Nanosylvanella, a New Genus of the Sipholageninae (Foraminiferida)[1]

R. TIMOTHY PATTERSON

Ottawa–Carleton Geoscience Center and Department of Earth Sciences, Carleton University, Ottawa, Ontario K1S 5B6, Canada

Abstract. *Nanosylvanella*, a new foraminiferal genus of the Sipholageninae differs from other genera of the subfamily in having an outer layer consisting of non-interconnected arrays of wall material radiating from isolated pillars. *Nanosylvanella palmulina* n. sp., the type species, is described.

There has been a dramatic increase in the relative number of unilocular foraminiferal taxa relative to the total number of benthic foraminiferal taxa since the Late Cenozoic, increasing from approximately 7% in the Oligocene to 35% in modern oceans (Patterson, unpublished data). Despite the relatively high abundance of unilocular taxa, the group is often ignored by researchers. This is because usually only a few individuals of any particular taxon are found in any given sample (Boltovskoy & Giussani de Kahn, 1983), making them statistically insignificant in quantitative paleoceanographic studies (Patterson & Fishbein, 1989). However, recent taxonomic revisions (Jones, 1984; Loeblich & Tappan, 1987; Patterson & Richardson, 1987, 1988; and others) having increased the number of genera by an order of magnitude, from four to 42, may result in the enhanced utility of the group to researchers. Based on these revisions, we may be able to resolve the Neogene to the epoch level using unilocular foraminiferal genera as a biostratigraphic tool (Patterson, unpublished data). These systematic revisions also may contribute to a better understanding of the group's paleoecology.

While examining Holocene samples from off the coast of British Columbia, Canada, a new unilocular species was discovered. Utilizing the taxonomic framework developed by Patterson & Richardson (1987), this species is not referable to any previously described genus. This new species and new genus of unilocular foraminifera is described herein.

MATERIALS AND METHODS

The holotype of *Nanosylvanella* described in this paper is from Geological Survey of Canada submarine vibracore END84B-07, Moresby Trough, Queen Charlotte Sound, 52°16.70′N, 130°12.27′W, off the west coast of British Columbia, Canada, from 474 m of water. The core level was 260–264 cm (Patterson Sample 399; Holocene). Illustrations were made with a Cambridge Stereoscan

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90 scanning electron microscope using Polaroid NP 55 film. The holotype is deposited in the Geological Survey of Canada Micropaleontological Collection, Ottawa, Ontario.

Taxonomic Account

Suprageneric classification follows that of Patterson & Richardson (1987).

Order Foraminiferida Eichwald, 1830
Suborder Lagenina Delage & Hérouard, 1896
Superfamily Nodosariacea Ehrenberg, 1838
Family Lagenidae Reuss, 1862
Subfamily Sipholageninae Patterson & Richardson, 1987

Nanosylvanella n. gen.

Figs. 1–4

Type species. Nanosylvanella palmulina n. sp.

Diagnosis. A genus of Sipholageninae comprised of species with an outer layer characterized by non-interconnected arrays of flattened horizontal strips, or disks, radiating from the tops of short interconnected pillars.

Description. Test free, unilocular, ovate to teardrop-shaped, circular in section; wall calcareous, translucent, double, with inner and outer layers separated by short perpendicular pillars, inner layer solid, outer layer consisting of non-interconnecting arrays of flattened strips, or disks, radiating from the top of each pillar; aperture terminal, rounded, on a neck arising from the inner wall.

Range. Holocene.

Remarks. Nanosylvanella is characterized by having wall material radiating from the top of each pillar but isolated from similar material radiating from the tops of each other pillar. This contrasts with the interconnected strips and reticulate networks of the outer wall layers in *Pytine* Moncharmont-Zei & Sgarella, 1978 and *Sipholagena* Moncharmont-Zei & Sgarella, 1980, respectively.

Etymology. From the Latin, *nanus*, dwarf; *silva (sylva)*, woods, trees, forest; *-ella*, diminutive, having reference to the small size of the test.

Nanosylvanella palmulina n. sp.

Diagnosis. A species of *Nanosylvanella* with wall material radiating from surface pillars to form flattened tripartite spokes that comprise the outer wall layer.

Description. Test free, unilocular, teardrop-shaped, circular in section; wall calcareous, translucent, double, with inner and outer layers separated by per-

