Phalansterium intestinum Cienkowski, 1870

Most likely ID: n.a.

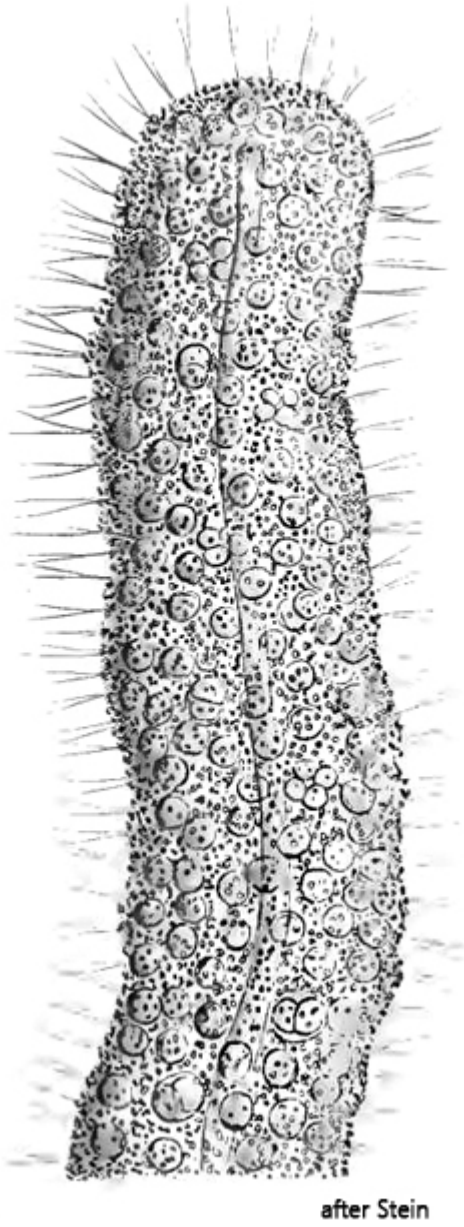
Synonym: *Spongomonas intestinum*

Sampling location: Ulmisried, Purren pond, Simmelried

Phylogenetic tree: *Phalansterium intestinum*

Diagnosis:

- colonies vermiform, brownish or orange-brown
- length of colonies up to 3 cm, width 100–200 µm
- cell spherical, embedded in granular matrix
- diameter of cells about 18 µm
- two flagella of equal length
- one contractile vacuole posterior
- spherical nucleus anterior



Phalansterium intestinum

Originally, this colony-forming flagellate was called *Spongomonas intestinum*. This name was given by Stein in 1878. However, it turned out that Cienkowski had described the same organism 8 years earlier as *Phalansterium intestinum*.

I find *Phalansterium intestinum* very frequently, especially among floating plant masses. *Phalansterium intestinum* is particularly easy to isolate in old samples, as the colonies often settle on the vessel walls, where they can be recognized as brown flakes.

The colonies are vermiform and can be several centimeters long (s. fig. 1). They are usually

orange-brown in color. The colonies consist of a gelatinous matrix in which many spherical granules are embedded (s. fig. 4). Close to the surface the spherical cells are located, which build up the colonies. They are embedded in the matrix up to the anterior end. From there, the two flagella of equal length are extended to swirl food towards them. The inner structure of the cells is difficult to recognize due to the opaque matrix. In addition, the cells react sensitively to coverslip pressure and leave the colonies. The released cells can then be examined more closely. According to my observations, the contractile vacuole is not located at the posterior end, but at the level of the cell equator (s. fig. 6).

Fig. 1: *Phalansterium intestinum*. L = about 1 cm. Total view of an accumulation of several vermiform colonies. Obj. 4 X.

