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ABDITODENTRIX, A NEW FORAMINIFERAL GENUS IN FAMILY BOLIVINITIDAE

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ABSTRACT

***Abditodentrix*, a new genus of the Bolivinitidae, differs from other genera of the family by its distinct truncate margin, reticulate ornamentation, and reduced toothplate. The type species of the new genus is *Abditodentrix asketocomptella*, n. sp.**

INTRODUCTION

Based on such morphologic features as apertural orientation, nature and presence, or absence, of a toothplate, and chamber arrangement, genera of the family Bolivinitidae have been variously defined (Loeblich and Tappan, 1964; Tappan and Loeblich, 1982; Sellier de Civrieux, 1976; and others). Among the benthic foraminifera in Recent to Pliocene samples from the Rio Grande Rise in the southwest Atlantic Ocean is a comparatively common species of the Bolivinitidae whose characteristics exclude it from existing genera. Thus a new genus is required for placement of the species.

MATERIALS

Materials used for this study were from five core levels of DSDP Site 357 (Leg 39) on the Rio Grande Rise, southwest Atlantic Ocean; latitude 30'OO.25'S., longitude 35'33.59'W. The core levels were:

1. Pleistocene; Core I, Section I, 80-86 em.
2. Pleistocene; Core I, Section 2, 80-86 em.
3. Pleistocene; Core I, Section 3, 80-86 em.
4. Pleistocene; Core 1, Section 4, 80-86 em.
5. Pliocene, Core I, Section 5, 80-86 em.

METHODS

Approximately 100 specimens from five core levels at a single locality were examined variously in reflected light, polarized transmitted light, and with a scanning electron microscope to examine the test surface and perforations, apertural form and position, nature of the apertural toothplate and test interior in a half sectioned specimen, and the orientation of the calcite crystal lattice in a crushed specimen.

For half sectioning, a single specimen was embedded in Lakeside 70 and carefully ground on 15-micron dry emery paper until the inner structure of the test was exposed. The specimen was then immersed in alcohol overnight to dissolve the Lakeside 70, mounted on a plug, coated with gold, and illustrated with the scanning electron microscope. Another specimen was crushed between a glass slide and cover slip with (D = 1.550) immersion oil and examined in polarized light to determine the wall microstructure.

Scanning electron micrographs of the half-sectioned, and other selected specimens were taken with an ISI Super-111A Scanning Electron Microscope, using Polaroid NP 55 film.

TYPE SPECIMENS

The holotype, figured paratypes and unfigured paratypes are deposited in the National Museum of Natural History, Washington, D.C.

SYSTEMATIC DESCRIPTION

Suborder ROTALIINA Delage and Herouard, 1896
Superfamily BULIMINACEA Jones, 1875
Family BOLIVINITIDAE Cushman, 1927
Genus **Abditodentrix**, n. gen.

Type species. Abditodentrix asketocomptella. n. sp.

Diagnosis. A genus of Bolivinitidae with flattened sides and truncate margins, heavy reticulate surface ornamentation, biserially arranged chambers, and basal elliptical aperture, with a toothplate.

Description. Test free, elongate rectangular in section, sides flattened, the distinctly angular lateral chamber margins producing a serrate test outline; chambers arranged biserially throughout; sutures commonly deeply incised; wall calcareous, hyaline, optically radial, distinctly perforate with medium-sized pores; surface highly ornamented with a network of elevated reticulations, apertural face less ornamented;

