Meded. Werkgr. Tert. Kwart. Geol. | vol. 10 nr. 1 | pp. 3-8 | maart 1973

VITTATICELLA ELEGANS (BUSK), A BRYOZOAN HITHERTO UNKNOWN FROM THE NORTH SEA BASIN

by

G. C. Cadée, Texel.

Cadée, G. C. Vittaticella elegans (Busk), a bryozoan hitherto unknown from the North Sea Basin. - Meded. Werkgr. Tert. Kwart. Geol., 10 (1): 3-8 Leiden. March 1973.

The bryozoan Vittaticella elegans (Busk) is recorded for the first time from Pliocene deposits of the Low Countries. This species has a worldwide recent distribution, but was never found outside Victoria (Australia) as a fossil.

G. C. Cadée, Westergeest B 65, Texel, The Netherlands.

Samenvatting

In dit artikel wordt de eerste vondst van *Vittaticella elegans* (Busk) vermeld wordt uit het Plioceen van België en Nederland. Deze bryozoe behoort tot de Catenicellidae, die hun hoofdverspreidingsgebied hebben in Australasia. Fossiel is deze soort voorzover ik kon nagaan alleen bekend van het Ondermioceen en Onderplioceen van Victoria (Australië).

De kolonies bestaan uit segmenten (internodiën), die in leven met chitineuze verbindingsstukjes aan elkaar zitten (fig. 1c). Fossiel worden deze segmenten altijd los gevonden (fig. 1a-b).

De exemplaren werden verzameld in sediment komend uit *Scaphella lamberti*-schelpen van Antwerpen (dok 5 en 6) en Ellewoutsdijk. Het is zeer waarschijnlijk geen zeldzame bryozoe geweest in het Plioceen.

About ten years ago I collected some small fossils from the sediment contained in shells of the gastropod *Scaphella lamberti* (Sowerby) from Antwerp and Ellewoutsdijk. Although undoubtedly of bryozoan nature, they puzzled me a long time, because similar bryozoans had never been described in the literature on Bryozoa from this region (e.g. Lagaay, 1952).

Later on it became apparent that they belonged to the genus *Vittaticella* of the family Catenicellidae, which family is "abundant in Tertiary and Recent of Australasia, but little known north of the equator" (Bassler, 1953, p. 222).

The specimens found closely resemble the fossil and recent *V. elegans* (Busk) and are therefor given this name.

Vittaticella elegans (Busk, 1852)
Fig. 1 a-c.

1852 *Catenicella elegans* Busk, p. 361, pl. 1, fig. 2
1884 *Catenicella elegans* - Busk, p. 12, pl. 1, fig. 2, 2a, 3, 5
1934 *Vittaticella elegans* - Stach, p. 19, pl. 3, fig. 1-4
1947 *Vittaticella elegans* - Correa, p. 1, fig. 1-7
1957 *Vittaticella elegans* - Harmer, p. 769, pl. 50, fig. 2
1967 *Vittaticella elegans* - Powell, p. 237, fig. 13a-b, pl. 3, fig. a

Vittaticella colonies consist of segments (internodes) containing 1-3 zooecia, connected by chitinous · tubes. In fossil material only loose segments are found Fig. 1c shows a reconstruction based on drawings of recent specimens. ·The chitinous connection-tubes make the colonies flexible to withstand watermovements.

Zooecia: in our material only bizooecial (fig. 1a) and unizooecial (fig. 1b) internodes are present. Length of unizooecial internode 0.30 - 0.37 mm, lenght of bizooecial internode + 0.55 mm. The frontal wall has two grooves (vittae). Pores in the frontal wall as mentioned and figured by some authors could not be seen, but they are also not figured by Powell (1967) and Stach (1934). The two conical processes contain avicularia and a pore (see fig. 1a). Ovicella were not found in our material.

Orifice: breadth: 0.07-0.08 mm, nearly round, with two small teeth (condyles) in the lower part.

