Dinamoeba mirabilis Leidy, 1864

Most likely ID: n.a.

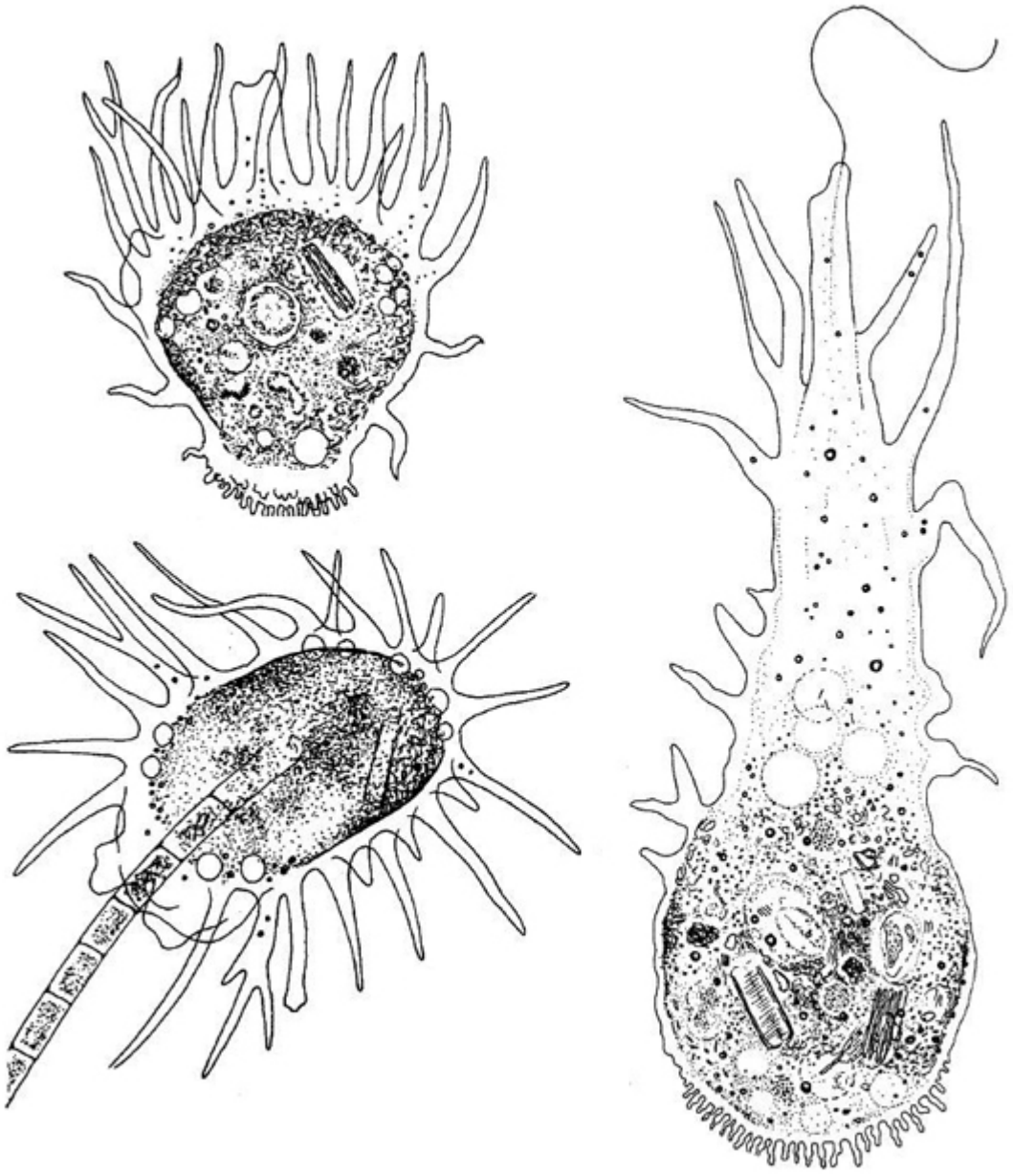
Synonym: n.a.

