

A new species of *Chlamydarion* (Gastropoda, Pulmonata, Urocyclidae)
from Kenya

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A rather large half-slug from the Ngaia Forest, Kenya, with a distinctive anatomy is described as *Chlamydarion quentini* spec. nov.

Key words: Gastropoda, Pulmonata, Urocyclidae, *Chlamydarion*, taxonomy, Kenya, East Africa.

INTRODUCTION

Quentin Luke, during a botanical collecting expedition to the Ngaia Forest, Kenya, Meru District (0°22'N, 38°02'E), on the eastern side of the northern part of the Nyambeni Hills (known in the time of H.B. Preston as the Jombeni Hills where R. Kemp collected many species), discovered four species of snails, viz. *Gulella hector* (Preston, 1913), *Trochonanina levistriata* (Preston, 1913), *Rhachidina chiradzuluensis* (E.A. Smith, 1899) and what I thought might be *Chlamydarion verdcourti* (Van Mol, 1970). All this material was preserved in spirit. Dissection of the *Chlamydarion* showed that it differed markedly from *C. verdcourti* and could not be identified with any of the species dealt with by Van Mol (1970); neither can the shell be matched with any of the helicarionoid species described by Preston and others from shells alone. Van Mol dismissed most of these as unidentifiable but eventually topotypic material may allow the names to be associated with anatomical descriptions.

DESCRIPTIVE PART

Chlamydarion quentini spec. nov. (figs 1–3)

Material examined. – Kenya, Ngaia Forest, leg. Quentin Luke, 04.xii.2002 (RMNH 97247[shell], 97249 [soft parts]/holotype, RMNH 97248 [shell], 97250 [soft parts]/paratype, BM(NH) 20030597/paratype).

Diagnosis. – A species of *Chlamydarion* with a rather large shell, marked folding of the penis within the sheath, very long penial sheath, highly convoluted flagellum and short clavate caecum.

Description. – Shell typically helicarionoid, not much depressed, thin, pale horn-coloured, 3/4 whorls, slightly but distinctly irregularly obtusely ribbed by growth lines, particularly on the outer half of the body whorl where about 8 are greenish horn-coloured, forming transverse bands, becoming wide towards the outer lip but these are much less greenish in a paratype; suture distinctly margined and with indented lines along its length; protoconch with about 30 close spiral lines of incised very closely placed dots.

Animal in life buff to darker brown, sometimes rather indistinctly speckled with pale grey spots on fore and hind body; mantle flaps granular and blackish outside, when

expanded covering almost half the shell (fig. 1); hind body keeled and sometimes blackish along the crest. In spirit the ground colour is uniform pale grey.

Left hind mantle flap more or less lunate, about 13 mm wide; right hand flap about 1 cm square, both distinctly granular on outer surface. Anatomy exactly conforming with the genus *Chlamydarion* Van Mol, 1970. Penis sheath c. 10 mm long, narrowly fusiform, narrowing at both ends; caecum short, clavate ellipsoid with very short basal duct; flagellum highly convoluted; penis about three times as long as sheath with three folds each about as long as the sheath; penial papilla at base of second fold, about 2 mm long but only apical part free from penial wall. Spermatheca in holotype containing a spermatophore and only about half as long as the duct but in paratype without spermatophore the spermatheca is about 4 x 3 mm and the duct at least 15 mm. Spermatophore strongly arcuate, about 7 mm long, 0.8 mm wide, narrowing to fine filaments at either end, the one at the duct end over 14 mm long. Right ocular retractor passes between the male and female ducts. Vagina c. 3 mm long; oviduct c. 6 mm long. Hermaphrodite gland situated at back of the mantle cavity, the duct quite convoluted.

Radula formula c.100.21.1.21.c.100; the lateral teeth have rather short blunt main cusps which have no nick on the inner side; the marginals are all pincer-shaped with two equal cusps and even the outermost are still only two-cusped and show no serrations.

Measurements of shell: 22 x 16 x 14 mm.

Measurement of foot (in spirit) about 40–50 x 7 mm.

Distribution. – Kenya, Meru District, Ngaia Forest.

