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Two new species of *Gulella* from Southern Africa

(Gastropoda, Pulmonata, Streptaxidae).

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With 4 Figures.

This paper is a continuation of a series describing new species of the genus *Gulella* L. PFEIFFER, 1856, from the area south of the Zambesi and Cunene Rivers. In 1964 *Gulella lawrencei* (Mozambique) and in 1965 *G. inobstructa* (Transvaal), *G. obstructa* (Cape of Good Hope) and *G. barnardi* (Transvaal) were introduced to science (VAN BRUGGEN 1964, 1965). Two additional new species have now been recognized, which are described below as *G. verdcourti* and *G. collicola*. Collecting trips to various parts of Southern Africa have proved that still more species await discovery; work on the genus is being continued and results will be published from time to time.

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Gulella verdcourti n. sp.

A smooth, small species of *Gulella* with six-fold dentition consisting of a parietal, two labral (on a common base), one basal and two columellar processes.

Shell (fig. 1) small, subcylindriform, with closed umbilicus, smooth and glossy, creamy white. Spire produced, sides flat, slightly convex, apex flattened. Whorls six, nearly flat, smooth except for odd, extremely rare, growth striae and some very slight striation on the left outside of the aperture behind the lip; sutures deeply incised. First two whorls minutely granulate, only visible under high magnification, otherwise smooth. Aperture (fig. 3) constricted, elongate, subtrigonal, narrowly rounded at base, peristome somewhat reflected, white and glossy, dentition six-fold. Parietal and labral processes large, obstructing aperture considerably; on the right of paries a large angular lamella, almost in a horizontal plane, not connected with the labrum; prominent labral complex halfway down the labrum and protruding as far as the middle of the aperture, consisting of two denticles on a common base (or, alternatively expressed, one labral tooth with two cusps), which denticles are subequal or the upper slightly larger than the lower, labral process corresponding to a large, deep, outside pit; small basal denticle, a mere swelling, deeply situated, no

outside pit; long, low, superficial, outside columellar process, covering most of left side of aperture; inner columellar lamella very deeply situated and hardly visible, poorly developed and almost vertical. — Animal unknown.

Measurements of shell: length 3·5 mm. (holotype), 3·4 mm. (paratype); maximum diameter 1·8 mm. (holotype), 1·8 mm. (paratype); length/maximum diameter 1·94 (holotype), 1·89 (paratype); length last whorl 1·8 mm. (holotype), 1·8 mm. (paratype); aperture 1·0×0·8 mm. (holotype), 1·0×0·8 mm. (paratype); (aperture measurements have been taken externally).

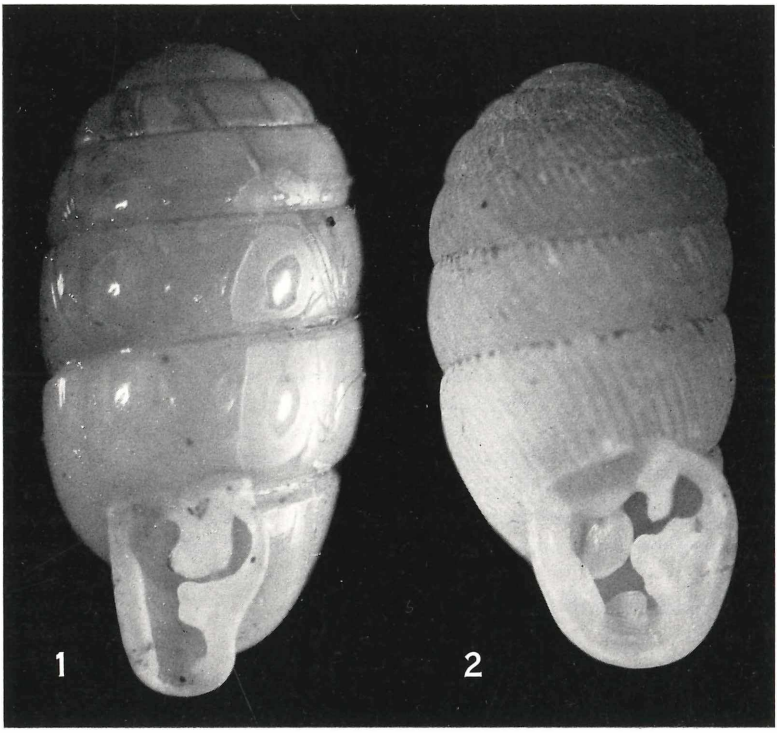
Holotype: South Africa, Transvaal, Magoebaskloof, Woodbush Forest, 5000 ft., 28 February 1963, in humus under log along main road through the forest, leg. A. C. & W. H. VAN BRUGGEN (Natal Museum Moll. No. 4189, Type No. 1102). Paratype: same data (Natal Museum Moll. No. 4189, Type No. 1103).

An abnormal specimen from the same locality, March 1960, leg. R. F. LAWRENCE (Natal Museum Moll. No. 4190), has an overgrown angular lamella, almost obscuring the upper labral denticle, while the labral complex is of a somewhat different shape. The sutures are less deeply incised than those of the types; the shell measures 3·7×1·7 mm., length/maximum diameter 2·18. Nevertheless it is quite obvious that it belongs to the present species; it cannot, however, be considered a paratype. All material is kept in alcohol, because the animals are withdrawn inside their shells.

The species has been named after Dr. B. VERDCOURT as a token of appreciation for his outstanding work on African non-marine molluscs, particularly on *Gulella* and allied genera.

