Synoikomonas phaneros Skuja 1964

Most likely ID: n.a.

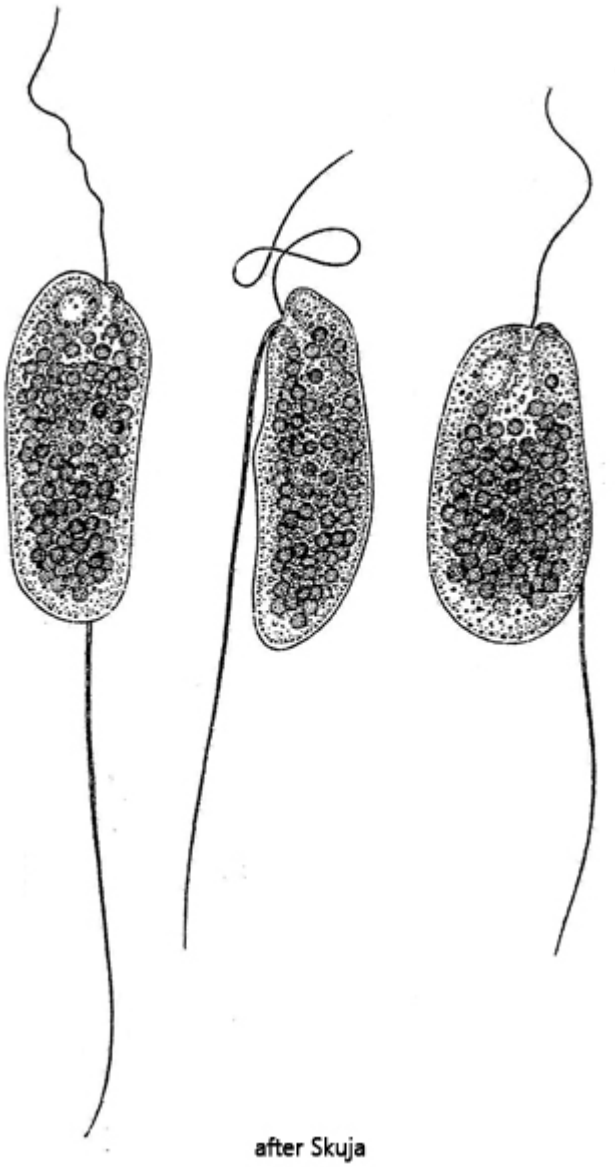
Synonym: n.a.

Sampling location: Simmelried

Phylogenetic tree: *Synoikomonas phaneros*

Diagnosis:

- body ovoid to cylindrical, dorso-ventrally slightly flattened
- length 32–43 µm, width 14–25 µm
- pharynx sub-apical
- 2 flagella
- leading flagellum about body length
- trailing flagellum about 2.5 body length
- cytoplasm filled with blueish-green cyanelles (about 150)
- cyanelles arranged parietally
- cyanelles spherical, diameter 2–2.7 µm, with lighter central area
- spherical nucleus with central nucleoli
- pellicle smooth, without striation



