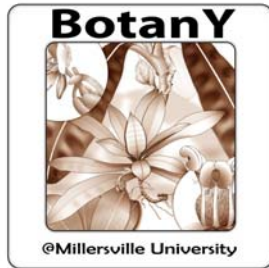


Topic 12: Free-Sporing Plants (Bryophytes & Pteridophytes)



Hoefnagels (2018) Section 19.2-19.3 (p. 384-387)
 Hardy & Wagner (2018) Bryophytes & Pteridophytes.
 Optional: Rushforth et al. (2016). Chap6 (Bryophytes) & Chap 7 (Seedless Vascular Plants)

"Leafy"



"Thalloid"

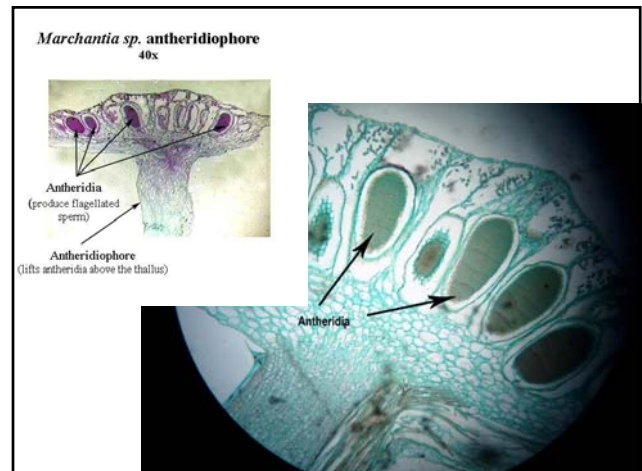
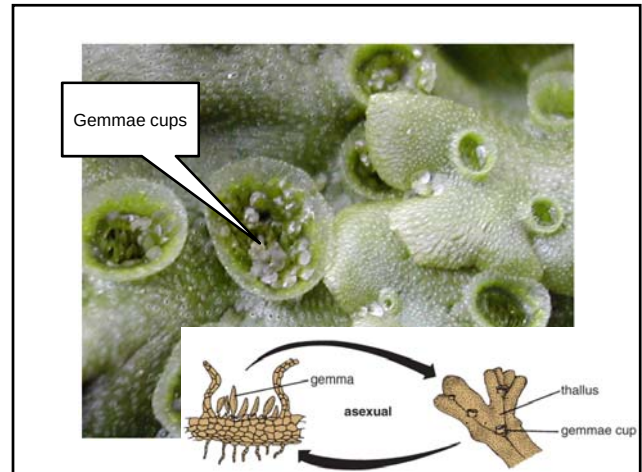
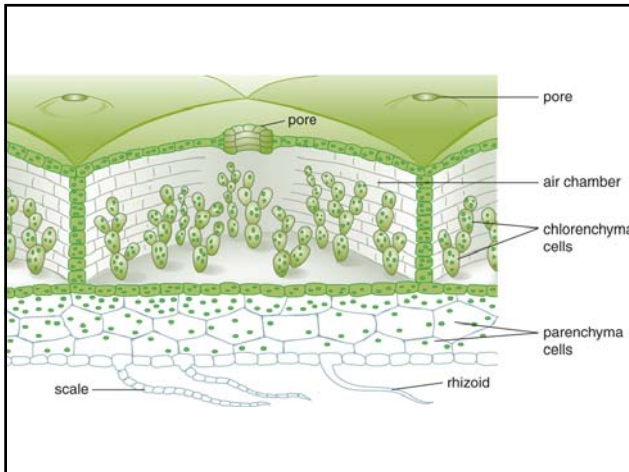


