

# AUSTRALIAN MUSEUM SCIENTIFIC PUBLICATIONS

Iredale, T., 1927. New molluscs from Vanikoro. *Records of the Australian Museum* 16(1): 73–78, plate v. [7 October 1927].

doi:10.3853/j.0067-1975.16.1927.781

ISSN 0067-1975

Published by the Australian Museum, Sydney

nature culture **discover**

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6 College Street, Sydney NSW 2010, Australia



## NEW MOLLUSCS FROM VANIKORO.

By

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(Plate V.)

Vanikoro is famed in the history of conchological science through the collections made there by Quoy and Gaimard about one hundred years ago. These celebrated naturalists were on board the French exploring vessel the "Astrolabe," which was at Hobart when news arrived of the fate of the missing *La Pérouse*. This ship immediately sailed for Vanikoro to verify the report, and while there these naturalists gathered a rich harvest. Many molluscs were collected, and many beautiful paintings from life of these animals were secured. The French Government of that time financed the publication of these in an excellent style, and this work has never been surpassed. The lifelike figures are excellent, full of action, and their reproduction is unequalled. Many new species were named in this account, and through the beautiful figures presented they were easily recognized. Moreover, the material, being deposited in the Paris Museum, was always available to the French malacologists who were busy working at that time.

Since then no expedition has touched Vanikoro and brought back molluscs, and in the present day usage of geographical forms this was a matter of regret. In the Australian Museum there are fairly large collections from New Britain, Funafuti, New Caledonia and Queensland, and species described as from Vanikoro are commonly represented in these series, Vanikoro itself being about equidistant from each. In some cases the same Vanikoro name had been allotted to two separable forms, and without topotypes the exact discrimination of the Vanikoro species was impossible.

Messrs. E. le G. Troughton and A. Livingstone, Zoologists of The Australian Museum, were invited by Mr. N. S. Heffernan, District Officer, to visit the Santa Cruz Group and make natural history collections, and this invitation was gratefully accepted.

The results are excellent and will be dealt with in detail later, but as this Vanikoro expedition is of universal interest this brief note is written to bring it before the scientific world at large.

Quoy and Gaimard recorded some seventy-five species from Vanikoro and Tukopia, while Messrs. Troughton and Livingstone brought back nearly two hundred and fifty species. Most of the species described by Quoy and Gaimard have been recovered, and these have proved invaluable in determining the forms.

As well as Vanikoro the island of Santa Cruz was visited, and species of *Placostylus* (s.l.) were found there, a genus unrepresented on the former island and apparently not previously recorded from the group. Apparently, Santa Cruz Island is of continental connection, showing *Placostylus*, *Dendrotrochus* and *Partula*, which appear to be more closely related to New Hebrides species than to those from the Solomon Islands. Vanikoro itself is of volcanic origin, though there is a *Partula* living thereon.

Tinakula, an active volcano in the group, was visited and a series of molluscs collected on the rocks. These are interesting, as the species represented were *Nerita plicata* Linné, *Melarhaphe coccinea* Martyn, *M. undulata* Gray, and *Tectarius feejeensis* Reeve. These are some of the most active molluscan travellers, the first and last reaching Sunday Island in the Kermadec Group, the first three occurring more or less as rare stragglers at Lord Howe and Norfolk Islands.

The beautiful figures accompanying this report have been painted by Miss Joyce K. Allan, of The Australian Museum, to whom my best thanks are tendered for the excellent delineations of the species.

*ANADARA LIVINGSTONEI* sp. nov.

(Pl. v, figs. 3-5 and 12.)

This large species, found in the mangroves at Carlisle Bay, Santa Cruz Island, suggests a monster *pilula*, but nothing else has been noted as being closely related.

Shell large, very solid, very obese, oblique, as deep as long, umboes distant, lozenges many and well marked; hinge teeth very numerous and pronounced, a little larger towards the ends; posterior angle very marked.