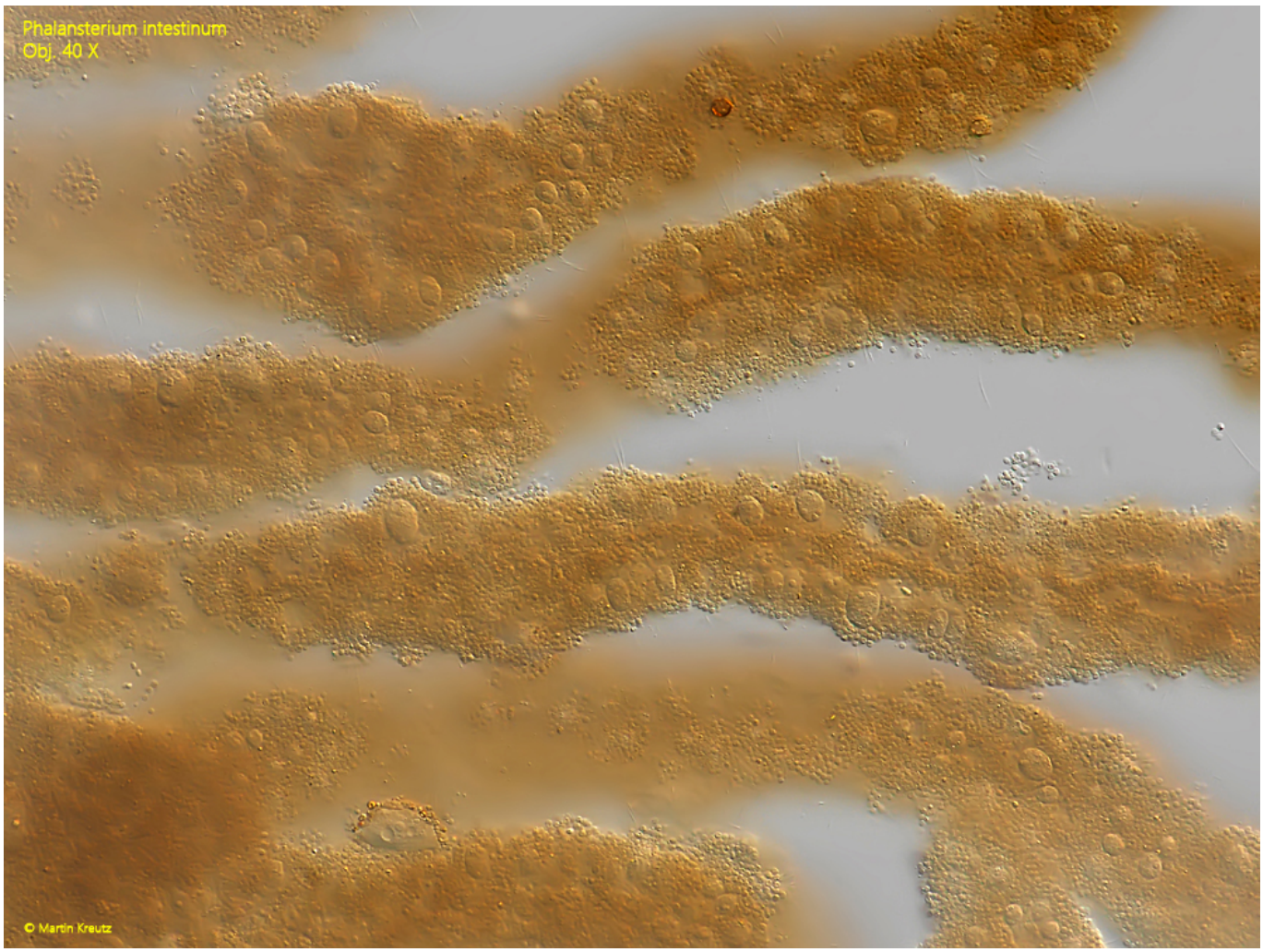


Fig. 2: *Phalansterium intestinum*. The colonies as shown in fig. 1 in detail. Note the spherical cells scattered in the granular matrix. Obj. 40 X.

