



ALABAMA
TRACHEOPHYTE

PTERIDALES

ALABAMA
TRACHEOPHYTE

COMMON NAME



“TRUE FERNS”





DIVERSITY



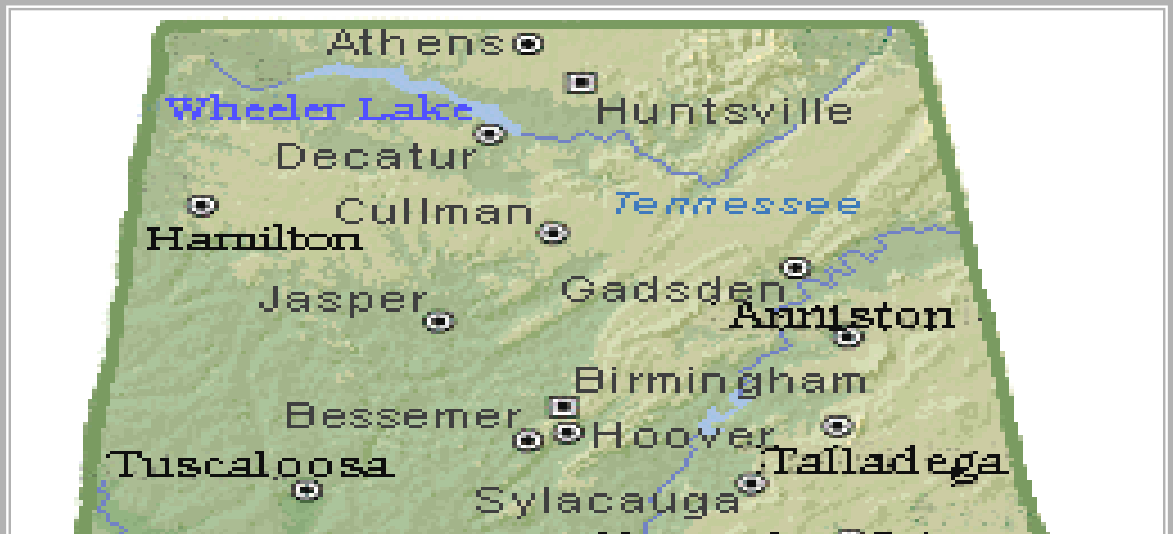
~9,000 SPECIES

EARTH



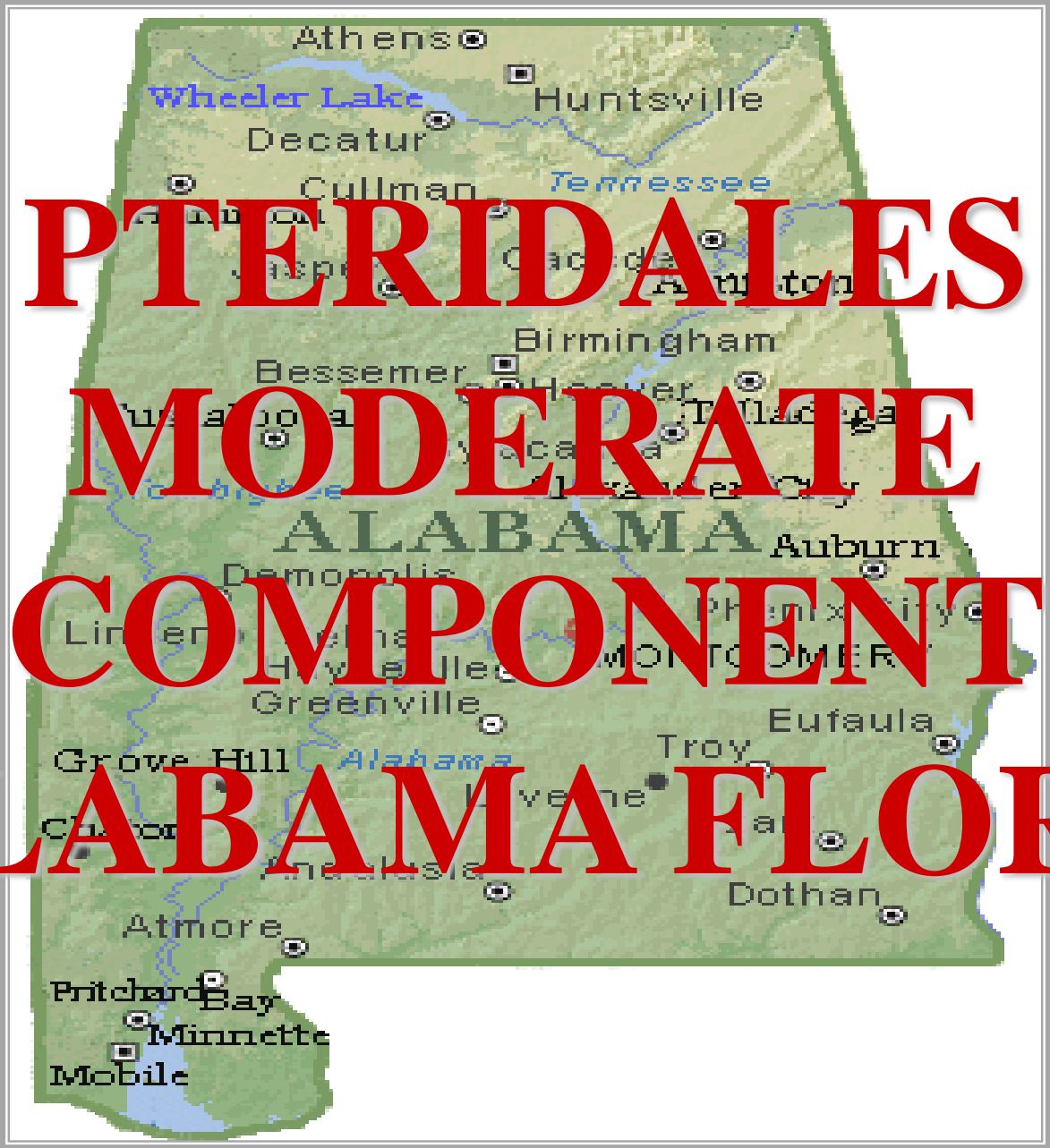
**PTERIDALES
MOST DIVERSE
PTERIDOPHYTA
ORDER**

EARTH



~35 SPECIES





PTERIDALES

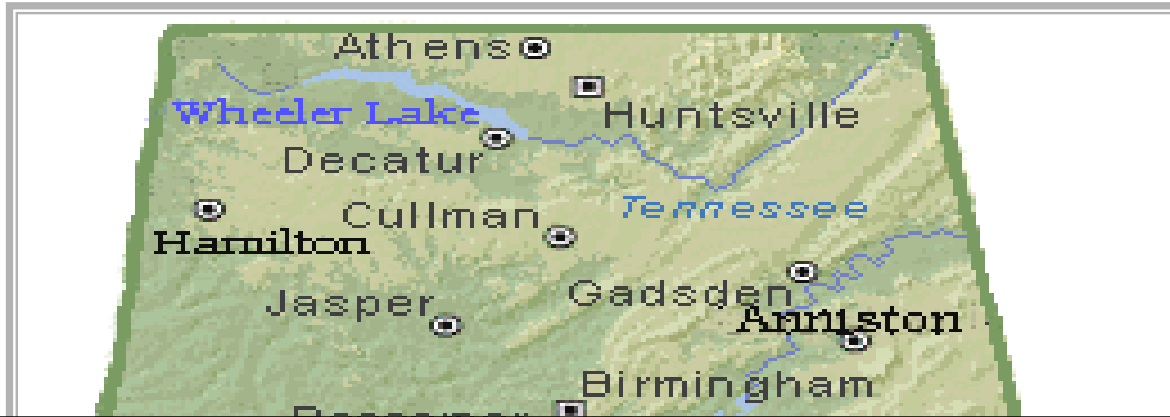
MODERATE

COMPONENT

ALABAMA FLORA



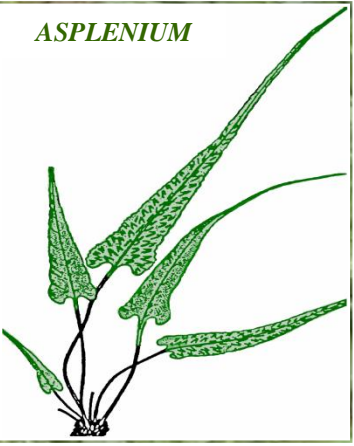
REPRESENTATIVE GENERA



ALABAMA INDIGENOUS



ASPENIUM



ASPENIUM

ASPLENIUM



WALKING FERN

ASPLENIUM



DRYOPTERIS

A close-up photograph of a dense cluster of bright green wood fern fronds. The fronds are finely divided and have a serrated edge. The lighting is bright, highlighting the texture and color of the leaves. A few brown, dried fronds are visible on the right side of the image.

WOOD FERN

DRYOPTERIS



ONOCLEA



SENSITIVE FERN

ONOCLEA





POLYPODIUM

A photograph of several fronds of a Rock Fern (Polypodium) growing in a natural setting. The fronds are bright green and have a distinct pinnate structure with small, rounded leaflets. The background is a blurred, rocky surface.

ROCK FERN

POLYPODIUM



POLYSTICHUM



CHRISTMAS FERN

POLYSTICHUM



PTERIDIUM



BRACKEN FERN

PTERIDIUM



HABITAT

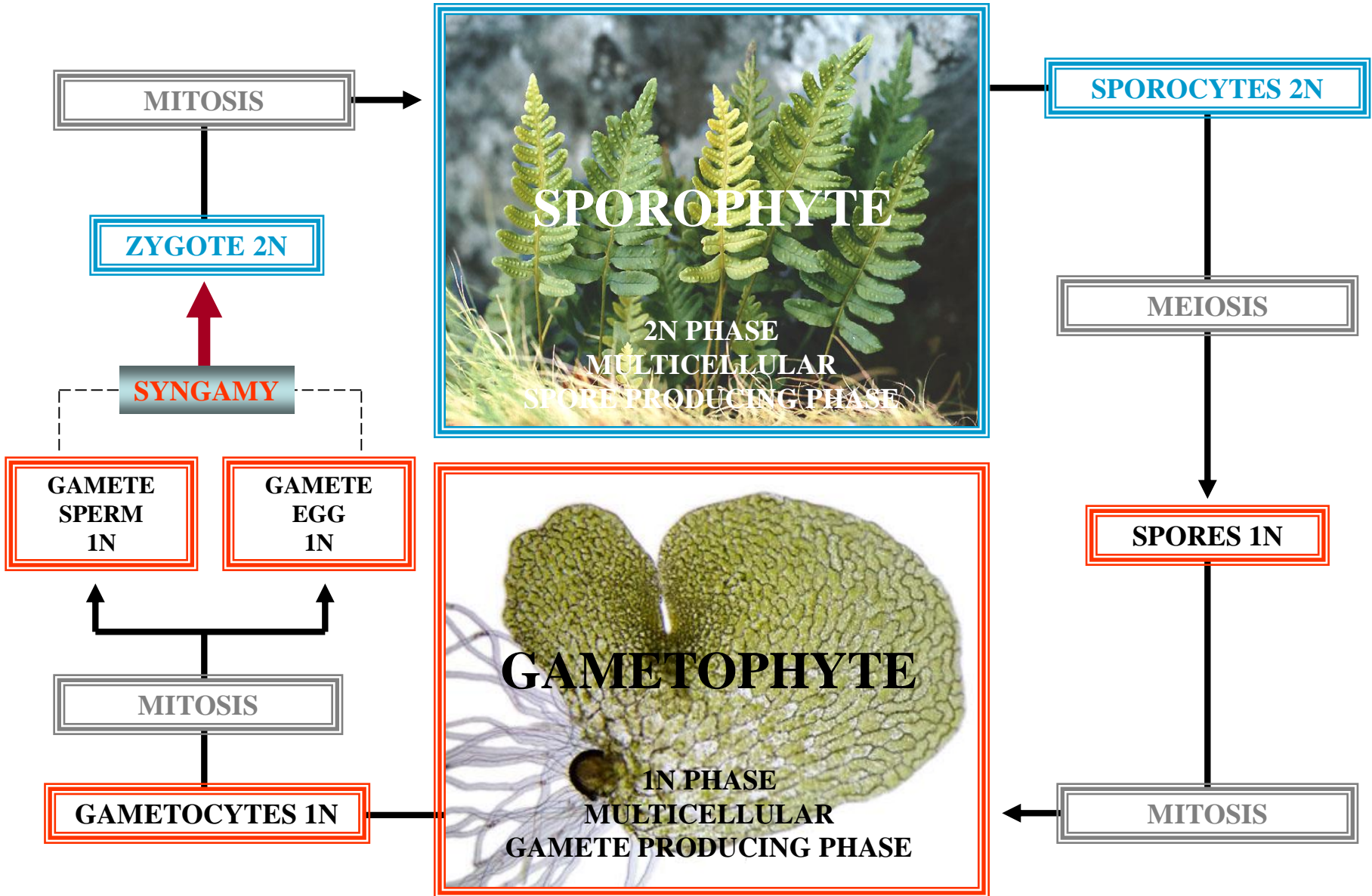


ALABAMA FOREST



GENERAL CHARACTERS

PTERIDALES LIFE CYCLE





SPOROPHYTE CHARACTERS



MORPHOLOGY

TYPICAL FERN MORPHOLOGY







“TRUE FERNS”

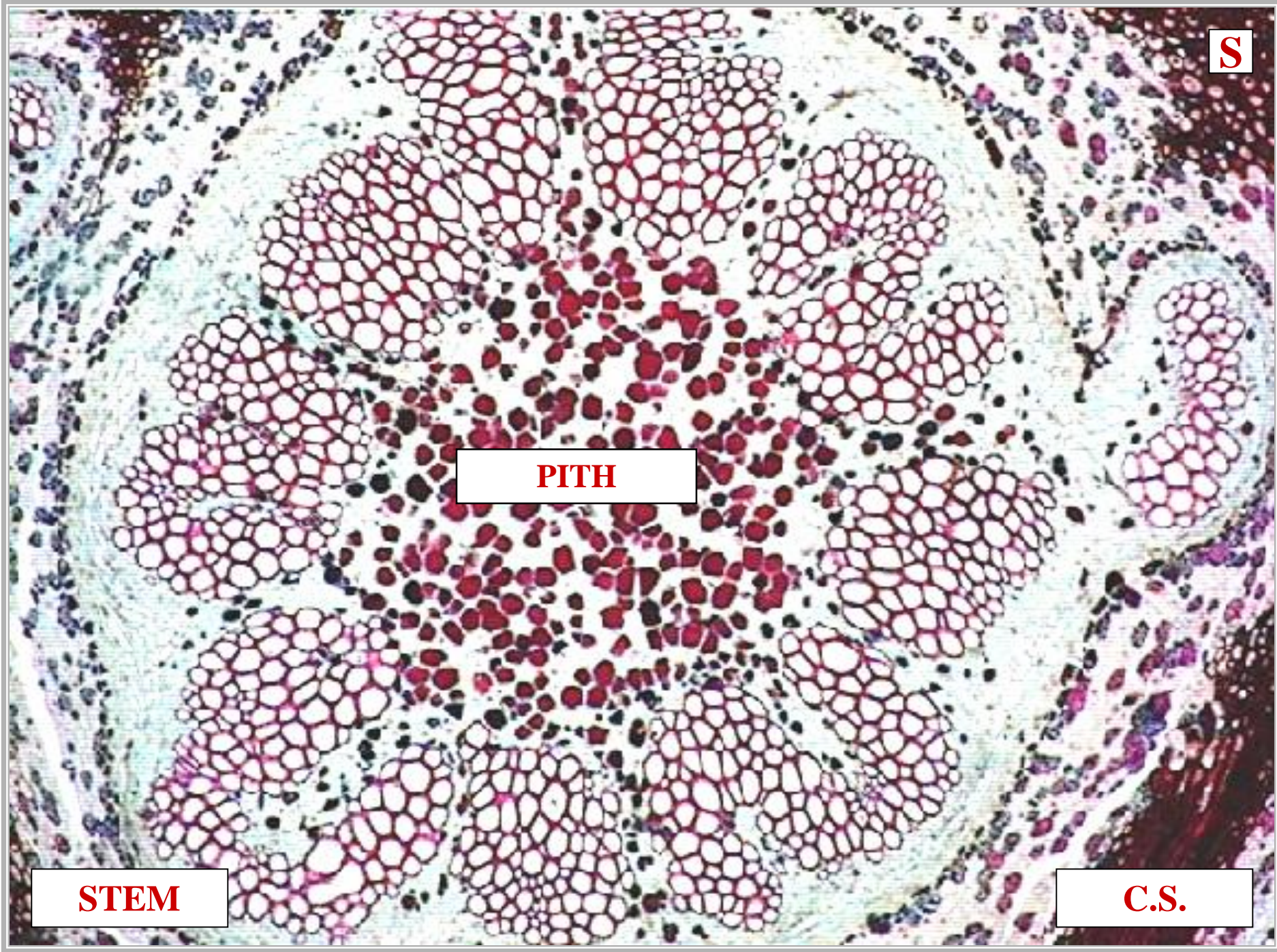




STEM



STEM STELE



PITH

STEM

C.S.