DISCUSSION

The anatomy clearly shows this species belongs to *Chlamydarion* but it agrees with none of those described by Van Mol (1970). Only one has an equally large shell [*C. hians* (Pfeiffer, 1848)], but that differs in the folding of the penis within the sheath, the shorter spermathecal duct and in the radula. Both the species already known from the Nyambeni Hills have much smaller shells - *C. verdcourtii* and *C. aberdarensis* van Mol, 1970. In the former the penial folds are differently arranged, the caecum much longer and the radula different; in the latter the penial folds are similar but more complicatedly folded. Unfortunately Van Mol does not describe the radula for all the species he deals with. Other species having similar penial folds are *C. cryptophallus* (Watson, 1920) and *C. volkensi* (Thiele, 1911), both with smaller shells. The latter differs in the position of the penial papilla at the opposite end of the central fold of the penis and the very long spermathecal duct; the former also differs in the position of the papilla and the shape of the folds; the radula was described by Watson (1920) and clearly has some of the marginals with serrated outer edges but is similar in the large number of marginal teeth. *C. quentini* is most closely allied to *C. aberdarensis* and *C. cryptophallus*.

At first I thought that there was a very long penial papilla but it turned out to be a spermatophore lodged in the first of the three penial folds that lead from the caecum. On dissecting a second specimen I found that also had a spermatophore in the same place. Van Mol (1970: 22) states "L'élaboration du spermatophore doit être extrêmement rapide car je n'ai jamais observé un spermatophore encore situé dans le complexe épiphallien". I discovered the penial papilla at the base of the second penial fold (obscured in fig. 3 by the base of the first fold); it is about 2 mm long but only the apical part is free from the wall. The penial wall at this point is ornamented with corrugated ridges similar to those shown by Van Mol (1970: 116, fig. 69c).

Ngaia Forest Reserve is a submontane forest at an altitude of 1080 m on the eastern edge of the Nyambeni Hills on volcanic soil. The dominant plants are *Croton megalocarpus* Hutchinson, 1912 (Euphorbiaceae), *Homalium* sp.? nov. (Flacourtiaceae), *Baphia keniensis* Brummitt, 1968 (Leguminosae), *Uvariadendron anisatum* Verdcourt, 1955 (Annonaceae), *Rinorea convallarioides* (Baker f.) Eyles, 1916 (ssp. nov.) (Violaceae) and *Argomuelleria macrophylla* Pax, 1894 (Euphorbiaceae). The snails were all found on trunks and stems fairly close to the ground after rain. Boy (2002) has reported an interview with Quentin Luke about his investigation of this forest. The greater part of the Nyambeni Hills have had practically their entire forest cover destroyed for tea plantations. It is not known how much of the original molluscan fauna remains in what small pockets of original vegetation may survive or has adapted to tea plantations. Much of it could be extinct.

ACKNOWLEDGEMENTS

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Fig. 1. *Chlamydarion quantini* spec. nov., the holotype in life (RMNH 97247 & 97249); measurements of the shell: 22 x 16 x 14 mm. Kenya, Meru District, Ngaia Forest, 0°22'N, 38°02'E, 1080 m, Q. Luke leg., December 2002. (× c. 1.75).

