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TRACHYCYSTIS (DENDROTRICHIA) SYLVICOLA, A NEW SUBGENUS AND SPECIES FROM RHODESIA (MOLLUSCA, GASTROPODA PULMONATA: ENDODONTIDAE)

by

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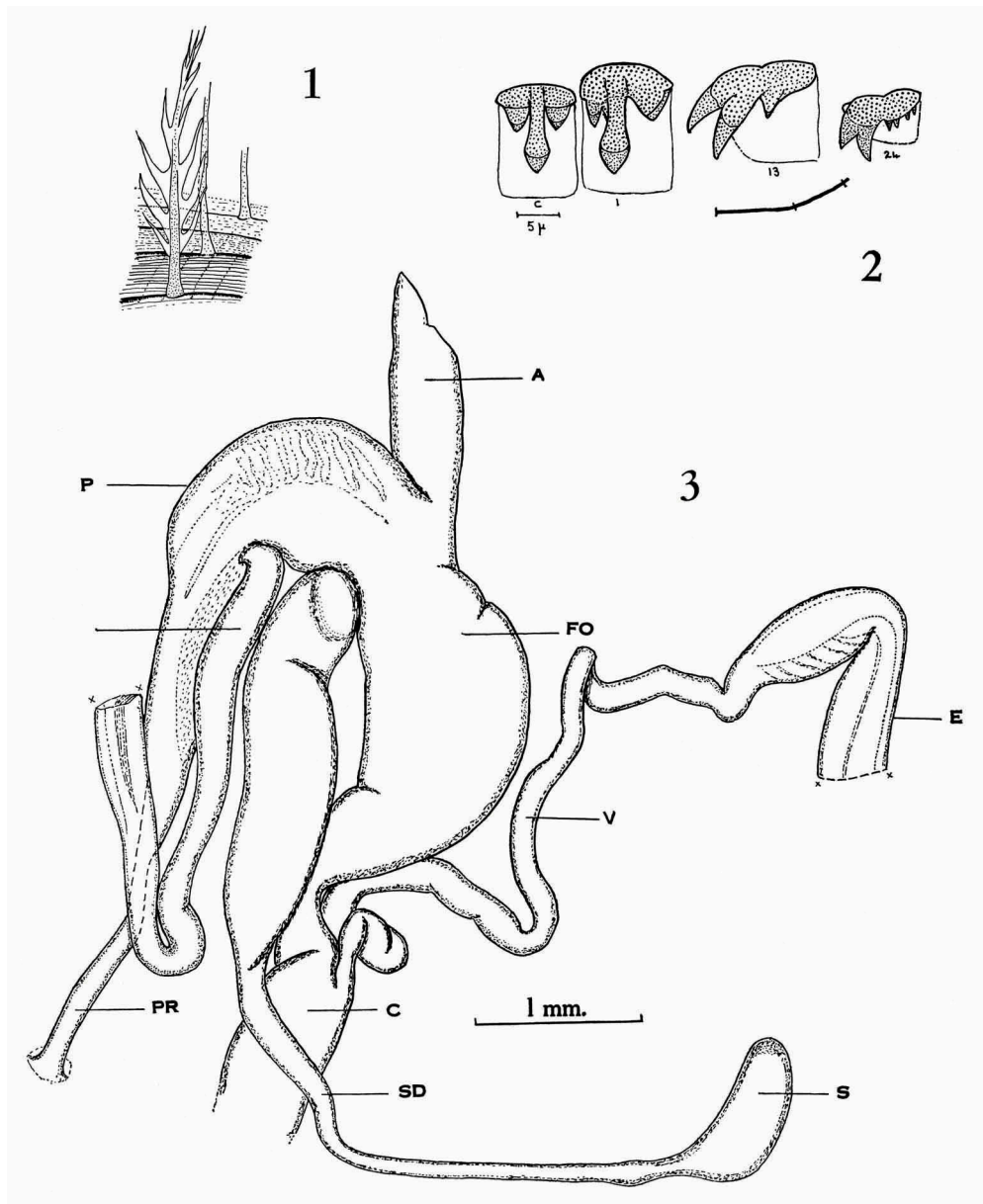
In 1959 the first author (A.C.v.B.) discovered a peculiar snail of the pulmonate family Endodontidae in Rhodesia; on a subsequent expedition more specimens were obtained, so that a series is now available for description. The species undoubtedly belongs to the genus *Trachycystis* Pilsbry, 1893, but a new subgenus has to be created in order to accommodate this particular species. Anatomical data and figures have been supplied by the second author (B.V.), while the first author is responsible for the remaining part of text and figures.