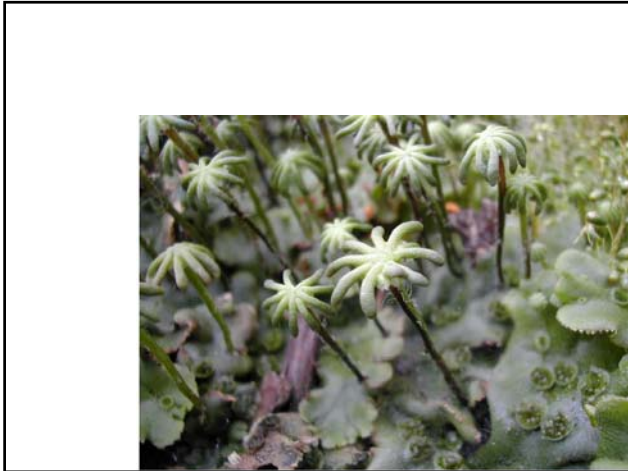
Dichotomously
branched



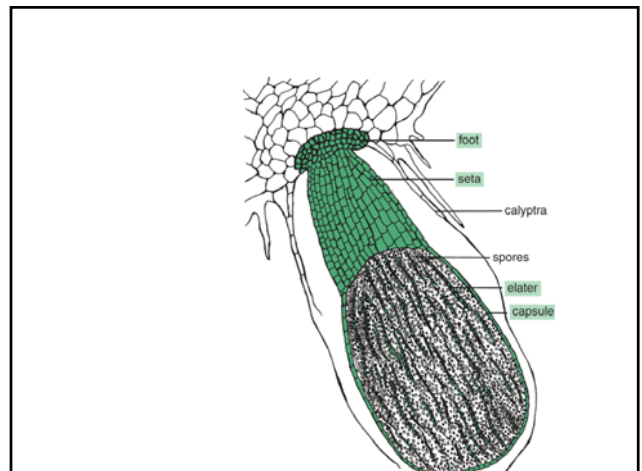
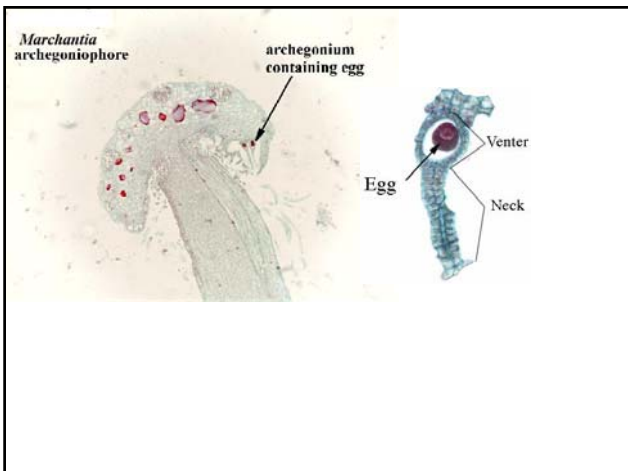
Pores and
polygonal air
chambers





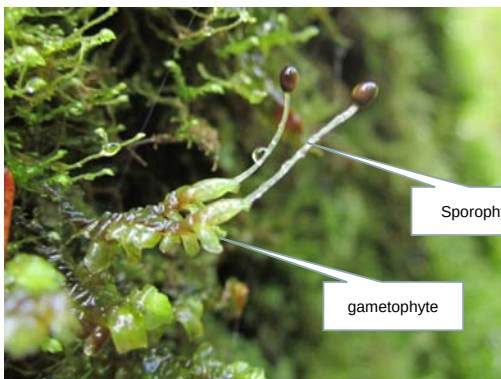


© Karen Renzaglia.



