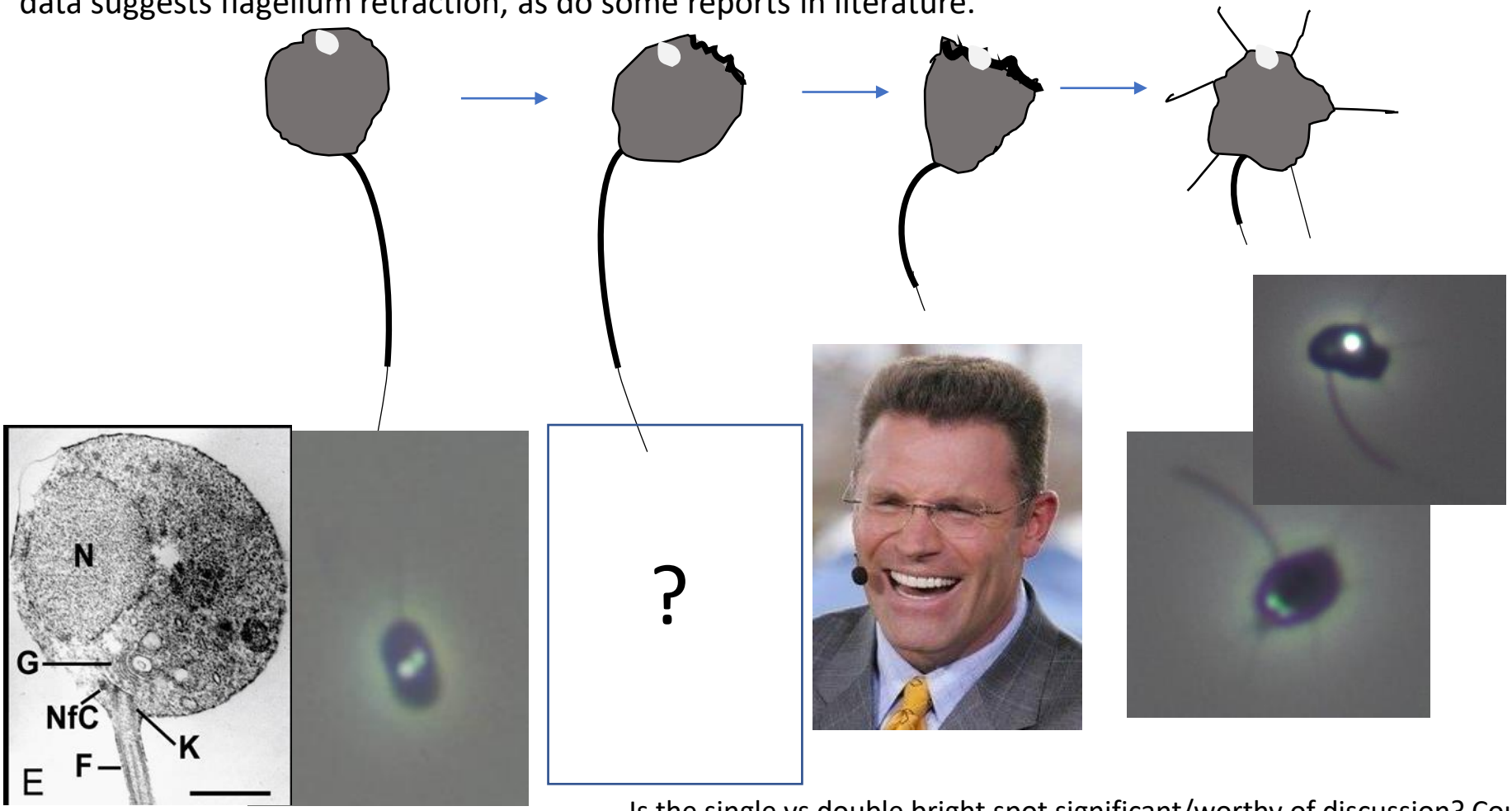
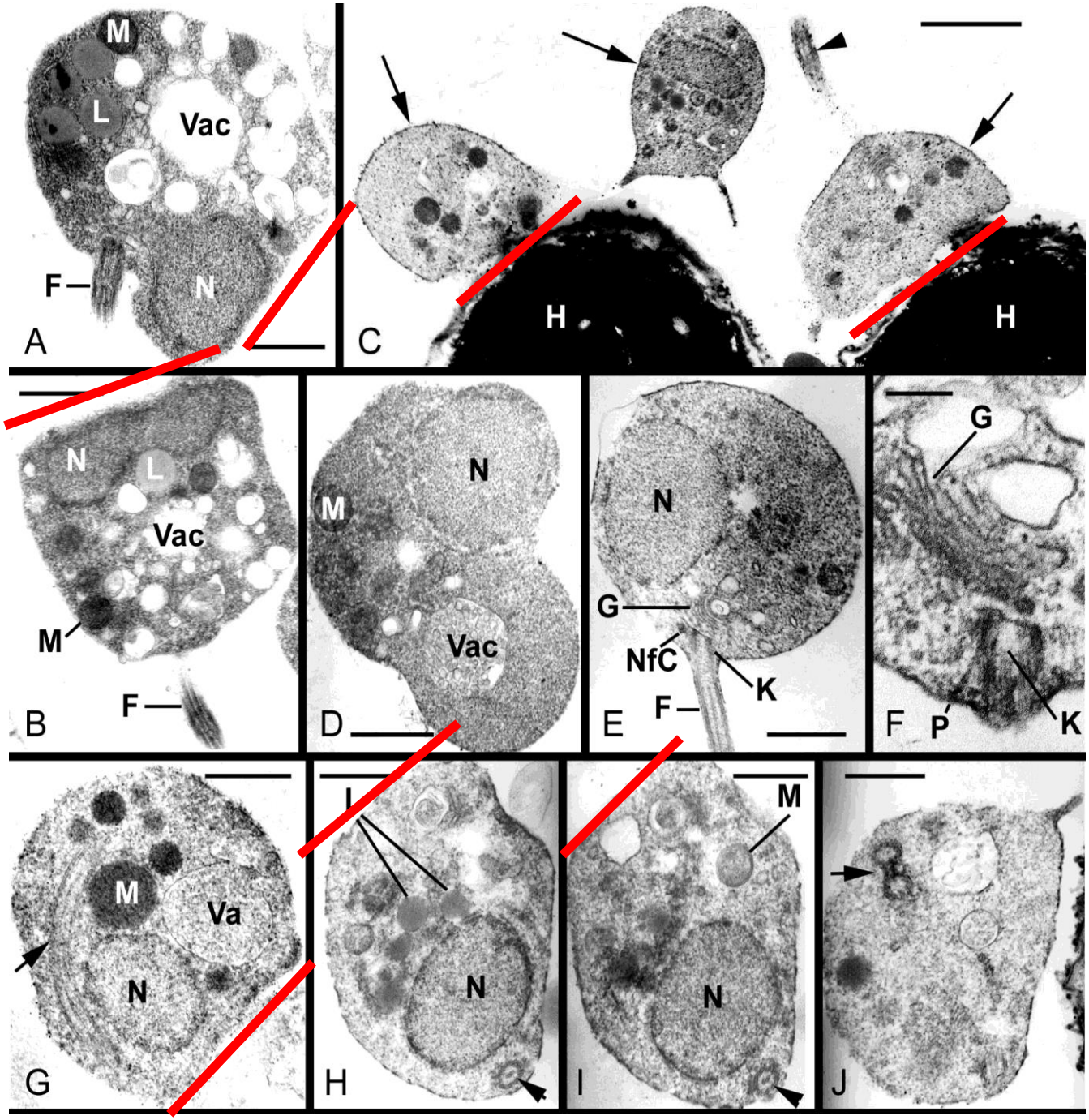
My recollection of FD104 is of a motile somewhat round spore that sometimes appeared thicker/darker and flatter at the opposite side to the flagellum. I think that this was particularly demonstrated when transitioning from swimming to amoeboid movement. It would almost appear like it had a flattop at one stage, one of my least favorite 80's looks and one that I consider very American and always reminds me of Howie Long now, but before being introduced to the NFL probably reminded me of Vanilla Ice or Val Kilmer. The flagellum appeared to retract during transition but I suppose we couldn't say that it wasn't just going out of view behind the body but that seems unlikely. These are recollections that should be run by the expert Sal of course. Kalli is looking for more pictures and videos that may argue for or against my memory. I think your data suggests flagellum retraction, as do some reports in literature.



