Volvox aureus Ehrenberg, 1832

Most likely ID: n.a.

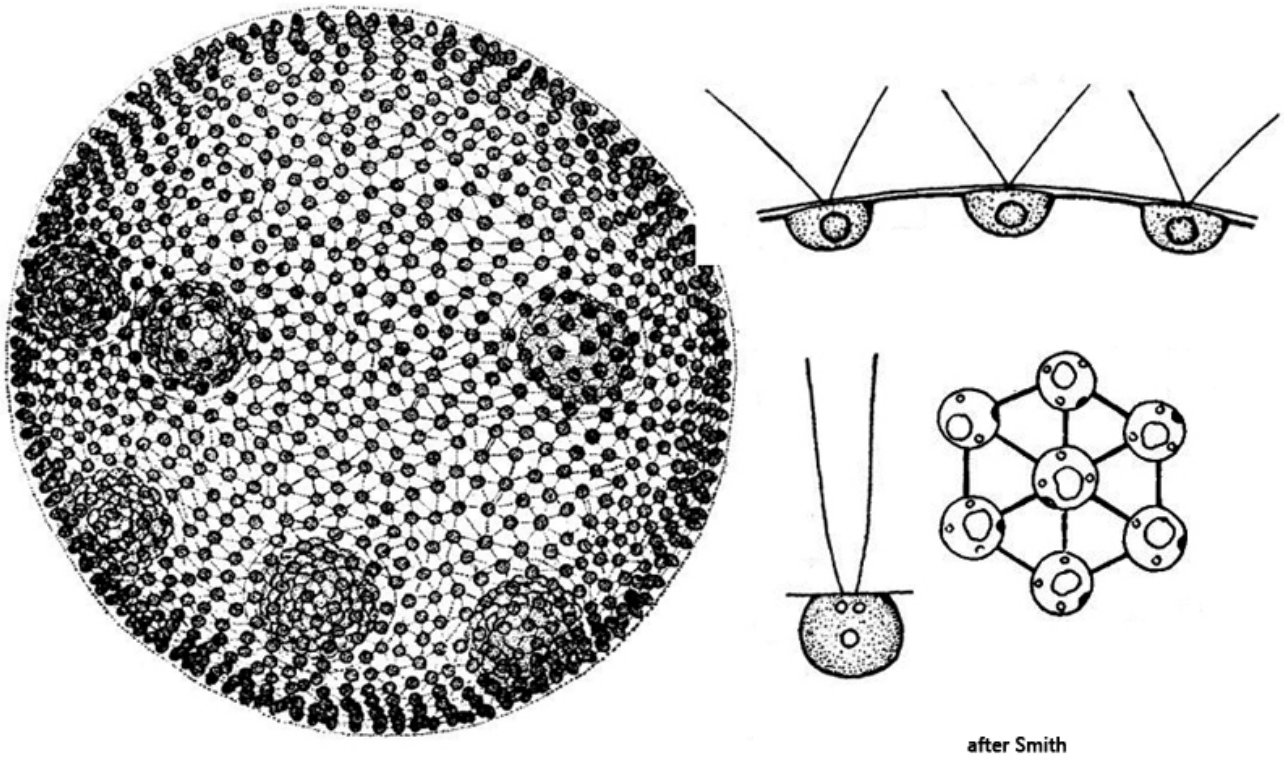
Synonym: n.a.

Sampling location: Hepbacher-Leimbacher Ried (Markdorf)

Phylogenetic tree: *Volvox aureus*

Diagnosis:

- coenobia spherical or ellipsoid
- diameter 400–600 µm
- 500–3500 cells per coenobium
- conenobia filled with daughter coenobia, female spheroids or male spheroids
- cells arranged as spherical monolayer
- cells connected via protoplasmis strands
- spherical cells (7–9 µm) embedded in homogenous gelatinous mass
- two contractile vacuoles
- two flagella, equal length
- one parietal chloroplast, pyrenoid absent
- one eyespot



Volvox aureus

Volvox aureaus is the most common member of this genus and sometimes occurs in masses. In the sample containers, the specimens are concentrated on the side of the container facing the light and are easy to collect.

