

Description of a new species of *Clanculus* (Gastropoda: Trochidae) from New Caledonia

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ABSTRACT. *Clanculus richeri* n.sp. is described and compared with similar *Clanculus* species from the New Caledonia area and from Australia.

RÉSUMÉ. *Clanculus richeri* n.sp. est décrite et comparée avec des espèces analogues de *Clanculus* de la région de Nouvelle Calédonie et d'Australie.

INTRODUCTION

Thanks to Dr Philippe Bouchet (MNHN), I got the opportunity to study some Trochidae collected by various French oceanographic expeditions around New Caledonia during last 15 years. Among *Clanculus thomasi* Crosse, 1863, *C. stigmatarius* A. Adams, 1853 and chiefly *C. margaritarius* (Philippi, 1846), occurs some trochids shells that I was unable to identify, although certainly belonging to *Clanculus*. After further studies, I drew the conclusion that these trochids are a new species.

Abbreviations

Repositories

MNHN : Muséum national d'Histoire naturelle, Paris.

Abbreviations from French oceanographic expeditions

DC : Charcot Dredge

DW : Waren Dredge

Others abbreviations

P1, P2, P3, ... : primary cords (P1 is the most adapical)

S1, S2, S3, ... : secondary cords (S1 is the most adapical)

dd : no live-taken specimens present in sample

lv : live-taken specimens present in sample

SYSTEMATICS

Family TROCHIDAE Rafinesque, 1815

Subfamily TROCHINAE Rafinesque, 1815

Tribe TROCHINI Rafinesque, 1815

Genus *Clanculus* Montfort, 1810

Type species: *Trochus pharaonius* Linné, 1758, by original designation, Indian Ocean

Clanculus richeri n.sp.

Figs 1-3

Type material.

Chesterfield Plateau, New Caledonia area. CORAIL 2, stn DW85, 19°12' S, 158°56' E, 32 m, holotype MNHN (dd), 12x13.8 mm; stn DW153, 19°52' S, 158°23' E, 45 m, paratype MNHN (dd), 13.8x15.5 mm; CHALCAL 1, stn DC49, 20°58'20" S, 158°35'00" E, 48 m, paratype MNHN (dd), 12x13.8 mm.

Other material.

Chesterfield Plateau, New Caledonia area. CORAIL 2, stn DW84, 19°12' S, 158°57' E, 16-26 m, 2 dd (MNHN); stn DW134, 19°31' S, 158°22' E, 47 m, 1 dd (MNHN).

Lansdowne-Fairway Bank, Corail Sea. CORAIL 2, stn DW12, 20°48' S, 161°36' E, 59 m, 1 dd (MNHN) – CHALCAL 1, stn DC62, 21°46'60" S, 159°30'70" E, 48 m, 1 dd (MNHN). Atoll of Surprise, New Caledonia, stn. 458, 18°27'S, 163°02'E, 40 m, 1 dd (MNHN).

Description.

Shell of moderate size (height up to 14 mm, width up to 15.5 mm), trochoidal-turbiniiform in shape (concave shape for upper part, convex for lower one), spire rather depressed, ratio height/width from 0.87 to 0.93 mm, apical angle from 80° up to 85°, perforate.

Protoconch of one and quarter whorl, fairly smooth; terminal lip sinuous.

Teleoconch of 6 convex whorls, bearing spiral cords, more or less conoid, body whorl becoming cyrtoconoid. Suture visible, not canaliculated.

First whorl of teleoconch sculptured by three primary

cords; subsutural cord P1 very weak, granular; other cords P2 and P3 stronger, P2 granular and P3 subgranular or almost smooth; cords deep pink or reddish coloured, dark regular spots on P2; distance between P1 and P2 slightly smaller than between P2 and P3; axial prosocline riblets connecting granules of cords.

The three cords all beaded on second whorl, distributed in same way; beads well rounded.

