Economic Importance of Pteridophytes

Pteridophytes are most valued as horticultural plants, it is because of the beauty of their leaves. These are are also valued as food plants, as delicacies, and food and feed substitutes during famines. ~~Some of~~

Horticultural Plants

A green house is incomplete without a leafless bond plant, that has been potted up and can be multiplied by its rhizome cuttings. The significance of Psilotum lies in not only being leafless but also a plant that is made up of green twigs of perfectly ordered dichotomies. It is nicknamed as 'whisk-fern'. There are Psilotum Societies of Amateur Botanists, in Japan.

The lycopodium are liked as ground-pines; small pine-like plants with needle-like leaves. These are terrestrials plants which look-like a moss but are quite big i.e. club mosses. More valued are pendulous epiphytes, Lycopodium spp. growing on tree trunks as hanging baskets in Botanical Garden, Ootacamund and in Bryant Park & Kodaikanal.

Selaginellas have been serving green houses as border plants. It is because of the beauty of their branches and foliage. The Resurrection Plant (S. lepidophylla) is sold as dried and it rejuvenates on coming in contact with water.

Aesthetic value of Angiopteris and magnificience of Marattia remain unparalled in plant kendgdom. These tree fern-like plants find their place in green houses because of their beautiful habit and elegance.

Fern leaves are known for their keeping quality and this makes them commercially important plants in preparing a bouquet and floral arrangement. For this a common source is Nephrolepis.

Food and Feed Plants

Young-leaf tips of ferns, the croziers or fiddle-heads, have been a delicacy in Indo-Malay region and adjacent Japan. It has been remarked that these simply taste like 'Soul of Spring'. The croziers of ostrich fern, Matteuccia struthiopteris are regularly served as spring-vegetable in Canada and adjacent United States. For consumption, the croziers are either canned or frozen.

Marsilea in its quadrifid lamina resembles a clover and has in fact been used as a substitute for clover to feed the animals.

Medicinal and Pesticidal Plants

Since times Dryopteris filix-mas, the male-fern is valued as medicinal plant, particularly for the treatment of tapeworm. It is also used for brewing of ale. The ferns are relatively immune to insect attack. This is possible due to their chemical nature, which interferes with the normal molting process of insects and make them valuable as a source of pesticides.

Dinitrogen Fixation and Agronomic Plants

Azolla, a water fern is referred as godess of fertility and A rice farmer is sure of a couple of good crops whenever Azolla in full bloom occupies the rice fields. This plant with fragile free-floating rhizome is able to secure quick vegetative propagation. On a plant of pin-head size there are hundreds of microscopic leaves each harbouring live colonies of dinitrogen fixer, Anabaena. Thus on the basis of surface to volume ratio, it is the most effective symbiotic relationship between a nitrogen fixer and a fast-growing plant, which has served as a green manure.

Obnoxious Weeds

Pteridium aquilinum, the cosmopolitan bracken, has been of devastating effect on human affairs. It can rapidly colonize the open forest land to the exclusion of other plants and is hard to destroy because of its perennial rhizome. The plant is toxic to cattle, producing bizarre symptoms and at times sudden death. Potent carcinogens have been isolated from this fern.

Salvinia, the water fern, with its free-floating fragile rhizome is able to secure quick vegetative propagation. It can occupy the entire water surface in lakes and irrigation reservoirs. It is a troublesome weed that can block boating and free flow of water in irrigation canals. ~~Being~~ At times it has been described to occupy the entire river delta, ~~ck~~king navigation.

