A NEW CENTRIC DIATOM GENUS FROM THE SUB-ANTARCTIC REGION WITH STRIKING SIMILARITIES TO A CRETACEOUS FOSSIL

Bart Van de Vijver[1], Jakub Witkowski[2], Patricia A. Sims[3] & Eileen J. Cox[4]

[1]National Botanic Garden of Belgium, Department of Bryophyta & Thallophyta
[2]Department of Historical and Regional Geology, Faculty of Geology, University of Warsaw
[3]Department of Botany, The Natural History Museum
[4]The Natural History Museum

Ile Amsterdam (77°30′E, 37°50′S) is a very young, small volcanic island situated in the southern Indian Ocean, well north of the polar front. Volcanic caves are typical habitats on the island, found at sea level around the scientific station, with a diatom composition dominated by unusual species with unique features.

During a survey of the terrestrial diatom flora in a lava tube cave on the island, an unknown centric diatom was found. The frustules are connected to each other by very large, irregularly branched linking spines. The cells are clearly domed with a narrow to moderately broad mantle. An irregular pattern of slit-like areolar openings are seen between the spines on the valve exterior, usually covered by a continuous silica layer. The areolae are rounded or slit-like on the valve mantle. Internally, the irregularly scattered areolae are occluded by small, disc-like coverings and when these occlusions are lost, complex foramina consisting of several small openings, are visible. Several rimoportulae are found arranged in a ring around the valve mantle. The girdle consists of a large number of perforated, open bands, as is commonly found in species of the Melosiraceae and Orthoseiraceae.

A second population with comparable morphological features was found in a small cave on the nearby sub-Antarctic Ile de la Possession (Crozet Archipelago). Although there are some minor differences in the shape of the spines, reducing the formation of long chains in the Crozet population, the ultrastructure of the areolae seems to be the same.

The poster shows the results of a morphological study of this remarkable genus, with notes on its ecology and its possible systematic relationship to both fossil and extant diatom genera. Based on their unique features, a new genus will be described for these diatoms, showing some similarities with the Cretaceous fossil genus *Blochia* (Witkowski & Harwood 2010) and the extant genus *Clipeoparvus* (Woodbridge et al. 2010).

References:

Witkowski, J. & Harwood, D.M. (2010) *Blochia* and *Nikolaevia*: new Cretaceous diatom genera related to *Stellarima* Hasle & Sims. Diatom Research 25: 445-458.

Woodbridge, J., Roberts, N. & Cox, E.J. (2010) Morphology and Ecology of a new centric diatom from Cappadocia (Central Turkey). Diatom Research 25: 195-212.