

Insulivitrina ingridae spec. nov., a fossil vitrinid from the Canary Island of La Gomera (Gastropoda, Pulmonata)

C. (KEES). J. P. J. MARGRY

Mozartlaan 41, NL-5283KB Boxtel, The Netherlands; margry@home.nl

The fossil species *Insulivitrina ingridae* spec. nov. is described from the Canary island of La Gomera. Only a single shell was encountered, which is about 14.5 mm long and has a strophostyl columella. It is compared with shells of Recent vitrinid species from the Macaronesian Islands, and the fossil glass snails from Madeira and Porto Santo. This is the first record of a fossil *Insulivitrina* species from the Canary Islands.

Key words: Vitrinidae, *Insulivitrina*, taxonomy, fossil, Canary Islands, La Gomera.

INTRODUCTION

Fossils of Vitrinidae have been recorded from several places on the European mainland from a variety of geological periods (the oldest one being lower Eocene) (e.g. Schröder, 1915; Hesse, 1923, 1924; Geyer, 1927; Tesch, 1944; Forcart, 1954, 1957; Zilch & Jaekel, 1962; Ložek, 1964; Kuijper, 1973, 1981; Meijer, 1973, 2010; Wiktor, 1974; Freudenthal et al., 1976; Gittenberger, 1992; Keulen, 1998; Nordsieck, 2014; Salvador & Rasser, 2014). From Macaronesia four fossil vitrinid species have been reported by Groh & Hemmen (1986) from Madeira and Porto Santo [*Madeirovitrina crassa* (Groh & Hemmen, 1986); *M. portosantana* (Groh & Hemmen, 1986); *M. marcida* (A. Gould, 1847) and *M. media* (Lowe, 1855)], two of these (*M. marcida* and *M. media*) being still extant. No fossil Vitrinidae have so far been found on the Azores (Mordan & Martins, 2001). During fieldwork that was part of a broader study on Vitrinidae (Margry, 2013, 2015), a fossil specimen of an undescribed species of *Insulivitrina* Hesse, 1923, was found on the island of La Gomera (Canary Islands). This is of

considerable interest, as so far only an unidentified vitrinid fossil has been recorded as *Plutonia* sp., namely from Gran Canaria (Castillo et al., 2008).

The new fossil from the island of La Gomera is described below. Its conchological characters are compared with those of Recent species of the Macaronesian islands (Backhuys, 1975; Groh & Hemmen, 1986; Ibáñez et al., 1987; Alonso et al., 1987; Morales et al., 1988; Valido et al., 1990; Valido et al., 1993; Alonso et al., 2000; Valido et al., 2000; Mordan & Martins, 2001; Ibáñez et al., 2001; Seddon, 2008; Valido et al., 2014; Alonso & Ibáñez, 2015) and the fossil species known from the islands of Madeira and Porto Santo (Groh & Hemmen, 1986). Measurements were taken using a calliper to the nearest 0.1 mm in conformity with Groh & Hemmen (1986: 185). The shell types are described in conformity with the terminology used by Ibáñez et al. (1987).

SYSTEMATIC PART

Superfamilia Limacoidea Lamarck, 1801

Familia Vitrinidae Fitzinger, 1833

Insulivitrina P. Hesse, 1923.

Type species (selected by Hesse, 1924: 226): *Helicolimax lamarckii* A. Férussac, 1821.

Insulivitrina ingridae spec. nov. (Figs 1-5)

Type locality & type material. — The fossil was found on 8.v.2015 in the Barranco de la Era Nueva, approximately 1.5 km west of the village Vallehermoso on the island of La Gomera, the Canary Islands (28°11'01 N – 17°16'48 W, about 400 m a.s.l.). The single shell was found next to a footpath on the surface of a fossil

layer. Because it was no longer attached to a layer it was found beyond any stratigraphic context. The holotype will be included in the collection of Naturalis Biodiversity Center, Leiden, The Netherlands. Description of the holotype. — The fossilized shell is 14.5 mm long, 9.2 mm wide and 5.4 mm high, and has $2\frac{1}{8}$ rapidly expanding body whorls. The aperture is very wide. The shell is depressed and resembles a form between type A and B (Ibáñez et al., 1987: 120). The outer edge of the last whorl is broken and incomplete. The overall length of the shell would have been an estimated 14.5 mm (Figs 1, 2). The outer surface is a smooth thin opaque layer and shows growth lines. Some parts are still glossy. The underlying parts are calcified (Fig. 3). The inside of the second whorl is more massive, with a thickness of 1.3 mm and contains small grooves, which are likely artefacts from calcification (Fig. 4a). The thickness of the last whorl ranges from 0.1 to 0.5 mm. The strophostyl columella has a narrow strip of callus (Fig. 4b). It has a straight edge of more than 2 mm almost perpendicular to the protoconch (Fig. 4c). It subsequently turns outwards with an angle Δ° of approximately 45° (Fig. 5). There are no signs of a membranous border. No ornamentation or pits are visible on the protoconch.