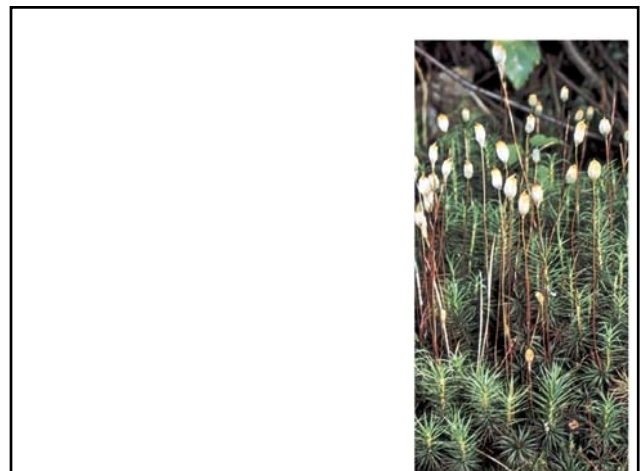
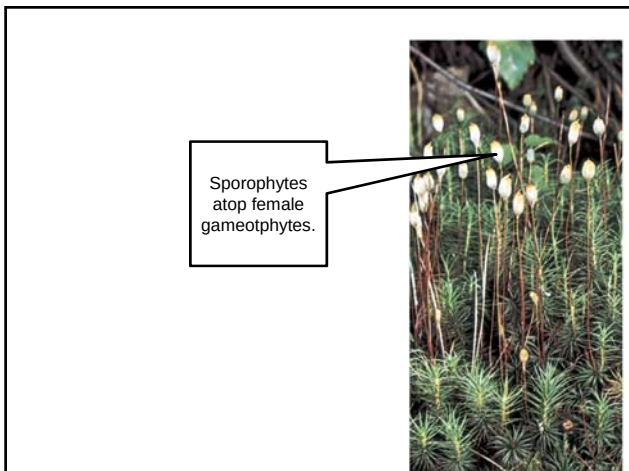
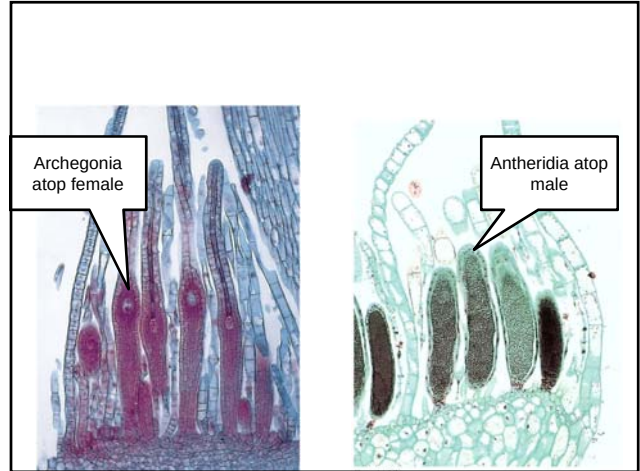
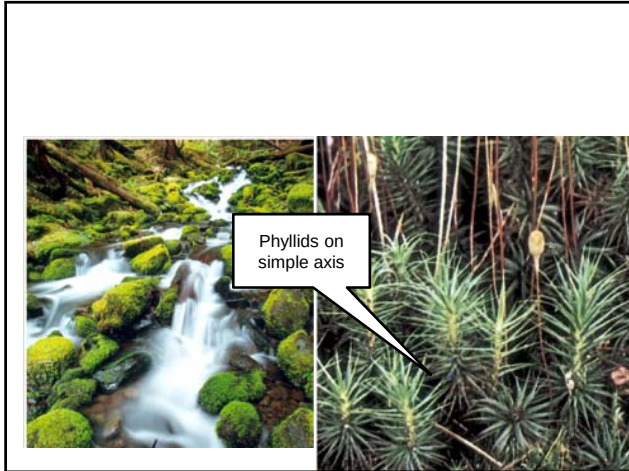


Leafy Liverwort

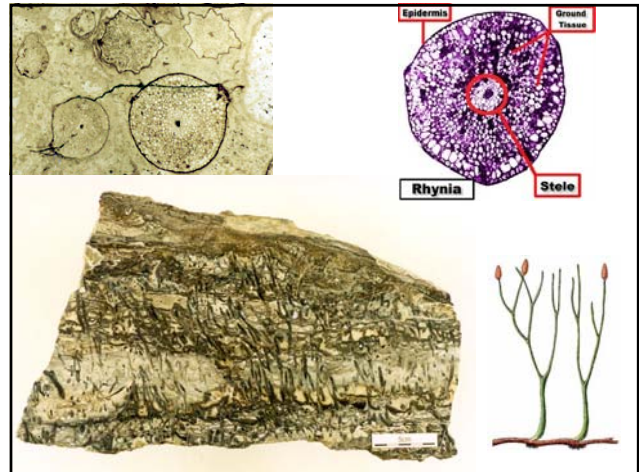
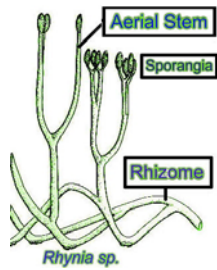