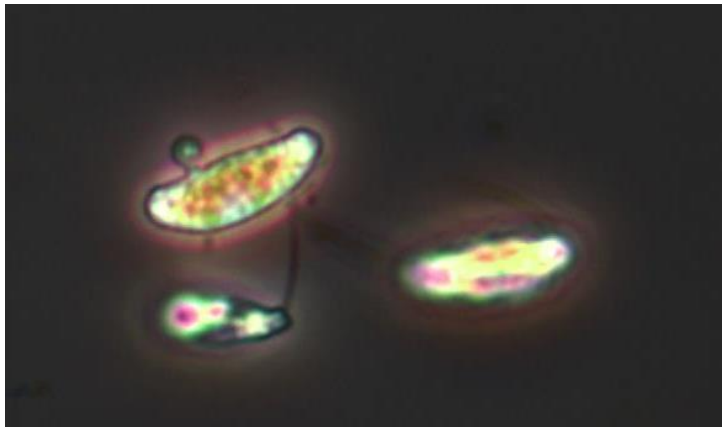
Is the single vs double bright spot significant/worthy of discussion? Could the ones used in paper just be slightly overexposed so that the two look like one?

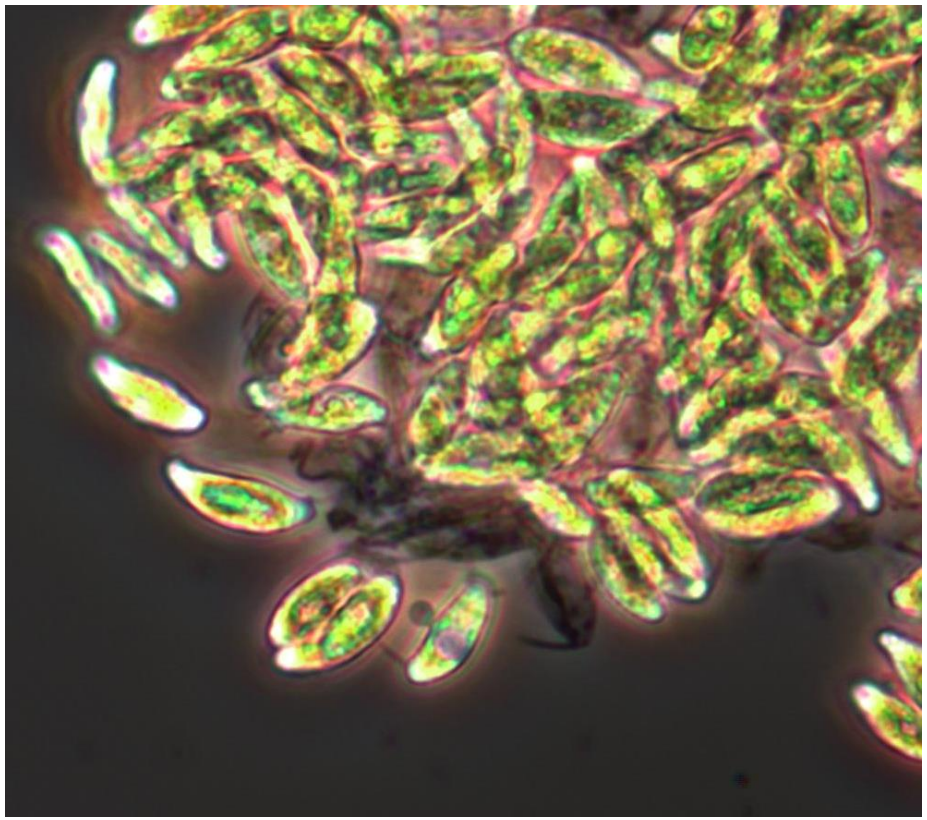


When I saw these pictures. The “flathead” really jumped out at me.

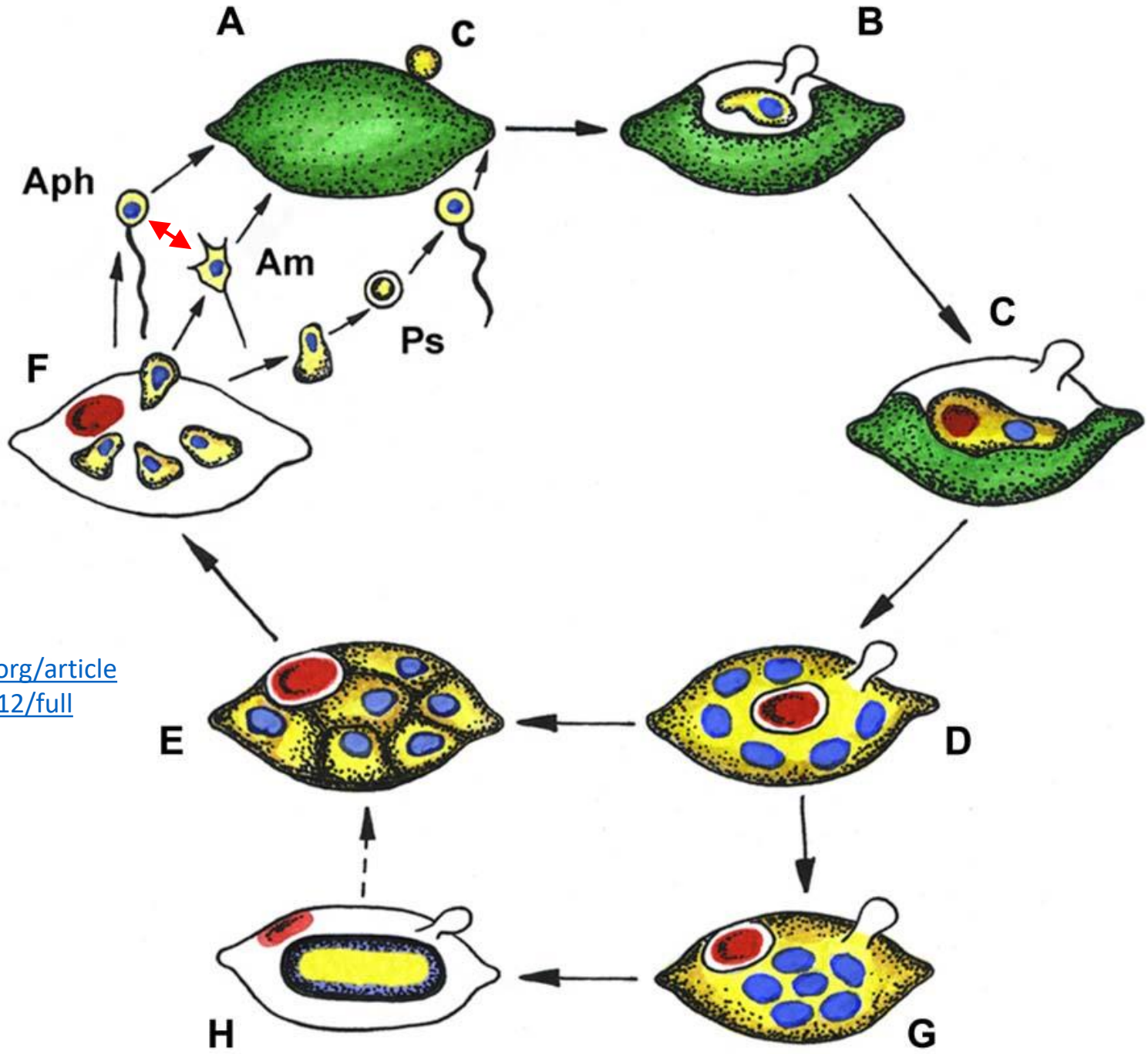
I wonder if it has something to do with attachment, and when we were seeing it on slides it was because the spore was attaching to the slide surface, switching to amoeboid movement on the surface as opposed to swimming in the liquid phase. Is this adequately described in current MS as ‘somewhat angular’?

