

Palynology

Palynology (Gr, *palynos*, dust)

= The study of pollen and spores

Why study?

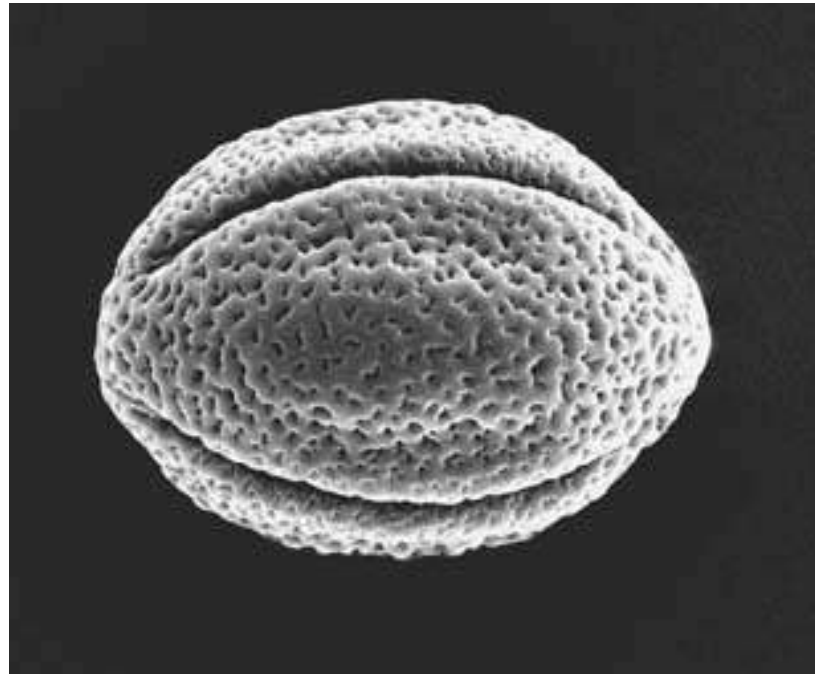
- Use as characters in phylogenetic analysis
- Use in plant identification
 - Extant plants
 - Fossil plants
 - paleopalynology
 - past plant communities, climate, biogeography, migration

What are they?

Spore - haploid cell derived from sporangium via meiosis

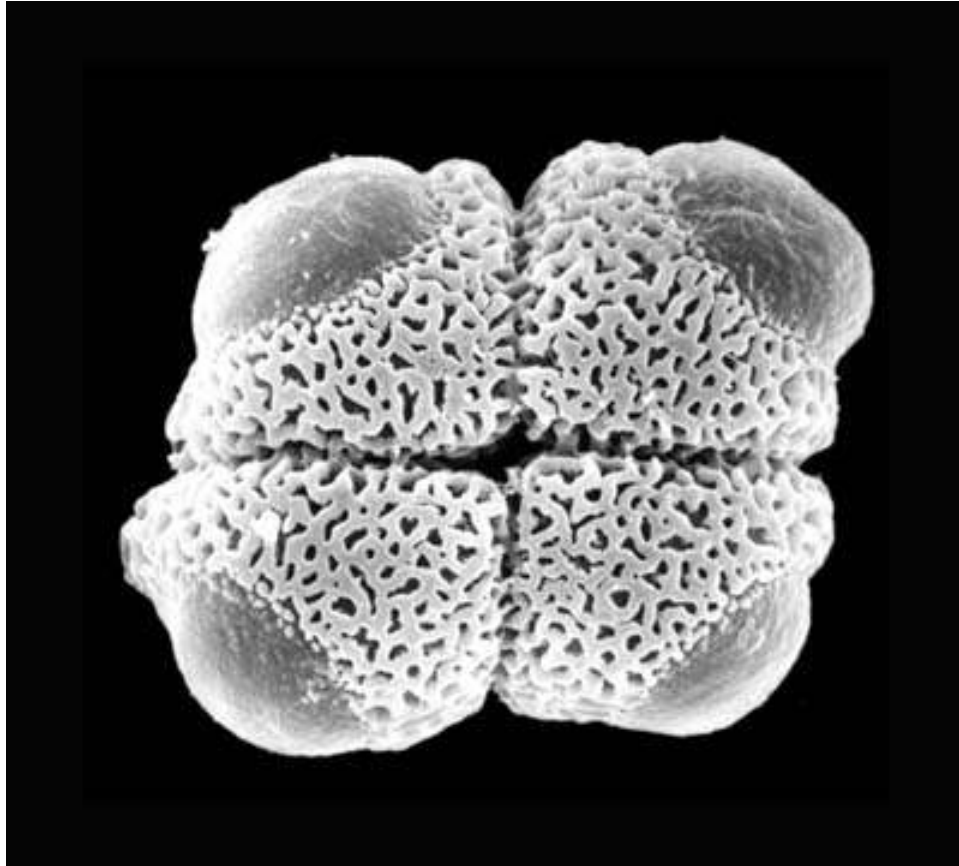
Pollen - immature, endosporic male gametophyte derived from male spores (microspores) in Seed Plants

