

A NEW GENUS AND SPECIES OF THE GASTROPOD FAMILY
STRUTHIOLARIIDAE, *ANTARCTODARWINELLA ELLIOTI*,
FROM SEYMOUR ISLAND, ANTARCTICA^{1, 2}

WILLIAM J. ZINSMEISTER, Institute of Polar Studies and Department of Geology and Mineralogy, The Ohio State University, Columbus, Ohio 43210

Abstract. A distinctive species of struthiolariid previously referred to as *Struthiolarella* by Wilckens (1911) is assigned to the new genus *Antarctodarwinella*. *Antarctodarwinella* is proposed for medium sized, semi-globular, heavily callused Antarctic struthiolariid gastropods with a moderately elevated conical spire consisting of 4 to 5 whorls. This genus is represented by the species *Antarctodarwinella ellioti* n. sp. and *A. nordenskjoldi* (Wilckens). Although the genus has not been recognized outside Antarctica, it is very abundant throughout the lower 620 feet of the "Seymour Island Series" exposed on the northern third of Seymour Island.

OHIO J. SCI. 76(3): 111, 1976

During the 1974-1975 austral summer, a joint field party from the Institute of Polar Studies (at The Ohio State University) and the Argentine Antarctic Institute visited Seymour Island, which is located off the northeastern coast of the Antarctic Peninsula (Elliot, *et al*, 1975). During the season a large quantity of Tertiary fossils were collected, representing the first significant collection of Tertiary fossils from the Antarctic Peninsula since the Swedish South Polar Expedition of 1901-1903. There has been considerable discussion as to the age of the Tertiary sequence on Seymour Island. Wilckens (1911), in a discussion of the molluscs collected by the Swedish South Polar Expedition, assigned an Oligo-Miocene age to the "Seymour Island Series." Based on a small pollen flora Cranwell (1959), considered the Tertiary sequence to be of Paleocene age. Simpson (1971), in a review of the fossil penguin assemblage, suggested that the "Seymour Island Series" possibly ranged in age from upper Eocene to lower Oligocene. Data obtained from pollen, molluscan, and dinoflagellate material collected during the 1974-1975

season supports Simpson's assignment of an upper Eocene-lower Oligocene age for the Tertiary succession on Seymour Island.

The diverse shallow-water fauna of Seymour Island is dominated by a large molluscan assemblage, including four distinct species belonging to the gastropod family Struthiolaridae (*Antarctodarwinella ellioti* n. sp., *A. nordenskjoldi* (Wilckens), *Perissodonta laevis* (Wilckens), and *Struthiolarella variabilis* (Wilckens)). The present paper describes a new genus and species of struthiolariid found in the Seymour Island fauna. Type material has been deposited in the Orton Geological Museum (OGM) at The Ohio State University. Additional topotypic material was deposited in the invertebrate collections at the Institute of Polar Studies at The Ohio State University and the University of Buenos Aires, Argentina.

SYSTEMATICS

Class: Gastropoda

Subclass: Prosobranchia

Order: Mesogastropoda

Superfamily: Strombacea

Family: Struthiolaridae

Genus: *Antarctodarwinella* n. gen.

Antarctodarwinella is proposed for medium sized, semi-globular, heavily callused

¹Manuscript received January 13, 1976, and in revised form March 22, 1976 (#76-4).

²Contribution 296 of the Institute of Polar Studies, The Ohio State University, Columbus, Ohio 43210.

Antarctic struthiolariid gastropods. The moderately elevated conical spire consists of 4 or 5 whorls. The early whorls are ornamented with fine spiral threads and rounded, slightly elongated nodes, which became obsolete on the body whorl. The body whorl partially envelops the spire, accentuating the shell's semi-globose outline. The aperture is subventricular with a broad, moderately deep posterior sinus and a short canal. The inner lip is very heavily callused. The outer lip is slightly drawn out into a blunt symmetrical thickened wing.

Type species. *Antarctodarwinella ellioti* n. sp.