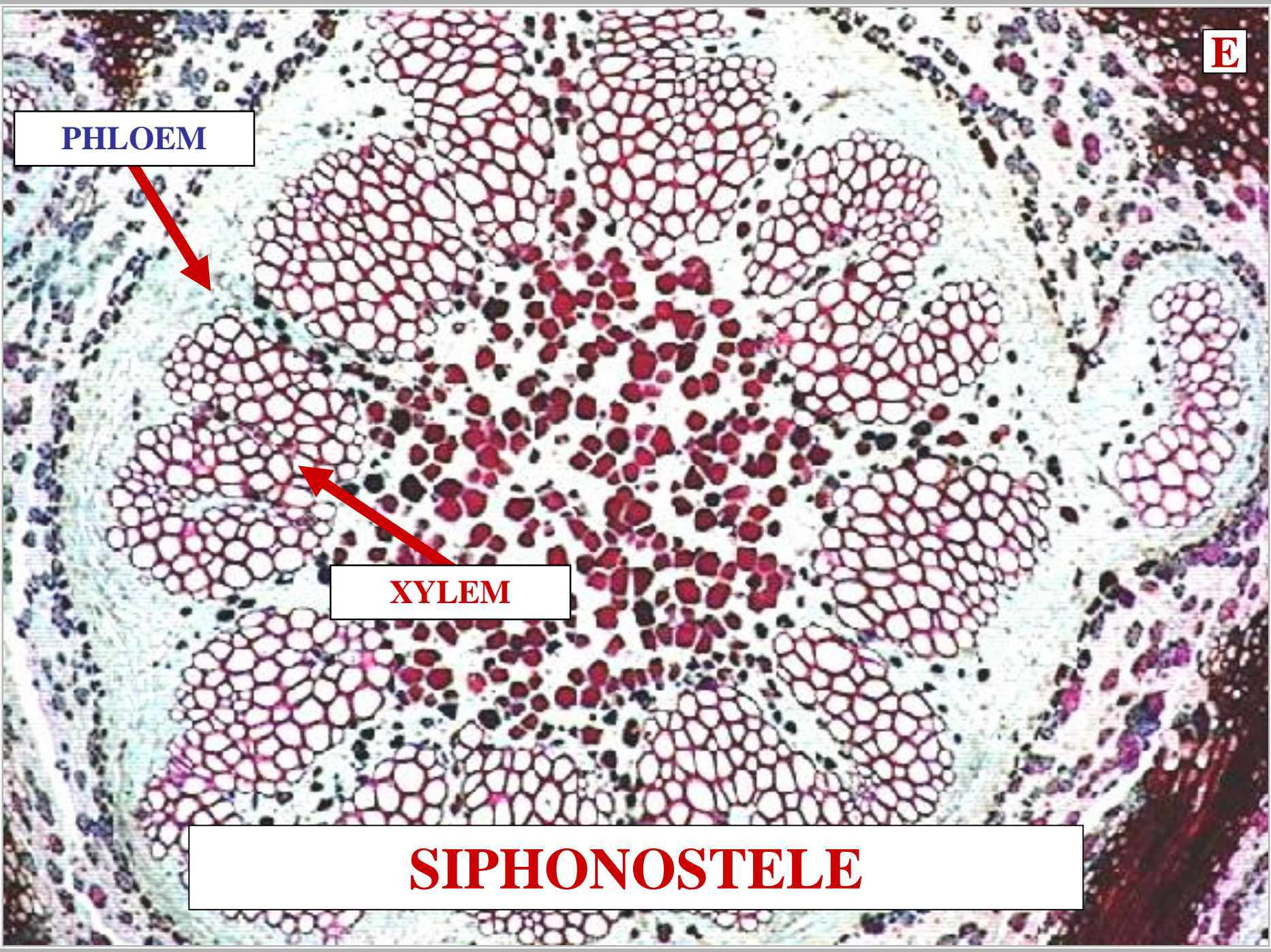
PHLOEM



XYLEM



SIPHONOSTELE



D

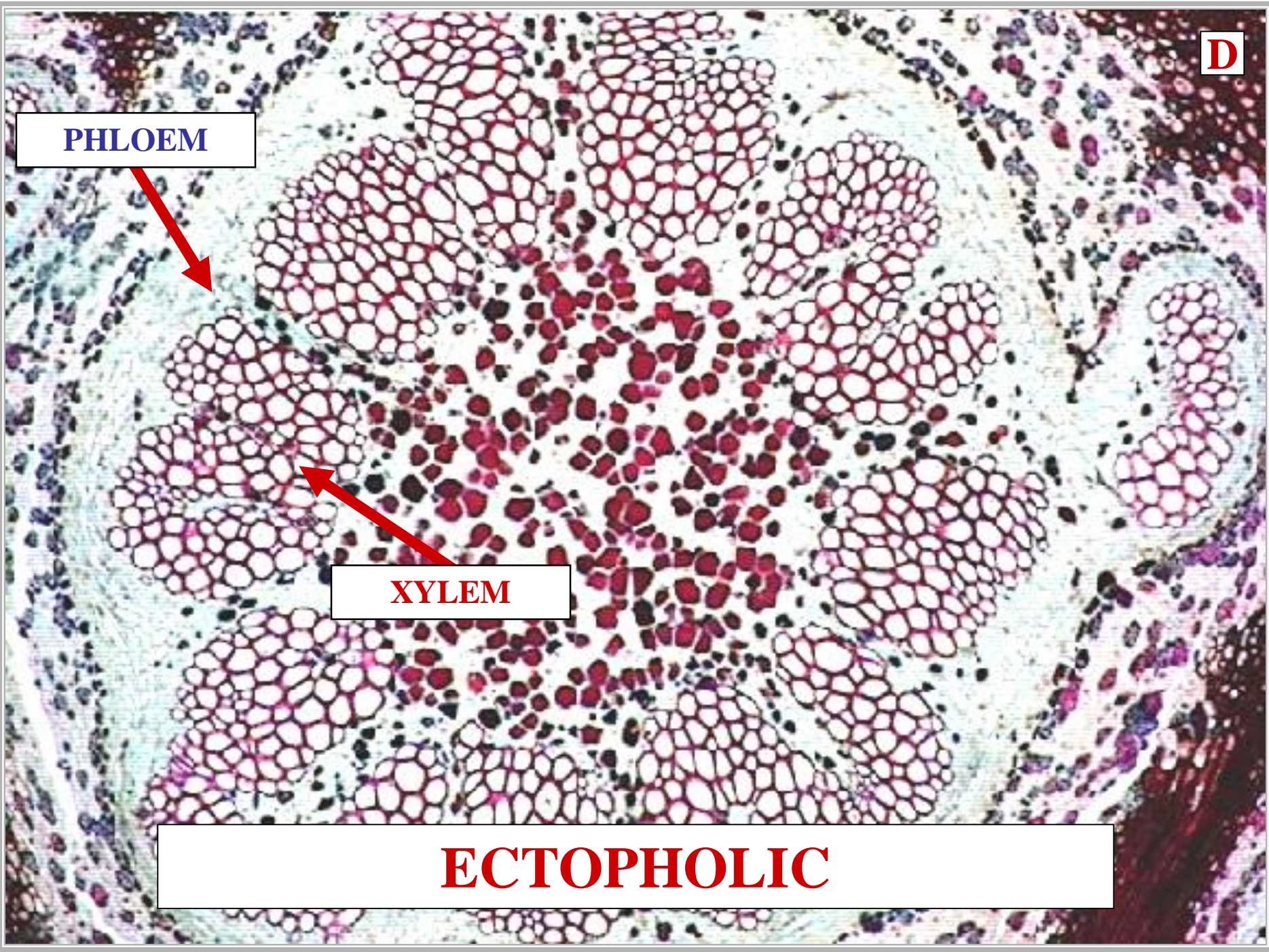
PHLOEM



XYLEM



ECTOPHOLIC





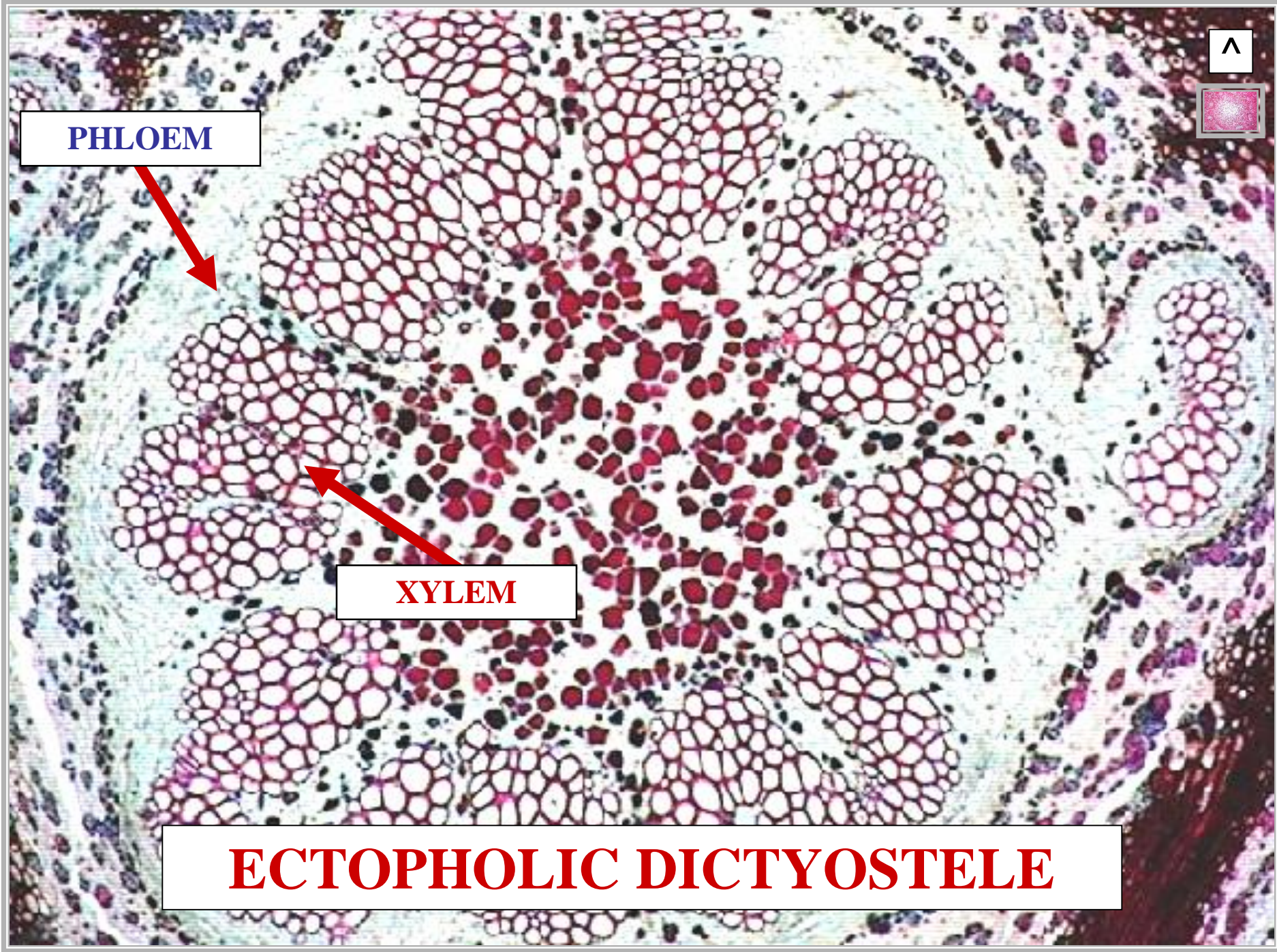
PHLOEM



XYLEM



ECTOPHOLIC DICTYOSTELE

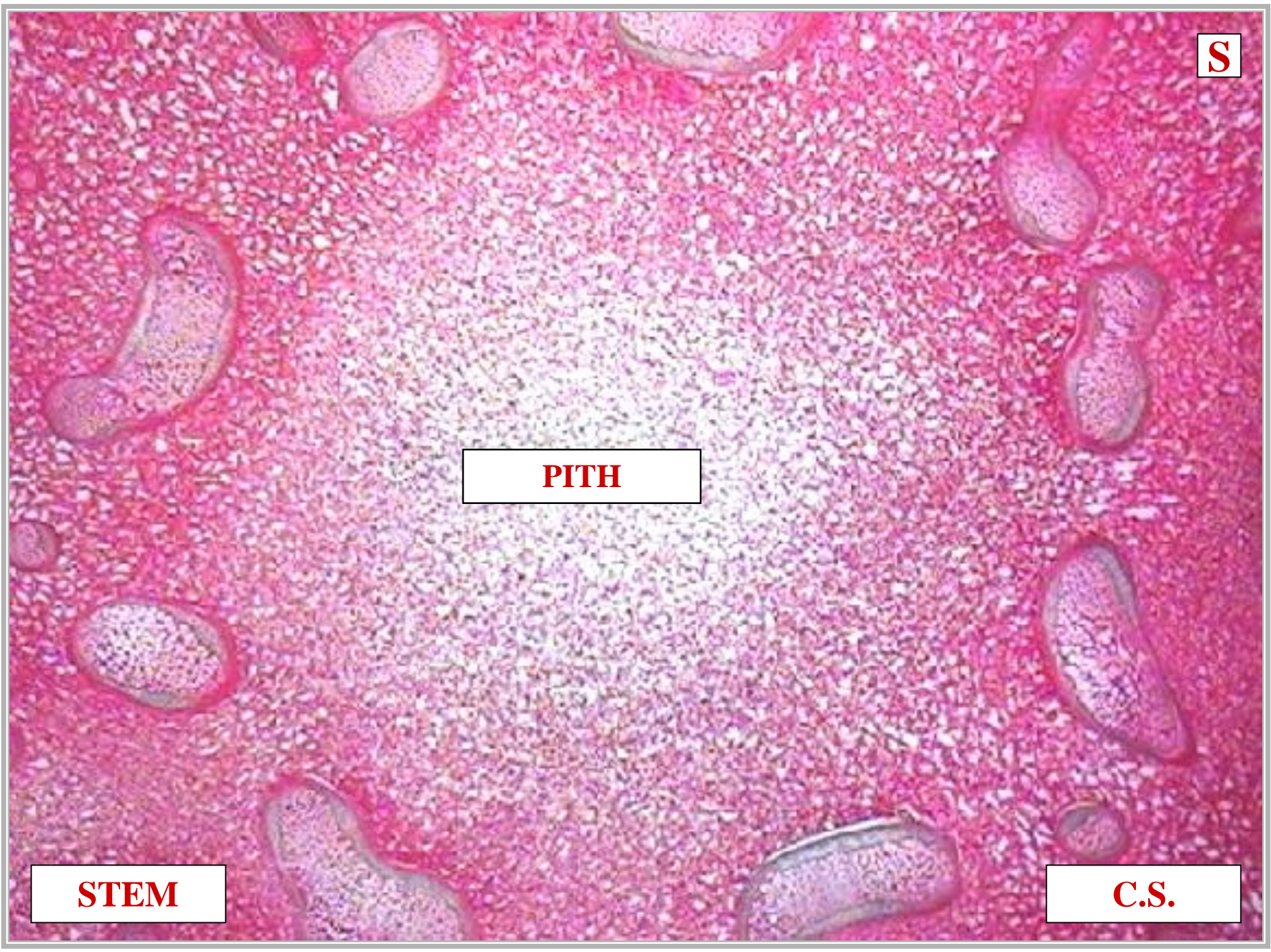


S

PITH

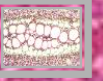
STEM

C.S.





SIPHONOSTELE



SIPHONOSTELE

A

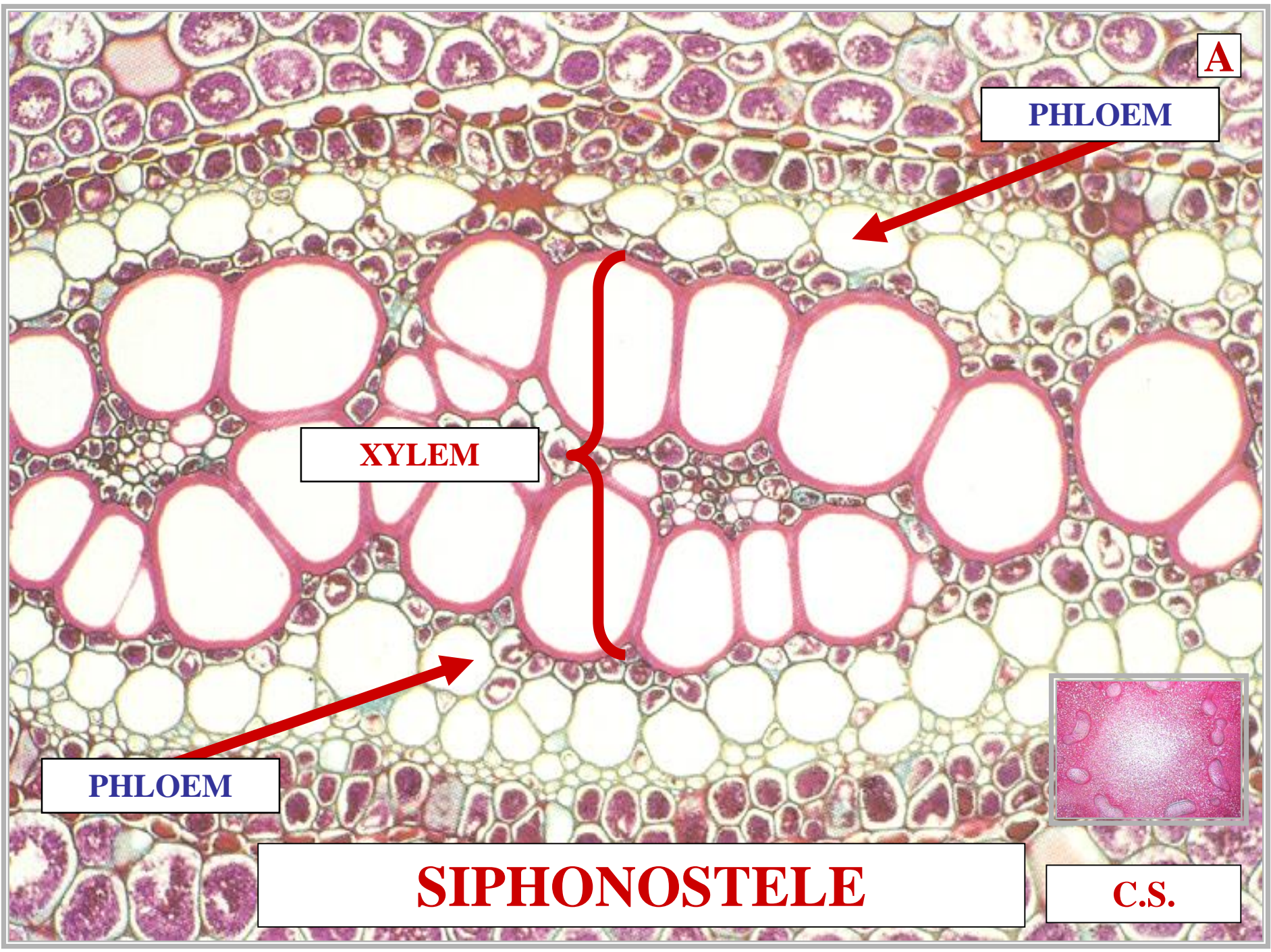
PHLOEM

XYLEM

PHLOEM

SIPHONOSTELE

C.S.