Right valve with flattened ribs, thirty to thirty-two in number, a little wider than the deep interstices, squarely granulose, the granulation becoming obsolete at about half growth, senile concentric growth lines strongly expressed; interstices smooth save for fine growth lines.

Left valve similar, but ribs lacking granulation and the interstices showing more boldly the growth line striation.

Colour dirty cream, a dark brown periostracum persistent towards the crenulated edges of the valves, which closely interlock, the number of teeth agreeing with the ribs. Internal colouration white, the animal area faintly striate, dull and dirty white.

Hinge teeth perpendicularly longitudinal, save at the extreme edges; the end five or six are much more crass and some of them twisted. The teeth can be separated into two parts by means of a

depression in front of the umbo; on one side about twenty teeth can be counted, on the other about twenty-five.

Dimensions.—Length 64 mm., height 62 mm., depth of conjoined valves 64 mm.

TRIDACNA TROUGHTONI *sp. nov.*

(Pl. v, figs. 9-10.)

Comparatively recently a review of the Australian species of *Tridacna* was published by Hedley,<sup>1</sup> and last year I studied these wonderful molluscs in life at Michaelmas Cay, off Cairns, North Queensland. There Mr. G. P. Whitley and I collected a large series under Mr. Hedley's supervision and with his assistance. We noted that the colouration of the animals, though in some species variable, could be associated with the species determined by means of shell features, and this point will be more fully dealt with at a later opportunity. Apparently many more species exist in nature than have been allowed by some monographers, and consequently the present form is regarded as very distinct. The eight distinct ribs are peculiar, though *compressa* Reeve is recalled by the figure, but this shell differs in proportions and growth.

Shell small, nearly equilateral, elongate oval, pedal gape large.

Colour creamy white, pearly white internally.

Sculpture consisting of strong radial ribs bearing erect scales, the wide interstices radially lined; the radial ribs number eight before the beak is reached; this does not bear any scaly ribs and is furrowed by half a dozen ridges. The pedal gape bears half a dozen closely set teeth near to the umboes, the dorsal posterior end elongated somewhat sharply.

Dimensions.—Length 72 mm., height 38 mm., depth of conjoined valves 29 mm.

VASTICARDIUM NEBULOSUM *Martyn.*

A magnificent cockle measuring 137.5 mm. in length was collected at Vanikoro. This has been determined as *Cochlea nebulosa* Martyn<sup>2</sup> figured from unknown locality. Martyn's specimen may have been brought home from the New Hebrides or even Santa Cruz by some member of Captain Cook's party. The figure given by Reeve<sup>3</sup> of *Cardium elongatum* Bruguière refers to this species, and the generic location needs consideration. Dall<sup>4</sup> placed the species under *Trachycardium*, where it certainly does not belong. There is a Pacific group, of which this is the largest member (this is probably

<sup>1</sup> Hedley.—Records Austr. Museum, xiii, 4, 1921, pp. 163-172.

<sup>2</sup> Martyn.—Universal Conchologist, ii, 1786, Pl. cxl.

<sup>3</sup> Reeve.—Conchologica Iconica, ii, Cardium, Pl. ix, sp. and fig. 46, Dec., 1844.

<sup>4</sup> Dall.—Trans. Wagner Free Institute, iii, 5, Dec., 1900, p. 1090.

the second largest cockle in the world), which deserves separate nomination and is here named *Vasticardium*, the present species being selected as type.

PINGUITELLINA *gen. nov.*

(Pl. v, figs. 6-8.)

There is a series of small Tellens ranging round *Tellina nux* occurring in this Pacific area and North Queensland which is recognizable at sight and, showing distinctive features in their teeth and otherwise, deserve generic rank. They have even been classed in *Arcopagia*, which name belongs to an unlike British species. *Pseudarcopagia* and *Scutarcopagia* have been proposed for the large Pacific forms, *T. decussata* Lam. and *T. scobinata* L. These small things disagree in hinge characters, in the muscle scars, and the pallial line, so that figures are here given of the species from Vanikoro, which I regard as *T. robusta* Hanley and for which the above name is proposed, and also of a Vanikoro specimen of *T. scobinata* for comparison.

