

**Notes on the benthic foraminiferal genus
Heteromorphina R.W. Jones,
and *Heteromorphina amplivestibulata* sp. nov.**

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ABSTRACT - *Oolina heteromorpha* Parr, 1950, the type species of the genus *Heteromorphina* R.W. Jones, 1984 is demonstrated to be a junior synonym of *Lagena collaris* Cushman, 1913. In addition, two of the three species transferred by Jones to this genus are shown to belong to other genera. From the Miocene of DSDP Site 357 (Leg 39), located on the Rio Grande Rise, a new species, *Heteromorphina amplivestibulata*, is described and illustrated. It is characterized by an extremely large chamberlet in comparison to the principal chamber, which has a slightly produced caudal structure with a hollow central canal.

INTRODUCTION

The study of unilocular foraminifera has received increased attention in recent years. One of the major papers in this regard was that of R.W. Jones (1984), revising the classification of unilocular foraminifera. Among several new genera proposed was *Heteromorphina* R.W. Jones, type species *Oolina heteromorpha* Parr, 1950. In the course of the present author's study of Recent benthic foraminifera from the southwest Pacific Ocean and the relevant literature necessary to identify that material, it became apparent that there were systematic problems concerning taxa assigned to this genus. The type species was a junior synonym of a species erected by Cushman (1913), other species reassigned to the new genus by Jones did not belong there, and Patterson (1986) had inadvertently assigned specimens of a new species to the type species *H. heteromorpha*. This paper attempts to clarify the concept of the genus *Heteromorphina*, and describes the new species.

SYSTEMATIC PALEONTOLOGY

Suprageneric classification follows that of Loeblich and Tappan (1987).

Suborder Lagenina Delage and Hérouard, 1896

Superfamily Nodosariacea Ehrenberg, 1838

Family Ellipsolagenidae A. Silvestri, 1923

Subfamily Oolininae Loeblich and Tappan, 1961

Genus *Heteromorphina* R.W. Jones, 1984

Typespecies. *Oolina heteromorpha* Parr, 1950, p.304 = *Lagena collaris* Cushman, 1913, p.10.

Description. Test ovoid to teardrop shaped, unilocular, principal chamber surmounted by apertural chamberlet, the two

separated by depressed horizontal suture. Wall smooth. Aperture terminal, round, furnished with entosolenian tubes, one into chamberlet, some specimens may have a second entosolenian tube in main chamber.

Remarks. Jones (1984) erected this genus with *Oolina heteromorpha* Parr, 1950 as the type species, and also reassigned two previously described species to the genus. In addition, two species were illustrated but not named. All five forms were represented in his material by single specimens, illustrated by single scanning electron microscope (SEM) views, with no accompanying description or remarks.

While studying material from the southwest Pacific Ocean, the present author encountered specimens of this genus, and found one of them described and illustrated in Cushman's (1913) monograph of the Lagenidae of the North Pacific Ocean. The specimen is in all respects identical with both *Lagena collaris* Cushman (1913, p.10, pl.1, fig.2), and the specimen assigned by Jones (1984, pl.1, fig.2) to *H. heteromorpha* Parr, the type species. Reference to Parr's (1950, p.304, pl.8, fig.6) type description and figures of *Oolina heteromorpha* indicates the two species are synonymous. Applying the rule of priority, Cushman's species becomes the type, and Parr's a junior synonym. The type figures of both these species are reproduced herein as Fig.1A and Fig.1B respectively. Cushman's type description reads in part "aperture nearly circular, opening into a separate cavity which connects with the larger part of the test by a short entosolenian tube" (Cushman, 1913, p.10), and there is no question of its "bilocular" nature. On the other hand, Parr described an "apertural end tapering gently and ending in a rounded mass of