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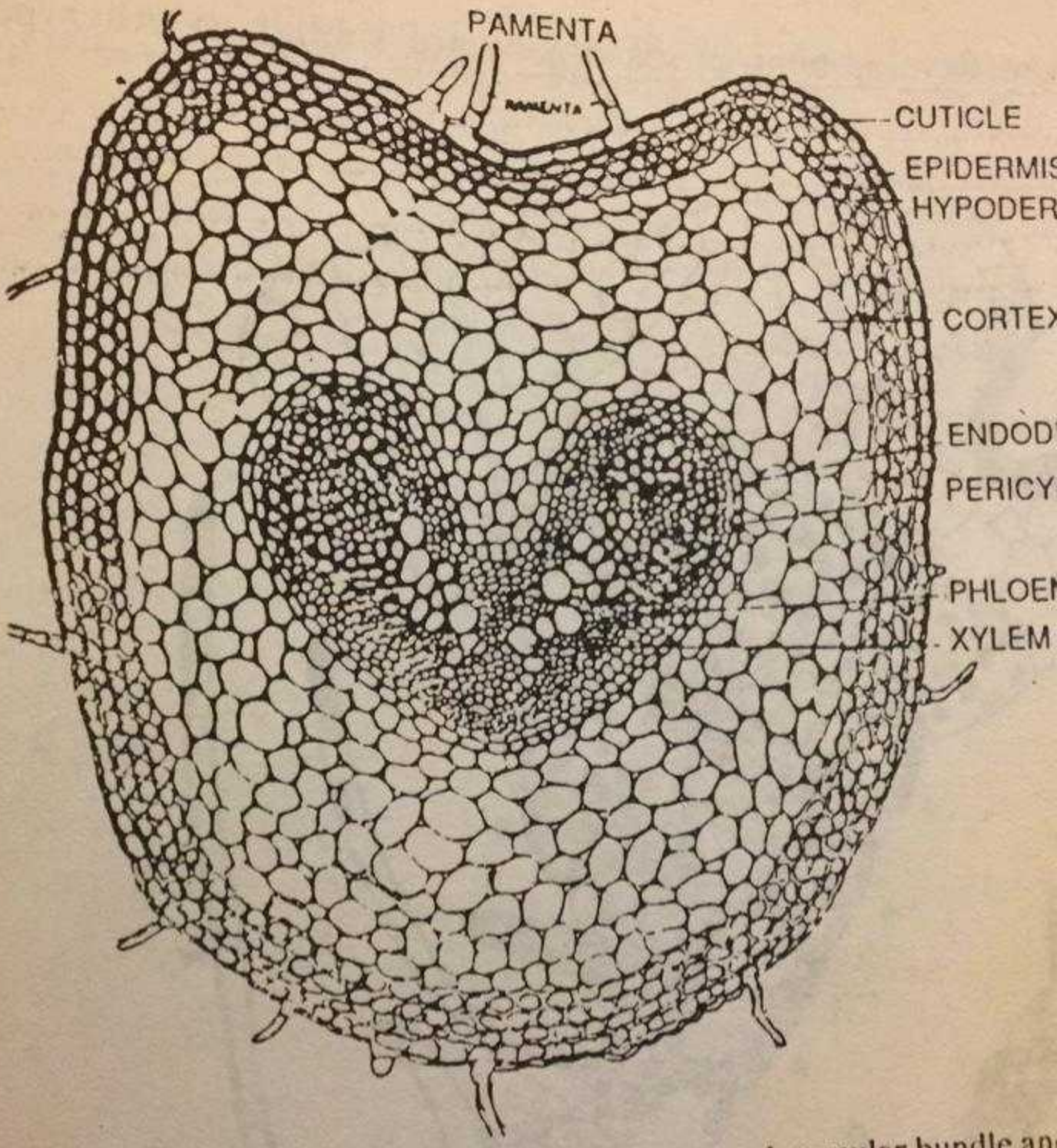
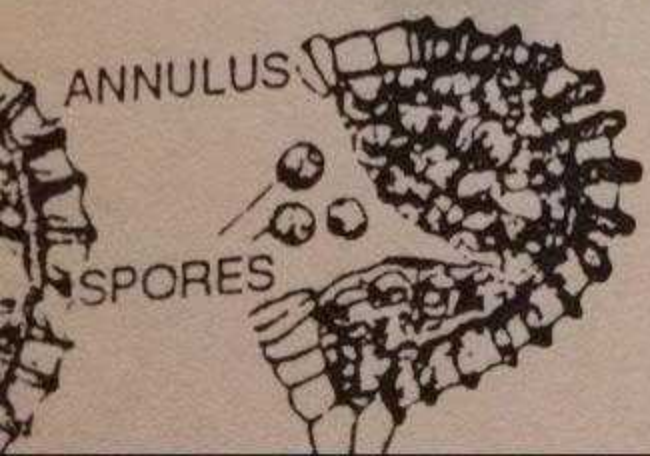


