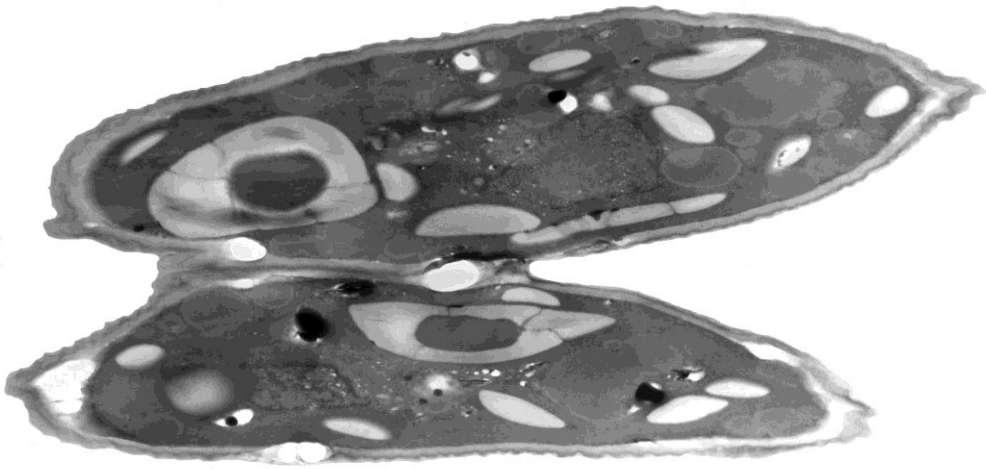
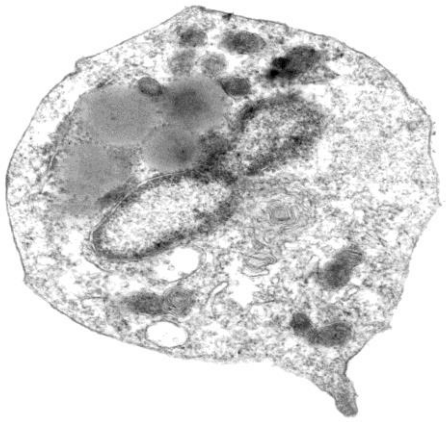
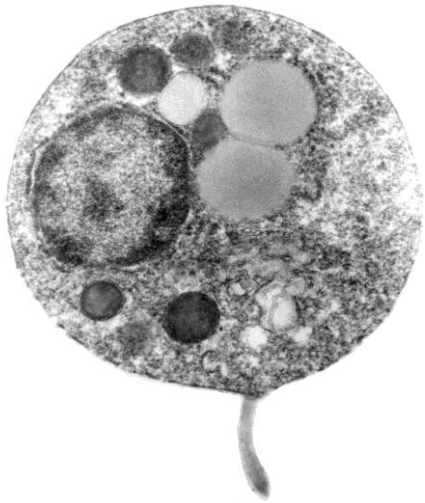
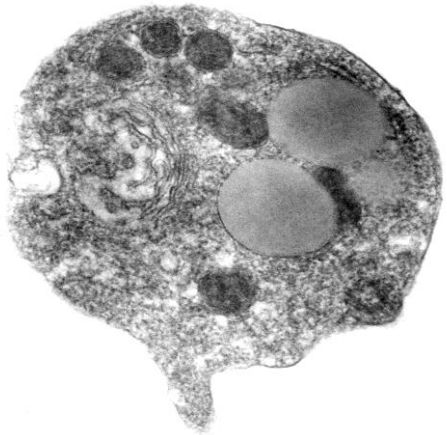
Day 2

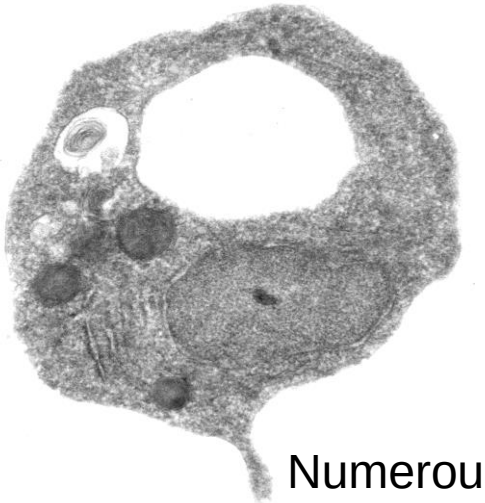


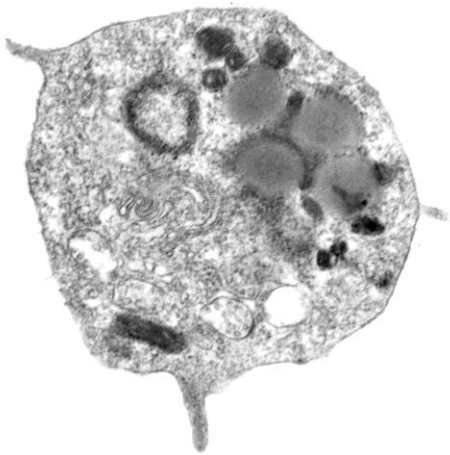


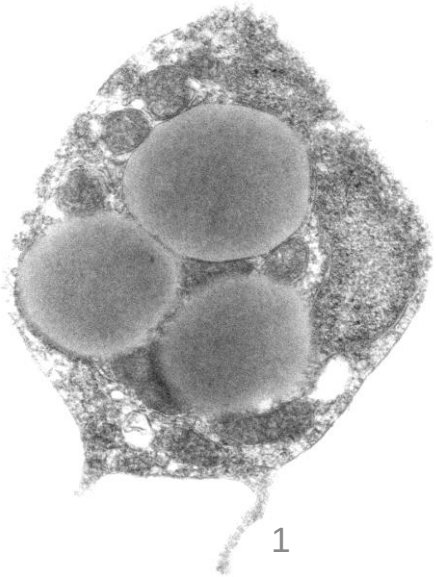




Abundant healthy algal cells, ~4X15 µ



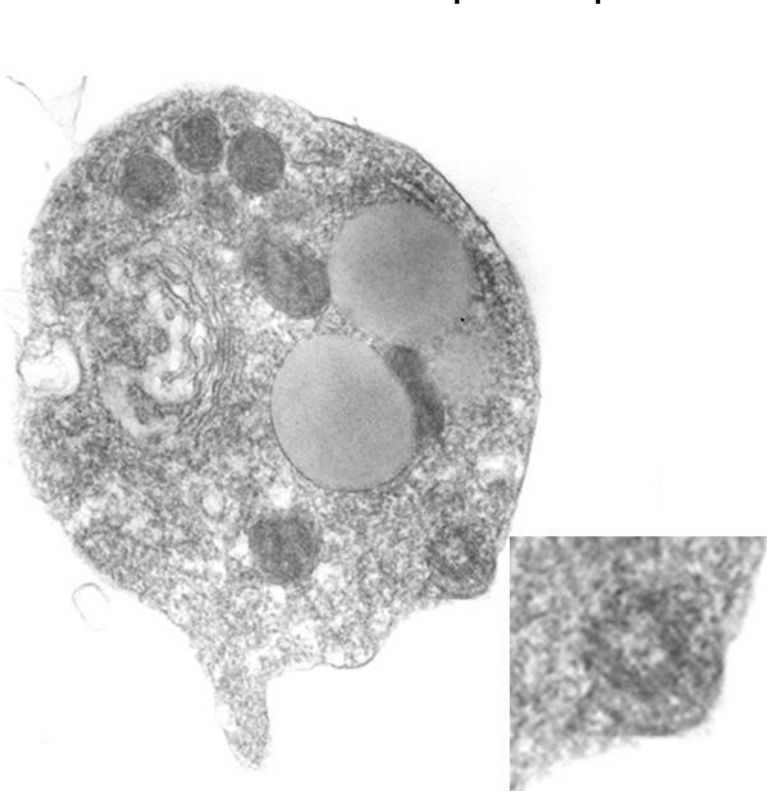


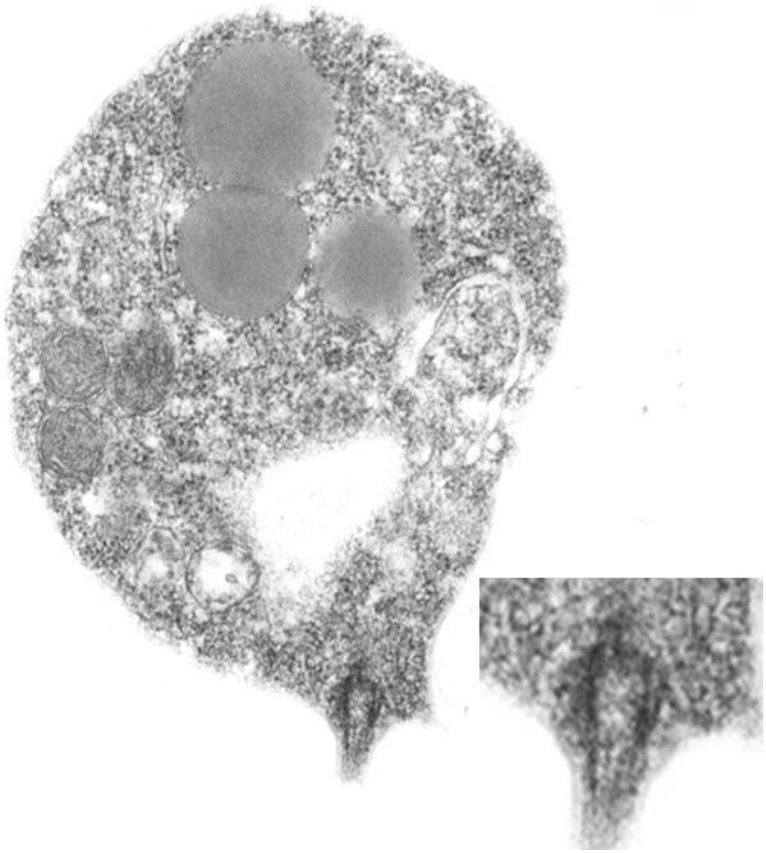


Numerous filose pseudopodiate aplanospores, 1.7-2.5 µ diam

Day 2

Aplanospores 1.7-2.5 µ diam

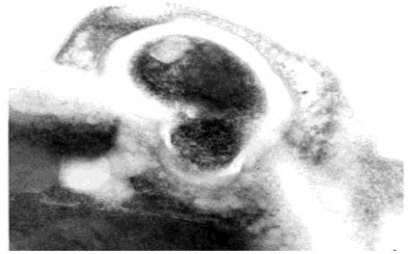


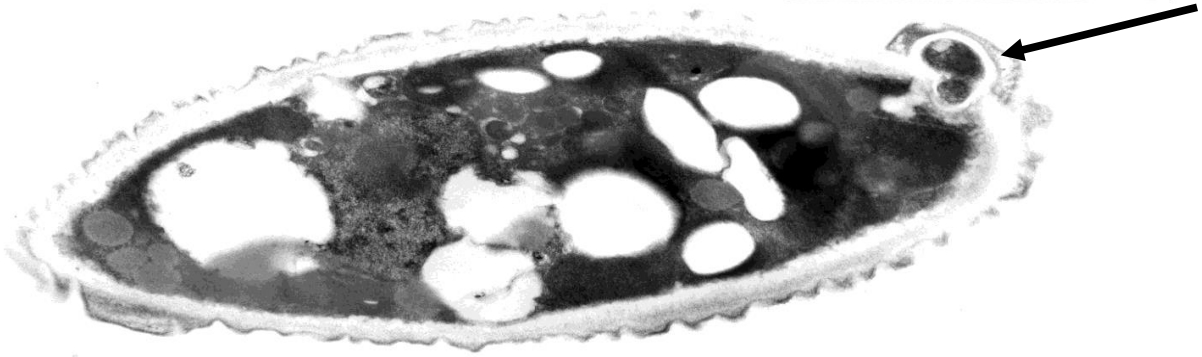


Images of 2 aplanospores indicate the presence of a centriole, but no indication of a flagellum has been observed.