Sampling location: **Simmelried**

Phylogenetic tree: ***Dinamoeba mutabilis***

Diagnosis:

- cells ovoid or pyriform in locomotion, slow movement
- resting cells spherical
- numerous conical pseudopodia
- forms in locomotion up to 450 µm long
- resting forms about 100–200 µm in diameter
- sometimes a flagellum is present with a continuation inside the plasm
- ectoplasm clear and hyaline
- large spherical nucleus 25–40 µm in diameter
- nucleus surrounded by a thick layer of symbiotic bacteria
- feeds on algae and detritus
- a few contractile vacuoles



after Siemensma

Dinamoeba mirabilis

I have found *Dinamoeba mirabilis* only in Simmelried, where it is regularly found in mud and decomposing plant masses. The sizeable amoeba is easily recognized by a thick layer of symbiotic bacteria around the nucleus (s fig. 3). Except during division processes (s. figs. 4-6) it has only one nucleus, which is always filled with cloudy nucleoli. In the literature this species is also described with 2 nuclei, but I have never found this in my population. Another characteristic feature is the flagellum, which has a clear continuation in the plasm (s. fig. 9). The flagellum is mostly stretched out straight and periodically performs whip-like movements. Because of the flagellum *Dinamoeba mirabilis* is included in the Mastigamoebidae, but the flagellum is not always present. Often resting specimens can be found without a

flagellum. In addition to the large, rod-shaped bacteria around the nucleus, many thinner, rod-shaped bacteria are found in the plasm (s. fig. 3). This composition of symbiotic bacteria is reminiscent of *Pelomyxa*. According to Leidy, the cell surface of *Dinamoeba mirabilis* is supposed to be covered with bacteria-like rods. I could not observe this in my population. All specimens I have observed had a smooth surface.

More images and information on *Dinamoeba mirabilis*: Ferry Siemensma-Microworld-*Dinamoeba mirabilis*

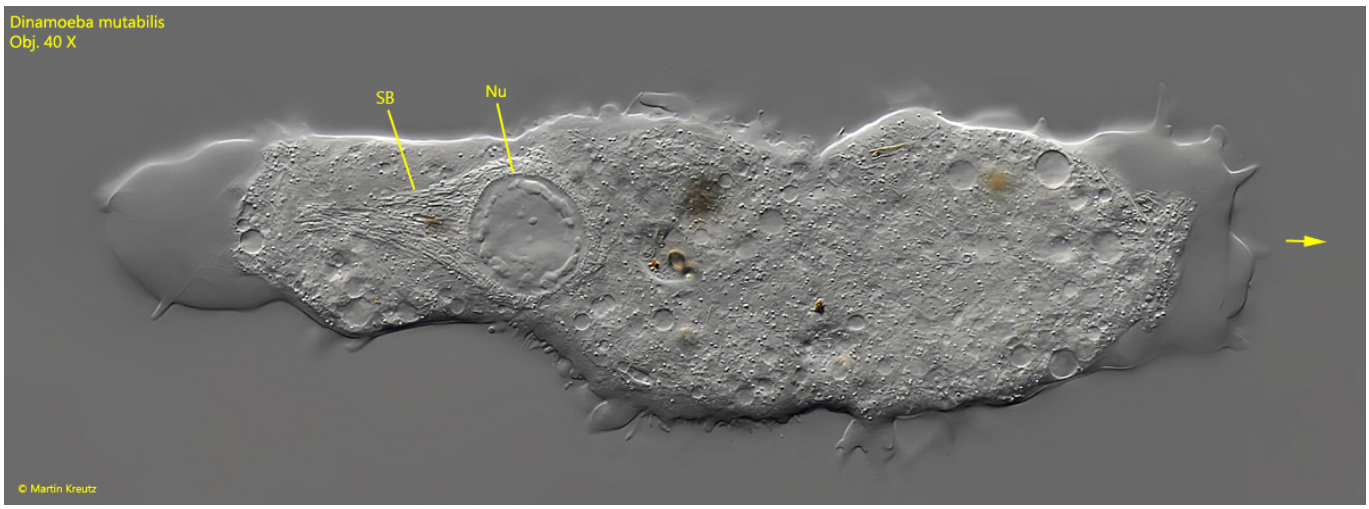


Fig. 1: *Dinamoeba mirabilis*. L = 450 µm. A specimen during locomotion in limax form. arrow = locomotion dirction, Nu = nucleus, SB = layer of symbiotic bacteria surrounding the nucleus. Obj. 40 X.