Synoikomonas phaneros

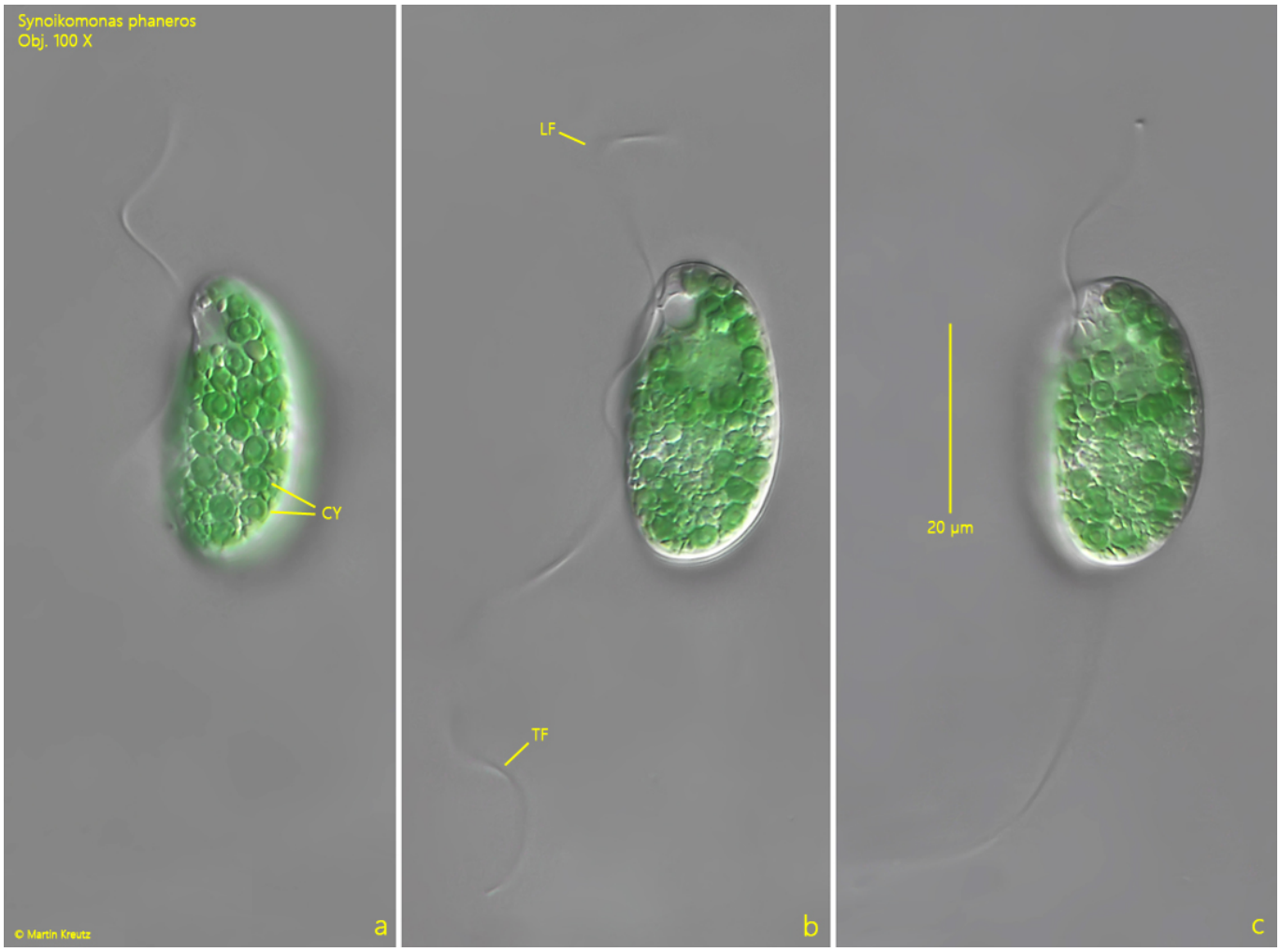
So far I have only found 2 specimens of *Synoikomonas phaneros*. Both originate from the Simmelried and had settled on the floating coverslip.

This interesting flagellate stands out due to its blueish-green color, which is caused by symbiotic cyanobacteria known as cyanelles. The flagellate is otherwise colorless. In *Synoikomonas phaneros* the cyanelles are arranged parietally directly beneath the pellicle. They were described very precisely by Skuja (1964). They are spherical and resemble cells of the genus *Synechocystis*. They are somewhat lighter in their central area. In DIC, the center of the cyanelles is contrasted as an area of increased optical density (s. fig. 2).

Synoikomonas phaneros swims quite fast, whereby the propelling (pulling) leading

flagellum is considerably shorter than the long trailing flagellum (s. fig. 1 b). The contractile vacuole is clearly subapical, just like the pharynx (s. figs. 1 b and 1 f). In his population, Skuja localized the nucleus near the middle of the body. In my specimens it was clearly located in the anterior half (s. fig. 1 f). In addition to the cyanelles, the cytoplasm is filled with small, somewhat irregularly shaped starch granules (s. fig. 2).

Synoikomonas phaneros can easily be confused with flagellated swarmers of *Gloeochaete wittrockiana*. This alga also has symbiotic cyanelles and it can form mobile swarmers with a leading flagellum and a trailing flagellum. However, the swarmer of *Gloeochaete wittrockiana* are only 18–25 µm long (Skuja, 1956) and the cyanelles are comma-shaped and not spherical as in *Synoikomonas phaneros*.