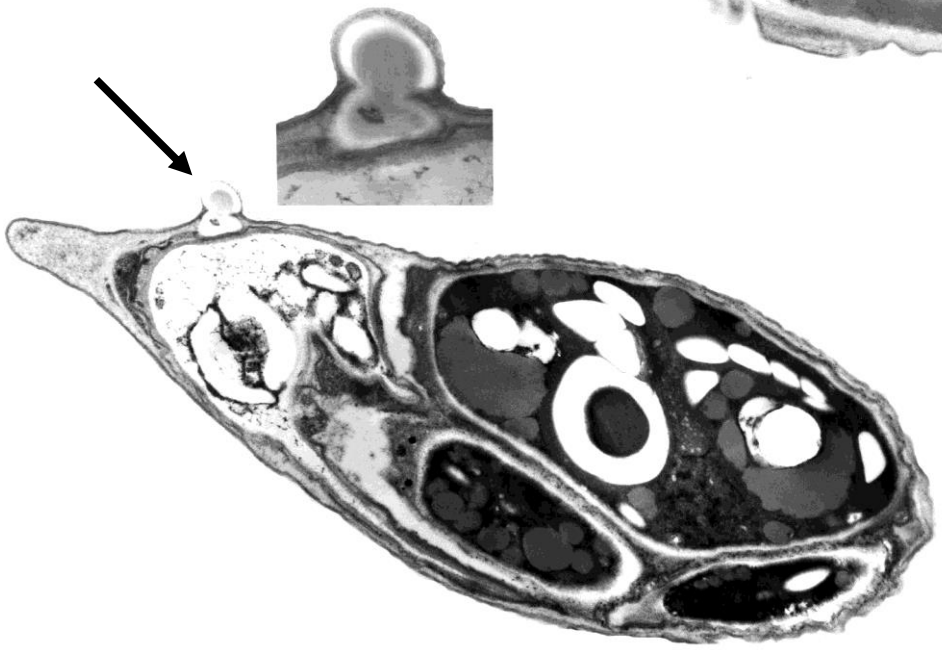
Day 2

Cyst ~1.25µ diam





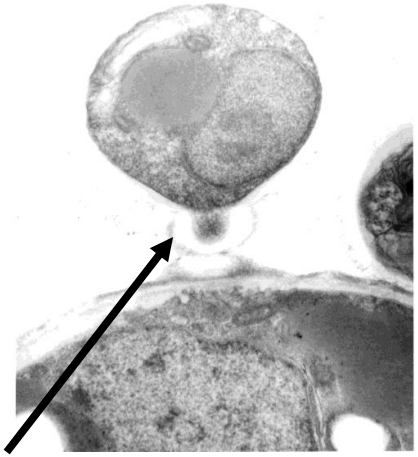
Cyst ~1µ diam



A minority of algal cells present with a cyst-like structure attached to and penetrating the host cell wall. Cyst is approx 1-1.25µ diam. Aplanospores are 1.7-2.5µ diam……..

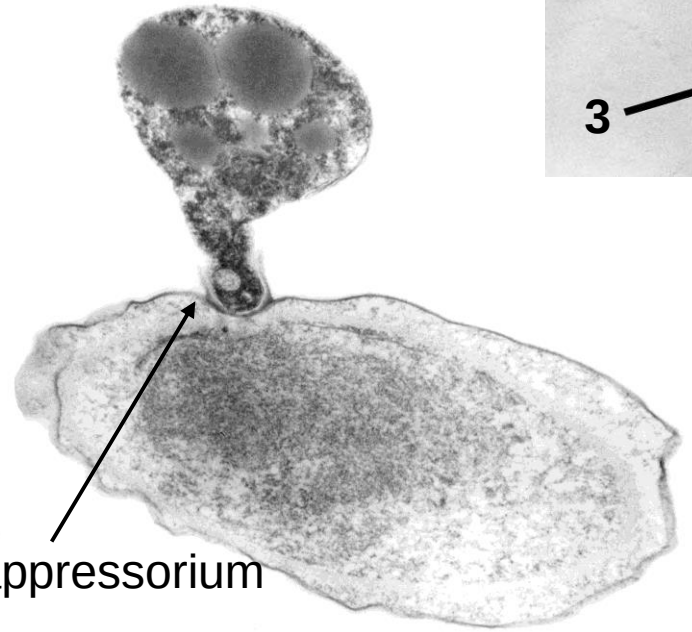
Day 3

encysted aplanospore

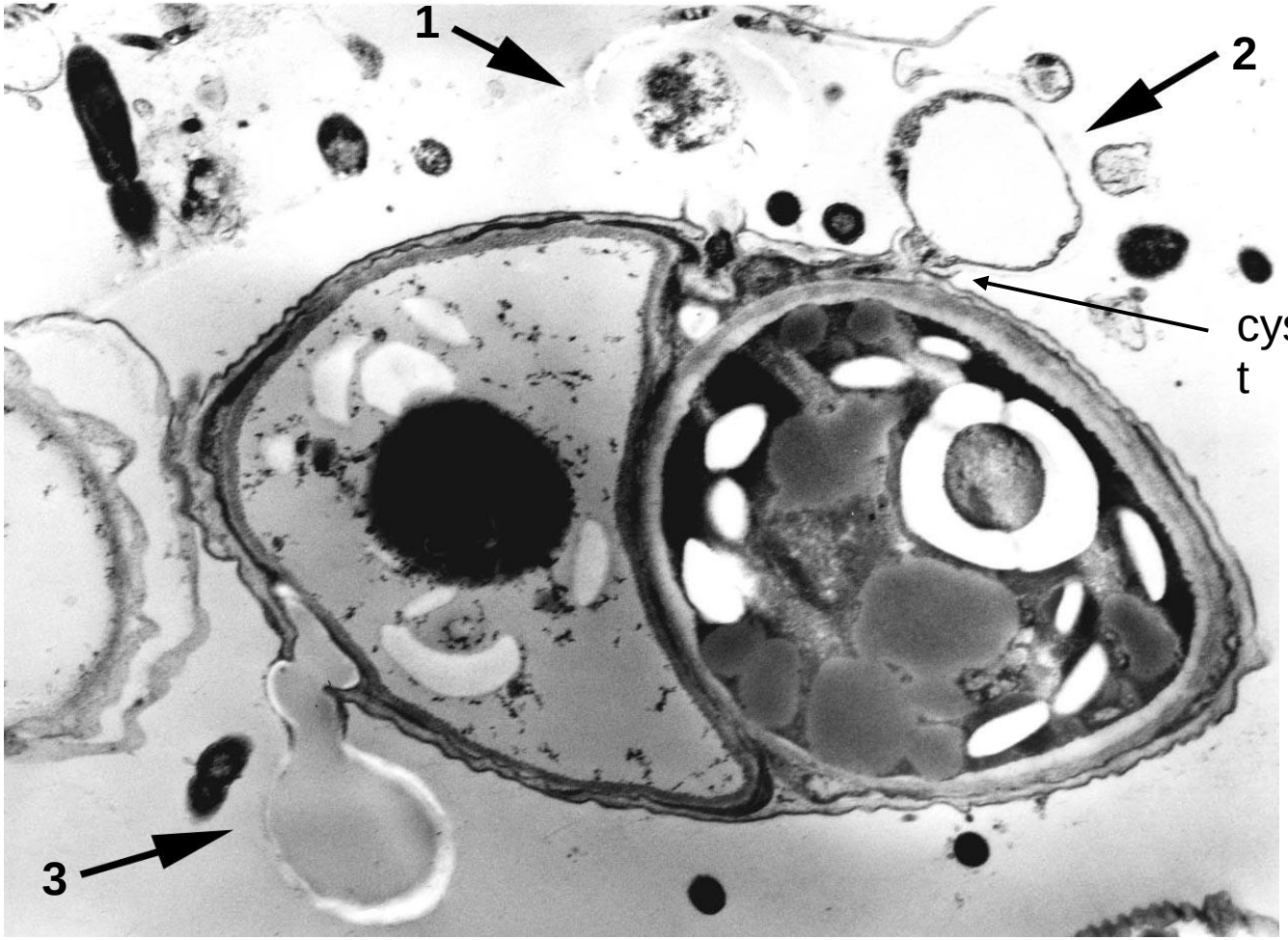


appressorium

encysted aplanospore



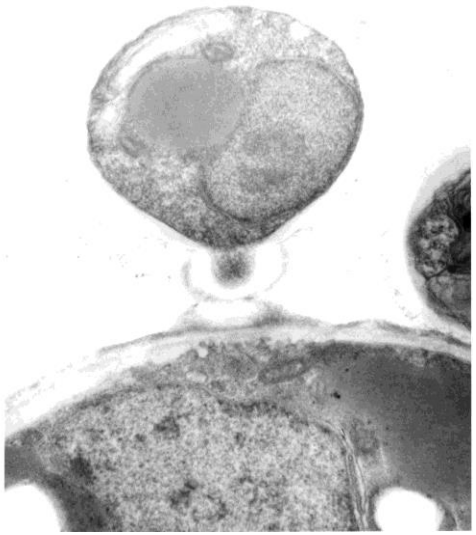
appressorium

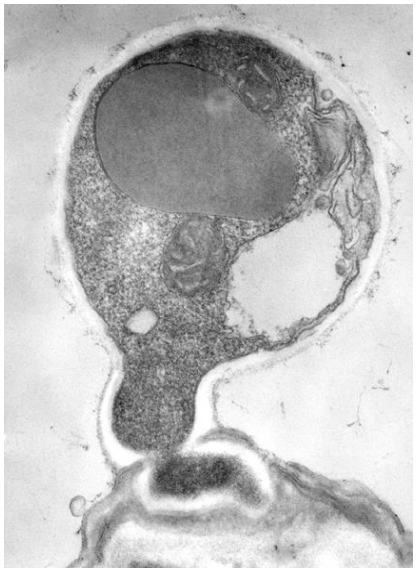


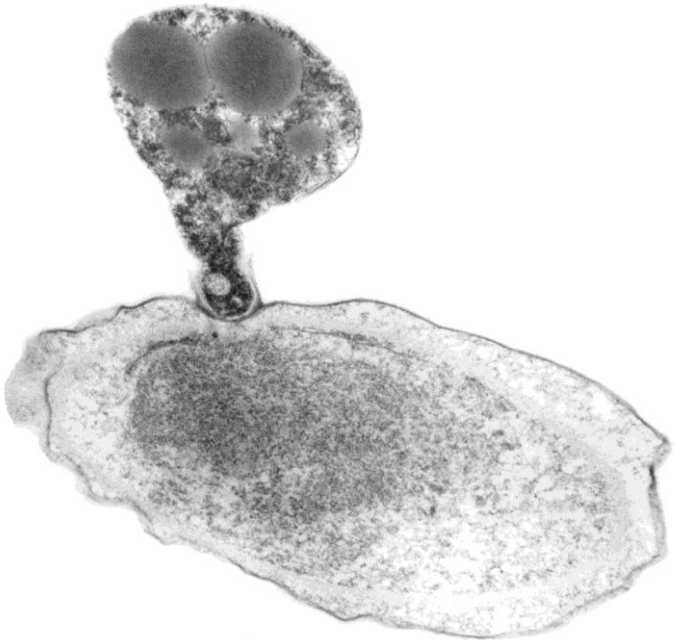
Abundance of algal cells with one or more (3 are indicated above) spherical to subspherical, encysted aplanospores subtended by an appressorium

Day 3

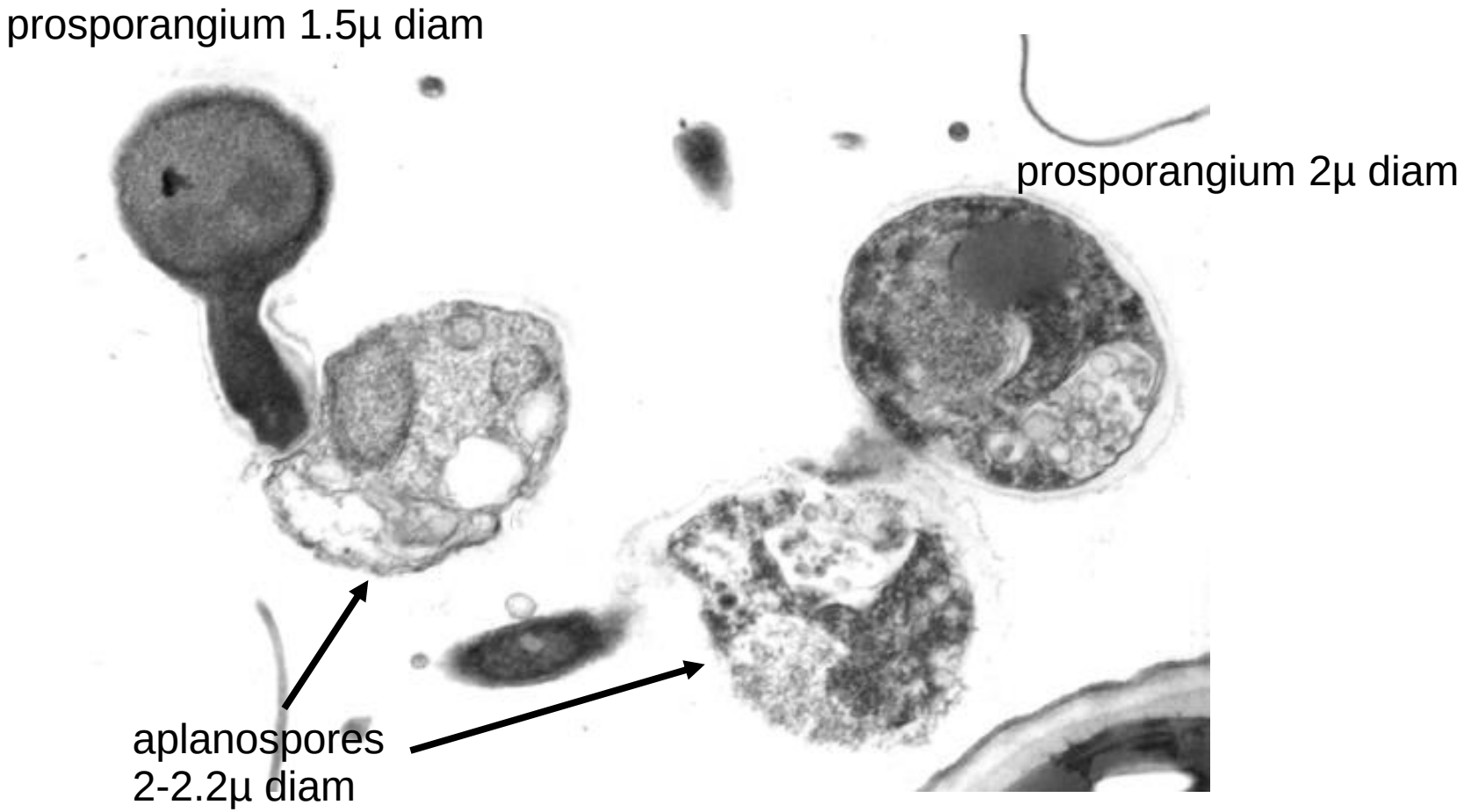
Encysted aplanospores (1.3-1.7µ diam)