FD104 was also shown to infect SE60239 which has a similar morphology to SE00107 and has a fairly similar ITS region if I remember correctly. It was a lead candidate strain and we were considering putting out at the farm. Mike ran an experiment using NGS to tell the ratios of each strain in a mixed culture situation. If we get the ITS data for this strain too we could talk a little about host range if you want to. Other strains were also tested e.g., SE0004 that we published as host for FD01-95 and no infection was observed (identical conditions to 00107 infection) which may be worthy of mention.





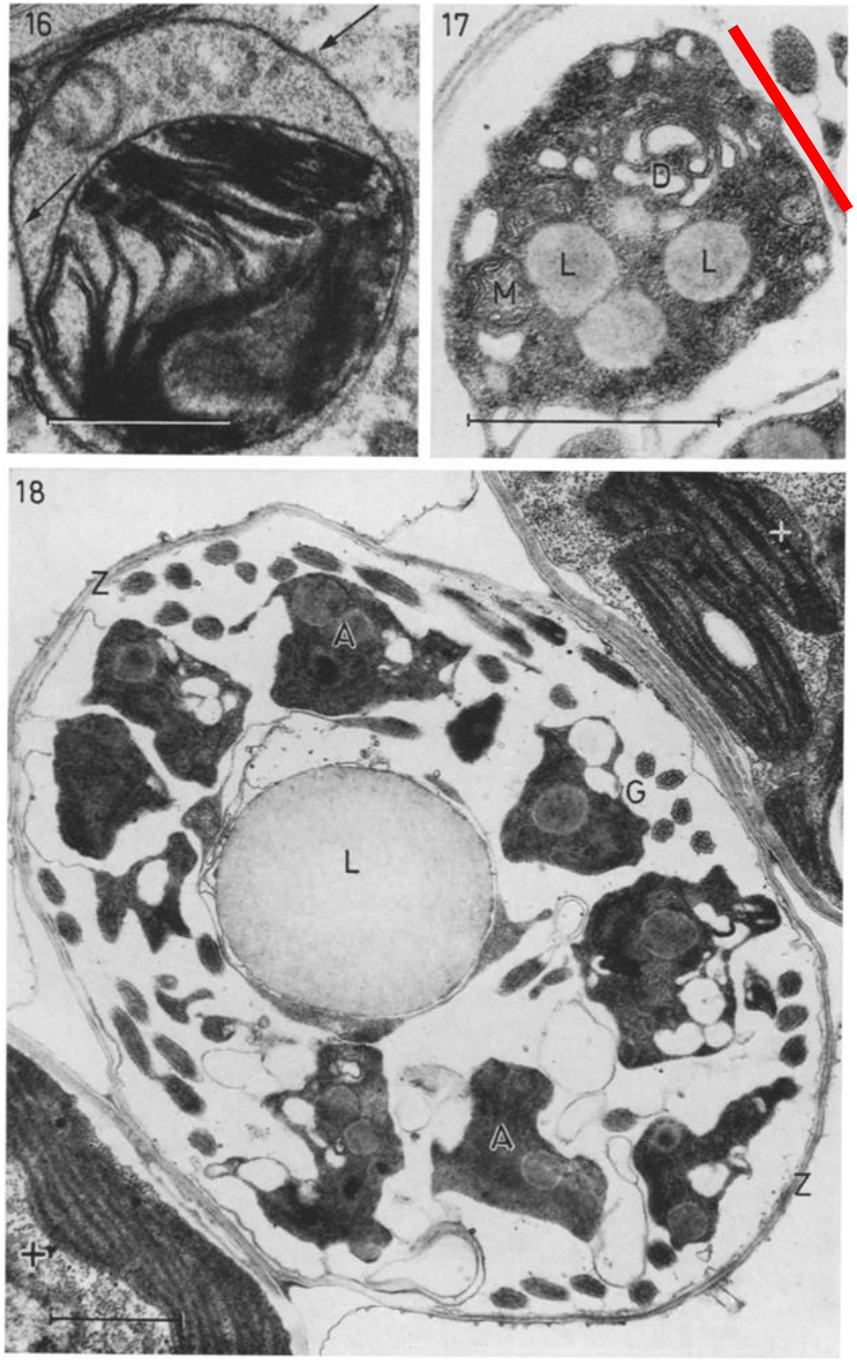
I would consider FD104 zoospore to be pleomorphic and from what I've seen in the papers referenced in this ppt there should be another arrow here (added in red), or a separate line with both flagella and amoeboid spores?

