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A new Rhizopode of the genus *Hyalosphenia* Stein, 1857¹⁾ (Protozoa; Sarcodina; Amoebina)

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While studying the plankton community of the "Loenerveense Polder", one of the lakes along the eastern bank of the river Vecht, I came across an unusually large form of the genus *Hyalosphenia*. The species occurred in a qualitative net sample taken from the open water. Only one living specimen and two empty thecae were then observed. Though numerous net samples were taken from the same locality throughout the year, I did not meet with the animal again, only empty thecae sometimes being found. However when for the purpose of recovering more specimens, samples of bottom mud were taken, the living animal was seen again, though only once, and in one living specimen. After that I did not succeed in catching the animal again. Describing a new species from such scanty material as two living specimens and a few empty thecae may seem to be premature and not justified, but as the characteristic features are so unlike those of other species known of the genus *Hyalosphenia*, I feel sure that a mistake is out of the question.

Hyalosphenia gigantea sp. nov.

DIAGNOSIS: The theca is perfectly hyaline as in all other species of the genus. The colour is a very light yellow. The form of the theca is oval with the greatest width about halfway; slightly compressed laterally. The mouth-opening is oval too. There are no lateral pores as in *Hyalosphenia papilio*.

MEASUREMENTS OF THECA:

length 204—272 μ
greatest width 64—96 μ
thickness 43—45 μ
mouth-opening 52—57 μ
length/width 2,3—3,4 μ

The living animal fills only about half of the theca and is attached to it by very thin plasma-threads, epipodes.

¹⁾ Received April 29, 1952.

There are 3—6 pulsating vacuoles, especially situated in the hind part of the animal. A nucleus has not been observed. The plasma is rather clear and without zoochlorelles. The pseudopodes are loboform. When moving, seldom more than one lobopode is developed. Movement rather quick, in any case quicker than that of *Hyalosphenia papilio* and *H. elegans*. The animal is able to retire very quickly into the theca when disturbed. This phenomenon can be observed with other species of the genus too, viz. *H. papilio*, *H. cuneata* and *H. punctata* (Penard 1902).

In all the above mentioned characters the present species belongs to the genus *Hyalosphenia*. From all other species known of this genus it may readily be distinguished by its large size and its form.

The only species of *Hyalosphenia* described, having a length of more than $200\ \mu$ are *Hyalosphenia sinuosa* and *Hyalosphenia nobilis*, both described by Cash (1908). According to Deflandre (1936), these species do not belong to the genus *Hyalosphenia* but probably to the genus *Nebela*. Beside the large size these species have nothing in common with the present species. *Hyalosphenia schoutedeni* van Oye (van Oye 1926) approaches our new species in general appearance, but differs in its smaller size and peculiarly shaped mouth-opening.

Ecological data: Living specimens were found on 27 Aug. 1951 in the open water on Dec. 18, 1951 in the bottom mud. Whether the species in benthonic or planktonic cannot be said, as it was found with equal frequency and abundance in both biotopes.

The animal is certainly eurytherm, being found at temperatures of 19°C as well as less than 5°C .

The water of the "Loenerveense Polder" is alkaline throughout the year with very little variation in the pH which is nearly always 8,0. The Cl^- content of the water varies between 37,5 and 48,5 p.p.m., the bicarbonate between 86 and 118 p.p.m., the KMnO_4 -consumption between 22 and 30 p.p.m., and the O_2 content between 8,4 and 15,1 p.p.m. This environment is totally different from that in which the other species of the genus dwell. *Hyalosphenia papilio*, *H. elegans*, *H. subflava* and others live almost exclusively in Sphagnum, and always in waters with a more or less strongly acid reaction.

They are acidophilous. *Hyalosphenia gigantea* however appears to be an alkaliphilous species, as it seems unlikely that such a characteristic animal should have been overlooked in the *Sphagnum* vegetations, which have been studied very intensively.