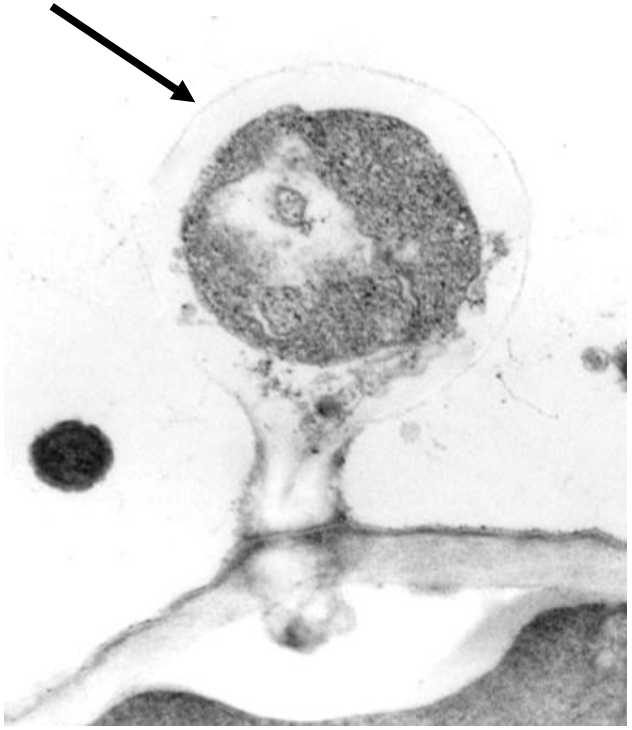


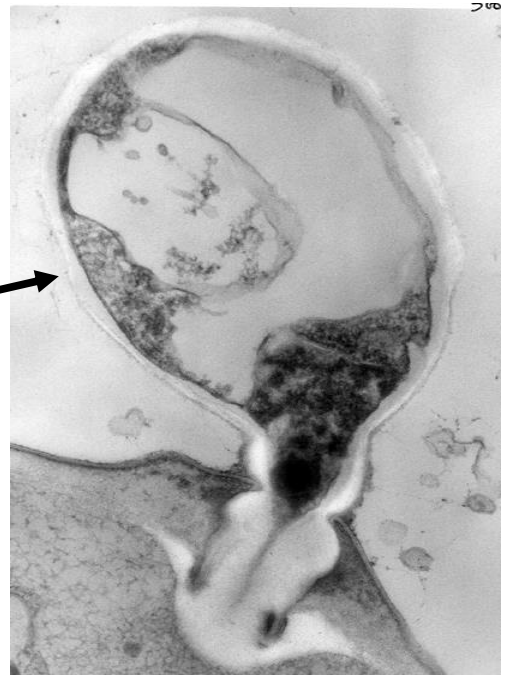
Day 3



What appear to be aplanospores that have germinated and produced a PROSPORANGIUM in situ and NOT attached to an algal cell