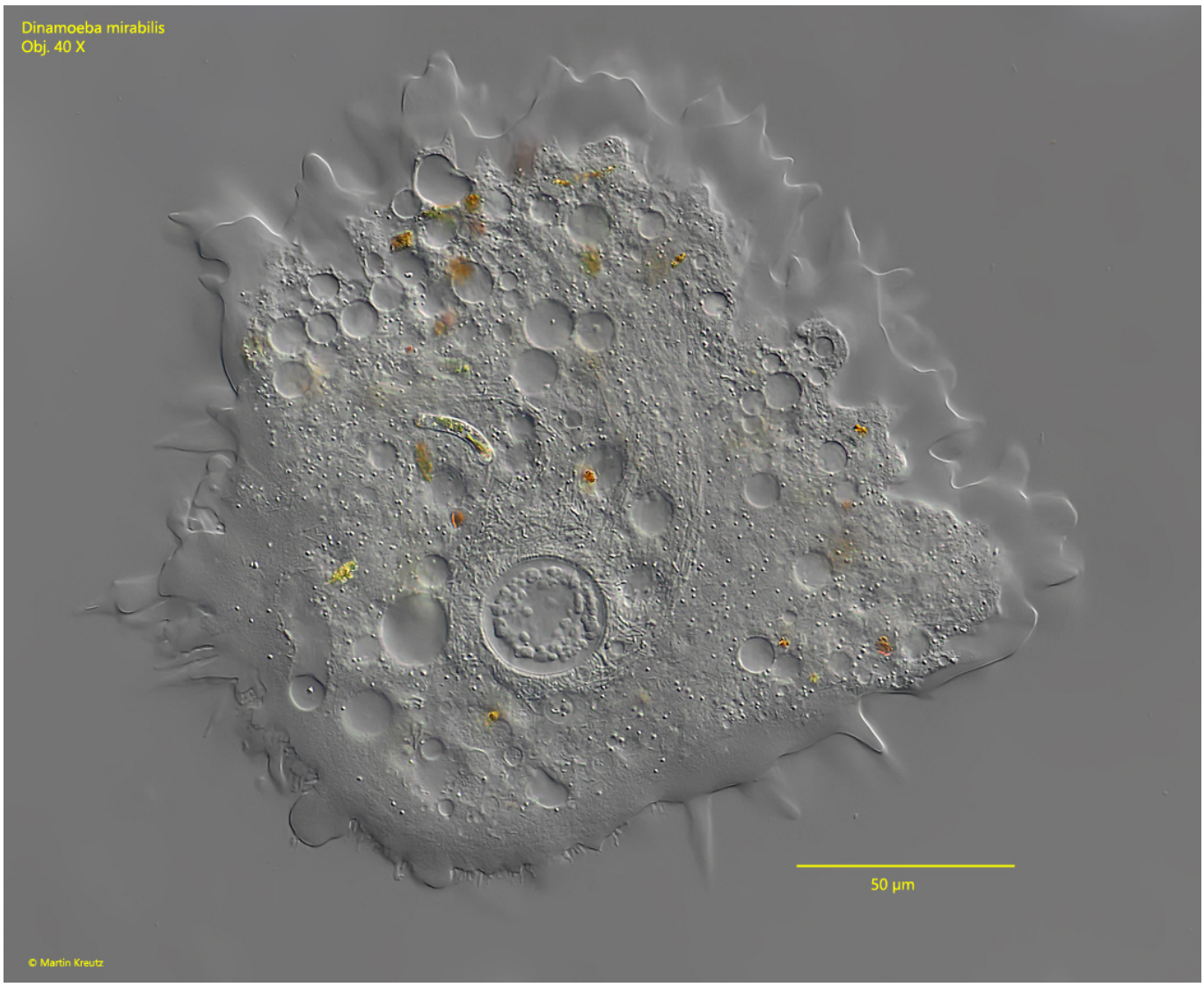


Fig. 2: *Dinamoeba mirabilis*. D = 250 µm. A resting specimen. Obj. 40 X.