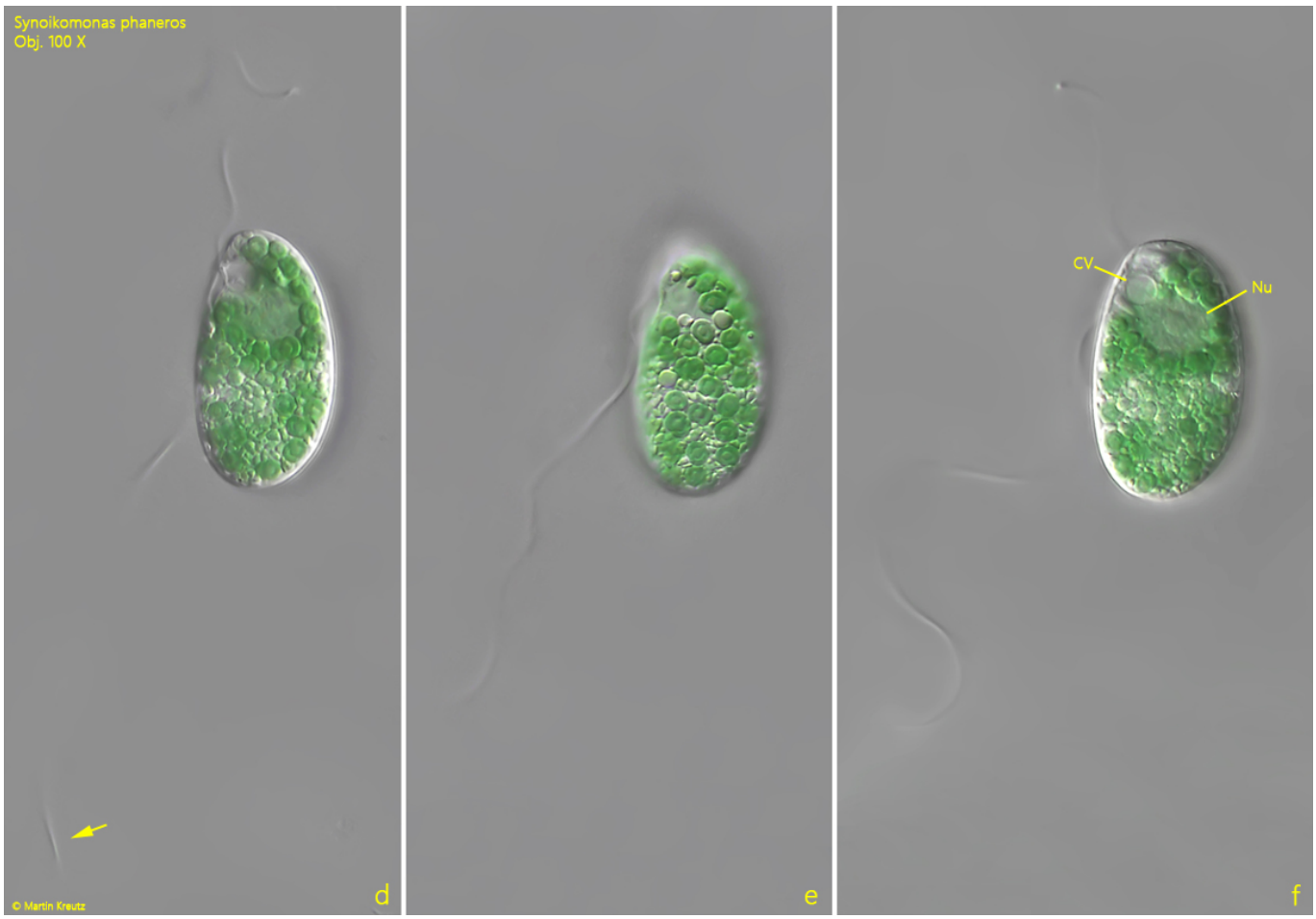


Fig. 1 a-f: *Synoikomonas phaneros*. L = 34 µm. A freely swoímming specimen. Note the blueish-green cyanelles (CY) in the cytoplasm. The trailing flagellum has a length of about 70 µm (arrow). CV = contractile vaculoe, LF = leading flagellum, Nu = nucleus, TF = trailing flagellum. Obj. 100 X.