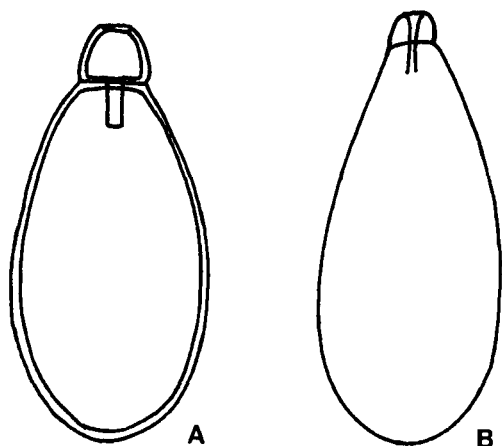


Fig. 1A *Heteromorphina collaris* (Cushman), x125, type figure of *Lagena collaris* (after Cushman, 1913, Plate 1, figure 2b); B, *Heteromorphina heteromorpha* (Parr), X145, type figure of *Oolina heteromorpha* (after Parr, 1950, Plate 8, figure 6).

clear shell material which surrounds the aperture”, and also remarked on “the neck being replaced by a rounded bead of clear shell material” (Parr, 1950, p.304). It is possible that there is no chamberlet in Parr’s species, but in all likelihood he was simply unable to recognize the upper clear area as being a distinct hollow chamberlet.

The other two species transferred to *Heteromorphina* by Jones (1984) are most likely not referable to this genus. Loeblich and Tappan remarked that “*Nodosaria calomorpha* Reuss, 1866, placed here by R. W. Jones (1984, *1615), is probably a juvenile *Dentalina*” (Loeblich and Tappan, 1987, p.427). In fact Jones transferred only one specimen illustrated by Reuss (1866, p.129, pl.1, fig.15, not figs. 16-19) and part of the description to *Heteromorphina*, probably on the basis of the entosolenian tube figured therein. Nevertheless, the upper chamber is at least the equal of the lower and as strongly inflated, the suture is very strongly depressed, and the whole bears very little resemblance to the present genus. The species should be retained in the genus *Nodosaria* Lamarck, 1812, or possibly placed in the genus *Laevidentalina* Loeblich and Tappan, 1986 if curvature of the test is judged sufficient. The particular figured specimen remains problematical, however, due to the apparent entosolenian tube, a feature not found in either of these latter two genera.

As to the second of these two species, *Lagena apiculata* (Reuss) var. *punctulata* Sidebottom, 1912 clearly lacks a chamberlet, as is shown particularly in Sidebottom’s (1912) plate 14, figure 23, but also in his plate 14, figures 21 and 22, in which there is no trace of a suture or interruption in the pattern of coarse perforations. The specimen illustrated in Fig.2 of the present paper is from Scripps Institution of Oceanography core LSDH 78V, interval 0-4cm, 4°30' S Lat. and 167°58' E Long.

The lack of a chamberlet is readily apparent as is the asymmetry of the test outline, and it clearly belongs in *Oolina* d’Orbigny, 1839 and not *Heteromorphina*.

Heteromorphina amplivestibulata sp. nov.
(Text figure 3A-D)

1986 *Heteromorphina heteromorpha* (Parr); Patterson: 96, pl.15, figs 8,9 (not *Oolina heteromorpha* Parr).

Derivation of name. From the Latin, *amplus*, large, + *vestibulum*, entrance court or vestibule, with reference to the chamberlet as compared to the main chamber, + *ata*, provided with.

Diagnosis. A species of *Heteromorphina* with an ellipsoidal main chamber, produced base with caudal depression, and large tapering chamberlet which is over one-third the total test length.

Types and occurrences. All specimens are from the Miocene section of DSDP Site 357 (Leg 39), located at 30°00.25' S Lat. and 35°33.51' W Long. on the Rio Grande Rise in the southwest Atlantic Ocean. Figured holotype GSC 96051 is from Core 4, Section 5, 80-86cm, figured paratype GSC 96052 is from Core 10, Section 1, 84-90cm, and unfigured paratype GSC 96053 is from Core 7, Section 1, 80-86cm. All specimens are deposited in the collection of the Geological Survey of Canada, Ottawa.