.12. *Pteris Viltata.* T.S. Petiole. Note th C—Shaped vascular bundle an



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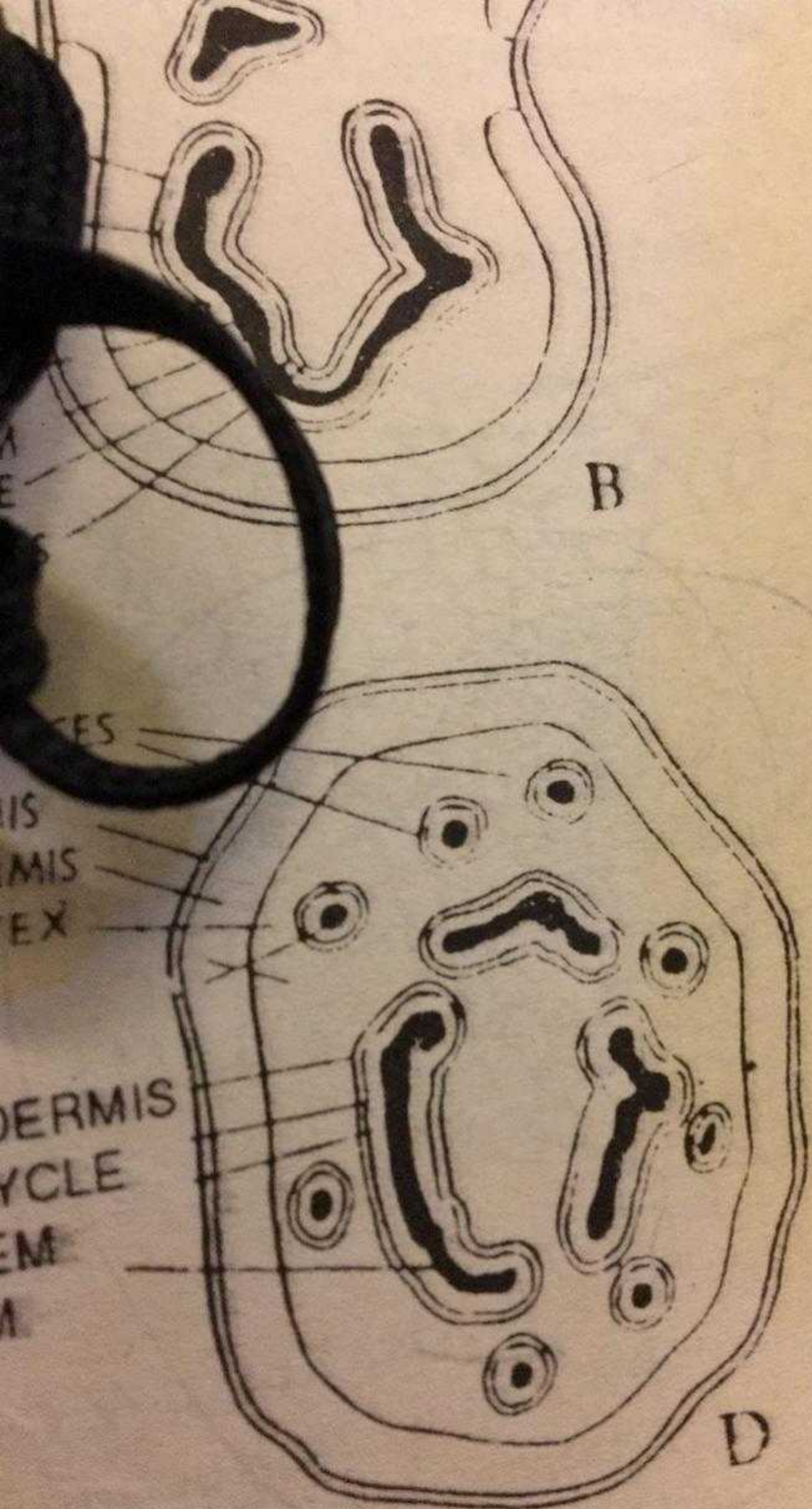

B
D

one layer of cells thick at the wings. The central part just back of the
ve and cushion-like. It is several layers of cells thick. All the prothallial
longated and polygonal or hexagonal in shape. The cytoplasm forms
ithin the cell wall and encloses a central vacuole. The single nu
he cytoplasm which contains many small, discoid chloroplasts. Being g
utotrophic in its mode of nutrition. There are no intercellular spaces
growing point is located in the notch. Many delicate, brown, hair-li
lar rhizoids arise from the lower surface of the cushion especially
e rhizoids are unbranched. They penetrate the soil and thus serve to at
ie substratum. Besides they absorb moisture and mineral nutrients f
vth of the prothallus. The prothallus grows only in moist, shady habi
ting haploid plant of the gametophyte generation and is concern
ction. It does not live for a long time and cannot withstand dro
ndent upon moisture. In fact, it is less adapted for life on land as c
n plant (sporophyte).