Pollen Unit



monad

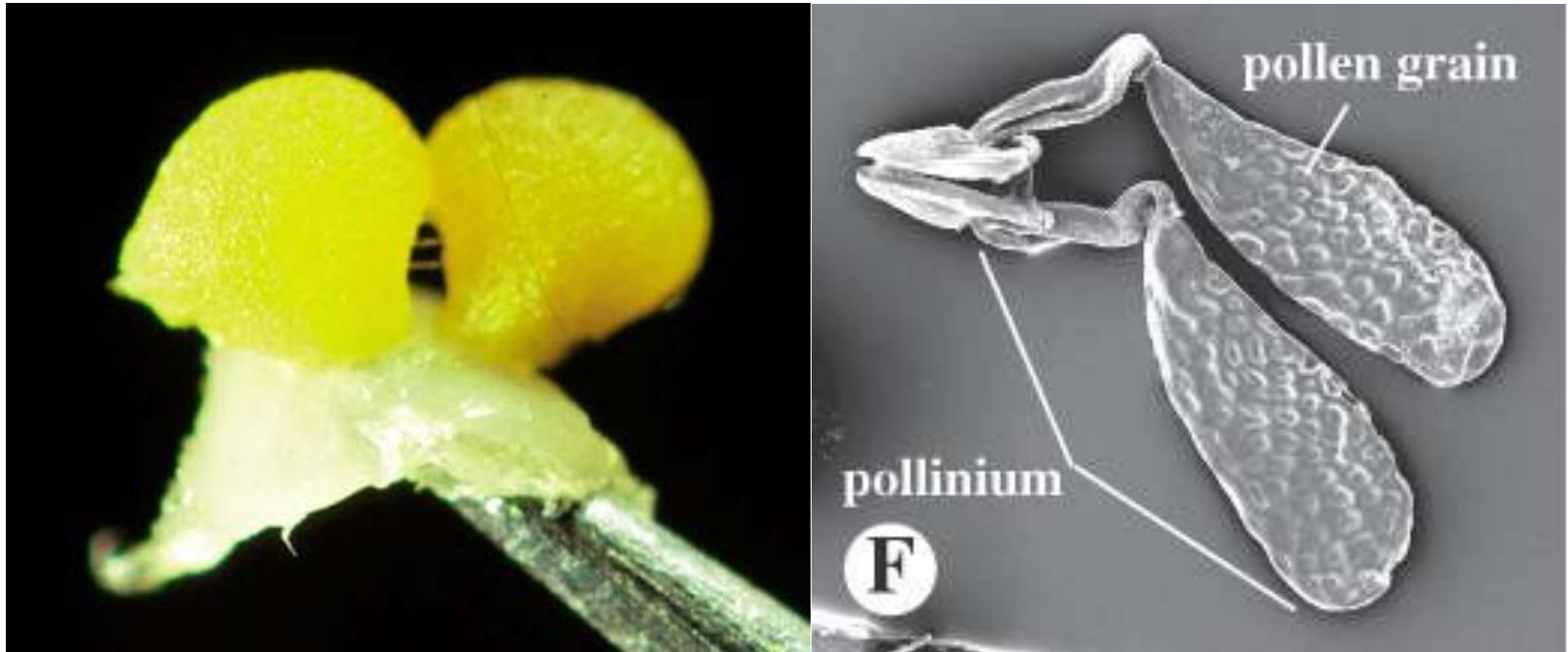
Pollen Unit



tetragonal

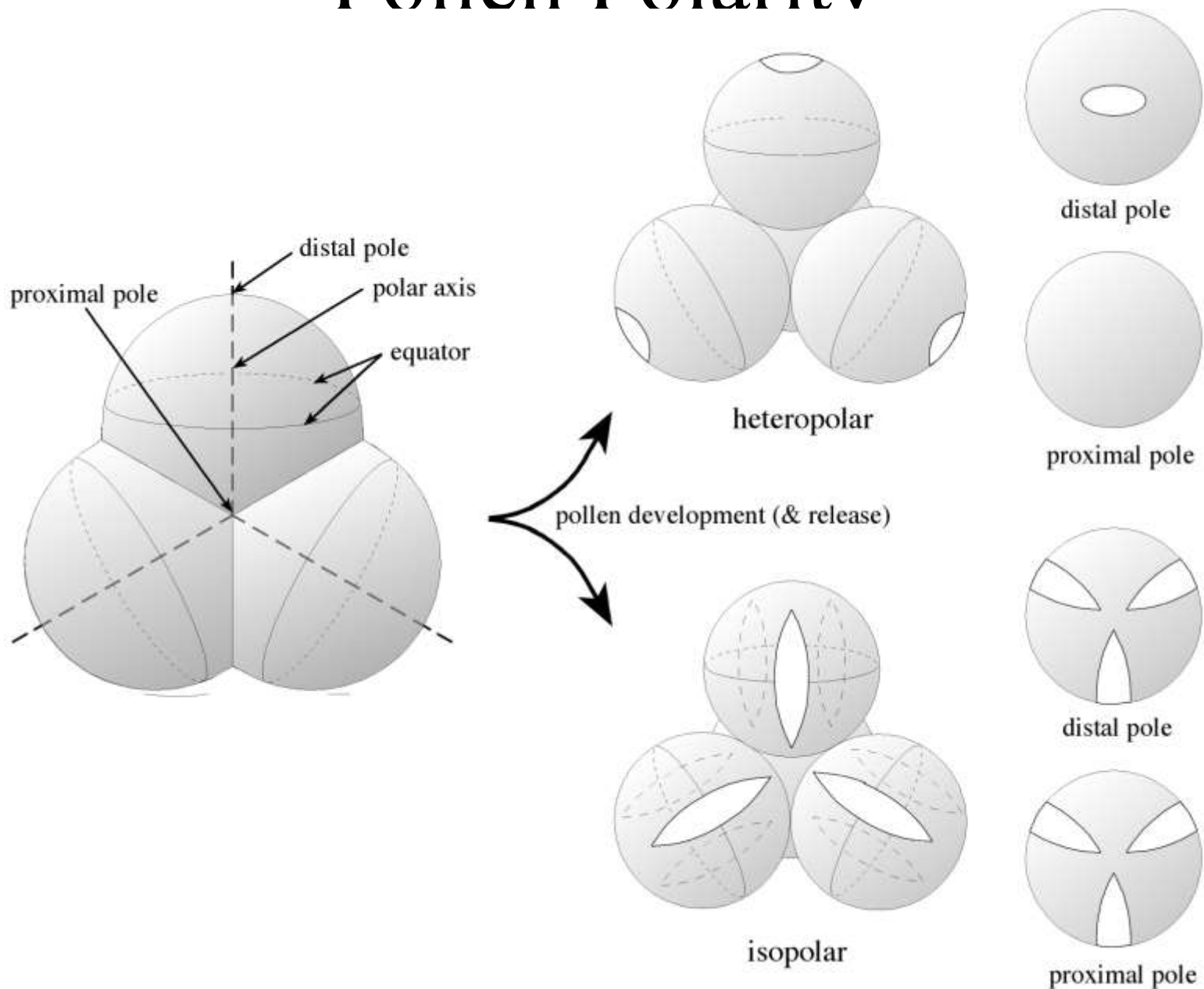
tetrad

Pollen Unit



pollinium

Pollen Polarity

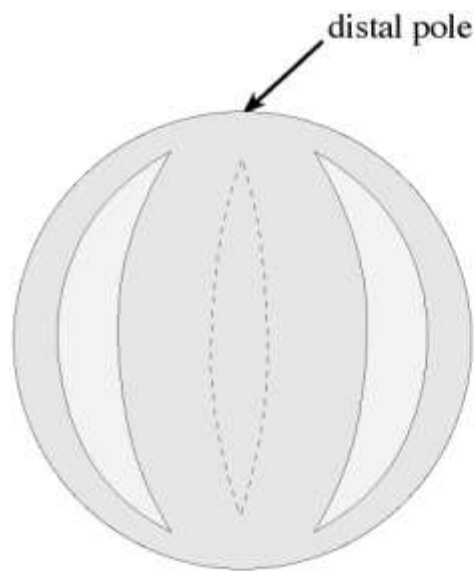


Pollen Aperture