The shape of the cells and the type of connection between them is important for identification. In *Volvox aureus*, the cells are spherical in apical view (s. fig. 5) and oval to ellipsoid in lateral view (s. fig. 7). The cells are connected to each other by thin filaments of cytoplasm, resulting in a hexagonal pattern (s. figs. 3, 4 and5 4). According to my observations, these thin filaments can also be present multiple in parallel (s. figs. 3 and 4). The cells are embedded in a gelatinous matrix, which appears completely homogeneous. The spherical coenobium may contain either daughter colonies (asexual reproduction) or male or female spheroids (sexual reproduction). The area in which the cells possess an enlarged eyespot is regarded as the anterior end of the colony (s. fig. 6).


Volvox aureus
Obj. 20 X
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a

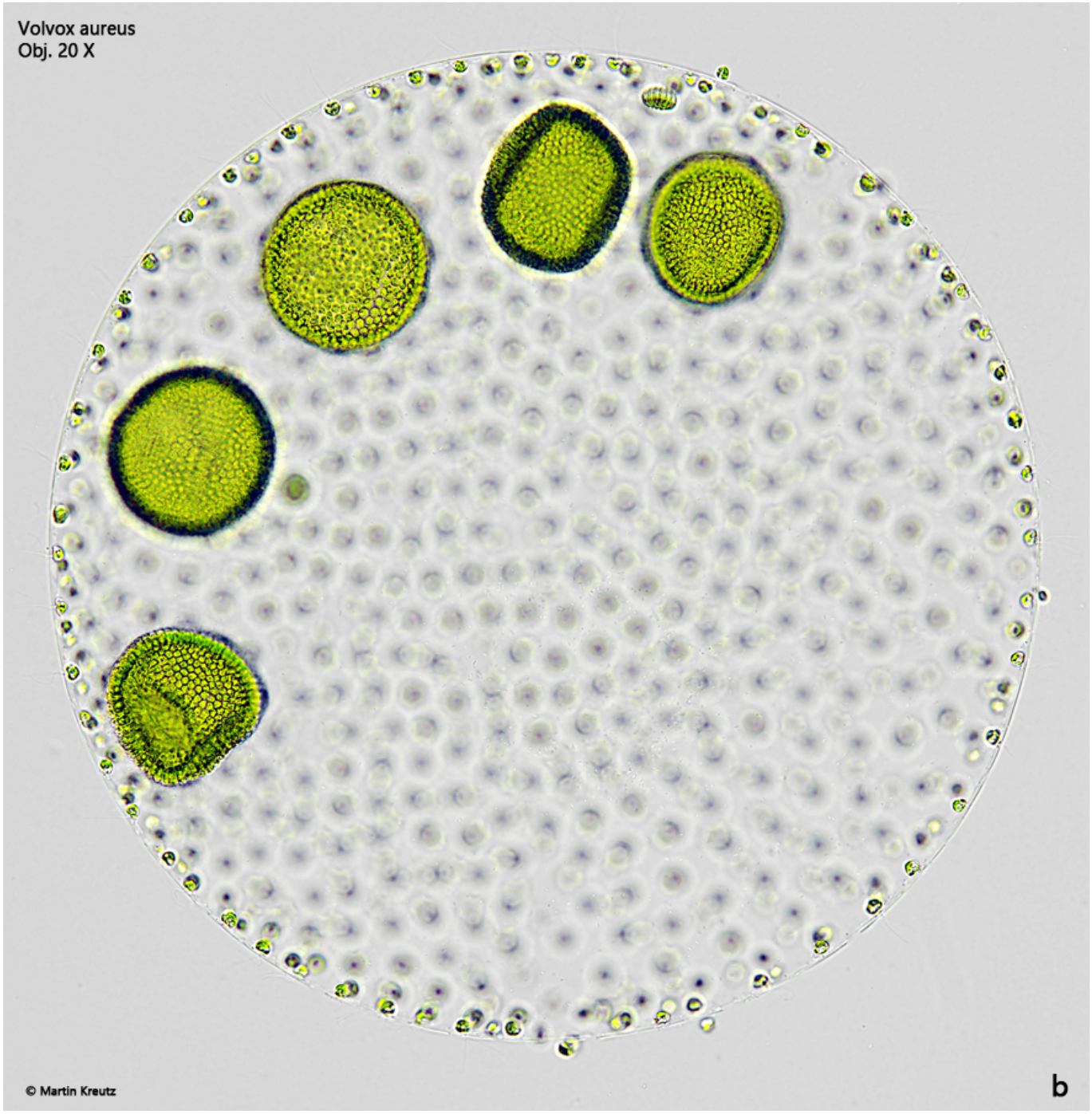


Fig. 1 a-b: *Volvox aureus*. D = 550 µm. Two focal planes of a slightly squashed coenobium in brightfield illumination. Obj. 20 X.