Antarctodarwinella is similar to the New Zealand Cretaceous-Paleocene genus *Conchothyra* Hutton (1877). Both genera have an exceptionally thick, laminated callus encrusting the inner lip and part of the spire. Each of the laminae corresponds to one of the numerous closely spaced growth increments on the wing. The callus on *Antarctodarwinella* is less extensively developed than the callus on *Conchothyra parasitica* (McCoy MS) Hutton, covering only a portion of the spire and about half of the body whorl. The columella of *Antarctodarwinella* is distinctly curved whereas *Conchothyra* is nearly straight. The wing of *Antarctodarwinella* is very similar to *C. parasitica*, consisting of subparallel sides and slightly flattened blunt end. The callus development and curved columella of *Antarctodarwinella* is similar to the Paleocene *C. australis* (Marshall, 1916) of New Zealand. The principal difference between the two Tertiary species being the prominent spiral noded cords of *C. australis*, which persist well onto the body whorl and form a prominent sloping shoulder on each whorl. The wing of *C. australis* is considerably narrower and more produced.

Antarctodarwinella differs from *Struthiolarella* (Steinmann and Wilckens) by the absence of prominent axial and spiral ornamentation on the body whorl. The early spiral and axial sculpture of *Antarctodarwinella* is followed by prominent sinuous, varix-like growth increments, which are widely and regularly spaced on early whorls. On the body whorl, the growth movements increase in promi-

ence and are very closely spaced on the wing. A few individuals display a faint trace of the earlier spiral ornamentation on the body whorl. A single subdued spiral cord may occur on the periphery, but disappears near the wing. A loss of axial nodes and bunching of the growth increments may occur on exceptionally large gerontic individuals of *Struthiolarella*.

The only other species assigned to *Antarctodarwinella* is *Struthiolarella nordenskjoldi* (Wilckens). With the inclusion of this species, the stratigraphic range of *Antarctodarwinella* encompasses the lower 620 feet of the "Seymour Island Series" on Seymour Island. The absence of any Tertiary members of this genus in South America is probably due to the fact that the *Antarctodarwinella* lineage appears to be restricted to a cold temperature water facies. Except for the sequence on Seymour Island, no similar cold temperate facies are known from the western part of the southern hemisphere during the Tertiary. The close similarity of *Antarctodarwinella* to *Conchothyra* strongly suggests that the Seymour Island genus was derived from *Conchothyra* during the latest Cretaceous.

ANTARCTODARWINELLA

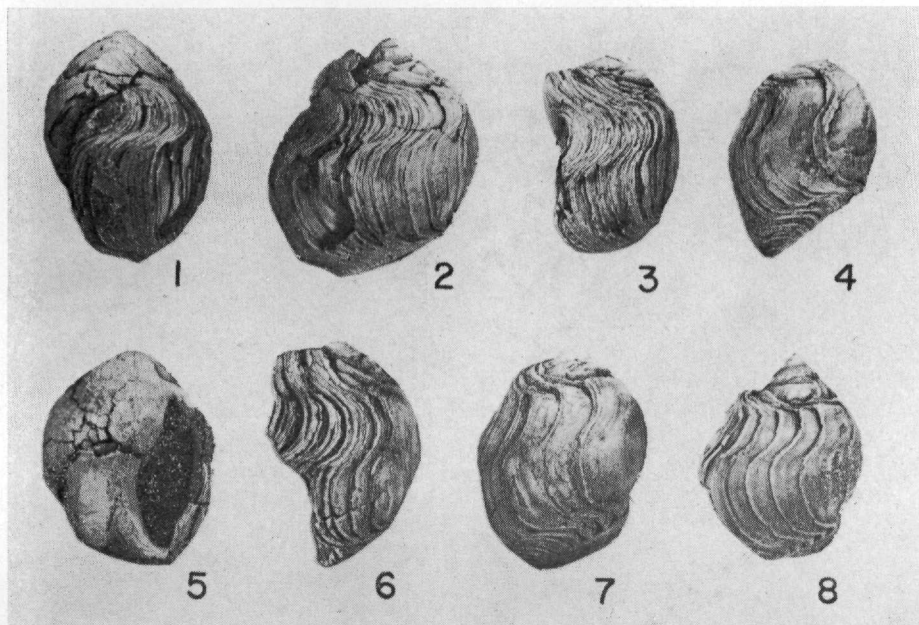
ELLIOTI n. sp.