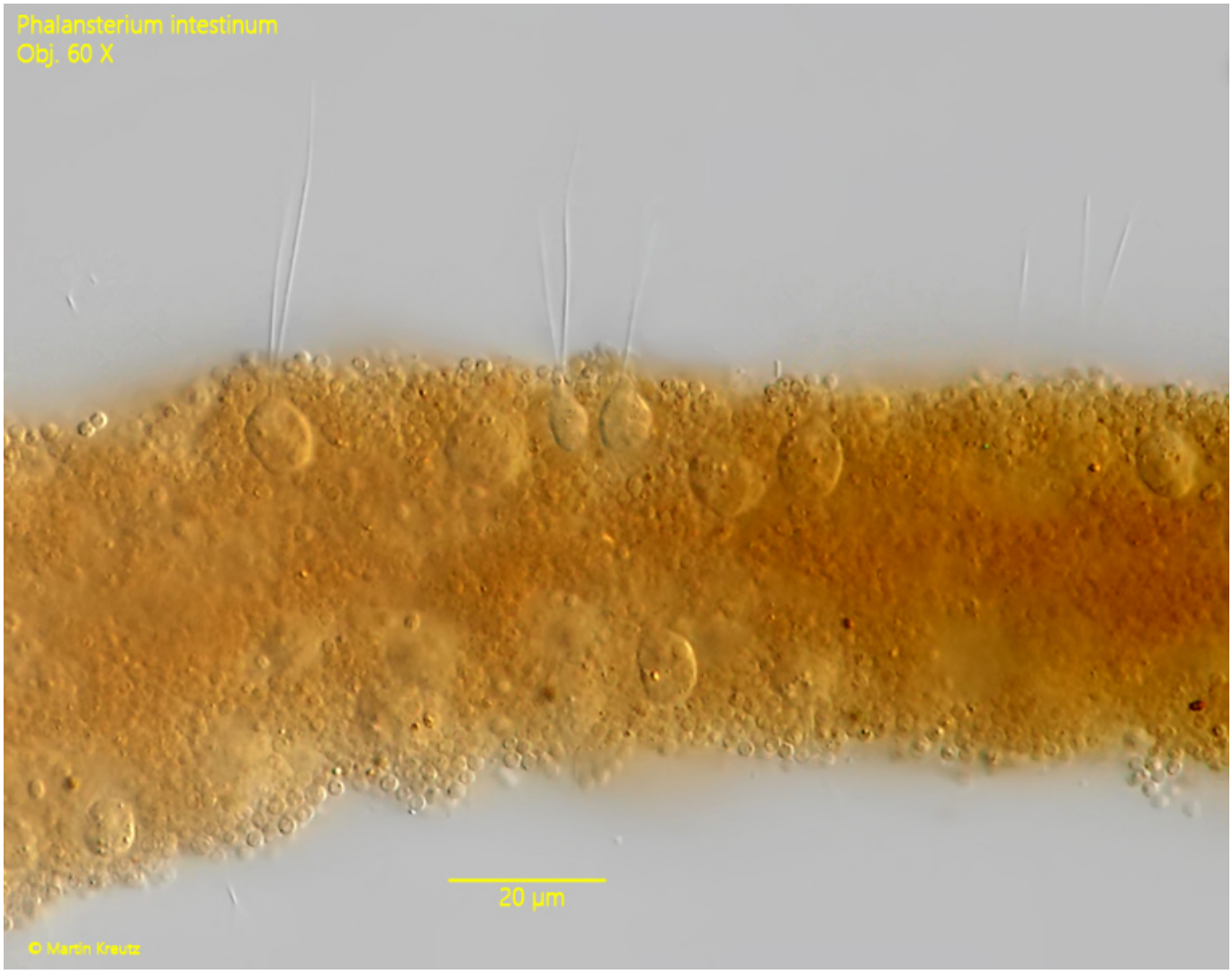


Fig. 3: *Phalansterium intestinum*. L = 8–12 µm (of cells). The cells in the colonies are located near the surface the granular matrix. The cells appear blurred because the granular matrix makes observation difficult. Obj. 60 X.

