
***Olifantiella visurgis* (Hustedt) comb. nov. (Diadesmidaceae, Bacillariophyceae) based on *Caloneis visurgis* Hustedt**

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Caloneis visurgis Hustedt (1959: 70, 71, pl. 1, figs 26–28; length 9–15 µm, width 3.5–4 µm, around 35 striae in 10 µm) was described from brackish waters of the Weser River near Blexe, Bremerhaven (Lower Saxony, Germany). The species was collected from benthic material and published by Hustedt in an account of the diatom flora of the Lower Weser (from the Lesum estuary to Bremerhaven taking into account the lower reaches of the Hunte and Geeste rivers). The species was illustrated in light microscopy and typified by Simonsen (1987: 455, pl. 680: figs 15–19), who selected as lectotype the slide number **BRM** 383/59a, made from the sample E10370 collected in 1957 (i.e., *Weser H212, Blexen, an Stein etwas über TNWL, 24.11.1957*). Simonsen stated that “The taxon is not marked or named. It is very frequent on the two slides containing the sample cited in the protologue”. He adds that “It is difficult to believe that this taxon belongs in the genus *Caloneis*. Further, submicroscopical, investigations are necessary to clarify the taxonomic position of the species”.

The species *Caloneis visurgis* is poorly known in the diatom literature and apart from its original description, we could find no other publications and an internet search did not yield any results, nor a thorough check of major literature sources such as *Bibliotheca Diatomologica*, *Iconographia Diatomologica*, and *Diatom Research*.

We examined Hustedt’s original material (E10370 *loc. cit.*) using light (LM, Figs 2–24) and scanning electron microscopy (SEM, Figs 26–33), and it is clear that *Caloneis visurgis* does not belong to the genus *Caloneis* Cleve as characterized by chambered striae, like those of *Pinnularia*. Even though the striae of *Caloneis* are composed of fine alveoli, unlike *C. visurgis*, species in the genus *Caloneis* lack an isolated pore (*buciniportula* in this case). Thus, the combination of morphological features described in *C. visurgis* is only found in the genus *Olifantiella* Riaux-Gobin & Compère (2009) currently placed in the *Diadesmidaceae* (Han *et al.* 2018, Witkowski *et al.* 2019).

Currently, here are 11 *Olifantiella* species names in AlgaeBase (Guiry & Guiry 2020) as well as a single infraspecific name. Of the species names, 10 have been flagged as accepted taxonomically on the basis of the listed literature. In the most recent account of the genus *Olifantiella* there is no mention of *C. visurgis* in comparison tables nor any other illustration or mention (e.g., Kaleli *et al.* 2018, Li *et al.* 2018, Jung & Park 2019). The taxon was illustrated in LM by Simonsen (1987: 455, pl. 680: figs 15–19). The *Olifantiella* that is most similar to *C. visurgis* is *Olifantiella elisabethiana* Van de Vijver (in Van de Vijver *et al.* 2016: 252, figs 1–31), found during a survey of the diatom populations of the docks of Antwerp in the context of water quality monitoring on different localities on both sides of the Scheldt River (Belgium), and we include it here in synonymy.

Here we detail under LM and SEM the original gathering of this species as described by Hustedt using his original material deposited at the Hustedt Collection (**BRM**) at Alfred Wegener Institute, Bremerhaven, Germany. With the observation of the *buciniportula*, clearly present in *C. visurgis*,

and the marginal canal, partly covering the striae, this species is undoubtedly a member of the genus *Olifantiella* (see Riaux-Gobin & Compère 2009, Riaux-Gobin & Al-Handal 2012, Riaux-Gobin 2015, Van de Vijver *et al.* 2018, Riaux-Gobin *et al.* 2019) and thus a new combination is required as follows:

***Olifantiella visurgis* (Hustedt) C.E.Wetzel & Ector, *comb. nov.* (Figs 1–32)**

Basionym: *Caloneis visurgis* Hustedt, *Veröffentlichungen des Instituts für Meeresforschung in Bremerhaven*, vol. 6, p. 70, figs 26–28, 1959.

Heterotypic synonym: *Olifantiella elisabethiana* Van de Vijver (in Van de Vijver *et al.* 2016:252, figs 1–31).

Lectotype: Slide number **BRM** 383/59a, sample E10370, designated by Simonsen (1987, p. 455).

Etymology: “*visurgis*” is Latin for the river Weser.

Ecology and associated diatom taxa: Known only from its type locality in northern Germany.