Dendrotrichia subgen. nov.

A subgenus of *Trachycystis* characterised by ramose bristles on the surface of the shell; genital anatomy like that of subgenus *Chalcocystis*. Type species: *Trachycystis (Dendrotrichia) sylvicola* spec. nov.

Trachycystis (Dendrotrichia) sylvicola spec. nov.

Shell (pl. 1) small, depressed subconic, umbilicate, thin, somewhat transparent, dull, hirsute, corneous. Spire depressed, apex mamillate. Whorls 4-4½, regularly increasing, nearly flat, bluntly shouldered at periphery, first 1½ smooth, remainder covered all over with sharp, curved, oblique, trans-



Figs. 1-3. *Trachycystis (Dendrotrichia) sylvicola* n.sp. 1, ramose bristles; 2, radula, teeth with outline of half row; 3, genitalia. A = atrium, C = common duct, E = epiphallus, FO = free oviduct, P = penis, PR = penial retractor, S = spermatheca, SD = spermathecal duct, V = vas deferens. All figures highly enlarged.

verse costae, increasing in strength on each succeeding whorl, the interstices filled with microscopic transverse striolae, increasing in number with the widening of the interstices, cut by close, strong, regular spiral lines; basal sculpture similar though somewhat weaker, the ribs converging into the umbilicus. All costae bear long (up to 1.2 mm), stiff, ramose, bristles (fig. 1) at regular intervals, usually more or less at right angles with the shell; the bristles consequently form spiral rows, of which there are 6 or 7 on the body whorl. The bristles are longest and most closely packed on the periphery of the body whorl. Aperture obliquely $\frac{3}{4}$ -lunate, descending considerably at the base, peristome hardly expanded, labrum receding in profile, columella concave, margin narrowly expanded, somewhat overhanging the fairly narrow umbilicus.

Body pale grey with darker tentacles; the equally dark tentacle retractor muscles can be seen through the transparent body wall as two longitudinal stripes on the dorsum (live animal, field notes).

Hinder end of foot rounded above, fringe somewhat swollen at the extremity with perhaps faint traces of a groove but no mucous pore. Jaw 0.8 mm wide, thin, crossed by vertical folds. Radula (fig. 2) 1.6×0.5 mm with the formula $16 : 10 : c : 10 : 16 \times 135$. The basal parts of the mesocones of the central and lateral teeth are narrowed; outer marginal teeth with ectocones divided into several cusps. Genitalia shown in fig. 3. Atrium developed; penis stout basally, narrowed to hinder end to which the penial retractor is attached. Epiphallus long, entering the penis near its middle, swollen at the opposite end, the swelling containing a series of folds. Spermatheca ellipsoidal, its duct considerably swollen basally, narrowed distally. These characters agree basically with those described by Watson (1934) for his subgenera *Chalcocystis* and *Chilocystis* save that the former contains species which do not have hairy shells and the latter has a rudimentary mucous pore and the epiphallus has no marked swelling. Watson (1934: 178) mentions that there are intermediates between these two subgenera. A character to which Watson ascribes importance is whether the right upper tentacle retractor muscle passes between the penis and vagina or not; in the species described here, although a small branch muscle does pass between the two, the main muscle does not do so and it seems satisfactory to suggest that the new subgenus is closest to *Chalcocystis* and not separable from it on anatomical grounds alone.

