

Top 10 Myths of Wastewater Microbiology

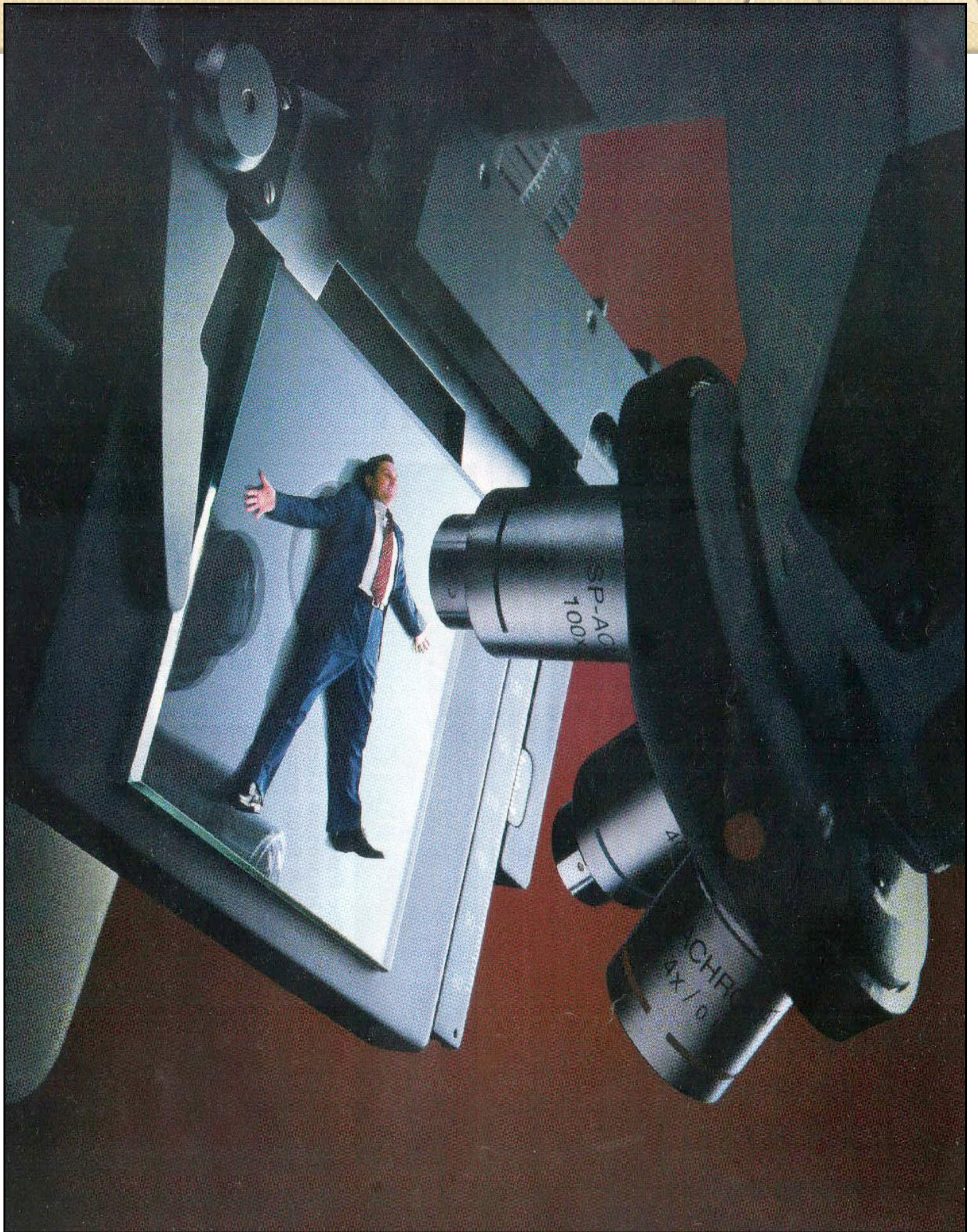


Richard G. Weigand

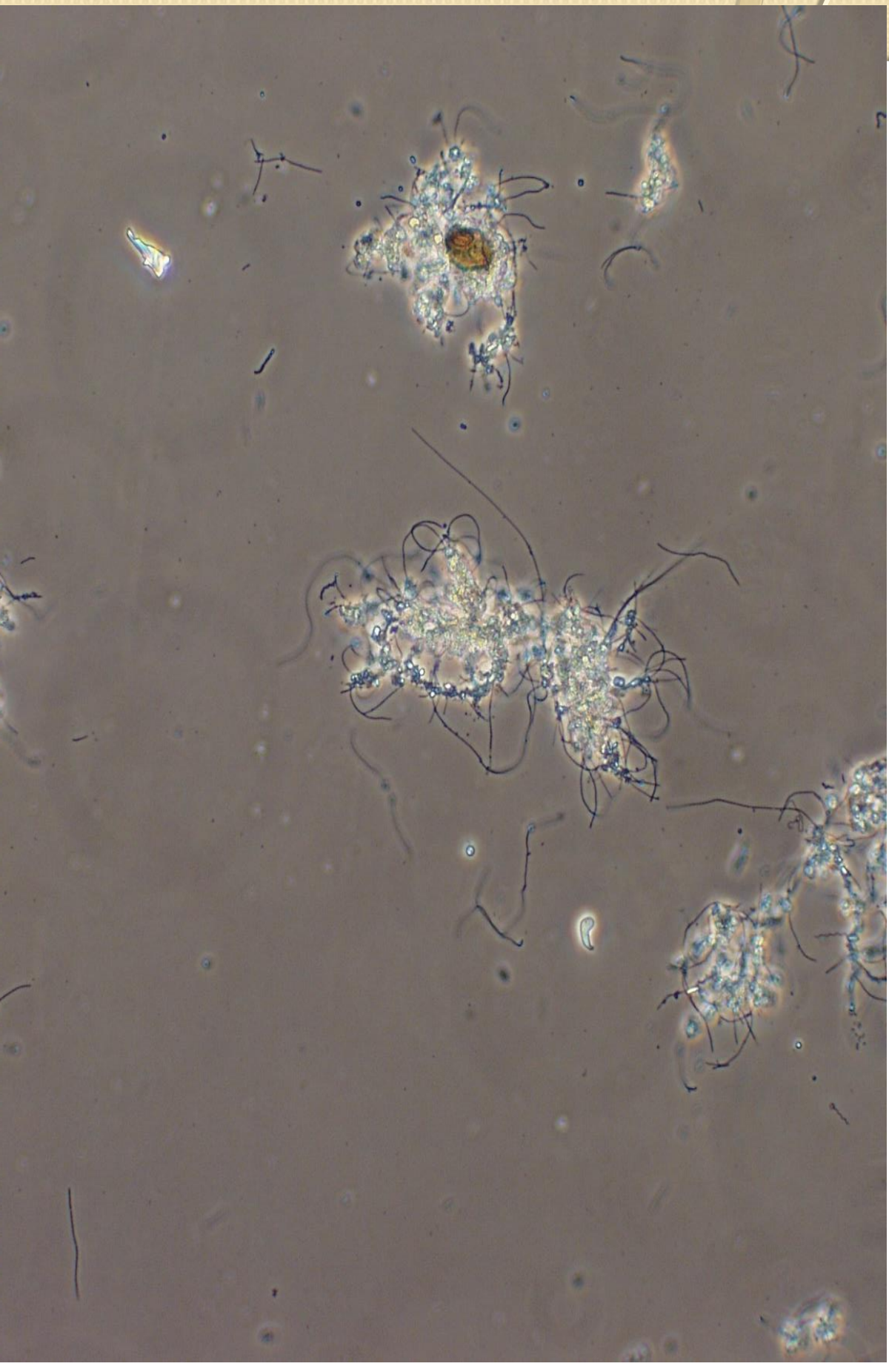
**OTCO 52nd Annual
Wastewater Workshop**

April 7- 8, 2015



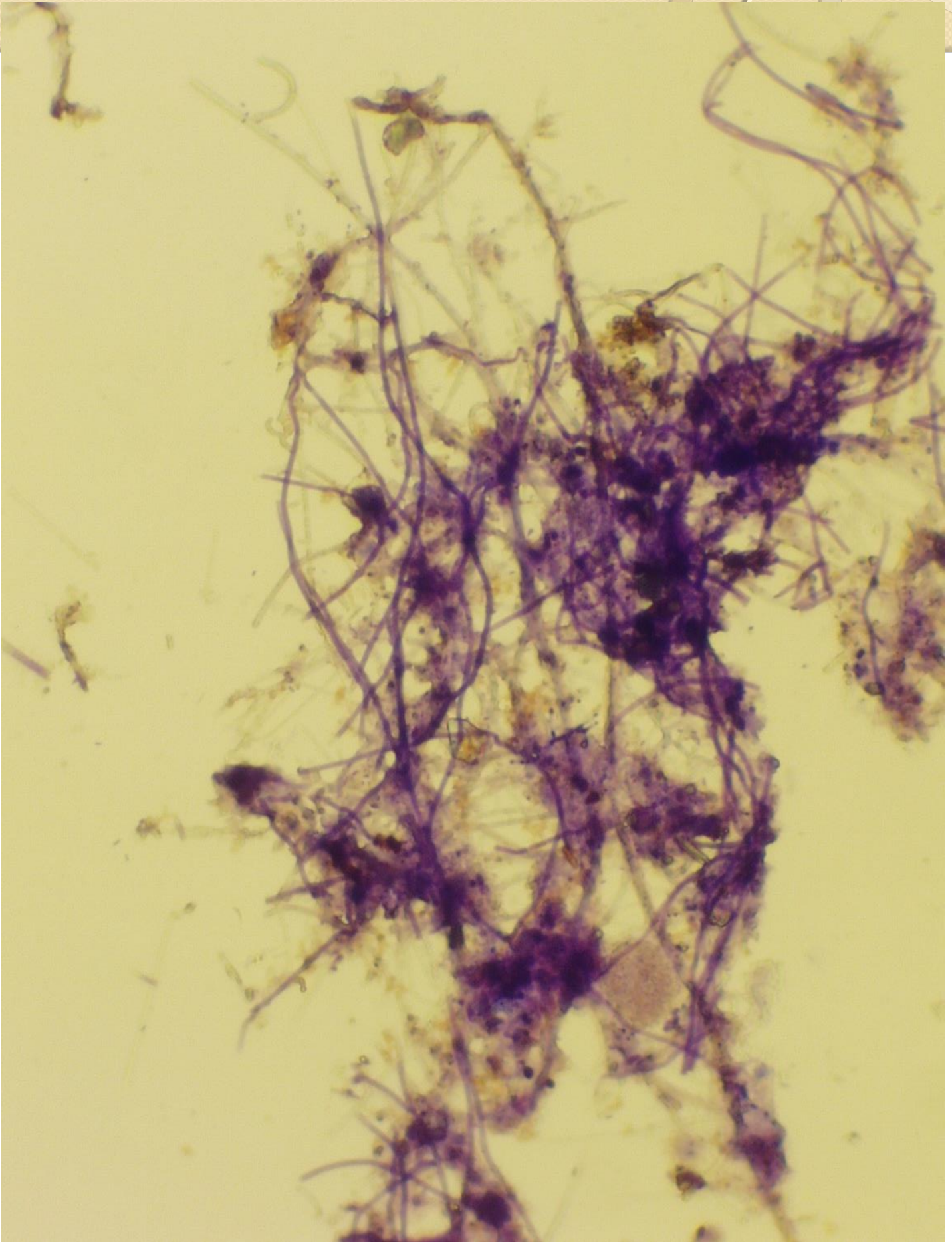


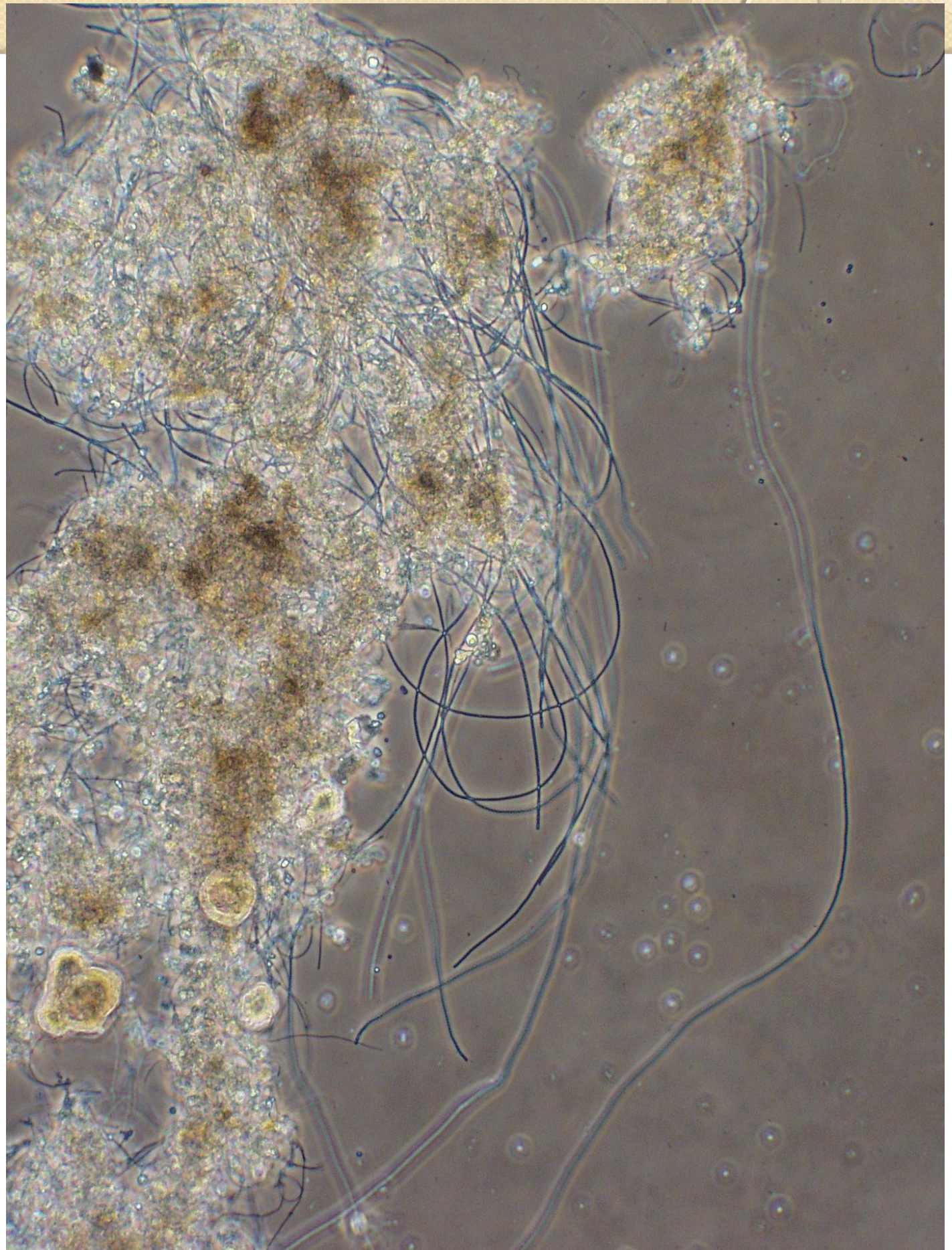
10. All filaments are bad!