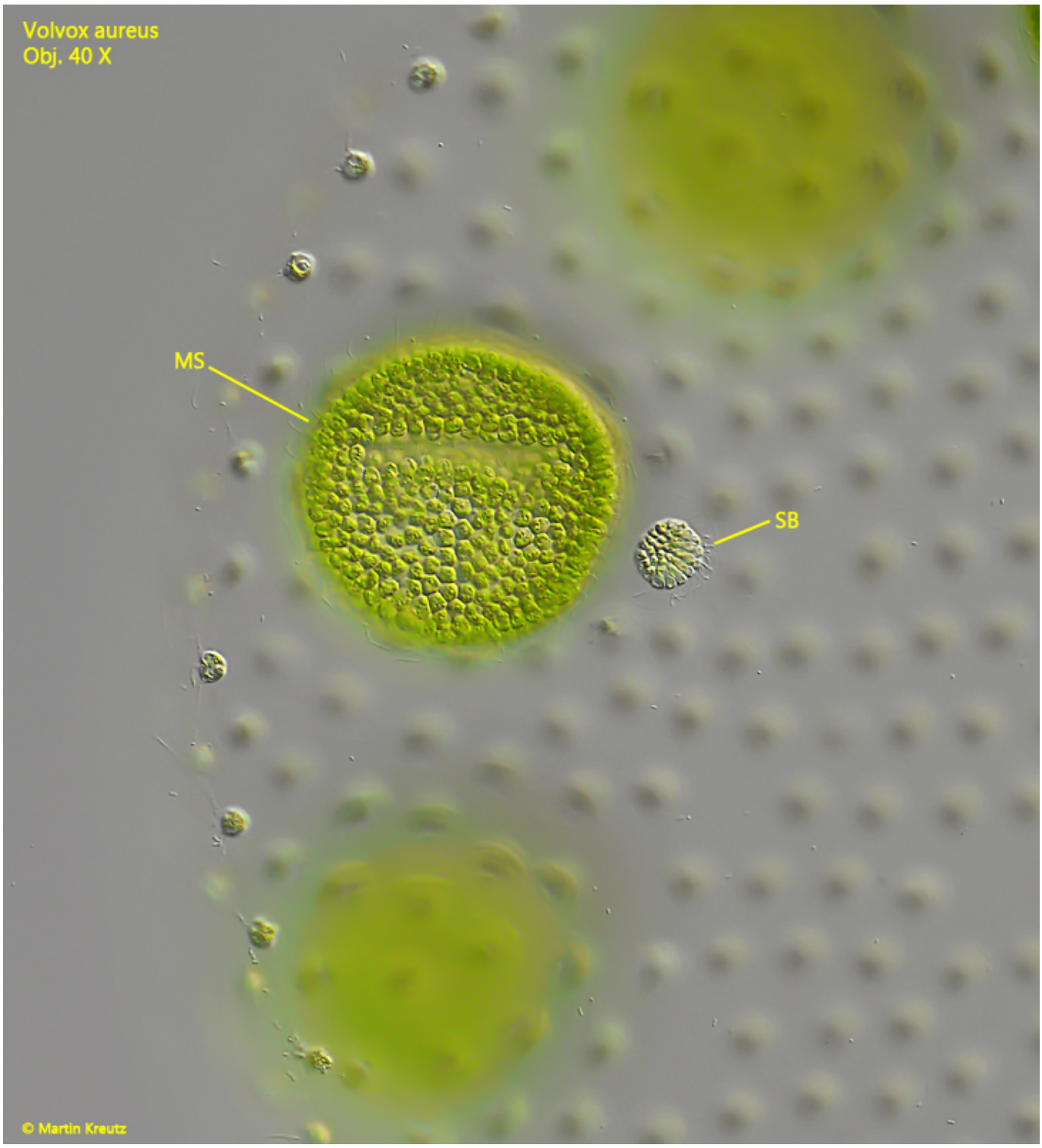


Fig. 2: *Volvox aureus*. In the coneobium as shown in fig. 1 a-b male spheroids (MS) as well as sperm bundles (SB) are visible. Obj. 40 X.

