

Transfer of *Navicula hochstetteri* var. *patagonica* Frenguelli to the genus *Cavinula* (*Cavinulaceae*, *Bacillariophyta*) and lectotype designation

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The diatom genus *Cavinula* was erected by Mann & Stickle (in Round & al. 1990) to accommodate species previously included in *Navicula* Bory but that do not share any similarities with it other than the “naviculoid” symmetry of the valve.

Cavinula D.G.Mann & Stickle currently includes some 29 accepted species names (Guiry & Guiry 2022) with isovalvar, linear-lanceolate to elliptic valves with rounded poles, sometimes slightly rostrated. The valve face is flat curving into a shallow mantle. The striae are uniseriate, radiate, and contain rounded to elliptical areolae, sometimes transapically elongated near the proximal raphe endings. Alternating long and short striae can be distinguished occasionally around the central area. The raphe sternum is thickened internally, while the raphe is central and straight with external proximal endings expanded, pore-like, and distal endings deflected to opposite sides, sometimes with short fissures. The cingulum is composed of 2–4 open bands, each with two rows of fine pores (see Round & al. 1990, Cvetovska & al. 2014).

Cavinula is mainly a freshwater genus, common in cold oligotrophic waters (Round & al. 1990) but also occurs in brackish and marine environments (e.g. Riaux-Gobin & Compère 2004, Kulikovskiy & al. 2014).

Navicula hochstetteri var. *patagonica* Frenguelli (1939) was described from San Matias Gulf, Río Negro, Patagonia, Argentina in material associated with the contents of the atrial cavity of a sea sponge (*Chalina* sp.). Currently this material is stored as “Series 382” (slides 1–4) in the “Joaquín Frenguelli Diatom Collection” located in the División Ficología, Facultad de Ciencias Naturales y Museo, Universidad Nacional de La Plata, La Plata, Argentina (**LPC**). Frenguelli compared the Río Negro specimens with *Navicula hochstetteri* Grunow and regarded them as belonging to a new variety of this taxon. Sar & al. (2009) analysed the protologue, illustration and comments of Frenguelli and suggested that *N. hochstetteri* var. *patagonica* does not belong to the current concept of *Navicula sensu stricto* but that it would be necessary to examine the original material in order to make the appropriate transfer to the genus *Cavinula*.

We examined the slides of the series 382 (Fig. 1) with light microscopy and we found seven specimens corresponding to *N. hochstetteri* var. *patagonica* (original drawing in Fig. 2). Unfortunately, the original raw material for electron microscopy studies is not available. Morphological features such as valve face flat curving towards the valve mantle, the raphe sternum internally thickened, the proximal raphe endings expanded, alternating short and long striae near the central area and areolae rounded to elliptical support the taxonomic transfer to *Cavinula*. Here, we give a detailed morphological description of the original material of *N. hochstetteri* var. *patagonica* and we propose to transfer this taxon to the genus *Cavinula* and raise it to species level as *Cavinula patagonica* below. A specimen from the original material of the Joaquín Frenguelli diatom collection is here designated as lectotype.

Cavinula patagonica (Frenguelli) Vouilloud, Cefarelli & Lameiro, *comb. nov. et stat. nov.* (Figs 3-12)

Basionym: *Navicula hochstetteri* var. *patagonica* Frenguelli, 1939, *Revista Museo de La Plata* (n. s.) 2, *Botánica* 10: 212, pl. I: fig. 14 (as "*Navicula (Cribrum) hochstetteri* var. *patagonica*").

Type: Argentina, Río Negro Province, San Matías Gulf (40°52' S, 64°59' W). Atrial content of a sea sponge (*Chalina* sp.).

Lectotype (designated here): Specimen in Slide 382(2) of Frenguelli Collection, England Finder M33-4, here illustrated as Fig. 5. Collected by Alberto Carcelles & Aurelio Pozzi, May 1933 (LPC).

Description: Valves oval to elliptical with broadly rounded poles. Valve length 23.0–47.0 µm, valve width 13.5–22.5 µm (n=7). Valve face flat curving towards mantle, no clear distinction between valve face and mantle. Striae uniseriate, radiate throughout, 10–12 in 10 µm, some short striae at the centre. Areolae rounded to elongated, 12–16 in 10 µm, very conspicuous with LM, more noticeably elongated along the raphe sternum. Raphe-sternum internally thickened, expanded in the centre and narrowed towards the poles. Raphe straight positioned within a depression; proximal endings markedly expanded; distal endings slightly expanded terminating on valve face with small helictoglossae.

Note: While the original material in the Frenguelli Collection is based on a single gathering, a series of slides was made from this material (which no longer exists) none of which were specified as the type by Frenguelli. In view of this, it is necessary to select a lectotype from the slide series so as precisely to define the taxon and for the avoidance of potential taxonomic confusion.

