced *N. cumingiana* to a synonym of *N. rufa* Lk. which is clearly wrong. In conclusion, what Reeve figured is unlike what Recluz described as *N. cumingiana*. But what Reeve illustrated as *N. draparnaudi*, may not be that species but may be the real *N. cumingiana* of Recluz.

Hab.—Queensland:—Port Molle ("Alert"), Caloundra (Prof. T. H. Johnston).

UBER PYRIFORME *Recluz*.

(Plate xxii, fig. 4.)

- Natica pyriformis* Recluz, Proc. Zool. Soc., 1843, p. 211 (June, 1844).
Id., Philippi, Conch. Cab., 1852, p. 60, pl. 9, fig. 8. *Id.*, Reeve, Conch. Icon., ix, 1855, pl. v, fig. 16.
- Mamma pyriformis* Brazier, Proc. Linn. Soc. N.S.W., i, 1877, p. 239.
- Natica cygnea* Philippi, Conch. Cab., 1852, p. 80, pl. xii, fig. 6.
- Natica vestalis* Philippi, Conch. Cab., 1852, p. 126, pl. xviii, fig. 6. *Id.*, Proc. Zool. Soc., 1851, p. 234 (June 29, 1853).
- Natica mamilla* Reeve, Conch. Icon., ix, 1855, pl. vii, fig. 27 a, b. *Id.*, Watson, Report Chall. Zool., xv, 1886, p. 452 (not *Nerita mamilla* Linn., Syst. Nat., x, 1758, p. 776).

The original presentation by Linné in 1758 of *Nerita mamilla* covered different though allied species from both the East and West Indies. Of these most authors have chosen the Oriental shell of Rumphius to carry the name. But the Linnean shell should be interpreted as *N. lactea* Guilding, or a related form, because four out of five citations belong to the West Indian form, which besides is described as from "Barbados" and as "*umbilicata*." The space left vacant in the East by the transfer to the proper subject of the name *N. mamilla*, is filled by *N. pyriformis*.

As remarked in the "Challenger" report, a useful recognition mark of this species is the small brown dot of the initial whorl. The specimen now figured is 52 mm. in length and was collected by myself at Goold Island.

Hab.—Western Australia:—Swan River 10 fathoms (type, Collie); Queensland:—Darnley, Warrior, Eclipse and Home Islands (Brazier), Albany Island 7-12 fathoms ("Challenger"), Goold, Palm, Lizard and Hope Islands (Hedley).

UBER SEBÆ *Recluz*.

(Plate xxii, fig. 7.)

- Helix mamillaris* Born, Test. Mus. Cæs. Vind., 1780, p. 380, pl. xv, figs. 13-14. *Id.*, Brauer, Sitz. k. Akad. Wiss, lxxvii, 1878, p. 66.
- Ruma mamillaris* H. & A. Adams, Genera Rec. Moll, 1855, pl. xxii, fig. 5 (not *Helix mamillaris* Linn. Syst. Nat., xii, 1767, p. 1246).
- Natica sebæ* Recluz, Proc. Zool. Soc., 1843, p. 214 (June, 1844). *Id.*, Souleyet, Zool. Bonite, ii, 1852, p. 579, pl. 35, figs. 6-7. *Id.*, Philippi, Conch. Cab., 1852, p. 123, pl. 18, fig. 1. *Id.*, Hidalgo, Cat. Moll. Test. Filip., 1905, p. 161. *Id.*, Gray, List Moll. Brit. Mus., 1855, p. 22 (not *N. Sebæ* Reeve, Conch. Icon., ix, 1855, pl. xvii, fig. 74, nor Sowerby, Thes. Conch., v, 1883, pl. 457, fig. 79).

Natica melanostoma Hedley, Mem. Austr. Mus., iii, 1899, p. 416 (not *N. melanostoma* Gmelin, 1791).

These references will convey how generally this species has been misunderstood. The shell here figured is 38 mm. long and was collected by myself at the entrance of the Annam River, North Queensland.

Hab.—Queensland:—Annam River, Dunk, Mornington and Forsyth Islands (Hedley); Caloundra (Iredale). Western Australia:—Shark Bay (A. U. Henn). Ellice Group; Funafuti (Hedley).

UBER SIMIÆ *Deshayes*.

(Plate xxii, fig. 2.)

Natica sigaretina ? Menke, Synops. Meth. Moll., 1830, p. 47 (not *Natica sigaretina* Deshayes, Descrip. coq. foss. Paris, ii, 1824, p. 170, pl. 21, figs. 5, 6).

Natica simiæ Deshayes, Anim. s. vert., (2), viii, 1838, p. 652 for *Ruma simiæ* Chemnitz, Conch. Cab., v. 1781, p. 285, pl. 139, fig. 1938. *Id.*, Philippi, Conch. Cab., 1852, p. 35, pl. 4, fig. 17. *Id.*, Reeve, Conch. Icon., ix, 1855, pl. xxii, fig. 98 a, b (but not pl. xvii, fig. 76, = *U. simioides*, Recluz). *Id.*, Schepman, Siboga Prosobranchia, xlix, 1909, p. 217. *Id.*, Melvill & Standen, Journ. of Conch., viii, 1895, p. 121.