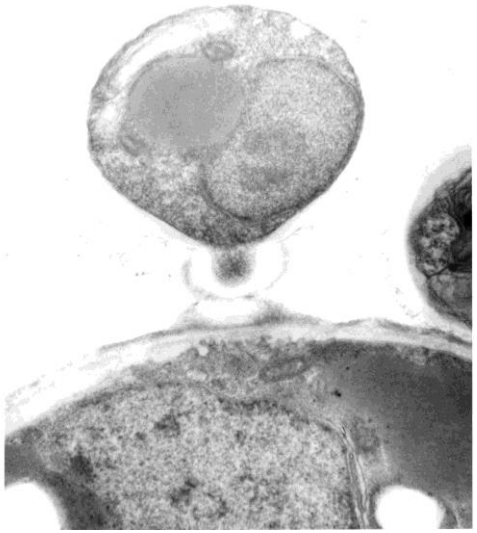
Day 3

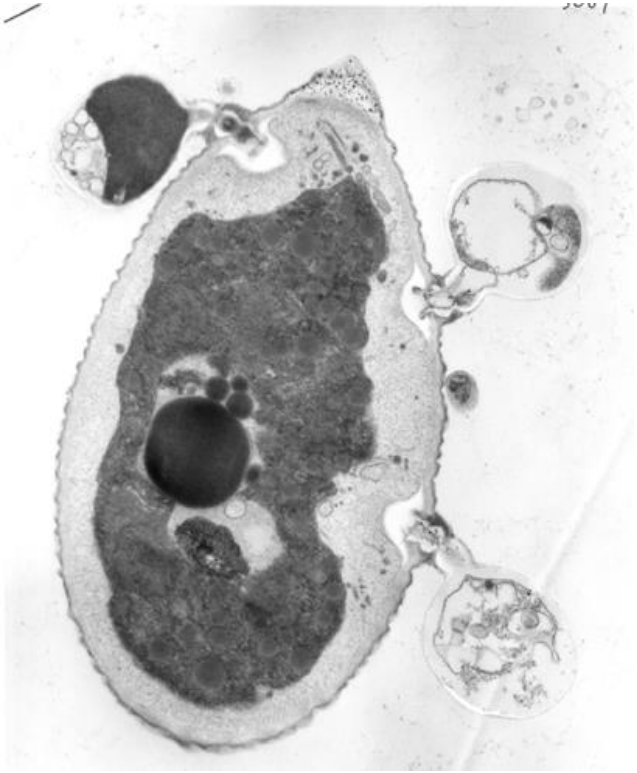


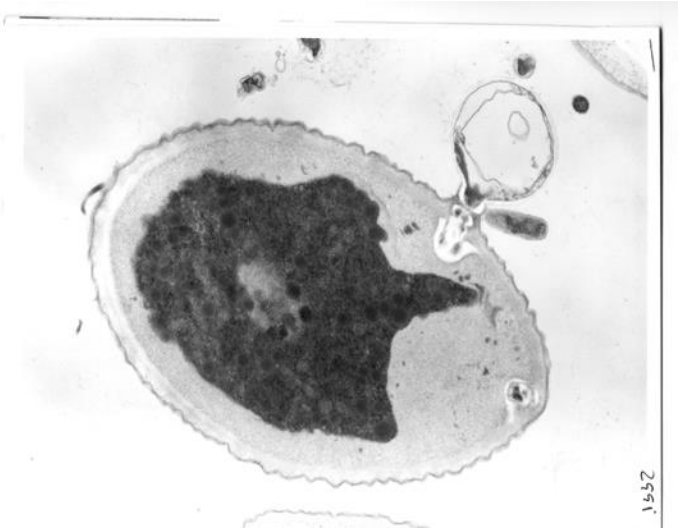


encysted aplanospore is walled

Day 3

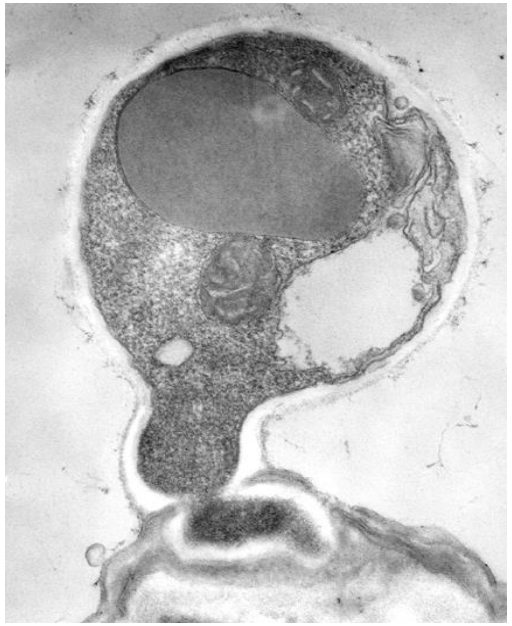


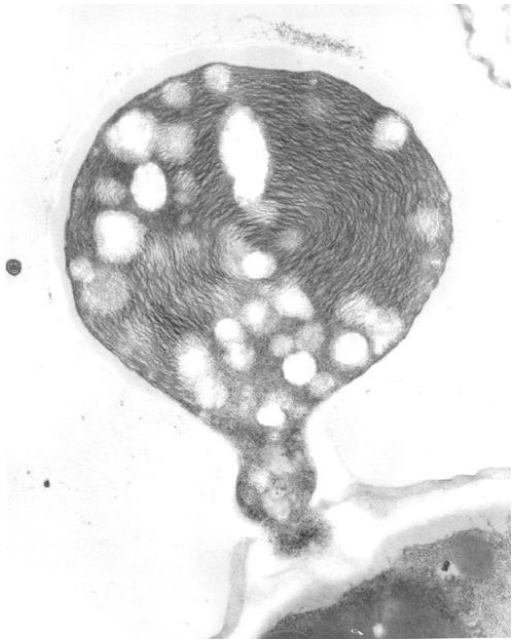


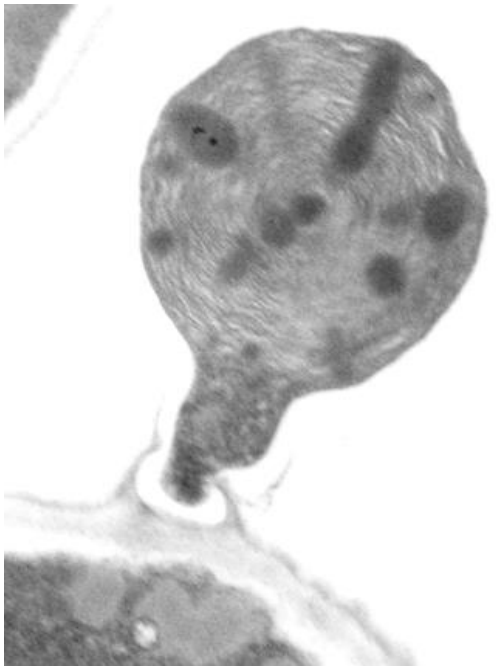


Infected algal cells with one or more encysted aplanospores

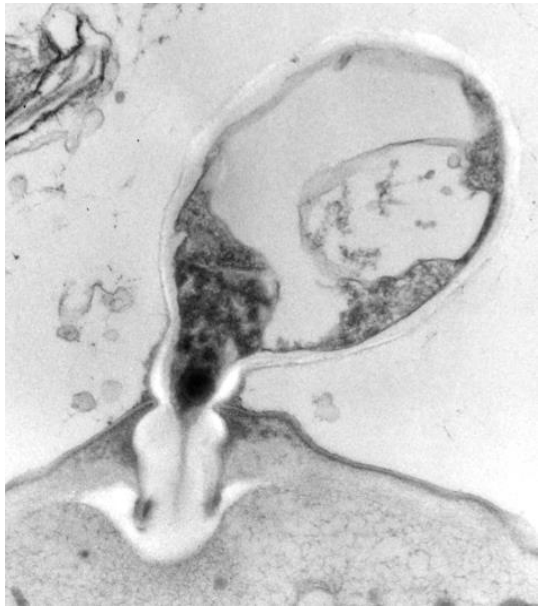
Day 3

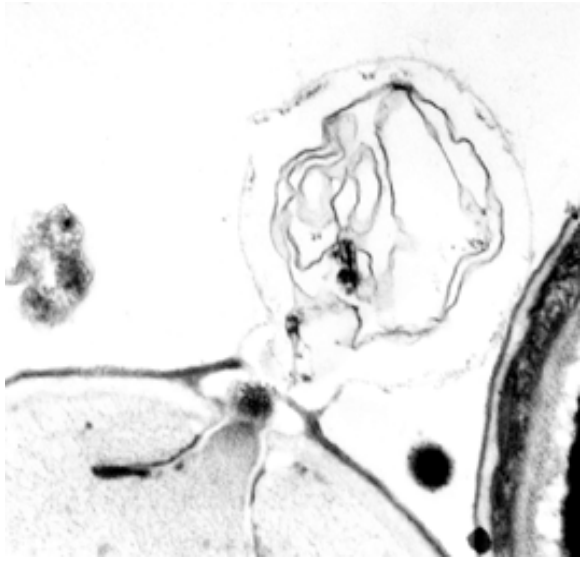




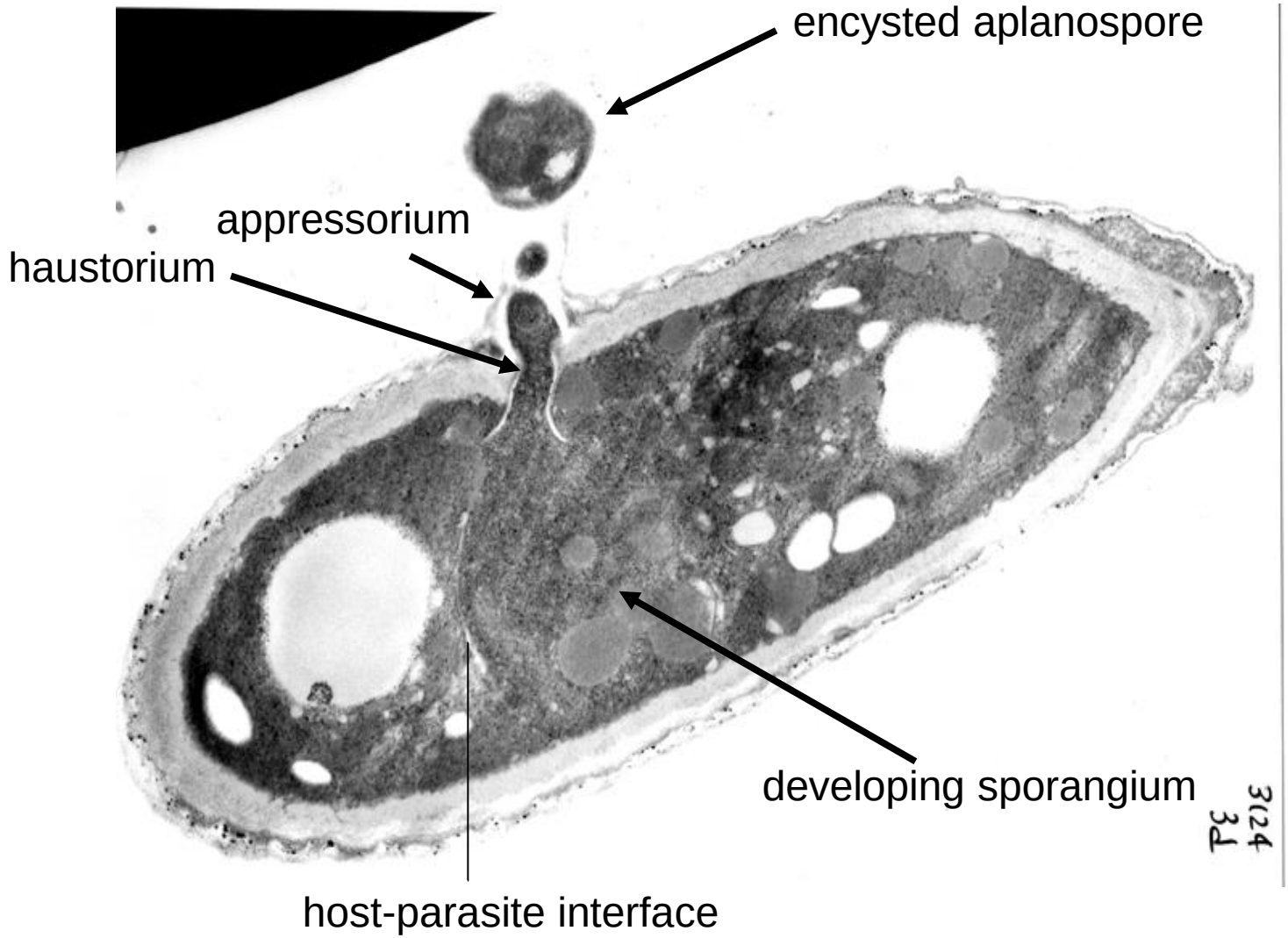


Encysted aplanospore contains an abundance of myelin-like material (upper center and right), or is vacuolated

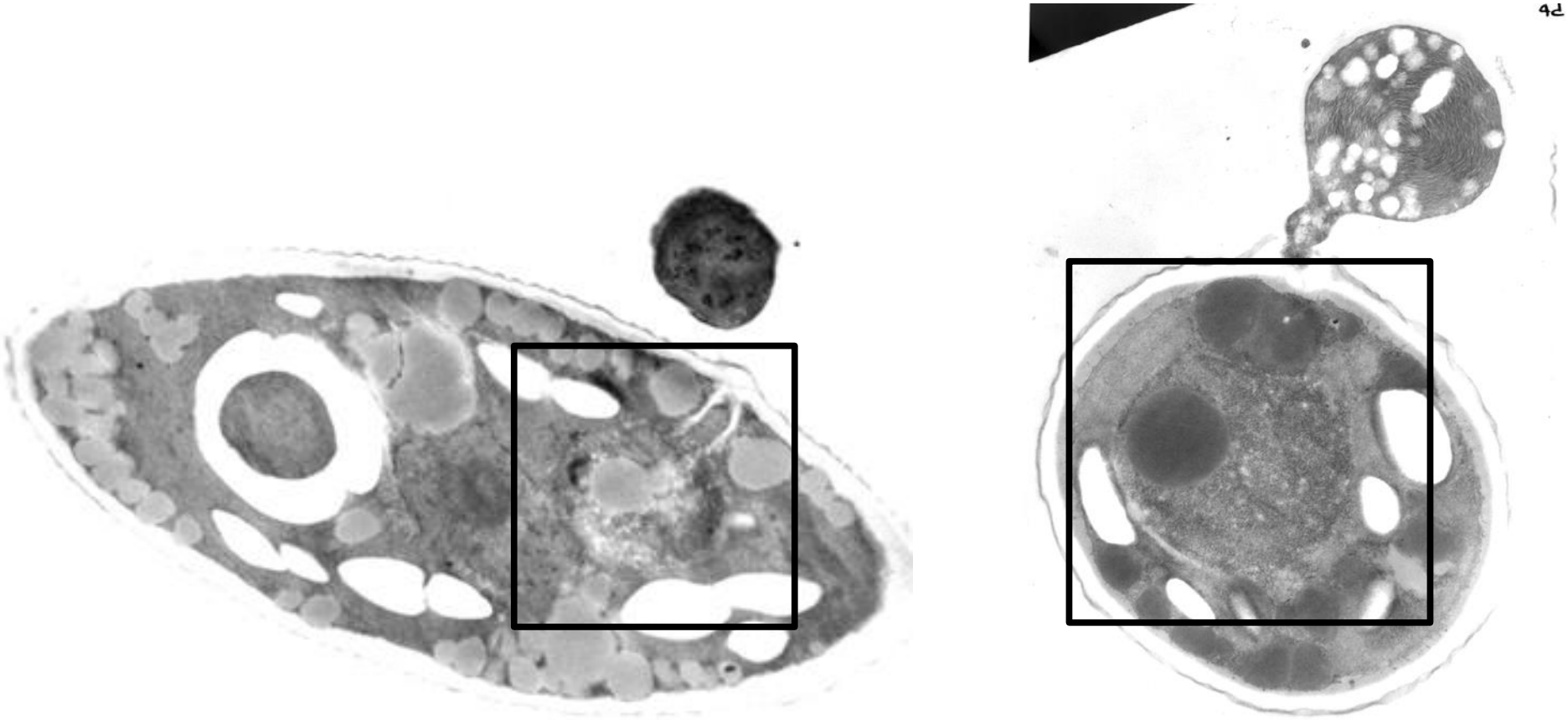




Day 3

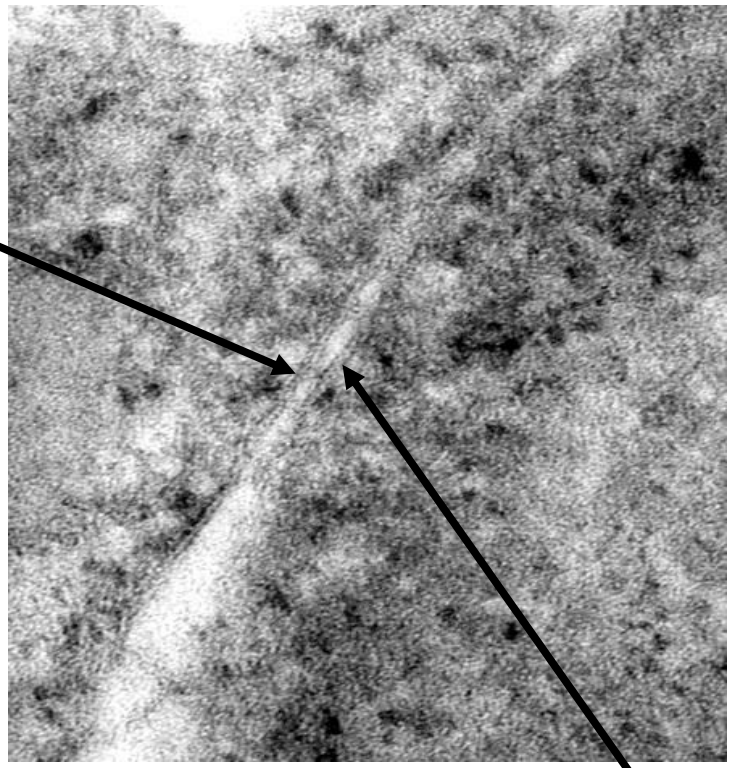

encysted aplanospore
appressorium
haustorium
developing sporangium
host-parasite interface

Day 3



Initial development within infected algal cell of endobiotic, unwalled SPORANGIUM derived from epibiotic, walled encysted aplanospore

Day 3



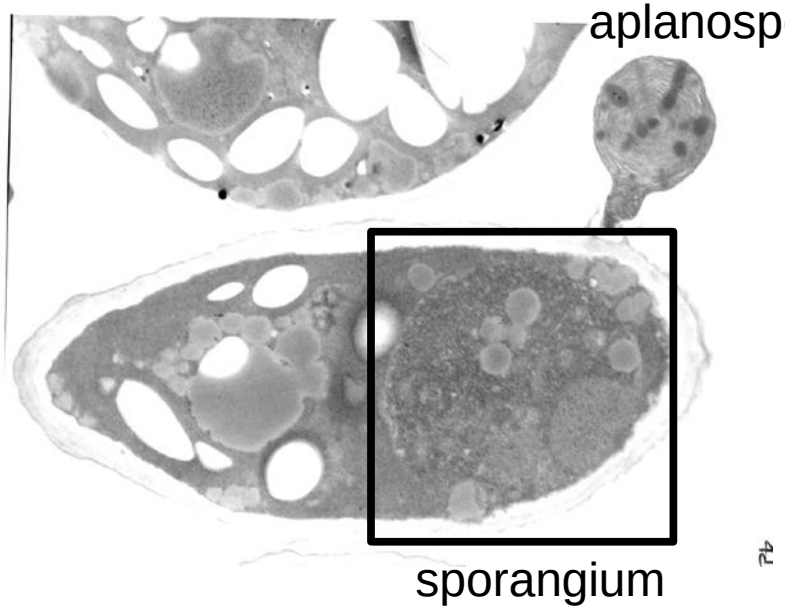
Host plasma membrane

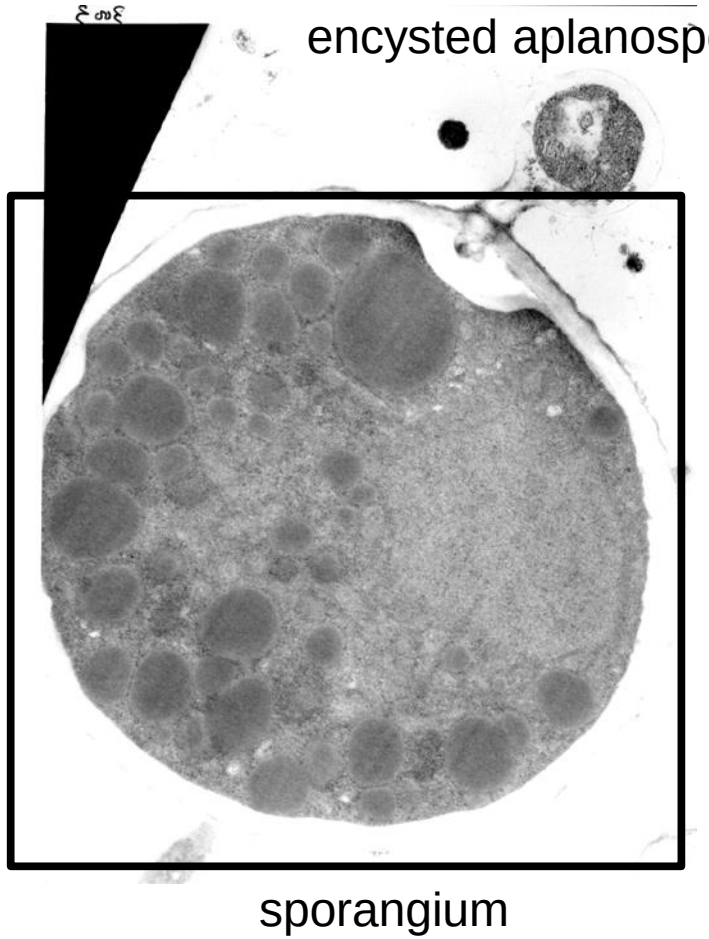
Parasite plasma membrane

Sporangium of parasite

The sporangium of FD01, like that of *Rozella*, is unwalled, simply being surrounded by a plasma membrane.