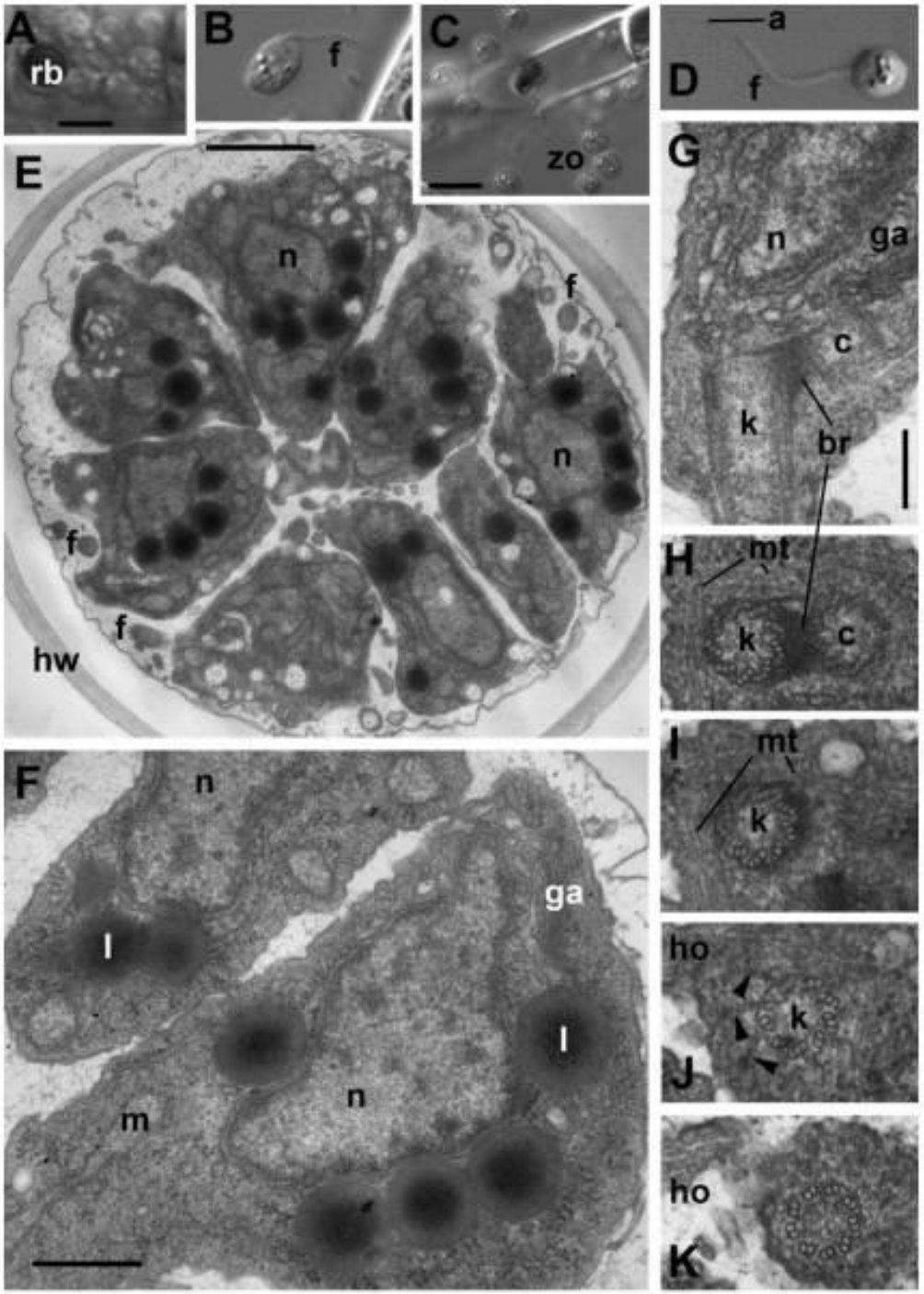


From Karpov 2015, http://journal.frontiersin.org/article/10.3389/fmicb.2014.00112/full

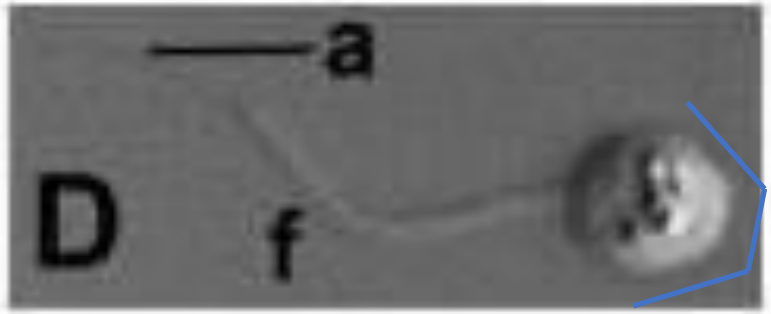
Flathead in Schnepf 1971?

Aphelidium vs scenedesmus armatus (later renamed to desmodesmus?)