Holotype: S. Rhodesia, Masetter District, Mount Selinda, Chirinda Forest, 3600 ft., 15-26.I.1959, leg. A. C. van Bruggen (Natal Museum, Moll. No. 4167, Type No. 1098).

Paratypes: same data (paratypes nos. 1, 2, 5); *ibidem*, 7-13.II.1963, leg. A. C. & W. H. van Bruggen (paratypes nos. 3, 4, 6, 7); Mozambique, Manica and Sofala District, Mount Gorongosa, 6109 ft., western slopes, gallery forest, in humus, IX.1957, leg. R. F. Lawrence (1 paratype). All above material is preserved in alcohol. Apart from the numbered paratypes there are 23 unnumbered paratypes from Mount Selinda (1959, 1963). This material has been divided among the following institutions: British Museum (Natural History), London — paratype 4 and two unnumbered paratypes; Rijksmuseum van Natuurlijke Historie, Leiden — paratype 3 and two unnumbered paratypes; Musée Royal de l'Afrique Centrale, Tervuren, Belgium — paratype 5 and two unnumbered paratypes; Natal Museum, Pietermaritzburg — paratypes 1, 2, 6, 7 and all remaining specimens (Moll. Nos. 4167, 4168, 4169, Type Nos. 1099, 1100, 1101). There are also 11 unnumbered paratype shells in the Transvaal Museum (Pretoria), from "Chirinda, Dec. 1937".

Measurements in mm of shells¹⁾:

	max. diam.	min. diam.	height	aperture
paratype 1	6.6	5.9	3.5	3.0 × 3.4
holotype	6.5	5.8	3.3	3.0 × 3.3
paratype 2	6.0	5.0	3.2	2.9 × 3.2
paratype 3	5.6	5.3	3.4	2.8 × 3.3
paratype 4	5.5	5.0	3.3	animal stretched beyond aperture
paratype 5	5.1	4.9	3.2	2.8 × 3.2
paratype 6	5.1	4.9	3.2	animal stretched beyond aperture
paratype 7	5.0	4.9	3.1	animal stretched beyond aperture

Apart from its peculiar bristles *Trachycystis (Dendrotrichia) sylvicola* is a fairly ordinary looking species of *Trachycystis*. The sculpture (and other features) of the shell is close to that of *T. scolopendra* (Melv. & Pons.), though lacking the leaflike laminae of that species. On the other hand, the nearest allies of the new species (*vide* Connolly, 1939), at least in an anatomical sense, *viz.*, *T. (Chalcocystis) burnupi* (Melv. & Pons.), *T. (C.) aenea* (Krss.) and *T. (C.) viridula* Conn., have quite different, larger and somewhat inflated shells, devoid of any bristles and spiral sculpture. Unfortunately, *T. scolopendra* has never been dissected, so that as yet no anatomical data on this species are available. The combination of

1) Measurements can only be approximate, because it is impossible to measure these shells accurately on account of the long bristles; recorded measurements are without bristles.

the peculiar bristles with genitalia of the subgenus *Chalcocystis* Watson have led to the establishment of the subgenus *Dendrotrichia* in order to accommodate the species under discussion.

The bristles (fig. 1) are very peculiar indeed. Apart from their great length in relation to the size of the shell, they are of interest by virtue of their structure. Every bristle consists of a fairly thick corneous stem, which supports a transparent lamina; this lamina resembles a feather in having tapering lobes at regular intervals. One is inclined to compare these bristles with the laminae of *T. scolopendra*; they are certainly very similar in some respects and one could even imagine that the laminae of the latter species are nothing but a number of fused ramose bristles, which is actually supported by the fact that these laminae show traces of a number of stalks.

Ramose bristles seem to be very rare among gastropods; some marine bivalves, however, are known to possess bristles of this kind.

Bristles or hairs on shells of terrestrial gastropods only seem to occur in sheltered environments, particularly in forests. Bristles certainly have some survival value by means of obscuring the shell and also probably by picking up dirt and plant particles which may conceal practically the whole shell. The shell is well camouflaged in moss; it is particularly difficult to distinguish these snails among dead moss which has essentially the same brown colour as the shells (field notes).