Fig. 3: *Dinamoeba mirabilis*. The nucleus is covered with a thick layer of rod shaped symbiotic bacteria. The length of these bacteria is 4-6- µm. Note the cloudy nucleoli in the nucleus and the thin rods of symbiotic bacteria scattered in the plasm (arrows). These thin symbiotic bacteria are 3 – 4 µm long. Obj. 100 X.

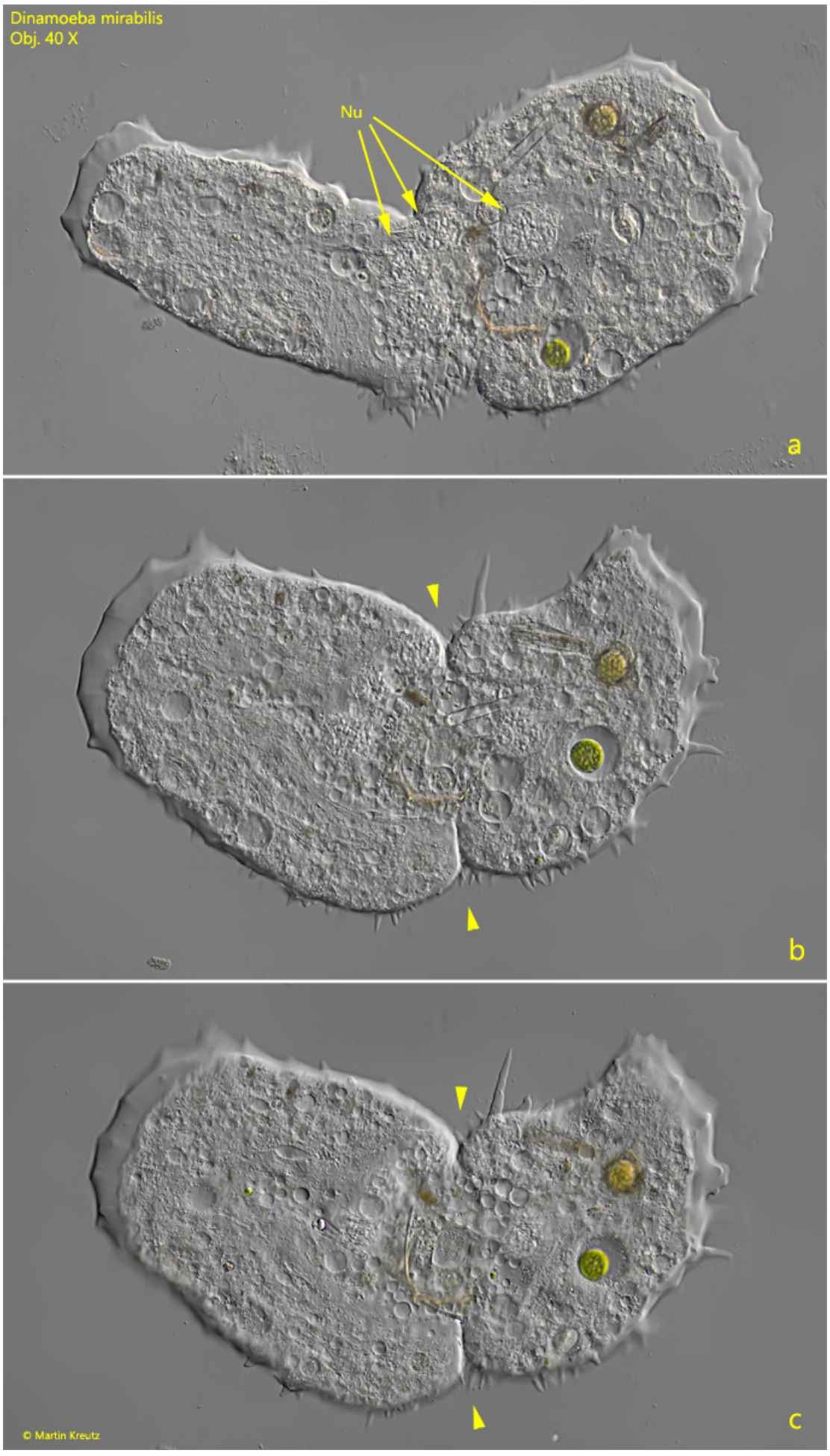

Dinamoeba mirabilis
Obj. 40 X
Nu
a
b
c
© Martin Kreutz

Fig. 4 a-c: *Dinamoeba mirabilis*. L = 240 µm. A specimen with 4 nuclei in the process of cell division. Arrowheads = dividing furrow, Nu = nuclei. Obj. 40 X.