Aphelidium aff. melosirae

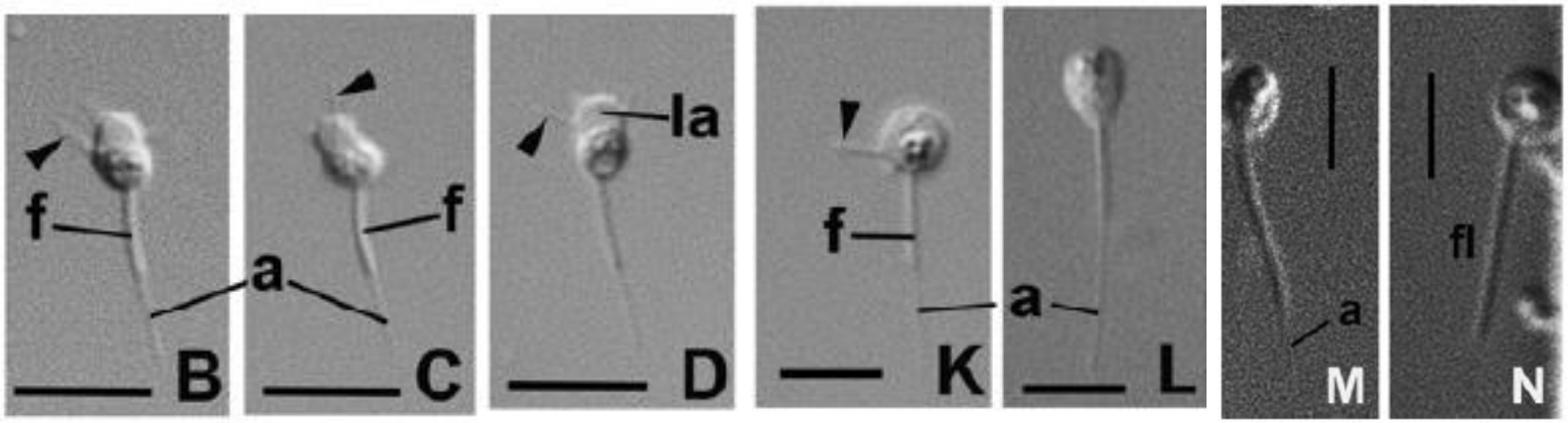


Maybe I'm seeing things but I distinctly remember a subtle shape in FD104 zoospores that I think I see here (emphasized with blue lines)

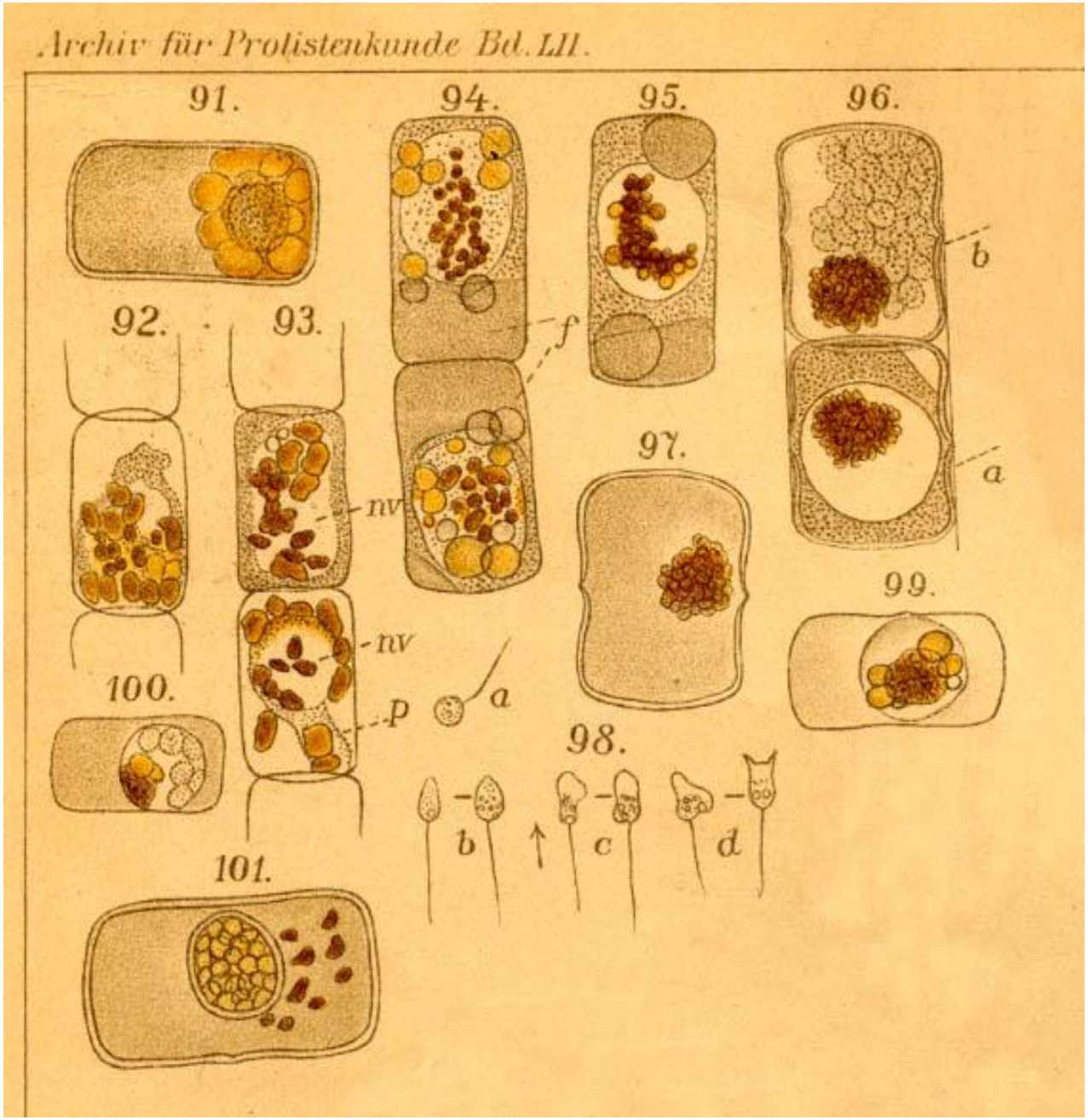
Karpov 2014, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4135080/