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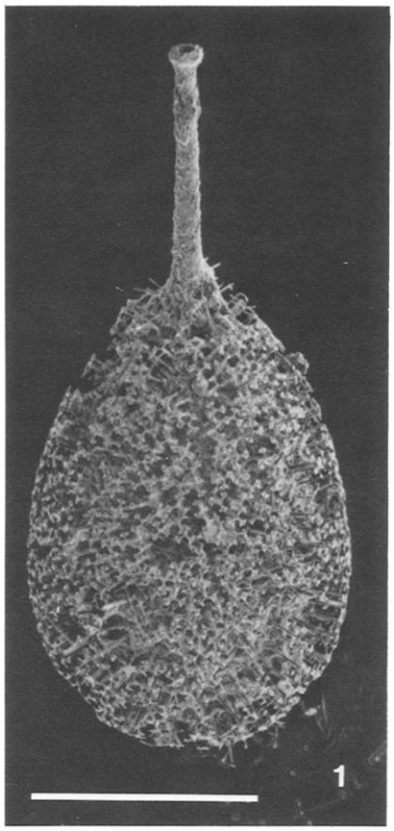
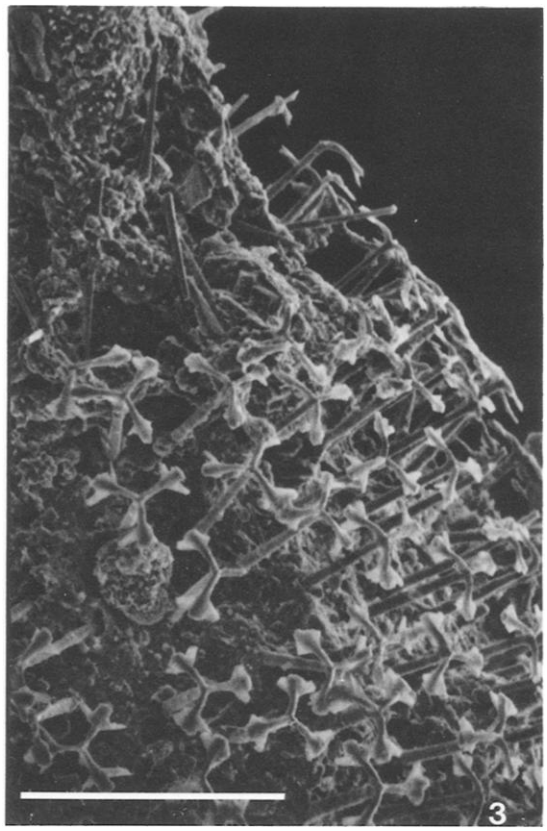
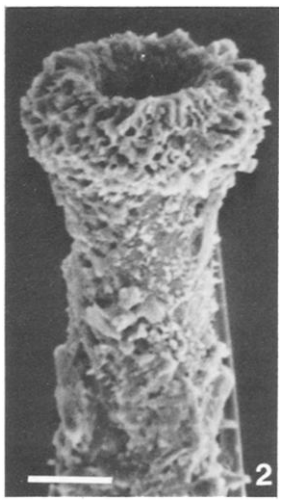
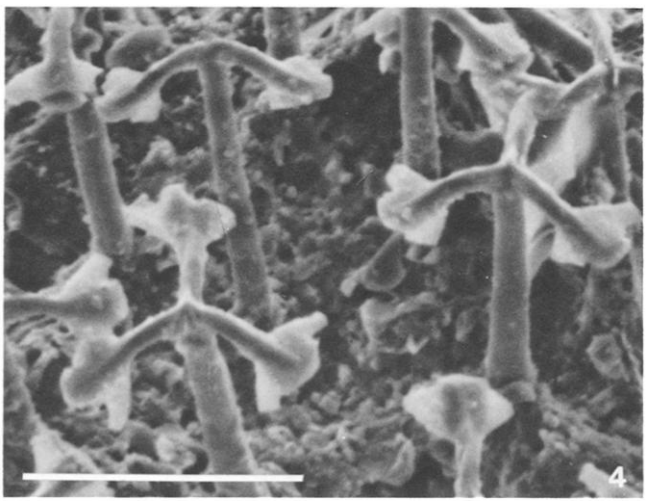
FIGS. 1–4. *Nanosylvanella palmulina* n. gen., n. sp. Geological Survey of Canada submarine vibracore END84B-07, 260–264 cm, in 474 m water depth, Moresby Trough, Queen Charlotte Sound, 52°16.70′N, 130°12.27′W, off the west coast of British Columbia, Canada. Holocene. Fig. 1. Side view of figured holotype (GSC 96045) showing narrow elongate neck and teardrop-shaped









test. Scale bar represents 200 μm. Fig. 2. Enlargement of circular aperture. Scale bar represents 10 μm. Fig. 3. Enlargement showing random distribution of pillars on test surface and base of non-pillared neck. Scale bar represents 50 μm. Fig. 4. Enlargement showing isolated pillars and arrangement of radiating strips comprising outer wall layer. Scale bar represents 20 μm.

pendicular 35-μm pillars, pillars 2.3 μm wide where connected to the inner layer, narrowing to 2.0 μm at the outer terminus, inner wall layer solid and imperforate, outer layer consisting of isolated tripartite arranged, horizontal, flattened "palm leaf-like" spokes up to 6.7 μm long, widening from 1.3 μm where connected to the pillar to 6.3 μm at the tips; aperture terminal, small, rounded on a long narrow neck comprising one-third of the test length, extending from the inner wall.

Species dimensions. Maximum length, 633 μm; maximum width, 267 μm.

Material examined. One specimen.

Type specimen. Holocene. Figured holotype (GSC 96045): from Geological Survey of Canada submarine vibracore END84B-07, 260–264 cm, Moresby Trough, Queen Charlotte Sound, 52°16.70′N, 130°12.27′W, off the west coast of British Columbia, Canada, from 474 m of water.

Remarks. Nanosylvanella palmulina is similar in shape and apertural configuration to several other species of Sipholageninae such as *Pytine petaloskelis* Patterson & Richardson, 1988 and *Sipholagena benevestita* (Buchner, 1940). However, *Pytine petaloskelis* is characterized by an outer wall layer consisting of longitudinal strips, and *Sipholagena benevestita* has a solid outer layer perforated by large teardrop-shaped openings. These configurations contrast sharply with the radiating non-interconnecting "leaf-like" spokes of the outer layer found in *Nanosylvanella palmulina.*

The only previously described species having a similar pillar and outer layer arrangement, and thus referable to *Nanosylvanella,* is *Lagena clavulus* Heron-Allen & Earland, 1922. However, Heron-Allen & Earland (1922) described and illustrated the pillar terminations as "bolt-like projections" in contrast to the radiating flattened spokes characterizing *Nanosylvanella palmulina.* Moreover, the arrangement of pillars is quite different in the two species. *Lagena clavulus* is characterized by pillars aligned in rows, but *Nanosylvanella palmulina* is characterized by more numerous, randomly arranged pillars.

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