Material - 15 internodes from *Scaphella* shell, dok 5, Antwerp.
6 internodes from *Scaphella* shell, dok 6, Antwerp.
2 internodes from *Scaphella* shell, Ellewoutsdijk.

Stratigraphy - The exact stratigraphic position of the *Scaphella* shells is not known. But since *Scaphella lamberti* is common in the Scaldisian deposits and rare in the lower Merxemien (Glibert, 1958, p. 16) we can safely state that *Vittaticella elegans* stems from pliocene deposits.

Although not all literature was seen *Vittaticella* seems to be unknown from European Tertiary deposits. *Vittaticella elegans* is recorded from Lower Miocene and Lower Pliocene deposits of Victoria (Stach, 1934, 1935).

The distribution of recent *Vittaticella elegans* based on data from the literature is given in fig. 2. This species is common on the southern coast of Australia and off New Zealand (Harmer, 1957, p. 770). In the Atlantic it is recorded from Tristan da Cunha (Busk, 1884), Bermuda (Osburn, 1952) and Santos (Correa, 1947). The Challenger material of *Vittaticella* from Brazil off Maceio

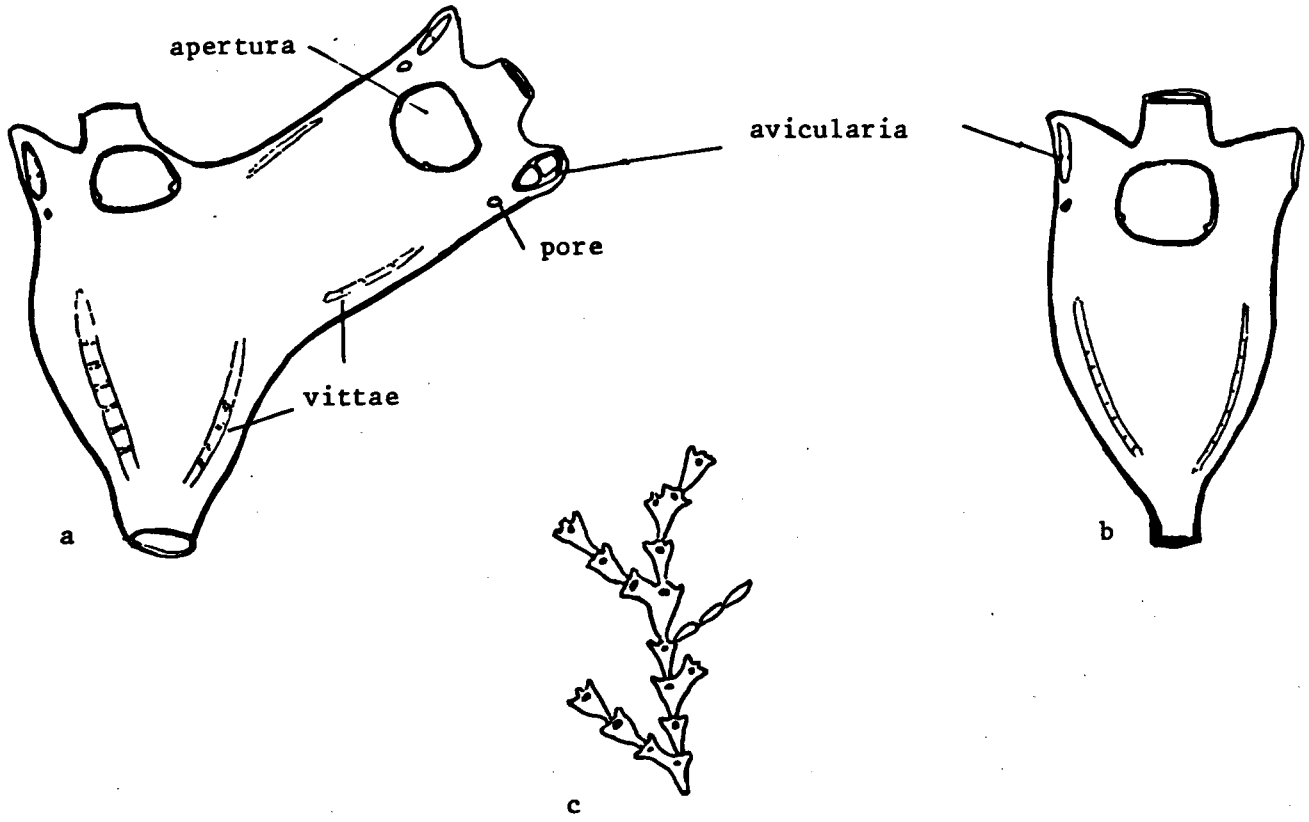

Fig. 1 *Vittaticella elegans* (Busk, 1852), from Dok 5, Antwerp, Belgium.

a. Internode with two zooecia (approx. 150 x)
b. Internode with one zooecium (approx. 150 x)
c. Reconstruction of part of colony (15 x)