The zoospores of all our strains are able to swim with a posterior flagellum, or to crawl on substrate, like amoebae, with filopodia…

…Based exclusively on the morphology of the life cycle stages, Paraphelidium tribonemae is most similar to Aphelidium tribonemae Scherffel, 1925, as described by B.V. Gromov (1972) who observed its development in Tribonema gayanum and Botridiopsis intercedends Visch. et Pasch. Gromov described Aph. tribonemae as follows: zoospores 2-3 µm in diameter; flagellum is about 6-8 µm long with long (1/3-1/2 of flagellum length) acroneme; zoospores can produce filopodia and move like amoebae with an immotile flagellum.



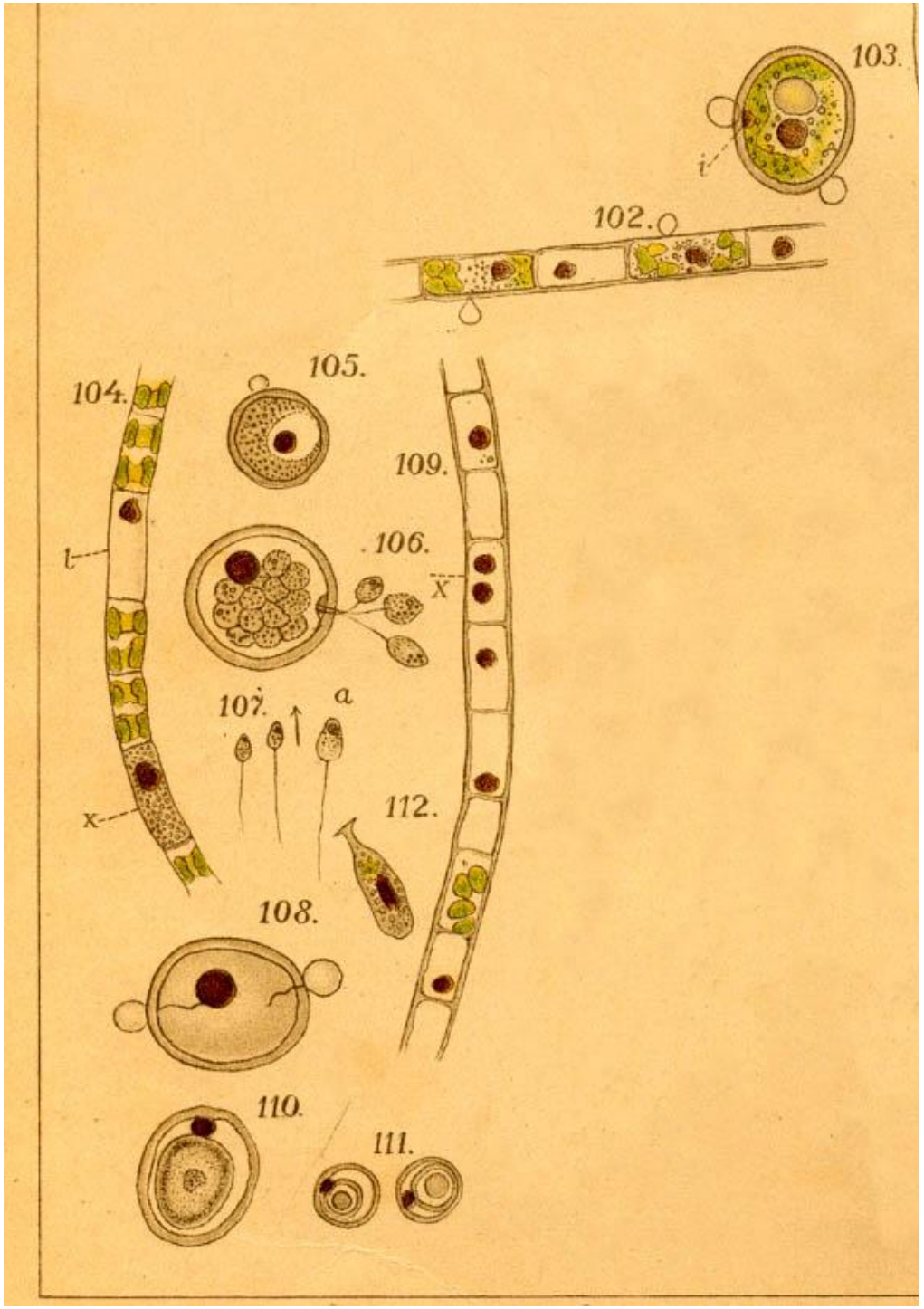
This is how I remember seeing FD104 – swimming and more round (M,N), but more often with a slight flatter head as in previous slide and L here, then a less opaque amoeboid protrusion coming out of the front of the head as in B-D as it transitioned into amoeboid movement, with K looking similar to your schematic morphology of FD104.