D

AMPHIPHLOIC





AMPHIPHLOIC DICTYOSTELE

DICTYOSTELE

DICTYOSTELE

**PTERIDALES
DICTYOSTELE**

**SIPHONOSTELE
WITH
MERISTELES**

**PTERIDALES
DICTYOSTELE**

MERISTELE

DICTYOSTELE MERISTELE



**DICTYOSTELE
“VASCULAR BUNDLE”**

DICTYOSTELE MERISTELE

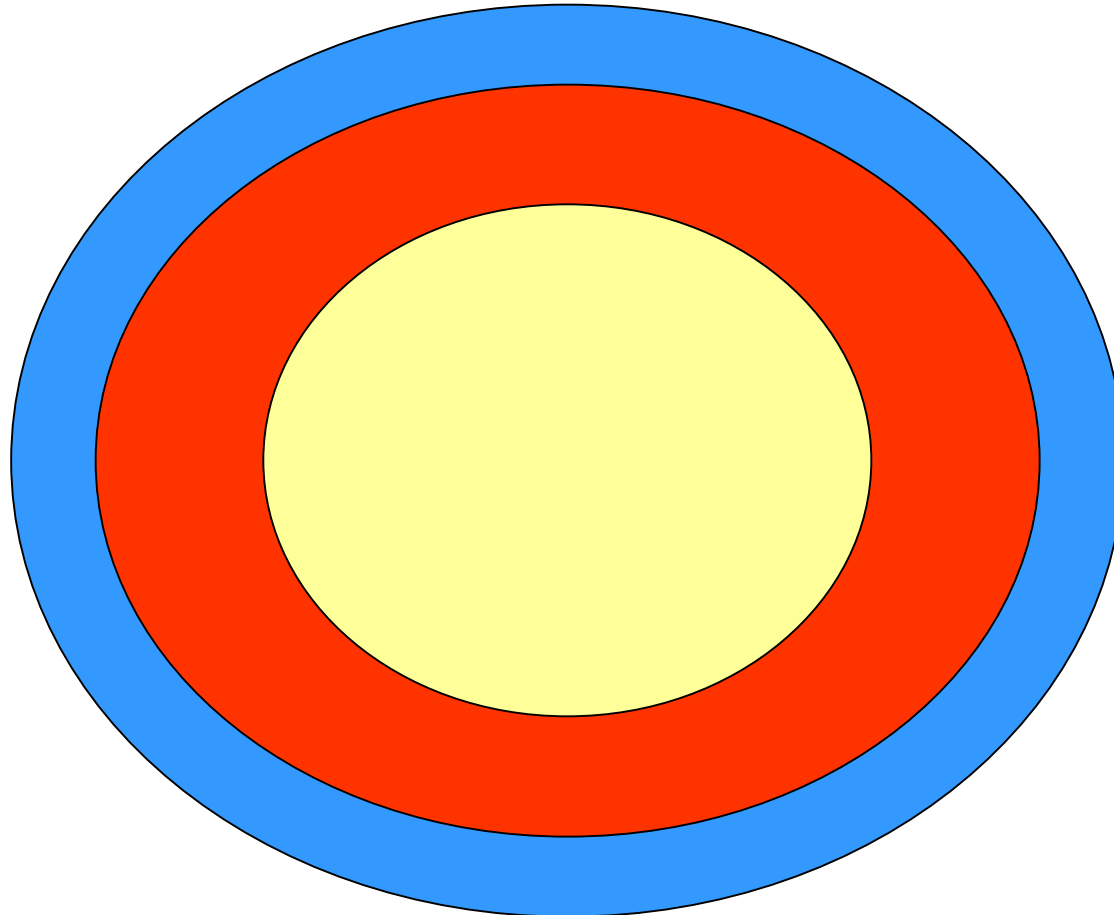
TRUE FERN





M



MEGAPHYLLS





-  = CORTEX
-  = PITH
-  = XYLEM
-  = PHLOEM

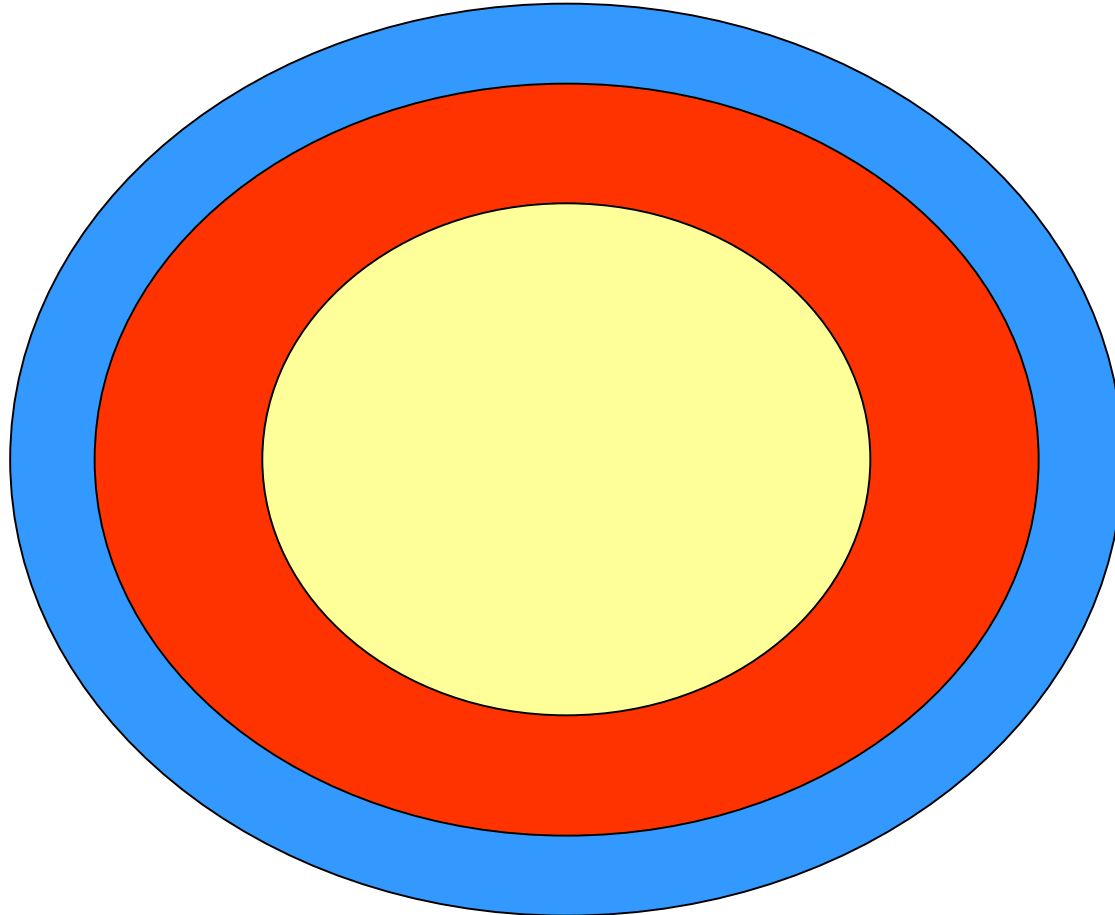
C.S.