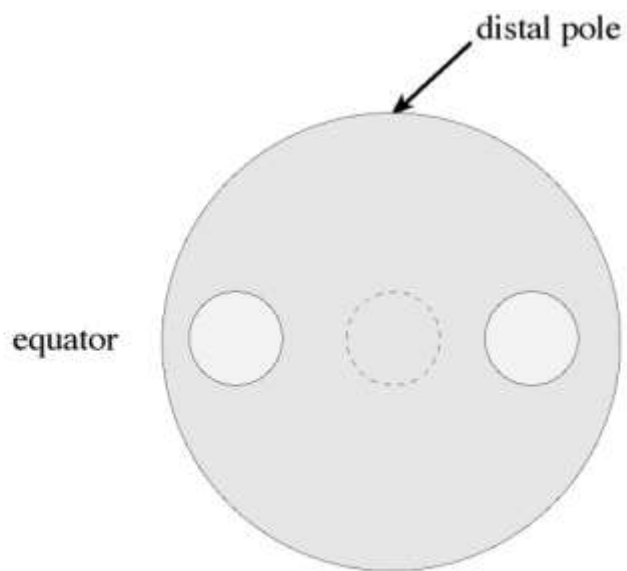
Aperture - specially delimited region of pollen grain wall.

Function:

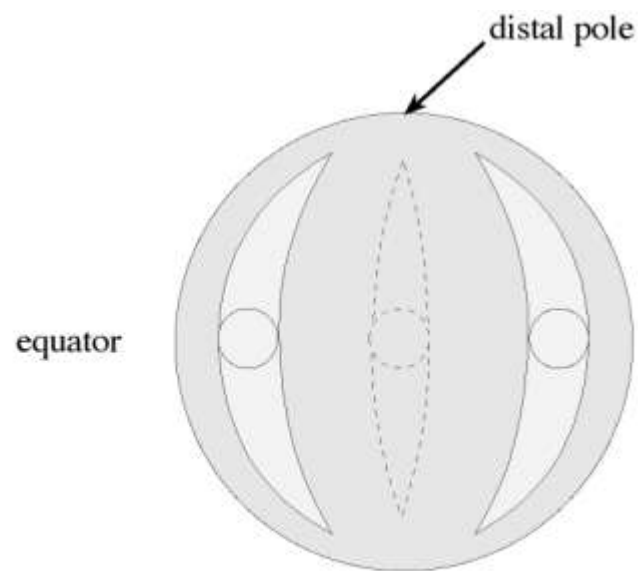
- Point of pollen tube exitus, where pollen tube grows out.
- Harmomegathy.