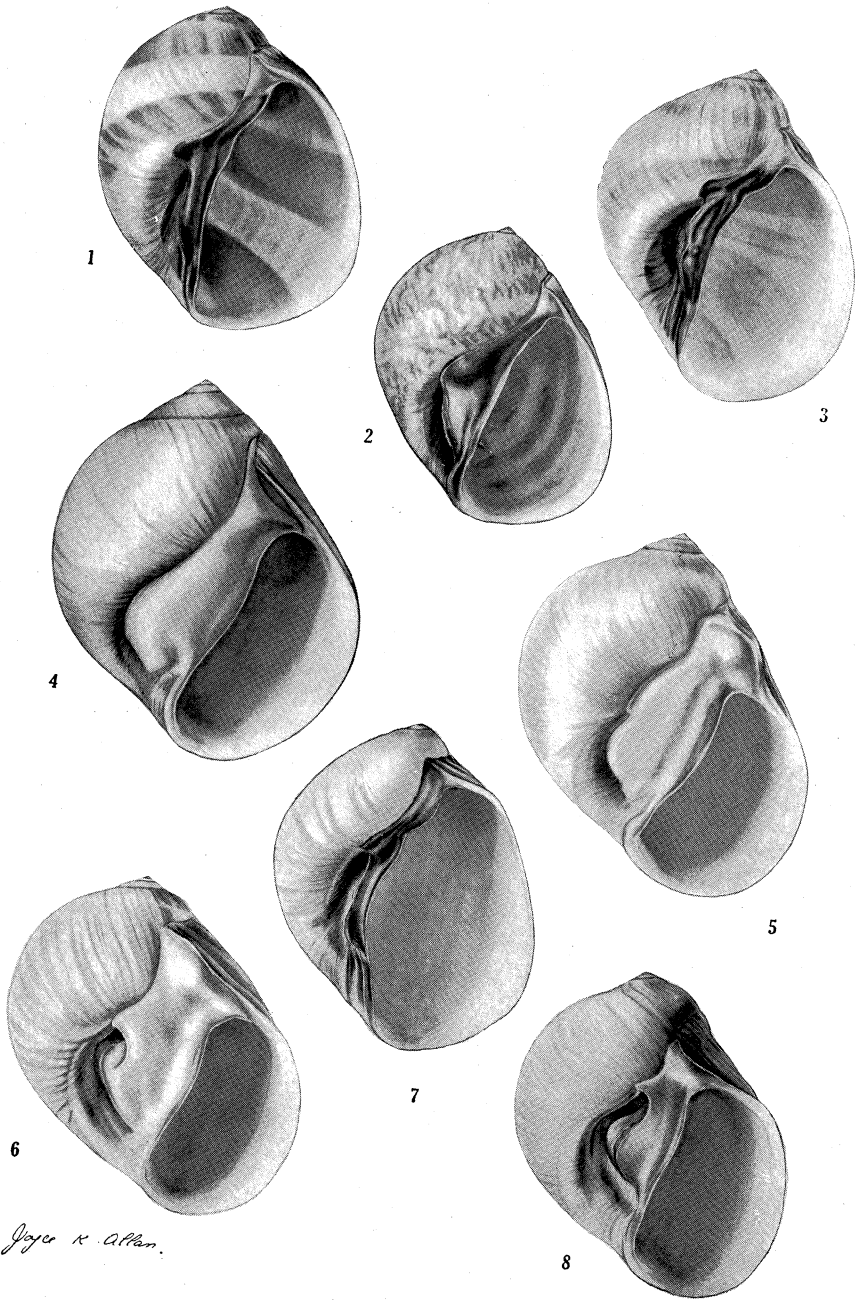
Polinices simiæ Iredale, Proc. Mal. Soc., ix, 1910, p. 71. *Id.*, Oliver, Trans. N.Z. Inst., xlvii, 1915, p. 524.

Numerous references to this in literature appear to me to relate to other species. The original locality of "New Zealand" quoted by Favanne and Chemnitz is certainly wrong, but probably indicates Cook's voyage as the source of the specimens, so Cooktown may have been the locality of the type. The specimen here figured, 24 mm. in length, comes from that neighbourhood.

Hab.—Queensland:—Hope Islands (specimen figured), Palm Islands, Lizard Island, Murray Island, Rocky Island (Hedley); Caloundra (Iredale), Lord Howe Island (Bell), Norfolk Island (Bell); Kermadec Islands (Iredale), Loyalty Islands (Hadfield).

EXPLANATION OF PLATE XXII.

- Fig. 1. *Uber mammatum* Bolten.
„ 2. *Uber simiæ* Deshayes.
„ 3. *Uber apacum* Recluz.
„ 4. *Uber pyriforme* Recluz.
„ 5. *Uber mellosum* Hedley type.
„ 6. *Uber labyrinthum* Hedley type.
„ 7. *Uber sebæ* Recluz.
„ 8. *Uber citrinum* Philippi.



Joyce K. Allan.

JOYCE K. ALLAN, del.