Not Really!

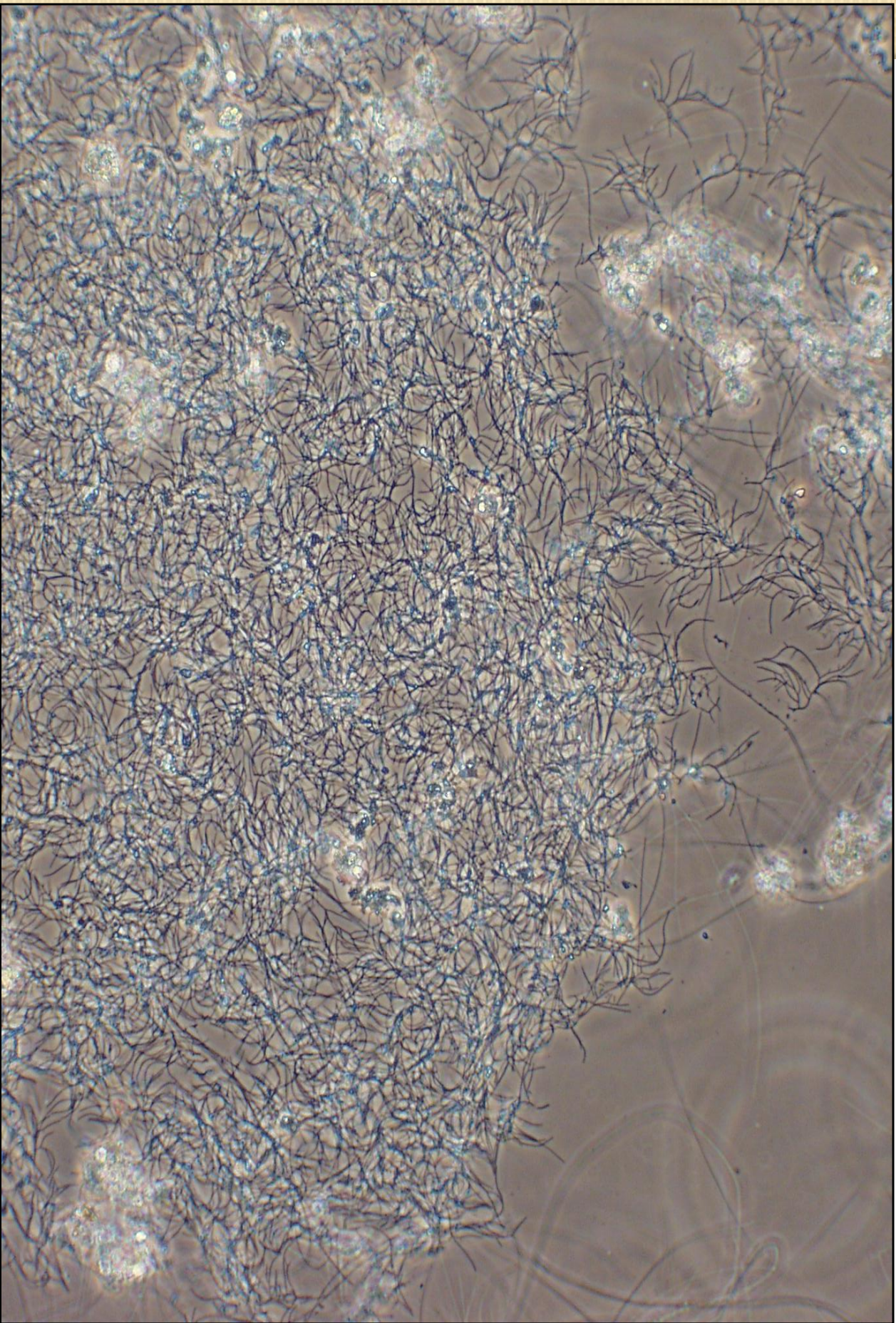




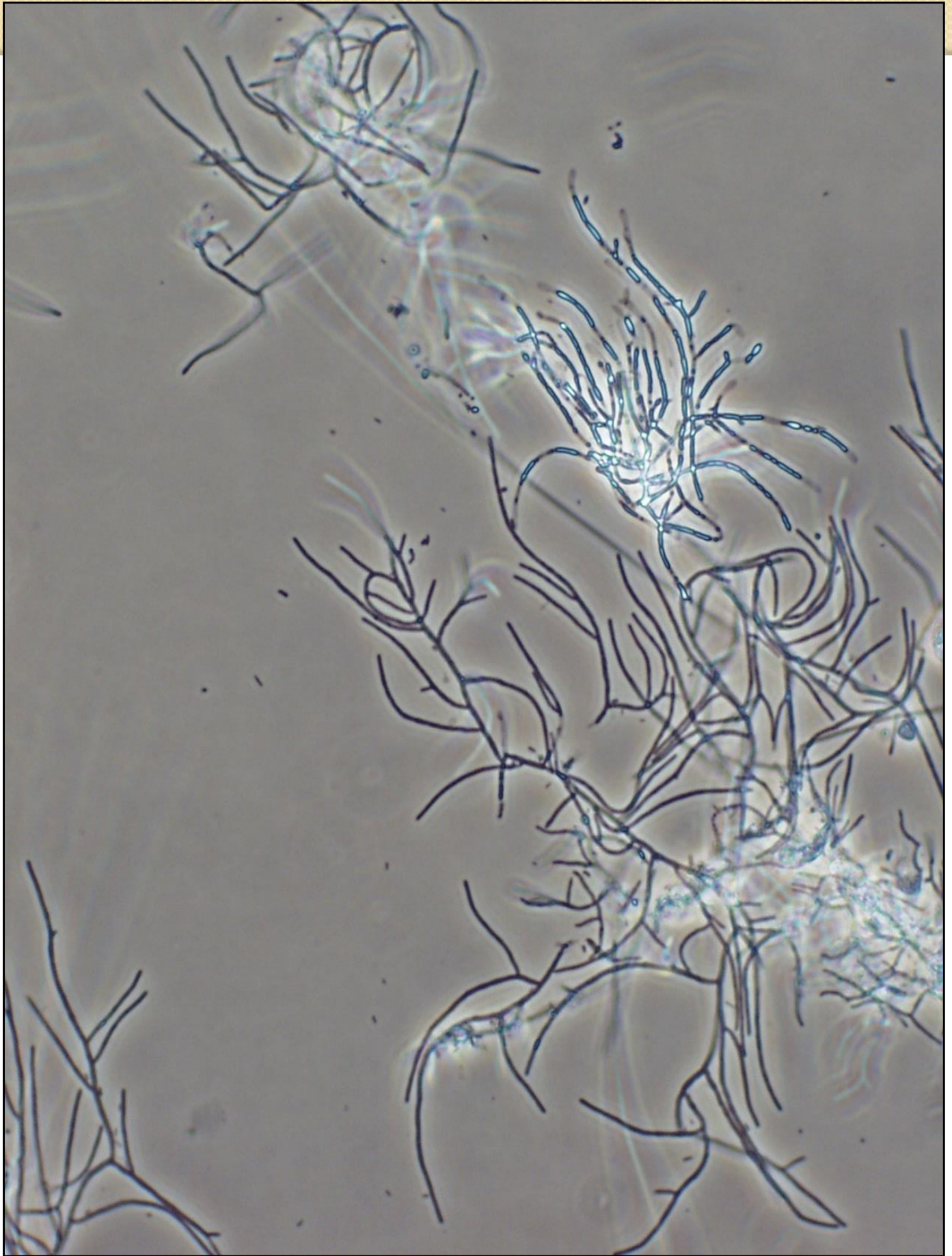


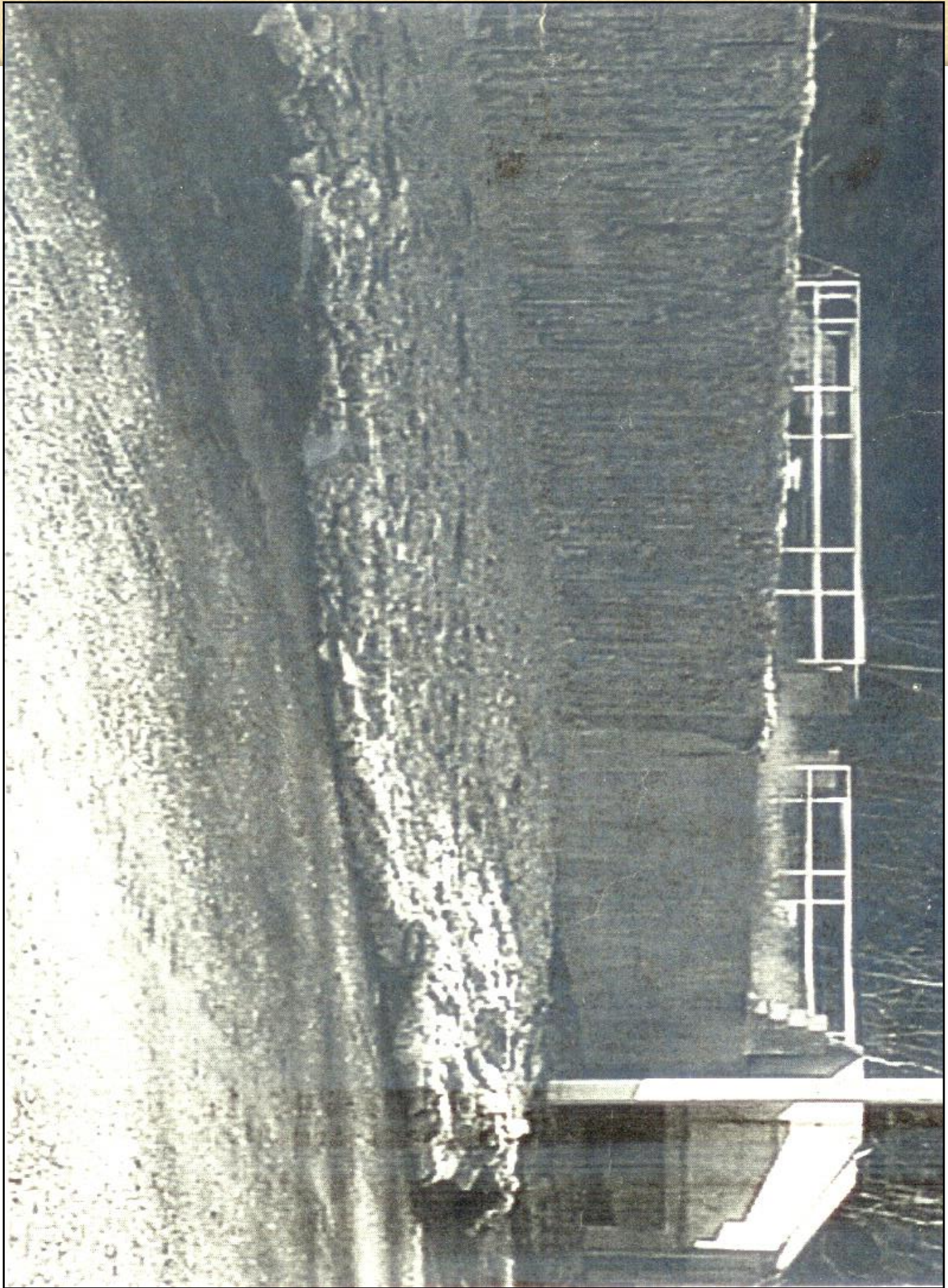
9. That thick brown foam is grease!

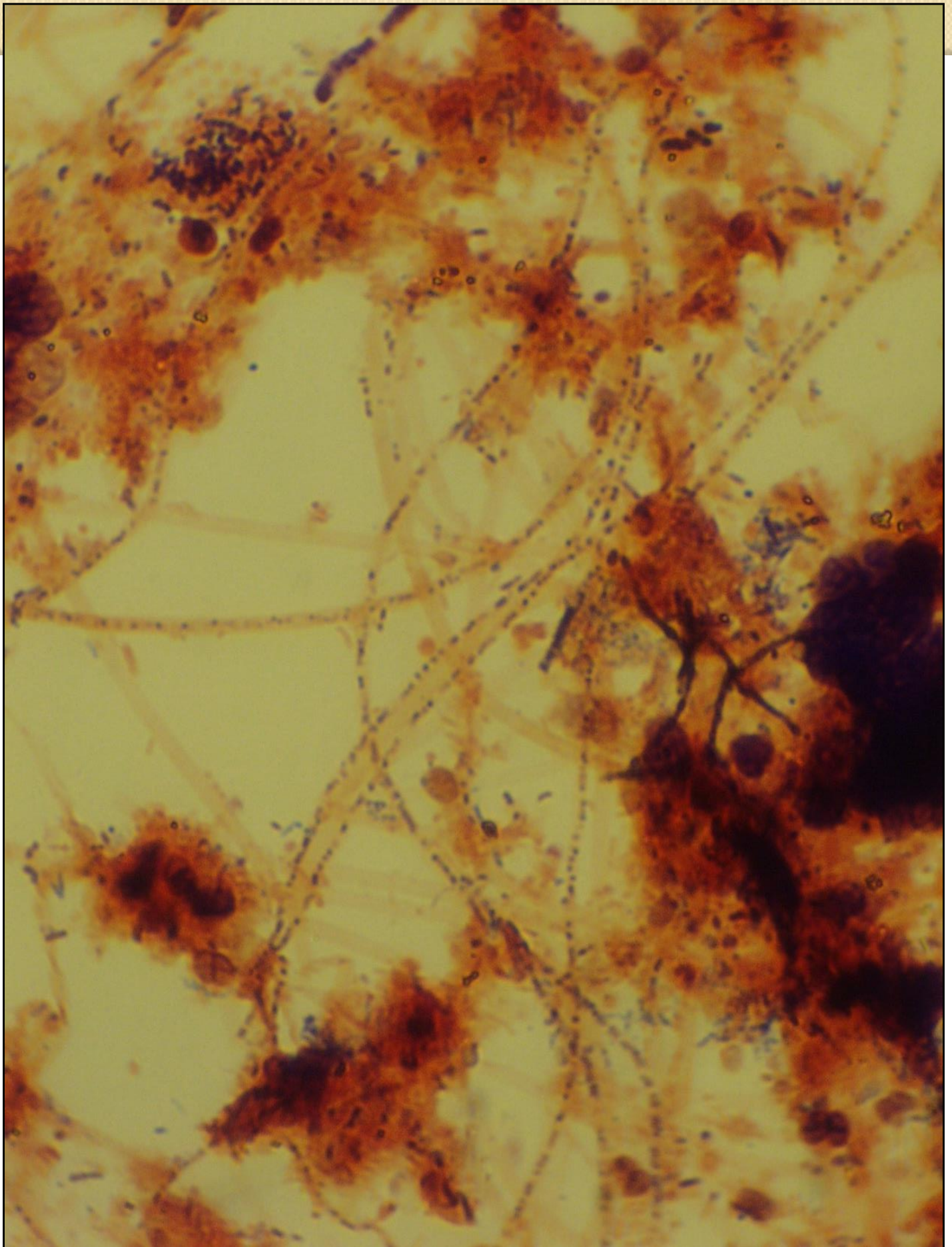




False!