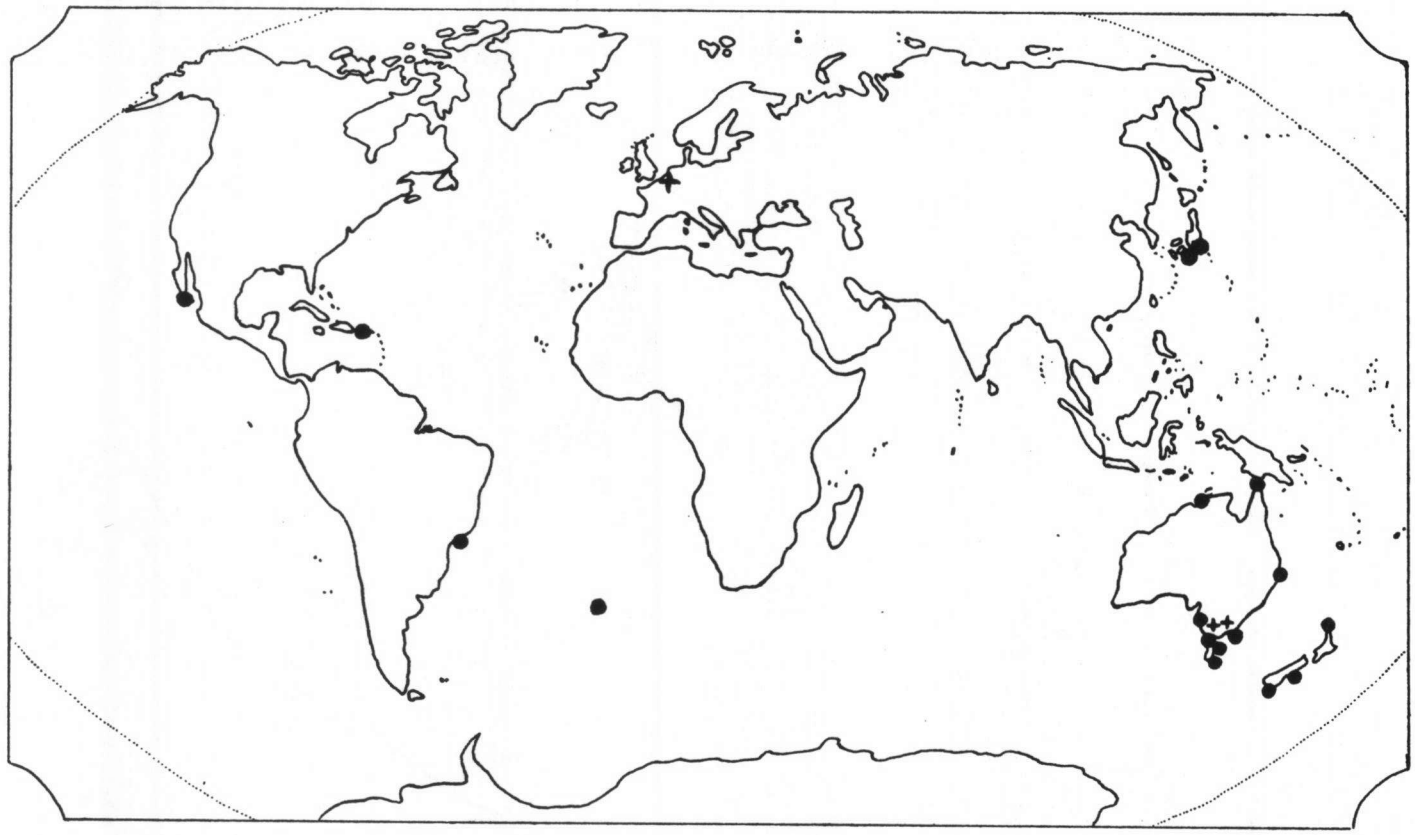

Fig. 2 Distribution of recent (●) and fossil (+) *Vittaticella elegans* (Busk, 1852). Based on data compiled by Stach (1935), Correa (1947), Harmer (1957) and Powell (1967).

is not in the Challenger collection according to Harmer (1957, p. 770), this location therefor is uncertain.

Depth distribution - *Vittaticella elegans* lives from just below the low water line down to several hundred meters. The deepest occurence cited by Correa (1947, p. 3) of 2012 m is apparently based on Busk (1884, p. 12): Challenger st. 135, Tristan da Cunha, 60-1100 fathoms (= 110-2012 m). According to Tizard et al.(1885, p. 242, sheet 17, p. 1010) the "Challenger" made 8 stations, of which 6 were dredge stations near the Tristan da Cunha group of islands. Unfortunately these were numbered 135 and 135a-g. Now apparently Busk has put all the material from these stations together as material from station 135, 60-1100 fathoms, being the depth-range of the 8 stations. According to Murray & Renard (1891, p. 72-73) only station 135 c (110-150 fathoms) and 135 d (72 fathoms) delivered bryozoa in great quantities. It is however uncertain whether the *Vittaticella* material stems from these stations, therefor exact depth data for the Challenger material are not available and the deepest occurence of *Vittaticella* of 1100 fathoms is almost certainly wrong: at st. 135 f (1100 fathoms) the dredge brought up only several large pumice stones (Murray & Renard, l.c.).