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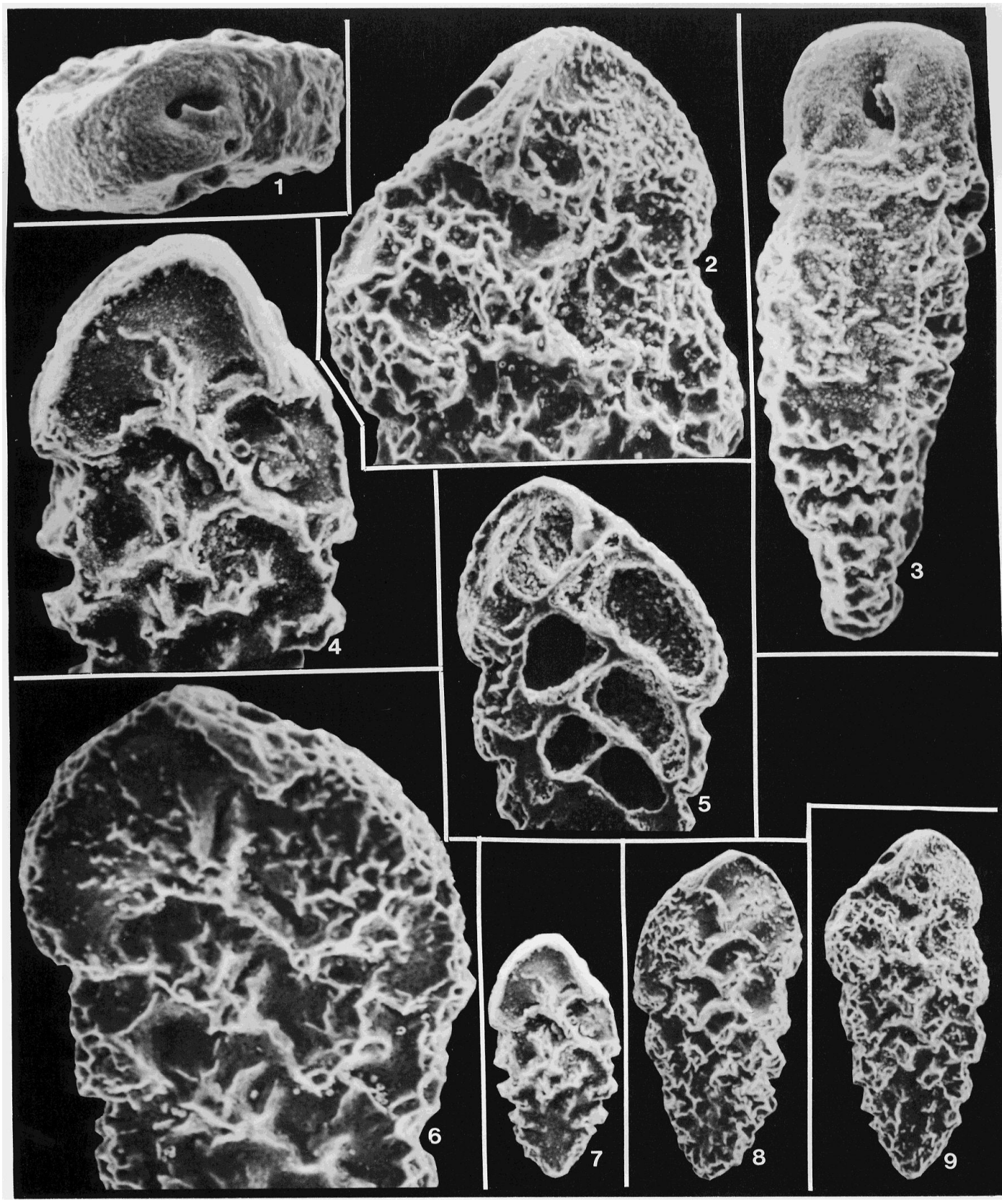
PLATE I

1-9 Abditodentrix asketocomptella, n. gen. I. Apertural view of paratype (USNM 383102) showing prominent lip and depressed toothplate, x 500. DSDP site 357, core I, section 1,80-86 cm; Recent/Pleistocene. 2, 9. Exterior of holotype (USNM 383104). 2, enlargement illustrating high degree of ornamentation due to lamellar thickening, and showing apertural lip, x 500. 9, entire test showing characteristic serrated and truncated margins, x 200. DSDP site 357, core I, section 2, 80-86 cm; Recent/Pleistocene. 3. Edge view of para type (USNM 383105) showing reduced ornamentation on apertural face, x 500. DSDP site 357, core I, section 5, 80-86 cm; Pliocene. 4, 7. Exterior view of para type (USNM 383106).4, enlargement showing little secondary ornamentation, and highly incised sutures, x 500.7, entire test showing truncate margin and little of the characteristic surface ornamentation, *x200.* DSDP site 357, core I, section 3, 80-86 cm; Recent/Pleistocene. 5. Lateral section



of para type (USNM 383103) illustrating toothplate arrangement at aperture and in previous chambers, x300. DSDP site 357, core I, section 2, 80-86 cm; Recent/Pleistocene. 6. Paratype (USNM 383102) showing highly perforate areas where lamellar thickening of reticulations is minor, x 500. DSDP site 357, core I, section I, 80-86 cm; Recent/Pleistocene. 8. Paratype (USNM 383102) showing an intermediate level of secondary ornamentation, as well as the typical serrate and truncate margins, x200. DSDP site 357, core I, section 1,80-86 cm; Recent/ Pleistocene.

aperture basal, elliptical, perpendicular to suture, with bordering lip on one side, free part of toothplate reduced and not projecting from aperture, enfolded internally, one side of toothplate terminating midway through the chamber interior, those of successive chambers alternating in direction.