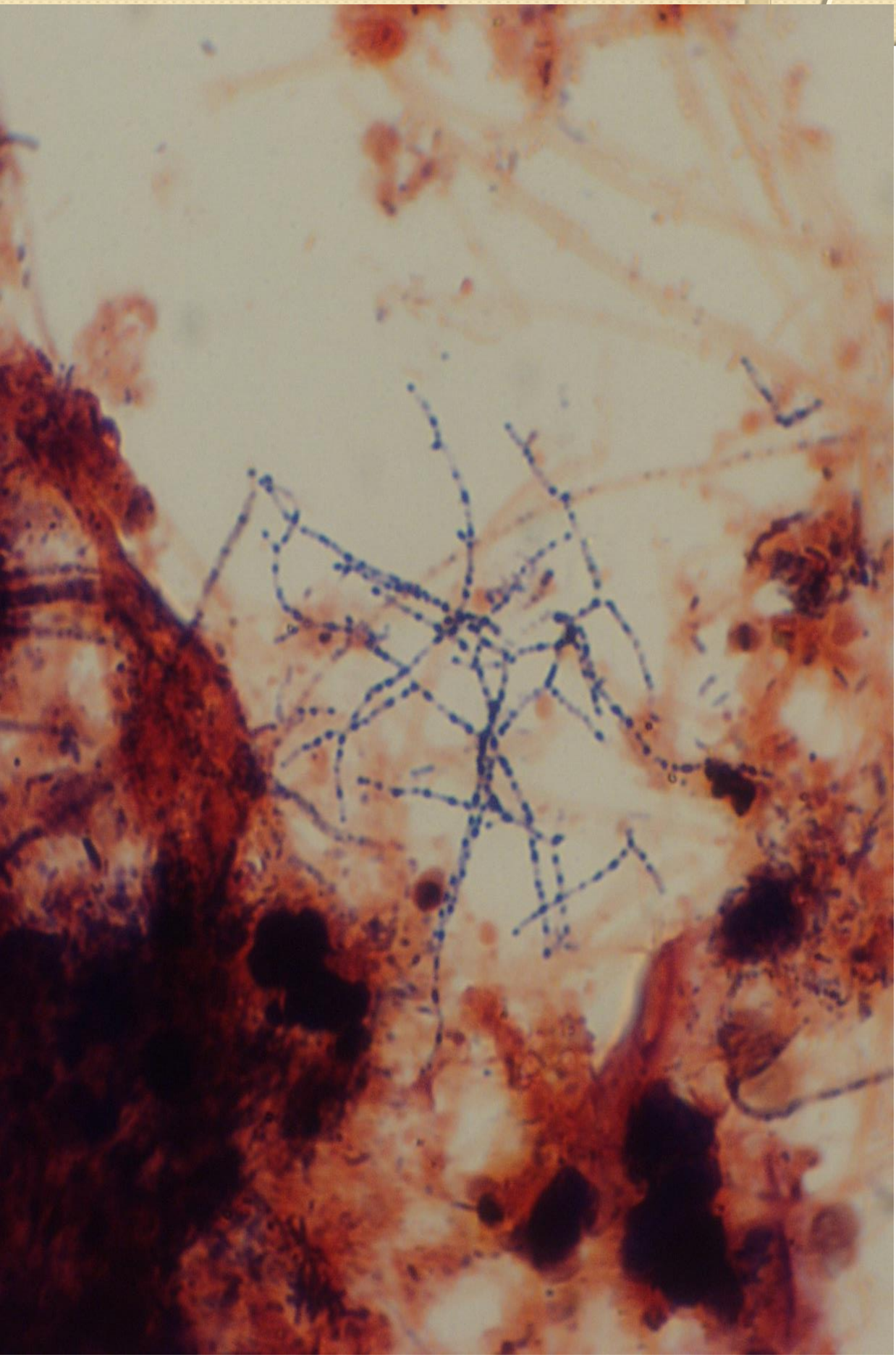
Filament 1863

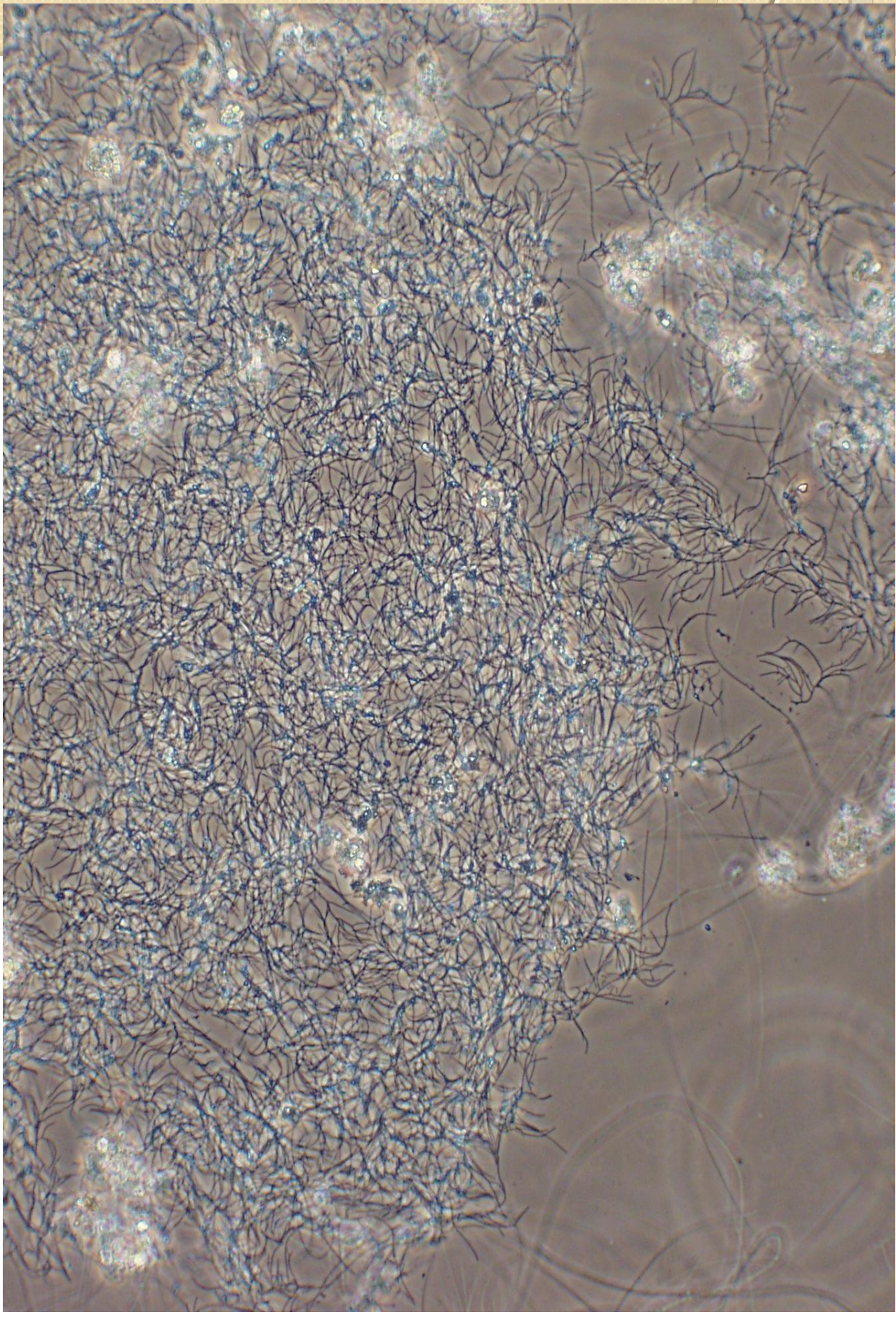


Foam Causing Filaments

- **Nocardiaforms**
- *Microthrix parvicella*
- **Type 1863 (Rarely)**

**8. That thick brown foam is
Nocardia!**





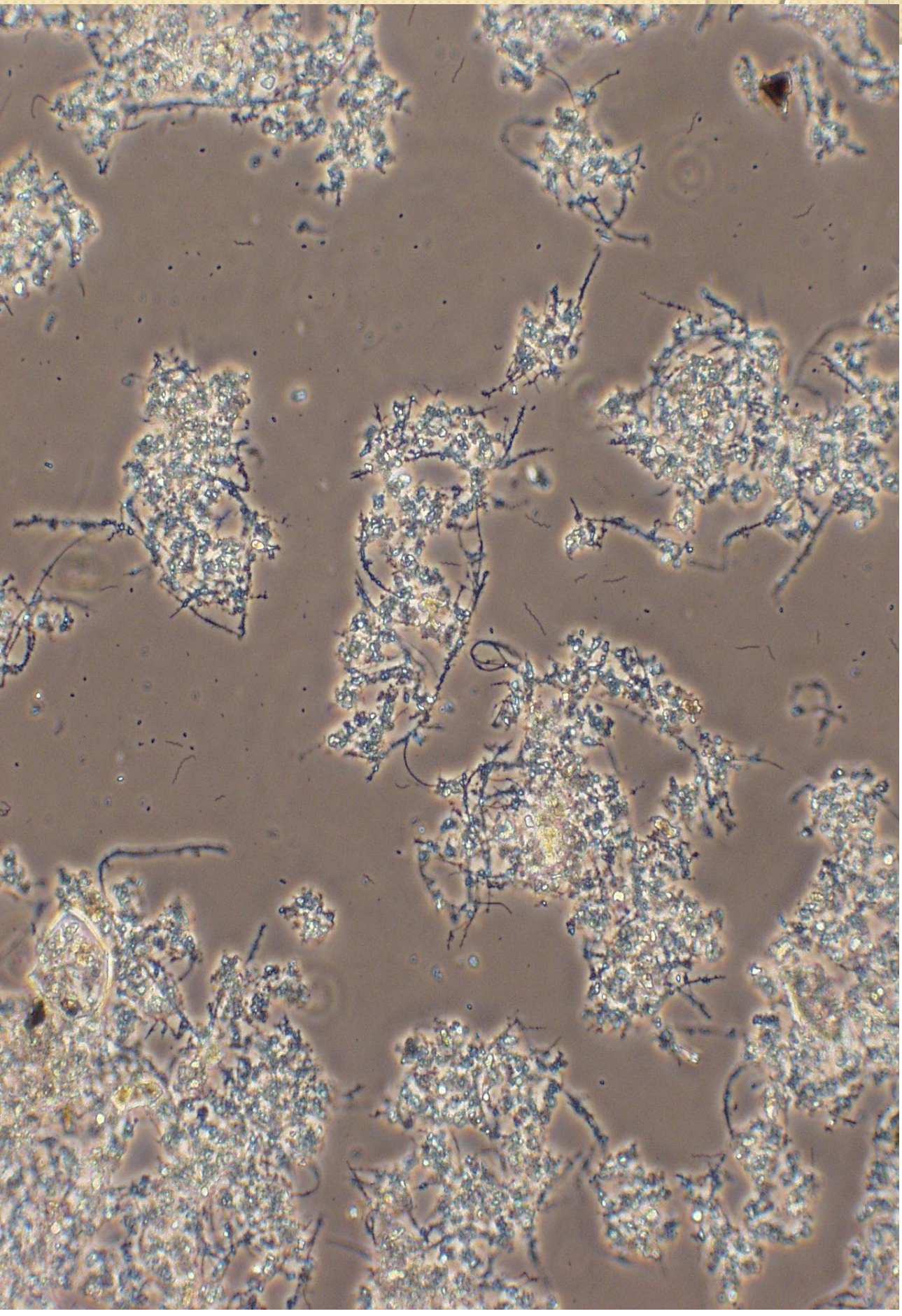
Maybe

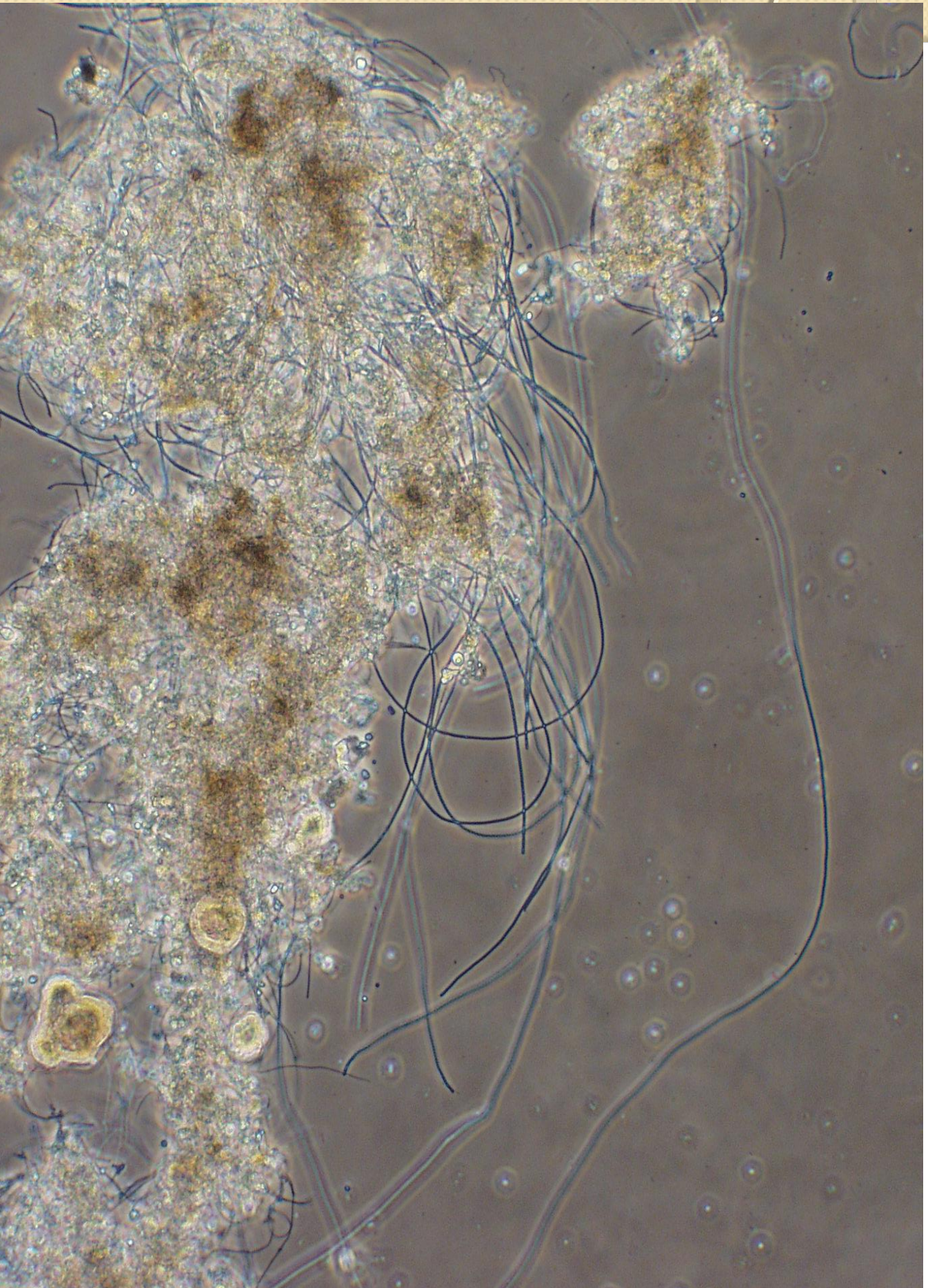
**That thick brown foam is
Nocardiaforms!**



