

populations the scarcity of microspheric forms in these relatively small samples is not remarkable.

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### AMPLECTODUCTINA, A NEW FORAMINIFERAL GENUS IN THE SIPHOGENERINOIDIDAE

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#### ABSTRACT

*Amplectoductina*, a new genus of the Tubulogenerininae, is distinguished by its entirely uniserial chamber arrangement. The type of the new genus is *Amplectoductina carnatolintra*.

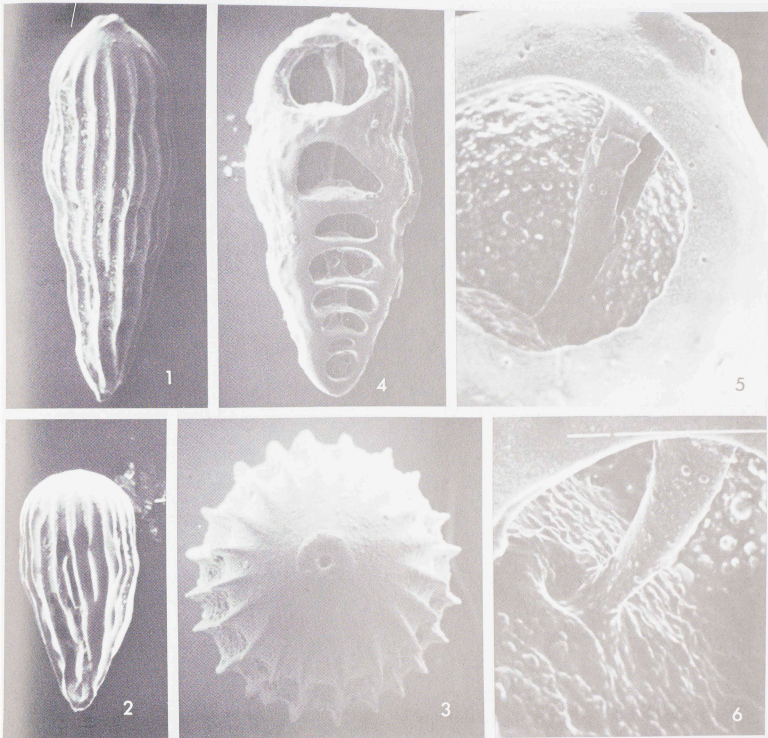
Various genera of the foraminiferal family Siphogenerinoidea have been defined on the basis of such morphological characters as the number of initial chambers, apertural configuration, and the orientation of the toothplate in successive chambers (Saidova, 1981; Loeblich and Tappan, 1982).

Among benthic foraminifera in Pleistocene to late Oligocene samples from DSDP Site 357 (Leg 39) on the Rio Grande Rise is a species of Siphogenerinoidea which, except for being entirely uniserial, fits all criteria used to define Tubulogenerininae. Although rare in individual samples, it is found at several core levels. As all specimens are uniserial, the species is most likely uniserial in both generations, rather than representing the megalospheric generation of an initially triserial or biserial species. This totally uniserial early chamber arrangement, in conjunction with other characteristics, excludes the species from previously described genera. There-

fore, a new genus is required for placement of the species.

The subfamily Tubulogenerininae, as previously defined (Saidova, 1981), included all those genera with tests triserial or biserial in the early stage, later becoming uniserial, whose triserial ancestry is reflected internally by successive hemicylindrical toothplates each oriented 120° from the preceding. The aperture is terminal and circular, with a short neck or thickened rim. Specimens of the new genus display a hemicylindrical toothplate oriented at 120° from the preceding, indicating triserial ancestry. Rather than erect a new subfamily for this probably closely related genus, the subfamily Tubulogenerininae Saidova (1981) is herein emended to include entirely uniserial species as well.

Twenty-six specimens from fifteen core levels at a single locality were studied under a binocular microscope. Both transmitted and reflected light were used to determine the morphologic variation, and the nature of an internal toothplate. The outer wall was partially removed from three specimens using the method described by Plummer (1951). Scanning electron micrographs were taken with an ISI-111A Scanning Electron Microscope, and Polaroid NP 55 film.



## PLATE 1

1-5. *Amplectoductina carnatolintra*, n. sp., from DSDP Site 357 (Leg 39). Fig. 1, side view of holotype (USNM 383524) showing longitudinal costae and size increase in successive chambers, 357-5-3, 80-86 cm, Pliocene, X 100; Fig. 2, side view of stouter, less elongate paratype (USNM 383526), 357-2-4, 83-89 cm, Pliocene, X 80; Fig. 3, apertural view of paratype (USNM 383525) showing 21 costae and small circular aperture surrounded by rim, 357-4-5, 80-86 cm, Pliocene, X 195; Fig. 4, section of paratype (USNM 383527) showing successive hemicylindrical toothplates, X 100; Fig. 5, enlargement of final chamber of same paratype showing tubular toothplate at base becoming broader and hemicylindrical at top of chamber, X 370; Fig. 6, enlargement of base of same toothplate showing attachment of tubular base to previous apertural opening, X 530, Core 1, Section 4, 80-86 cm, Pleistocene.