Day 4





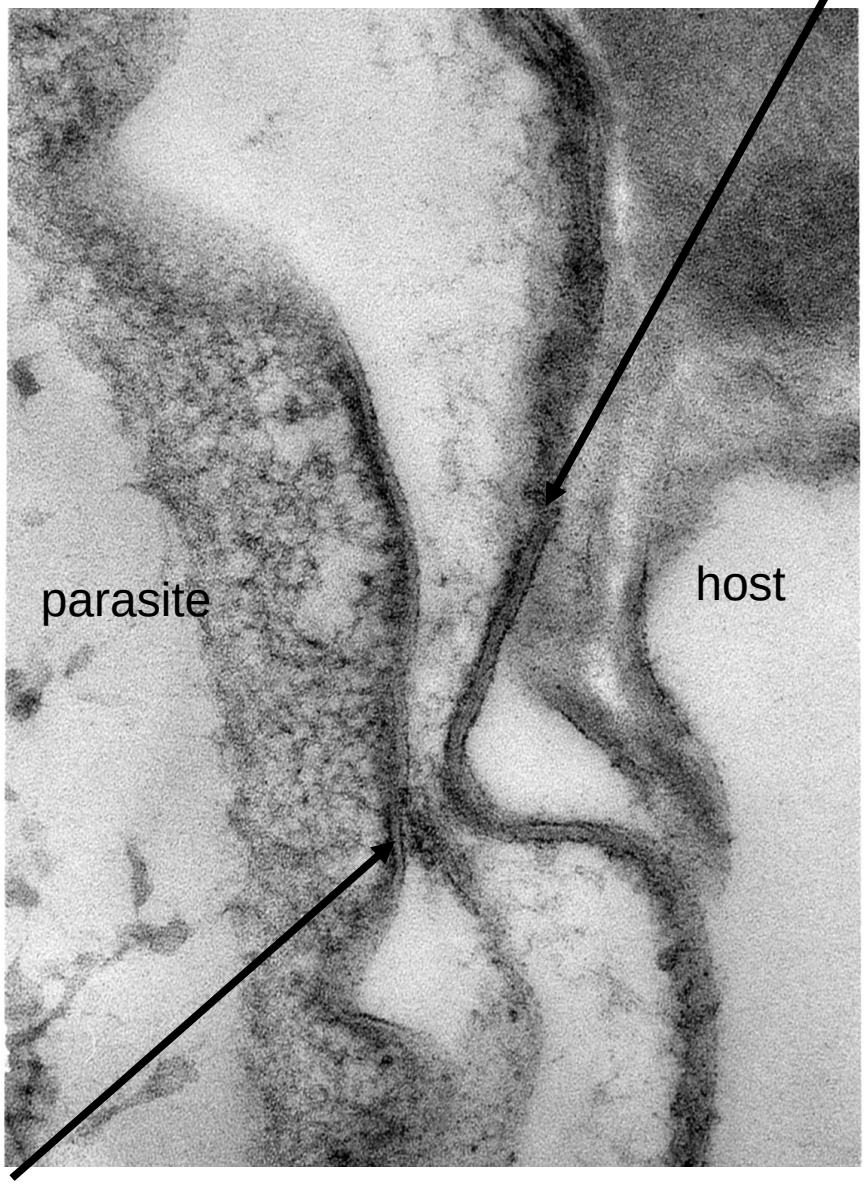
SPORANGIUM partially (left) or completely (right) fills interior of host cell; encysted aplanospore persists

Day 4

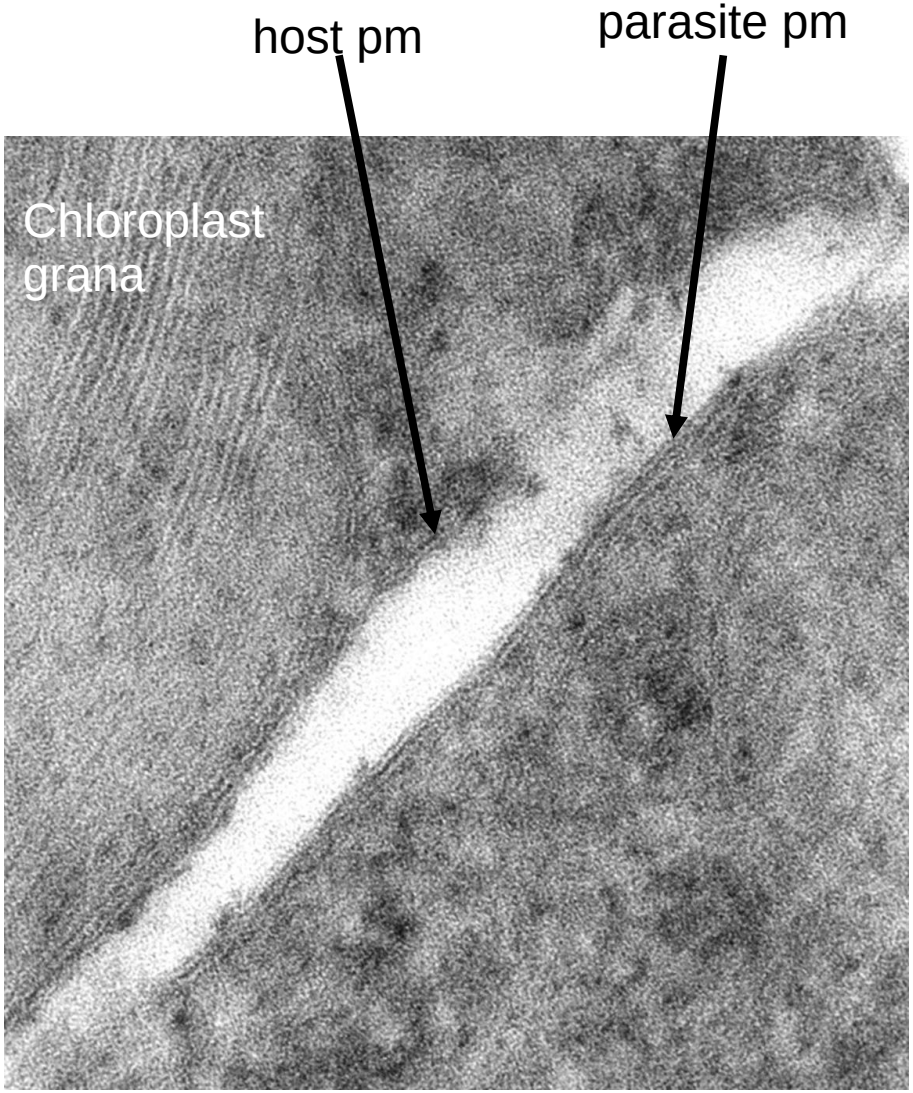
Early stage of aplanospore cleavage inside sporangium

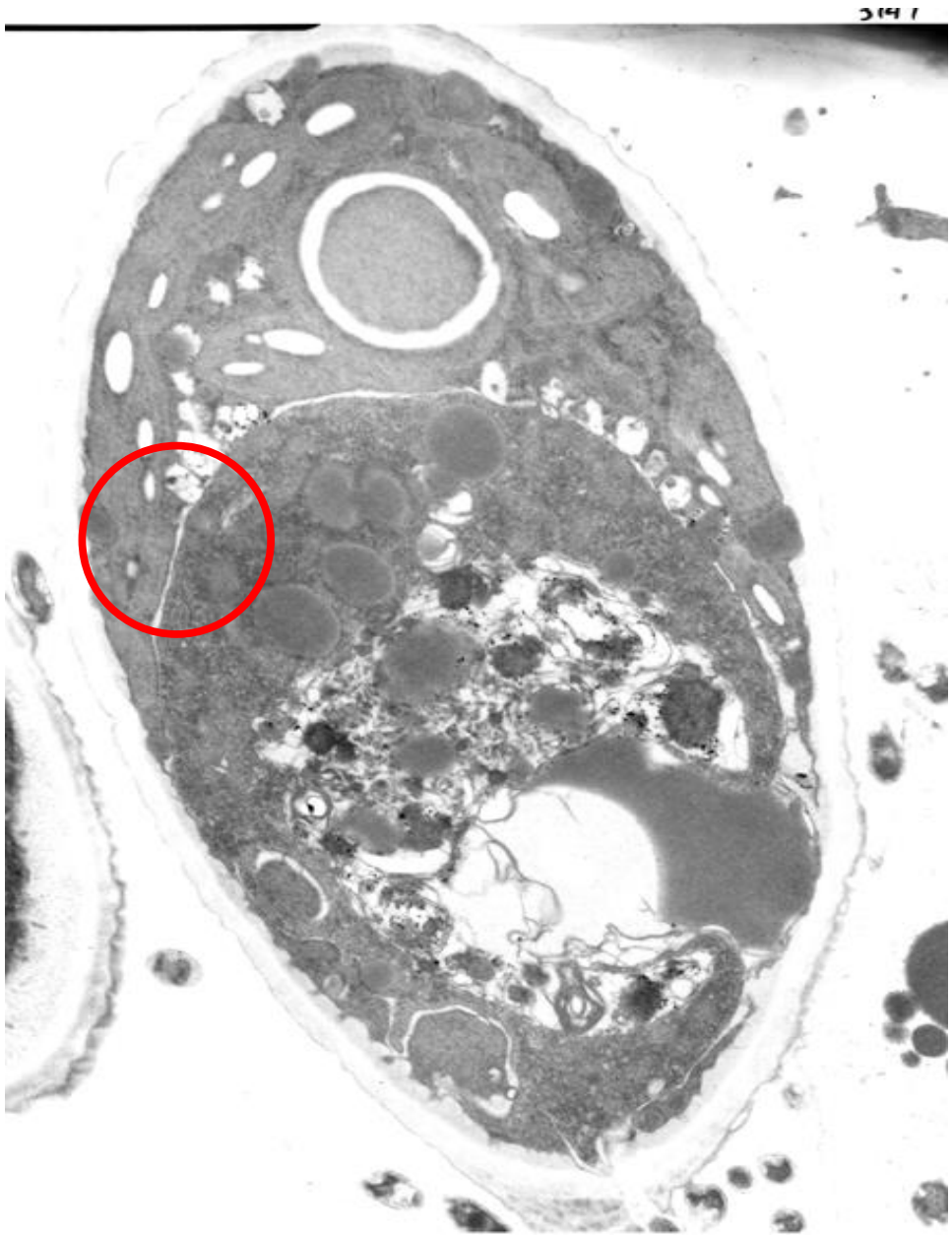
aplanospores

Day 4


host plasma membrane
parasite
host
parasite plasma membrane

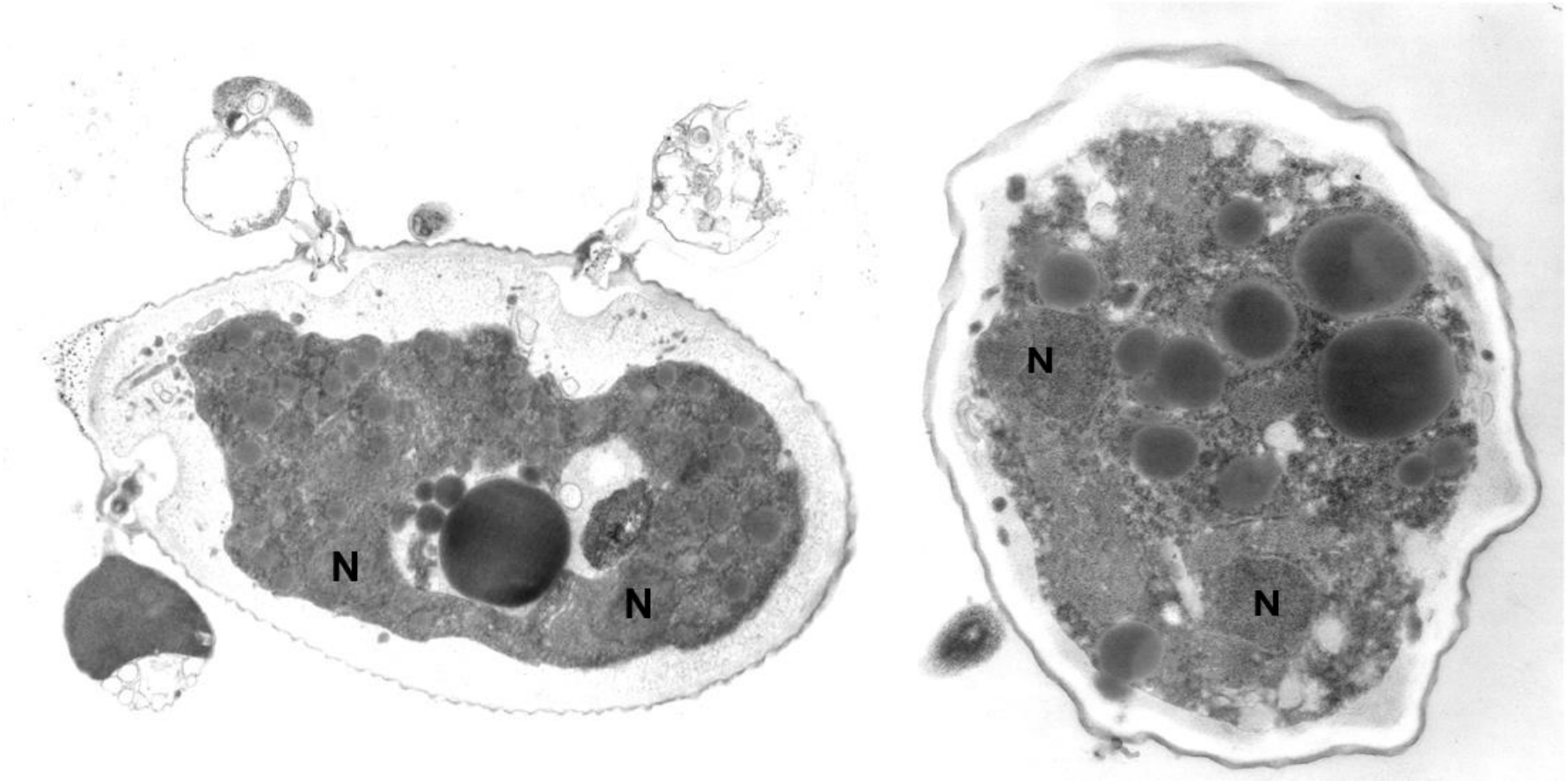
Day 4





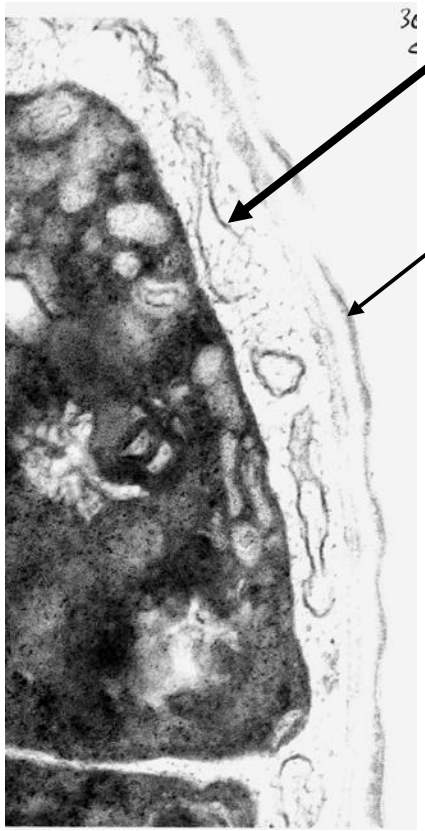
This is important, because *Rozella* does the same thing: an unwalled, endobiotic sporangium that develops from an encysted spore on the surface of the host..