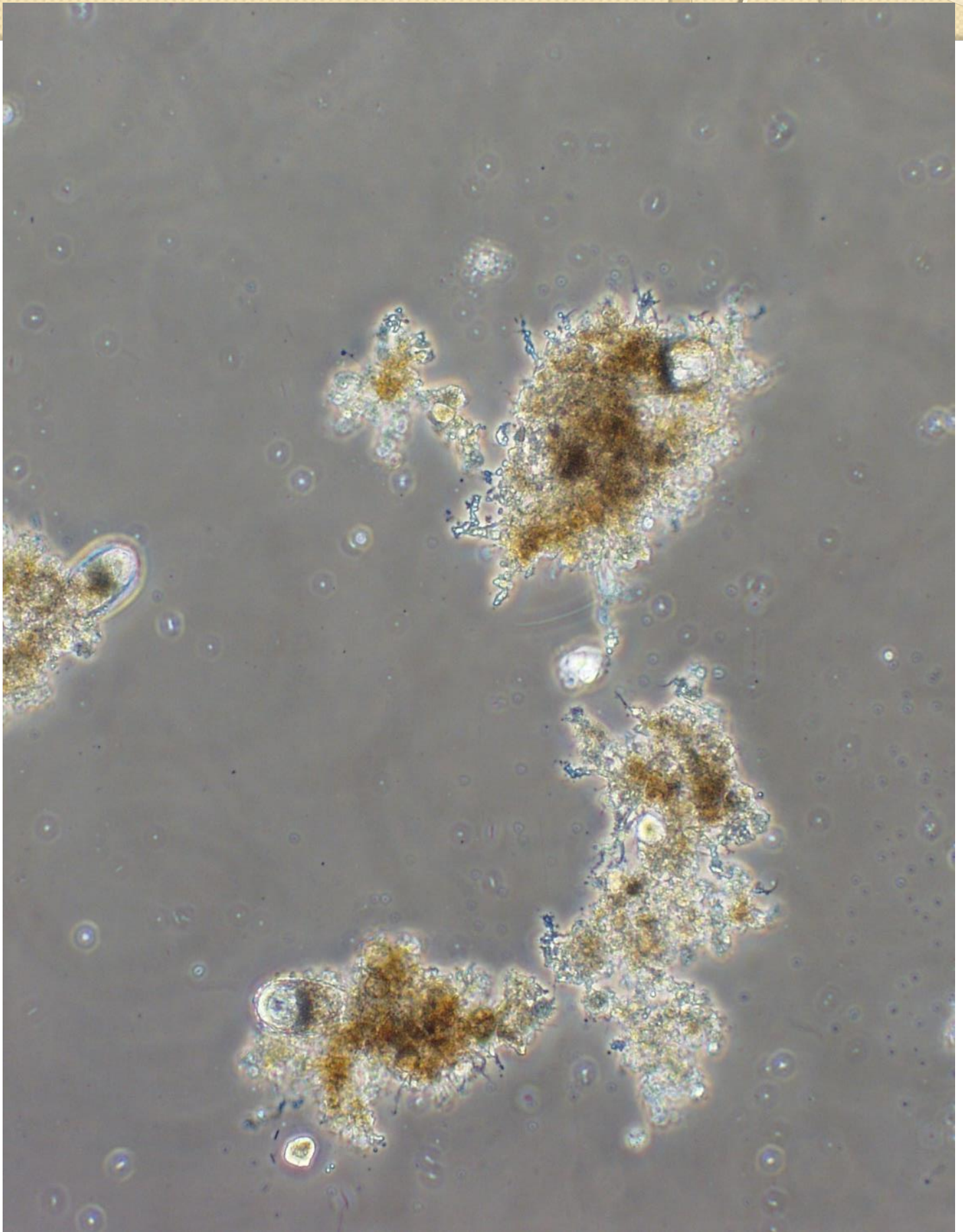
8 Different Species

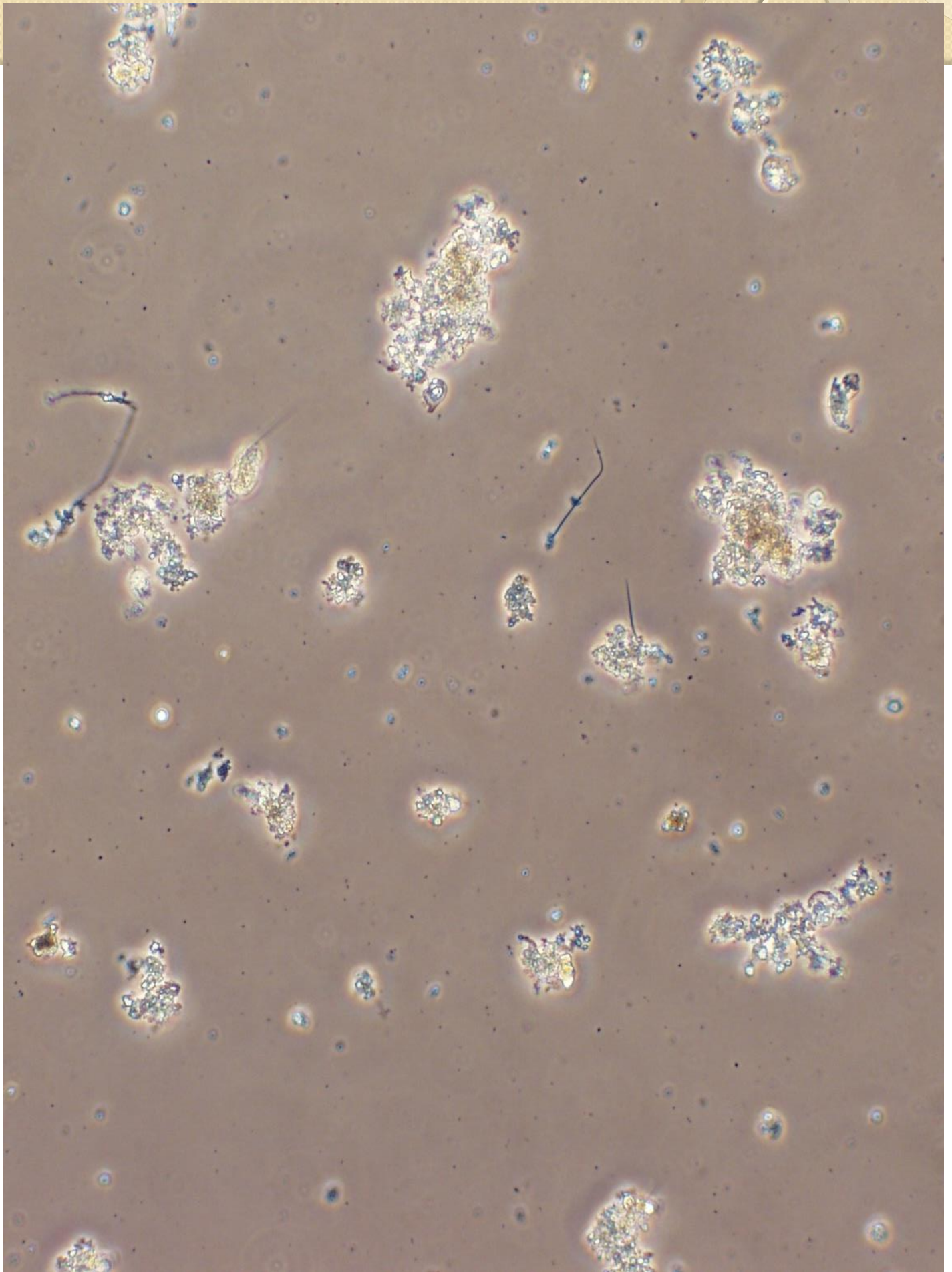
7. Count Protozoa first!





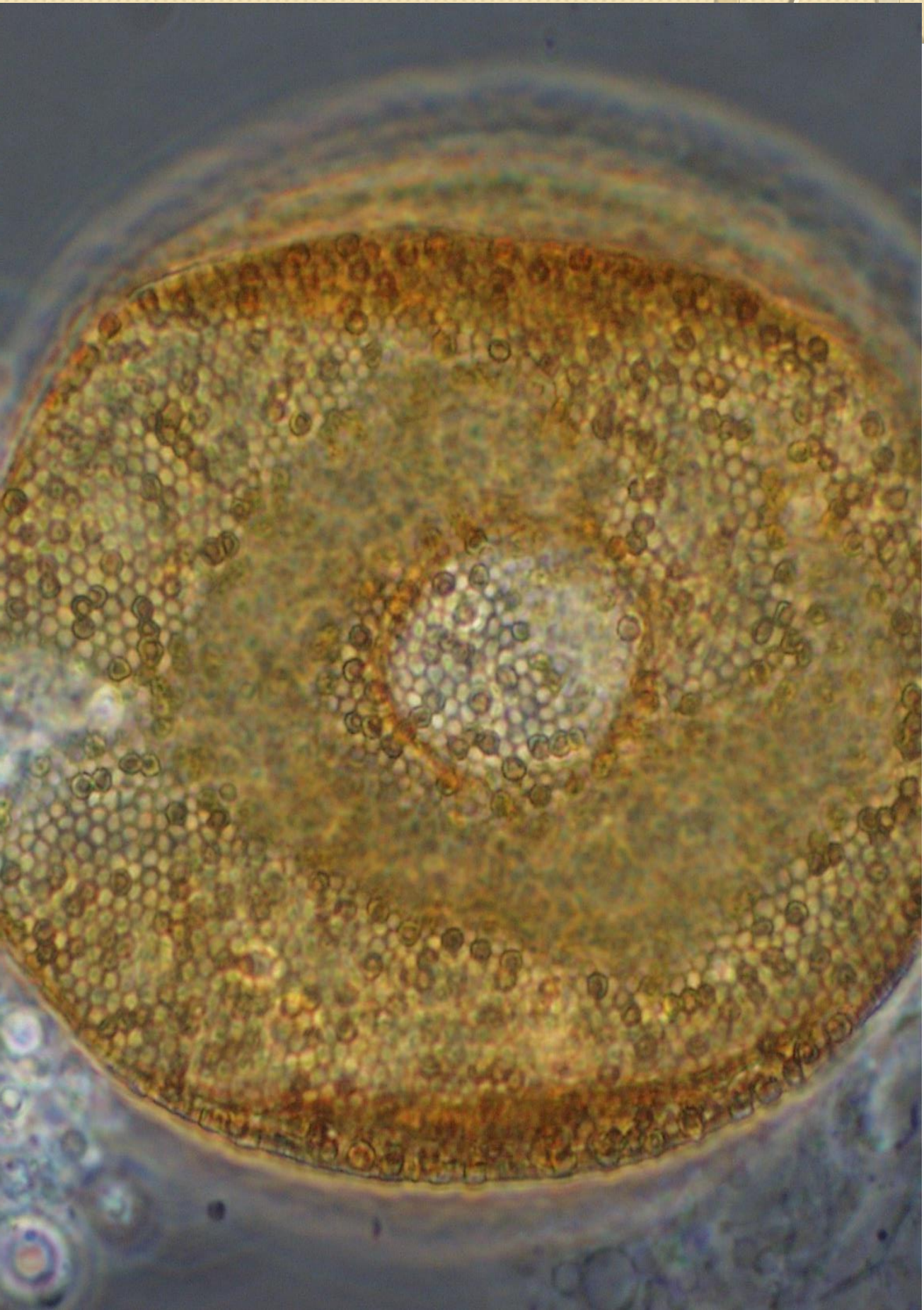
Wrong.





