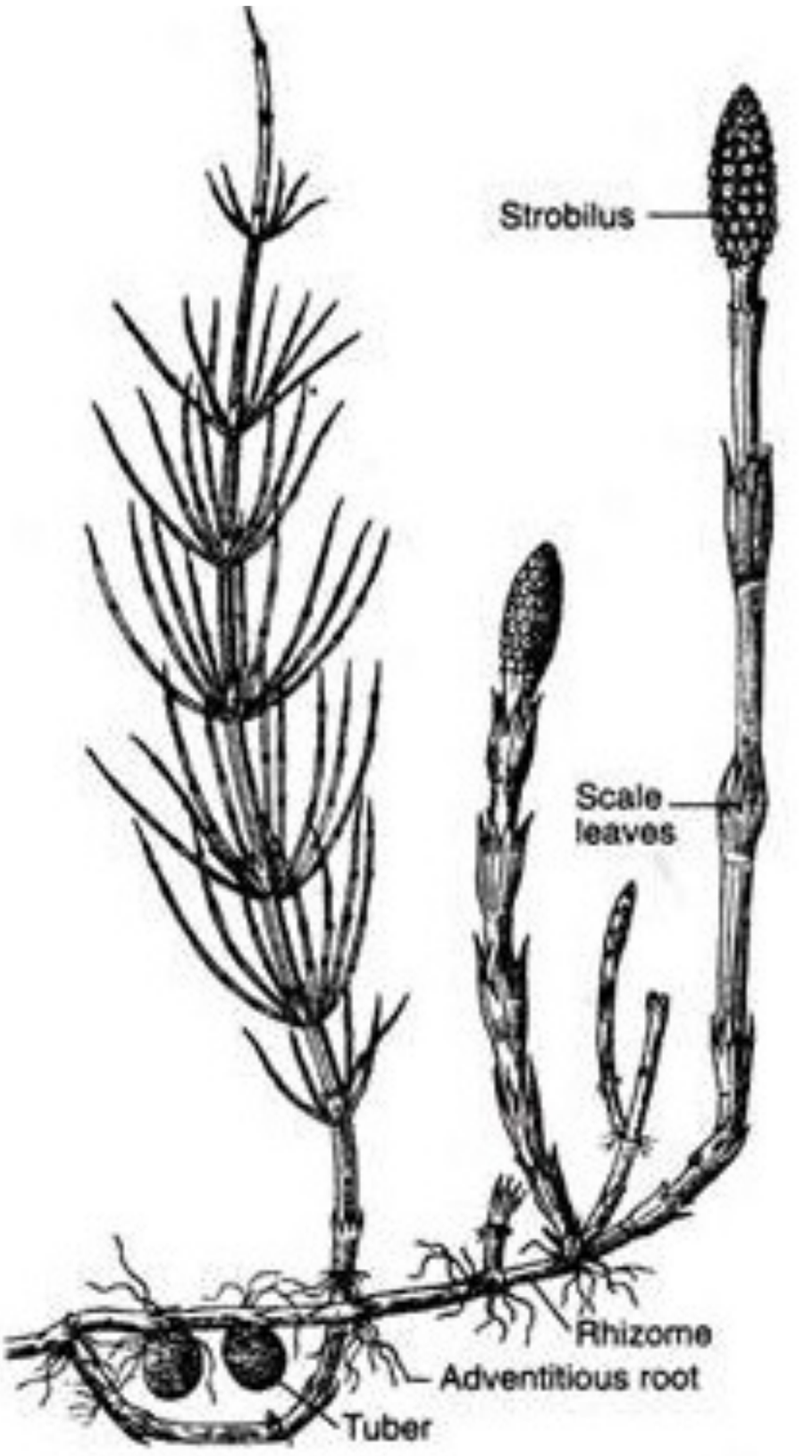


Fig. 7.83 : *Equisetum arvense* sporophyte

Equisetum

Leaves and sheath

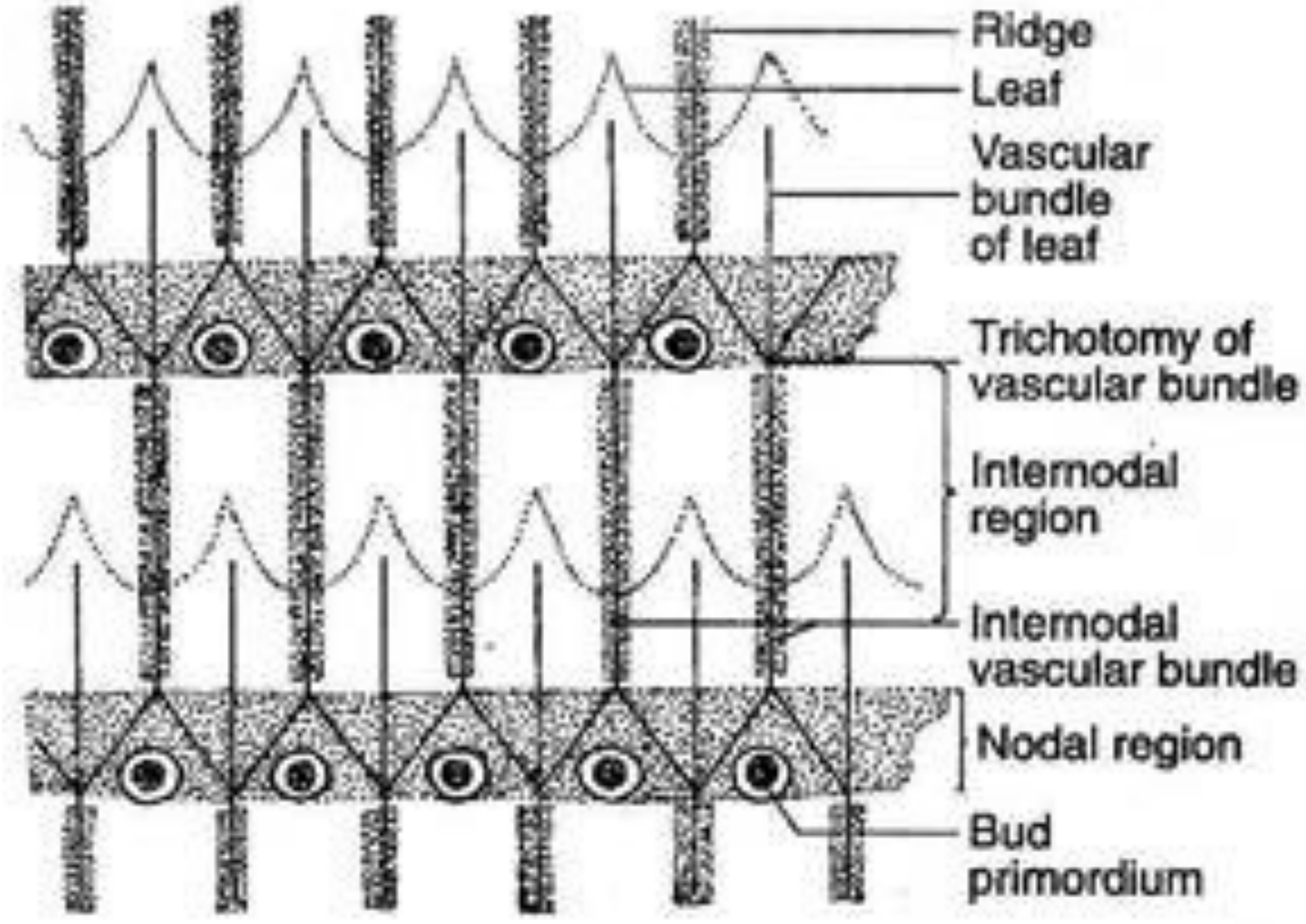
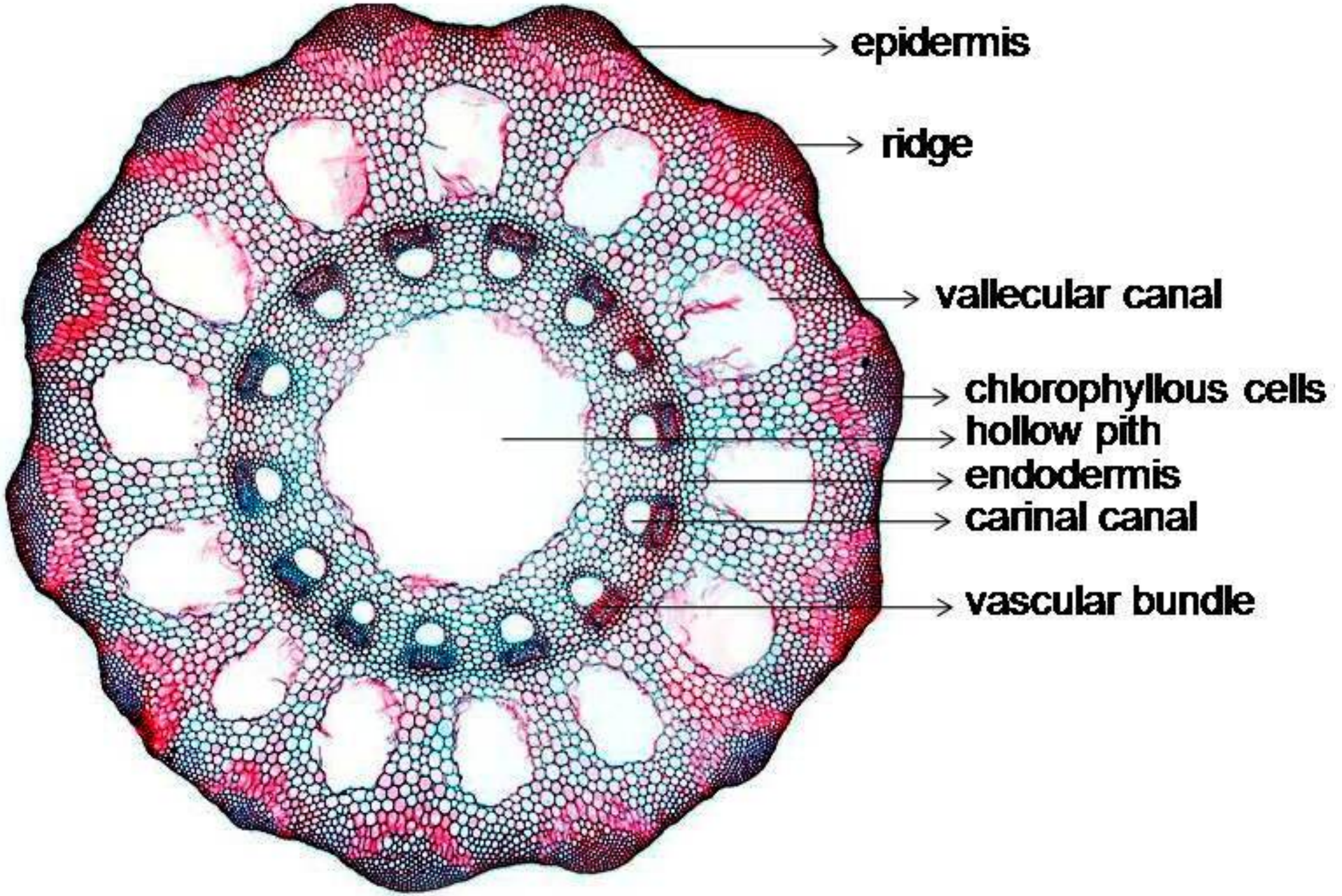


