

A NEW DIATOM FROM DUTCH MOORLAND POOLS: *NAVICULA HEIMANSII* (BACILLARIOPHYCEAE)

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SUMMARY

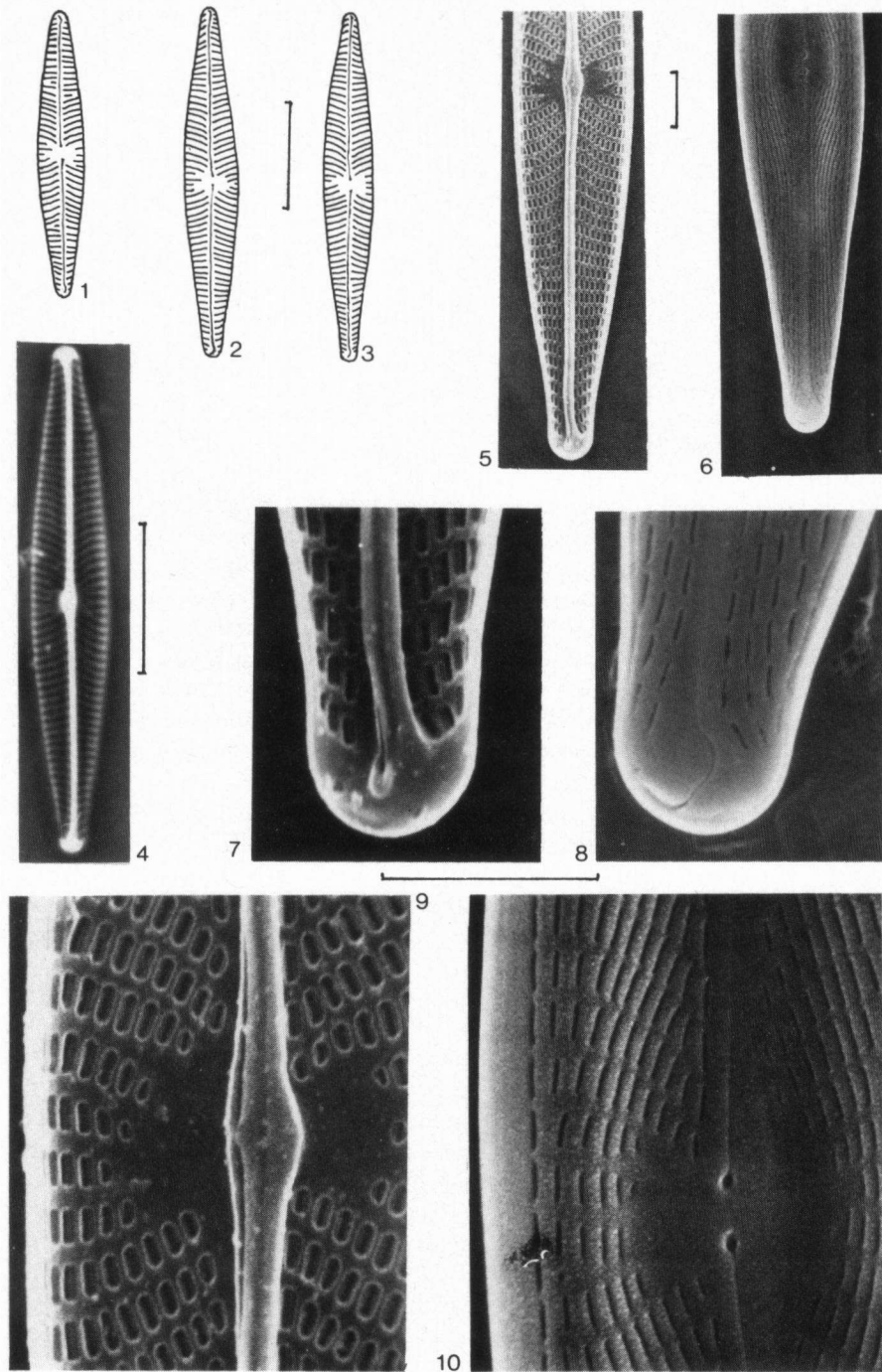
Navicula heimansii (*Navicula* subgen. *Navicula*) is described with some notes on ecology and distribution in The Netherlands.

Navicula heimansii, sp. nov.

Frustulum e latere conspectum rectangulare. Valvae anguste lanceolatae sensim attenuatae in apices acutas, longitudine 25–35 μm , latitudine 5 μm . Area axialis angusta recta aut paululum curvata, costa axiale expressa media dilatatione unilaterale munita; area centralis transversim extensa, circiter dimidium valvae latitudines occupans; areae terminales ad margines laterales valvae extensae. Plerumque medio valvarum striae breviores interjacentes saltem altero latere. Media valva striae radiatae et curvatae, in apicibus convergentes et rectae, circiter sextam partem longitudinis valvae se vertentes. Striae 16–18 in 10 μm , linearibus areolis poroidibus 50 in 10 μm compositae. Raphe areae axialis altero latere; fissura exterior in nodulo centrale dilatata porum simulans, hamata et idem latus versus parum inflexa utroque nodulo terminale; helictoglossa guttaeformis et deflexa. Raphis pori centrales vicini. Figurae 1–10.

