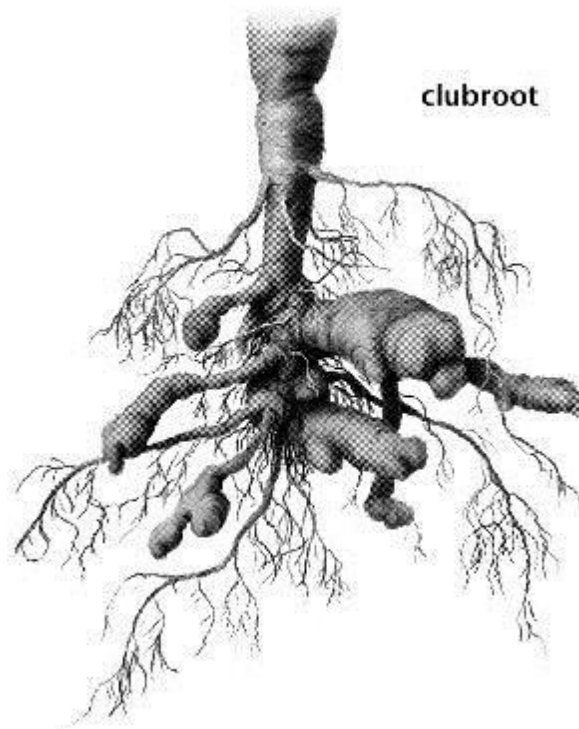


**Division 2: Mastigomycota****Sub division 1: Haplomastigomycotina****Class 2: Plasmodiophoramyces:****General characteristics:**

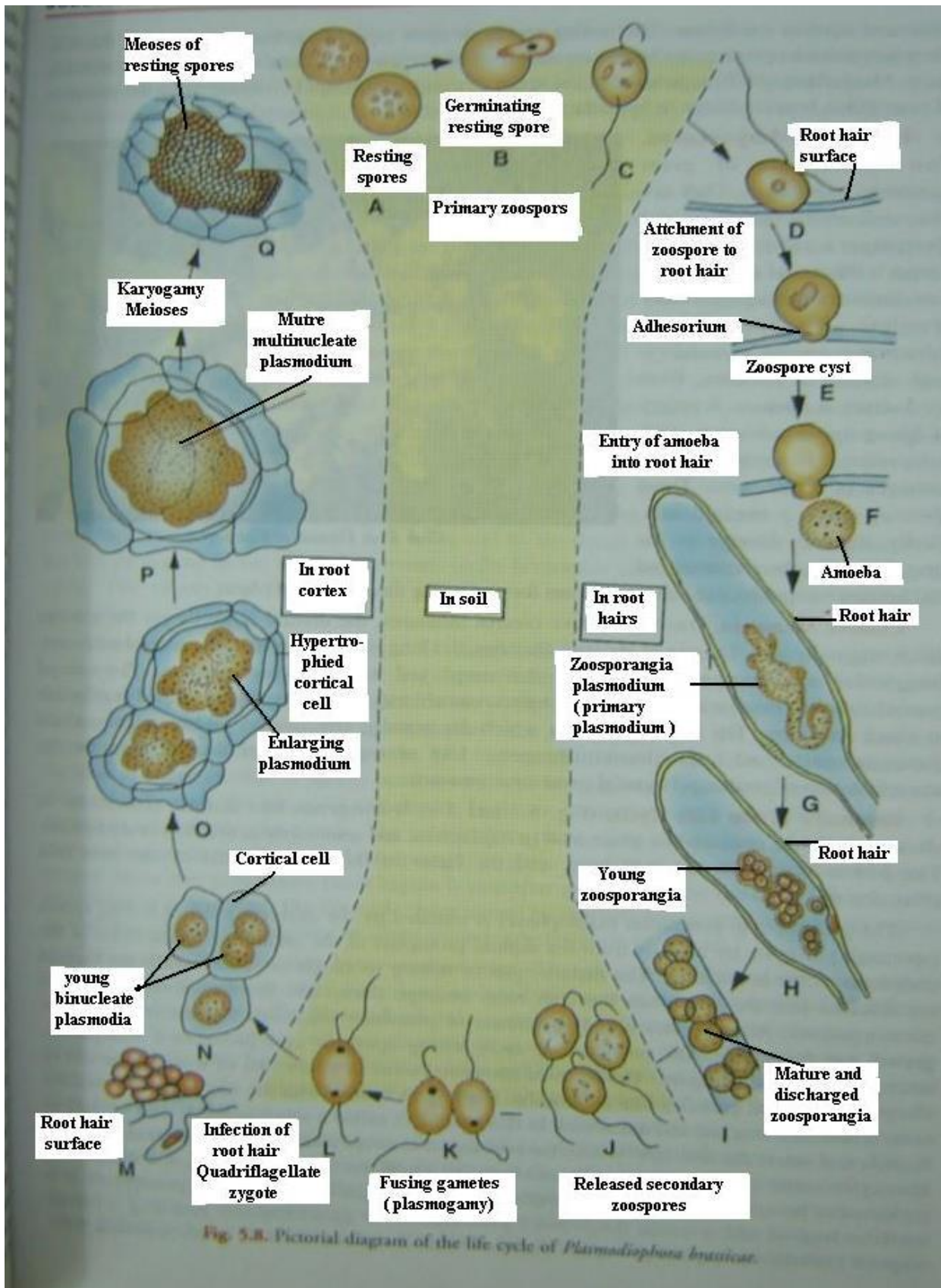
- 1- The somatic phase is a plasmodium that develops within the host cells(Endoparasite)
- 2- Produce two types of spores –zoospores and resting spores-.
- 3-When the resting spores are germinated give zoospores.