6. Donuts are bad for you!

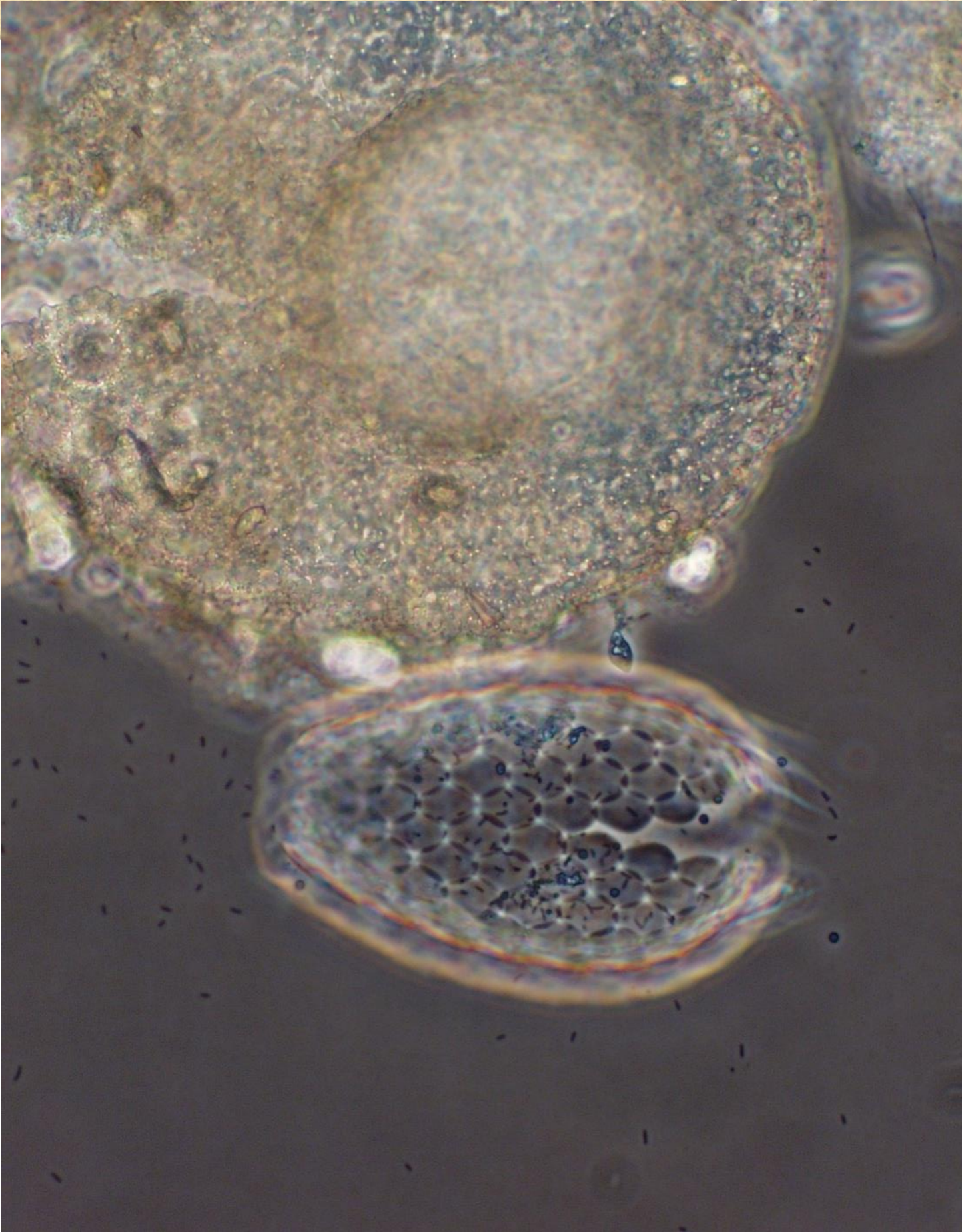




Donuts are bad for you!

**Indicators of good ammonia
removal.**

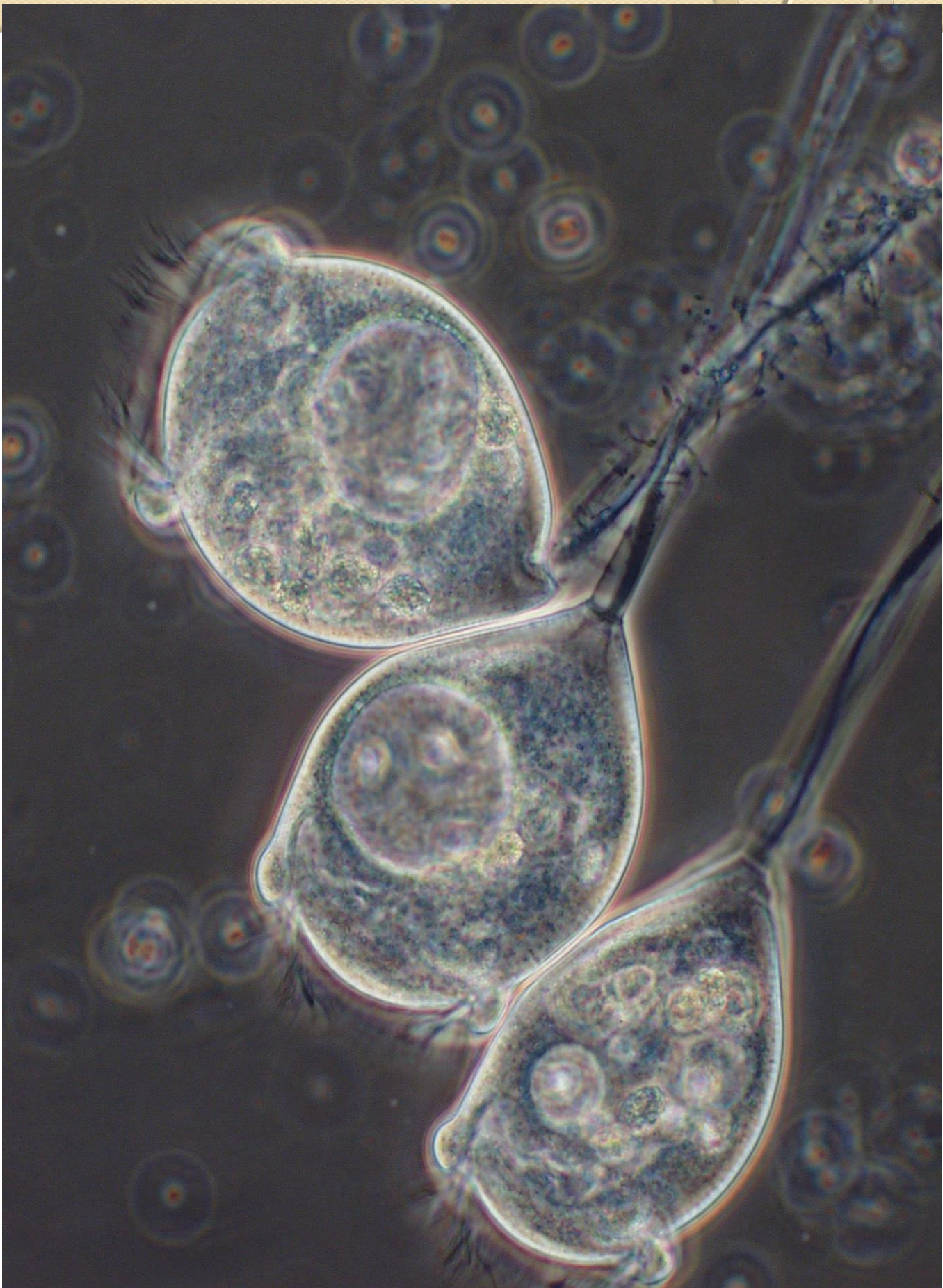






5. Stalked ciliates mean great treatment!

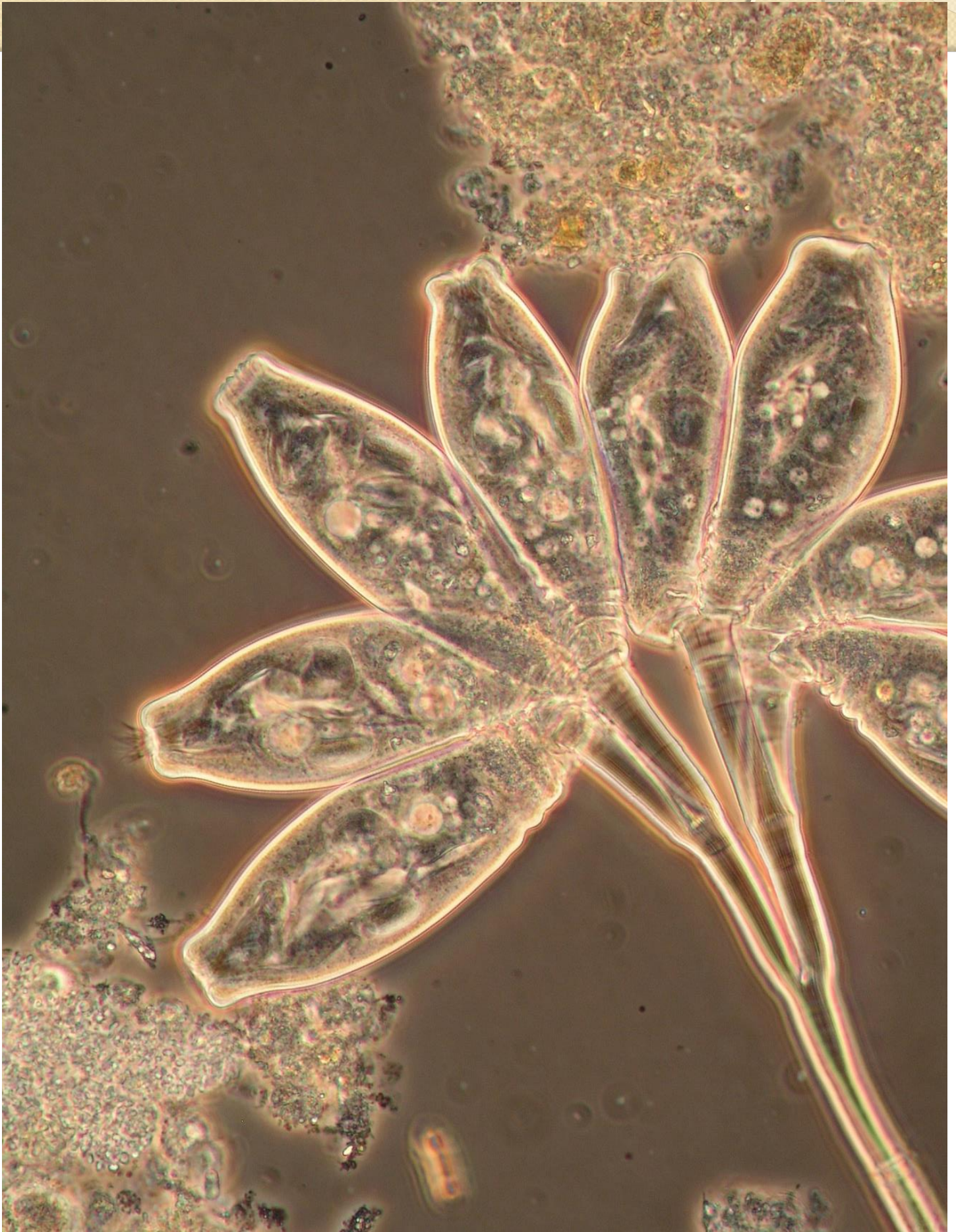




It depends!