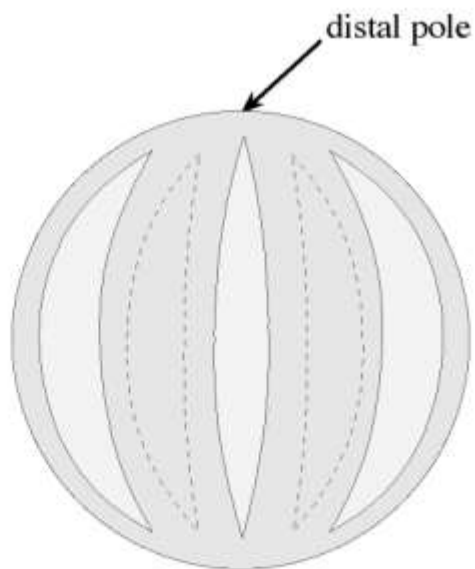
tricolpate



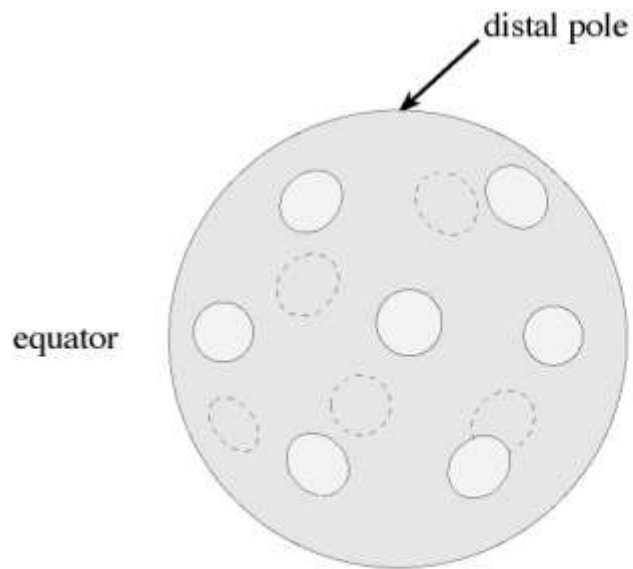
triporate



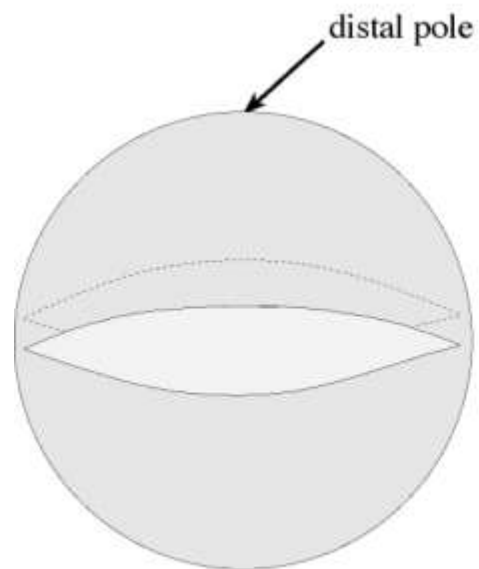
tricolporate



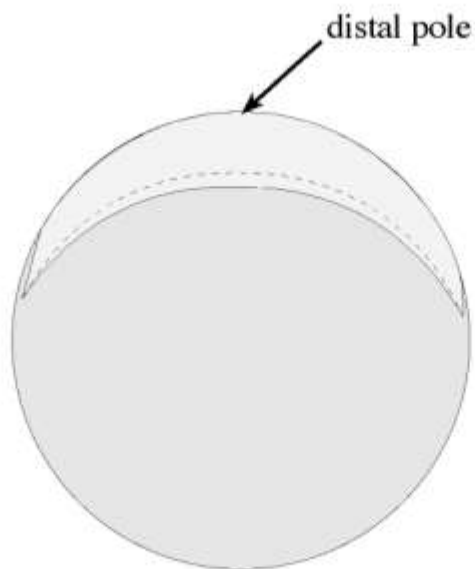
pentacolpate



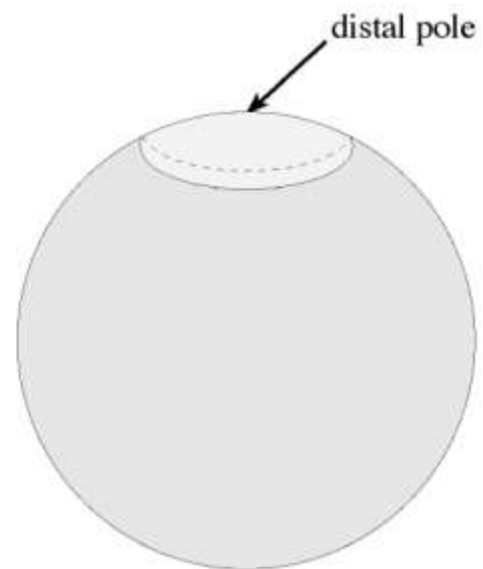