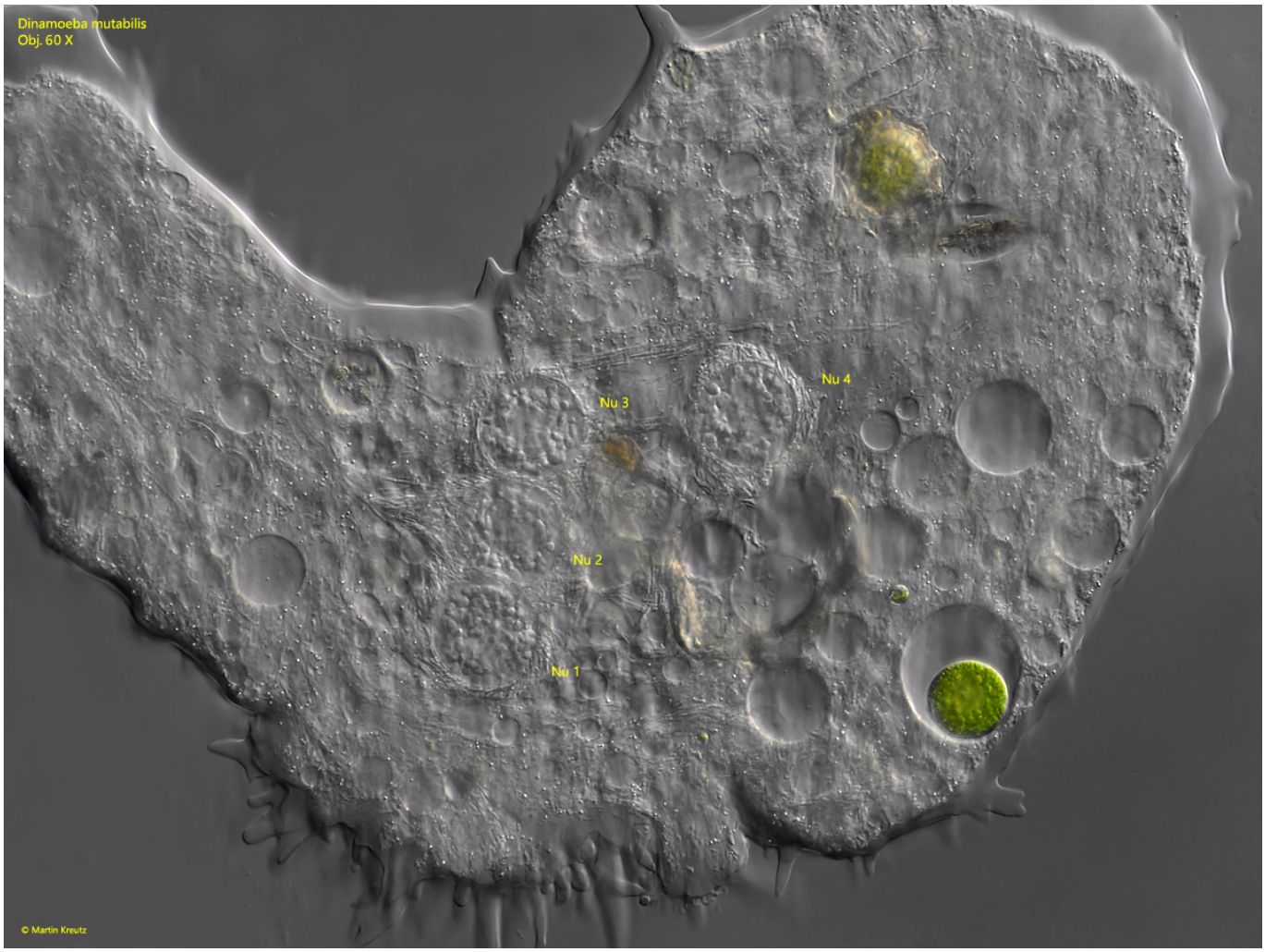


Fig. 5: *Dinamoeba mirabilis*. L = 240 µm. A closer view of the 4 nuclei in the dividing specimen shown in fig. 4 a-c. Obj. 60 X.