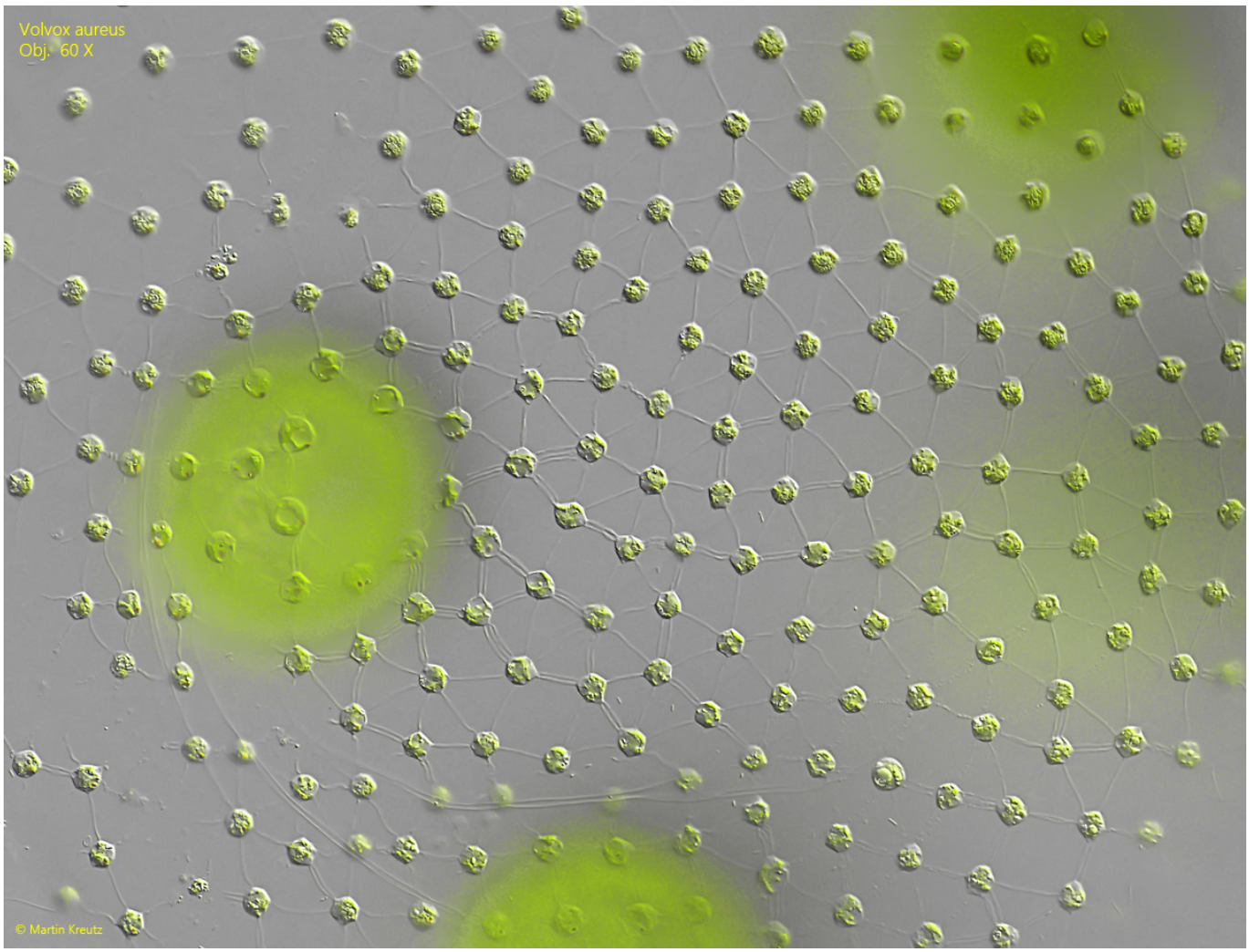


Fig. 3: *Volvox aureus*. The cells on the surface of the spherical coenobium are connected via thin filaments of cytoplasm forming a hexagonal pattern. Obj. 100 X.