RHIZOME

LEAF FROND

FROND

F

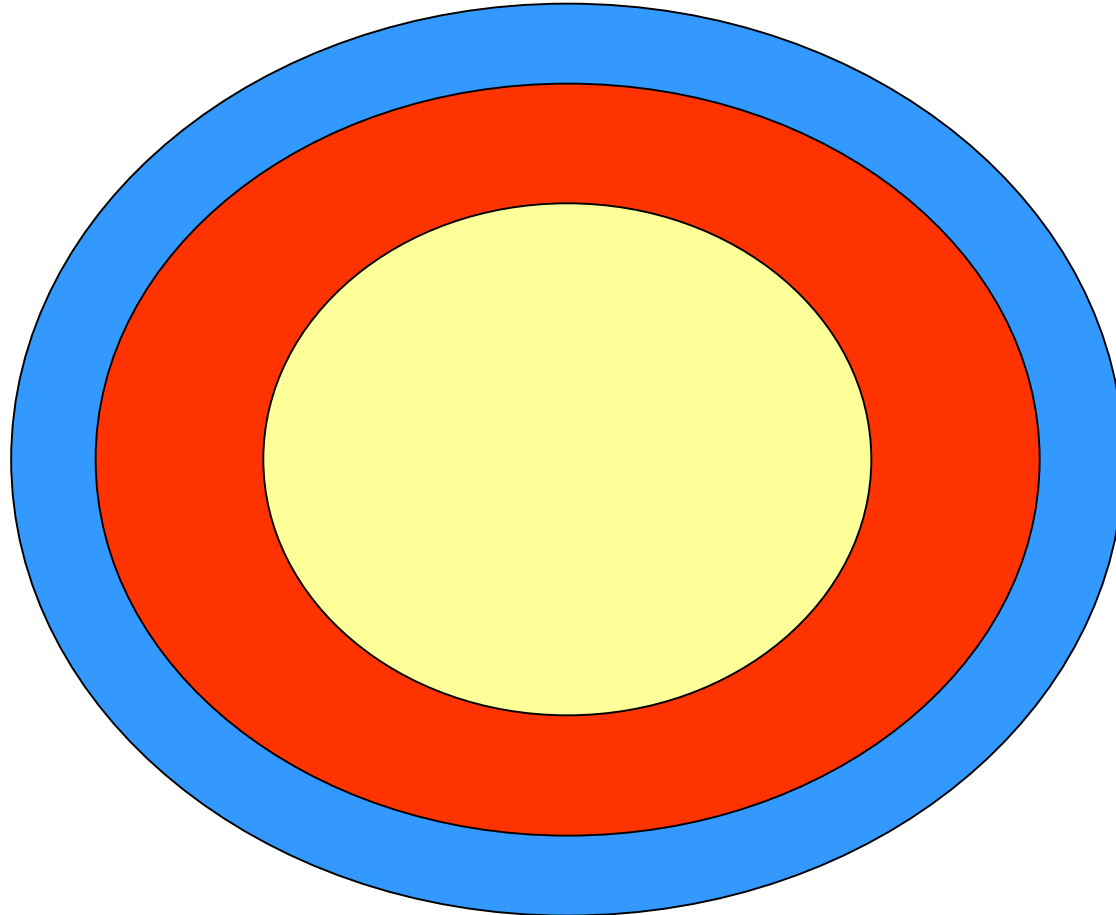


LEAF FROND

FROND

LEAF FROND

F



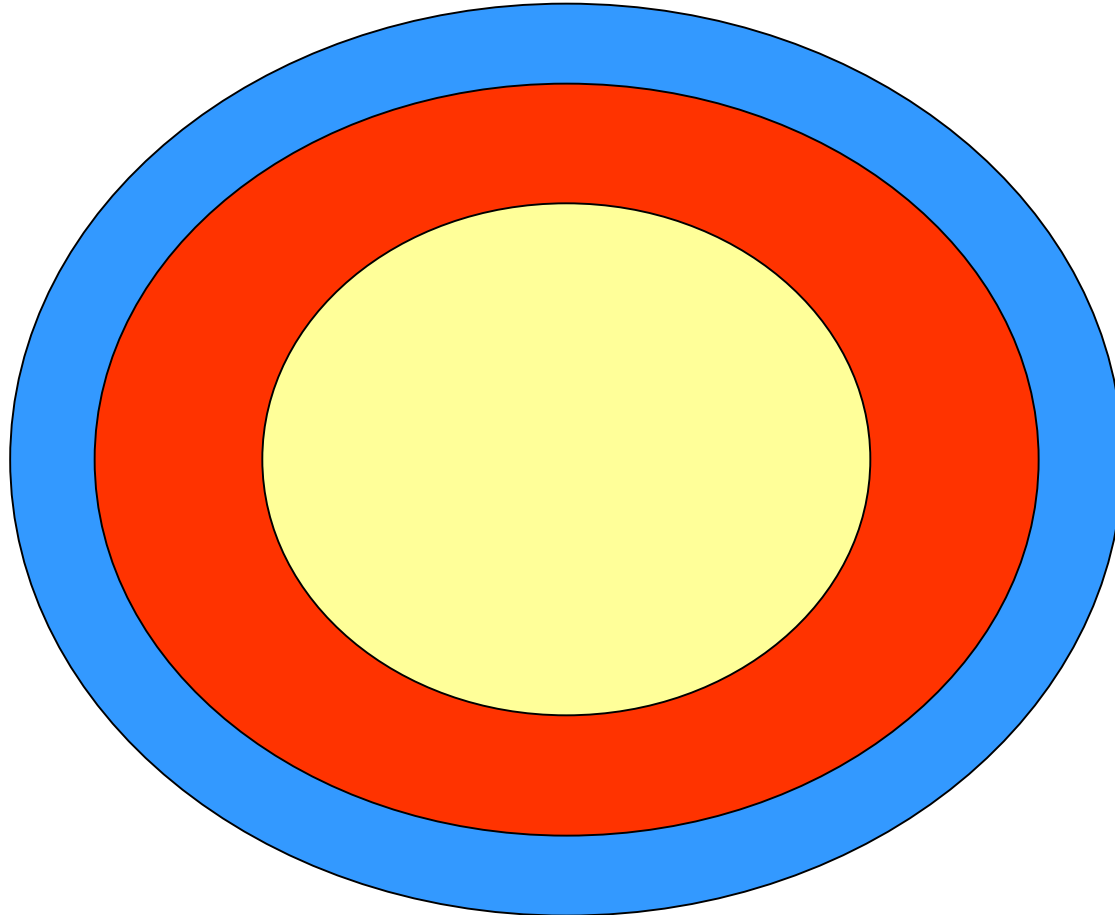
FROND

LEAF FROND

FROND

LEAF FROND

F



FROND

FROND

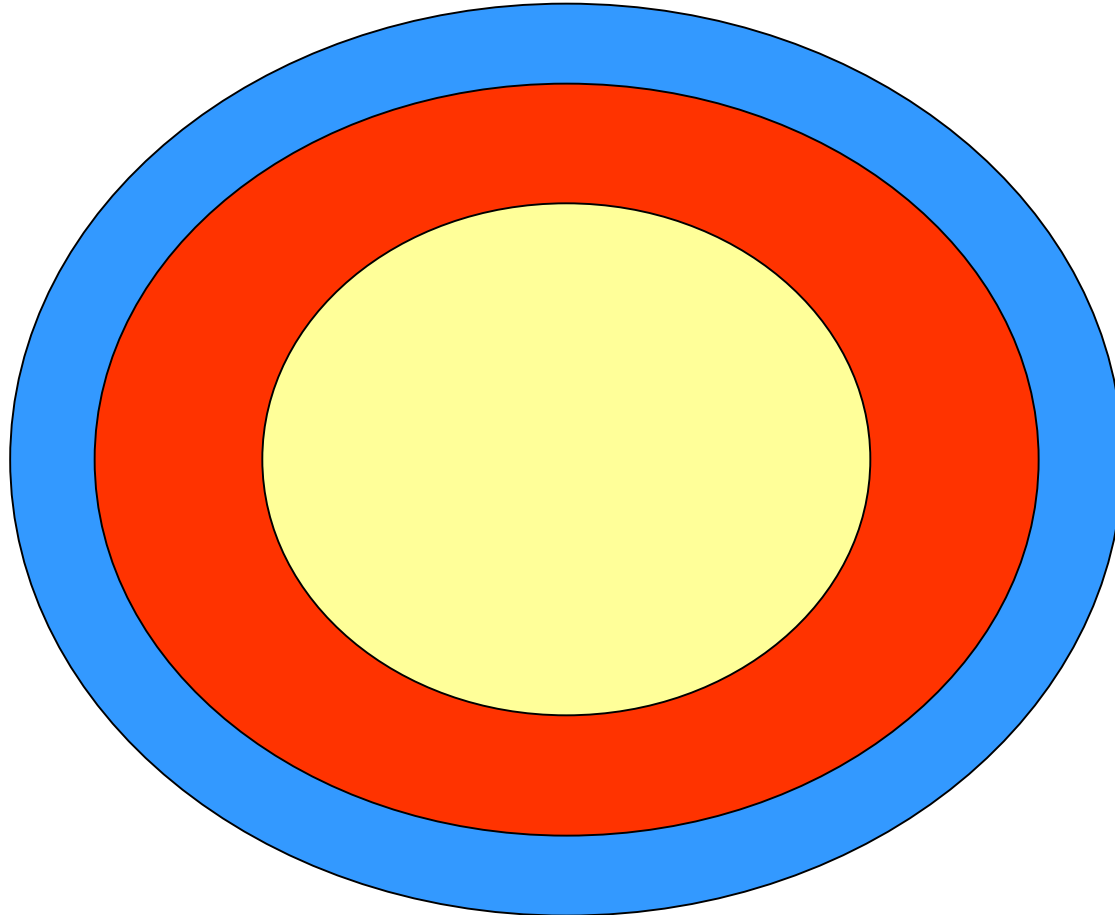
LEAF FROND

LEAF FROND

FROND

LEAF FROND

LT



FROND

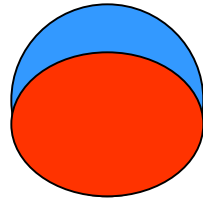
FROND

LEAF FROND

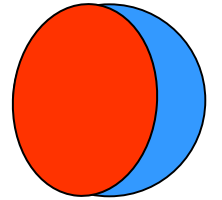
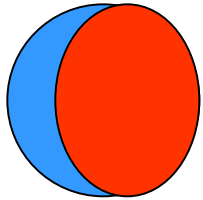
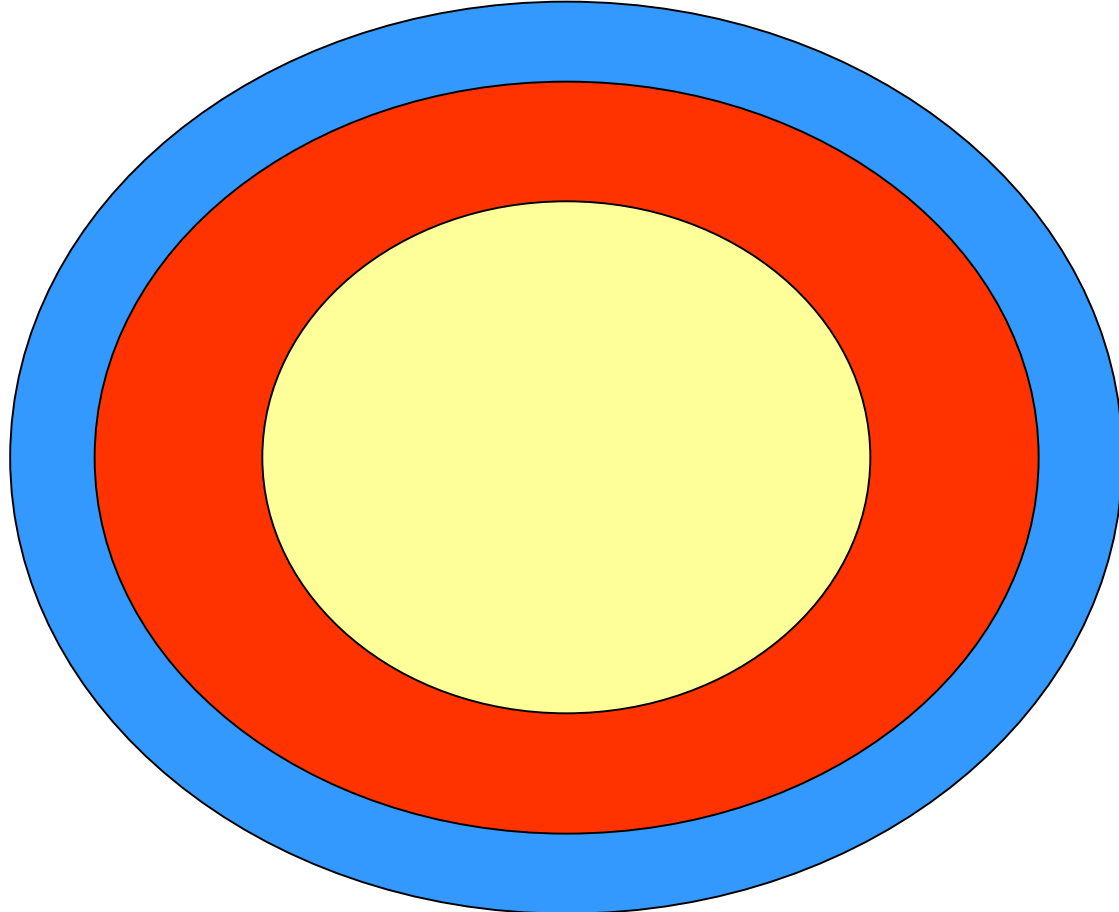
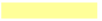
FROND

LEAF FROND

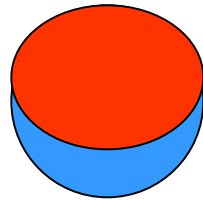
LEAF TRACE



LEAF TRACE



LEAF TRACE

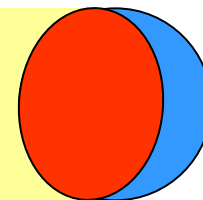
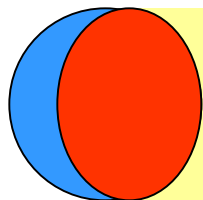


LEAF TRACE

LEAF TRACE

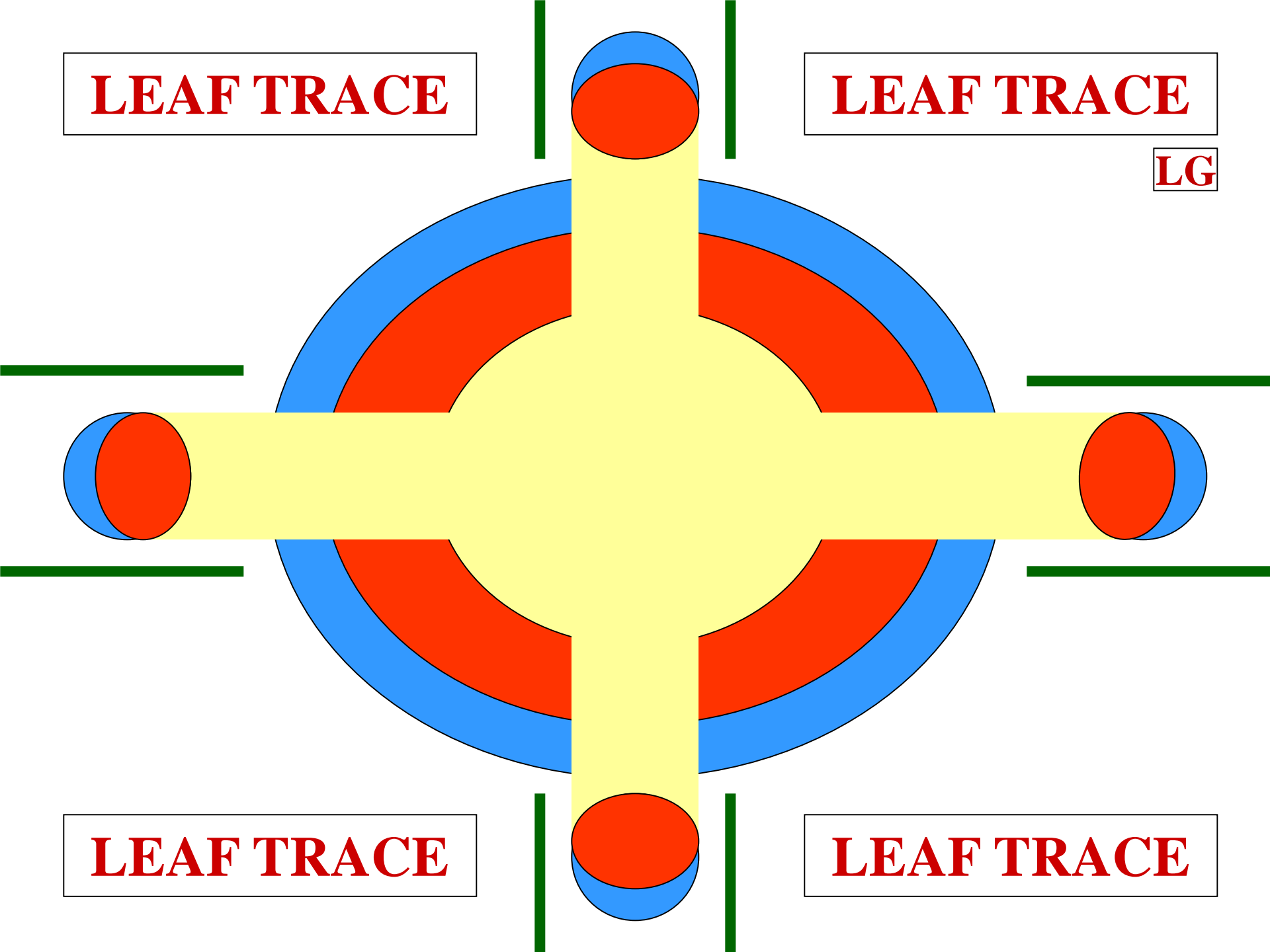
LEAF TRACE

LG



LEAF TRACE

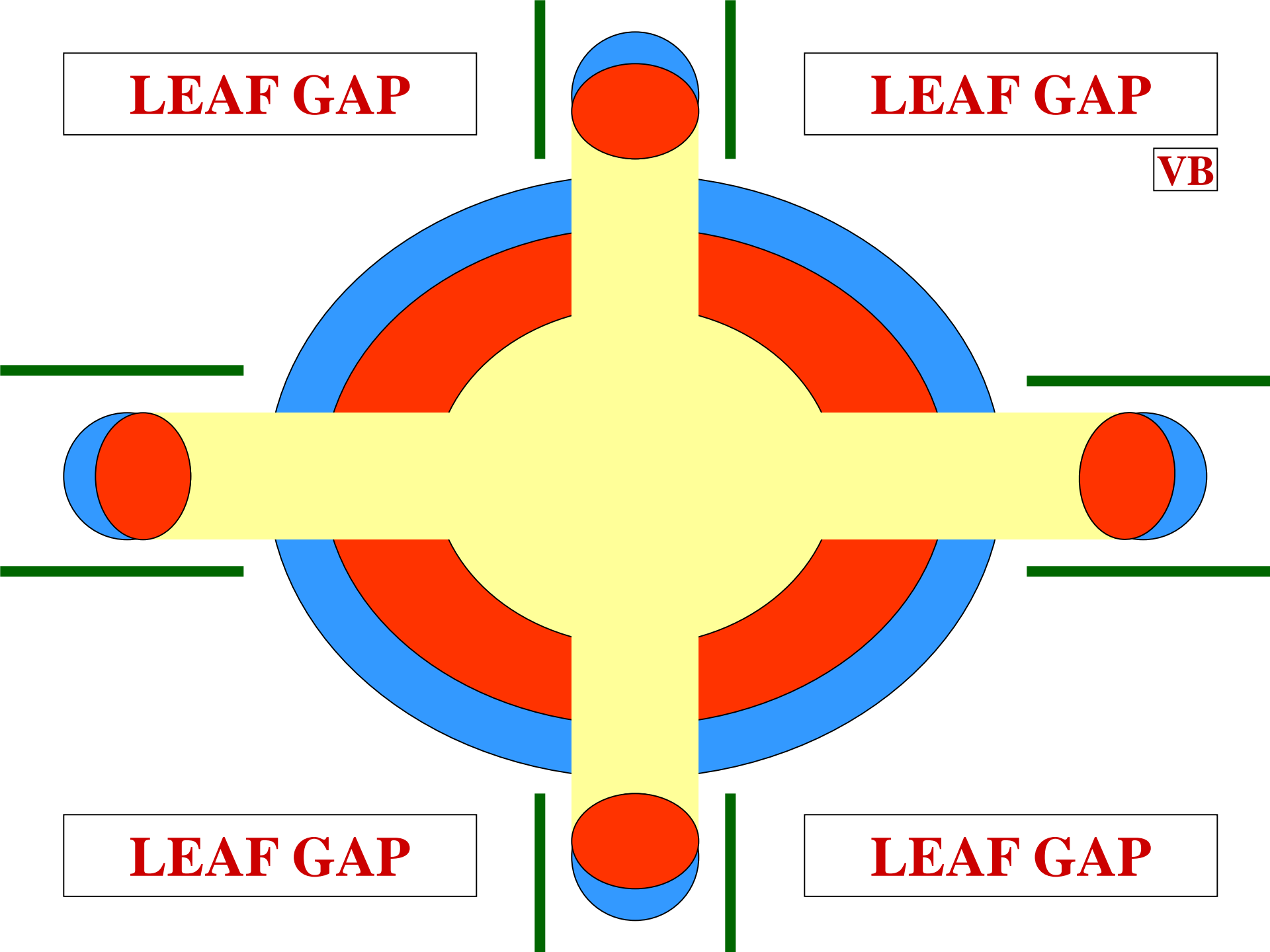
LEAF TRACE



VB

LEAF GAP

LEAF GAP



LEAF GAP

LEAF GAP

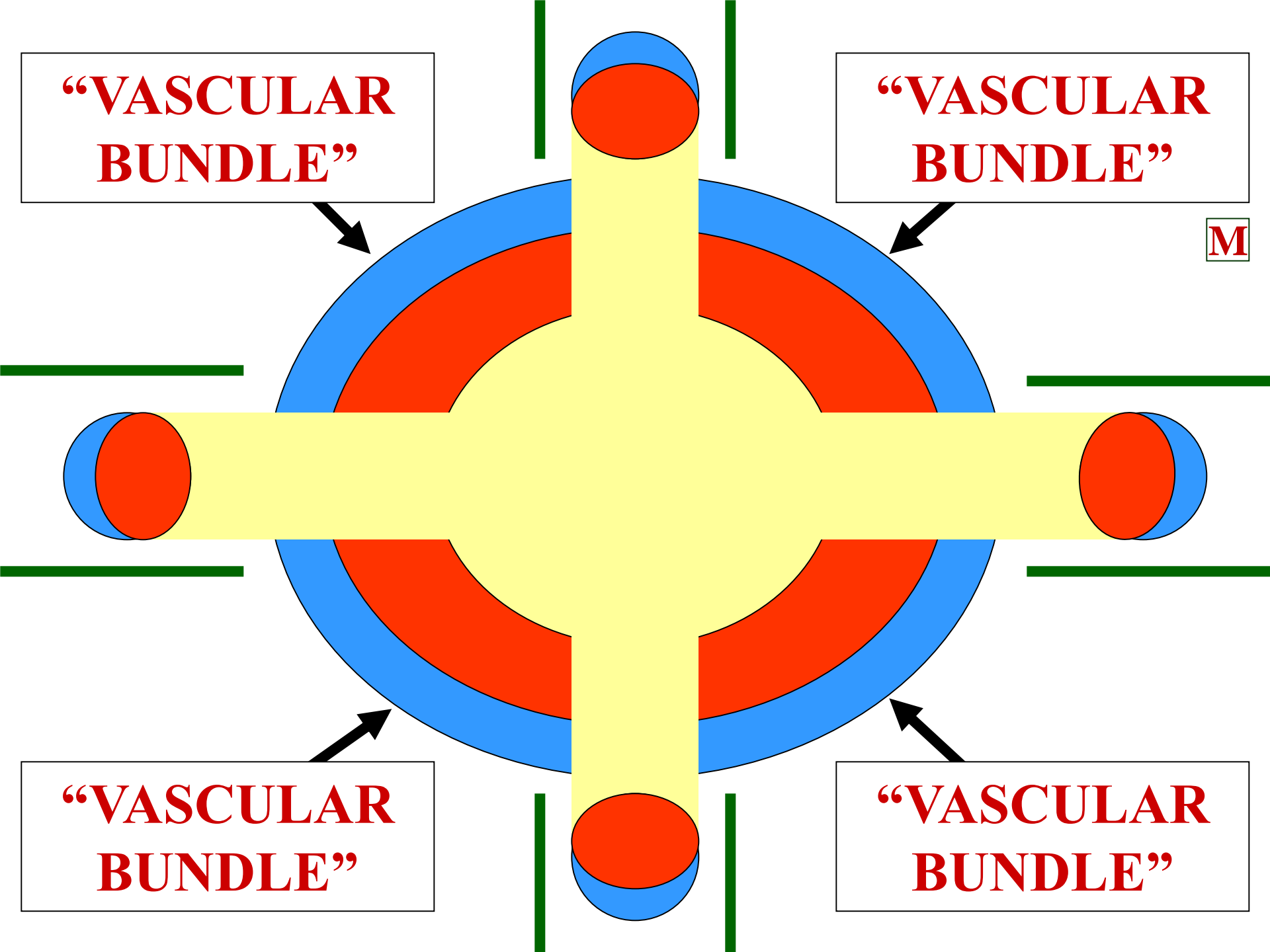
**“VASCULAR
BUNDLE”**

**“VASCULAR
BUNDLE”**

M

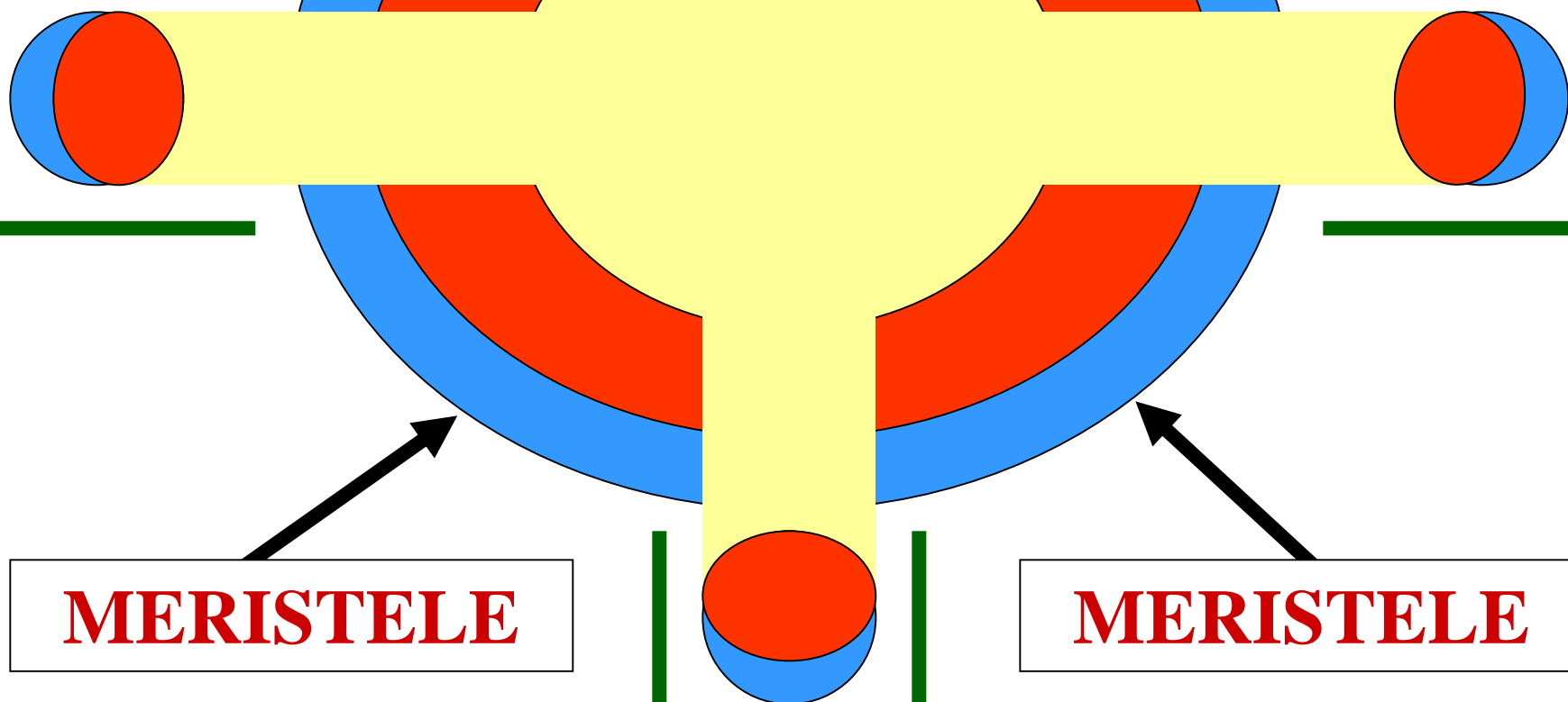
**“VASCULAR
BUNDLE”**

**“VASCULAR
BUNDLE”**



MERISTELE

MERISTELE



MERISTELE

MERISTELE



MERISTELE

The image shows a cross-section of a plant stem with an amphipholic dictyostele. The vascular bundles are arranged in a ring. Each bundle has a primary meristele on the outer side and a secondary meristele on the inner side. The central pith is surrounded by a cortex, and the vascular bundles are separated by intervascular bundles. The labels 'MERISTELE' are placed next to the primary and secondary meristemes in two different bundles, with brackets indicating their positions. The overall structure is characteristic of a stem with an amphipholic dictyostele.