Derivatio nominis. — The epithet *ingridae* is derived from the first name of my wife Ingrid Margry-Moonen. She always accompanies me during fieldwork and takes care of the photographs.

DISCUSSION

Because of its size and the strophostyl columella, this fossil species resembles the Canarian *Insulivitrina oromii* Ibáñez & Alonso, 1988, from La Gomera and *Insulivitrina lamarckii* (A. Férussac, 1821) from Tenerife and La Palma (Ibáñez et al., 1987; Morales et al., 1988; Margry, 2015). It also resembles the Madeiran fossil species *M. crassus* (Groh & Hemmen, 1986) and the Recent *Madeirovitrina behnii* (Lowe, 1852), *M. ruivensis* (Gould, 1847) and *M. media* (Lowe, 1855) (Groh & Hemmen, 1986). However, the first $1\frac{1}{2}$ whorls of *I. ingridae* are relatively small compared with those of *I. lamarckii*, *M. behnii* and *M. media*. Besides, the protoconch of *I. ingridae* is more elevated compared with *I. oromii*, which has a more tumid last whorl. The strophostyl columella is not curved like *I. lamarckii* and *M. behnii*. Instead, it has a straight part of 2 mm before it turns outside. The first whorl is bigger than in *M. ruivensis* and *M. crassus*. Although *M. crassus* also has a thick shell like *I. ingridae*, the robust callus on the parietalis that is described for *M. crassus* (Groh & Hemmen, 1986: 194) is missing. Compared with these six species, the second whorl of *I. ingridae* is more flattened.

Vitrinidae usually need to be identified and classified after the anatomy of the genitalia, what is impossible in this case. Giusti et al. (2011) could not find any evidence for the monophyly of *Insulivitrina*. Because this nominal genus is restricted to the Canarian Islands, whereas *I. ingridae* has no resemblance with species of other genera (*Canarivitrina* Valido & Alonso, 2000; *Guerrina* Odhner, 1955) from these islands, *Insulivitrina* has been taken as the genus for this fossil. As explained for a similar case by Gittenberger (1992), the generic status can be tentative only.