On third whorl, P4 appears partly above suture, with same dark spots on pink ground as P2; others cords and areas orange; secondary cords S1 (between P1 and P2), S2 (between P2 and P3) and S3 (between P3 and P4) appearing, thin, adapical two ones wavy and smooth, abapical two ones finely granular. P4 clearly visible on fourth whorl; P3 tends to acquire same reticulated colour as P2 and P4; all primary cords more or less similar in size; beads well rounded, close packed; secondary cords of the same size, slightly smaller than primary cords, all granular or subgranular. On fifth whorl, the three abapical primary cords showing same pattern with alternate pinkish white (2 or 3 beads) and reddish brown area (only one bead); secondary cords of the same size, slightly smaller than primary cords, granular with rounded beads, uniformly orange. On last whorl, the four primary and three secondary cords of similar size; intervals between cords smaller than cords themselves, with prosocline axial threads; P1 and S1 closer than others; P2, P3 and P4 keeping their specific pattern, reddish brown area on cords becoming larger than one bead; additional secondary cords S4, S5 and occasionally S6 appearing under P4; granules of last abapical cords becoming quadrate. Periphery of last whorl subangulate.

Aperture ovate, oblique; interior of outer lip with spiral ridges; anal tooth present in mature shells; parietal ridges present, outermost more developed small; edge of outer lip with dark denticles at ends of external spiral cords. Columella almost straight, oblique, recurved; basal tooth prominent, with 3 ridges; upper columella denticles present, abapical one sharper than others. Base slightly convex, with 8 or 9 beaded spiral cords; granules more quadrate toward umbilicus; some cords (usually fourth and at least the one nearest umbilicus) showing same colour pattern as P2, P3 and P4 on whorls; space between cords much smaller than cords. Umbilicus open to apex, surrounded by inductural callus, bordered by 5

denticles, adapical denticle strongest. Parietal tooth present, stronger than first umbilical denticle.

Colour of four last whorls of teleoconch orange, with whitish wide axial area extending from suture to P3; two first whorls dark pink; inside of aperture nacreous; base of same colour as last whorls; umbilical area and columella white.

Discussion.

Clanculus richeri n.sp. can easily be distinguished from *C. margaritarius* (Philippi, 1846) (= *C. unedo* Adams, 1853) (Figs 6-7) : *C. margaritarius* has a higher spire, fewer spiral cords (5 or 6) on the whorls and the cords present a different colour pattern with black spots on some of them. *Clanculus richeri* somewhat resembles *C. clangulus* (Wood, 1828), but *C. clangulus* shows intervals between the cords wider than the cords themselves, has an angulate periphery, a wider umbilicus, an upper columella tooth and a bifid, not trifid, basal columella tooth. *C. leucomphalus* Verco, 1905 seems to be also similar, but it is smaller, has a higher spire, an upper columella tooth and its granules are white. *C. maugeri* (Wood, 1828) is bigger and has a more angulate periphery; cords are reddish brown with fine white spots; the denticles around the umbilicus are expansions of strong axial ribs located in the umbilical area.

The description of the new species can remember the one of *C. flosculus* (Fischer, 1878) (Figs 4-5) from South Africa, but *C. flosculus* differs from the new species by having a more elevated spire, a wider body whorl, a ratio height/width up to 1.15 and cords that are alternating orange and articulated with alternating black and white granules. In the same geographical area, *C. atricatena* Tomlin, 1921 (Fig 8-9) seems also similar to the new species, but *C. atricatena* has a convex shape, a subsutural cord wider than remaining cords on penultimate and last whorls, larger space between cords and more numerous basal cords (15-20 instead of 8-9).