**Family: Plasmodiophoraceae****Ex 1: *Spongospora*****Ex2: *Plasmodiophora brassicae* (Causes: Club-root disease in Brassicaceae)****Club-root disease in Brassicaceae**

**Life cycle of *Plasmodiophora brassicae*:-**

The life cycle is initiated when resting spores-cysts- germinate. \* Each giving rise to a zoospore capable of infecting the host plant.\* Zoospore attaches to the wall of a root hair and then penetration occur and converted to the myxamoeba.\* Following penetration of a host small sporangigenous plasmodia appear within the host cells.\* It is possible that, these plasmodia develop directly from individual amoebae .\* Plasmodia increase in size with some fusion with one another, nuclear division during this phase is happened, and after the plasmodium reaches a certain size, it cleaves into segments that develop into zoosporangia.\* Zoospores are then formed and released from the zoosporangium either directly into host tissue or to the outside of the host. – Asexual cycle-

In the sexual cycle , the zoospores behave as gametes and couple in pairs forming – binucleate amoeboid cells-.\* Then karyogamy occur to give zygote- $2n$ - , also the cells of host increase in size – Hypertrophy- .\* The young plasmodium then converted to old one and Meiosis take place and each nucleus converted to resting spore.



Life cycle of *Plasmodiophora brassicae*

**Class 3: Hypochytridiomycetes:****General characteristics:**

- 1-Hyphochytrids are eukaryotic organisms in the group of Stramenopiles, formerly classified as fungi or as protists.
- 2- are aquatic, fresh-water or marine chytrid like fungi whose motile cells are anterior uniflagellate, with a tinsel type flagellum.
- 3- they have a rhizoidal or hypha-like vegetative system (hence the prefix "Hypho-").
- 4-They are parasitic on algae and fungi or saprobic on plant and insect debris in the water in which they live.
- 5- All are included in the single order hypochytridiales.

**Diversity**

This is a relatively small group, composed of about 16 known species, which may be due in part, to sampling methods of scientists.