Leafy Liverwort





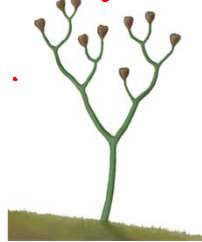
A. Rhyniophytes



Rhynia



Cooksonia



Cooksonia (late Silurian)





B. Lycopods (e.g., club-mosses, spike-mosses)

- Extant
- Microphylls & roots
- Rhizomatous
- Dichotomously branched
- Sporangia axillary or on sporophylls



Lycopodium (ground-pine)

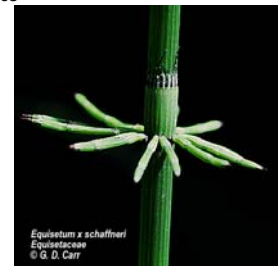


Figure 17-16b
Biology of Plants, Seventh Edition



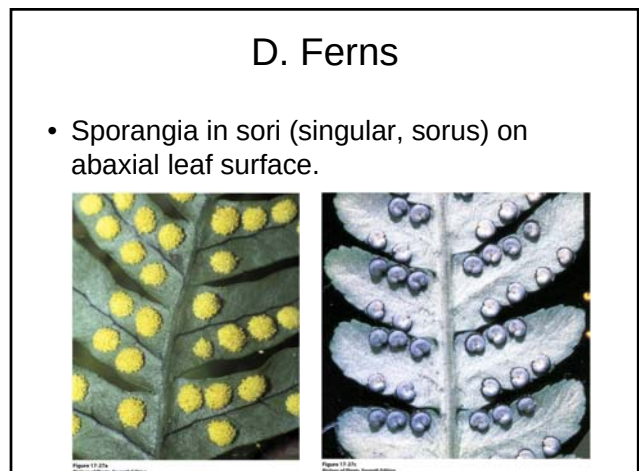
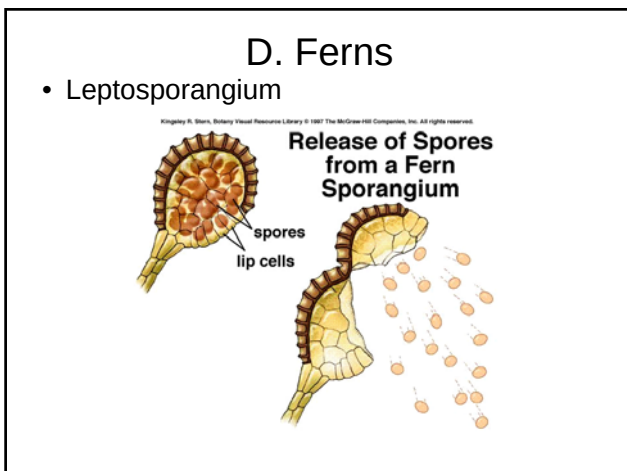
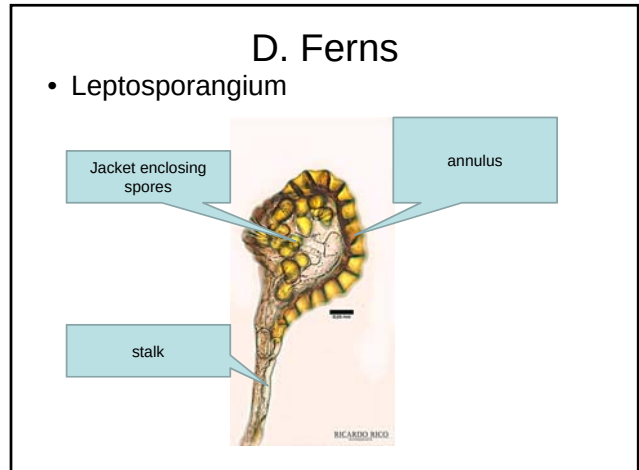
C. Horsetails & Scouring-Rushes

- Extant
- Microphylls (reduced from macrophylls) & roots
- Rhizomatous
- Ribbed stems & hollow internodes
- Whorled phyllotaxy
- Lateral branching (interaxillary)
- Sporangia in strobili



D. Ferns

- Roots
- Stem usually short and rhizomatous
- Macrophyll leaves; alternate and in rosette; often pinnate, circinate vernation.
- Branching various



D. Ferns

- Sori naked or indusiate.



