BASTERIA, 65: 101-104, 2001

Studies on the Streptaxidae (Mollusca, Gastropoda, Pulmonata) of Malaŵi
7. *Gulella hildae* spec. nov., a rarity from the Mt. Mulanje complex[1]

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A single minute, smooth shell with a seven-fold apertural dentition consisting of angular lamella, three labral processes, a basal process, and two columellar processes, from the Mt. Mulanje complex in southern Malaŵi is described as *Gulella hildae* spec. nov.

Key words: Gastropoda, Pulmonata, Streptaxidae, *Gulella*, taxonomy, Africa, Malaŵi.

INTRODUCTION

Ms. Hazel M. Meredith (now of Newquay, Cornwall, U.K.) has obtained numerous representatives of the pulmonate family Streptaxidae in the course of her land mollusc survey of Malaŵi in the years 1975-1988. This family is the dominant pulmonate family in tropical Africa with uncounted species, the majority of which belong to *Gulella* L. Pfeiffer, 1856. A minute shell belonging to this genus sensu lato, from the Mt. Mulanje complex in southern Malaŵi, has long defied attempts at identification. A recent opportunity to re-examine this little shell led to the conclusion that it represents a hitherto undescribed species. Understandable hesitation to describe a new taxon on the basis of a single shell was overcome by the fact that it displays some unusual characters and that, for the time being, it is unlikely for another specimen to turn up.

Acknowledgements are due to Ms. H.M. Meredith for checking through the manuscript, and to Mr. S.B. Blankevoort (RMNH) for the professional drawings. As always the author owes a debt of gratitude for assistance to the staff of the Mollusca Section at The Natural History Museum [London, formerly British Museum (Natural History)] for the period 1967-1994. Regular hospitality at the invertebrate division of the Museé Royal de l'Afrique Centrale, Tervuren, Belgium, is also gratefully remembered. The abbreviation RMNH stands for National Museum of Natural History, Leiden (formerly Rijksmuseum van Natuurlijke Historie), and l/d for the ratio length/major diameter of the shell as an indication of the shape of the shell (this ratio is calculated from micrometer readings and may therefore differ from that calculated when these measurements are first converted to mm).

[1]For No. 6 in this series (Description of *Gulella sursum* spec. nov.) vide Basteria 65: 27-32, 2001.

DESCRIPTIVE PART

Gulella hildae spec. nov.

Material examined. – Malawi, Mulanje District, Lujeri Estate, Likulezi = Ruo Gorge, 840 m, in riverine forest leaf litter, 4.ix.1986, leg. Ms. H.M. Meredith (holotype, RMNH 83932, figs 1-3).

Diagnosis. – A species of *Gulella* with a minute (< 2.5 mm), completely smooth, shell with seven-fold dentition consisting of an angular lamella, three labral processes, a basal process, and two columellar processes.

Description. – Shell (figs 1-3) minute, cylindrical, greatest width below the middle, whitish to transparent. Umbilicus closed. Spire produced, sides almost parallel and not convex, apex flattened, obtusely conical. Whorls 5 1/2, hardly convex, smooth, even without growth lines, with hardly any traces of costulation (growth lines) behind the labrum. Sutures somewhat impressed, shallow, simple and filiform. Aperture squarish subovate, peristome slightly incrassate and reflected, hardly obstructed by seven-fold dentition: a smallish, almost perpendicular angular lamella, to the right of the middle of paries; opposite this process a superficial upper labral denticle in the form of a horizontally inrunning lamella, between these two processes there is a large sinus; below this process and more deeply situated two squarish processes, the lower to the right of the base; there is no corresponding depression behind the labrum; a small and superficial basal process; a small and superficial lower columellar process; a more deeply situated, mamillate inner columellar process. Upper part of labrum slightly receding in profile.

Measurements: 2.28 x 0.84 mm, l/d 2.70, length last whorl 1.09 mm, aperture length x width 0.62 x 0.56 mm, whorls 5 1/2.

Animal unknown.