Fig. 7.85 : *Equisetum* : Schematic representation of a portion of vascular system in nodal and internodal regions


epidermis
ridge
vallecular canal
chlorophyllous cells
hollow pith
endodermis
carinal canal
vascular bundle

The xerophytic features are:

(i) Ridges and furrows in the stem,

(ii) Deposition of silica in the epidermal cells,

(iii) Sunken stomata,

(iv) sclerenchymatous hypodermis,

(v) Reduced and scaly leaves, and

(vi) photosynthetic tissue in the stem.

The **hydrophytic characteristics** on the other hand are;

(i) we11-developed aerating system like carinal canal, vallecular canal and central pith cavity

(ii) reduced vascular elements.

Strobilus

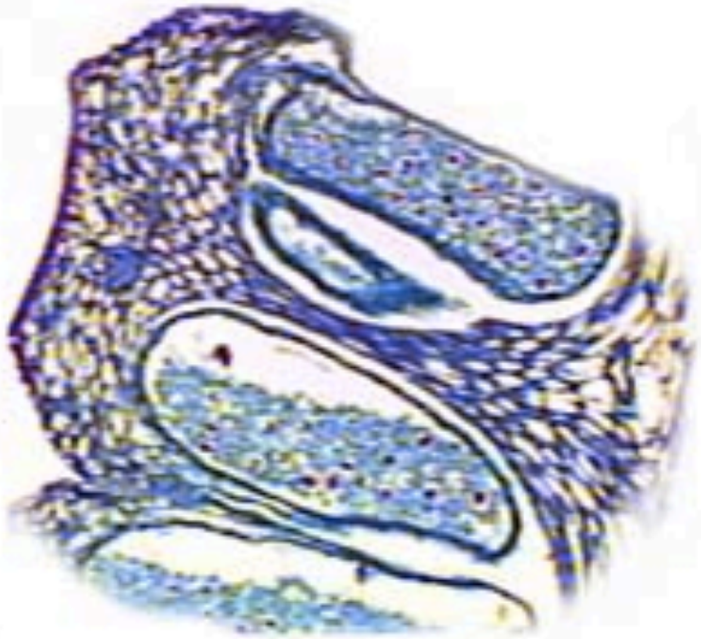

strobilus


sporangiophores
sporangia

Equisetum

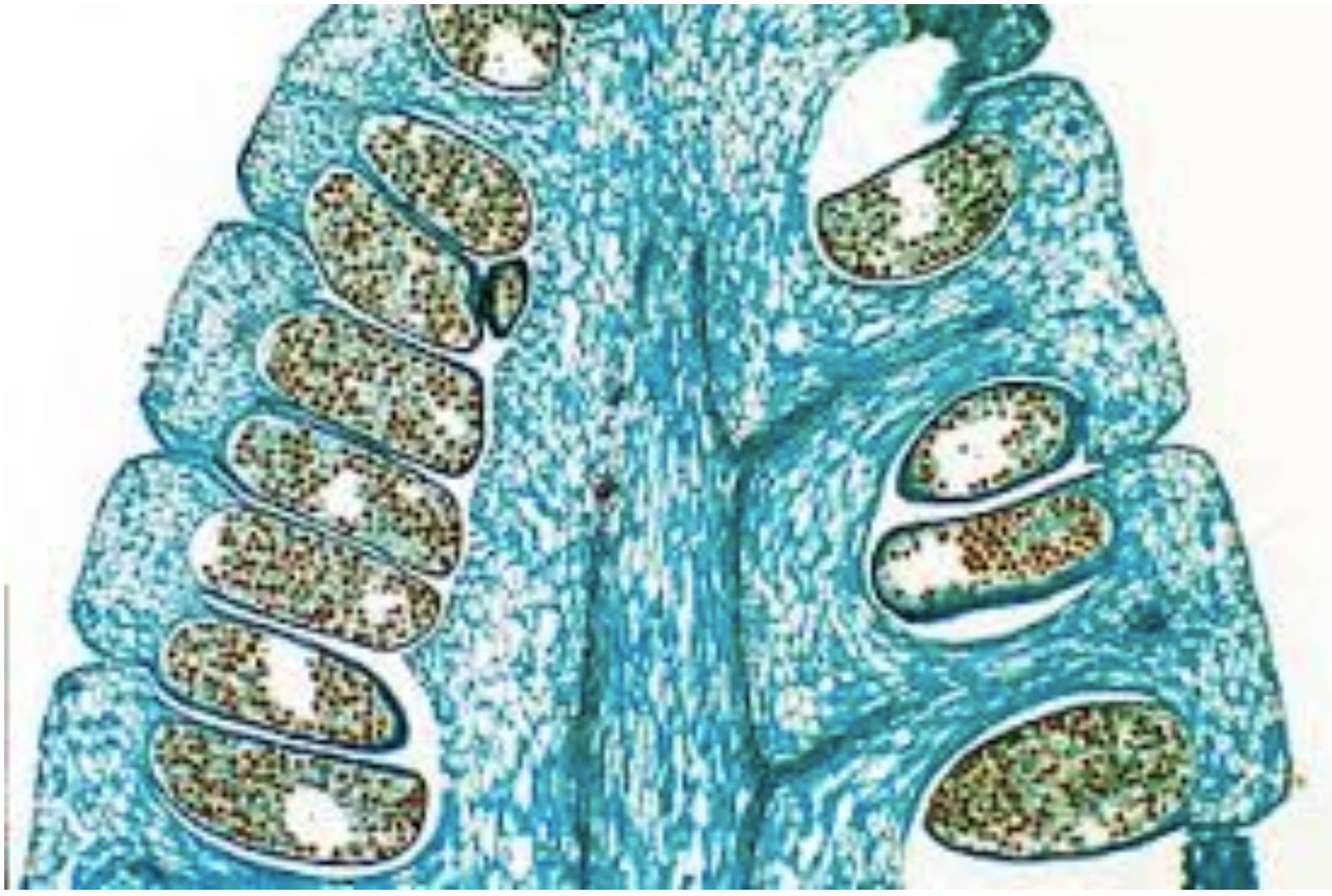
Stobilus

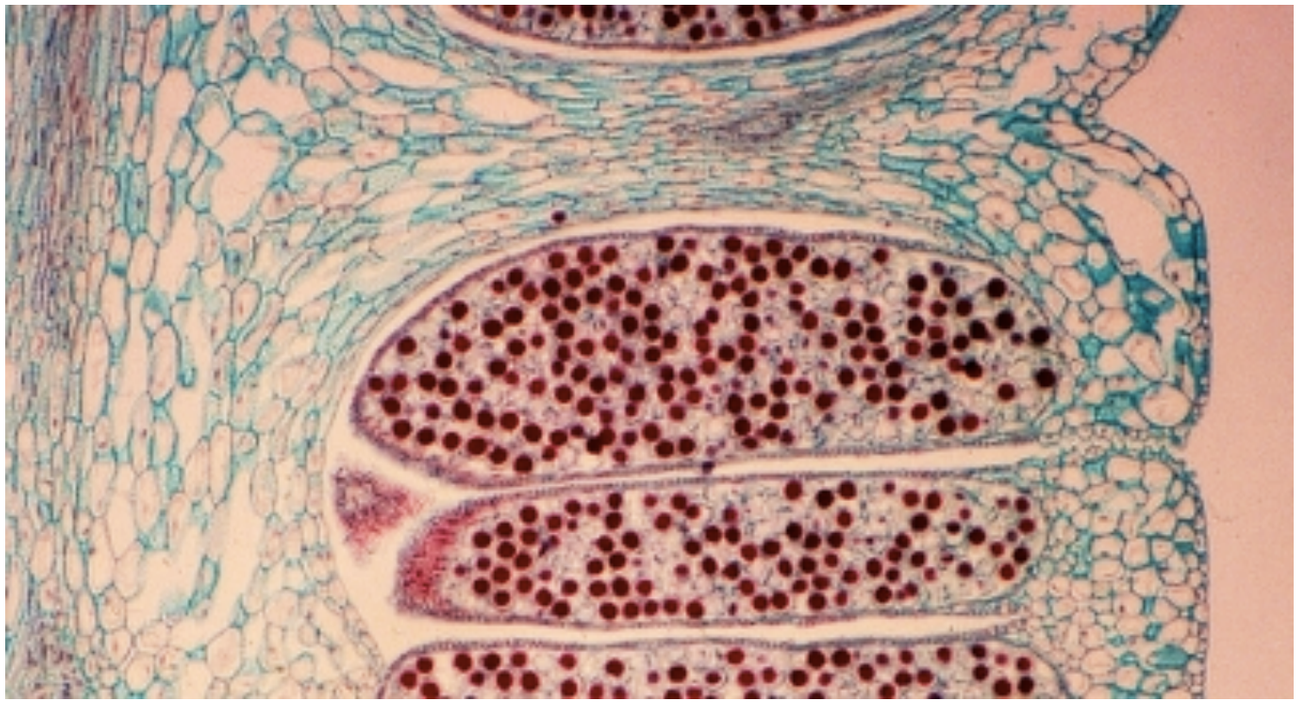
Sporangiophore

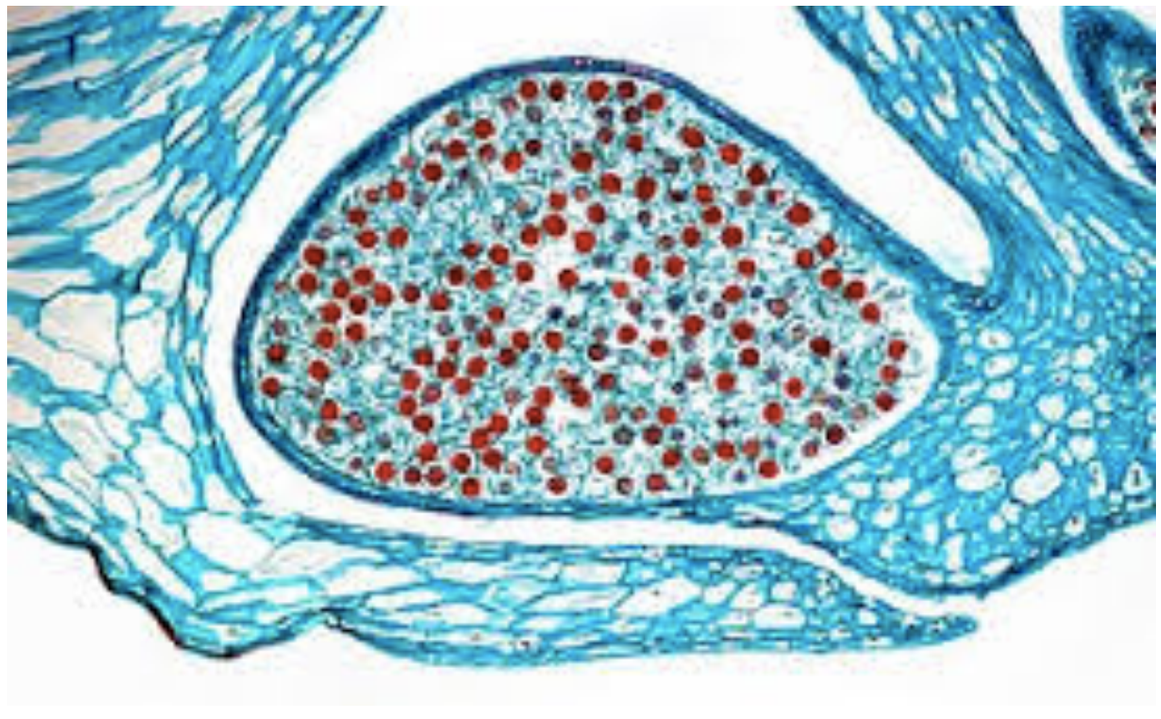


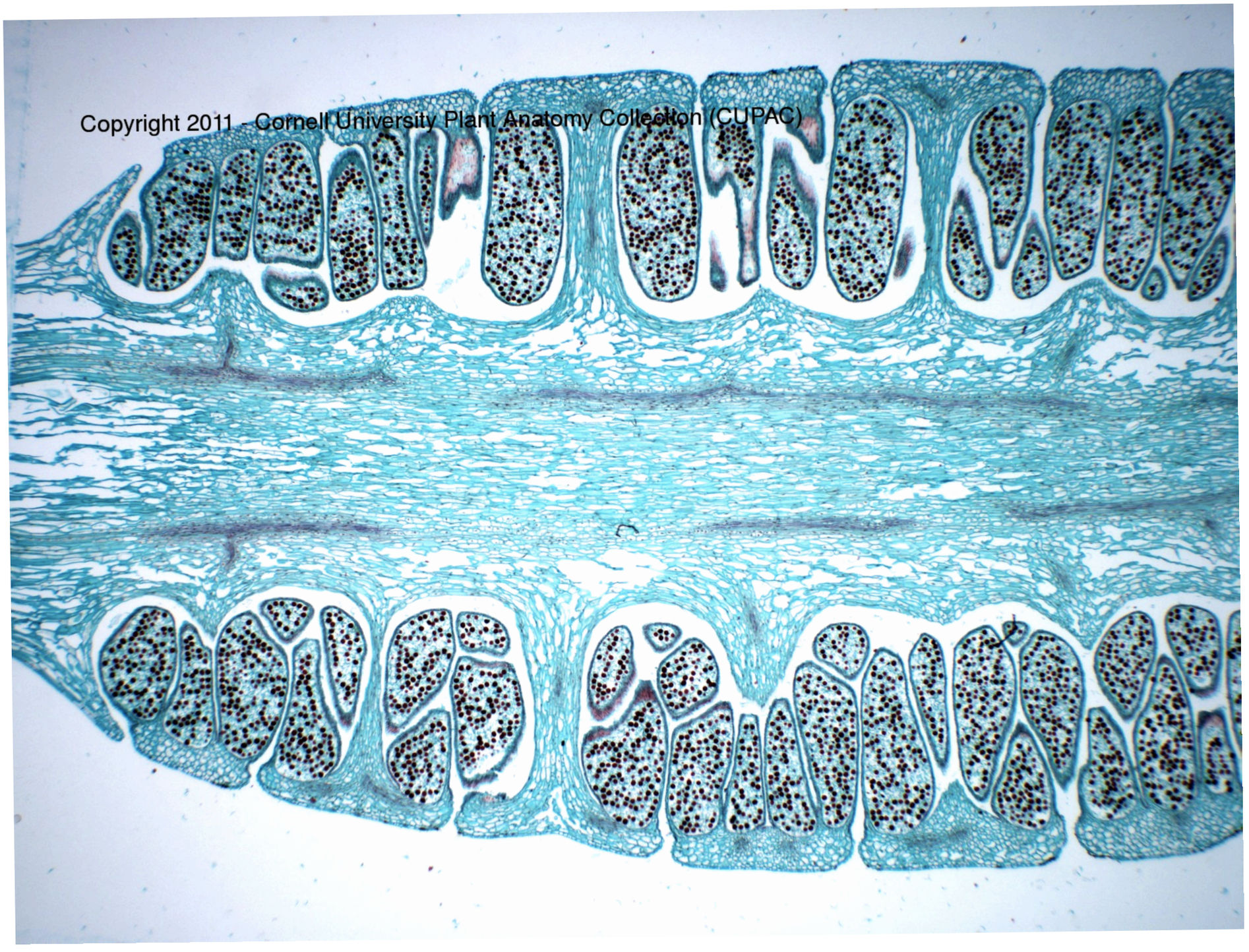
l.s. Sporangiophore

l.s. Stobilus









The Green River Formation deposits of Wyoming, Colorado, and Utah are best known for their immaculately-preserved fish, but other examples are known as well, as this specimen attests. This is an example of a strobilus (cone-like structure) of a scouring rush or horsetail known as Equisetum. The tip shows the sporangiophores