MERISTELE

AMPHIPHOLIC DICTYOSTELE



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AMPHIPHOLIC DICTYOSTELE

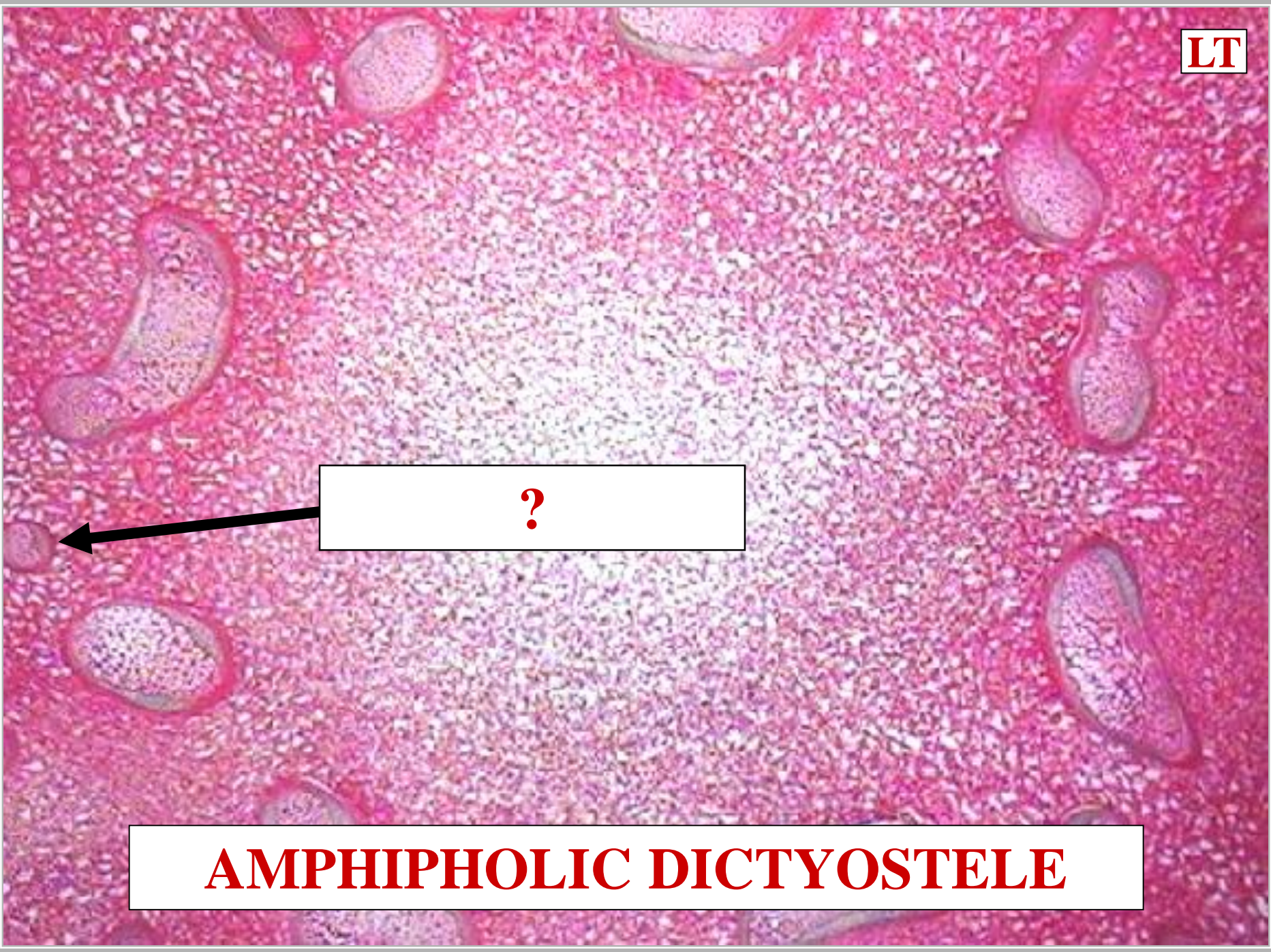


LEAF GAP

AMPHIPHOLIC DICTYOSTELE

?