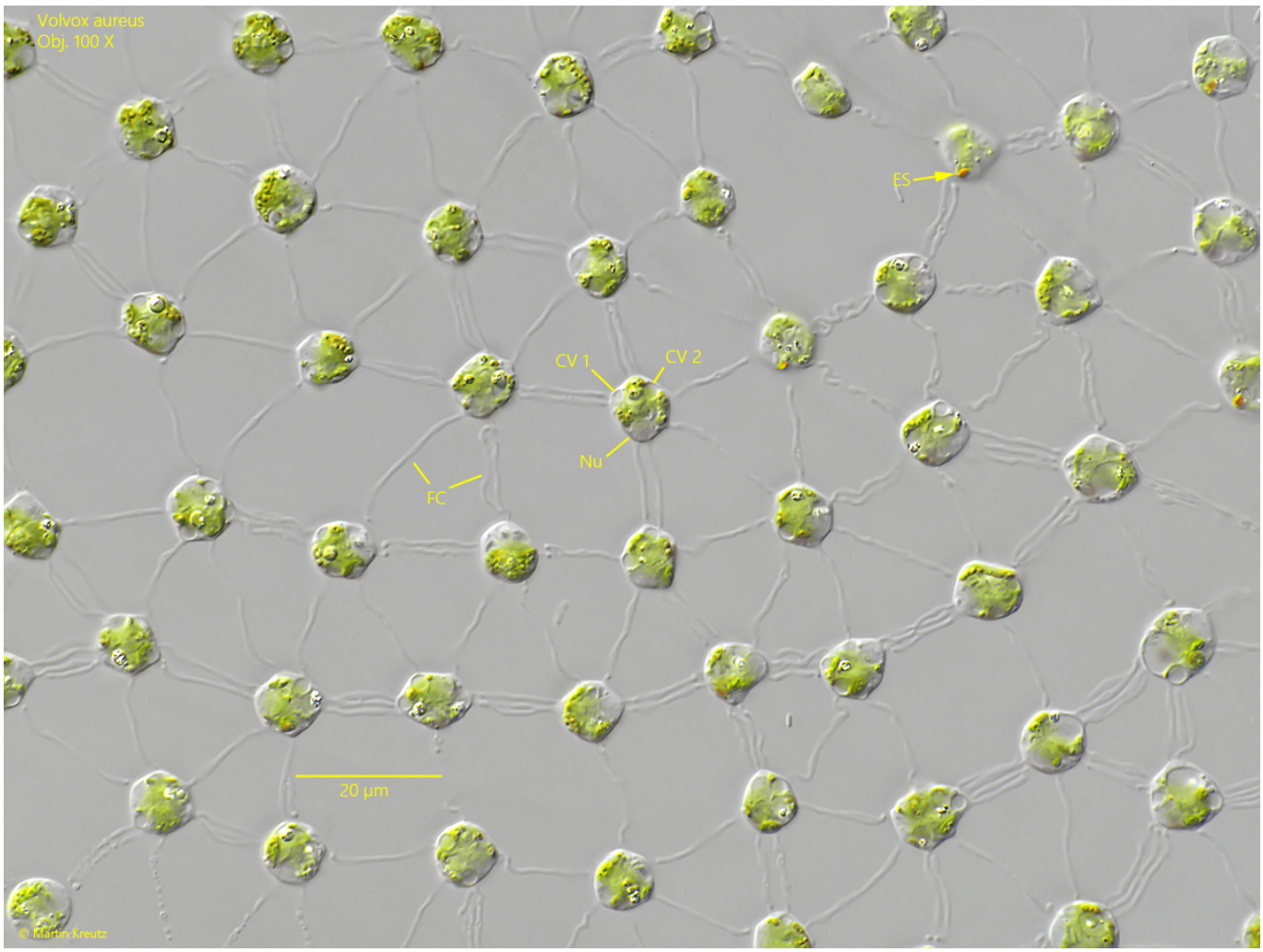


Fig. 4: *Volvox aureus*. The cells on the surface of the spherical coenobium in detail. The thin filaments of cytoplasm (FC) can be double or triple. Note the two contractile vacuoles (CV 1, CV 2) of each cell. ES = eyespot, Nu = nucleus. Obj. 100 X.