PLACOSTYLUS Group.

As a factor in the study of zoogeography Placostylus was much discussed by Hedley. Thus an excellent essay was entitled "The Range of Placostylus: A Study in Ancient Geography,"<sup>5</sup> wherein the Melanesian Plateau was suggested for the Placostylus-living area. Later in the same journal,<sup>6</sup> "A Zoogeographic Scheme for the Mid-Pacific" was propounded, and in neither essay is there mention of Placostylus from the Santa Cruz Group, which therefore fell outside the Melanesian Plateau.

In 1900 the species of Placostylus were monographed by Pilsbry<sup>7</sup> and many species were recognized from the New Hebrides and the Solomon Islands, but still none was known from the Santa Cruz Group. Messrs. Troughton and Livingstone brought back specimens collected "on leaves" at Carlisle Bay, Santa Cruz Island. I then found in the Australian Museum collection a series presented by Mr. A. F. Basset Hull who had collected them at Santa Cruz in 1910. The latter were collected at the opposite side of the island and differ appreciably in shape.

The fact that the specimens were collected "on leaves" has produced a quandary, as superficially they agree with members of the *fuliginus* series which Pilsbry regarded as terrestrial and essentially separable from the arboreal forms. Moreover, Pilsbry placed the *fuliginus* series in the section *Placostylus* restricted, which includes discordant species. I therefore introduce the name *Santacharis* with the species *S. hullianus* as type.

<sup>5</sup> Hedley.—Proc. Linn. Soc. N.S.W., (2), vii, 1892, pp. 335-339.

<sup>6</sup> Hedley.—*Ibid.*, xxiv, 1899, ppp. 391-417.

<sup>7</sup> Pilsbry.—Manual of Conchology, (2), xiii, 1900.

*SANTACHARIS HULLIANUS sp. nov.*

(Pl. v, fig. 1.)

Shell of medium size for the group, oval, spire conic, aperture longer than spire, last whorl two-thirds of the shell, rimate, though absolutely imperforate when young. Whorls four.

Colour yellowish, streaked longitudinally with brown, the latter colour predominating on the body whorl, some shells becoming uniformly brown, the early whorls being immaculate yellowish horn.

The apical whorl a little tilted, finely, longitudinally, wrinkly sculptured, the sculpture fading on the second whorl where a spiral striation supersedes it, the latter in its turn sometimes disappearing; at others it persists and is well marked on the body whorl as a wavy, wrinkly sculpture.

Columella a little twisted above, reflected, the umbilicus represented by an almost obsolete chink. Parietal callus thin but clearly seen in the dark coloured shells. The outer lip with a distinctly flattened situation medially.

Dimensions.—Length 37 mm., breadth 20 mm.

Collected by Mr. A. F. Basset Hull at Santa Cruz Island.

*SANTACHARIS HULLIANUS EXPEDITIONIS sub. sp. nov.*

(Pl. v, fig. 2.)

The shells collected on leaves by the expedition differ at sight, being shorter, stouter, much more solid, with the spire shorter, the sculpture weaker and the outer lip scarcely flattened medially.

Columella more notably twisted and thickened, parietal callus thick, much more pronounced.

Dimensions.—Length 34 mm., breadth 21 mm.

Collected at Carlisle Bay, Santa Cruz Island, by Messrs. Troughton and Livingstone.

Remarks.—Had this series been received from a different island it would have been regarded as distinct by almost any conchologist. As these specimens were undoubtedly collected on trees they are remarkable for their solidity.

*NERITA COMMUNIS Quoy and Gaimard.*

This name was given by Quoy and Gaimard.<sup>8</sup> Tryon<sup>9</sup> has misidentified the species, calling Quoy and Gaimard's species by the

<sup>8</sup> Quoy and Gaimard.—Voyage de l' "Astrolabe," Zoology, iii, 1834, p. 195, Pl. lxxv, figs. 12-14.