Vaginicola

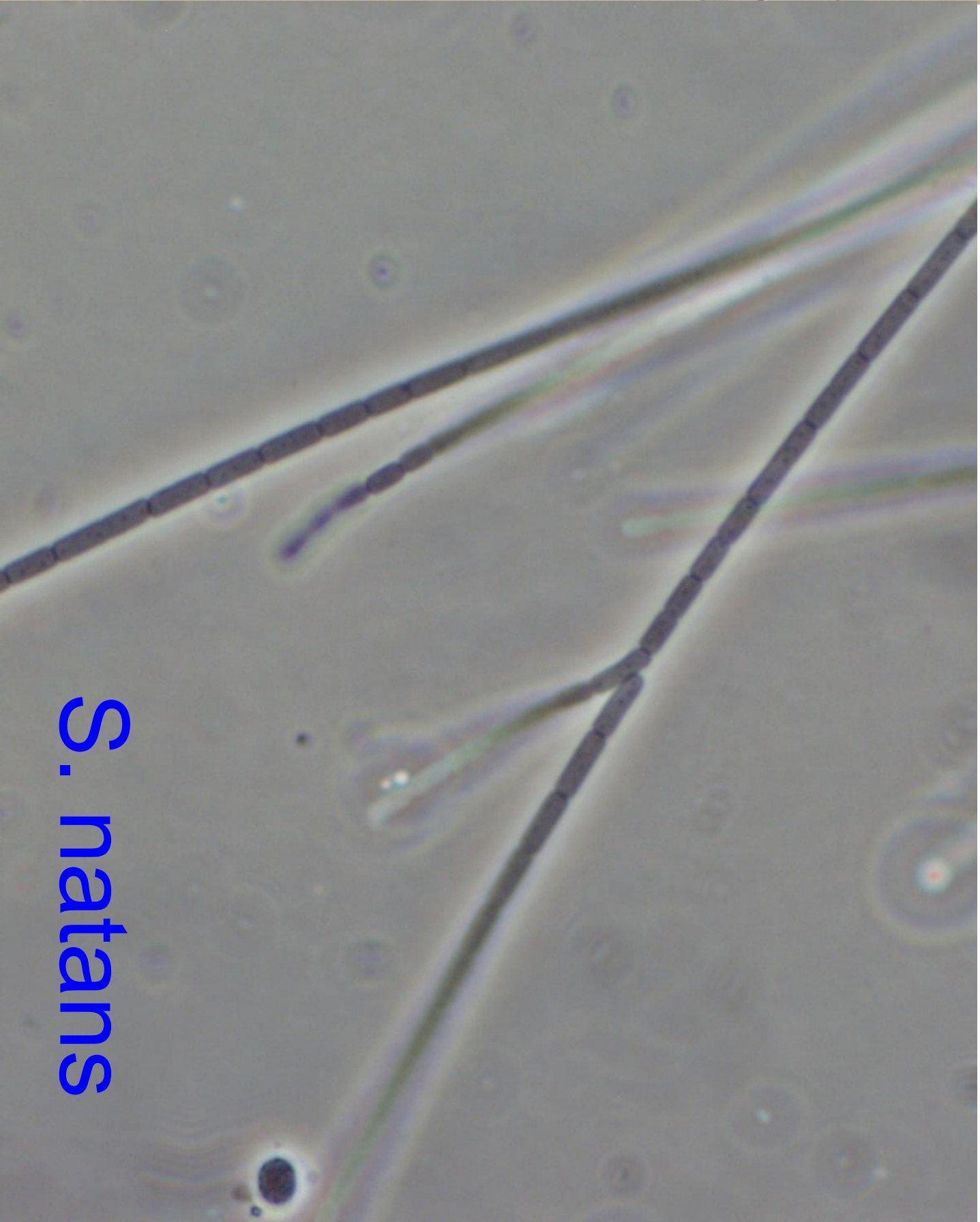


4. Filaments are long, thin chains of bacteria!



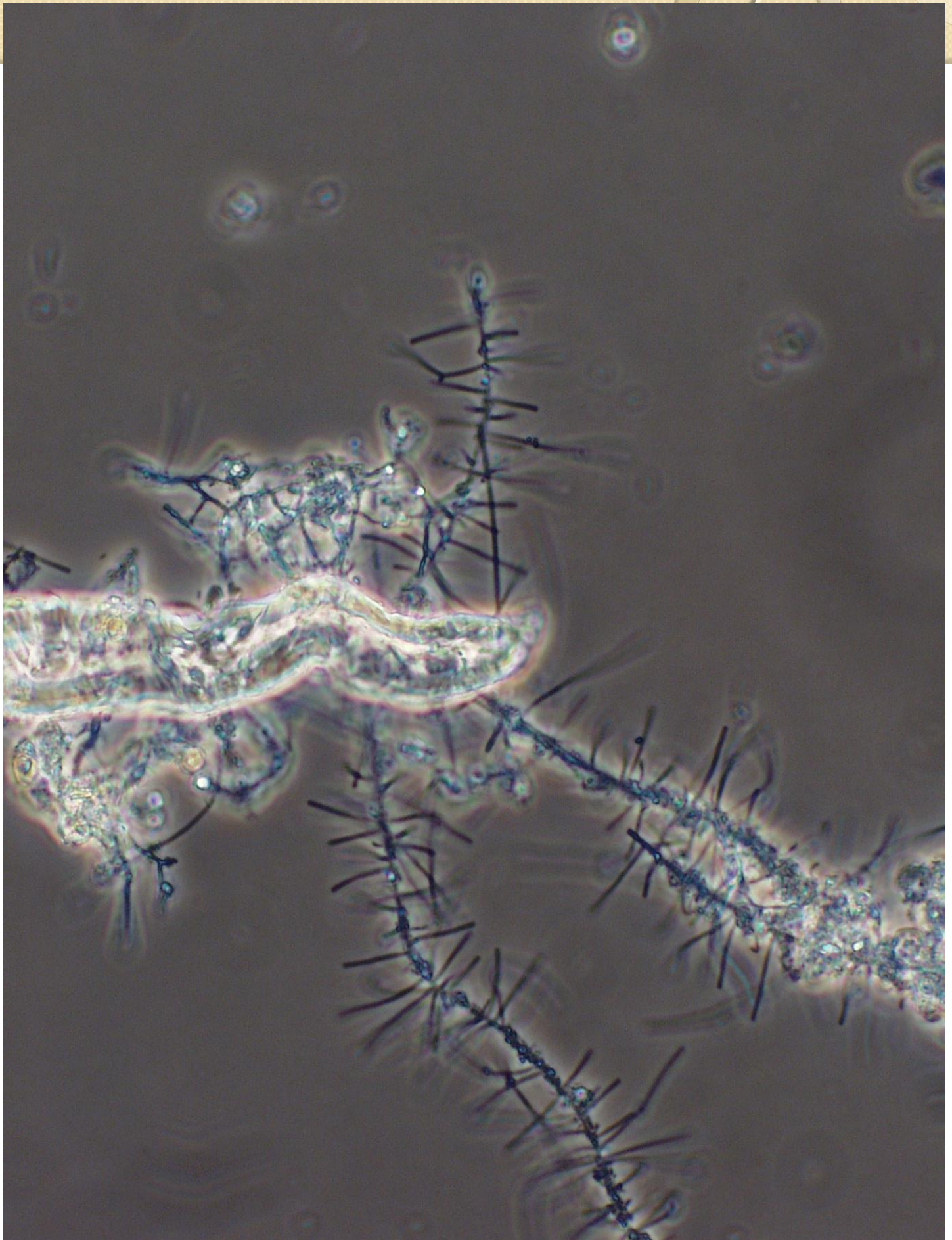
Not always!





S. natans





**3. A cheap microscope from
K-Mart is all you need!**

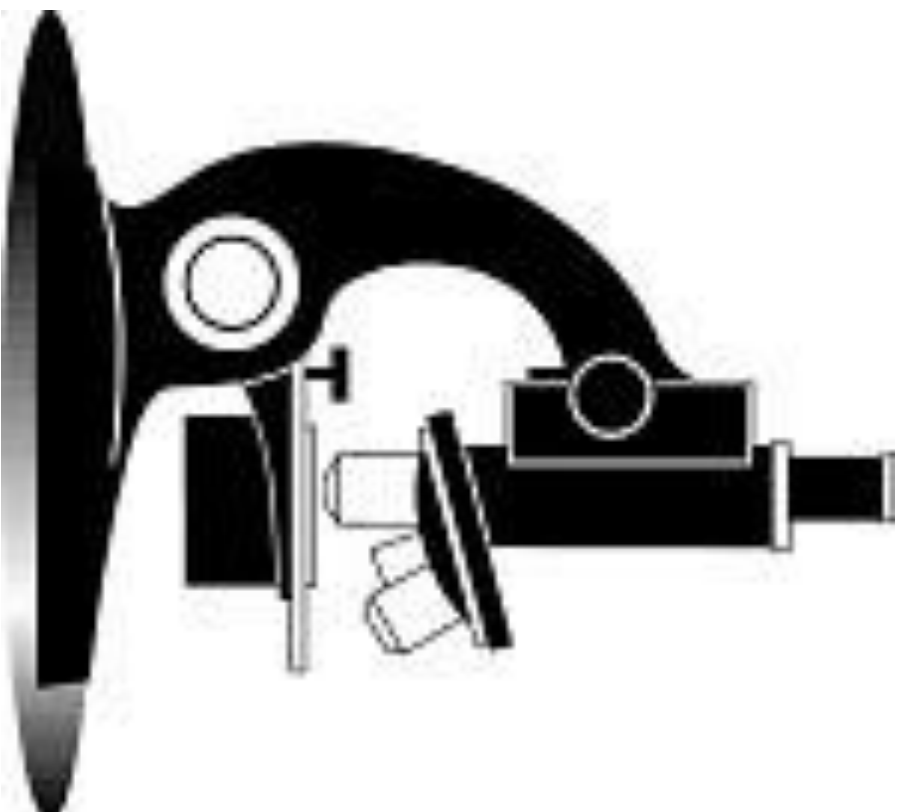
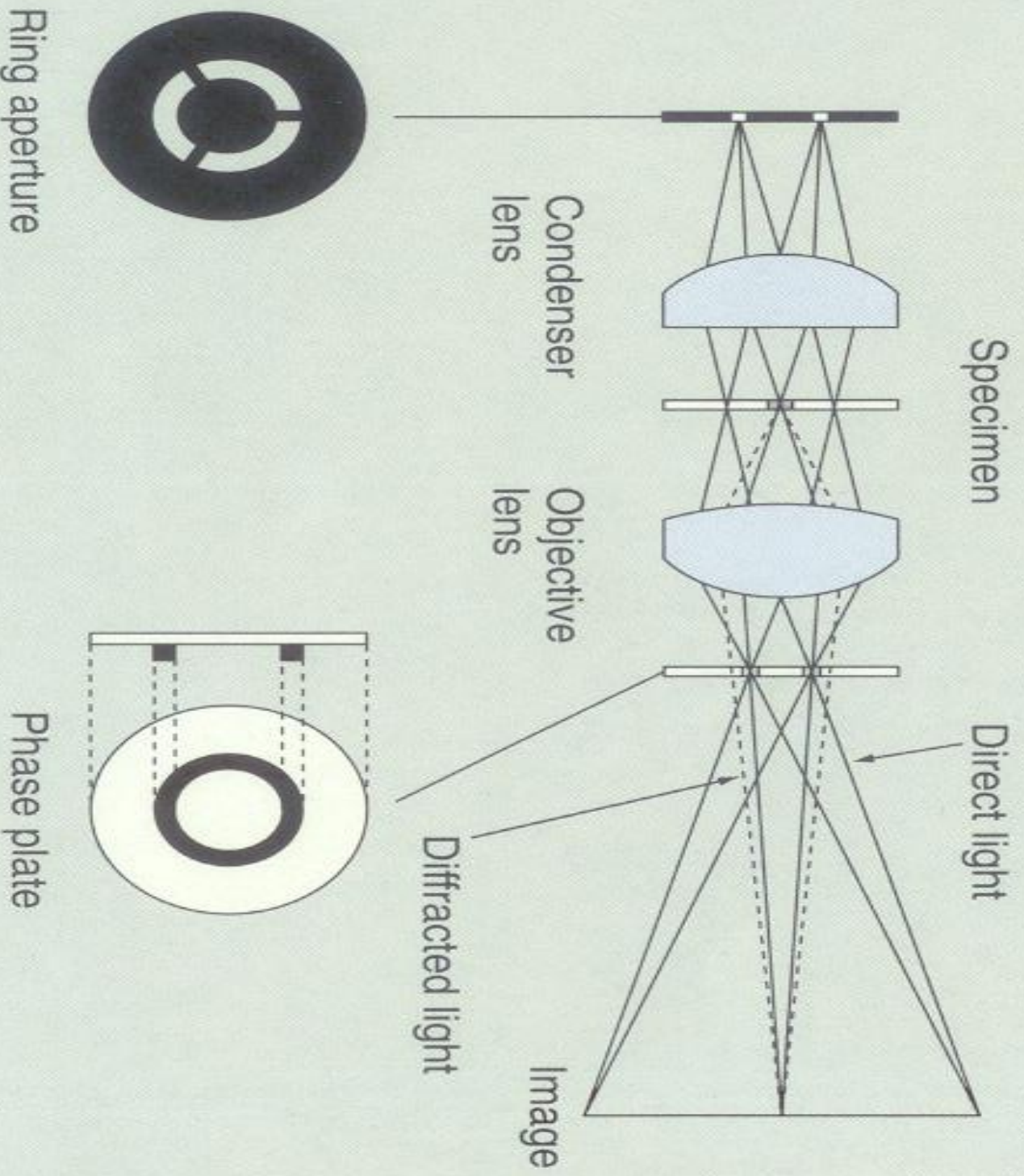
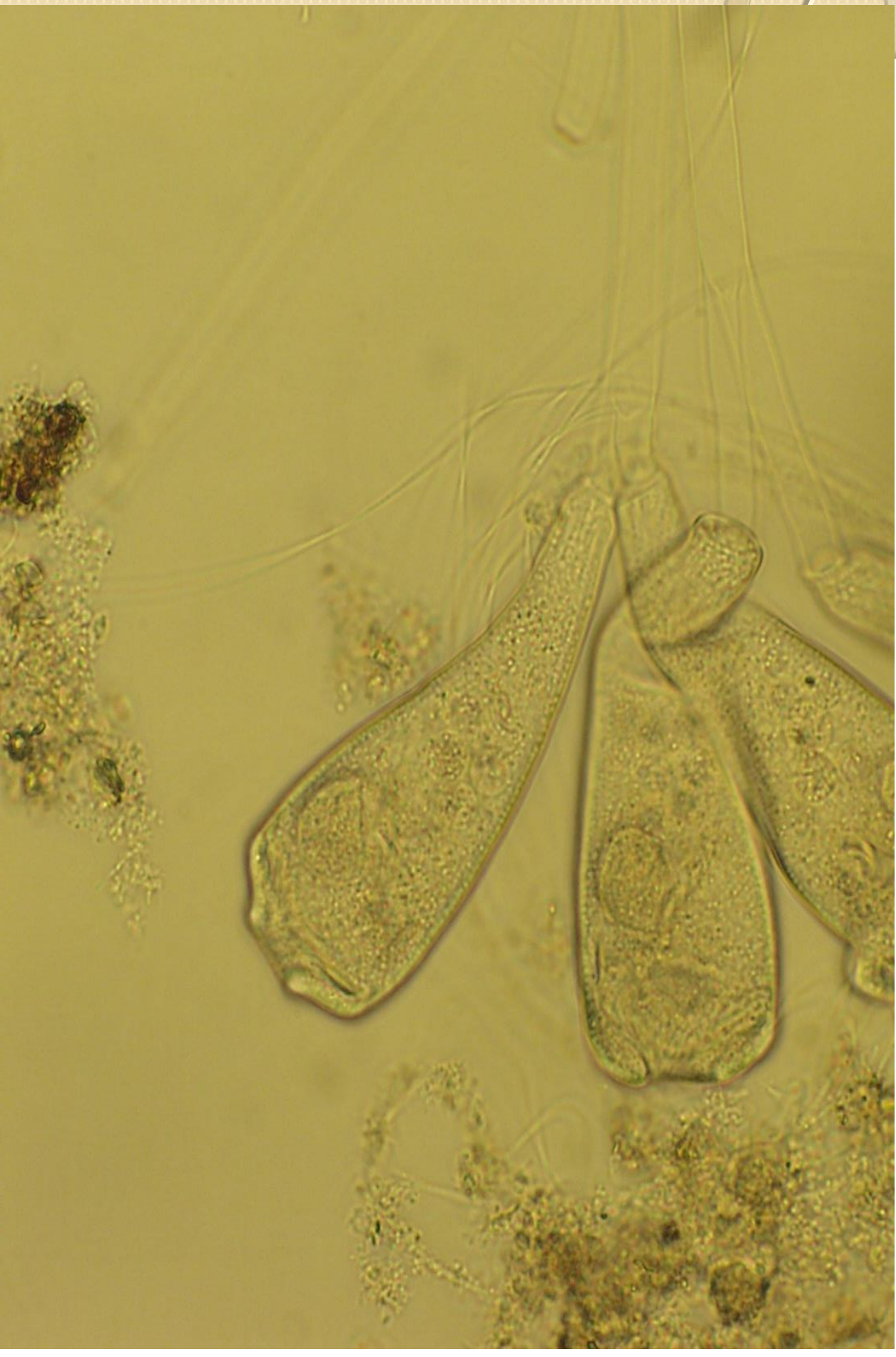