**Order: Hypochytridiales****Family1: Hyphochytriaceae**

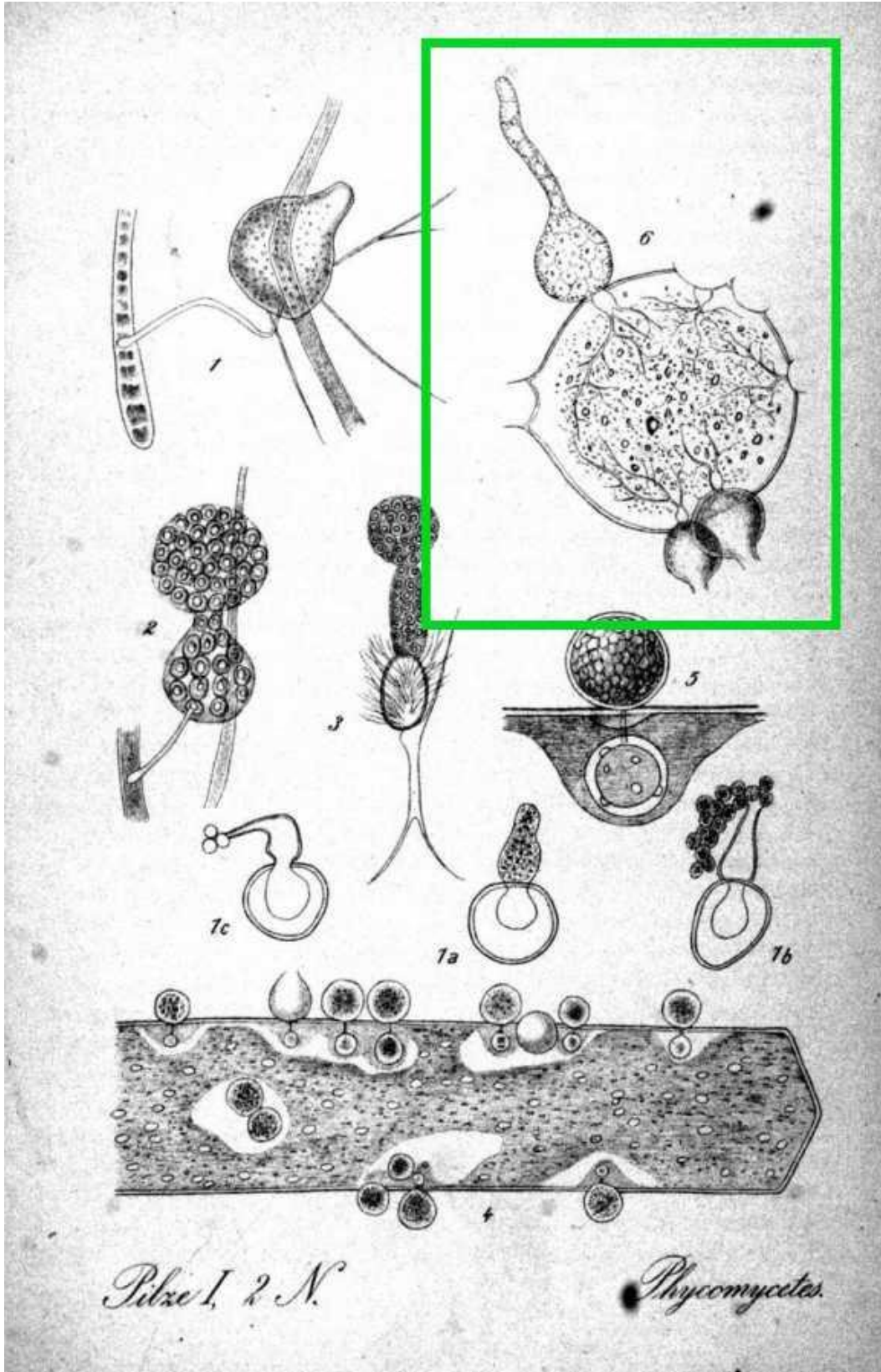
Fischer 1892

- Genus *Canteriomyces* Sparrow 1960
- Genus *Cystochytrium* Ivimey Cook 1932
- Genus *Hyphochytrium* Zopf 1884 [*Hyphophagus* Minden 1911]

**Family2: Rhizidiomycetaceae**

Karling ex Kirk, Cannon &amp; David 2001

- Genus *Latrostium* Zopf 1894
- Genus *Reessia* Fisch 1883
- Genus *Rhizidiomyces* Zopf 1884 [*Rhizidiomycopsis* Sparrow 1960]



*Rhizidiomyces apophysatus*