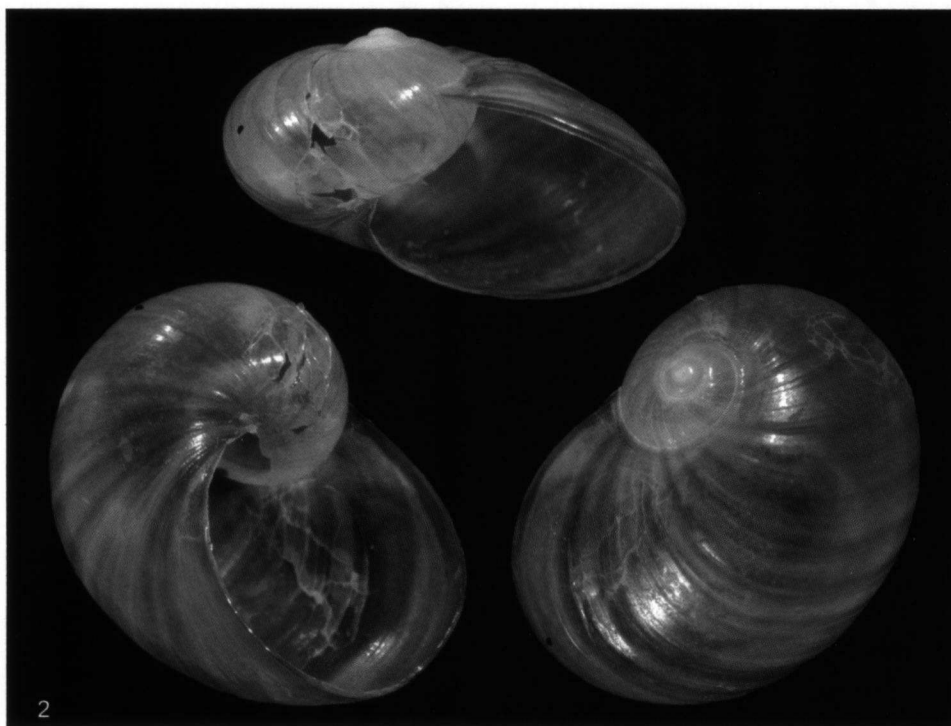


Fig. 2. *Chlamydarion quantini* spec. nov., shell of holotype (RMNH 97247); measurements: 22 × 16 × 14 mm. Kenya, Meru District, Ngaia Forest, 0°22'N, 38°02'E, 1080 m, Q. Luke leg., December 2002. Photos J. Goud, Leiden.

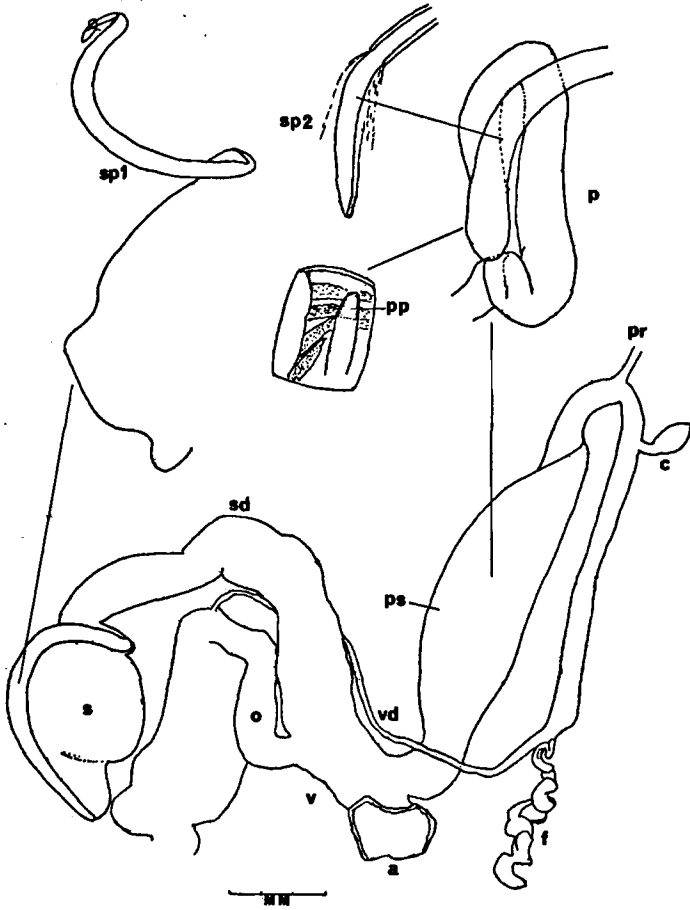


Fig. 3. *Chlamydarion quentini* spec. nov., anatomy of holotype (details as for fig. 1). Abbreviations: a, atrium; c, caecum; f, flagellum; o, oviduct; p, penis; pp, penial papilla; pr, penial retractor; ps, penial sheath; s, spermatheca (containing a spermatophore); sd, spermathecal duct; sp 1, spermatophore from spermatheca; sp 2, spermatophore from penis; v, vagina; vd, vas deferens.