Derivation of name. From the Latin, *abditus,* hidden, concealed, + *dens. dent is,* tooth, + *trix,* action and agency, with reference to the depressed toothplate in this genus. Gender feminine.

Remarks. Bolivinita differs from *Abditodentrix* in being larger, with more truncate and keeled margins, and in lacking surface ornamentation. The two genera are similar in apertural arrangement although the aperture of *Bolivinita* is somewhat larger and its toothplate tends to project farther. *Abditodentrix* also is somewhat more coarsely perforate than *Bolivinita. Bolivina* differs from the present genus in its toothplate projecting through the aperture and bisecting the slit-like opening. *Abditodentrix* also has a more truncate margin than *Bolivina.* In ornamentation *Bolivina* is either smooth, striate, or costate, whereas *Abditodentrix* has a complex network of elevated reticulations that are somewhat independant of individual chambers. *Latibolivina* displays a similar network of reticulations, but they tend to be more regular in elevation and pattern than those of *Abditodentrix. Latibolivina* also lacks the truncate margin of *Abditodentrix.*

Abitodentrix asketocomptella, n. sp.

Diagnosis. A species of *Abditodentrix* with flattened sides and truncate margins, heavy primary and secondary reticulate surface ornamentation, biserially arranged chambers, and a basal elliptical aperture, with a toothplate.

Description. Test free, rectangular in section, sides flattened, the angular lateral chamber margins producing a serrated test outline; biserial chamber arrangement; sutures moderate to deeply depressed, at about 45° to the longitudinal axis; wall calcareous, hyaline, optically radial; medium degree of perforation, pores concentrated in areas of reduced ornamentation except on apertural face; surface highly ornamented with a network of elevated reticulations, ornamentation reduced on apertural face; aperture basal, elliptical, perpendicular to suture, aperturallip restricted to one side, toothplate reduced and not projecting from the aperture, enfolded internally, one side of tooth plate terminating midway through the chamber interior, those of successive chambers alternating in direction.

Derivation of name. From the Latin, *asketos,* curiously wrought, + *comptus, compus,* ornamented, adorned, + *ella,* diminutive, with reference to the highly ornamented test.

Measurements. Maximum length, 240 µm; maximum width, 120 µm.

Types and occurrences. Recent, Pleistocene and Pliocene. Holotype (USNM 383104), figured paratypes (USNM 383102-383103, 383105-383106), and unfigured paratypes (USNM 383101) from DSDP site 357 (Leg 39); Rio Grande Rise in the southwest Atlantic Ocean; latitude 30°00.25'S., longitude 35°33.51 'W.; Core I, Section I, 80-86cm; Recent/Pleistocene. Other figured and unfigured paratypes are from Core 1, Section 2, 80-86 em.; Core I, Section I, Section 3, 80-86 cm.; Core 1, Section 4, 80-86 cm.; all Recent to Pleistocene and from Core 1, Section 5, 80-86 em. of Pliocene age.

Remarks. In young specimens the ornamentation is restricted to areas near the sutures. As specimens age a secondary phase of ornamentation occurs with the test becoming increasingly encrusted with reticulations. The heavy ornamentation and truncate margins ofthis species, as well as the reduced toothplate, readily differentiate it from species of *Bolivina. Abditodentrix asketocomptella* differs from species of *Bolivinita* by the absence of ornamentation and distinctive keeled truncate margins of the latter. The extreme depression of the margins of some specimens of *A. asketocomptella* is similar to *Bolivina* cf. *lepida* Sliter as figured by Sellier de Civrieux (1976, pl. 7, fig. 8). However, *B.* cf. *lepida* is much more coarsely perforate than *A. asketocomptella.* In addition *B.* cf. *lepida* is less ornamented and lacks a truncated margin. Sellier de Civrieux did not provide an apertural view. The ornamentation of *A. asketocomptella* somewhat resembles that of *Latibolivina anastomosa* (Finlay). However, the reticulations of *A. asketocomptella* are less regular than those of *L. anastomosa. Latibolivina anastomosa* also lacks the truncate margin of *A. asketocomptella.*

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