By virtue of its duplex columellar lamella *Gulella verdcourti* belongs to CONNOLLY's (1939) second major division. Of this assemblage of species only group 18 (ii) (smooth species with labral process in the form of a large polymorphic slab and other processes variable) has to be considered. Both *G. rumpiana* CONNOLLY and *G. chi* BURNUP differ from the species under discussion by the presence of a large square outer columellar tooth, while in addition the former species is much larger and the latter smaller.

However, *G. verdcourti* closely resembles the remaining species of group 18 (ii), *G. farquhari* (MELVILL & PONSONBY) and is possibly allied to or an offshoot of this variable species. *G. farquhari* and its varieties *berthae* (MELVILL & PONSONBY) and *avena* (BURNUP) occur in the eastern littoral of Southern Africa from the Eastern Cape Province to Zululand, while CONNOLLY (1925, 1939) also records slightly aberrant specimens from Mozambique (Portuguese East Africa, Macequece District, Mt. Vengo, one specimen in the Natal Museum). The variability of this species has been admirably discussed by BURNUP (1914). *G. verdcourti* can easily be distinguished from all forms of *G. farquhari* by the complete absence of any trace of striation (except very slightly on the left outside of the aperture behind the lip), the deeply incised sutures, the much more laterally compressed and thus more obstructed aperture, the shape of the labral complex in which the upper denticle is always equal to or somewhat larger than and protruding over the lower ditto, and the long and low outer columellar tooth. These reasons account for the fact that the present author prefers to give *G. verdcourti* full species status instead of considering it a subspecies of *G. farquhari.*



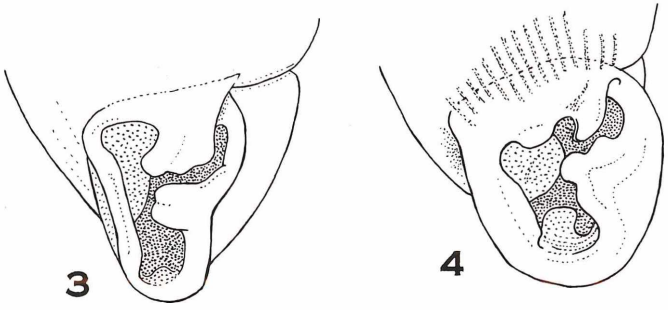


Fig. 1. Holotype of *Gulella verdcourti* n. sp., highly enlarged. Photograph B. R. STUCKENBERG.

Fig. 2. Holotype of *Gulella collicola* n. sp., highly enlarged. Photograph B. R. STUCKENBERG.

Fig. 3. Aperture of holotype of *Gulella verdcourti* n. sp., highly enlarged.

Fig. 4. Aperture of holotype of *Gulella collicola* n. sp., highly enlarged.

Gulella collicola n. sp.

A striate, medium-sized species of *Gulella* with eight-fold dentition, viz., two parietal, a complex of three labral, a basal and two columellar processes.

Shell (fig. 2) medium-sized, subcylindriform, rimate or with closed umbilicus, striate, creamy white. Spire produced, sides flat, slightly convex, apex flattened. Whorls 7 1/2-8, slightly convex, sculptured with close, regular, straight, oblique constulae, interstices somewhat granulate; sutures subcrenulate. First 1 1/2-2 whorls finely granulate and smooth. Aperture (fig. 4) fairly large, quadrate, rather obstructed by dental processes, peristome thick, expanded, somewhat reflected, white and glossy, dentition eight-fold. On the centre of paries a little horizontal process, next to a well-developed incurved angular lamella, touching the labrum at its apex; labral complex large, roughly triangular, corresponding to large and deep outside pit, complex consisting of three blunt denticles on a common base, upper and lower denticles being mere subequal swellings, while the large blunt central tooth is very prominent; a well-developed slightly square basal tooth somewhat on the left of base, fairly deeply situated, corresponding to small, but fairly deep outside pit; a low, long, superficial, outside columellar process and a deeply situated large and prominent, blunt, mamillate inner columellar lamella. — Animal yellow.

Measurements of shell (in mm.):

	holotype	paratype 1	paratype 2	paratype 3
length	5·9	5·6	5.5	5·5
maximum diameter	3·0	3·0	3·1	3·0
length/max. diam.	1·97	1·87	1·77	1·83
length last whorl	3·1	3·1	3·0	3·0
length aperture	2·0	2·0	2·0	2·0
width aperture	2·0	1·9	1·9	1·9

(aperture measurements have been taken externally)

Holotype: Swaziland, Mbabane, ravine of mountain slopes, ± 3000 ft., 23 November 1964, leg. R. F. LAWRENCE (Natal Museum Moll. No. 4191, Type No. 1104). Paratypes 1-3: same data (Natal Museum Moll. No. 4191, Type No. 1105). All material is preserved in alcohol.

Gulella collicola (collicola, Lat. = inhabitant of or inhabiting the mountains or hills, as a reference to the surroundings of Mbabane) obviously belongs to CONNOLLY's (1939) second major division of species, which have a duplex columellar process. Species of groups 17 and 18 (i) have to be considered for comparison. Those of group 17 have a process on the centre of the paries, like the present species; the dentition of the two species in this group, *G. mfongosiensis* BURNUP (striate) and *G. puzeyi* CONNOLLY (practically smooth), is however rather different, both species exhibiting nine dental processes, which differ in position and size from those of the new species. No mid-parietal process is known to occur in group 18, although species like *G. crassidens* (PFEIFFER), *G. munita* (MELVILL & PONSONBY) and *G. tharfieldensis* (MEVILL & PONSONBY) show a certain resemblance in general dentition. All this makes *G. collicola* very distinct and thus easily recognizable.

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