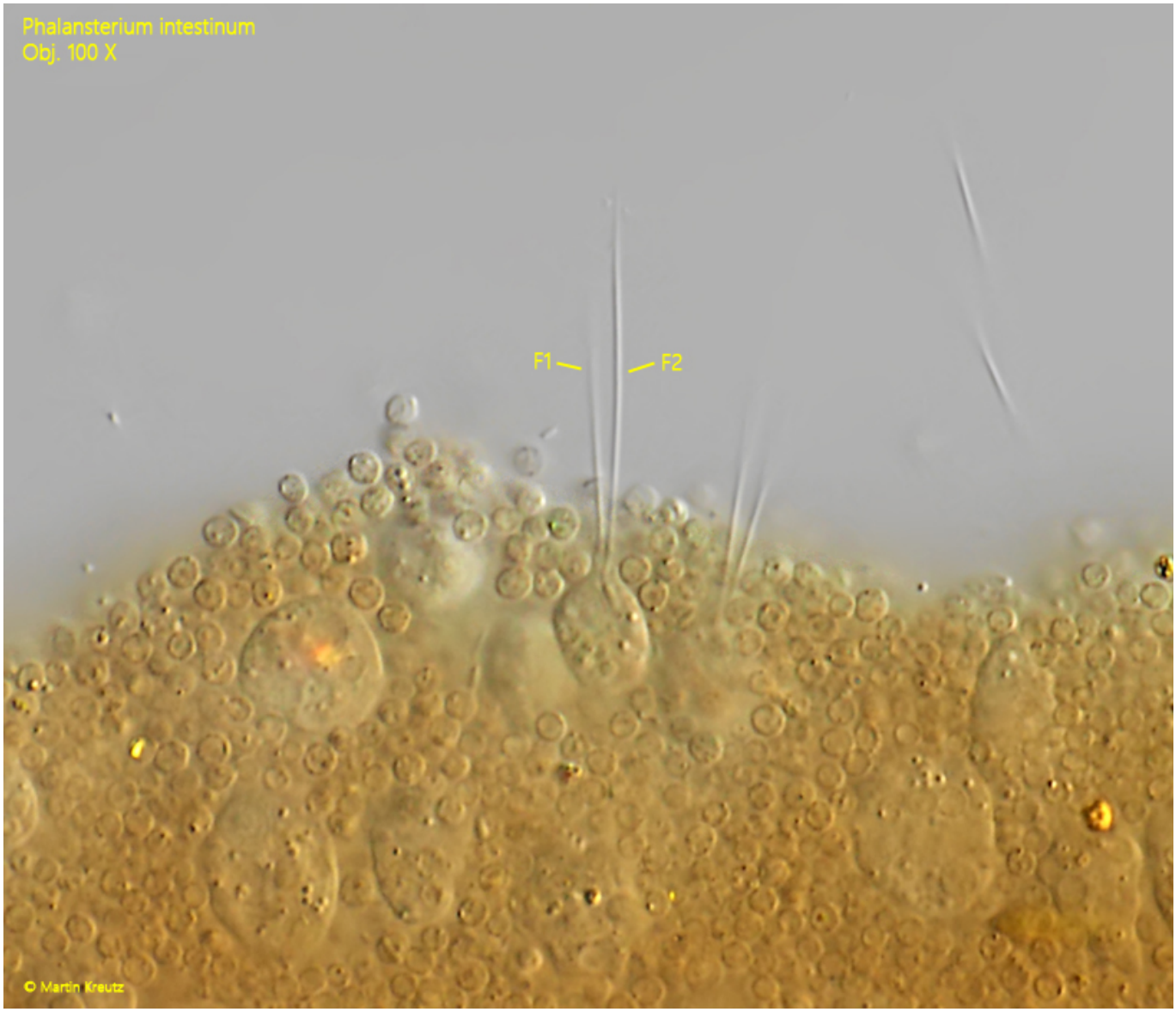


Fig. 4: *Phalansterium intestinum*. L = 8.6 µm (of cell). The cells have each two flagella (F1, F2) if equal length. The brownish granules in the matrix have a diameter of about 2 µm. Obj. 100 X.