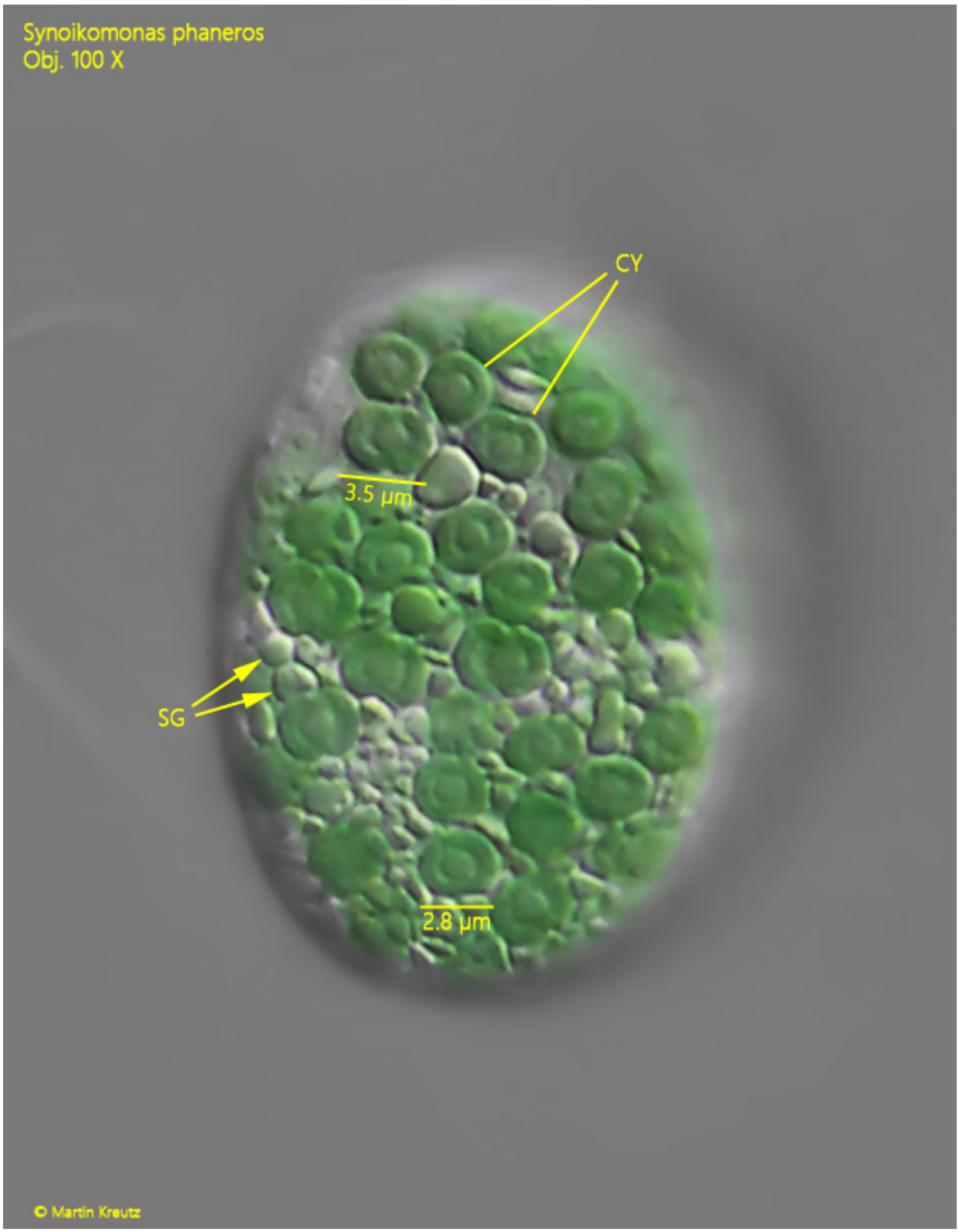


Fig. 2: *Synoikomonas phaneros*. The symbiotic cyanelles (CY) in a slightly squashed specimen. They are spherical with a diameter of about 2.8 µm with a lighter central area. Some cyanelles are in the process of cell division and have a diameter of 3.5 µm. SG = starch grains. Obj. 100 X.