Day 4



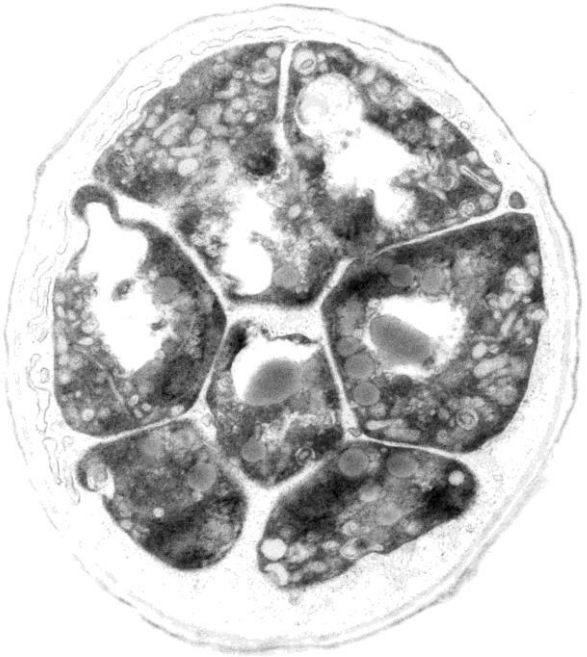
Sporangium completely fills host cell; multiple nuclei indicate mitosis prior to spore cleavage

Day 4



Fragmented parasite and host plasma membrane

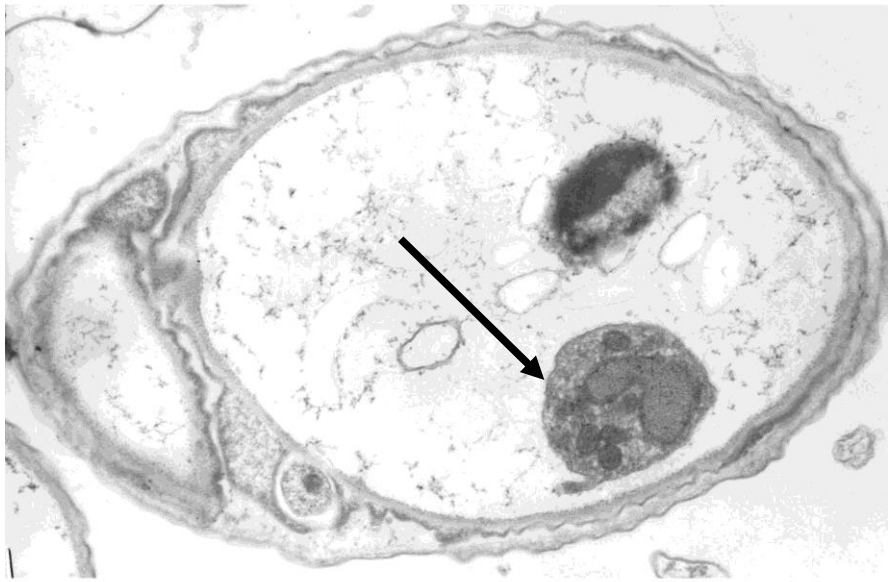
Host cell wall

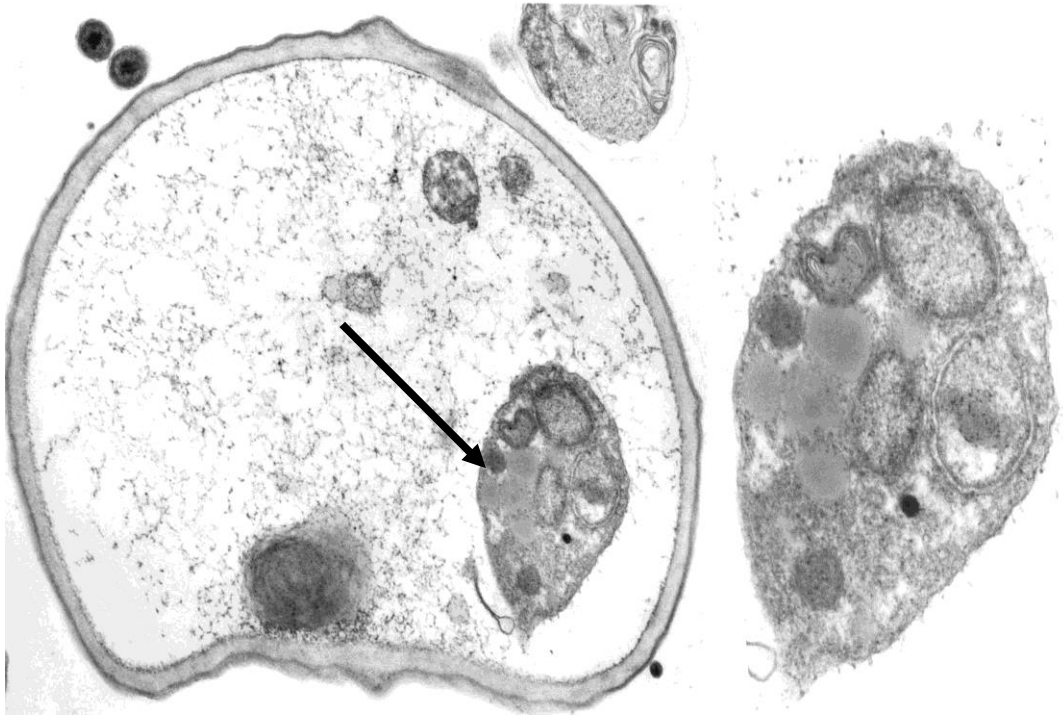


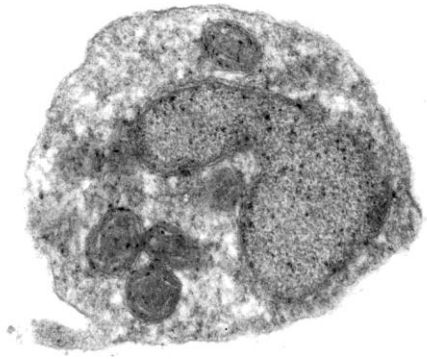
Cleavage furrows

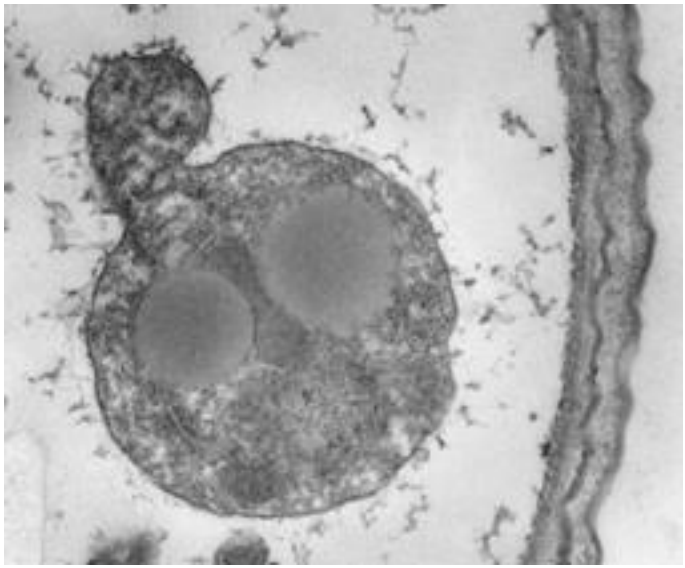
Organized cleavage products present, surrounded by fragmented plasma membrane

Day 5



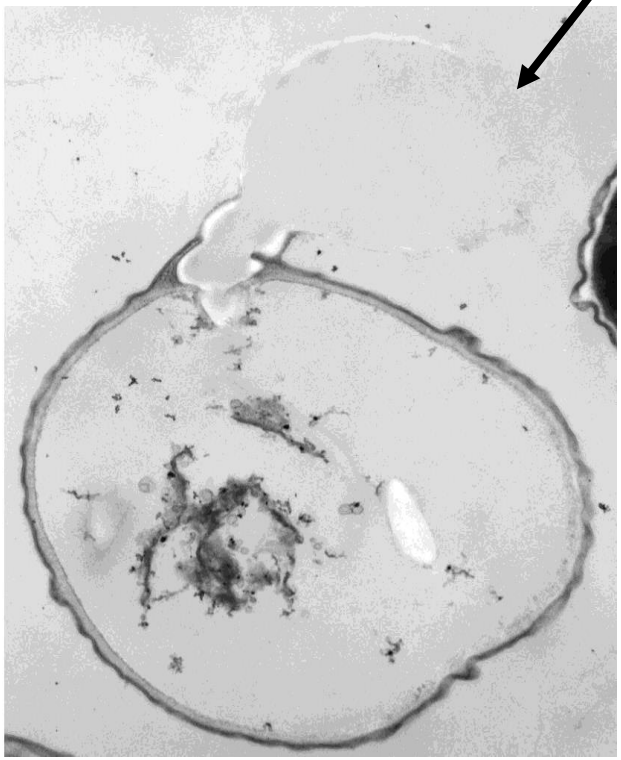




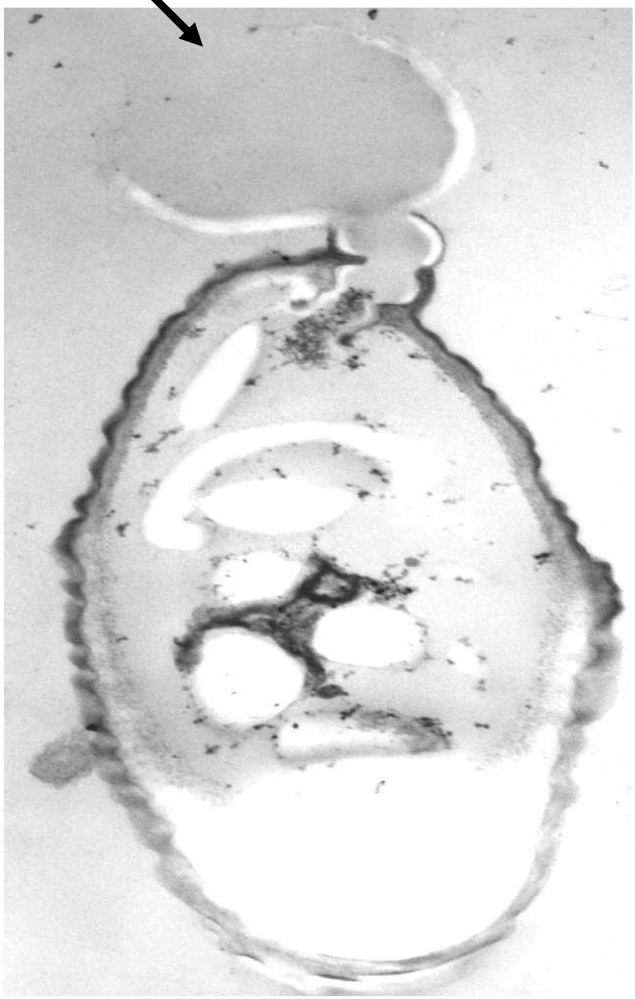


Moribund algal cells empty, or occasionally contain an unreleased aplanospore (upper left and right), or rarely, a germinating, encysting aplanospore (lower right)