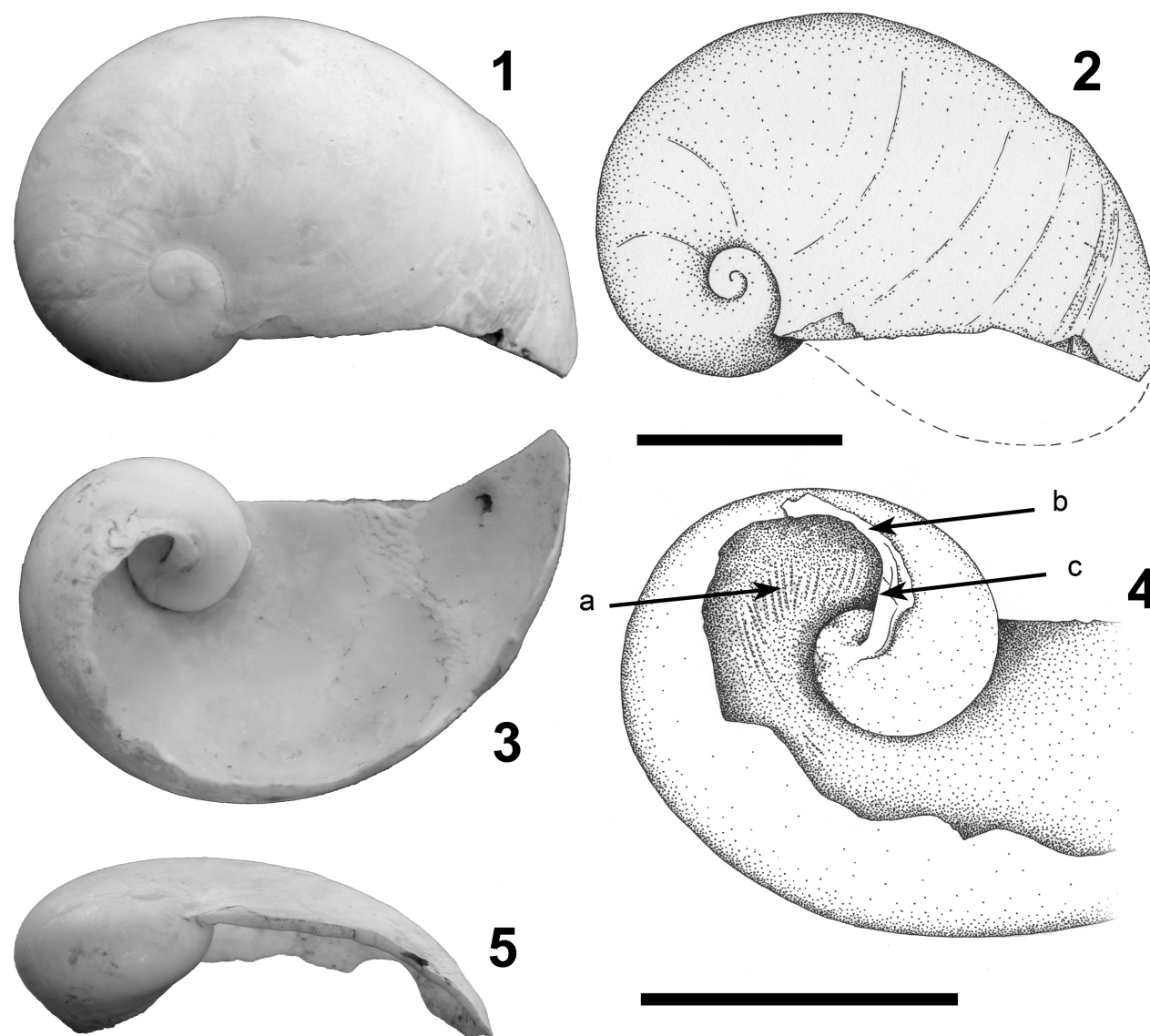
Hausdorf (2002: 354) assumed that the radiation of the Macaronesian vitrinid species is younger than the radiation on the European mainland. According to Alonso et al. (2000), the vitrinid genera *Plutonia*, *Guerrina*, *Insulivitrina*, *Madeirovitrina* and *Canarivitrina* from the archipelagoes of the Azores, the Madeiras and the Canary Islands are probably as old as the humid "laurisilva" laurel-forest, a Tertiary relict that colonized these archipelagoes before the impact of the Pleistocene glaciations. The fossils from Madeira that are described by Groh & Hemmen (1986) are likely from later periods. *Madeirovitrina portosantos* is found in outcrops that are approximately 13,500 years old. Shells from *M. crassus* are dated less detailed, and supposedly originate from the Quaternary era.

Hausdorf (2001) provided an explanation for the rather large size of most of the Macaronesian species. These semislugs did not have to compete with slugs. Unlike Vitrinidae on the European mainland, the island glass snails did not have to retreat themselves to higher altitudes. Neither did they have to transfer their activities to colder seasons. On the relatively humid parts of the islands these species had the possibility to develop into semislugs with large shells. Because of the rather large size of the shell of *I. ingridae*, this fossil likely originates from the later Pleistocene or Holocene.

The island of La Gomera arose in the Lower Miocene with a submarine edifice. It subsequently emerged in the Upper Miocene and the Lower Pliocene. In contrast to the other Canary Islands, the volcanic activity ceased on La Gomera since the Upper Pliocene (Ancochea et al., 2006). Because of a period of total quiescence in the Pleistocene and Holocene, the Vitrinidae from the island of La Gomera may have had better chances of surviving and speciation compared with the glass snails from other Canary Islands. More research is required in order to unravel the fossil history of this group.

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Figs 1-5. Holotype of *Insulivitrina ingridae*. 1, Dorsal side. 2, Dorsal side with the estimated length. 3, Ventral side. 4, Angled look inside with (a) little grooves, (b) callus; and (c) straight edge in the strophostyl columella; 5, Side view. Scale bar = 5 mm. Photos: I. Margry; drawings K. Margry.

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