Also Brady working on the Foraminifera from the "Challenger" mentions (1885, p. 85) material from st. 135 "off Nightingale Island, 100-150 fathoms". This apparently is not st. 135 (depth 360 fathoms, near Tristan da Cunha) but 135 d, which prooves once more, that the Challenger stations worked quite misleading.

Discussion - Only one other *Vittaticella* is known from the Atlantic: *Vittaticella contei* (Audouin) found in Brazil (Marcus, 1937, 1938) and Madeira (Norman, 1909). According to Waters (1909, p. 130) this species lacks the avicularia on the conical processes. The genus is well represented in Australasia: Stach (1933, 1934) mentions 11 species from the Tertiary of Victoria, Harmer (1957) describes 8 species from the collections of the Siboga expedition (Indonesia).

It is my hope that this description will be helpful for those who have found or will find this elegant bryozoan. Presumebly it is by no means rare as a fossil,but because of its smallness and fragility it may pass unnoticed. Its stratigraphic range in the North Sea Basin needs a better study, but the disappearance of this warm water species dates certainly back to the beginning of the Pleistocene Period. Although the recent bryozoan fauna of Europe is rather well studied it was never found. This species has a worldwide distribution, but it is restricted to warm waters; it is however seldom reported from the true tropical waters.

REFERENCES

Bassler, R. S., 1953. Bryozoa in R. C. Moore (ed.) Treatise on Invertebrate Paleontology, G: 1-253, 175 figs.

Brady, H. B., 1884. Report on the Foraminifera dredged by HMS Challenger during the years 1873 - 1876. - Chall. Rep. Zool. 9: 1-814, 115 pl.