<sup>9</sup> Tryon.—Manual of Conchology, (2), x, p. 38, Pl. xi, figs. 10-13.

name *Neritina roissyana* Récluz, while using the former's name for another species,<sup>10</sup> to which *N. waigiensis* Lesson<sup>11</sup> is attached as a synonym. Obviously the latter had priority and should have been preferred, and as a matter of fact Burrington Baker<sup>12</sup> has recorded this alteration. At the same time Baker proposed a sub-genus *Vittina* (pp. 135, 144) with the species *N. roissyana* Récluz 1841 as type. Apparently *communis* Quoy and Gaimard will displace *roissyana* Récluz, being seven years earlier in date.

#### TURBO TUBERCULOSUS *Quoy and Gaimard.*

Quoy and Gaimard described this species from Vanikoro and gave a good figure. The species has since been neglected, being regarded as a synonym, sometimes of *radiatus*<sup>13</sup> from which it differs at sight and in opercular features, at others of *spinosus* (e.g., Kuster<sup>14</sup> and Reeve<sup>15</sup>) known as the spiny Silvermouth. The series collected shows the species when living to have a yellow mouth, which at first sight brings it into the *chrystomus* group, but the operculum differs from that of *chrystomus* as figured by Pilsbry.<sup>16</sup>

Specimens were collected by Whitley and myself at Michaelmas Cay, North Queensland, which agreed both as to shell features and opercular characters with Pilsbry's determination of *chrystomus*. The Vanikoro shells differed at sight from these in their elevation and straight whorling agreeing in these features with Quoy and Gaimard's excellent figure, as also does the operculum, well shown by these scientists. From a study of Australian *Turbos* of this series there appears to be a number of allied species differing in opercular features, or otherwise a series of distinct species converging closely in shell features. The subject is somewhat intricate and will be more fully discussed in connection with the Australian forms, but here it may be stated that the Vanikoro shells must be regarded as a distinct species at present.

<sup>10</sup> Tryon.—*Op. cit.* p. 38, Pl. xi, figs. 16-22.

<sup>11</sup> Lesson.—*Voy. de la "Coquille,"* ii, 1830, p. 379.

<sup>12</sup> Burrington Baker.—*Proc. Acad. Nat. Sci. Phila.*, lxxv, 1923, p. 145.

<sup>13</sup> Pilsbry.—*Manual of Conchology*, x, 1889, p. 200.

<sup>14</sup> Kuster.—In Martini und Chemnitz, *Conch. Cab.*, ii, Abth. 2, 1846, p. 25.