The bottom mud in which the species was found, consists of very finely divided peat material. This material originates from the time that the lake was excavated in order to sell the peat as fuel. The remaining peat on the bottom has long since ceased to have an acid reaction. On windy days this material is easily suspended in the water, as it is very loose. Moreover there is little vegetation on the bottom. Because of these characteristics the bottom mud is not a very suitable biotope for microorganisms, as they are easily buried under the peat material, which settles down again after a windy period. Consequently only few living organisms are found on the bottom. The absence of non-motile algae is not surprizing.

The *Rhizopoda* accompanying *Hyalosphenia gigantea* in the mud are: *Paulinella chromatophora* LAUTERBORN, *Cyphoderia ampulla* (EHREN-

BERG), *Diffflugia acuminata* EHRENBERG, *Diffflugia oblonga* EHRENBERG, *Diffflugia oblonga lacustris* PENARD, *Centropyxis aculeata* EHRENBERG and *Trinema lineare* PENARD. These are the common *Rhizopodes* in alkaline waters. In the plankton sample *Paulinella chromatophora* LAUTERBORN and *Cyphoderia ampulla* (EHRENBERG) were found together with *Hyalosphenia gigantea*. Both these species can very well have a planktonic mode of life and were regularly present in the net samples in greater abundance and frequency than on the bottom.

NOTE AT THE CORRECTION.

After this paper was written, *Hyalosphenia gigantea* has been found again at the same sampling station on several occasions. Living specimens were observed in planktoncatches from June 16, July 28, and August 11, 1952 only. From this it seems likely that the species is most abundant in early summer.

All the species found confirm the diagnosis as given in this paper, and justify the description of *Hyalosphenia gigantea* as a new species.

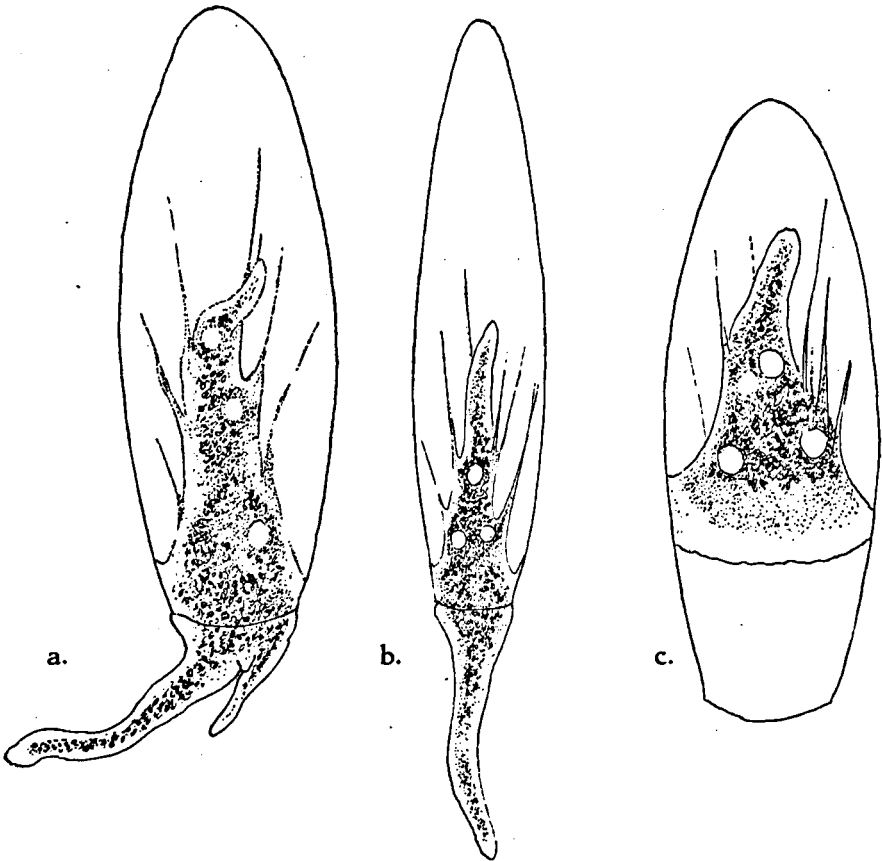


Fig. 1. *Hyalosphenia gigantea* nov. spec. a. Frontal view of moving animal; b. side view of moving animal; c. frontal view of resting animal.

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