However, as *O. elisabethiana* is a synonym, the taxon is present in several samples from the Kanaaldok in Antwerp harbour, and in brackish samples from estuary zones of the North Sea on the coasts of Belgium and Germany, usually in samples characterized by high conductivity levels, almost circumneutral pH and moderate nutrient values (Van de Vijver *et al.* 2016). The Hustedt sample from Germany was dominated by brackish and marine diatom species such as *Navicula supergregaria* Lange-Bertalot, *Navicula gregaria* Donkin, *Nitzschia filiformis* var. *conferta* (Richter) Lange-Bertalot in Lange-Bertalot & Krammer and a species of *Berkeleya* (Fig. 25).

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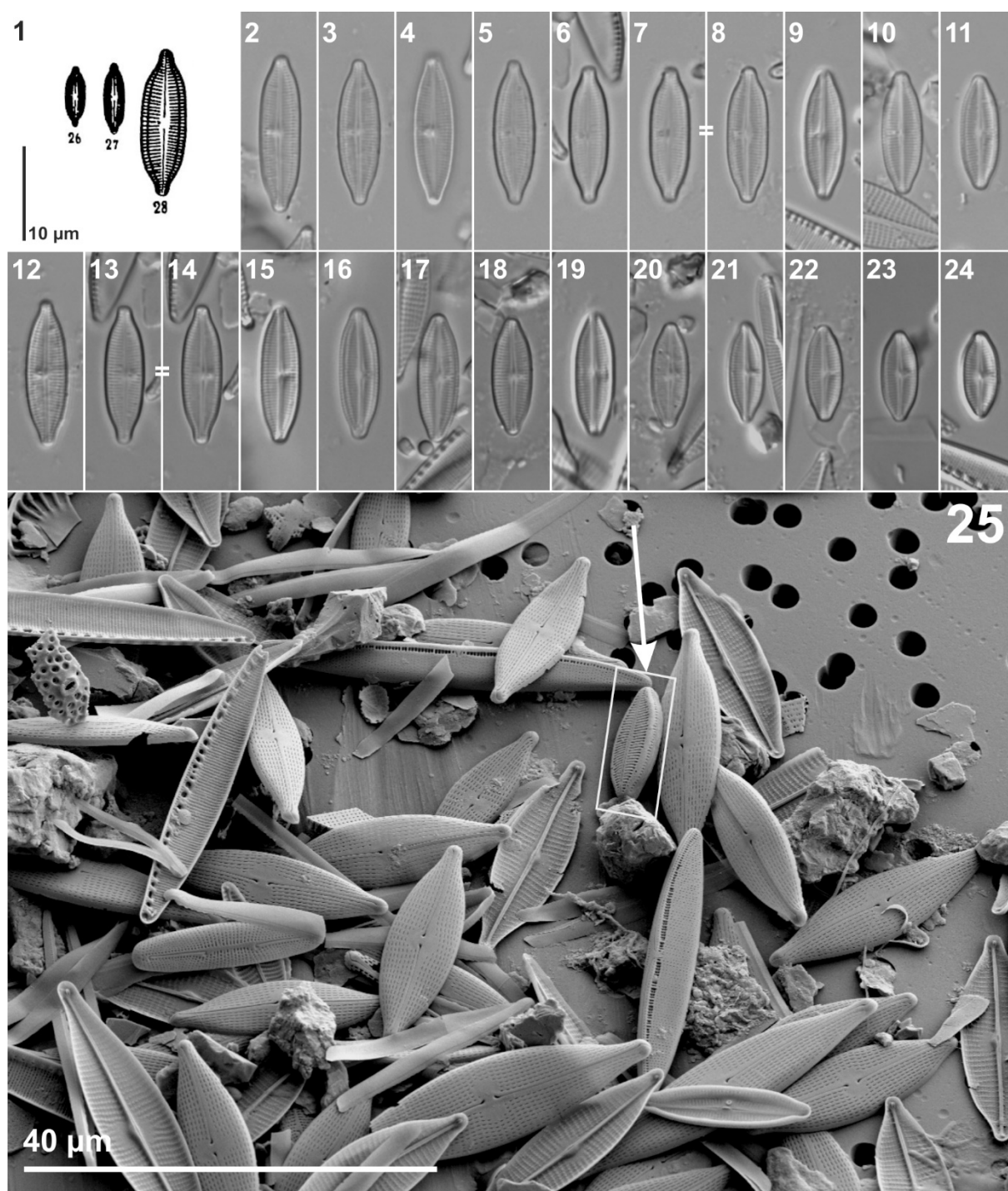
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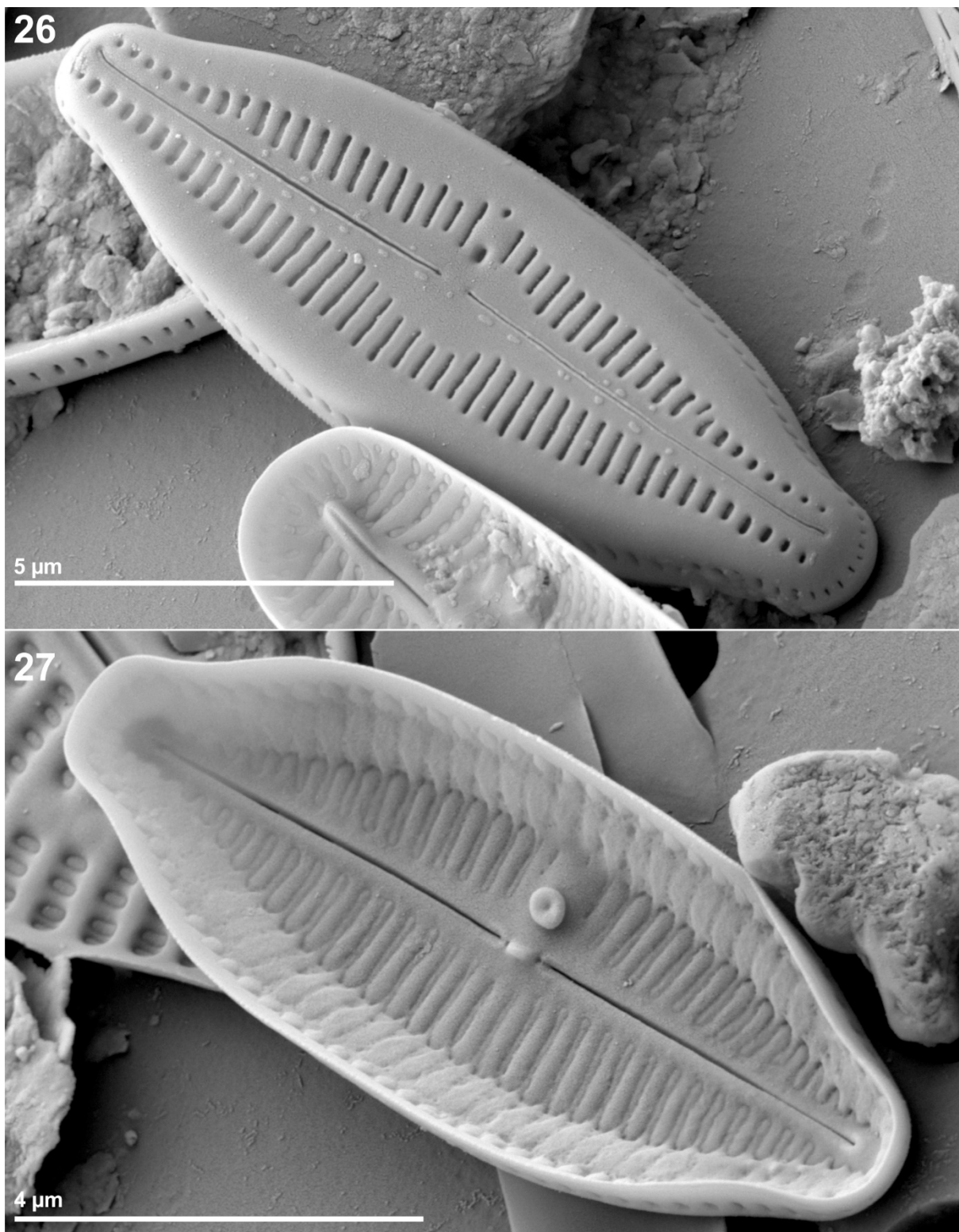
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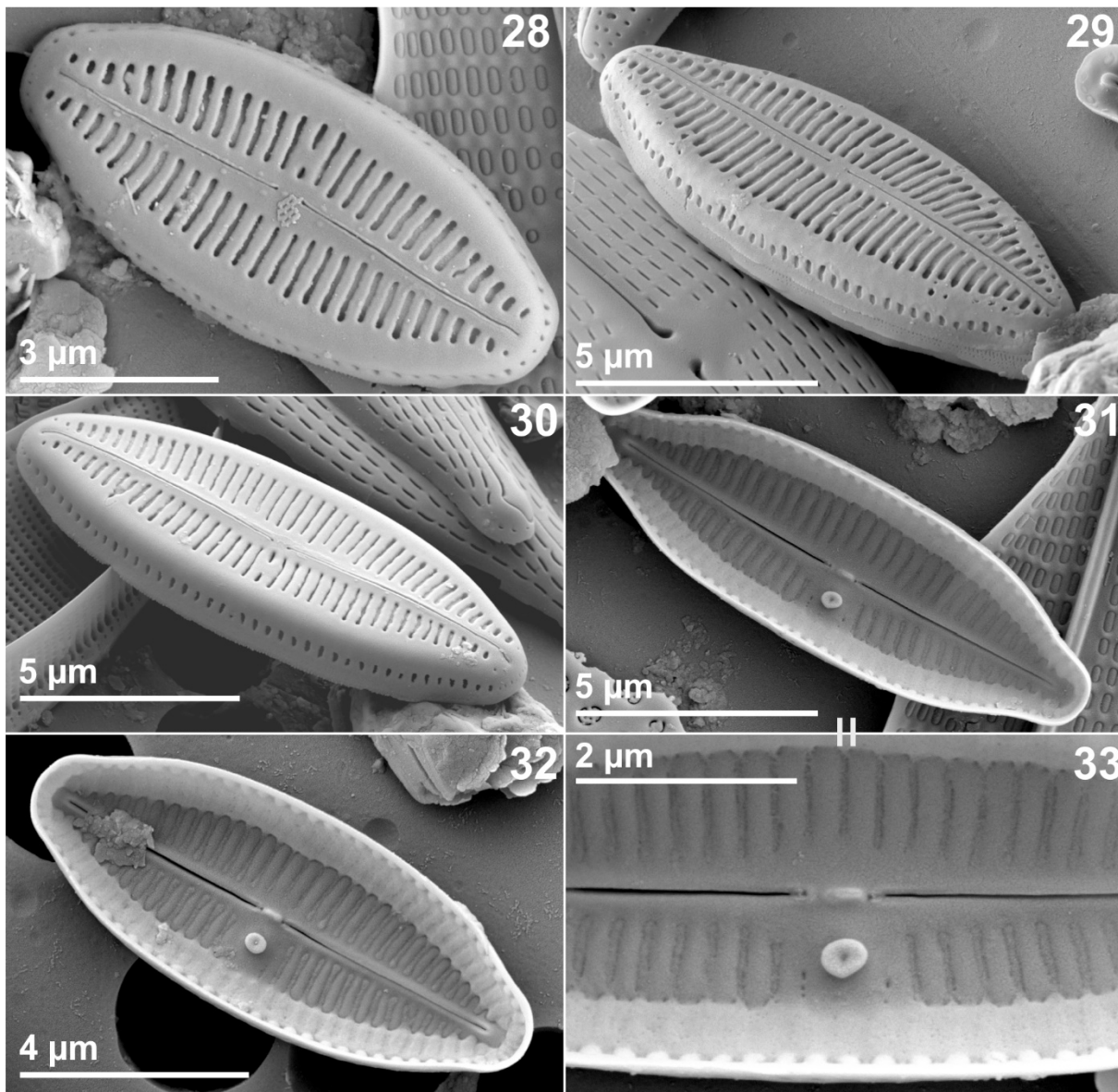