Materials used for this study came from fifteen core levels of DSDP Site 357 (Leg 39) on the Rio Grande Rise, southwest Atlantic Ocean; 30°00.25'S, 35°33.59'W. The core levels were:

1. Pleistocene; 357-1-4, 80-86 cm.
2. Pliocene; 357-2-1, 80-86 cm.
3. Pliocene; 357-2-4, 83-89 cm.
4. Miocene; 357-4-5, 80-86 cm.
5. Miocene; 357-5-1, 80-90 cm.
6. Miocene; 357-5-3, 80-86 cm.
7. Miocene; 357-5-5, 80-86 cm.
8. Miocene; 357-8-5, 85-91 cm.
9. Miocene; 357-10-3, 82-88 cm.
10. Miocene; 357-12-1, 82-88 cm.
11. Miocene; 357-13-1, 82-88 cm.
12. Miocene; 357-14-1, 80-86 cm.
13. Miocene; 357-14, corecatcher.
14. Oligocene; 357-17-1, 80-86 cm.
15. Oligocene; 357-17-5, 80-86 cm.

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

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#### SYSTEMATIC DESCRIPTIONS

Suborder ROTALINA Delage  
and Hérouard, 1896

Superfamily BULIMINACEA Jones, 1875  
Family SIPHOGENERINOIDIDAE Saidova, 1981

#### Subfamily TUBULOGENERININAE

Saidova, 1981

AMPLECTODUCTINA, n. gen.

*Type species: Amplectoductina carnatolintra*, n. sp.

*Diagnosis:* A genus of Tubulogenerininae with numerous longitudinal costae and an entirely uniserial test.

*Description:* Test free, uniserial, elongate, circular in section; sutures straight and partially incised; wall calcareous, hyaline, surface with numerous longitudinal costae, nonporous; aperture circular and lipped; hemicylindrical toothplates oriented 120° to each other in succeeding chambers, toothplates initially tubular, opening to form a hemicylinder part way up to next chamber.

*Etymology:* From the Latin, *amplector*, wind, tinue, embrace + *ductus*, a leading, tube, pipe + *-ina*, diminutive, with reference to the orientation of the internal toothplate. Gender feminine.

*Remarks:* *Amplectoductina*, n. gen., differs from *Orthokarstenia* Dietrich, 1935, in lacking triserial and biserial early stages, lobulate reentrants on the lower margin of each chamber, and the semicylindrical spout arising from the apertural lip. *Clavelloides* De Klasz and Rerat, 1962, is similar to *Amplectoductina* in possessing uniserially arranged, longitudinally costate chambers, but it lacks the raised apertural lip and more significantly has adjacent chambers connected by a closed tubular process rather than an alternating hemicylindrical toothplate. *Siphogenerinoides* Cushman, 1927, has a biserial early stage, clearly differentiating it from the entirely uniserial *Amplectoductina*, although the arrangement of the toothplate is similar in the two genera.

AMPLECTODUCTINA CARNATOLINTRA, n. sp.

Pl. 1, Figs. 1-6

*Diagnosis:* A species of *Amplectoductina* with 20-22 longitudinal costae and rapidly enlarging chambers.

*Description:* Test free, uniserial, elongate, increasing rapidly in size with addition of each new chamber, circular in section, broadest at penultimate chamber; wall calcareous, hyaline, smooth between costae, pores associated with costae but do not penetrate outer wall; no pores are found in test wall proper; approximately 20-22 longitudinal costae, those extending length of test alternating with costae extending only two-thirds length of test or less, upper half of last

chamber free of costae; aperture small and circular surrounded by raised lip; each successive hemispherical toothplate oriented  $120^\circ$  from that preceding, toothplates narrow and tubular at base of each chamber and becoming much broader and hemicylindrical toward top of each chamber.

*Etymology:* From the Latin, *carnatus*, fleshy, corpulent, fat, + *linter, tris*, tub, vat, with reference to the stout test.

*Dimensions:* Maximum length, 720 microns; maximum width, 330 microns.

*Types and occurrence:* Pleistocene, Pliocene, Miocene, and Oligocene from DSDP Site 357 (Leg 39), Rio Grande Rise in the Southwest Atlantic Ocean,  $30^\circ 00.25' S$ ,  $35^\circ 33.59' W$ . Holotype (USNM 383524) from 357-5-3, 80-86 cm, Miocene. Figured paratype (USNM 383525) from 357-4-5, 80-86 cm, Miocene; figured paratype (USNM 383526) from 357-2-4, 83-89 cm, Pliocene; and figured paratype (USNM 383527) from 357-1-4, 80-86 cm, Pleistocene. unfigured paratypes (USNM 383528) from 357-5-1, 80-90 cm, Pliocene.

*Remarks:* This species is externally similar to several species of *Orthomorphina* Stainforth, 1952. These include: *Nodosaria marginulinoides* Silvestri, 1872; *Nodosaria erbessina* Schwager, 1878; *Nodosaria bamburgensis*, Franke, 1936; *Nautilus (Orthoceras) comatus* Batsch, 1791; *Othocerina multicostata* Bornemann, 1854; and *Pseudoglandulina multicostata* (Bornemann) var. *semicostata* Barnard, 1950. All are generally similar to the present species in shape and have comparable numbers of costae, but they all lack internal toothplates and are thus unrelated to *Amplectoductina carnatolintra*. *Ellipsoidoglandulina multicostata* (Galloway and Morrey), as figured by Douglas (1973, p. 630, pl. 5, fig. 8), may be the present

species. However, examination of the type illustration of *Daucina multicostata* Galloway and Morrey, 1929, shows that this species has a crescentic aperture. As Douglas makes no reference to either the nature of the aperture or to any internal structure, affinity of his specimen with the present species is uncertain.

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