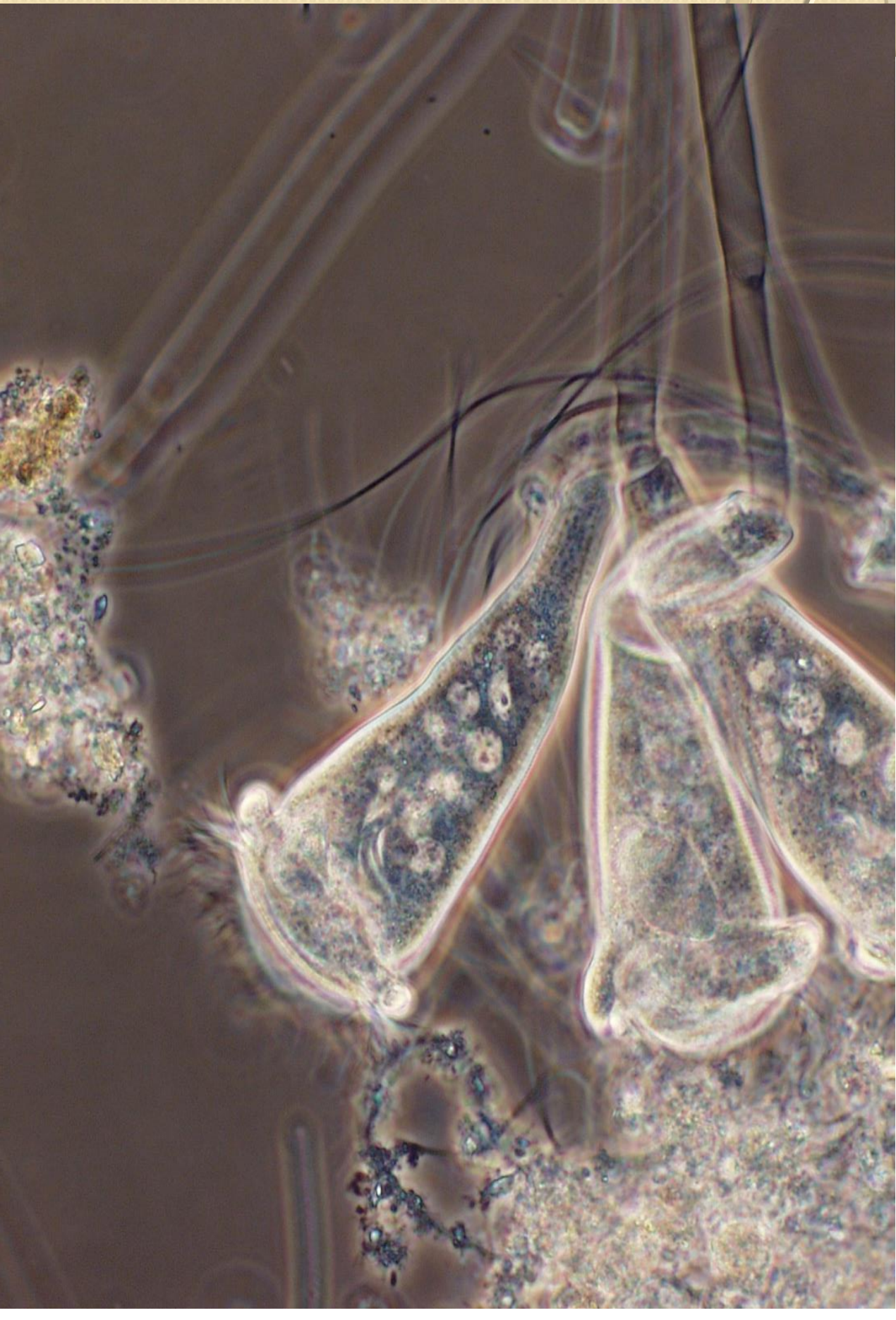
Fig. 1. Phase Contrast Microscopy



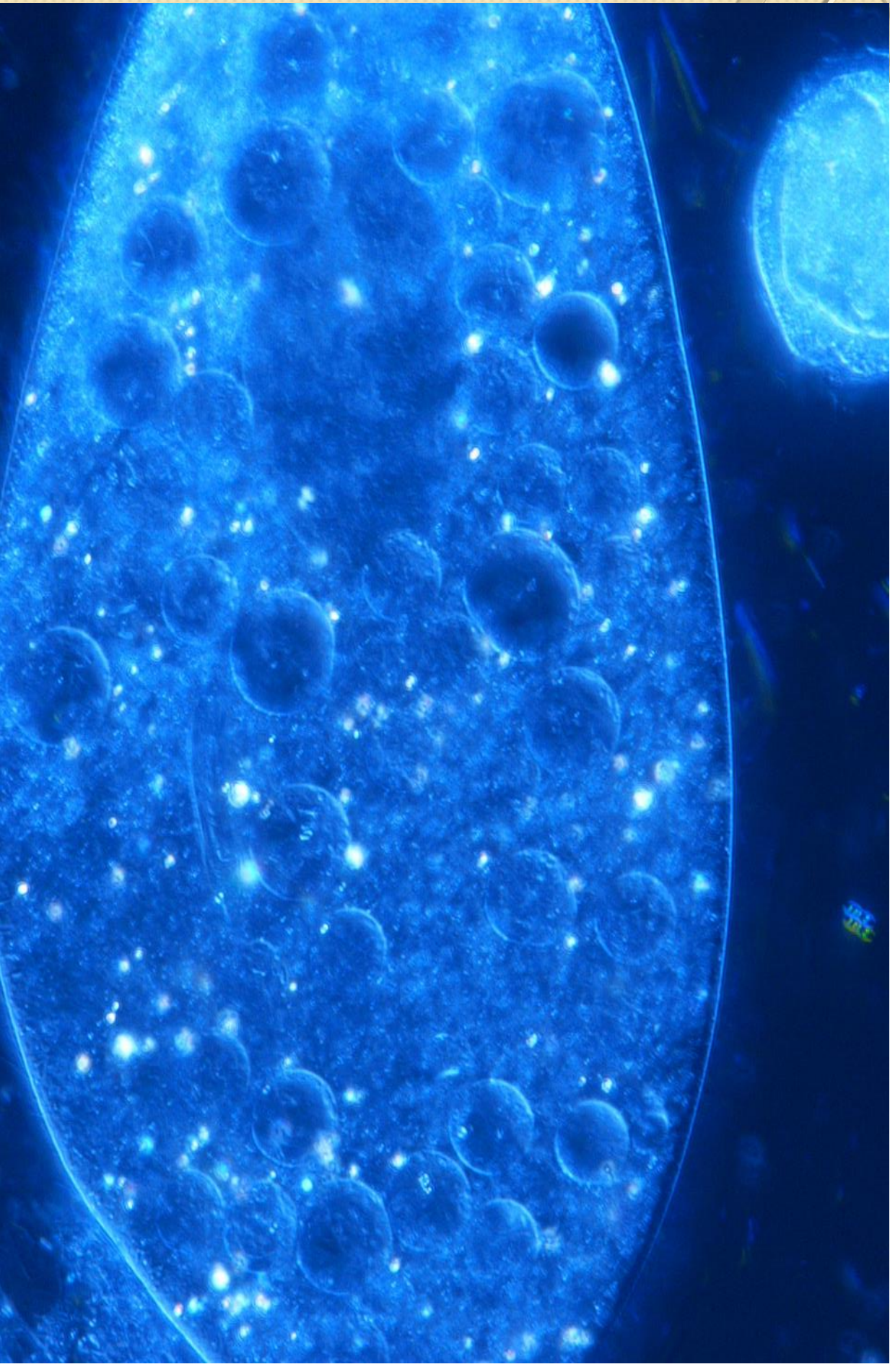
Bright Field



Phase Contrast



Diffraction Interference Contrast

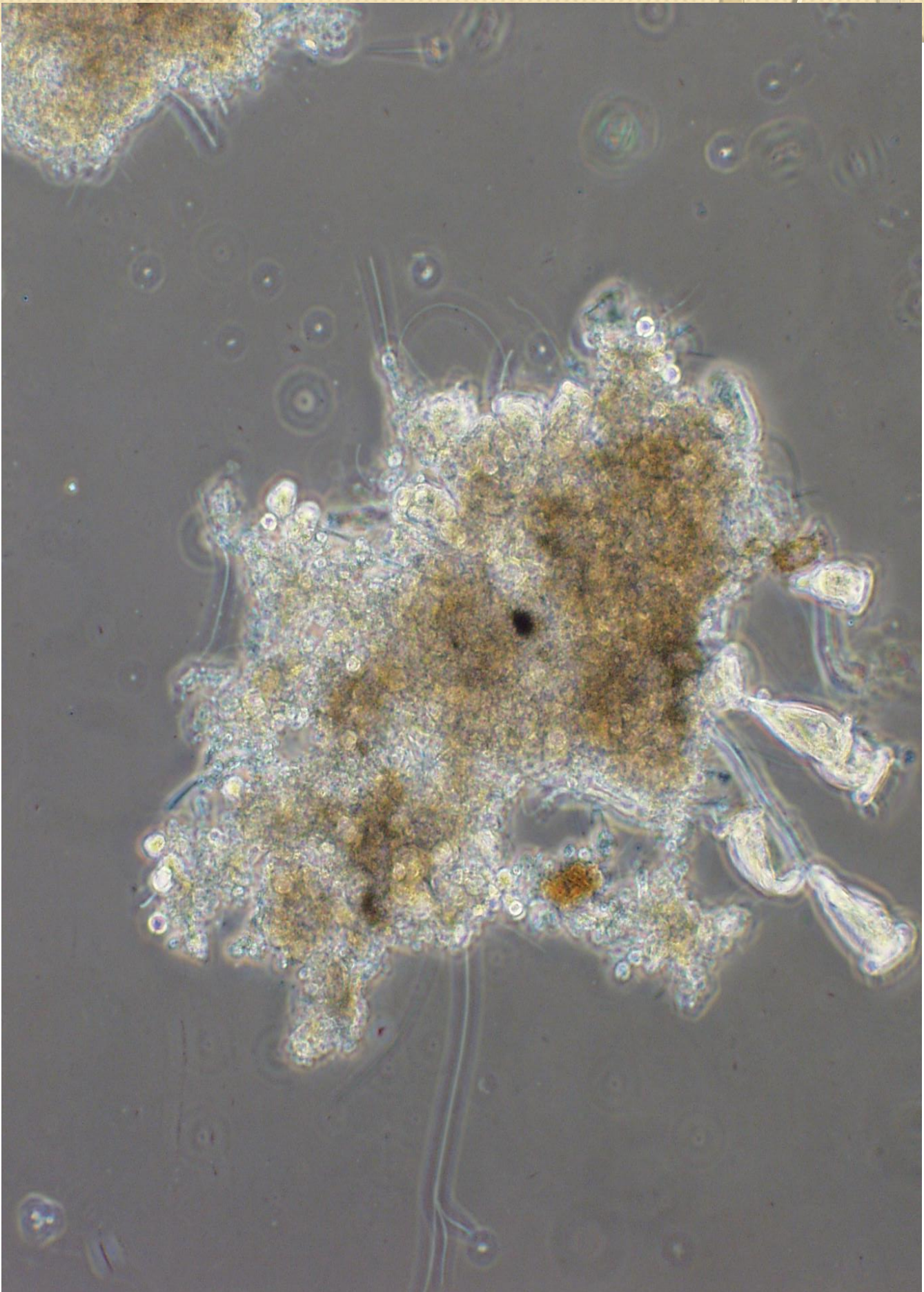




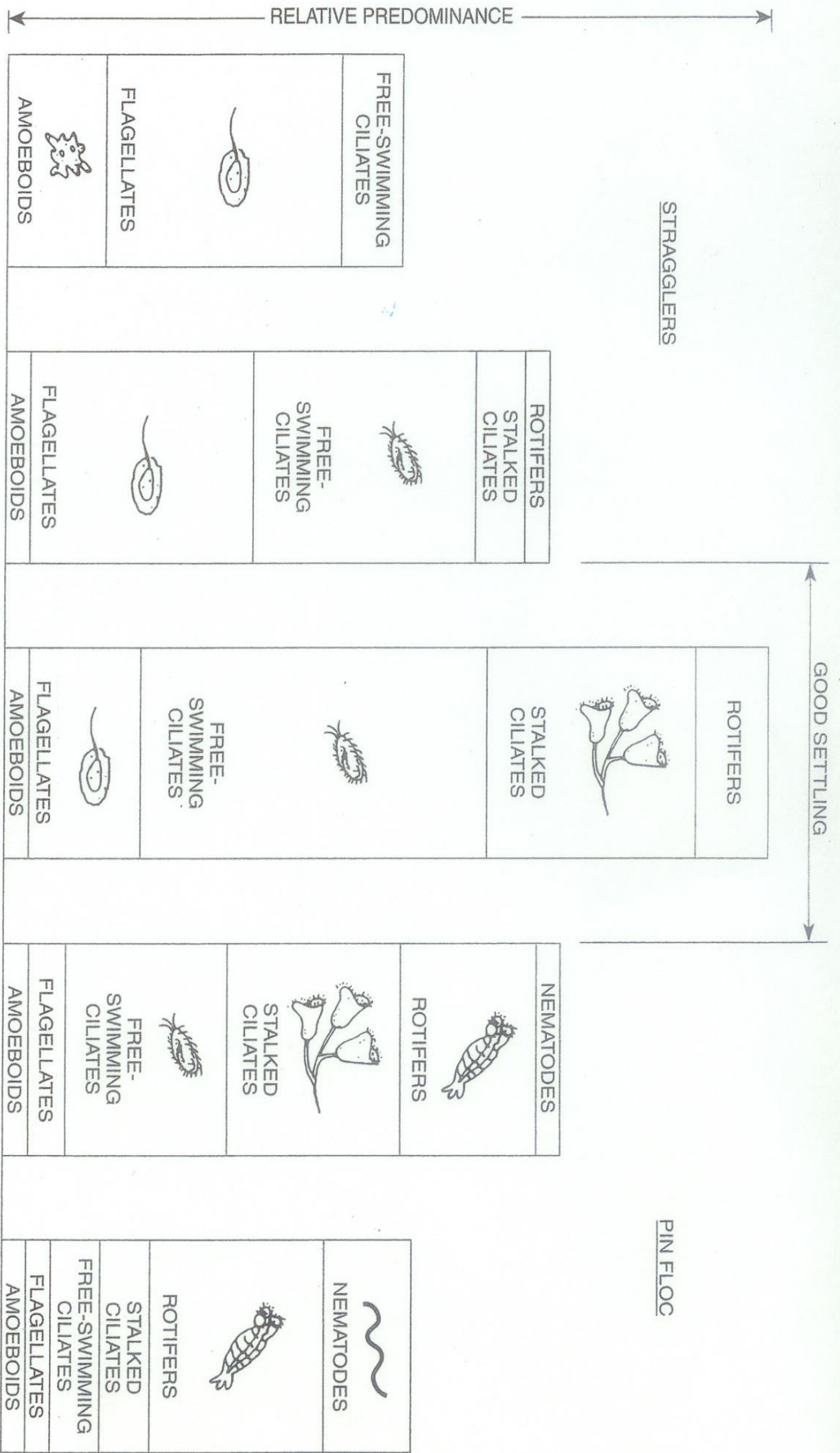
DIC

2. Protozoa provide most of the treatment.





Nope.



Population predominance versus operational guidelines (Bar graph taken from EPA PROCESS CONTROL MANUAL FOR AEROBIC BIOLOGICAL WASTEWATER TREATMENT FACILITIES, 1977)

AND the #1 Myth of Wastewater Microbiology is ...