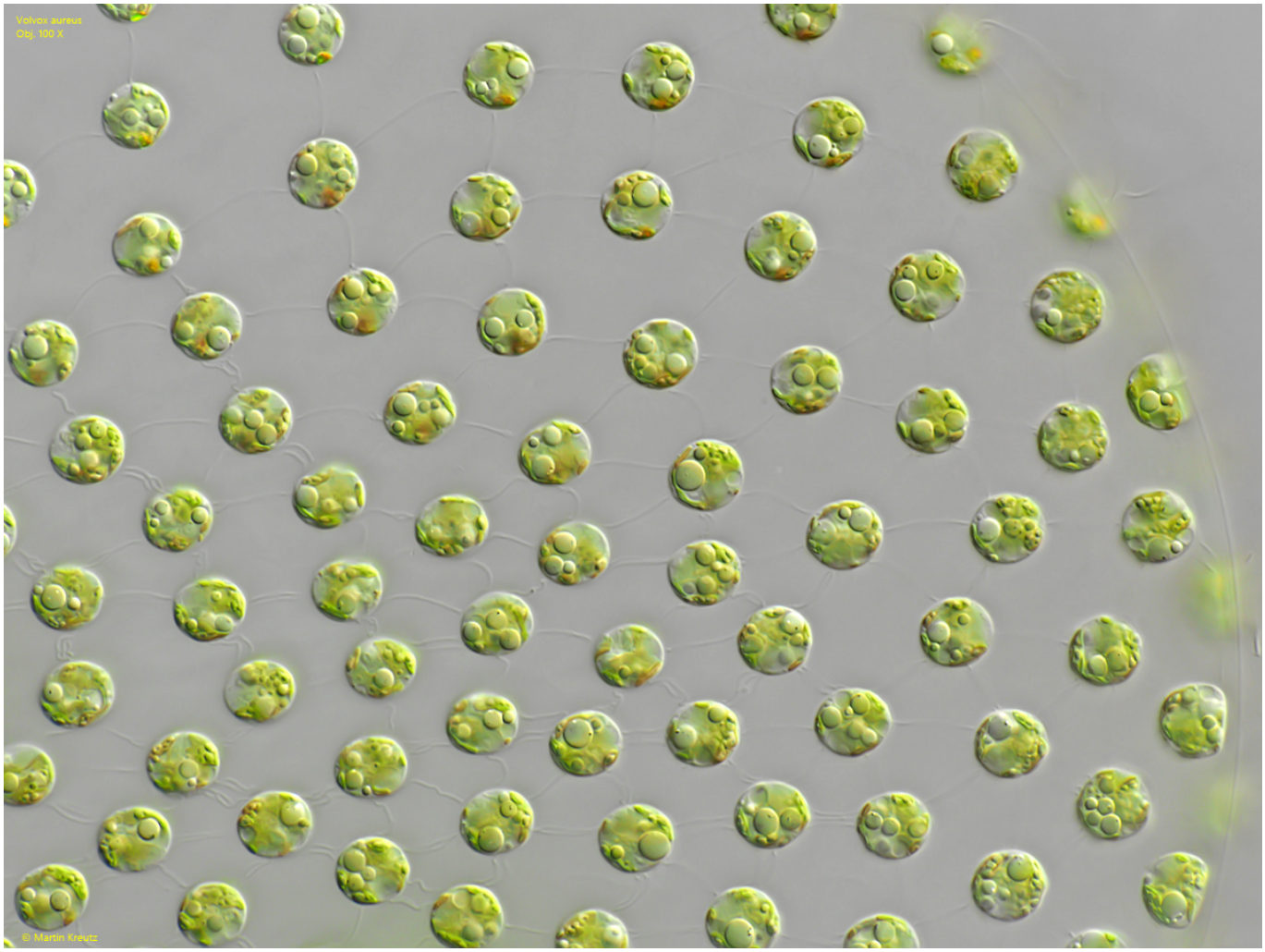


Fig. 5: *Volvox aureus*. The cells on the surface of a second coenobium with the thin filaments of cytoplasm between them. Obj. 100 X.