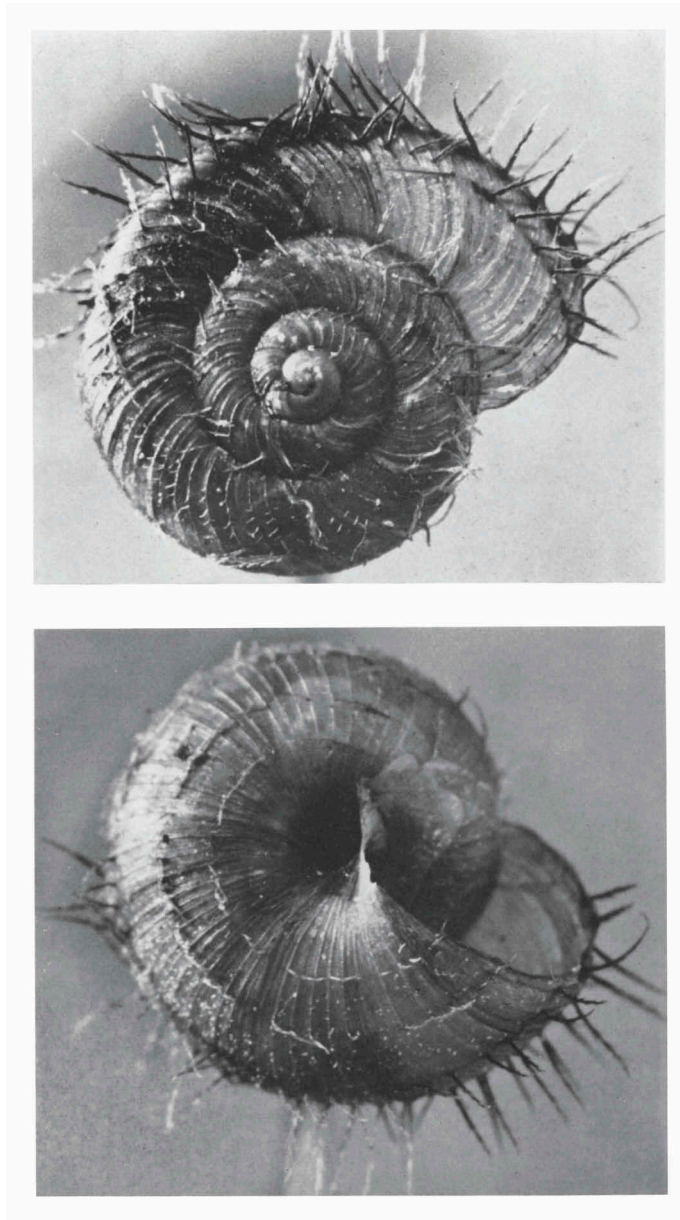
The new species occurs throughout the Chirinda Forest and is usually found on leaves of shrubs; in 1963 it was particularly common at the Swynnerton memorial, a simple overgrown stone bench with inscription in a fairly luxurious part of the forest. It is covered with moss and supports an interesting community of invertebrates, among which *T. (D.) sylvicola* figures prominently. The Chirinda Forest is the nearest approach to a tropical rain forest in Southern Africa; with a mean annual rainfall of 61 inches and a mean annual temperature of 66° F. conditions are highly favourable indeed for terrestrial molluscs (cf. Van Bruggen, 1961).

T. (D.) sylvicola also occurs on Mount Gorongosa in Mozambique (Portuguese East Africa); the above-mentioned paratype had already been recorded before as an "unidentified species" (Van Bruggen, 1964). It is expected that it will be found elsewhere in the forests of the Rhodesian Eastern Escarpment and adjoining areas, although in the course of two expeditions it has as yet not been collected outside Mounts Selinda and Gorongosa.

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Trachycystis (Dendrotrichia) sylvicola n.sp., two views of paratype no. 3, maj. diam. 5.6 mm. Photographs Laura Kelsall.