AMPHIPHOLIC DICTYOSTELE

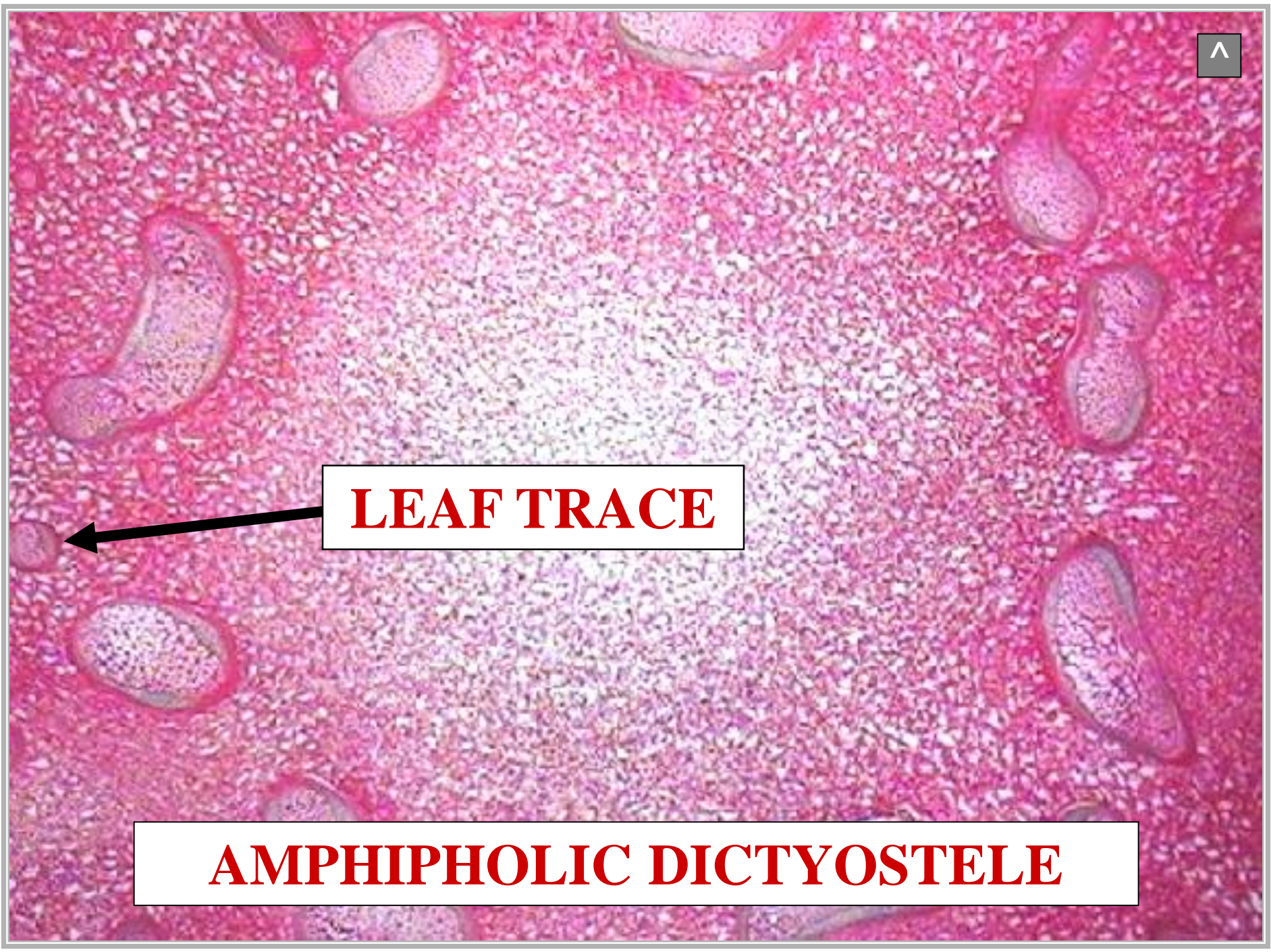




LEAF TRACE



AMPHIPHOLIC DICTYOSTELE





RHIZOME

NON-FERTILE FRONDS

MATURE SPOROPHYTE

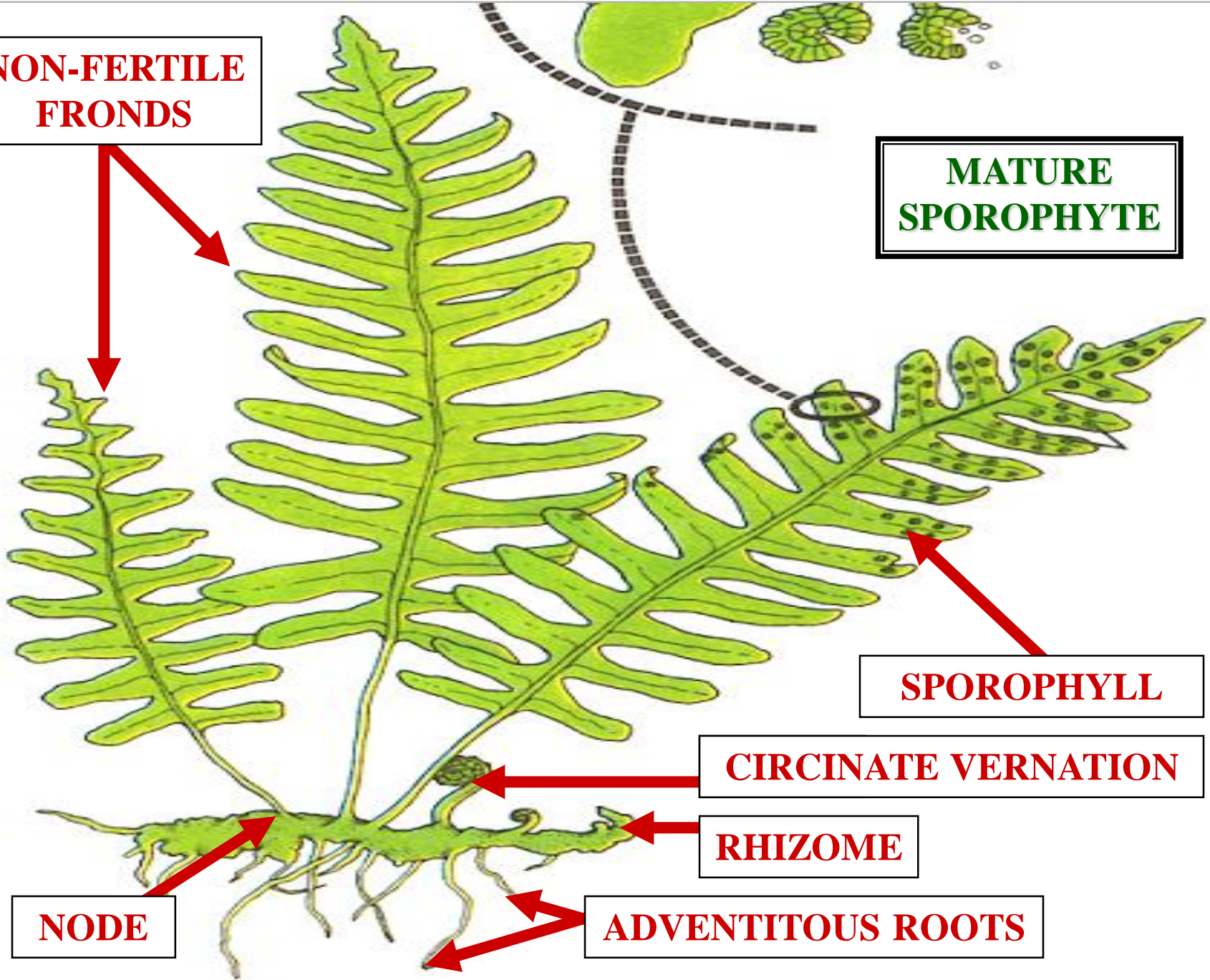
SPOROPHYLL

CIRCINATE VERNATION

RHIZOME

NODE

ADVENTITIOUS ROOTS



NON-FERTILE FRONDS

MATURE SPOROPHYTE

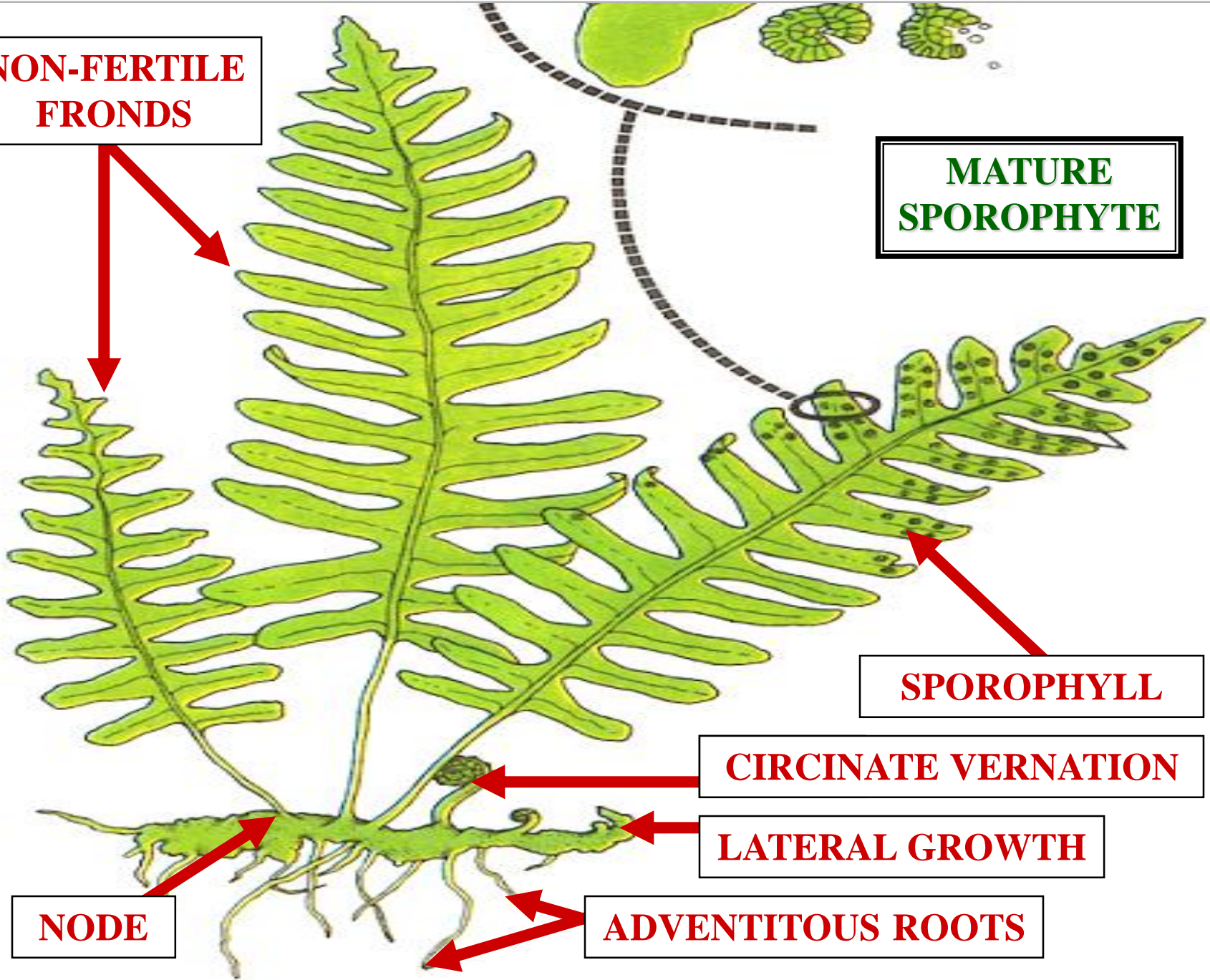
SPOROPHYLL

CIRCINATE VERNATION

LATERAL GROWTH

NODE

ADVENTITIOUS ROOTS



**NON-FERTILE
FRONDS**

**MATURE
SPOROPHYTE**

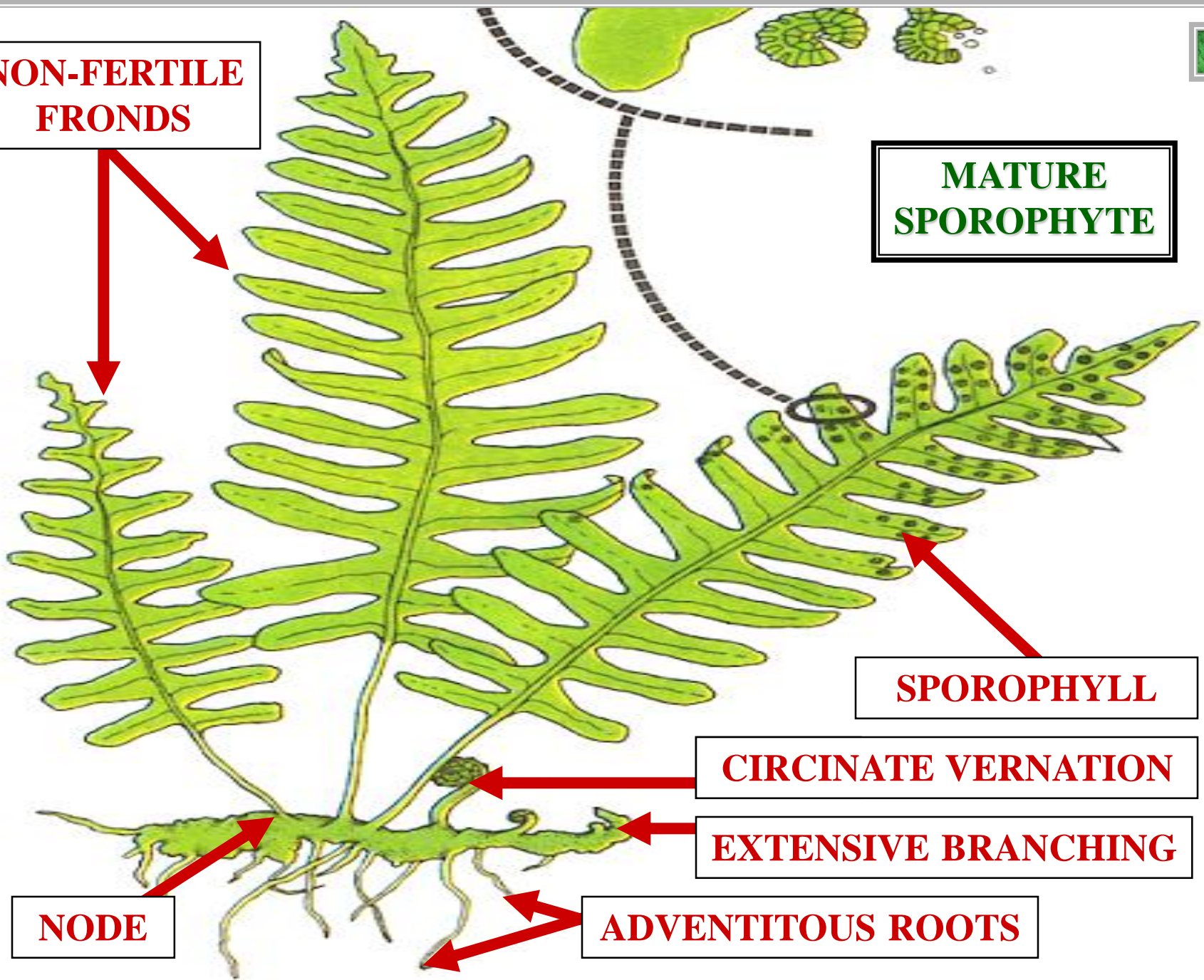
SPOROPHYLL

CIRCINATE VERNATION

EXTENSIVE BRANCHING

NODE

ADVENTITIOUS ROOTS





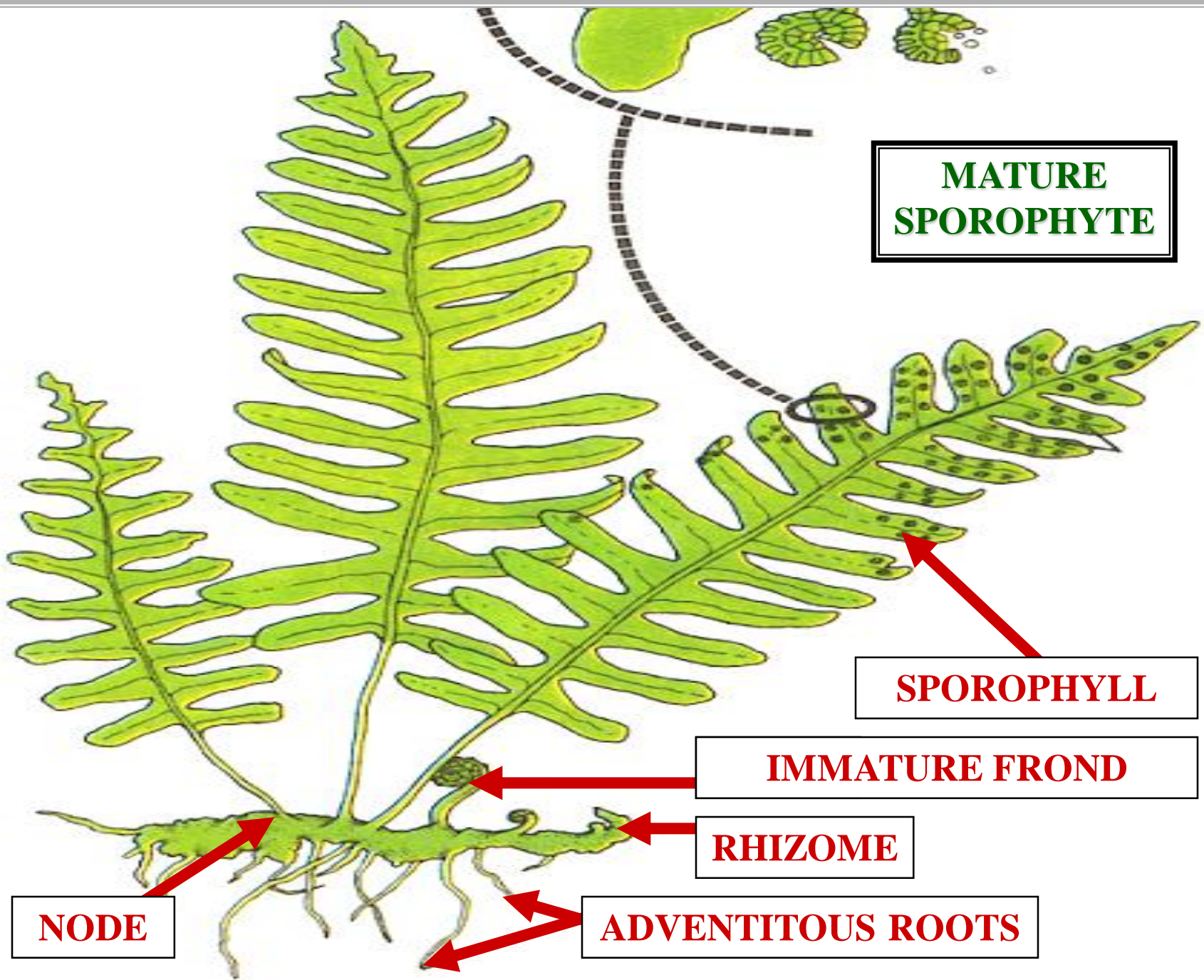
EXTENSIVE LATERAL RHIZOME



FROND



PHYLLOTAXY



MATURE SPOROPHYTE

SPOROPHYLL

IMMATURE FROND

RHIZOME

NODE

ADVENTITIOUS ROOTS

**1 FROND
PER NODE**

**MATURE
SPOROPHYTE**

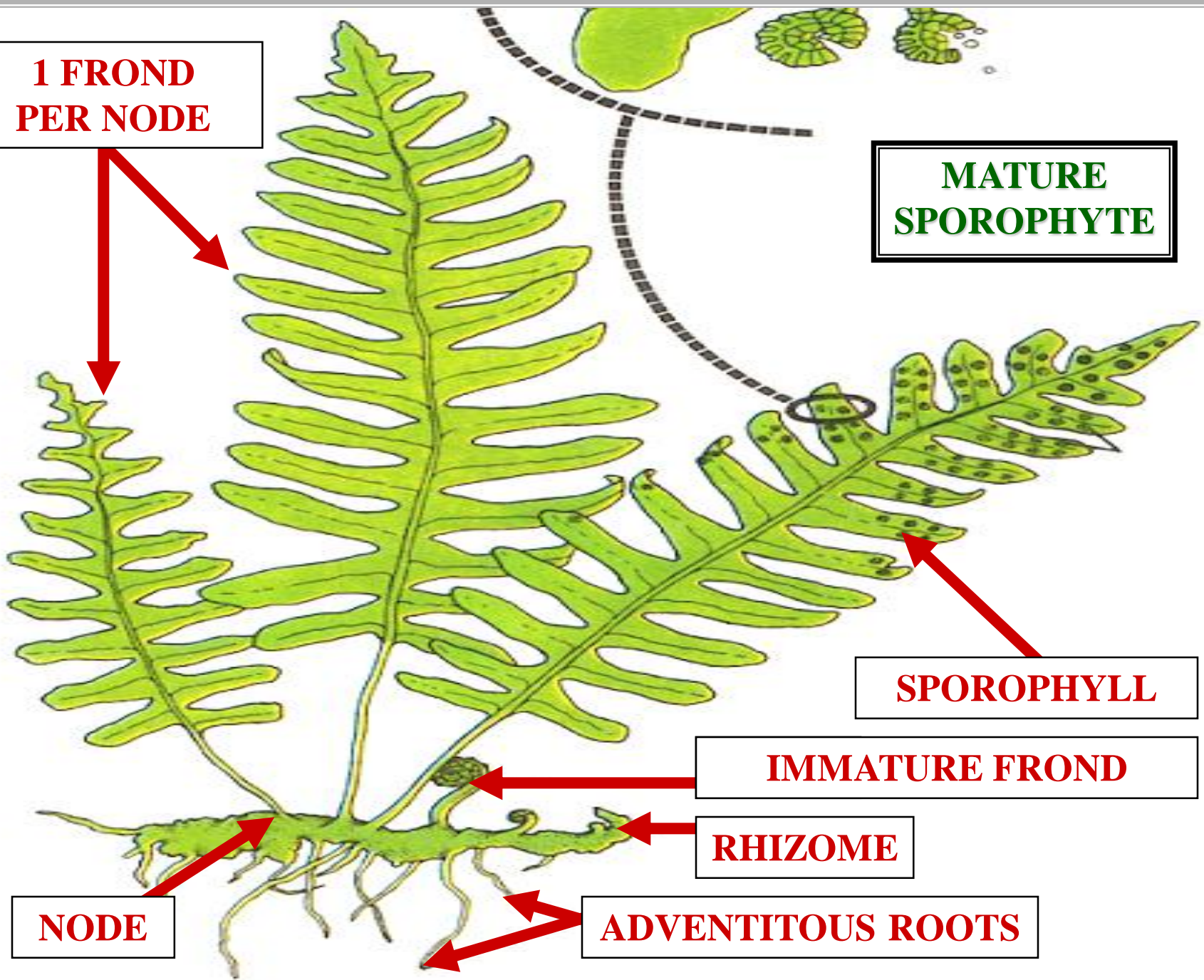
SPOROPHYLL

IMMATURE FROND

RHIZOME

NODE

ADVENTITIOUS ROOTS





**ALTERNATE
PHYLLOTAXY**

**MATURE
SPOROPHYTE**

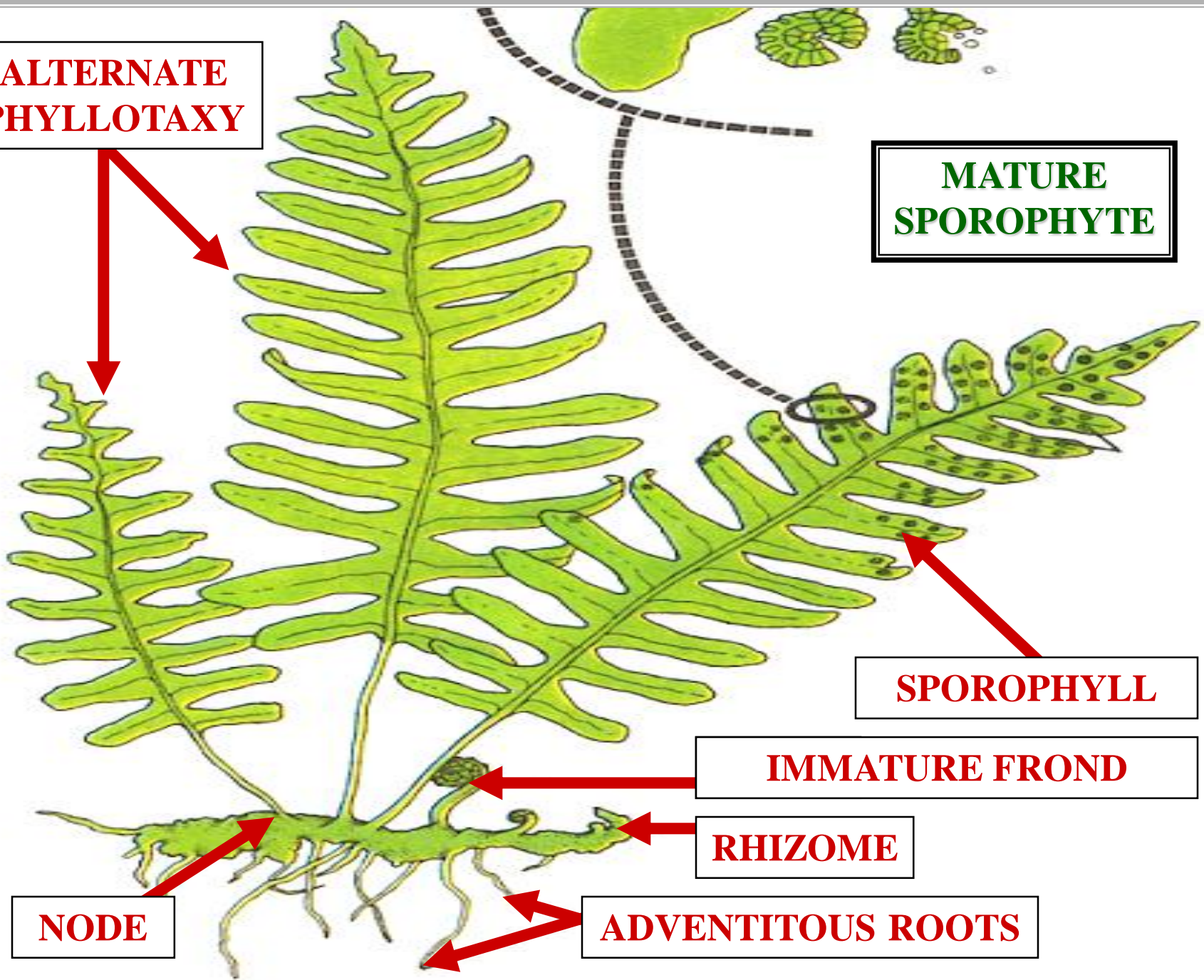
SPOROPHYLL

IMMATURE FROND

RHIZOME

NODE

ADVENTITIOUS ROOTS





VERNATION



**ALTERNATE
PHYLLOTAXY**

**MATURE
SPOROPHYTE**

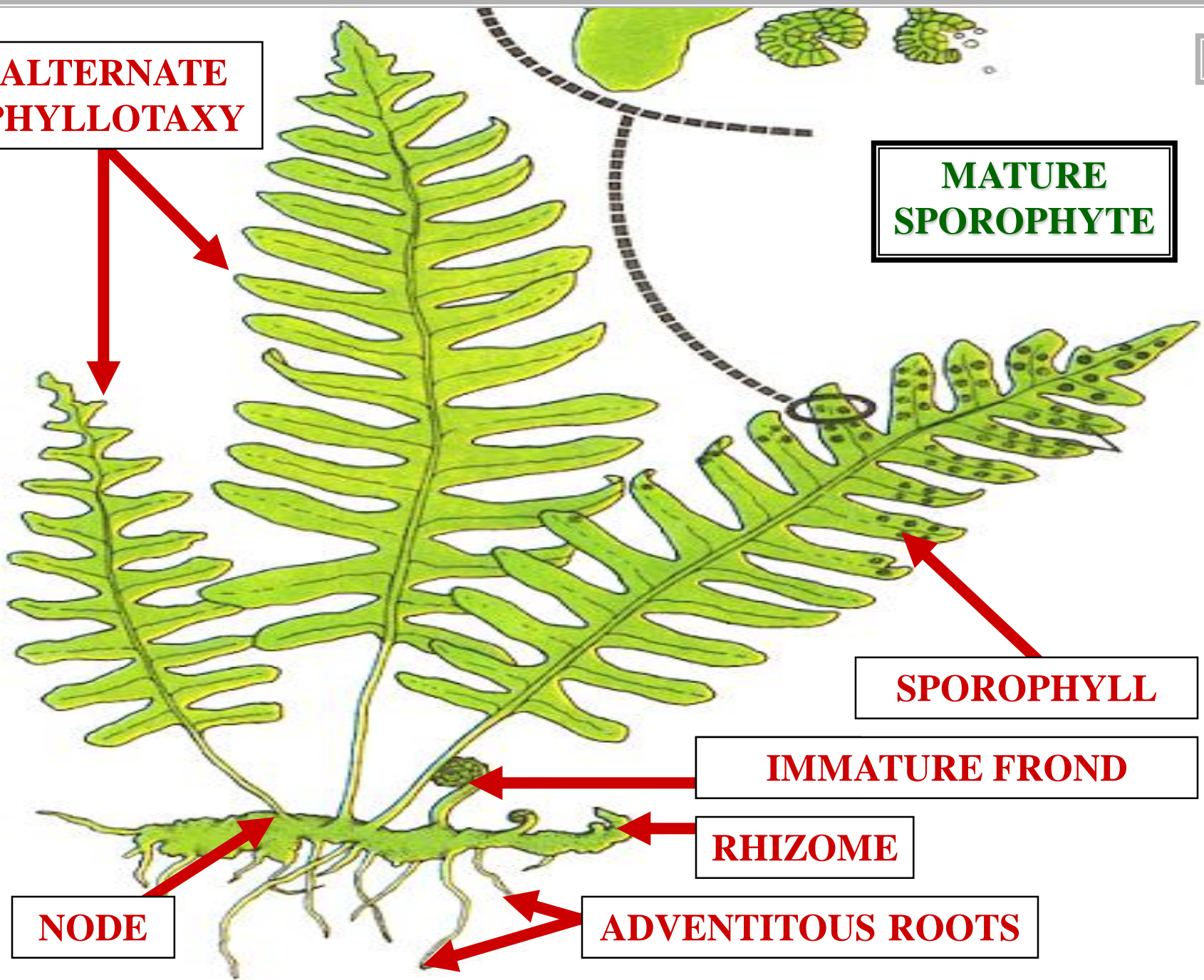
SPOROPHYLL

IMMATURE FROND

RHIZOME

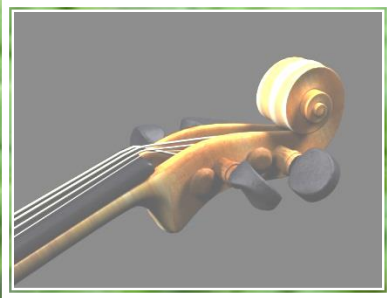
NODE

ADVENTITIOUS ROOTS





“FIDDLEHEAD”