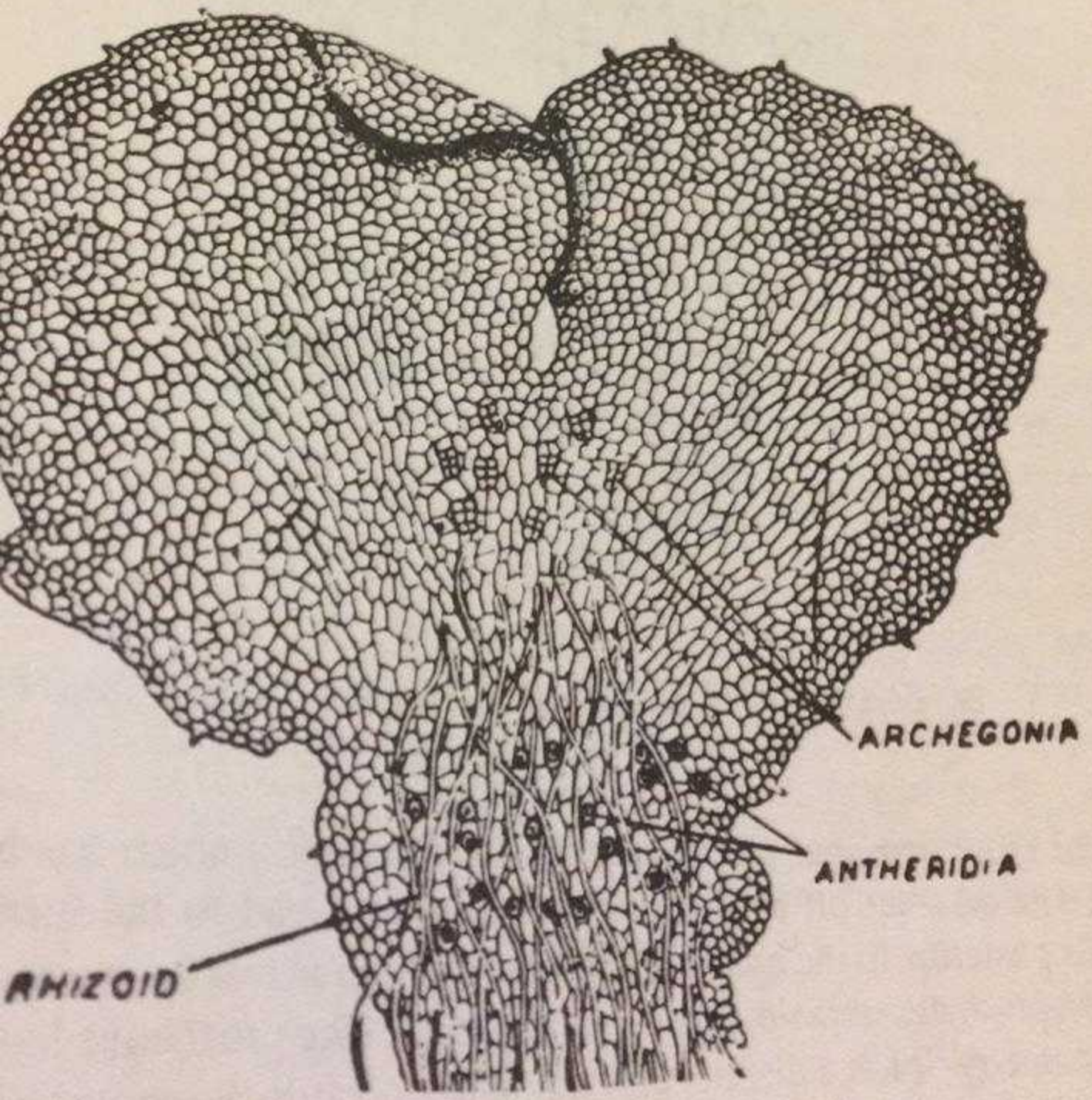