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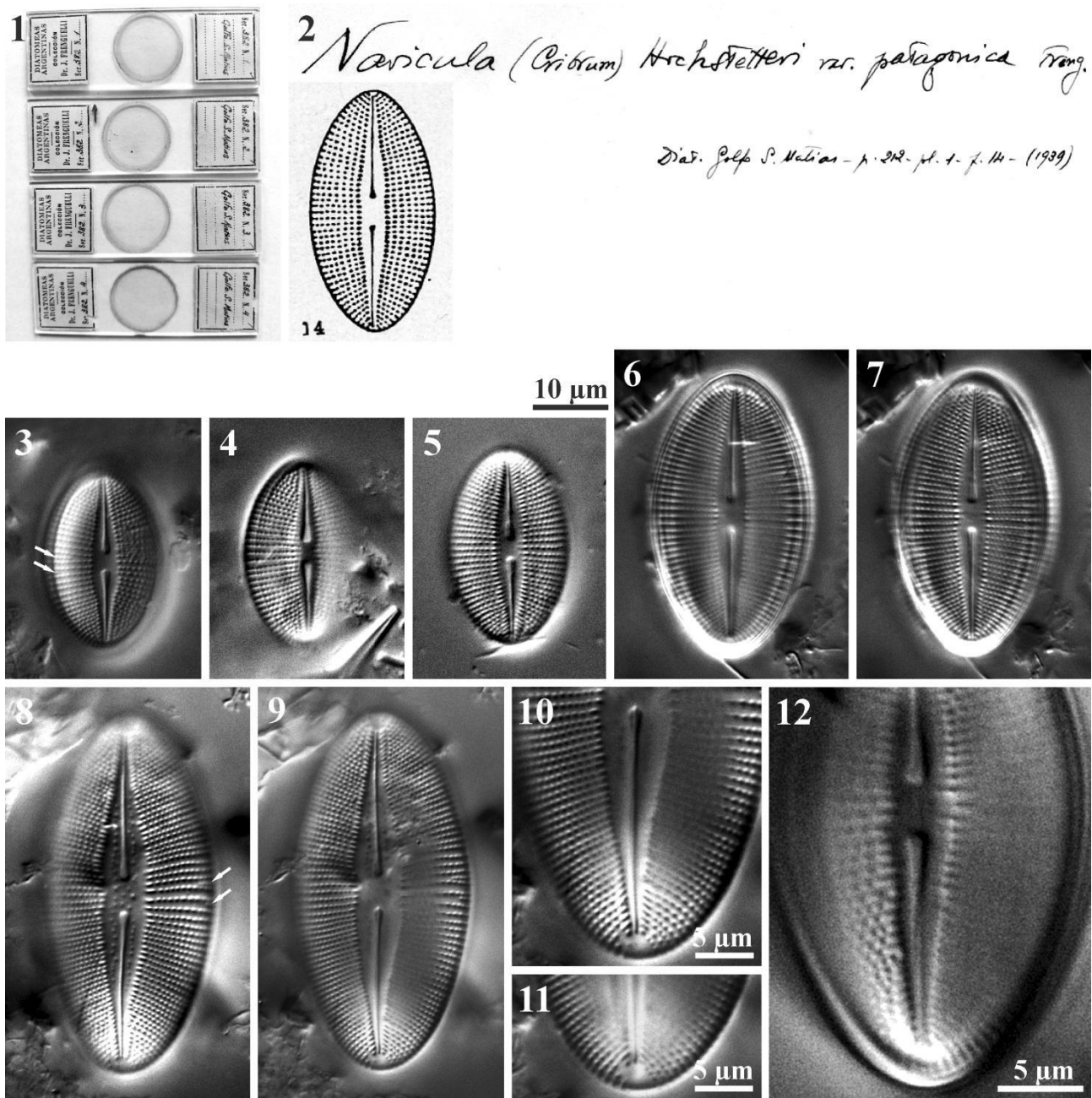


Fig. 1. Slides 1–4 corresponding to Series 382 of the Frenguelli Diatom Collection from San Matías Gulf, Río Negro Province, Argentina. **Fig. 2.** Reproduction of original drawing of *Navicula hochstetteri* var. *patagonica* (Frenguelli 1939, Fig. 14) with author's annotations. **Figs. 3–12.** LM-DIC Specimens of *Cavinula patagonica* (Frenguelli) Vouilloud, Cefarelli & Lameiro from the type material. **Figs 3–9.** Valves ordered from lowest to highest length of their apical axis, exemplifying different shapes and sizes (black scale bar). **Figs 6–7, 8–9.** Same specimens in two different focal planes. **Fig. 5.** Lectotype. **Figs 3, 8.** Note alternating short and long striae (arrows). **Figs 10–12.** Details of the thickened sternum, proximal endings markedly expanded, distal ending terminating on valve face and small helictoglossa.