CV



“FIDDLEHEAD”

CROZIER





“FIDDLEHEAD”

CROZIER

CIRCINATE VERNATION





MORPHOLOGY

FROND MORPHOLOGY TYPES

FROND MORPHOLOGY TYPES

COMPOUND FROND

FROND MORPHOLOGY TYPES

FROND MORPHOLOGY TYPES



COMPOUND FROND
SIMPLE FROND

FROND MORPHOLOGY
TYPES

COMPOUND FROND

**COMPOUND
FROND**

FROND MORPHOLOGY

COMPOUND FROND



PINNAE PRESENT

FROND MORPHOLOGY

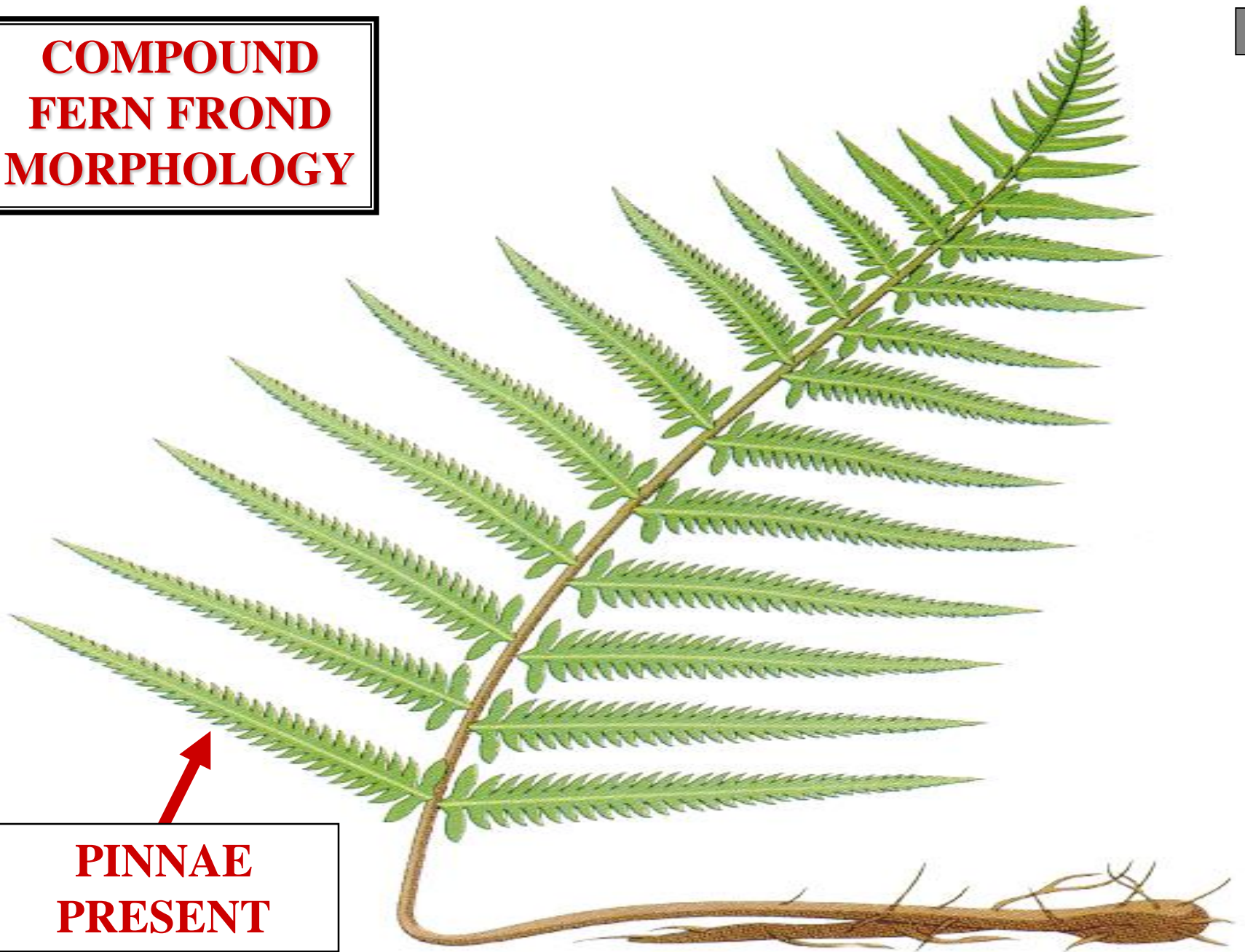
COMPOUND FROND

**COMPOUND
FERN FROND
MORPHOLOGY**

PR



**COMPOUND
FERN FROND
MORPHOLOGY**



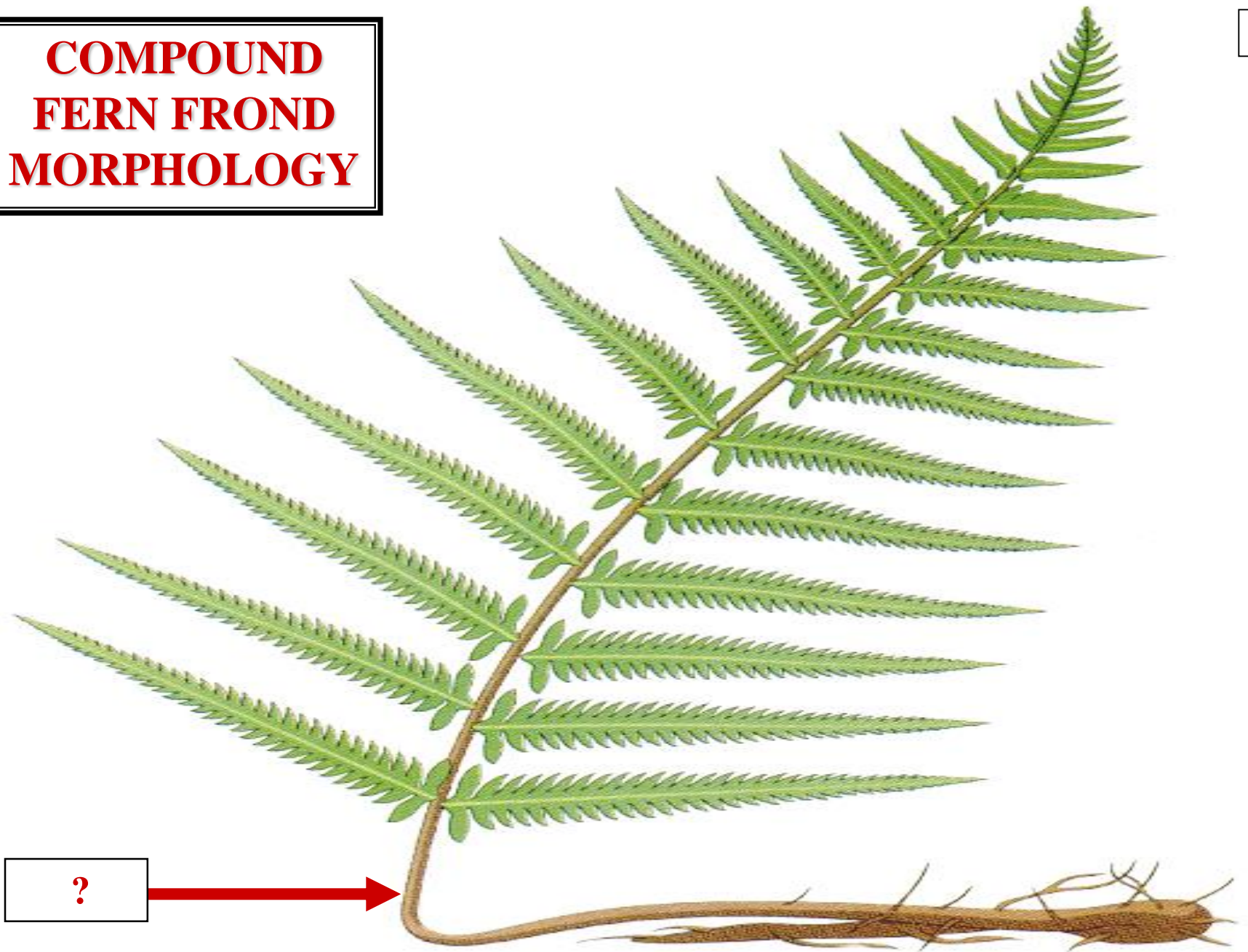
**PINNAE
PRESENT**



COMPOUND FROND MORPHOLOGY

**COMPOUND
FERN FROND
MORPHOLOGY**

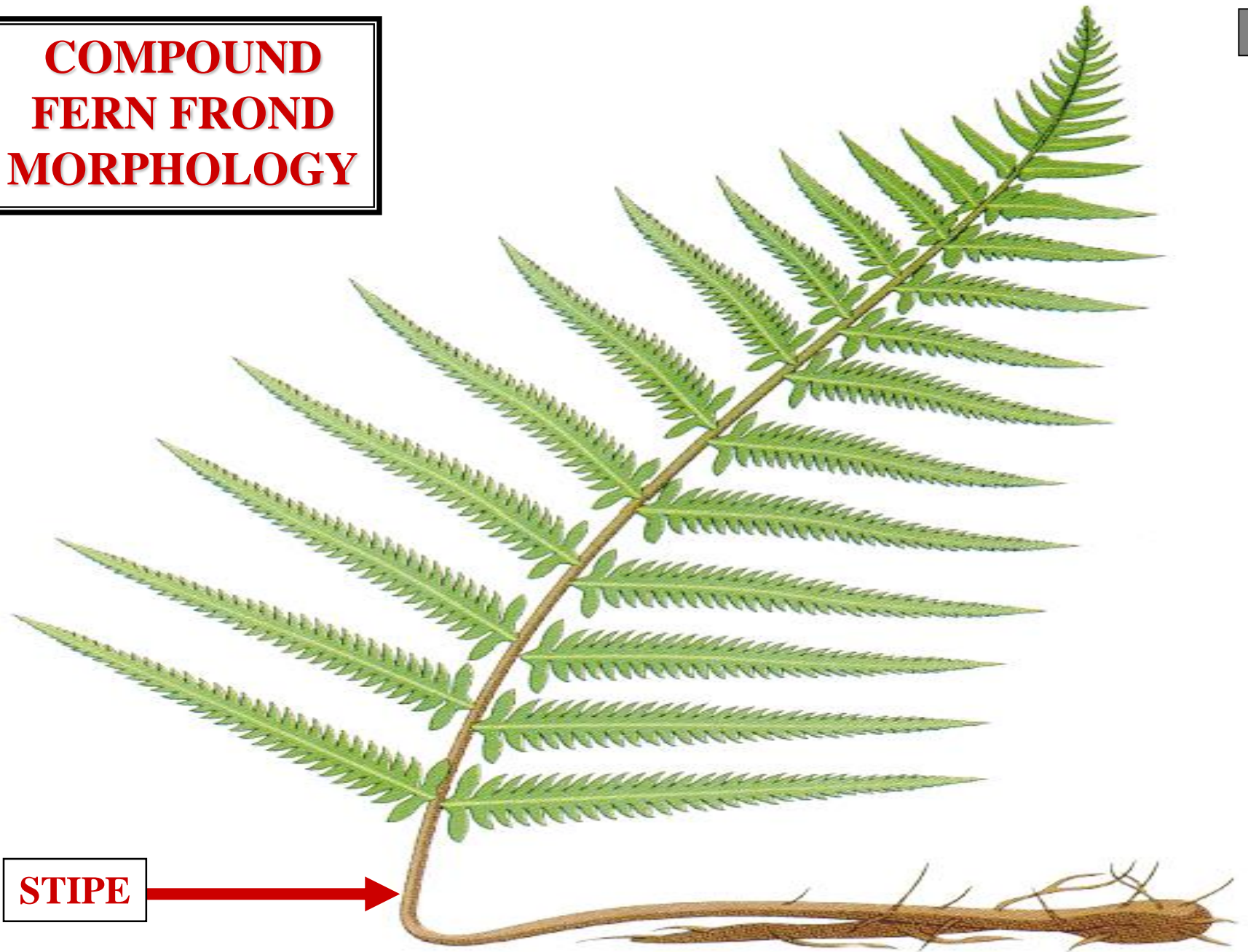
S



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**COMPOUND
FERN FROND
MORPHOLOGY**

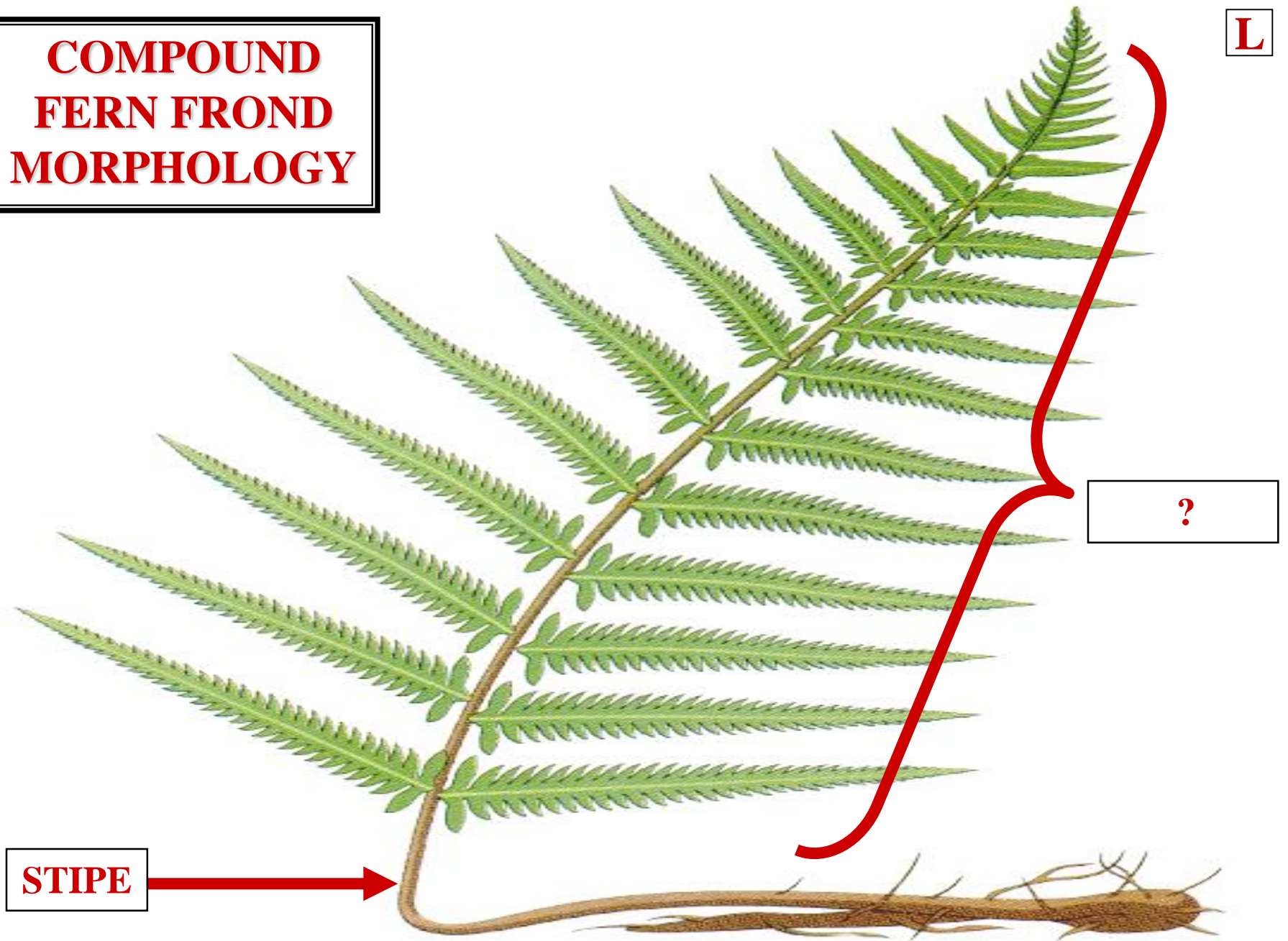
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STIPE

**COMPOUND
FERN FROND
MORPHOLOGY**

L

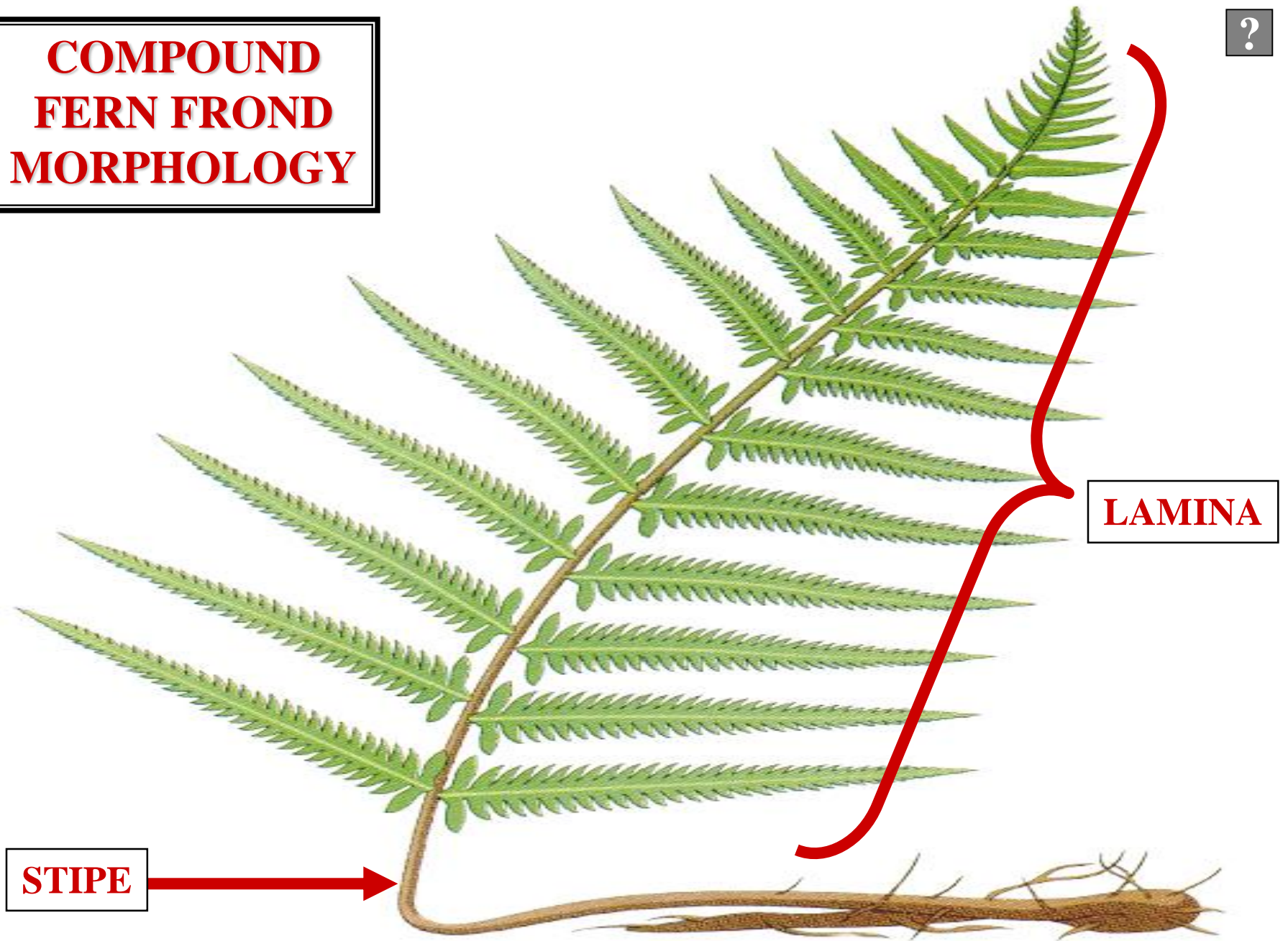


STIPE

?