Day 5

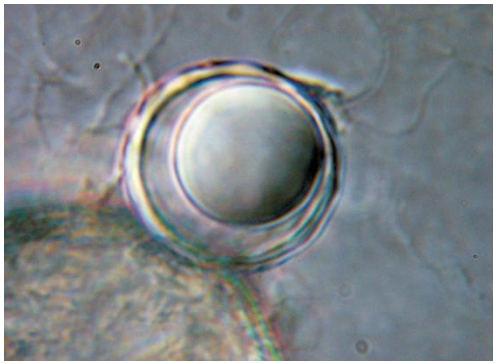


Prosporangia

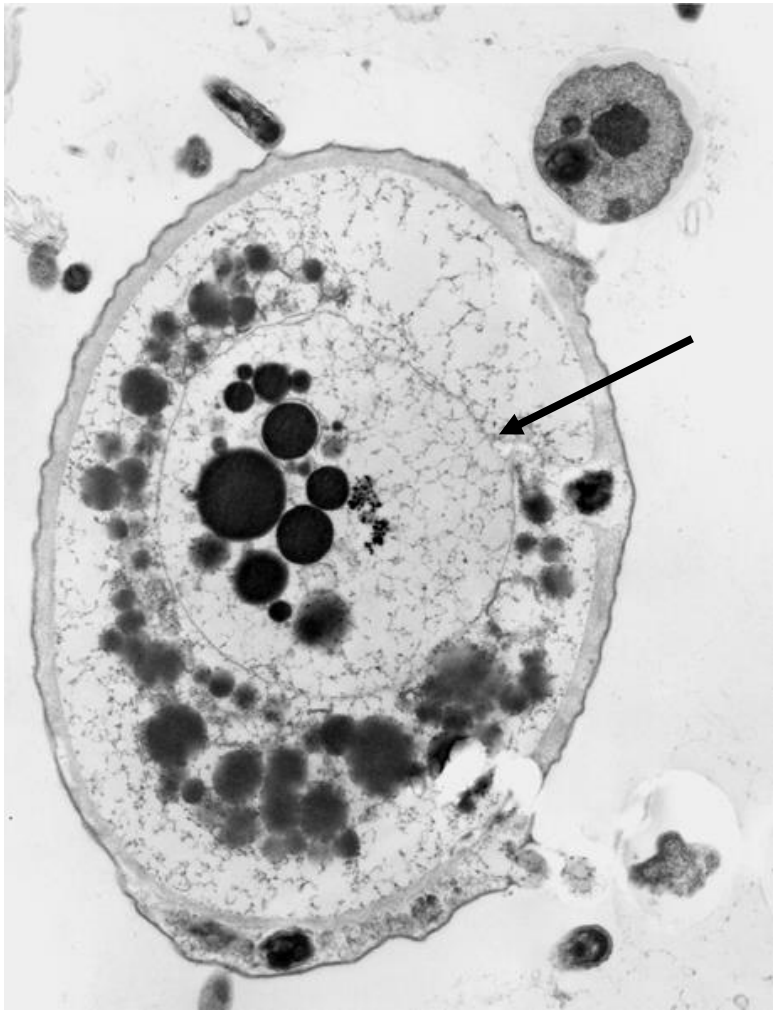


On moribund, empty algal cells the distal, apical or subapical portion of the remnant of the encysted aplanospore appears dissolved, indicating the mode of aplanospore release from the endobiotic sporangium. (Torn, ruptured, or dissolved host cell wall never observed.)

Day 5

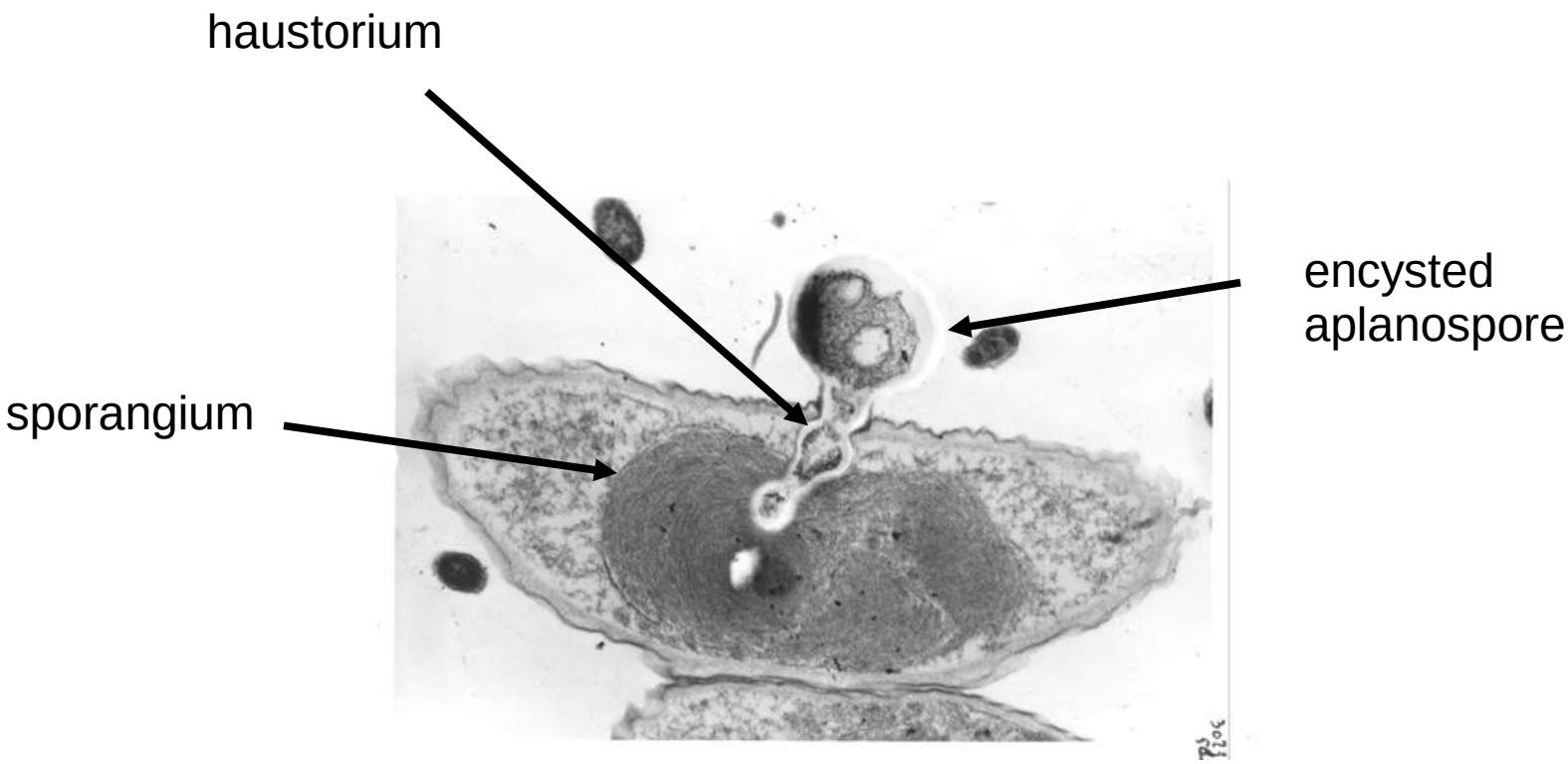


Typical chytrid resting spore



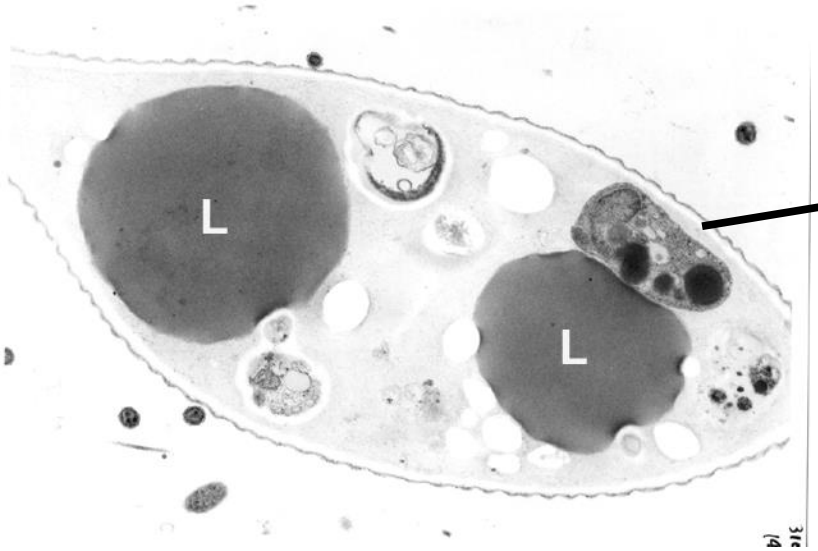
Possible resting spore formation from a sporangium (L) or from spores developing a thick wall (R)

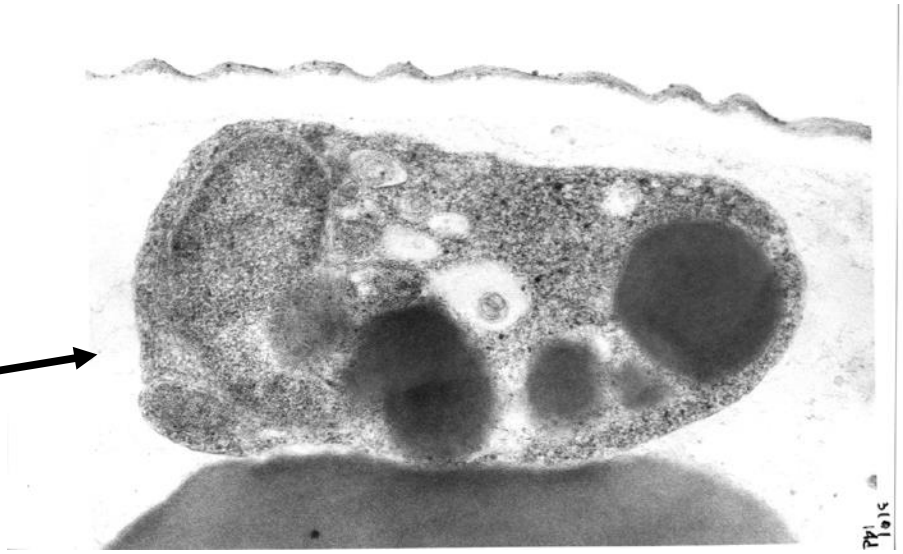
Days 6-8

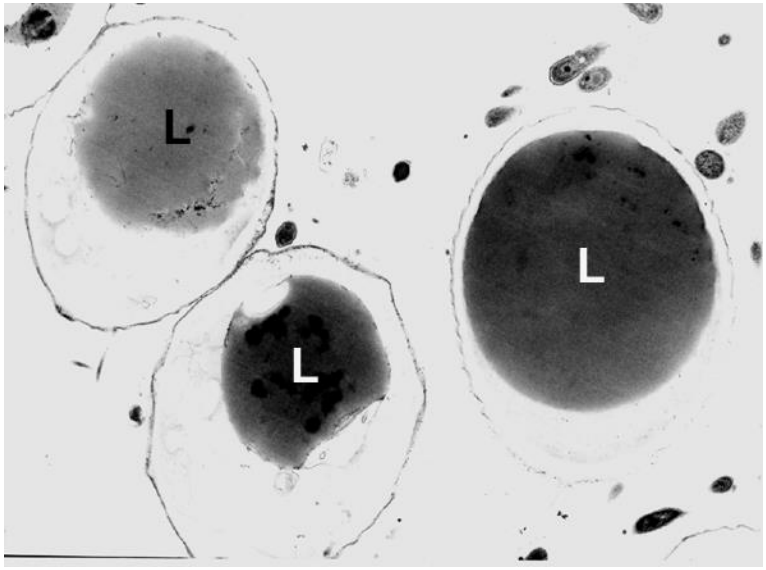


Evidence of second generation infection of remaining healthy algal cells by released, first generation aplanospores

Day 14

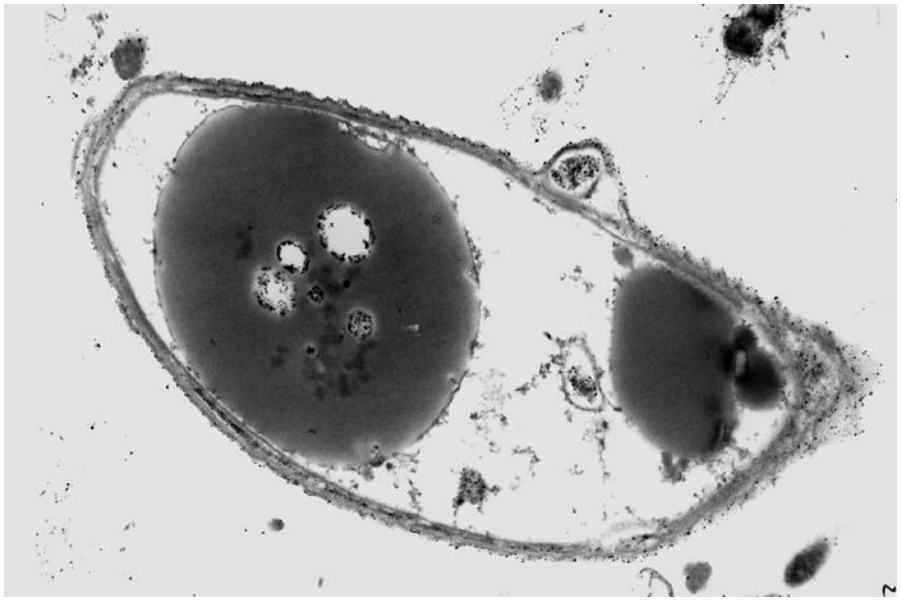


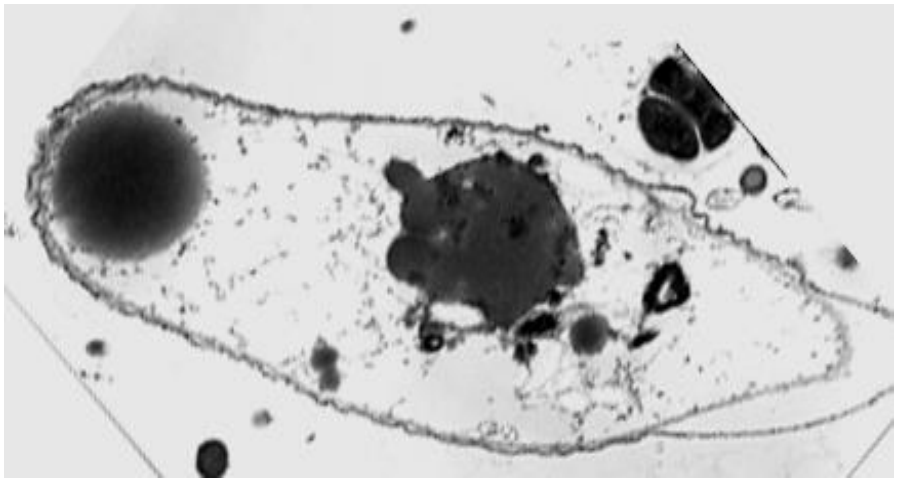




Virtually all algal cells moribund and containing 1-more large lipid globules, and occasionally an unreleased aplanospore (arrow); a few viable algal cells remain. Right: 3 algal cells, each containing a large lipid globule.