A. melosirae

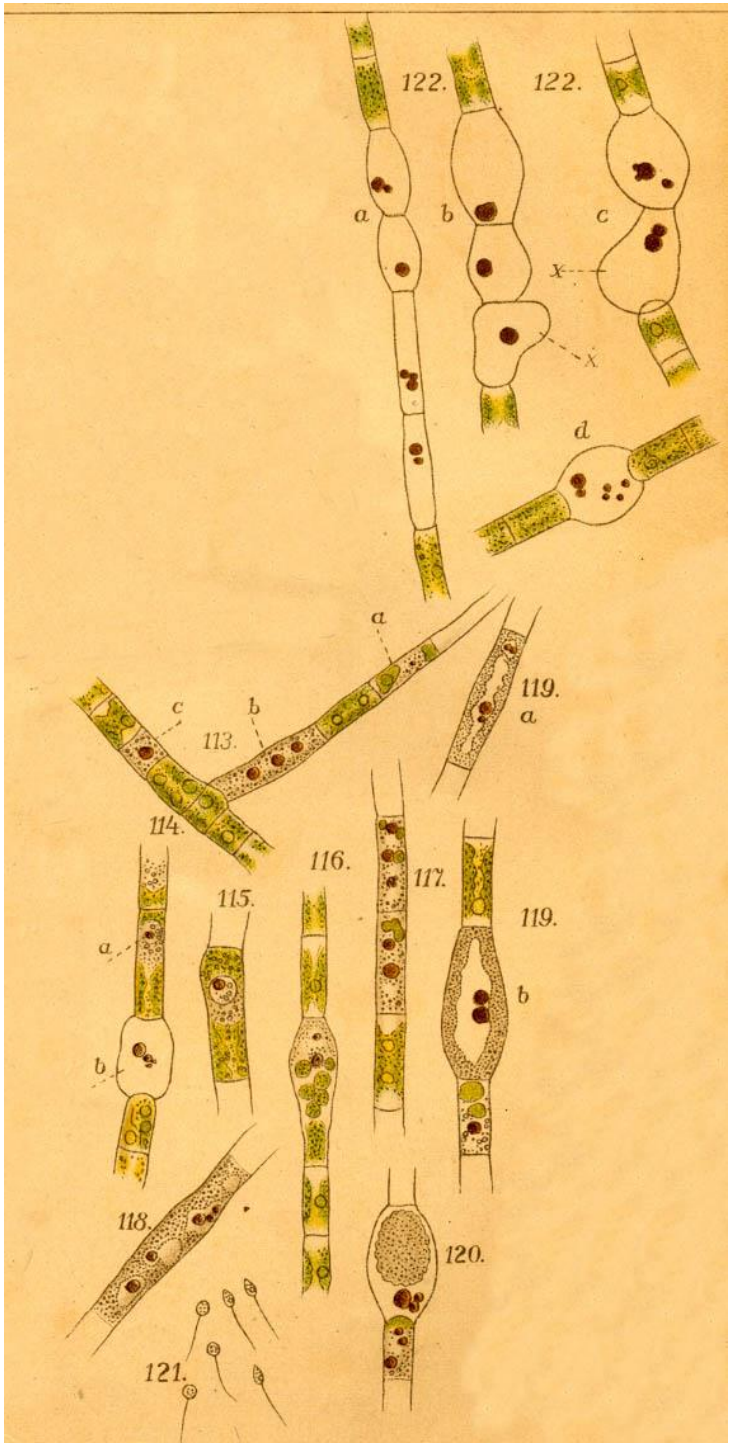
Spore similarities to Melosirae, although I would say FD104 was a bit less pointy egg shaped (b) i.e. slightly flatter at anterior tip (98-b)

http://cryptomycota.ua.edu/uploads/8/2/6/0/82608516/a_melosirae_taf_3_91-101_copy.jpg



A. tribonemae

Perhaps this is the ‘darker’ tip that I recollect?



A. chaetophora

I don't have the text for the last three slides but wouldn't you say that all of them have pleomorphic spores? Or would the shapes seen have to be more different to reach that definition? Certainly A Melosirae and P tribonemae have, and I would add FD104 to that list.

All these hand drawings are classed as Aphelidium but are recent descriptions of Paraphelidium the only ones that have been described as having both flagellated and amoeboid spores (in aphelids)? Karpov 2015 seems to ignore that but in his 2016 paper clearly points out that his Paraphelidium can both swim and crawl and points out that this is most similar to Aphelidium tribonemae