COMPOUND FERN FROND MORPHOLOGY

?



STIPE

LAMINA

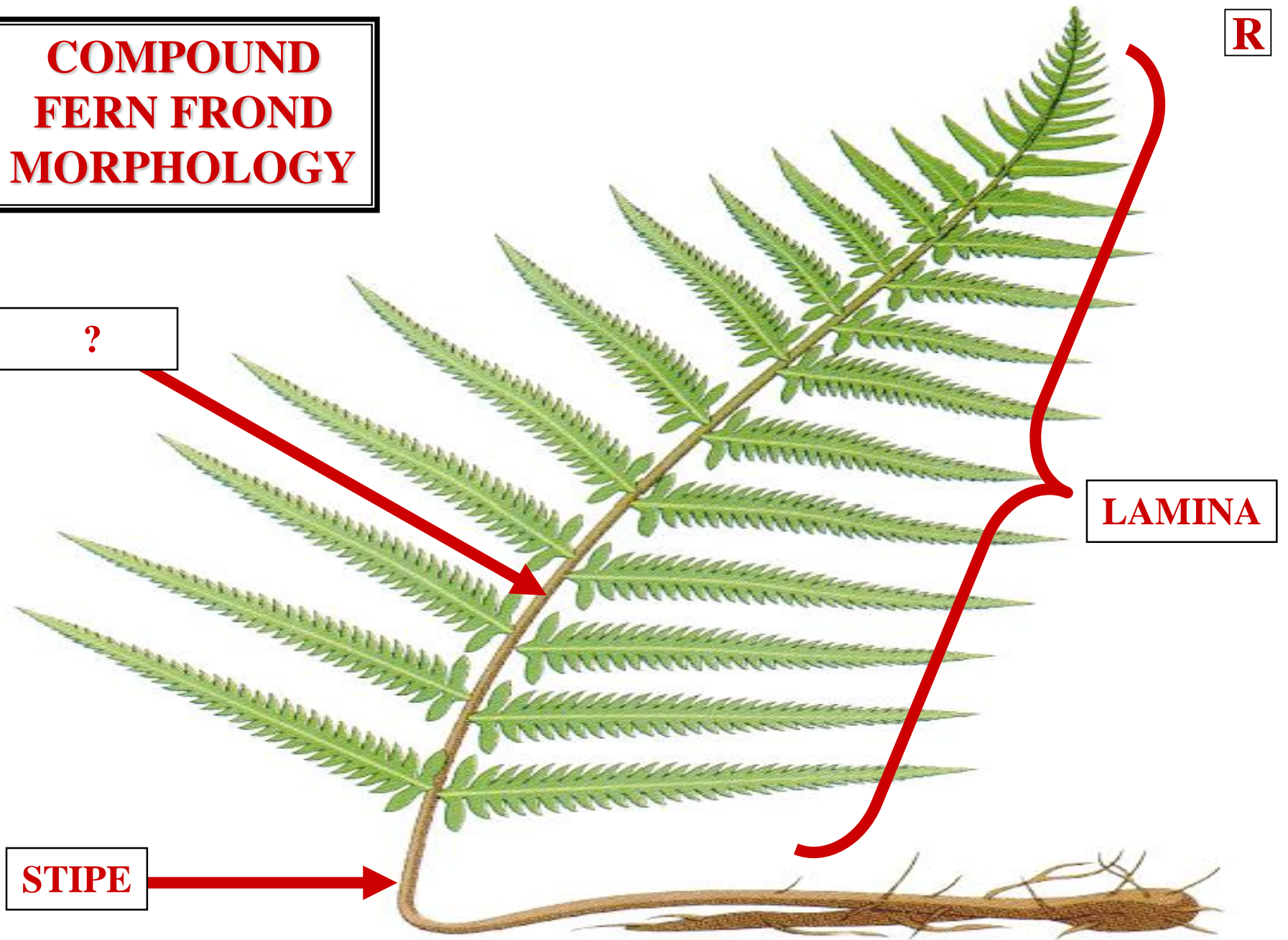
COMPOUND FERN FROND MORPHOLOGY

R

?

LAMINA

STIPE



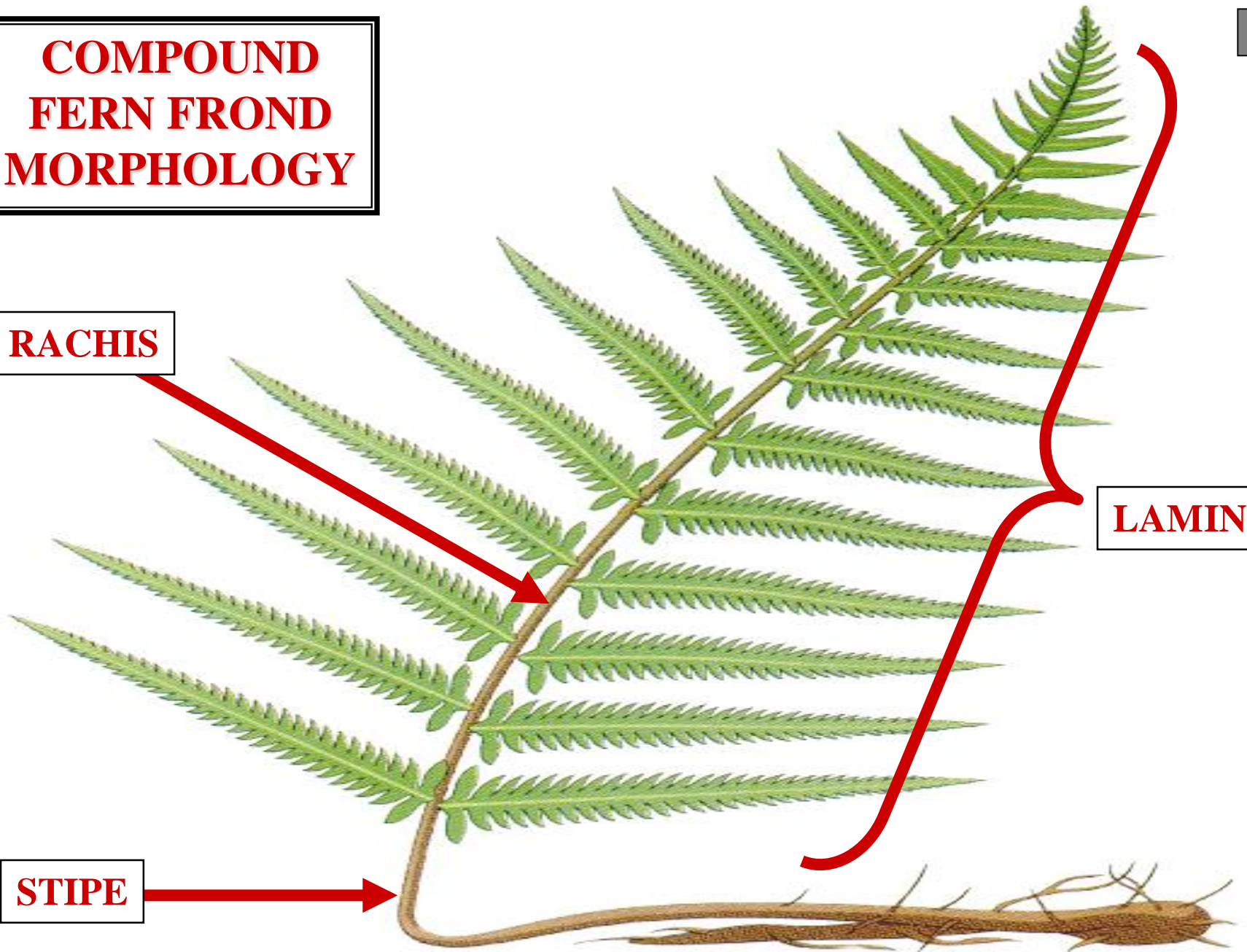
COMPOUND FERN FROND MORPHOLOGY

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RACHIS

LAMINA

STIPE



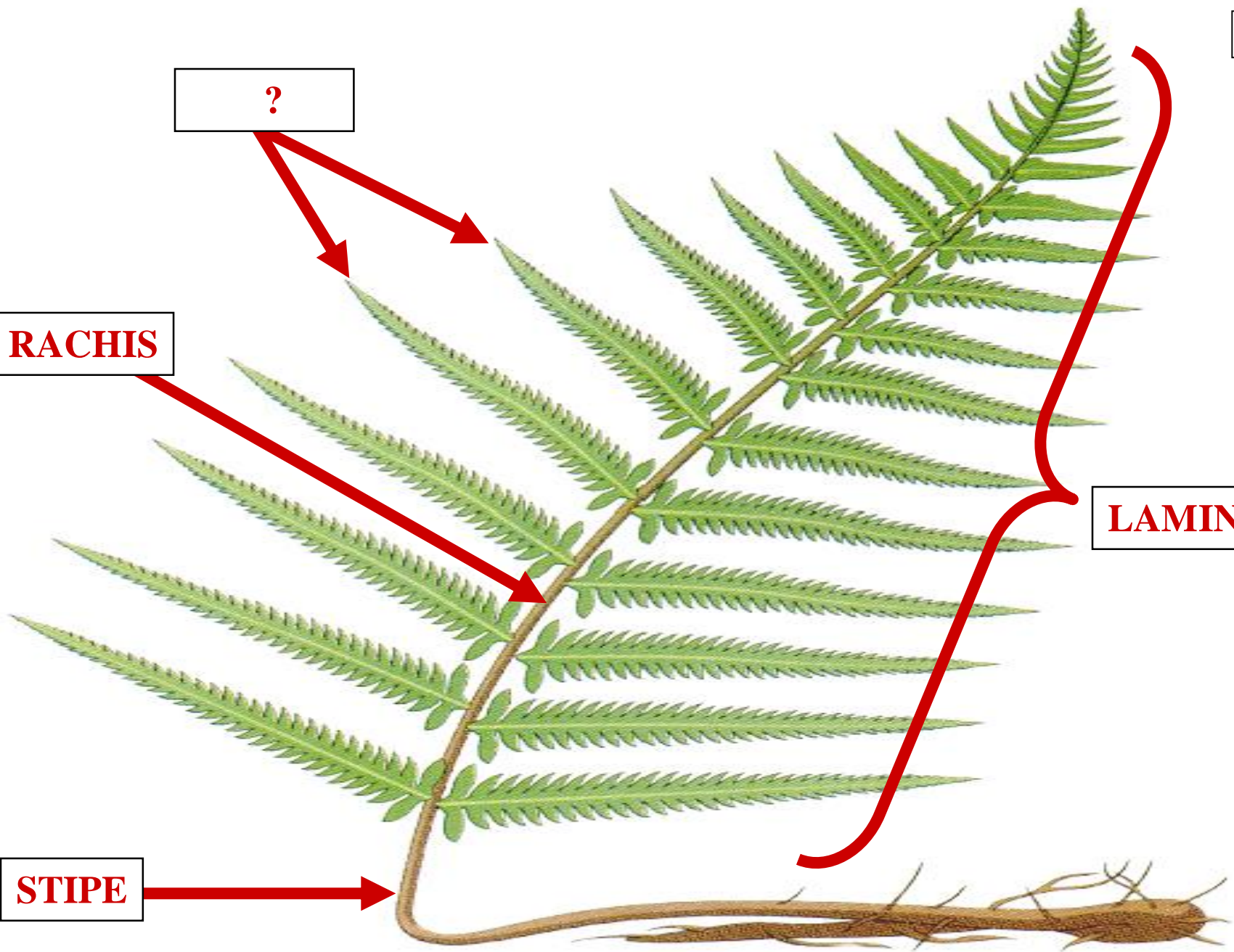
P

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RACHIS

LAMINA

STIPE

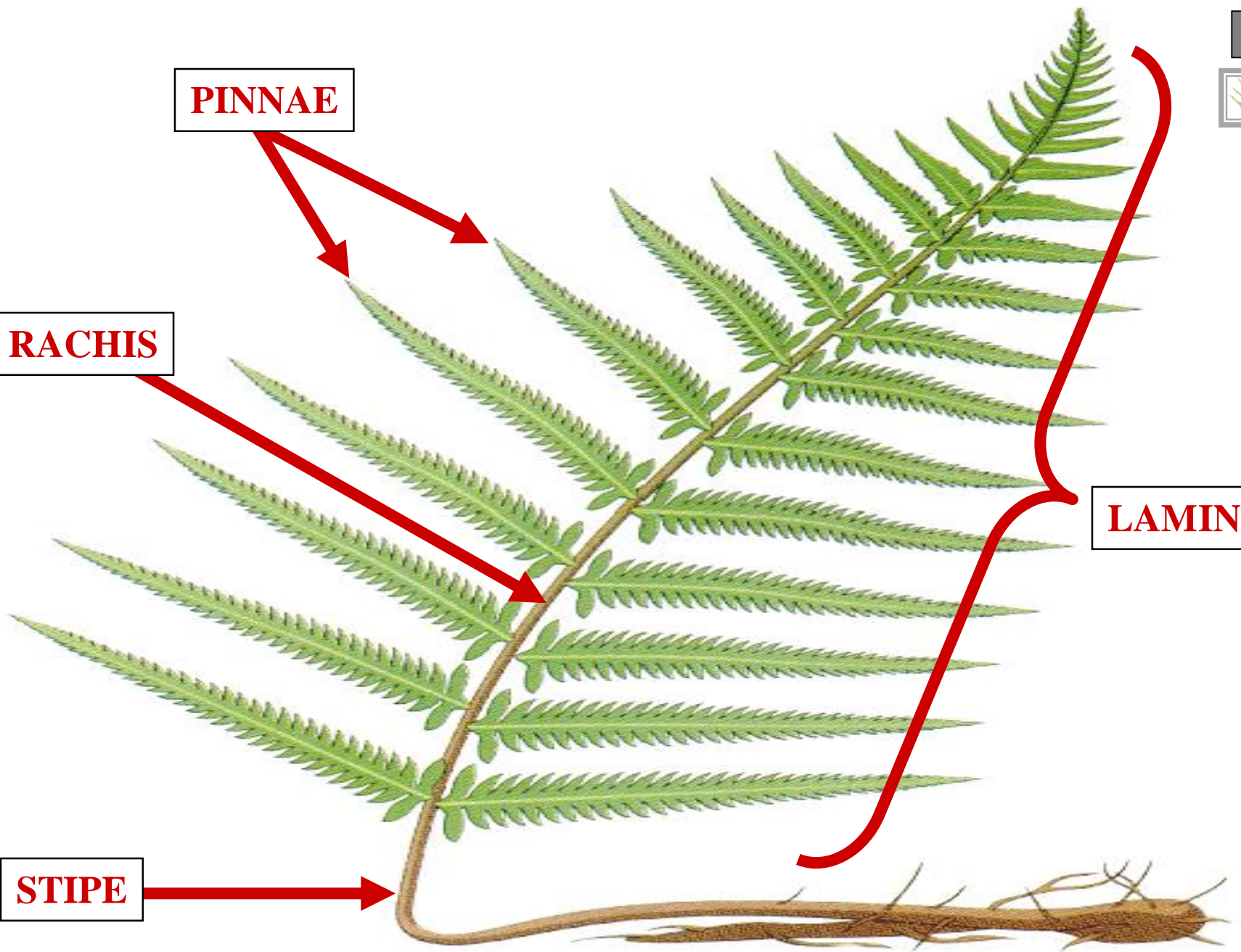
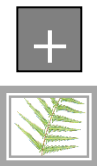


PINNAE

RACHIS

STIPE

LAMINA



PINNA



PINNA



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