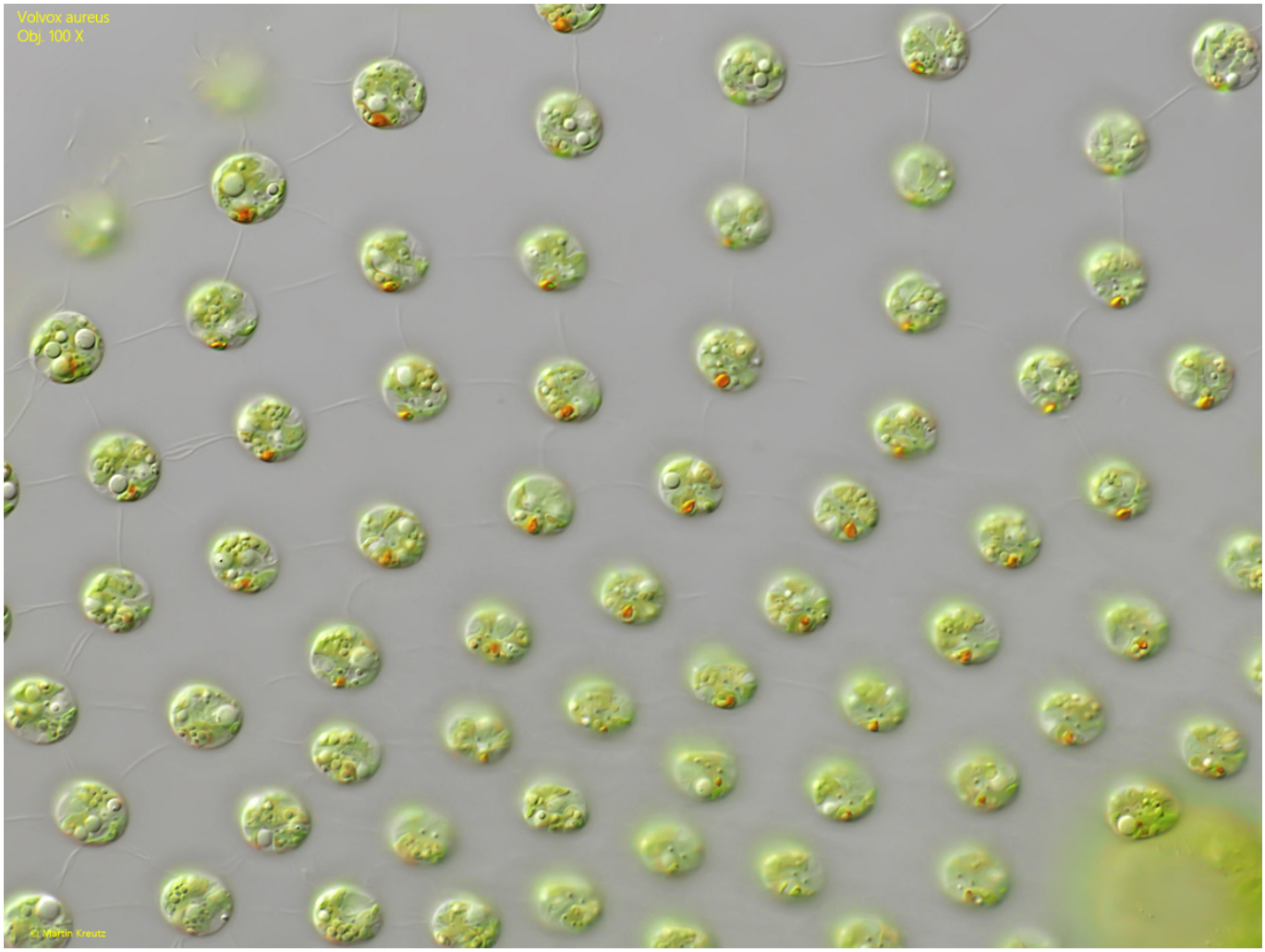


Fig. 6: *Volvox aureus*. The anterior end of the coenobium is the area where the cells habe enlarged eyespots. Obj. 100 X.