Typus in Herbario Universitatis Amstelodamensis (AMD) servetur lamina vitrea signo HO 392 ex exemplo isotypos continente, eodem signo liquore conservato, ab J. Heimans stagno paludoso Achterste Goorven prope pagum nomine Oisterwijk 25 Septembris 1926 lecto confecta. Aqua leviter acida, paululo calce.

Frustule rectangular in girdle view. Valves narrowly lanceolate, gradually tapering to the ends, 25–35 μm long, 5 μm wide. Axial area narrow, linear or very slightly curved, with a pronounced axial costa, broadened to one side in the centre; central area transversely expanded, about half the width of the valve, terminal areas expanded to the margins of the valve. In the middle of most valves intercalated shortened striae on at least one side. Striae radiate and curved near the middle, convergent and straight at the ends and changing their direction at about one sixth of the length of the valve. Striae 16–18 in 10 μm , composed of linear poroid areolae, 50 in 10 μm . Raphe on one side of the axial costa, outer fissure with a pore like widening at the central nodule, hookshaped and bent to the same side at the terminal nodules; helictoglossa drop-like and deflected. Central raphe pores close to each other. *Figs. 1–10.*



Navicula heimansii is a member of the subgenus *Navicula* (Patrick 1959) (*Naviculae lineolatae sensu* HUSTEDT 1930). It is closely related to *N. cari sensu* HUSTEDT (1930: 300, Fig. 512) which has a broad rectangular area and to which the new species was indentified by VAN DAM & KOOYMAN-VAN BLOKLAND (1978) and GERMAIN (1981). According to LANGE-BERTALOT (1980) *N. cari* Ehrenberg has about 12 coarse transapical striae in 10 μm , while *N. heimansii* has about 17, rather fine, striae. It differs from *N. pseudocari* Krasske (KRASSKE 1939: 389, 390, Taf. 12, Fig. 5) in having less linear valves with more gradually tapering ends. The new species is more slender and narrowly lanceolate and has a less robust structure than the type material of *N. cryptocephala* Kützing as figured by LANGE-BERTALOT (1979: 201, Figs. 33–36).

The new species is rather abundant in a sample from the moorland pool Achterste Goorven near Oisterwijk, The Netherlands, which was taken by J. Heimans at 25-9-1926. Codominant species in this sample are *Anomoeoneis exilis* f. *lanceolata* Mayer, *Cymbella gracilis* (Rabenhorst) Cleve, *Fragilaria virescens* Ralfs, *Frustulia rhomboides* var. *saxonica* (Rabenhorst) De Toni and *Nitzschia perminuta* Grunow. *Navicula heimansii* is also very common in a sample from the moorland pools Kliplo near Dwingelo, The Netherlands, which was taken by G. Suurmond at 14-11-1978 with *A. exilis* f. *lanceolata*, *Eunotia tenella* (Grunow) Hustedt, *E. veneris* (Kützing) De Toni, *Fragilaria virescens*, *Frustulia rhomboides* var. *saxonica*, *Navicula hoefleri* Cholnoky and *N. subtilissima* Cleve as codominant species. At the latter site some chemical parameters were determined: pH 4.6, conductivity (25°C) 5.5 mS m^{-1} , Cl 16 mg l^{-1} , SO_4^{2-} 6 mg l^{-1} and Ca^{2+} 3 mg l^{-1} (VAN DAM et al. 1981). GERMAIN (1981) found the species (as *N. cari*) in moorland pools in Bretagne (France). Both the chemical data and the autecology of the accompanying species suggest that *N. heimansii* has its optimum in slightly to moderately acid, poorly mineralized waters. The species has not been found in moorland pools which are very acid by pollution with acid precipitation (VAN DAM et al. 1981) or in pools which are enriched with nutrients by pollution from agriculture, rearing of fishes or swimming (VAN DAM & KOOYMAN-VAN BLOKLAND 1978).

The species is dedicated to the memory of Professor J. Heimans, the collector of the type material, and investigator of moorland pools through many years.

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Figs. 1–10. *Navicula heimansii* (Heimans, sample HO 392). Fig. 1–4. valve views (1–3 drawings from LM, 4 LM phase contrast). Fig. 5. Internal valve side showing the internal raphe fissure on one side of the pronounced axial costa (SEM). Fig. 6. External valve side (SEM). Fig. 7. Polar internal raphe fissure ending with deflected helictoglossa (SEM). Fig. 8. Polar hook-formed terminal fissure (SEM). Fig. 9. Central internal raphe fissure endings with asymmetrical central nodule. Fig. 10. Central external raphe fissure endings. Scales near figs. 1–4 10 μm , near figs. 5–10 2 μm .

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