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Figures 1–25. *Olifantiella visurgis* (Hustedt) C.E. Wetzel & Ector, *comb. nov.* Fig. 1: Reproduction of *Caloneis visurgis* Hustedt (1959, figs 26–28). Figs 2–25: LM and SEM images from Weser River near Blexe, Bremerhaven (Germany). Sample E10370 (**BRM**) collected in 1957. Figs 2–24 LM. (Figs 1–15): Valves almost linear, becoming more elliptic to elliptic-lanceolate in smaller specimens (Figs 14, 15) with parallel, straight margins and rostrate, clearly protracted, bluntly rounded, truncated apices. Fig. 25 (SEM) showing an overall aspect of the dominant species present in the sample: *Navicula supergregaria* Lange-Bertalot, *Navicula gregaria* Donkin, *Nitzschia filiformis* var. *conferta* (Richter) Lange-Bertalot in Lange-Bertalot & Krammer and *Berkeleya* sp.; *Olifantiella visurgis* is surrounded by a white frame, indicated by an arrow. Scale bar = 10 µm (Figs 1–24).



Figures 26–27. *Olifantiella visurgis* (Hustedt) C.E.Wetzel & Ector, *comb. nov.* SEM pictures taken from the holotype population (sample E10370, **BRM**) Weser River, Bremerhaven, Germany. Fig. 26. External view of an entire valve with one shortened stria near the valve margin and the external opening of the buciniporula, striae showing the transapically elongated areola (= macroareola), the hymenous covering in the areola and the open outer part of the striae. Fig. 27. Internal view showing the central area with the plugged buciniporula.



Figures 28–33. *Olifantiella visurgis* (Hustedt) C.E.Wetzel & Ector, *comb. nov.* Figs 28–30. External view of entire valves. Note a single shortened stria near the valve margin and the external opening of the buciniporula, transapically elongated macroareola. Valve margin with thick hyaline zone at the valve face/mantle junction. Figs 31, 32. Internal view of entire valves. Fig. 33. Internal detail of the valve margin and the striae with the finely perforated hymenes covering the areolae, the siliceous, hymenous velum extending from the valve margin to halfway the margin and Internal detail of the central area with the buciniporula. Note also the marginal canal, partly covering the striae.