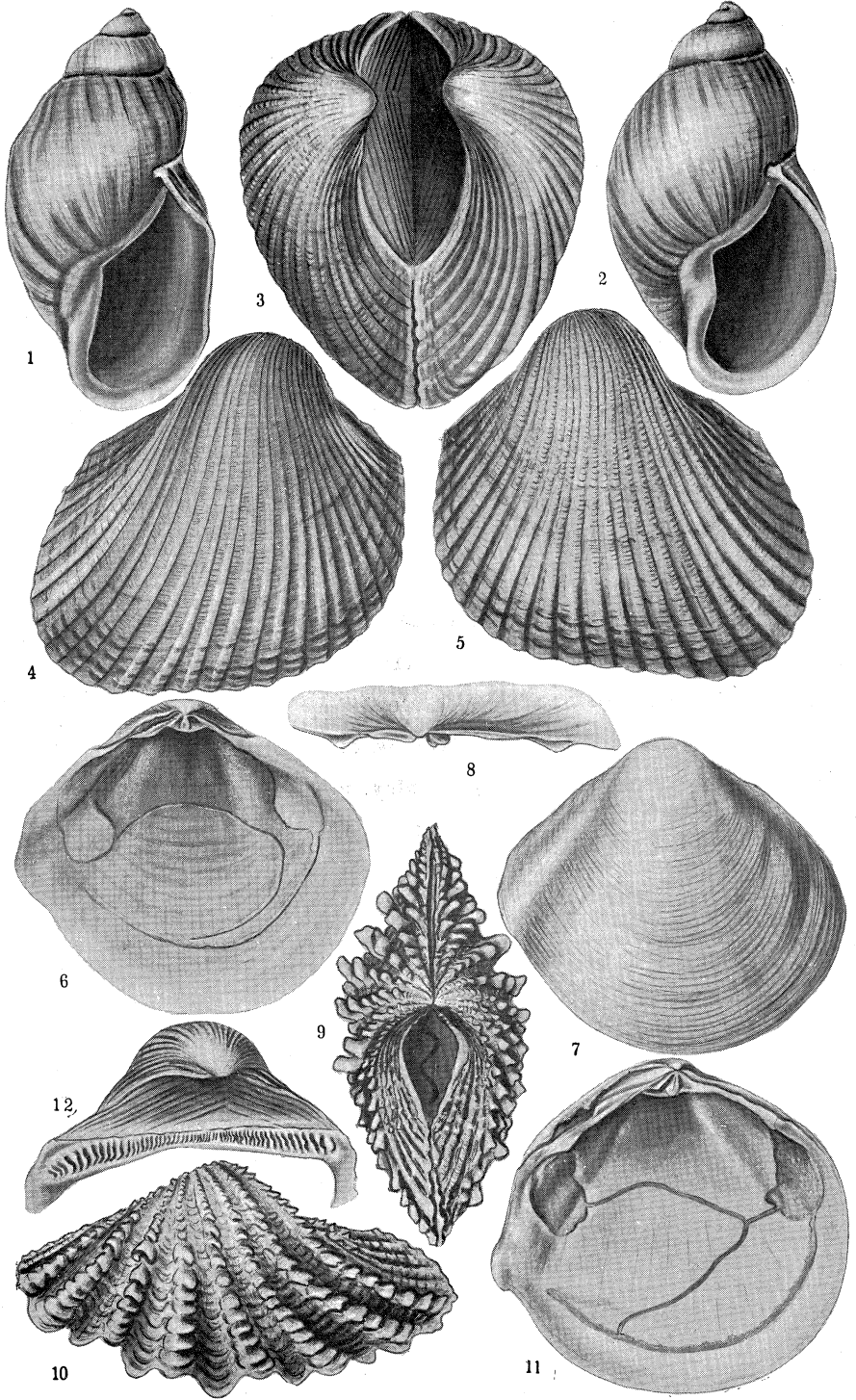
<sup>15</sup> Reeve.—*Conchologica Iconica*, Vol. iv, Turbo, 1848, Pl. x, fig. and sp. 47.

<sup>16</sup> Pilsbry.—*Loc. cit.*, p. 200, Pl. lix, fig. 4.

EXPLANATION OF PLATE V.

- Fig. 1. *Santacharis hullianus* Iredale, type.  
Fig. 2. *Santacharis hullianus expeditionis* Iredale, type.  
Fig. 3. *Anadara livingstonei* Iredale, type.  
Fig. 4. *Anadara livingstonei* Iredale, type.  
Fig. 5. *Anadara livingstonei* Iredale, type.  
Fig. 6. *Pinguitellina robusta* Hanley, interior.  
Fig. 7. *Pinguitellina robusta* Hanley, exterior.  
Fig. 8. *Pinguitellina robusta* Hanley, hinge line.  
Fig. 9. *Tridacna trougtoni* Iredale, type.  
Fig. 10. *Tridacna trougtoni* Iredale, type.  
Fig. 11. *Scutarcopagia scobinata* Linné, interior.  
Fig. 12. Hinge line of *Anadara livingstonei* Iredale, type.





JOYCE K. ALLAN, del.