Figures 1-8.

Struthiolarella nordenskjoldi (Wilckens), 1911, pp. 23, pl. 1, figs. 25a, b.

Ethnology. *A. ellioti* n. sp. is named in honor of D. H. Elliot at the Institute of Polar Studies at The Ohio State University.

Description. Shell medium sized, with low to moderately elevated spire consisting of 4 to 5 whorls. Early whorls decorated with fine spiral threads and prominent, elongate, slightly inclined axial nodes. Both axial and spiral ornamentation appear simultaneously on the second whorl. This ornamentation becomes obsolete on penultimate whorl. Occasionally, faint traces of the spiral threads may be seen on the body whorl, but on the axial nodes are completely absent. The body whorl sculpture consists of numerous, sinuous, varix-like growth increments. On the early whorls, the growth increments are widely spaced, but on



FIGURES 1-8. *Antarcticodarinella ellioti* n. sp.; FIGS. 1-2, OGM no. 32192, paratype, 1X; FIGS. 3-4, OGM no. 32193, paratype, 1X; FIGS. 5-7, OGM no. 32191, holotype, 1X; FIG. 8, OGM no. 32194, paratype, 1X.

adult individuals, the increments become very closely spaced on the wing (16 to 20 per cm.). The posterior sinus is broad and moderately deep. The siphonal fasciole forms a low ridge along the anterior margin of the body whorl. The massive callus extends well above the aperture, covering half of the body whorl, and in some cases, extending above the spire. This massive callus imparts a globular outline to the adult shell. Near the inner lip, the callus forms a thick flat pad. The aperture is sub-lenticular with the columella distinctly curved.

Dimensions. Holotype. OGM no. 32191, height 38 mm., width 29 mm. (incomplete); Paratypes. OGM no. 32192, height 40.5 mm., width 35 mm. (incomplete); OGM no. 32193, height 32.5 mm., width 29 mm (incomplete); OGM no. 32194, height 33.5 mm., width 28 mm.

DISCUSSION

The massive callus on the inner lip and spire of *A. ellioti* n. sp. easily separates it from other Antarctic-South American struthiolariids. The callus of *A. norden-*

skjoldi is well developed, but is restricted to the inner lip. Wilckens (1911) described a specimen (pl. 1, figs. 25a, b) which he referred to as *A. nordenskjoldi*. Examination of the specimen has shown it to be an incomplete specimen of *A. ellioti* n. sp. with most of the callus broken off. Superficially, *A. ellioti* n. sp. resembles *Conchothyra australis* from the Wangaloan Stage (Paleocene) of New Zealand. The moderately high spire with the prominent sloping shoulder above the spiral cords serves to distinguish *C. australis* from the Seymour Island species. The trace of the growth increments of *C. australis* is considerably more sinuous resulting in a narrower, more produced wing. Also, the callus of *C. australis* is restricted to a thickened band extending around the aperture onto the spire, whereas the callus of *A. ellioti* n. sp. forms a thick, massive, flat pad. The columella of *C. australis* is relatively straight with the abapical portion of the aperture drawn out into a blunt canal.

Acknowledgment. This research was supported through the National Science Foundation grant No. OPP 74-21509.

LITERATURE CITED

- Cranwell, L. M. 1959. Fossil pollen from Seymour Island, Antarctica. *Nature* 184: 1782-1785.
- Elliot, D. H., C. Rinaldi, W. J. Zinsmeister, T. A. Trautman, W. A. Bryant and R. del Valle. 1975. Geological Investigations on Seymour Island, Antarctic Peninsula. *Ant. J. U.S.* 10: 182-186.
- Hutton, F. W. 1877. Report Geol. Exped. 1873-1874, 8: 37, footnote.
- Simpson, G. G. Review of fossil penguins from Seymour Island. *Trans. Roy. Soc. London*, (Ser. b), 178: 357-387.
- Wilckens, O. 1911. Die Mollusken der antarktischen Tertiärformation. *Wissenschaftliche Ergebnisse der Schwedischen Südpolarexpedition, 1901-1903*, 3: 1-62.
-