pantoporate



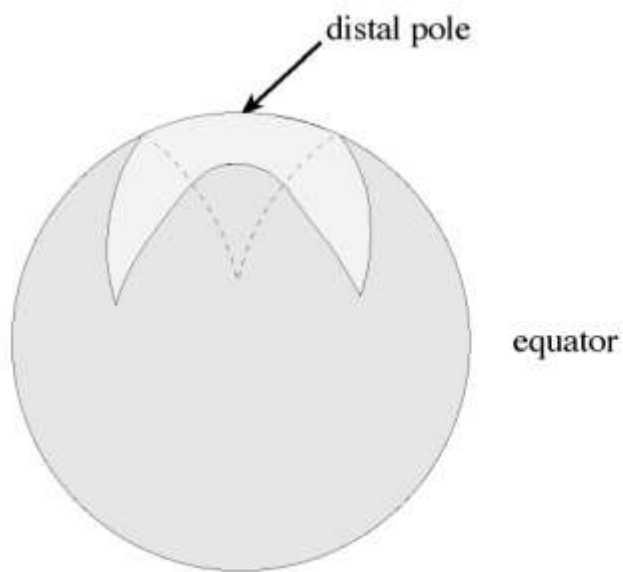
disulculate



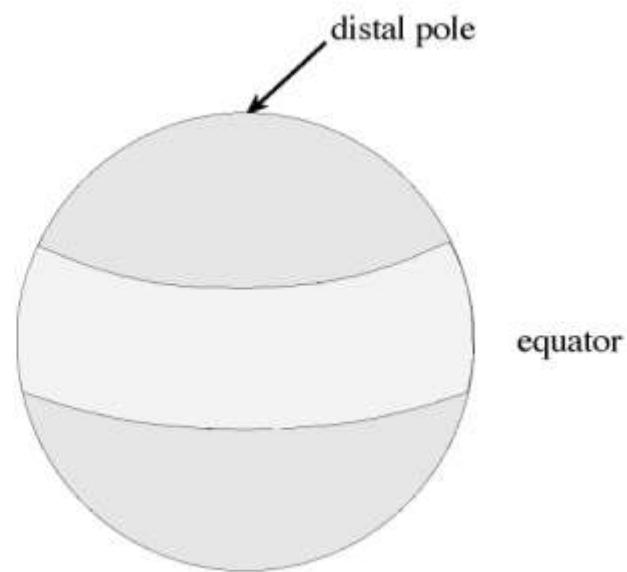
monosulcate



monoulcerate



trichotomosulcate



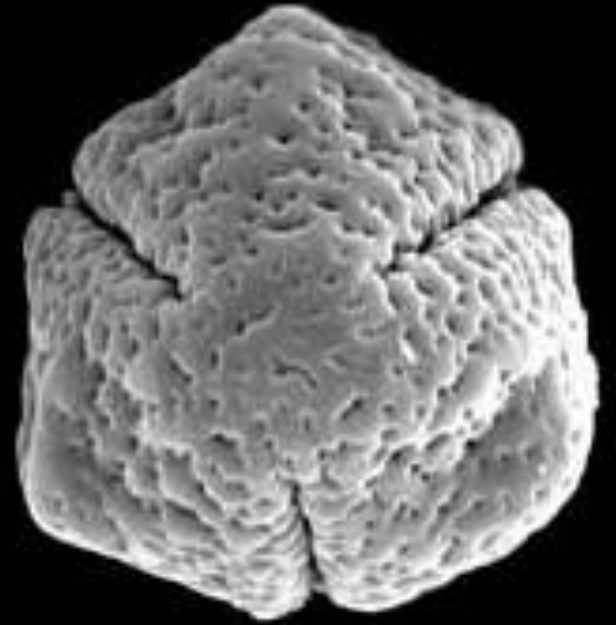
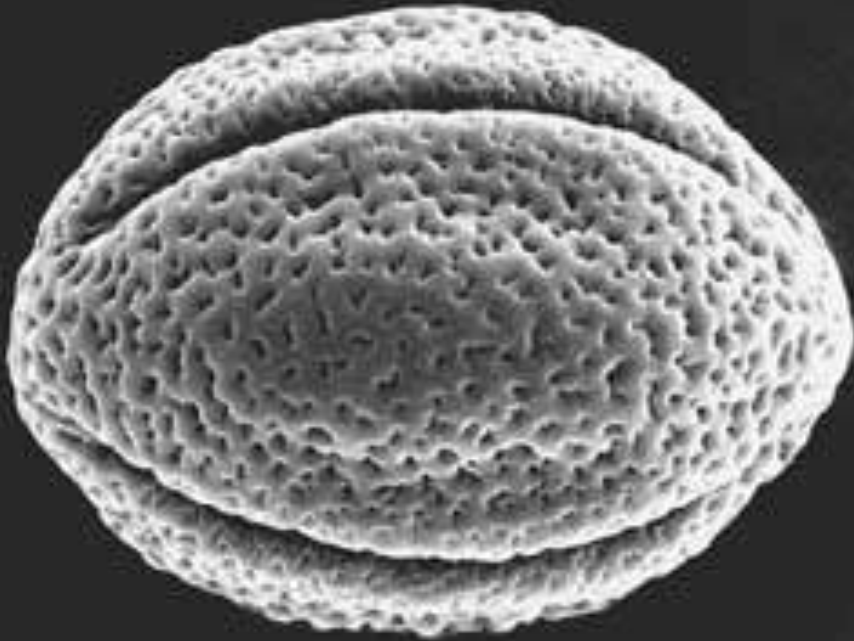
zonosulcate