Busk, G., 1852. An account of the Polyzoa and sertularian Zoophytes. Appendix no. 4: 343-402, 1 pl., in J. Macgillivray: Narrative of the voyage of HMS Rattlesnake. London.

Busk, G., 1884. Report on the Polyzoa. The Cheolostomata. - Chall. Rep. Zool. 10: 1-216, 36 pl., 59 figs.

Correa, D. D., 1947. Note on Vittaticella elegans (Bryozoa, Cheilostomata). - Comun. Zool. Mus. Hist. Nat. Montevideo 2 (43): 1-7, 7 figs.
Glibert, M., 1958. Tableau stratigraphique des Mollusques de Néogène de la Belgique. - Meded. Kon. Belg. Inst. Natuurw. 34 (32): 1-20.
Harmer, S. F., 1957. The Polyzoa of the Siboga Expedition 4. - Uitk. Siboga Exp. 28d: I - XV, 641-1147, pl. 42-74.
Lagaay, R., 1952. The Pliocense Bryozoa of the Low Countries. -Meded. Geol. Sticht. C-V-5: 1-233, 26 pl., 29 figs.
Marcus, E., 1937-1938. Bryozoarios marinhos Brasileiros.1 & 2. - Bol. Fac. Filos Cienc. S. Paulo Zool. 1: 3-162, 29 pl.; ibidem 2: 1-137, 29 pl.
Murray, J., & A. F. Renard, 1891. Report on deep sea deposits. - Chall. Rep.: 1-525, 29 pl.
Norman, A. M., 1909. The Polyzoa of Madeira and neighbouring islands. - J. Linn. Soc. (Zool.) 30: 275-314, pl. 33-43.
Osburn, R. C., 1952. Bryozoa of the Pacific coast of America. 2 Cheilostomata-Ascophora. - Allan Hancock Pacific Exp. 14 (2): 271-611, pl. 30-64.
Powell, N. A., 1967. Polyzoa (Bryozoa)-Ascophora- from North New Zealand. - Discovery Rep. 34: 199-394, 34 pl., 105 figs.
Tizard, T. H., H. N. Moseley, J. Y. Buchanan & J. Murray, 1885. Narrative of the cruise of HMS Challenger 1 (1-2): 1-1110, 35 pl.
Stach, L. W., 1933-1934. Victorian Tertiary Catenicellidae 1 & 2. - Proc. Roy. Soc. Victoria (N.S.) 45: 85-98, pl. 8; ibidem 47: 18-53, pl. 3.
Stach, L. W., 1935. Victorian Lower Pliocene Bryozoa 1. - Proc. Roy. Soc. Victoria (N.S.) 47: 338-341, pl. 12.
Waters, A. W., 1909. Reports on the marine biology of the Sudanese Red Sea 12. The Bryozoa 1. Cheilostomata. - J. Linn. Soc. (Zool.) 31: 123-181, pl. 10-18.

ADDENDUM

After the manuscript was finished, a footnote of A. B. Hastings, in Harmer (1957, p. 669) came to my attention, in which she indicated that the Challenger material of V. elegans from Tristan da Cunha is labelled 100-150 fathoms. This corroborates my conclusions.

Moreover the record of a third Vittaticella species from the Atlantic came to my attention: Vittaticella uberrima Harmer, 1957, in Lagaay, R., 1963 - New additions to the Bryozoan fauna of the Gulf of Mexico. - Publ. Inst. Mar. Sci. 9: 162-236 (p. 202, pl. 7, fig. 1, 2).
This species differs from V. elegans by its more elongate zooecia, its lateral processes which are not cusped distally but transverse, its ovicell with a single row of pores instead of pluriserial pores and the presence of scattered giant avicularia.
Lagaay includes (with a question-mark) Osburn's Vittaticella elegans from the Caribbean in his synonymy, here indeed giant avicularia were found.
More material, especially specimens with ovicells, is needed to identify our material with certainty, but the distally cusped lateral processes and the absence of giant avicularia seems to indicate that we found V. elegans.