which bore the spores by which the plant reproduced. The modern-day examples have been used to clean cookware due to their high silica content. The deep brown color is a fine contrast to the light shale matrix. The extant Equisetales are represented by the single genus Equisetum. Fossil examples are often denoted by the name Equisites. Whichever name is used, they are a mere shadow of the immense Equisetales that existed in the Carboniferous, some of which grew to be in excess of 10 meters tall.

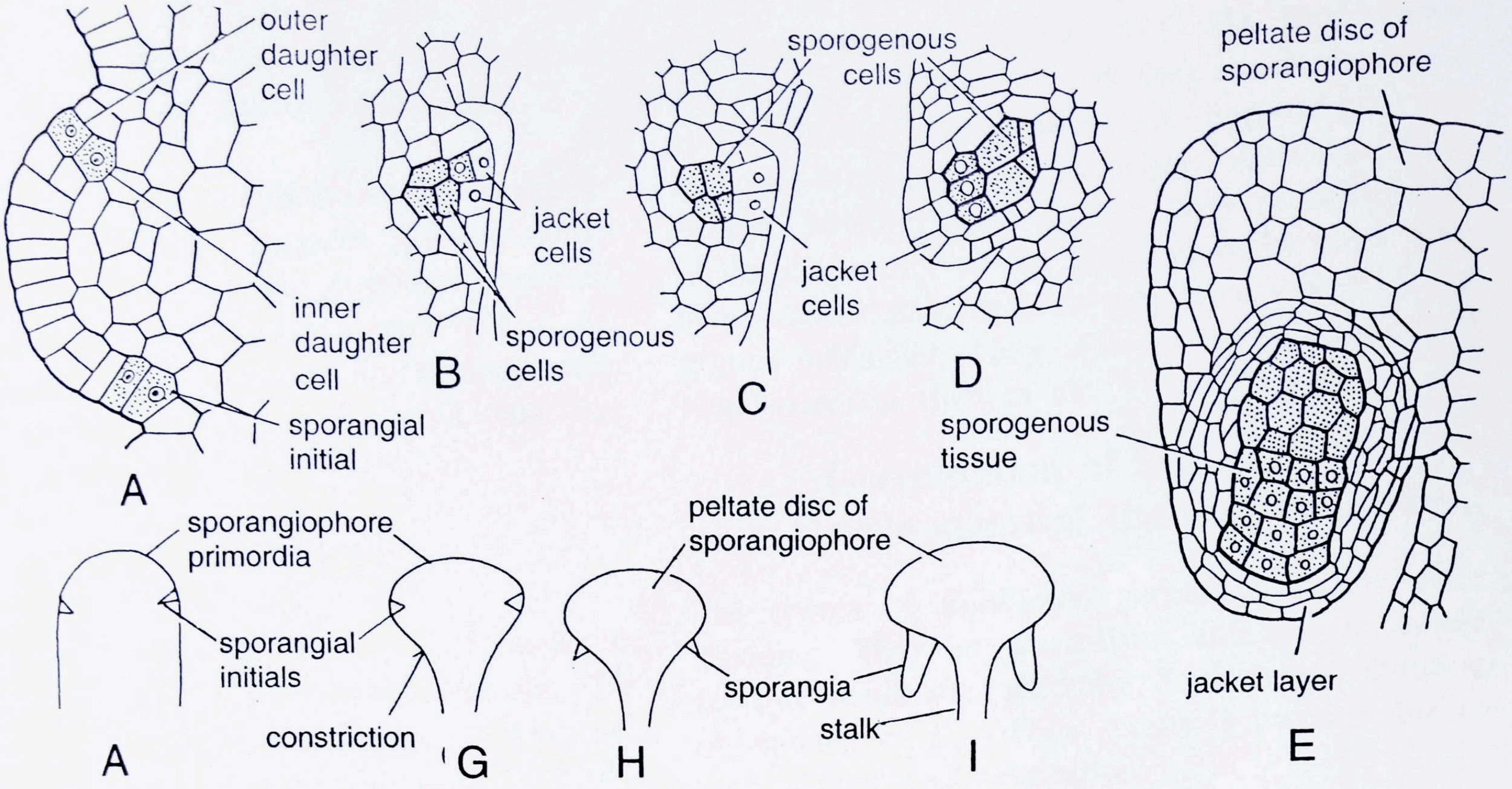
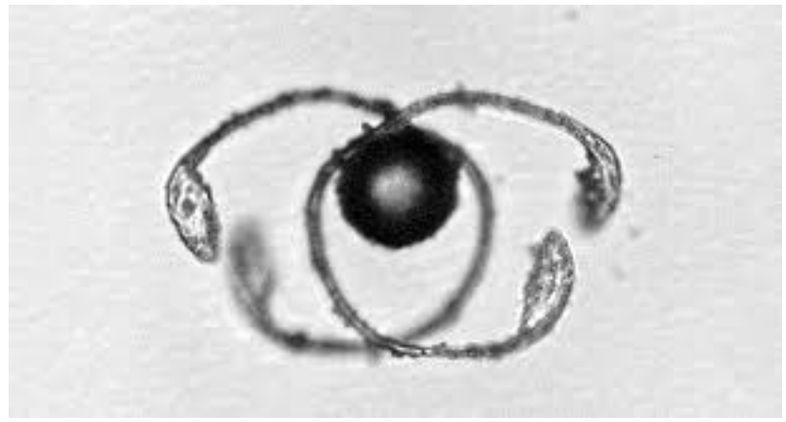
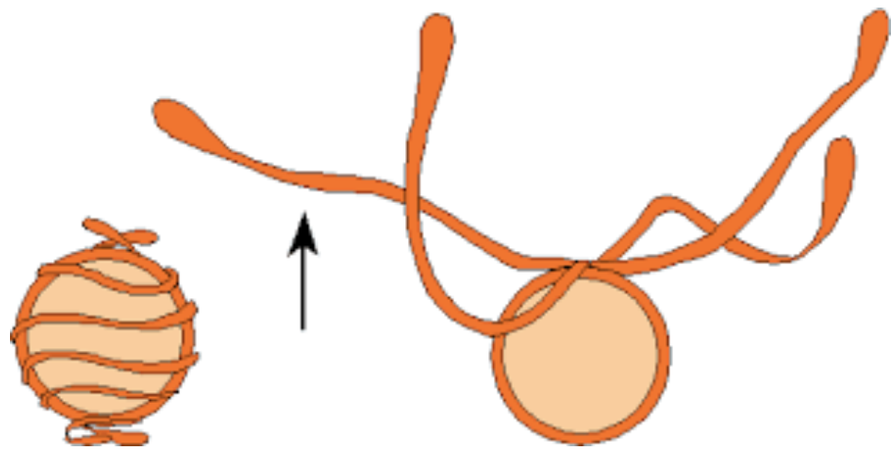
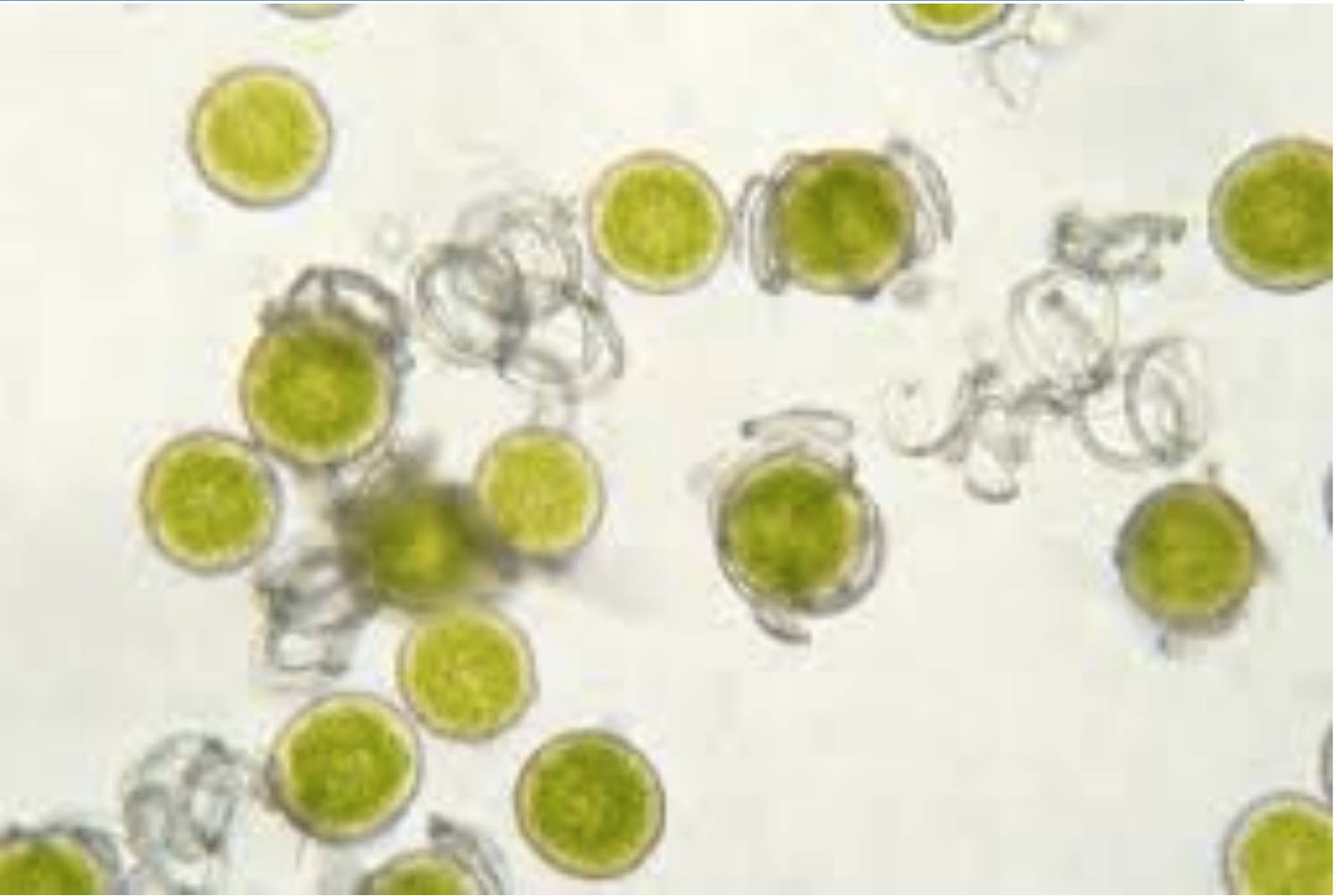