Description. Test unilocular, surmounted by apertural chamberlet, principal chamber ellipsoidal in outline and circular in section, at least one-and-a-half times as long as broad, with greatest diameter at its middle, base slightly produced or tapered, with heavy rim surrounding small caudal depression. Chamberlet elongate, one-and-a-half times as long as broad and

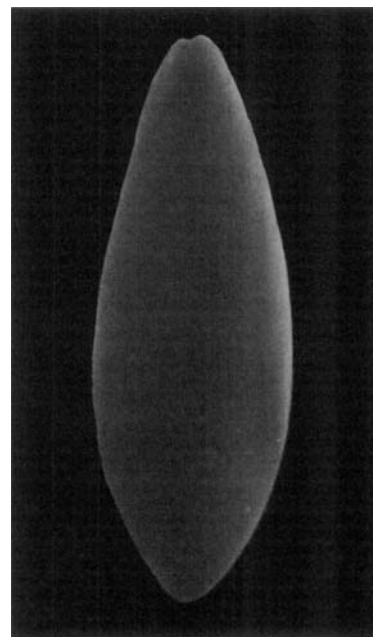


Fig. 2 *Oolina punctulata* (Sidebottom), SIO core LSDH 78V, interval 0-4cm, X182.

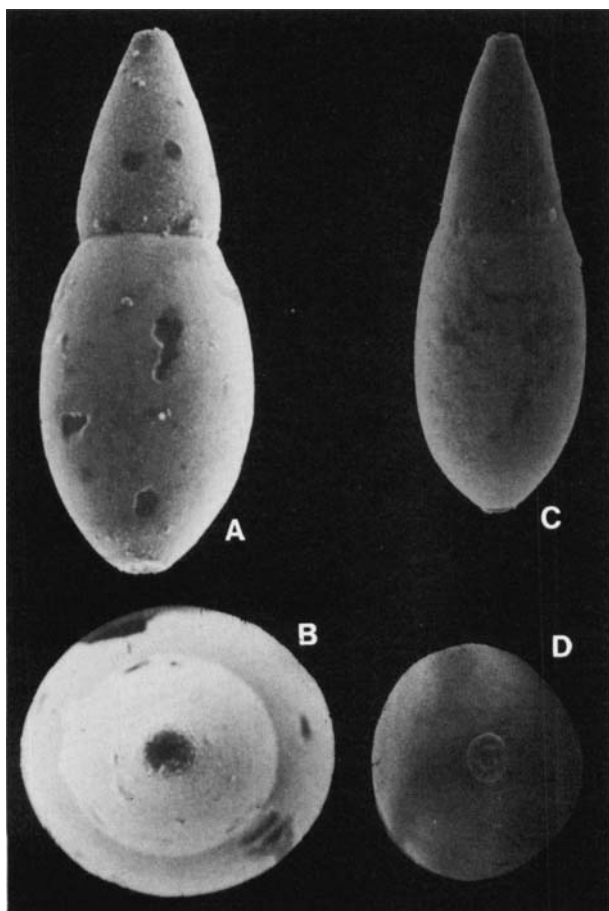


Fig. 3A,B *Heteromorphina amplivestibulata* sp. nov., holotype GSC 96051, DSDP Site 357 (Leg 39), Core 4, Section 5, 80-86cm; A, side view X165, B, apertural view X260. C,D *Heteromorphina amplivestibulata* sp. nov., paratype GSC 96052, DSDP Site 357 (Leg 39), Core 10, Section 1, 84-90cm; C, side view X202, D, basal view showing caudal structure, X266.

over one-third of total test length, circular in section, tapering steadily toward aperture from greatest breadth at base, which is some two-thirds of chamber diameter, joined to chamber along a horizontal depressed suture. Wall smooth. Aperture terminal, round, piercing slightly thickened hyaline rim, with free straight entosolenian tube of about one-half chamberlet length, presence or absence of entosolenian tube in principal chamber indeterminate due to opaque state of preservation of specimens.

Dimensions. Length of figured holotype GSC 96051 0.466mm, diameter 0.172mm; length of figured paratype GSC 96052 0.288mm, diameter 0.110mm.

Remarks. This species is readily distinguished from *H. collaris* by the proportionately much larger chamberlet of the present species, as well as its ellipsoidal main chamber with greatest breadth near the middle. Because the three specimens are remarkably consistent in character, and are from three stratigraphically distinct samples, this author has not hesitated to erect this new species.

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