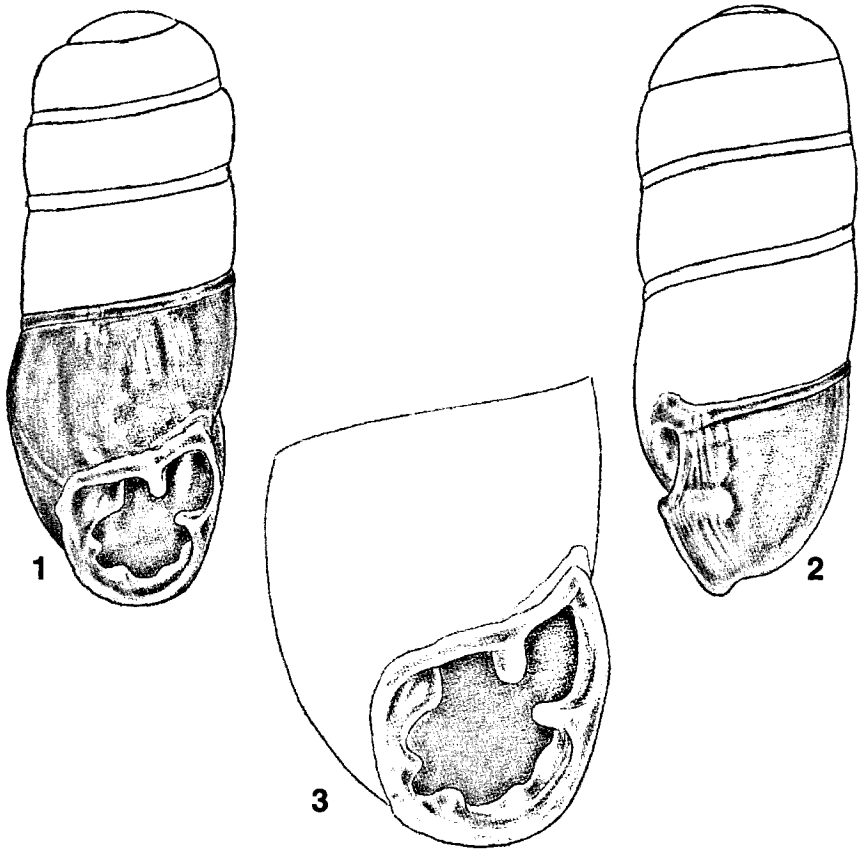
Distribution. – Southern Malawi, Mt. Mulanje complex.

Etymology. – This somewhat unusual new species is named for the author's wife Wendaline Hilda Gorter, who assisted in three land mollusc surveys in Malawi (1988, 1990, 1993). More than a quarter century ago *Gulella wendalinae* Van Bruggen, 1975, was described from Mariepskop Forest Reserve (South Africa, Northern Province, formerly Transvaal), where she also participated in some successful malacological exploration.

DISCUSSION

A scrutiny of the literature and available material show that *Gulella hildae* occupies a more or less unique position by virtue of its small size combined with the peculiar arrangement of the apertural teeth, particularly in the labral, basal and columellar fields. Also the fact that much of the dentition is somewhat superficial contributes to this picture.

In Connolly's monographic treatise (1939) inspection of groups 8ii, 9, and 14 does not lead to any result. In group 12ii (iia) the shell runs down to *G. multidentata* (Sturany, 1898) (which, however, is different) and to *G. umzimvubuensis*, Burnup, 1925 (which is too large, has too many whorls and a single large labral complex). The shell of G. *multidentata* (larger than that of the new species), is characterized by a basically six-fold dentition with additional minute denticles. These latter are always situated in the area between the outer columellar and lower labral processes. In group 12ii (iib) *G. mariae* (Melvill &



Figs 1-3. Holotype shell (1, front view, half-schematic; 2, side view, do.; 3, aperture) of *Gulella hildae* spec. nov., Malawi, Mt. Mulanje complex, Likulezi Gorge), highly enlarged, actual length 2.28 mm (RMNH 83932). S.B. Blankevoort del.

Ponsonby, 1892), has a six-fold dentition, while G. sylvia (Melvill & Ponsonby, 1903), and *G. melvilli* (Burnup, 1914), both have a seven-fold dentition, but all three have a single large labral complex. Subsequent literature on the genus in southern Africa also does not lead to a satisfactory conclusion.

With regard to East Africa, using Verdcourt's (1962) keys 11 and 12 does not lead to a solution; the same applies to all East African taxa described since (see e.g., Verdcourt, 1983). In Verdcourt's notation the apertural dental formula would be 1; 3; 1; 2. If the left basal denticle is considered to be a lowermost columellar process, then the formula would be 1; 3; 0; 3.

No other specimens resembling *G. hildae* were found in the comprehensive Malawi collections in Leiden (RMNH). There are no species of *Gulella* described from Angola that resemble the new taxon which is also not represented in unpublished material from

that country (RMNH). Finally, a search through published data on Congo *Gulella* (mainly Pilsbry, 1919; Van Bruggen & Van Goethem, 1997, 1999) resulted in disappointment too.

The next question to be addressed is, whether *G. hildae* belongs to any of the described subgenera of Gulella whatever their status may be (vide Zilch, 1960; Vaught, 1989; Millard, 1997). The combination of a smooth shell with seven-fold apertural dentition excludes a large number of these subgenera. However, *G. hildae* cannot be sensibly included in one of the remaining subgenera. The genus *Gulella* is itself still very poorly delimited against the other genera of the Streptaxidae and, also in view of the absence of anatomical data, it is perhaps best to classify the new species simply as *Gulella hildae.*

It is not improbable that the single shell of *G. hildae* is subadult as shown by its hardly incrassate and reflected labrum. However, it is confidently expected that in such a case fully adult apertural dentition will only differ in minor details from that shown by the holotype.

In the period 1975-1988 Ms. Meredith and her co-workers in the course of the land mollusc survey frequently sampled the leaf litter in suitable places in the Mt. Mulanje complex. This is a favourite venue for mountain climbers and hikers and a great variety of terrestrial mollusc species, also many minute ones, has been obtained here by examination of numerous leaf litter samples (RMNH). The fact that so far only one shell of *G. hildae* has been obtained may indicate that either the species is extremely rare or indeed very localized in its distribution.

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