Fig. 11 A-I. *Equisetum*: **Development of sporangium; A-E.** Successive stages in the development of sporangium, F-I. Showing the gradual shift in the position of sporangia on the sporangiophore.







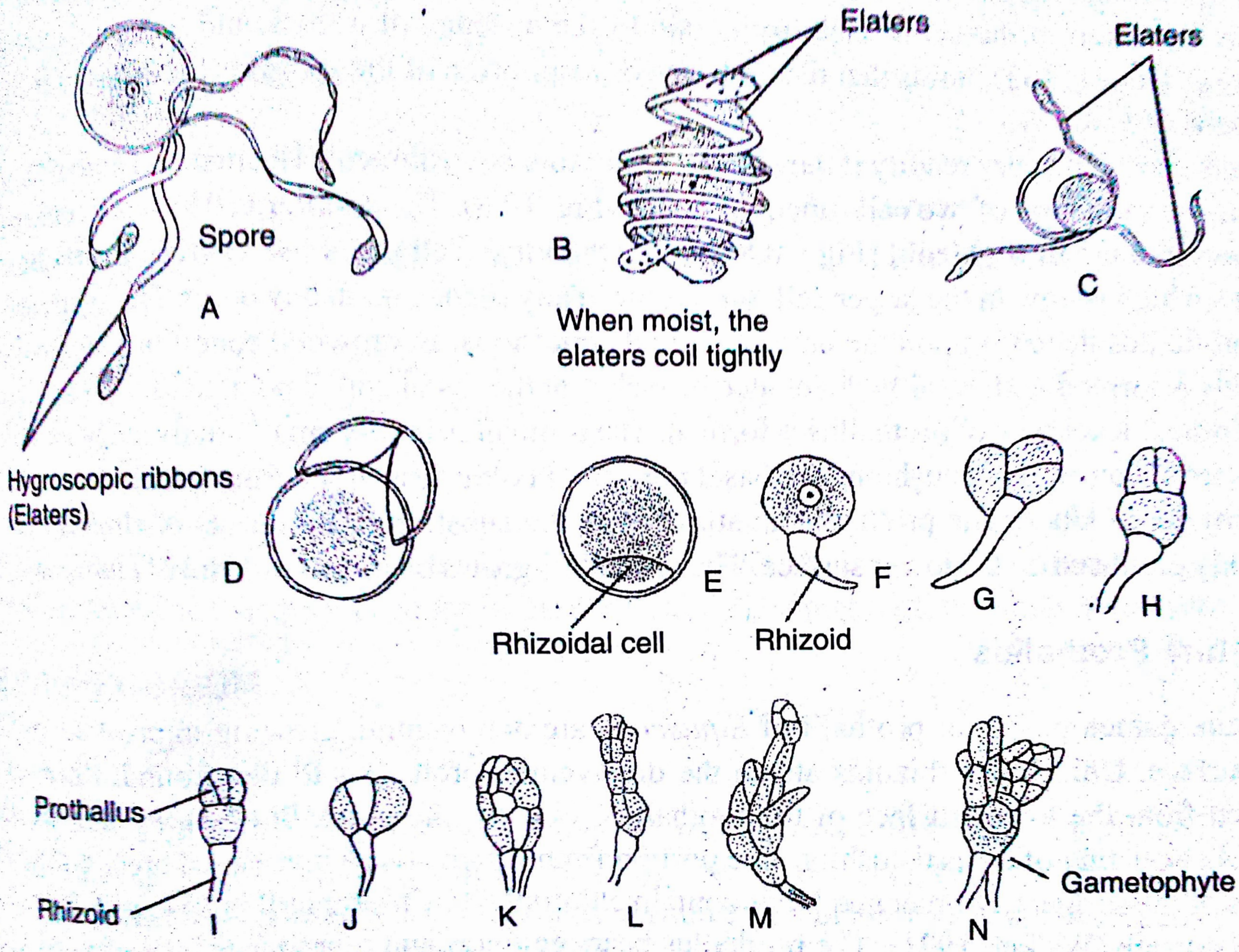


Fig. 10.8 A—spore of *E. telmateia* with elaters uncoiled, B—spore of *E. telmateia*, with elaters coiled, C—mature spore of *E. arvense* with elaters uncoiled, D to N—germination of a spore and development of the gametophyte in *Equisetum arvense*, D—rupture of spore wall, E—first division of spore, F—small cell forming the first rhizoid, and G to N—early stages in the development.