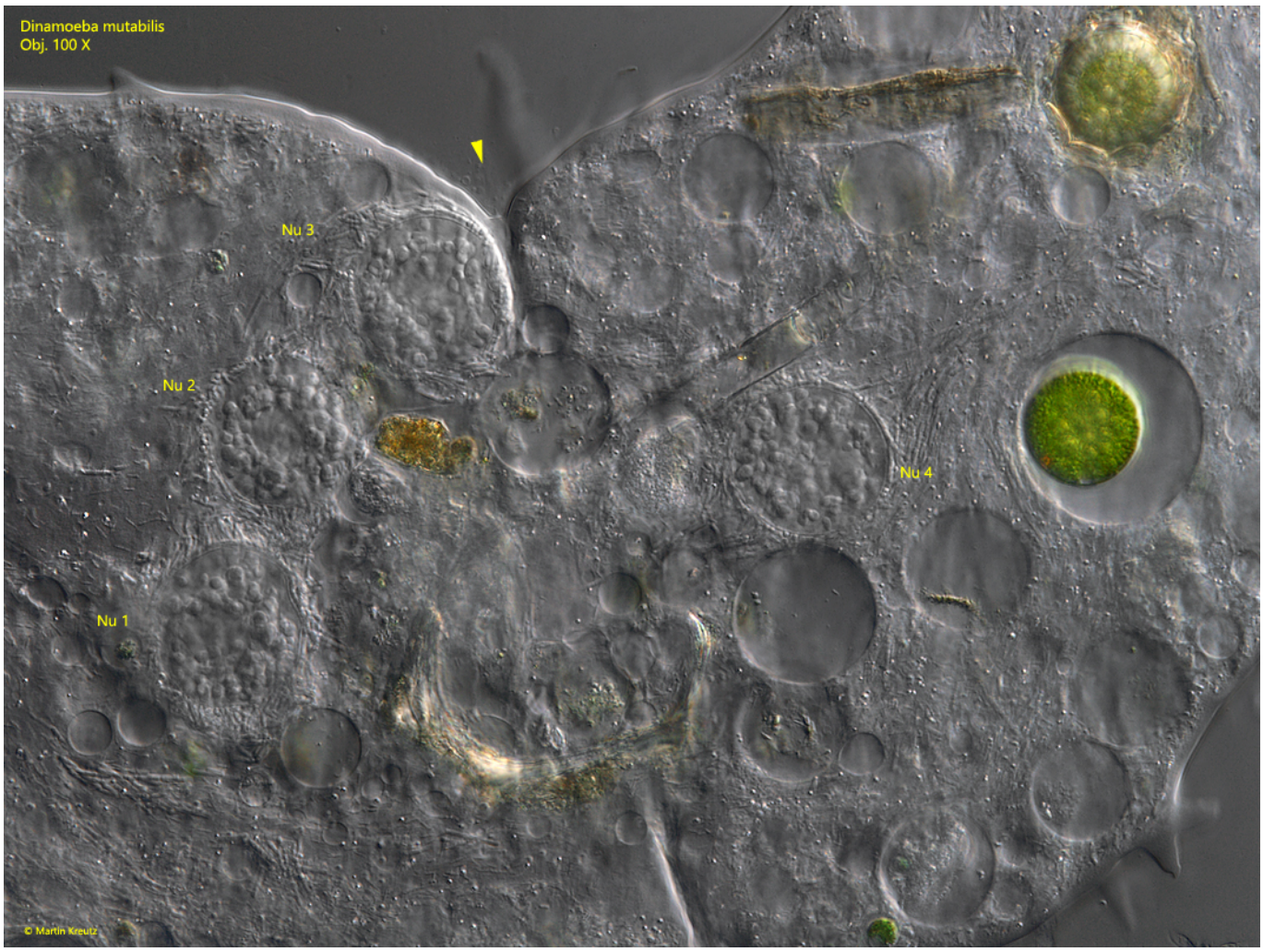


Fig. 6: *Dinamoeba mirabilis*. L = 240 µm. The 4 nuclei of the specimen in division in detail. The division furrow (arrowhead) is clearly visible. Obj. 100 X.

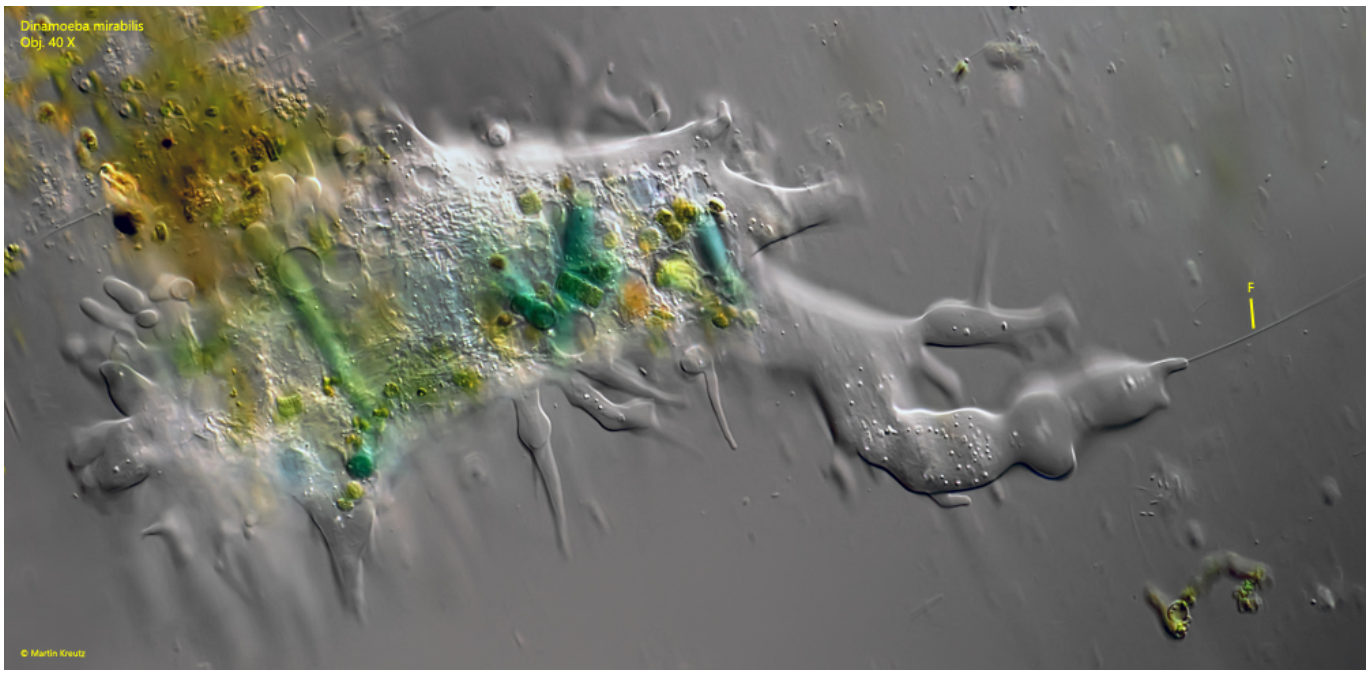


Fig. 7: *Dinamoeba mirabilis*. L = 320 µm. A freely floating specimen with a

flagellum (F). The flagellum arises from the tip of a pseudopodium, which is extended in the direction of flow. Obj. 40 X.



Fig. 8: *Dinamoeba mirabilis*. L = 300 µm. A second freely floating specimen with a flagellum (F). Note the pyriform shape of the specimen. Obj. 20 X.