Pollen Aperture



monosulcate

Pollen Aperture



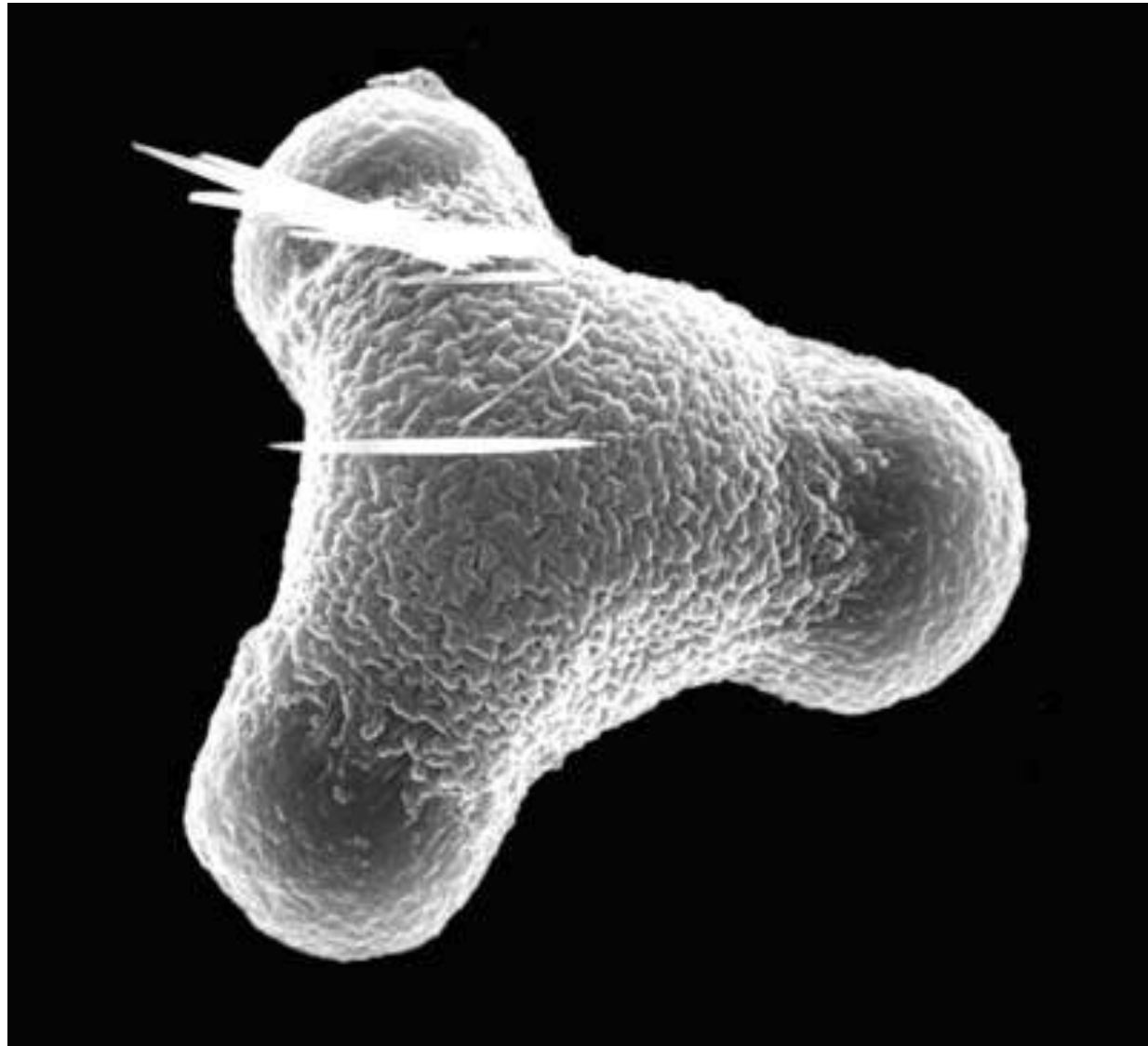
tricolpate

Pollen Aperture



tricolporate

Pollen Aperture

