

GENERAL BOTANY Lecture 34 - Lower Vascular Plants [Part II (continued)]

- C. **Phylum Equisetophyta**
1. **Once abundant (Coal Age forests) but now only one genus remains**
  2. **Equisetum (genus) - also called horsetail or scouring rush**
    - a) **Silica in the epidermis of stems - used as scouring pads**
    - b) **Branched rhizome from which upright stems arise**
    - c) **Stems can have sterile branches and reduced (really small) leaves**
    - d) **Vascular strands surround and alternate with air canals**
    - e) **Sporangiophores are grouped together in strobili (cones)**
    - f) **Reproduction - sporangia under sporangiophores release spores (homosporous), gametophytes are formed, sperm swims from antheridium to archegonium**
- D. **Phylum Polypodiophyta - ferns (Order Filicales comprises true ferns)**
1. **Shade-loving plants**
  2. **Definite alternation of generations w/ autotrophic sporophyte & gametophyte**
  3. **Most prominent feature - upright leaves called "fronds"**
    - a) **Fronds often compound, with rachis (like petiole) and pinnae**
    - b) **Fiddleheads are tightly coiled fern leaves**
  4. **Sporophyte generation - the dominant generation of all ferns**
  5. **Sexual reproduction**
    - a) **Spores are borne in sporangia on lower surface or margin of fronds**
    - b) **Sporangium is composed of spore case and stalk**
    - c) **Spore case has a ring of thick-walled cells called an annulus**
    - d) **Spores can be grouped into a sorus (pl. sori)**
    - e) **Sorus can be covered by a flap of tissue called an indusium (pl. indusia)**
    - f) **Spores divide to produce meiospores**
    - g) **Annulus dries out, and spore case opens to eject the spores**
    - h) **Spores germinate into the gametophyte (with antheridia & archegonia independent or together)**
    - i) **Sperm swims to fertilize the egg**
    - j) **Sporophyte grows from gametophyte**