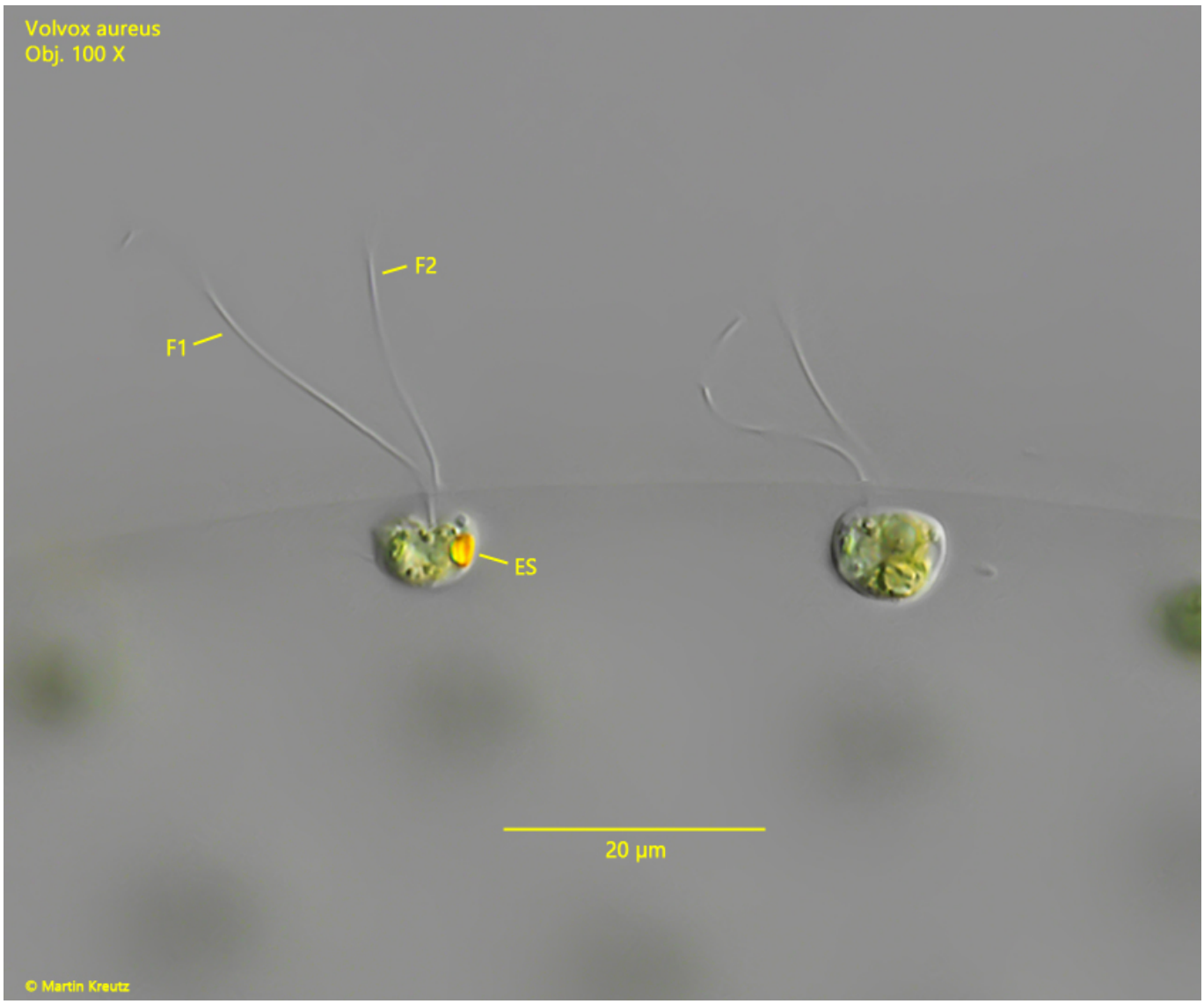


Fig. 7: *Volvox aureus*. The cells on the surface of the spherical coenobium in lateral view. Each cell has two flagella of equal length (F1, F2) and an eyespot. The cells have a diameter of 9 µm. Obj. 100 X.