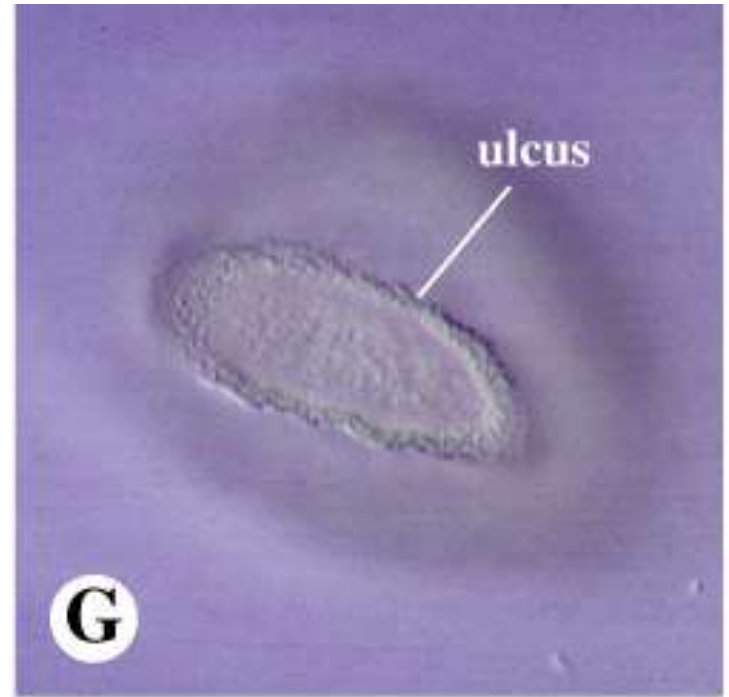


triporate

Pollen Aperture

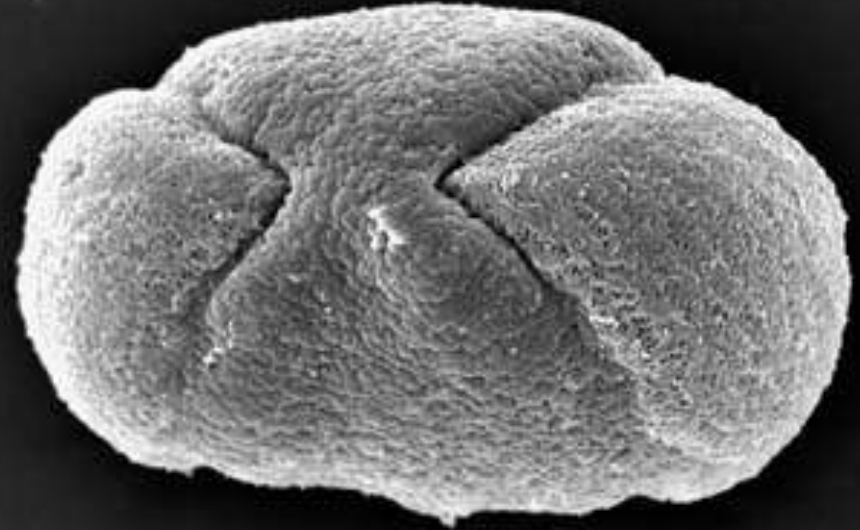
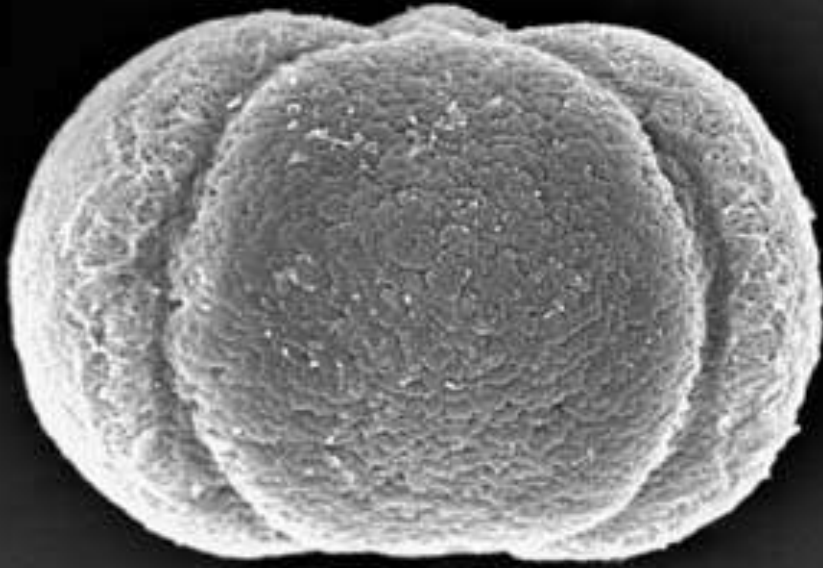