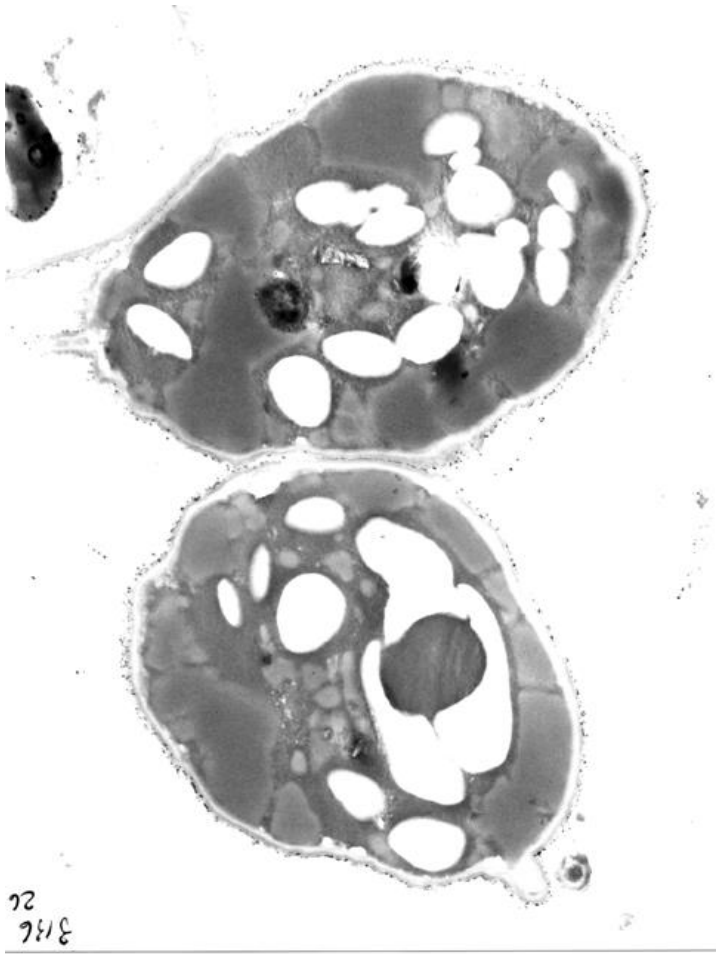
Day 26 Hello





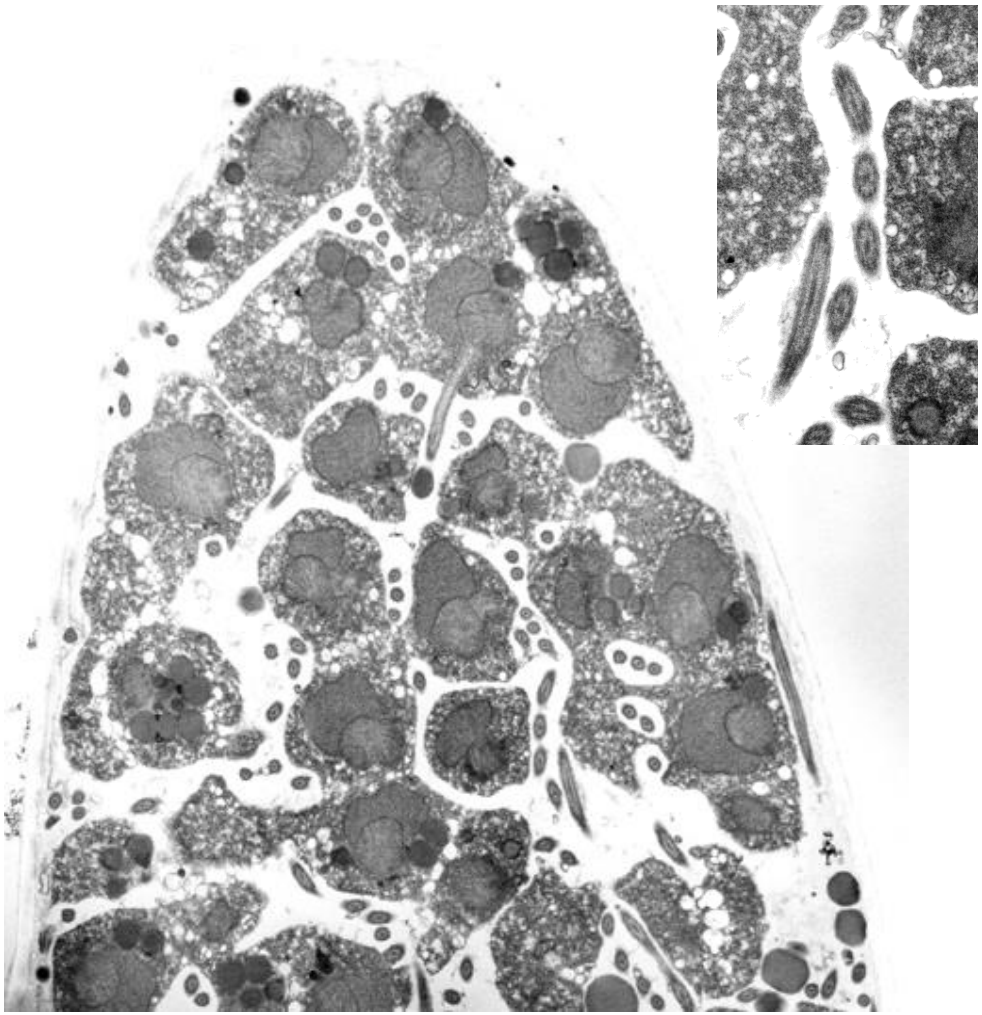
Almost all algal cells moribund; many contain 1-2 large lipid globules (adding insult to injury, if FD01 doesn't even like algal oil), BUT.....

Day 26

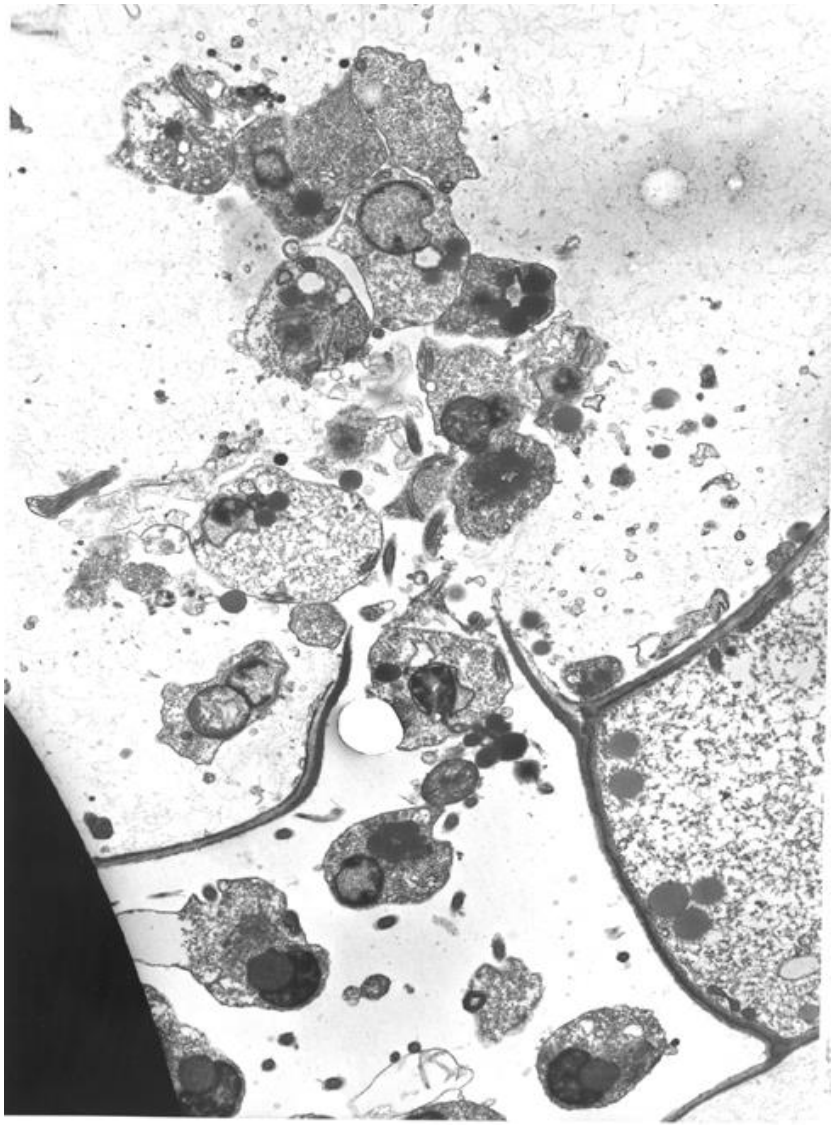


A few uninfected and healthy algal cells remain: how have these cells survived 26 days of massive infection? Maybe they are a parasite resistant strain: perhaps test by isolate, culture, and infect with FD01.

Rozella- zoospores



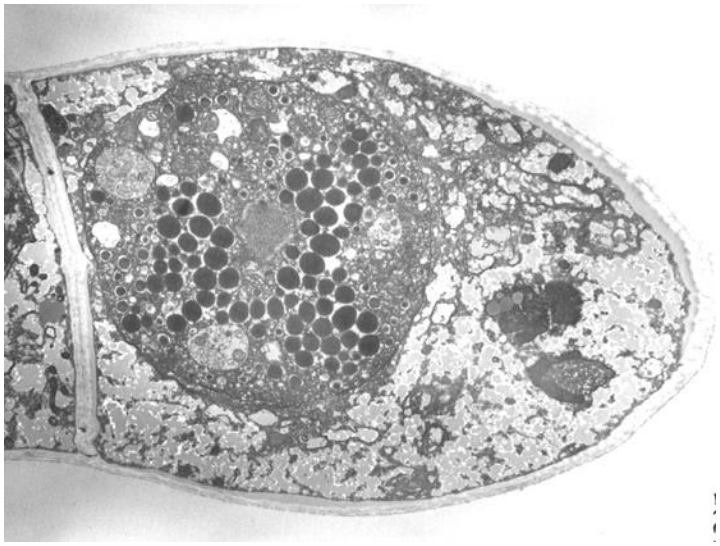
Zoospores after cleavage inside sporangium, and sections through flagella in a cleavage furrow (compare with FD01, slide 18)



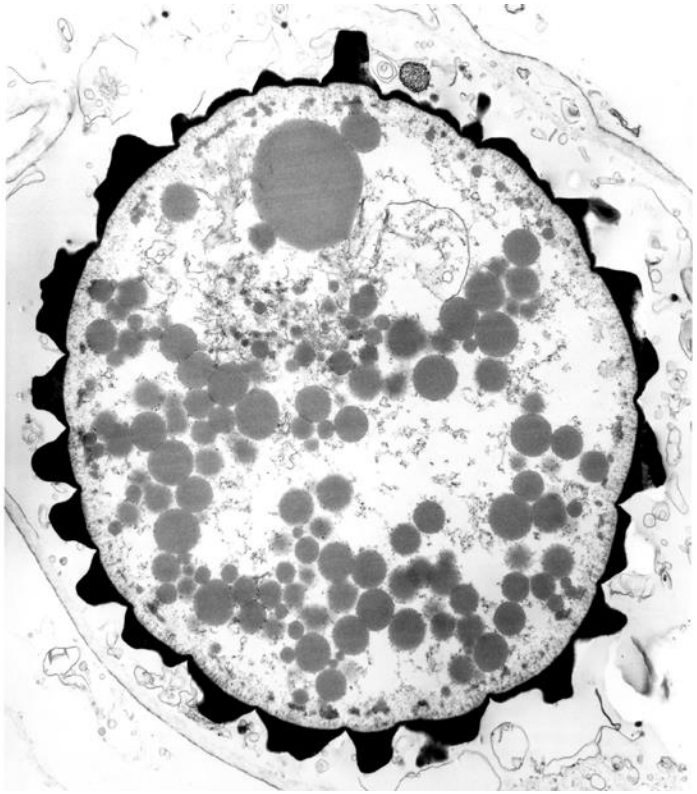
Zoospore release

Rozella- resting spores

resting spores inside *Allomyces* cells



resting spore formation inside *Allomyces* cell



resting spore ornamentation