

MICROSTELE GERARDAE SP. NOV. (GASTROPODA, PUPILLIDAE) FROM THE LATE TONGRIAN (OLIGOCENE) OF NORTHEASTERN BELGIUM

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From the Oligocene (Late Tongrian) Oude Biesen Sands Member (Atuatuca Formation) a terrestrial gastropod species, *Microstele gerardae* sp. nov., is described and illustrated. Representatives of this genus were thus far recorded only from the Miocene of Germany (Frankfurt am Main), France (Loire) and the Neogene of the Soviet Union (Caucasus).

Key words — Terrestrial Mollusca, Gastropoda, Oligocene, Belgium, new species.

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CONTENTS

Introduction	p. 113
Systematic part	p. 113
Acknowledgements	p. 114
References	p. 114

INTRODUCTION

It has been long known that a terrestrial molluscan species occurs in the Oude Biesen Sands Member (Atuatuca Formation, Oligocene, Late Tongrian), of which only fragmentary upper whorls have been recorded so far. In view of their overall aspect these fragments were tentatively referred to the genus *Ena* Leach in Turton, 1831; undamaged specimens or fragments of the last whorl with the aperture had not yet been found. In 1988 a temporary exposure along the Nachtegaalstraat at Kleine Spouwen, Belgian province of Limburg, was extensively sampled. During processing of the samples a number of complete specimens, several fragments of the upper whorls and body whorls of this terrestrial mollusc were found, which up to then had been unknown from the European Oligocene.

Because of the lack of comparative fossil material only a literature search could provide the necessary information. The conclusion reached

was that the newly collected specimens should be assigned to the genus *Microstele* Boettger, 1886, which was substantiated by a study of modern species. Seeing that these Oligocene specimens differ from Miocene material described previously, it was decided to introduce a new species.

SYSTEMATIC PART

Class Gastropoda
Order Stylommatophora
Family Pupillidae
Genus *Microstele* Boettger, 1886

Type species — *Pupa noltei* Boettger, 1886.

Microstele gerardae sp. nov.

Pl. 1. Figs 1-6

Diagnosis — A species of the genus *Microstele* with near-smooth, moderately convex whorls.

Material — Holotype, Pl. 1, Fig. 1, collections of the Nationaal Natuurhistorisch Museum (formerly Rijksmuseum van Geologie en Mineralogie), Leiden, The Netherlands. Registration number RGM 229 794.

Paratypes: RGM 229 795 (Pl. 1, Fig. 2), C. Karnekamp collection, nos. 10110, 10111, 10112 (Pl. 1, Fig. 4) and 10113. Additional material in-

cludes four last whorls with entire apertures, showing clearly the apertural teeth, and 16 fragments of upper whorls (see Pl. 1, Figs 5, 6; C. Karnekamp coll., nos. 10116, 10117) which are referred to the present species on account of the apical angle. In Pl. 1, Fig. 3, a fragmentary last whorl (C. Karnekamp coll., no. 10114) is illustrated.

Type locality — Temporary roadside exposure, Nachtegaalstraat, Kleine Spouwen, municipality of Spouwen, Belgian province of Limburg, coordinates 233.080/170.225.

Derivation of name — Named after my wife Gerarda, in recognition of her bearing with me during collecting trips.

Type horizon — Oude Biesen Sands Member, Atuatuca Formation (Janssen *et al.*, 1976; Janssen *et al.*, 1978), Oligocene, Late Tongrian.¹ This species has so far been found as complete specimens only in a horizon that is characterised by the common occurrence of large-sized individuals of the bivalve *Lentidium donaciformis* (Nyst, 1836).

Description — Shell dextral, elongate, egg-shaped, 5 1/2 moderately convex whorls, obvious suture, very narrow slit-like umbilicus.

Protoconch smooth, but on the second volution irregular, slightly S-shaped growth lines develop (magnification) with narrow interspaces. Protoconch-teleoconch transition is not marked.

Aperture near-circular, its height being 7/12 of the height of the ultimate whorl. Outer lip slightly reflected and thickened. At the parietal side, directly next to the attachment of the body whorl, there is a tooth that is clearly directed abaxially. Somewhat deeper into the aperture, approximately at the middle of the parietal side, there is a second tooth. Dentition is uniform in the specimens at hand, and without microsculpture.

None of the specimens before me shows any traces of wear; indeed, preservation is nearly perfect. Like all other molluscs from the Oude Biesen Sands, the specimens are lightly sand-coloured.

Discussion — The present species closely resembles the modern Sri Lanka species *Microstele muscerda*

(Benson, 1853) (Pilsbry, 1920-21), in which the tooth directed abaxially is virtually missing. It differs from *Microstele wenzi* (Fischer, 1920) from the Late Miocene (Tortonian) 'Landschneckenmergel' in having a less reflected outer lip and in lacking a small tooth far into the aperture, at the centre of the basal side. Pilsbry (1920-21) recorded this species also from marine sands at Vöslau (Vienna Basin, Austria).

From the Faluns de Touraine (Middle Miocene) at Pontlevoy (France), de Morgan (1920) described *Microstele mariae*. This species has a clearly less reflected outer lip than *M. wenzi*; it also reaches a height of 4 mm, but is consistently more slender (width: 1.75 mm).

Steklov (1966) recorded *Microstele wenzi* from Neogene strata in Ciscaucasia (Soviet Union) and introduced three new species of *Microstele*, viz. *M. caucasia*, which is smaller and more slender than *M. wenzi*, *M. buryaki*, which is larger and less slender than *M. caucasia*, but does not attain the same height as *M. wenzi*, and *M. alamellata*, which is of equal height as *M. wenzi* but lacks apertural teeth.