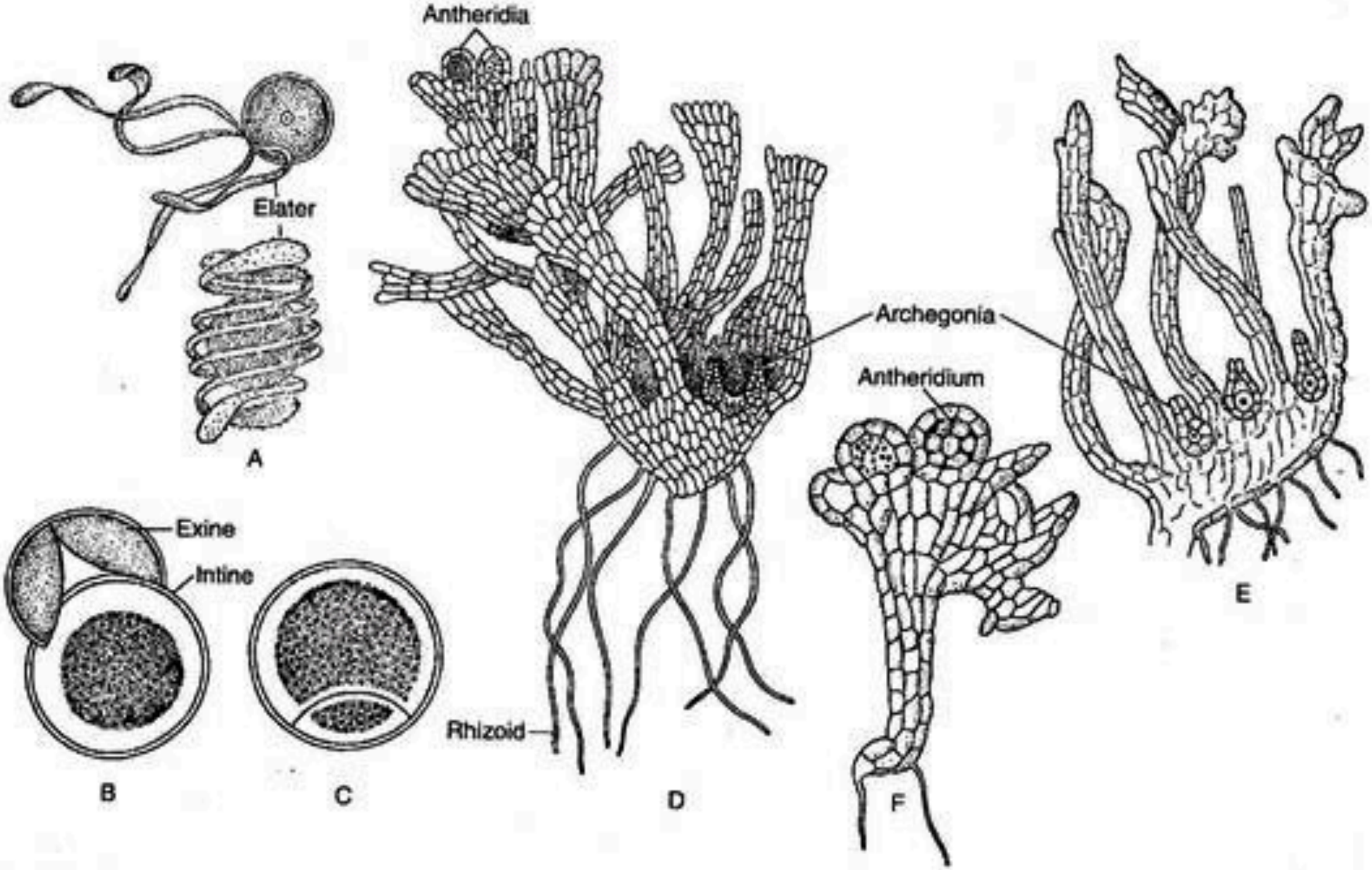


Fig. 7.87 : *Equisetum* : A. Spores with elaters, B–C. The stages of germination of spore, D. Monoecious gametophyte, E. Female gametophyte, F. Male gametophyte

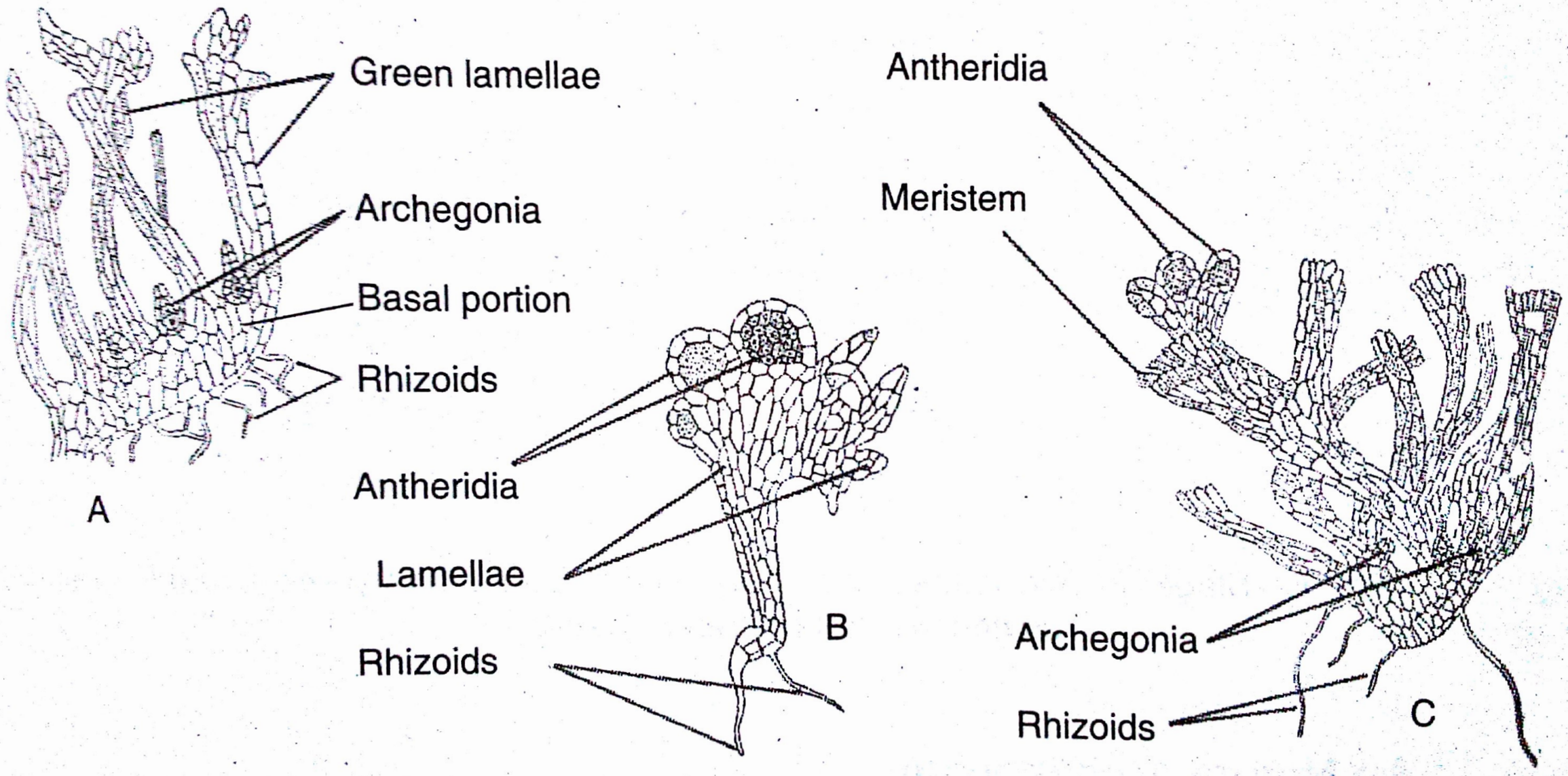


Fig. 10.9 Gametophytes of *Equisetum*. A—section through female prothallus showing archegonia, B—male gametophyte (prothallus) showing antheridia at some of the branch tips and C—a prothallus with archegonia and antheridia.