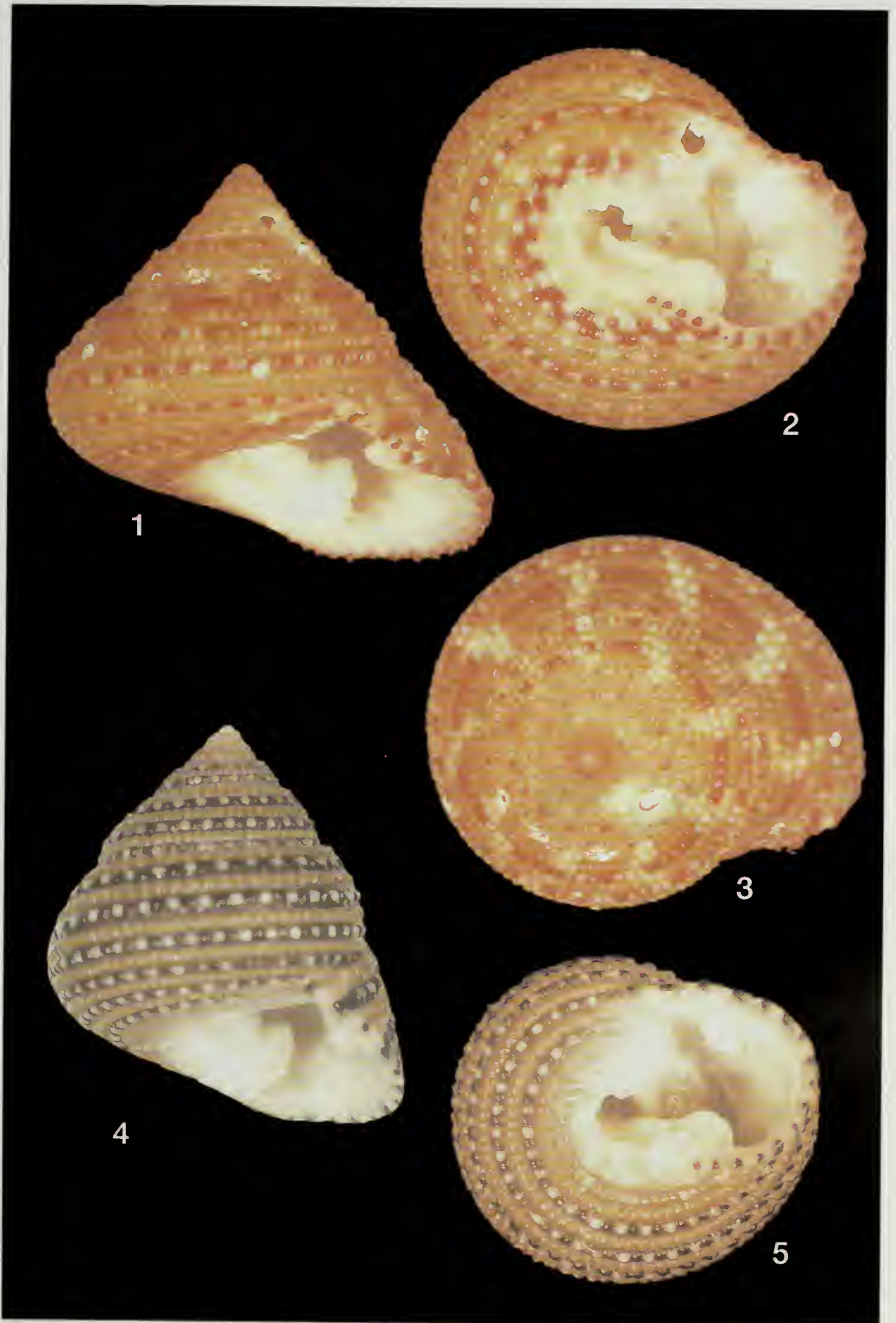
Etymology.

At Dr Philippe Bouchet request's, the new species is named after Bertrand Richer de Forges (IRD [ex-ORSTOM], Nouméa Center, New Caledonia), who led the oceanographic expeditions in New Caledonia area.

Figures 1-5.

1-3. *Clanculus richeri* n.sp., holotype MNHN, Chesterfield Plateau, New Caledonia area, 12x13.8 mm.

4-5. *Clanculus flosculus* (Fischer, 1878), neotype MNHN, Seychelles, Cerf Is. group, 12.2x11 mm



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Figures 6-9.

6-7. *Clanculus margaritarius* (Philippi, 1846), New Caledonia, St Vincent's Bay, coll. B.Richer ORSTOM, 12x10.5 mm.
 8-9. *Clanculus atricatena* Tomlin, 1921, South Africa, Natal, Shovas Rock, author's coll., 14.4x17.6 mm.