Fossil species of *Microstele* all closely resemble *M. muscerda* (Benson, 1853). With the exception of the last-named species, modern taxa are less high and wide (Pilsbry, 1920-21; Verdcourt, 1968).

The occurrence of a representative of the genus *Microstele* in the Late Tongrian of northeastern Belgium provides a good indication of palaeoclimate, in view of its present-day distribution: India, Sri Lanka, and east and southwest Africa.

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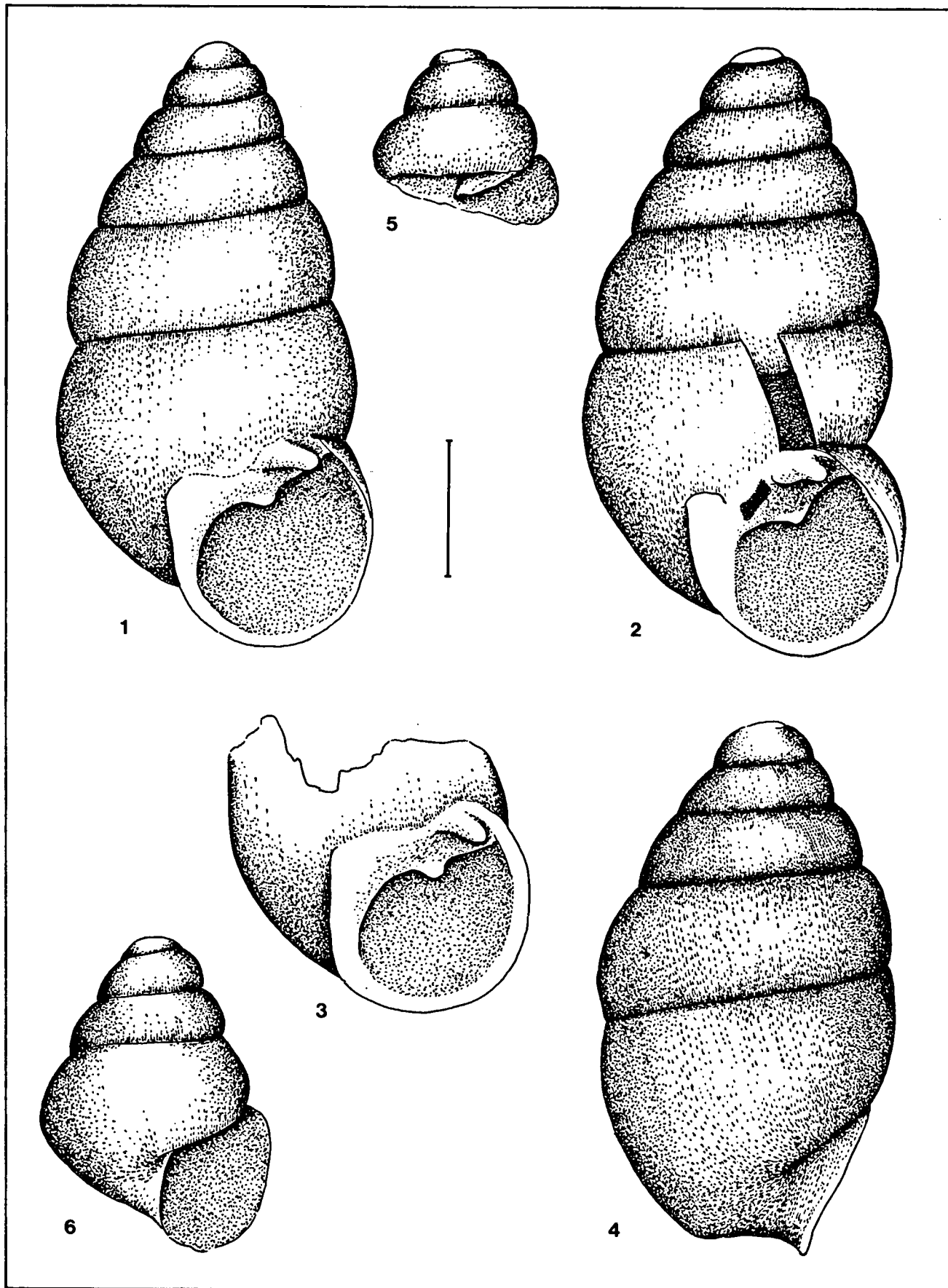
PLATE 1

Figs 1-6. *Microstele gerardae* sp. nov.

Temporary roadside exposure, Nachtegaalstraat, Kleine Spouwen, Limburg, Belgium. Oligocene, Late Tongrian, Atuatuca Formation, Oude Biesen Sands Member. 1: holotype, coll. RGM 229 794 (leg. C. Karnekamp), 2: paratype, coll. RGM 229 795 (leg. C. Karnekamp), 3-6: C. Karnekamp coll., nos. 10115, 10112, 10116 and 10117, respectively. Scale bar is 1 mm.

¹ For the time being, the stratigraphic age of the new species is indicated as Late Tongrian rather than Rupelian; it turned out again at a recent meeting (11-13 October 1990) of the Working Group Rupelian of the Regional Committee on Northern Paleogene Stratigraphy (RCNPS) that there is still no consensus regarding the base of the Rupelian Stage. Until a decision is reached on this subject it seems advisable to refer the Atuatuca Formation to the Late Tongrian. (A.W. Janssen, personal communication.)

PLATE 1



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