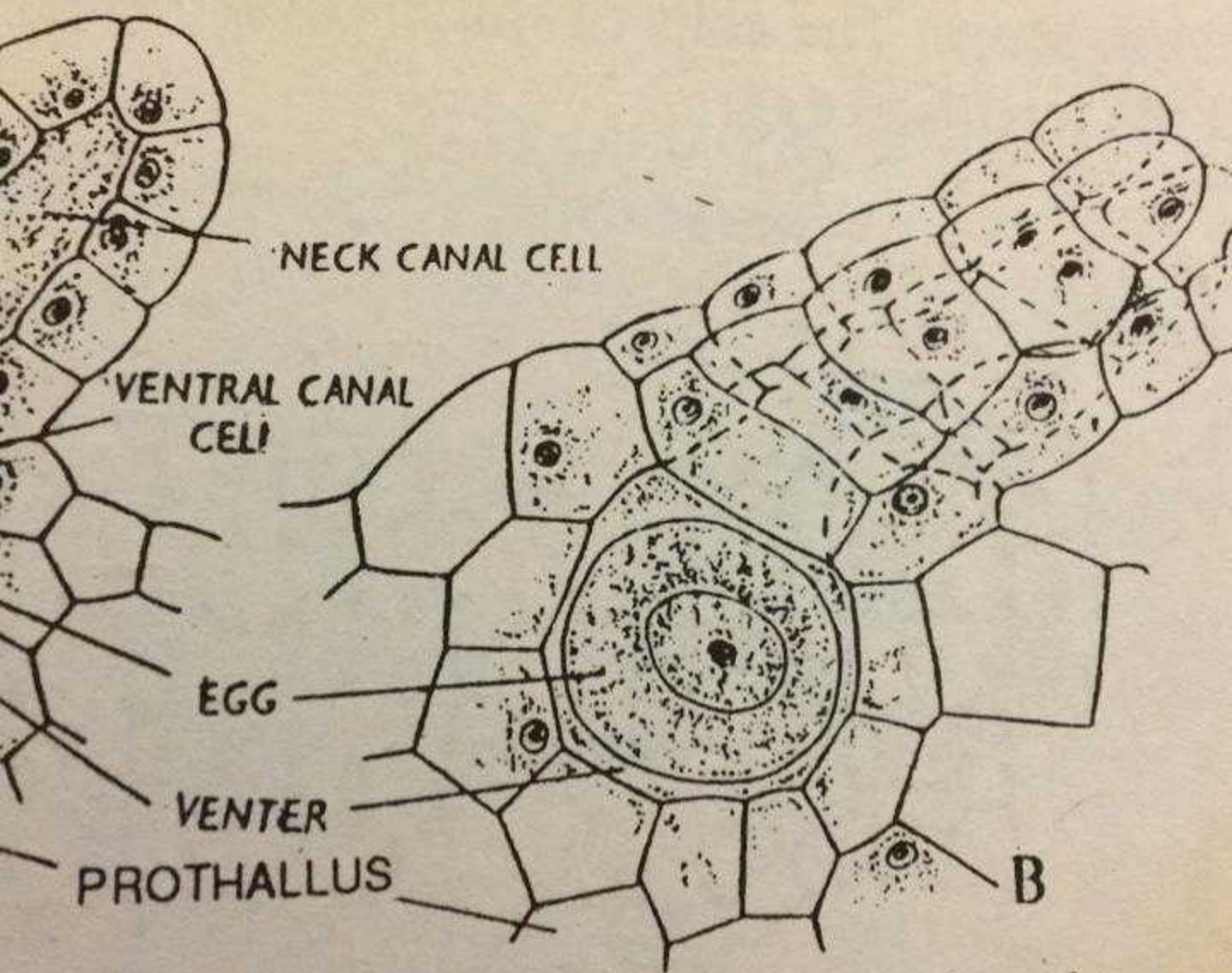