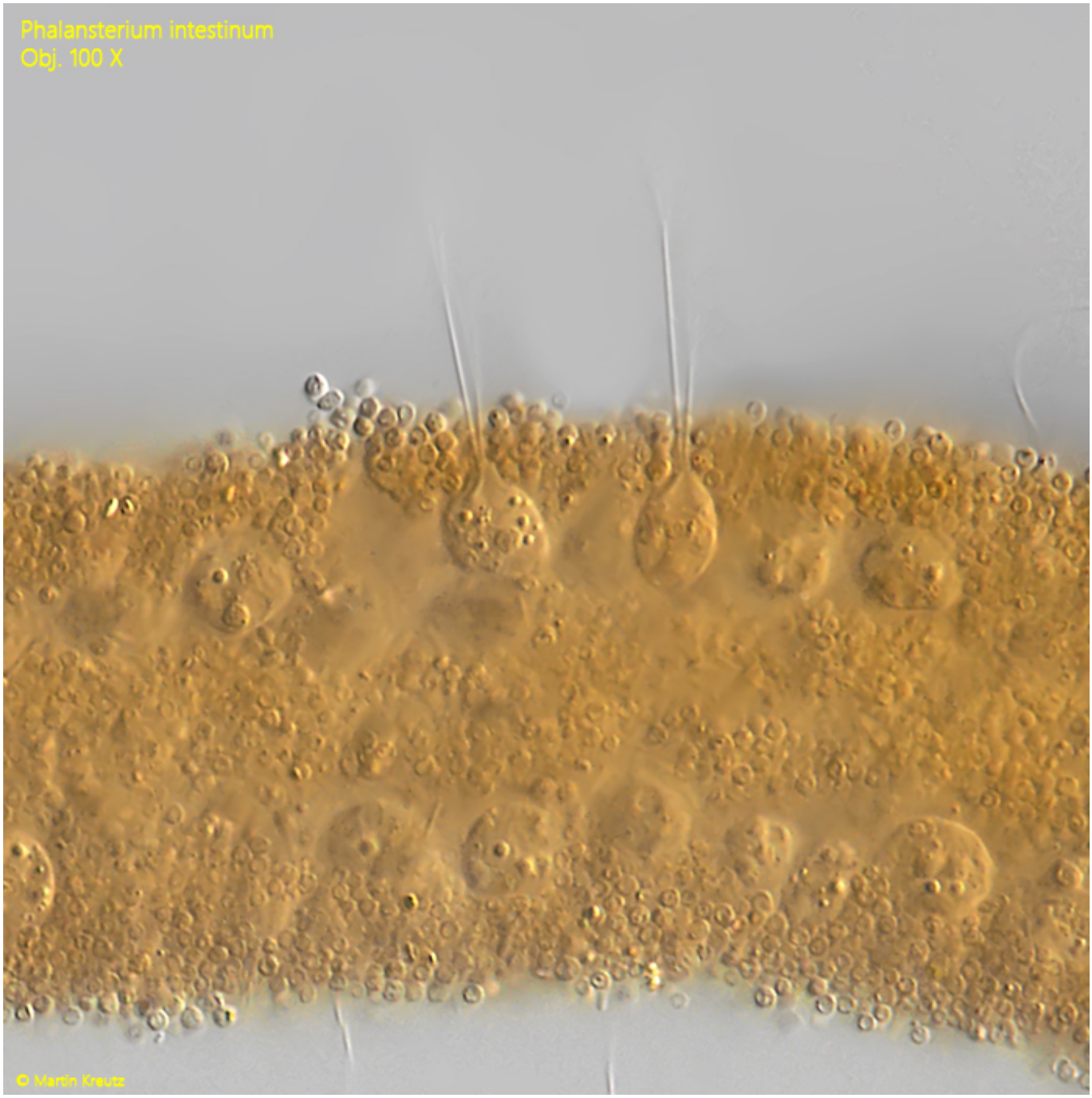


Fig. 5: *Phalansterium intestinum*. L = 9–11 µm (of cells). The cells in a second colony. Obj. 100 X.

Fig. 6: *Phalansterium intestinum*. L = 8.2 µm. A released cell from the colony. Note the nucleus (Nu) with a central nucleolus and the the contractile vacuole located near cell equator. F = flagella. Obj. 100 X.