spiraperturate



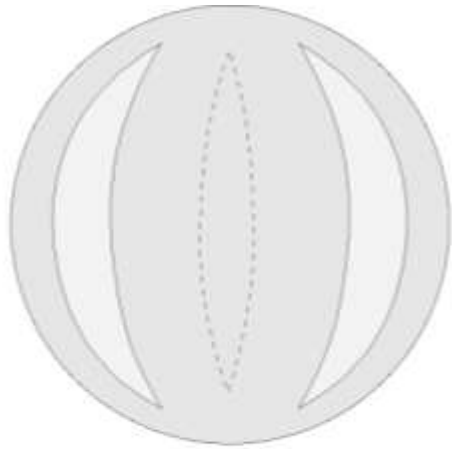
ulcerate

Pollen Aperture



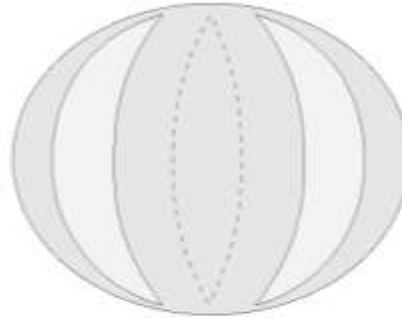
disulculate

Pollen Symmetry, Size, Shape



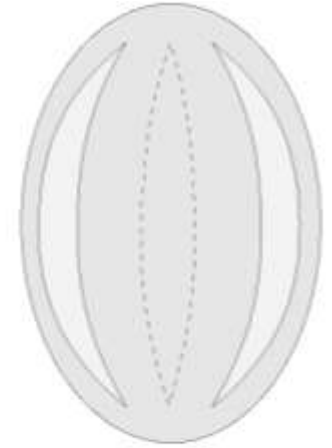
globose

equatorial
view

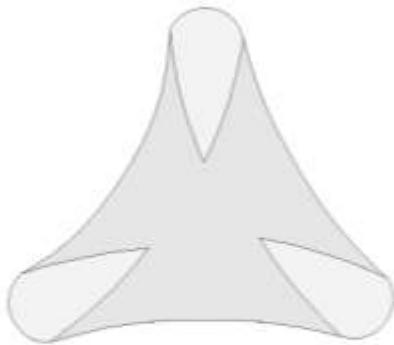


oblate

equatorial
view

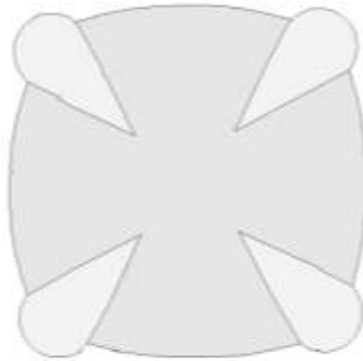


prolate



3-sided
sides concave

polar view



4-sided
sides convex

polar view



5-sided
sides straight

Pollen Wall Structure

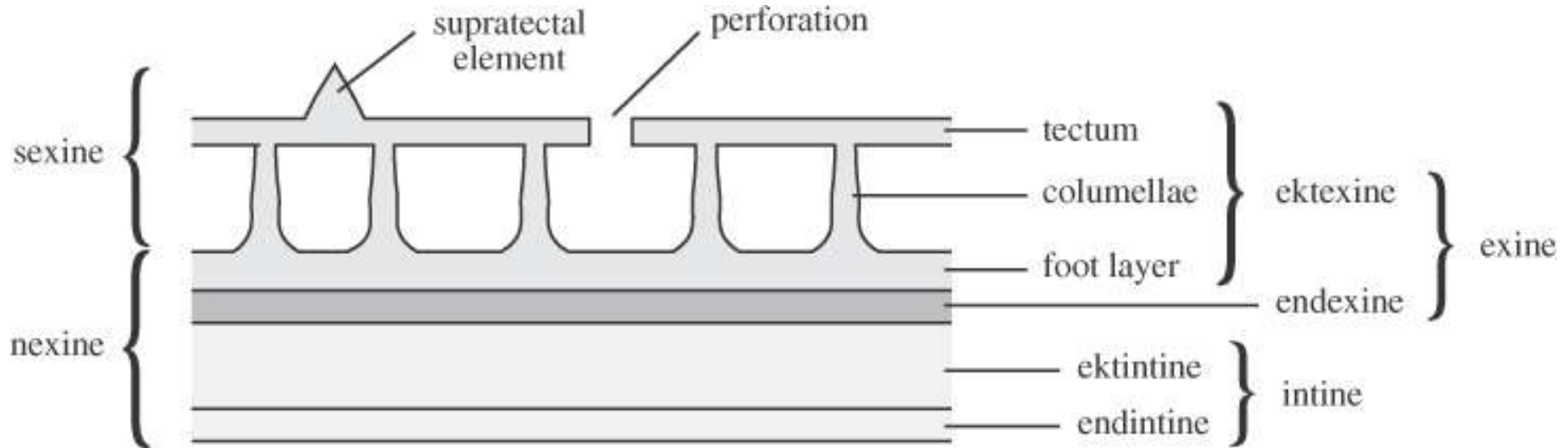
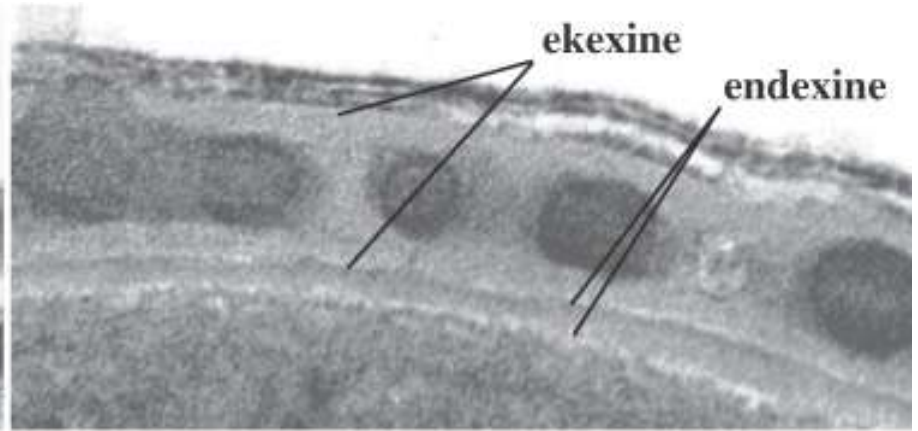
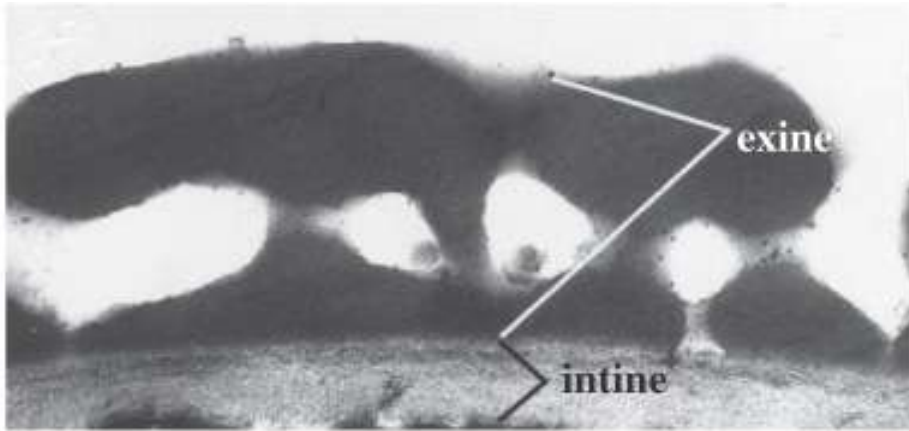


Figure 12.8 Pollen wall structure.

Copyright 2006, Elsevier, Inc. All rights reserved.

tectate-columellate

Pollen Wall Structure



tectate-columellate

References:

- Text book of Palynology, Kashinath Bhattacharya
- Plant anatomy by Pijush Roy
- Palaeobotany and Evolution of Plants by Stewart and Rothwell
- Images taken from various sources (Including Internet)