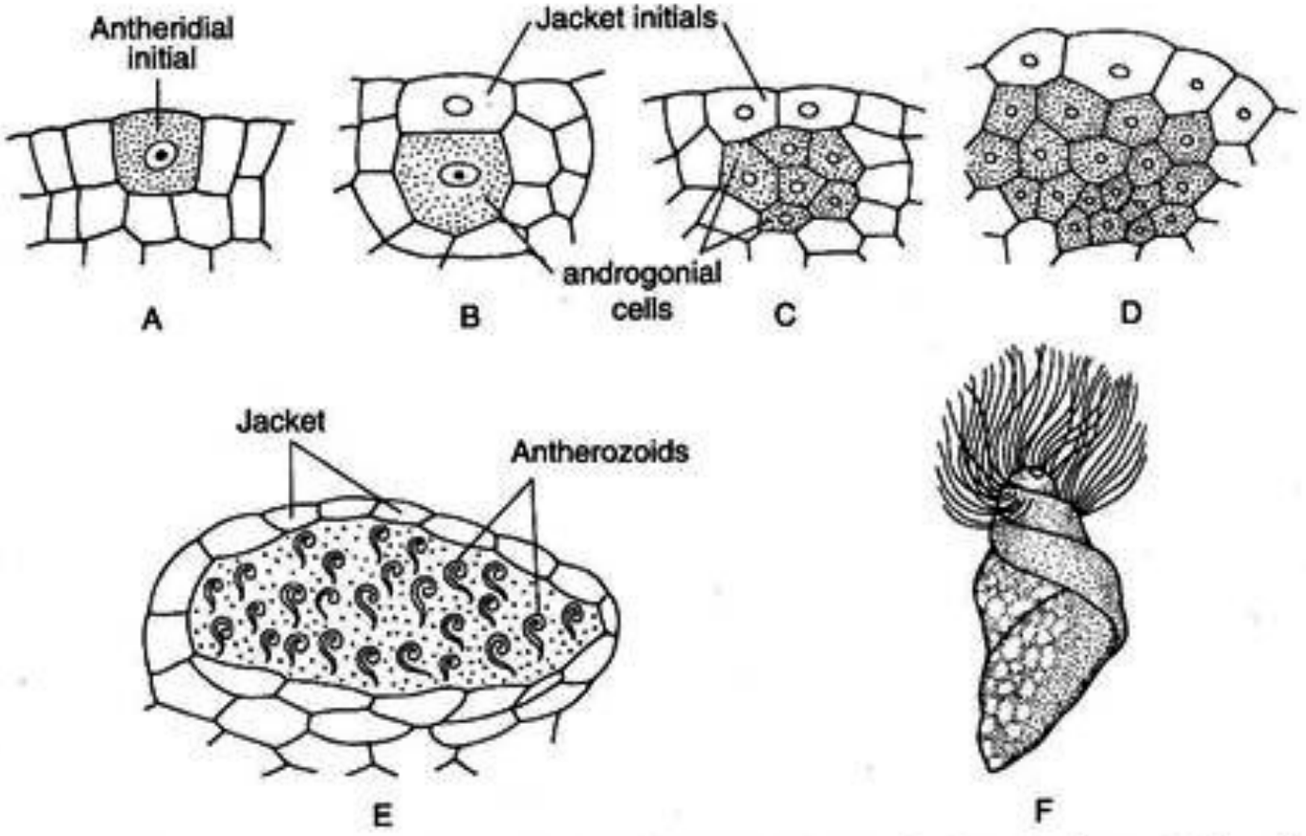


Fig. 7.88 : *Equisetum* : Development of antheridium. A–D. Successive stages in the development of antheridium, E. A mature antheridium, F. An antherozoid

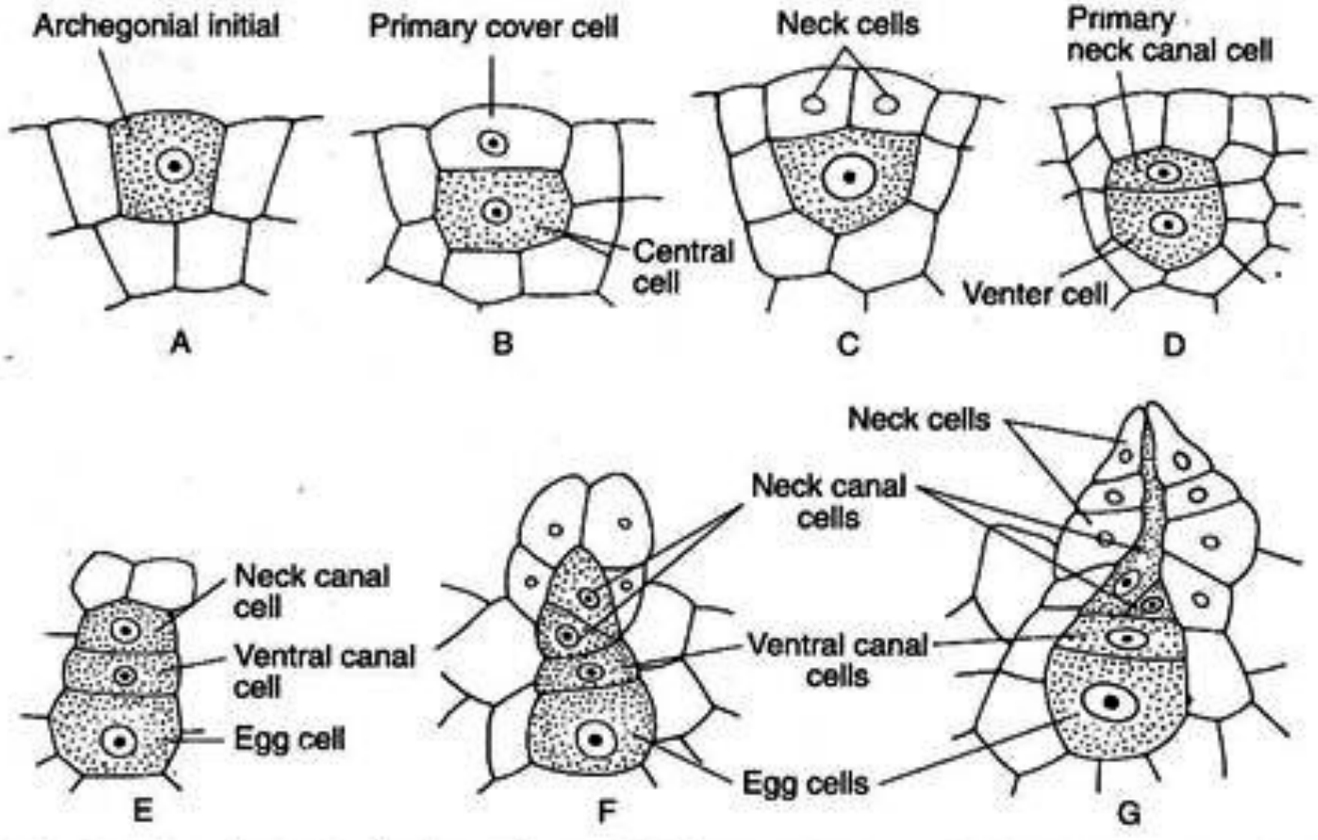


Fig. 7.89 : *Equisetum*. Development of archegonium : A–E. Successive stages in the development of archegonium, G. A mature archegonium

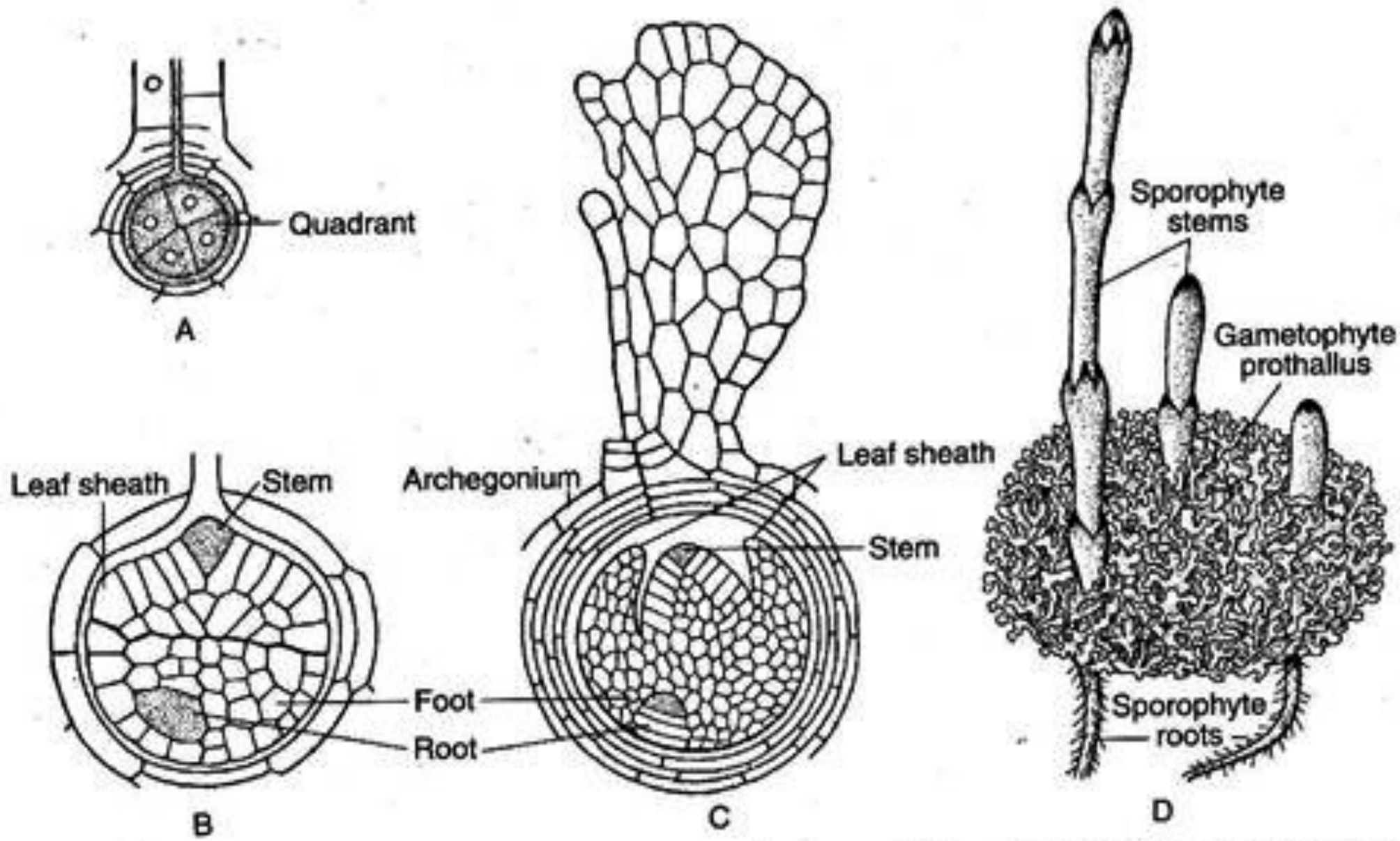


Fig. 7.90 : *Equisetum* : A–C. The stages in the development of embryo within venter, D. Young sporophytes developing from a gametophyte