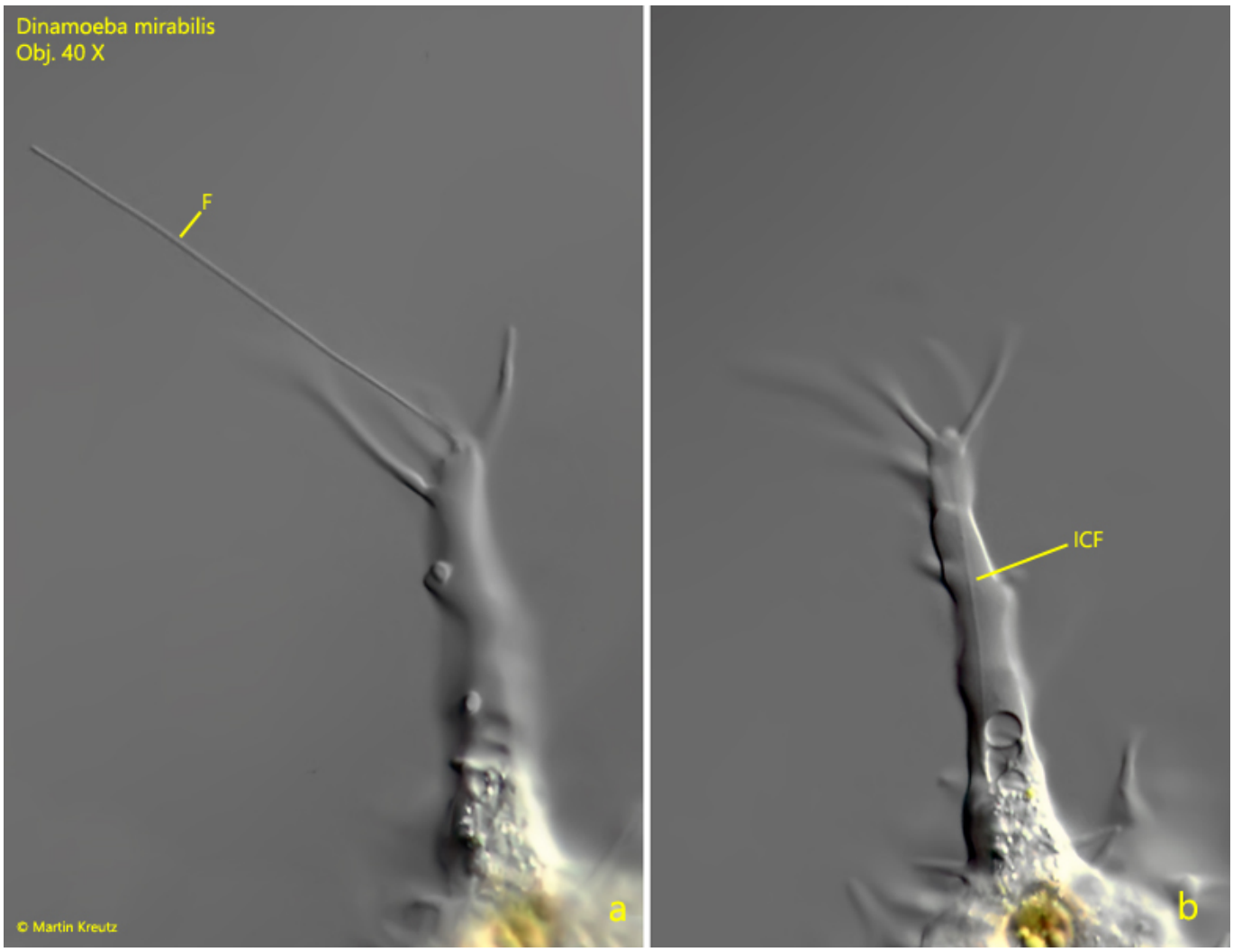


Fig. 9 a-b: *Dinamoeba mirabilis*. L = 300 µm. The straight flagellum (F) is 190 µm long and has a continuation within the plasm of the pseudopodium (ICF). Obj. 40 X.