Fig. 14·14. A mature prothallus of *Dryopteris* as seen from ventral side. (After Kny)

and bears sex organs on the ve



14.16. **Dryopteris** (A—B). Fully developed
gonium. B. Mature and dehisced archegonium.

n a neck of 3—5 or 7 cells in height (
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4.17, D) sothat it becomes binucleate. T
divides transversely into an
and a lower large

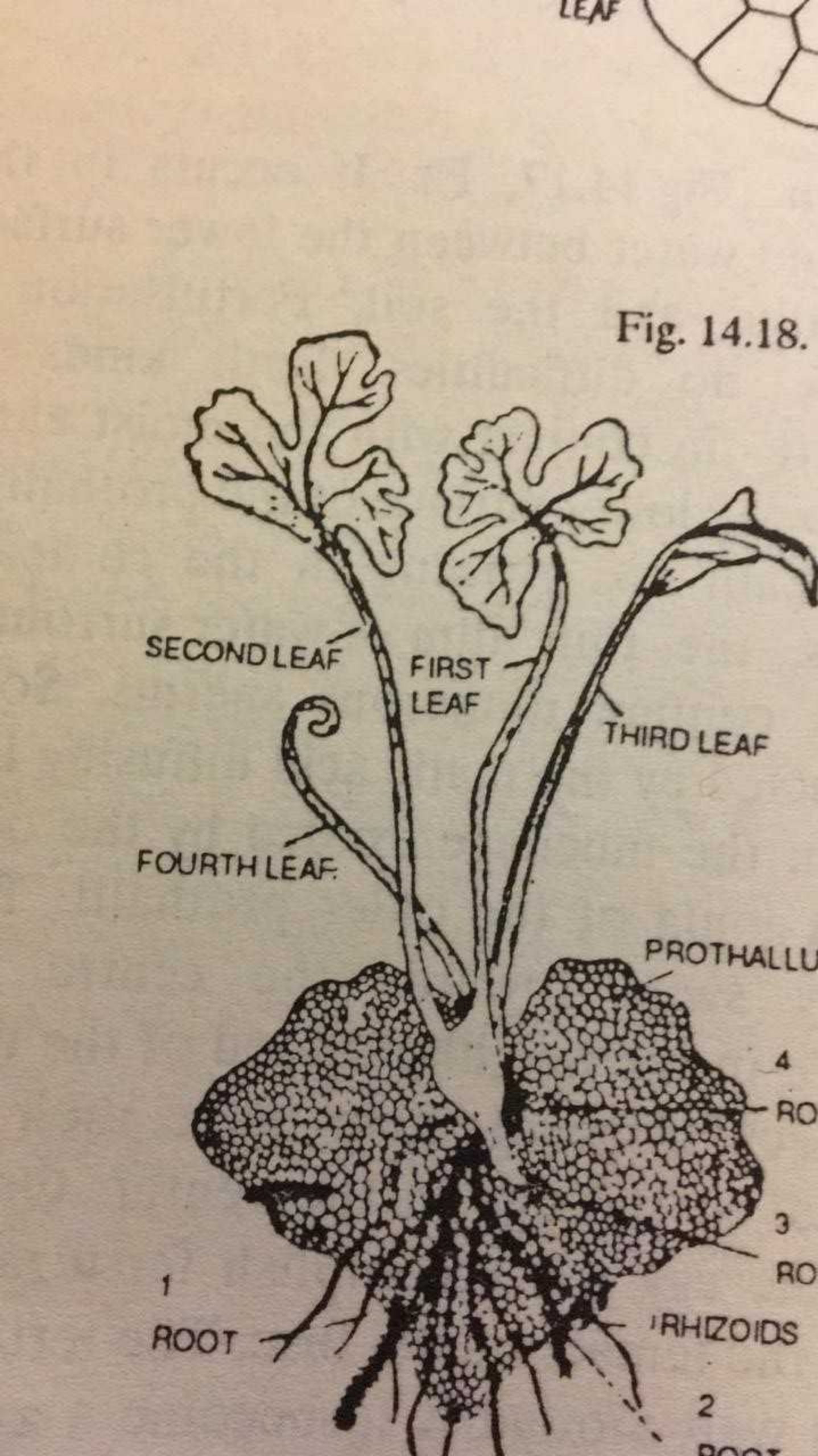
LEAF
SECOND LEAF
FIRST LEAF
THIRD LEAF
FOURTH LEAF
PROTHALLU
4
RO
3
RO
1
ROOT
RHIZOIDS
2

Fig. 14.18.

opment of antheridium in

A spermatozoid.