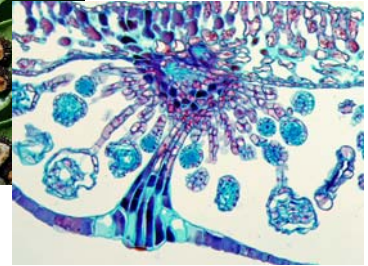
Figure 17.27a
Photograph of Ferns, Seventh Edition



Figure 17.27b
Photograph of Ferns, Seventh Edition

D. Ferns

- Sori naked or indusiate.

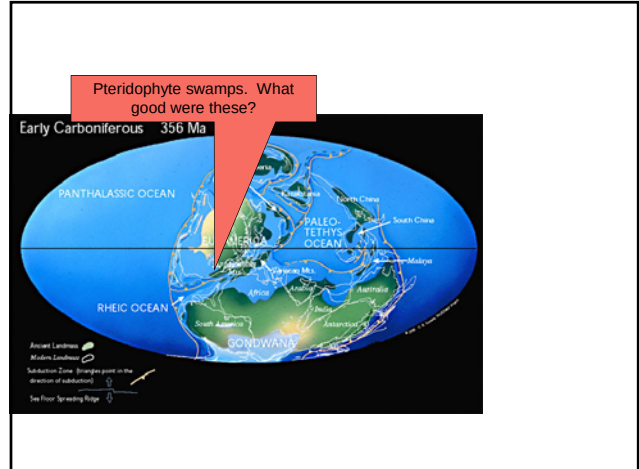
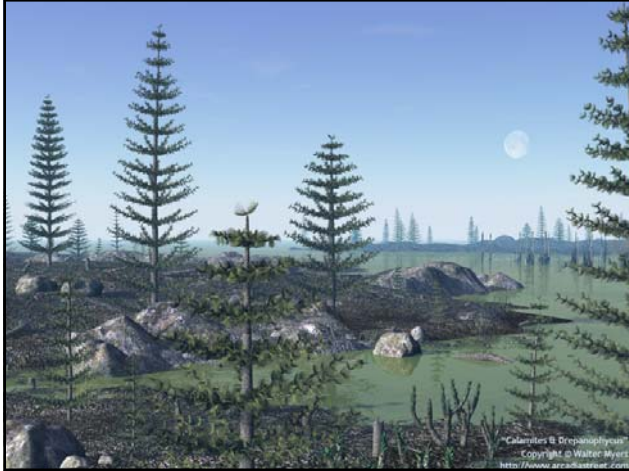


E. Ancient Coal Swamps

- Carboniferous period (359-299 mya)

E. Ancient Coal Swamps



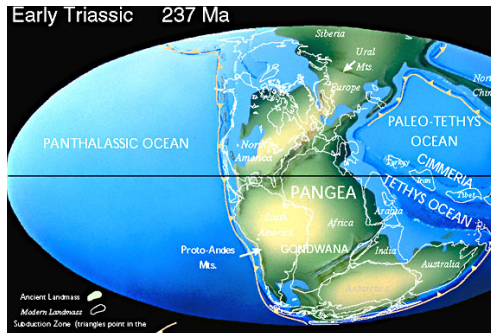




Formation of Pangea

- Destroyed much free-sporing habitat
- Created dryer environment more conducive to seed plants
- Seed plants better trees (with eustele & wood)

Early Triassic 237 Ma



Surviving Free-sporing plants

- Small and relegated to moister habitats



152 Ma