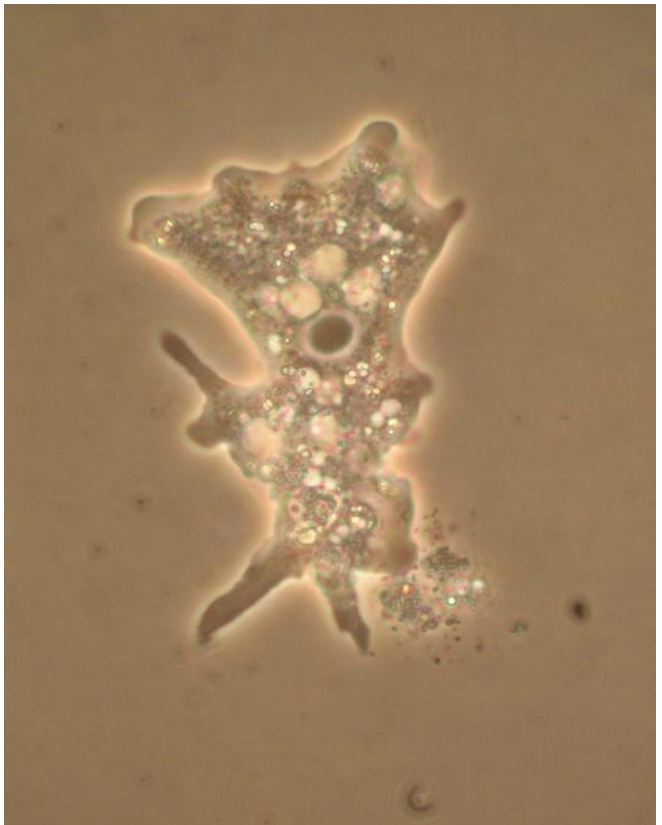
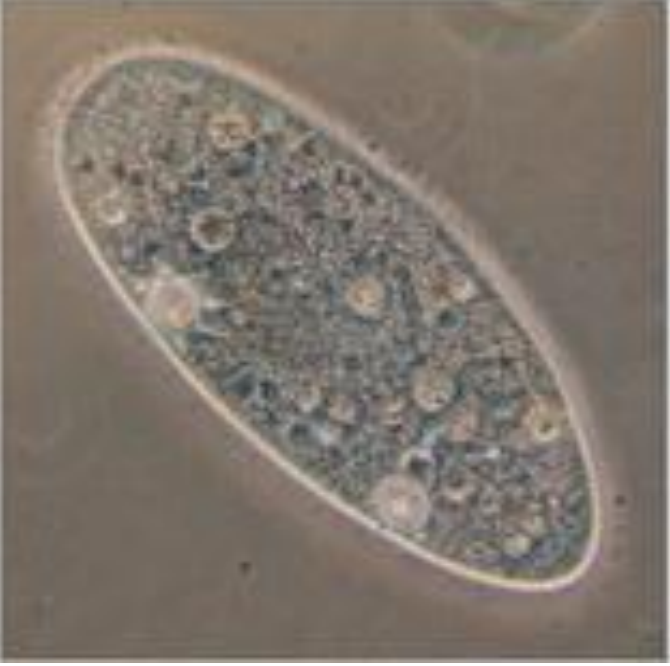
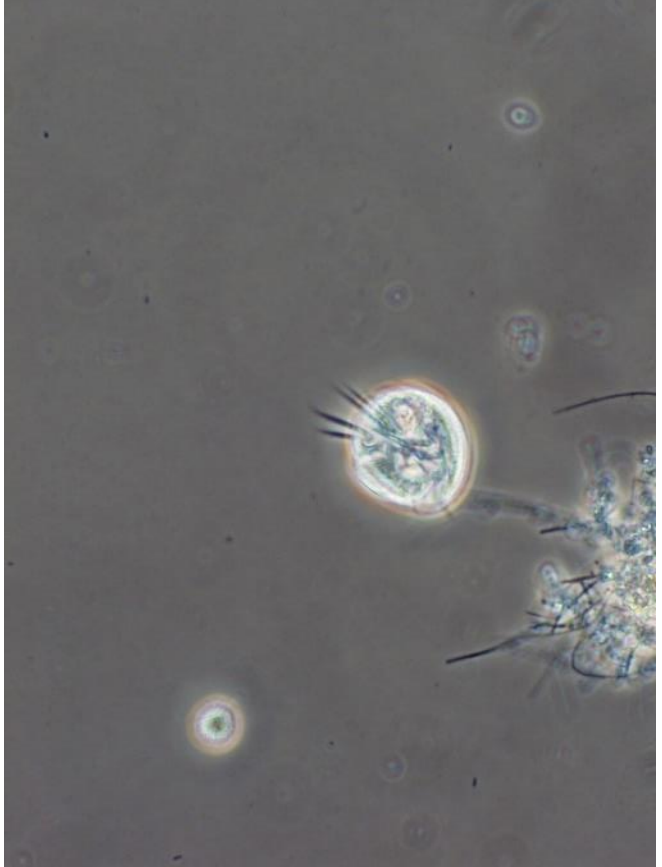
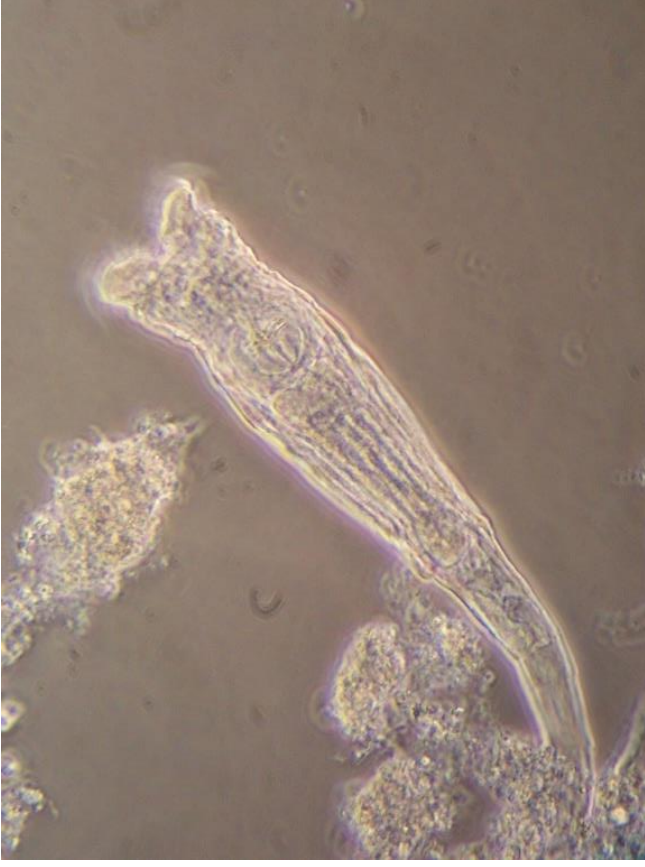


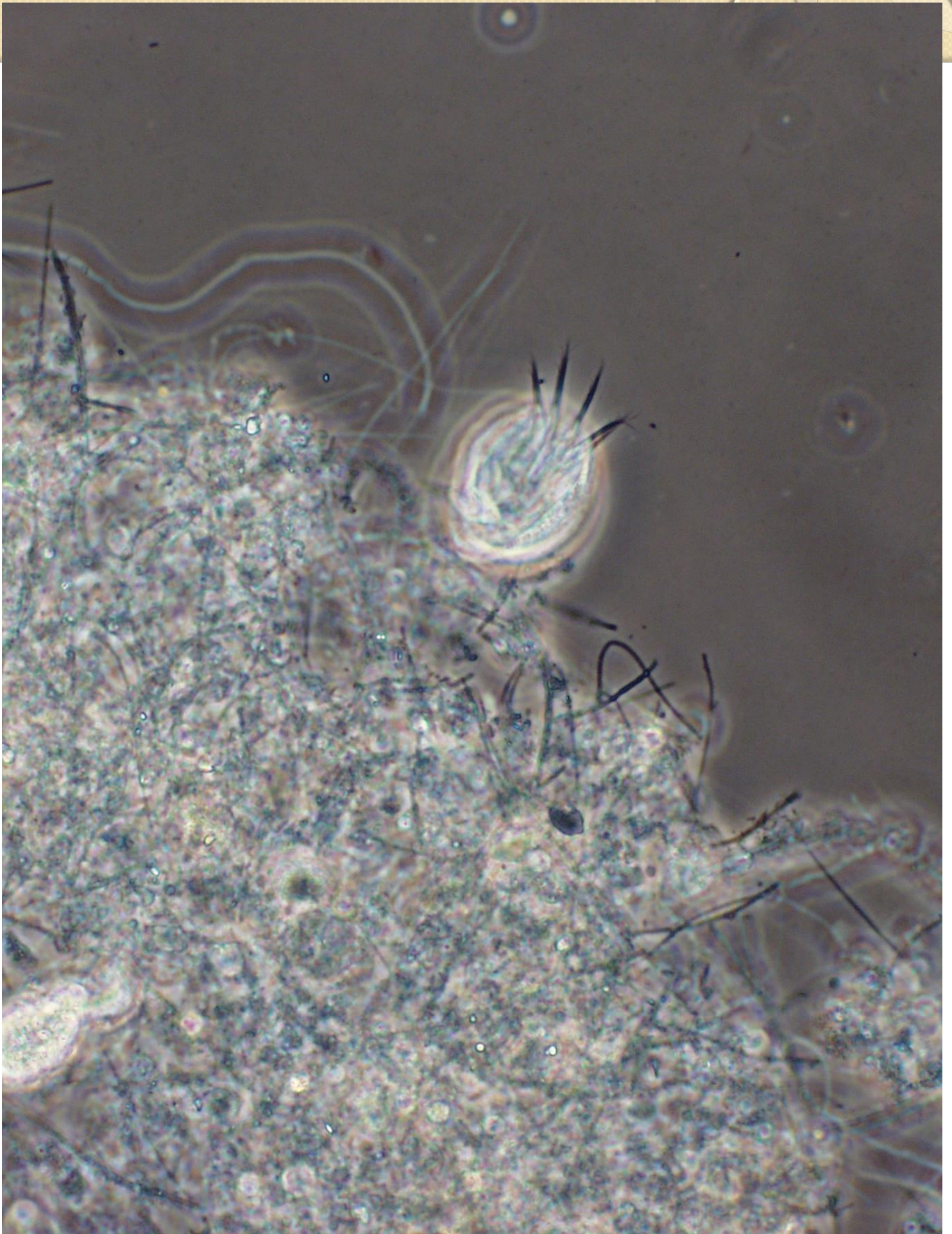
You have bugs in your mixed liquor!

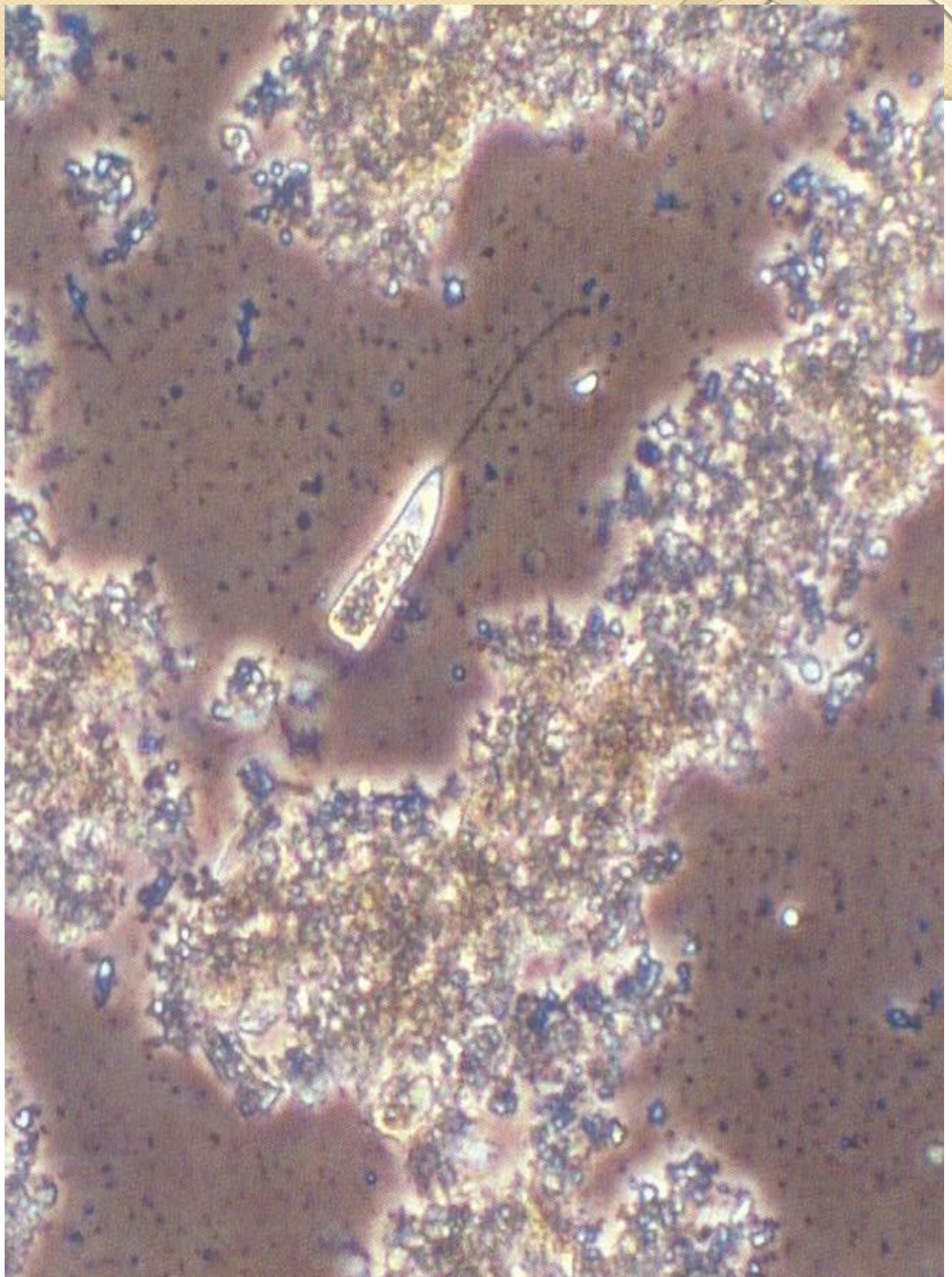


MICROORGANISMS

MICROBES







Upcoming Workshops



- Troubleshooting The Activated Sludge Process
- ❖ July 14 - 16, 2015 White Sulfur Springs, WV
- ❖ Date: ??????? OTCO
- Wastewater Microbiology
- ❖ Sept. 2 – 3, 2015 Harpers Ferry, WV
- ❖ Nov. 3 – 4, 2015 Dayton, OH