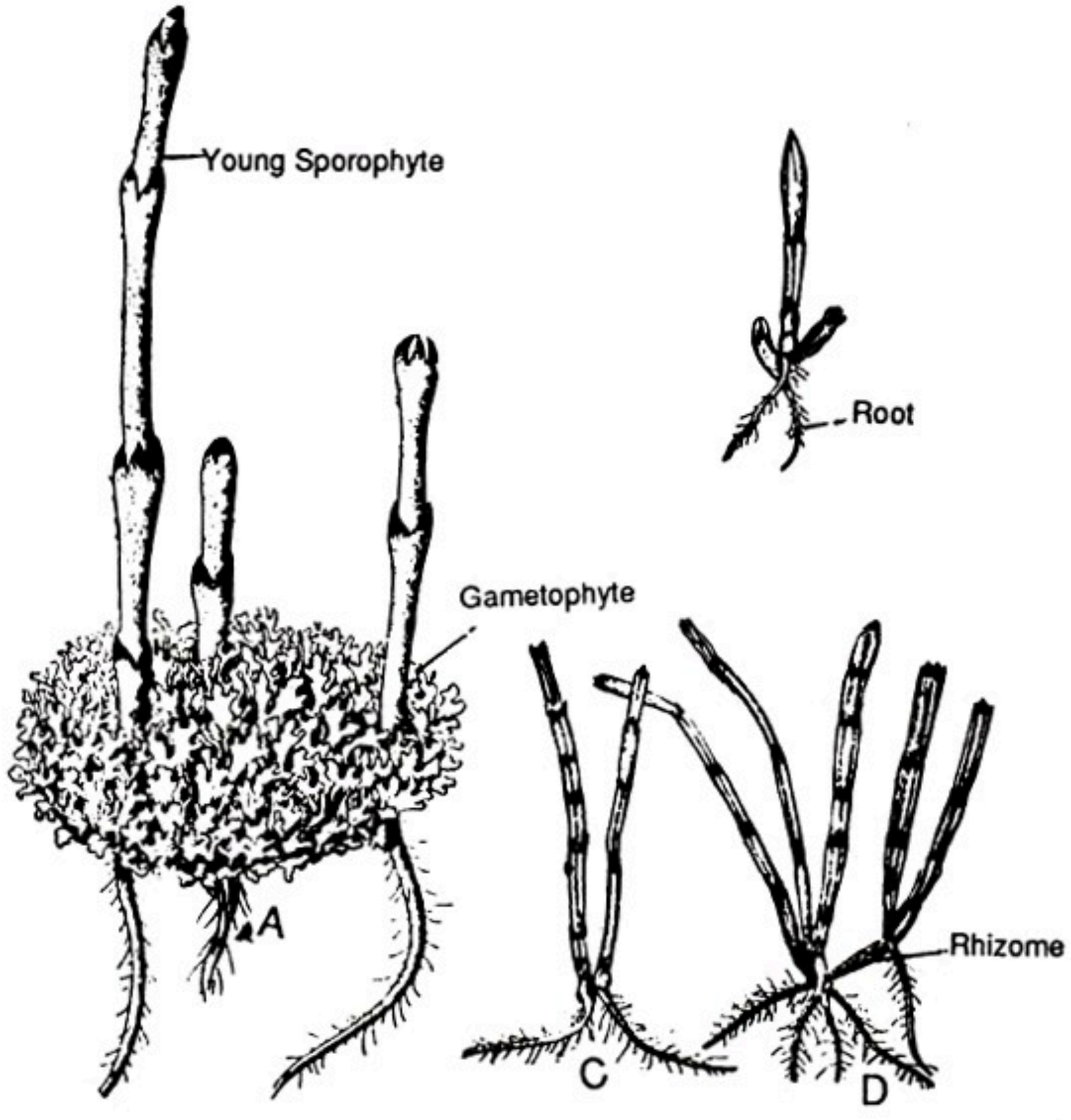
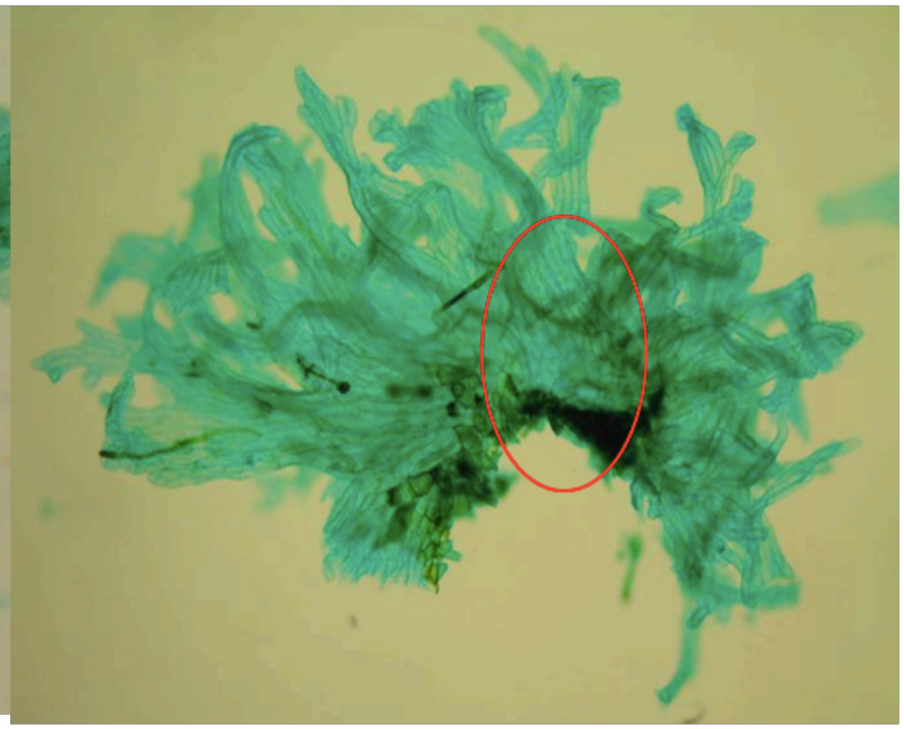
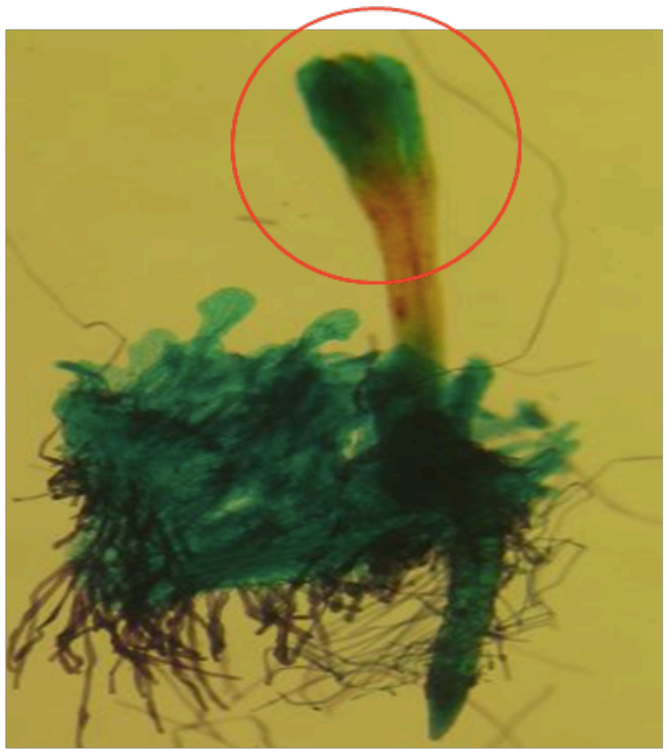


Fig. 111. *Equisetum* : Young Sporophytes (A) on the Gametophyte and Establishment of Young Sporophytes on Soil (B-D)

Antheridium



Archegonium



Prothallus with sporophyte

Life Cycle of *Equisetum*