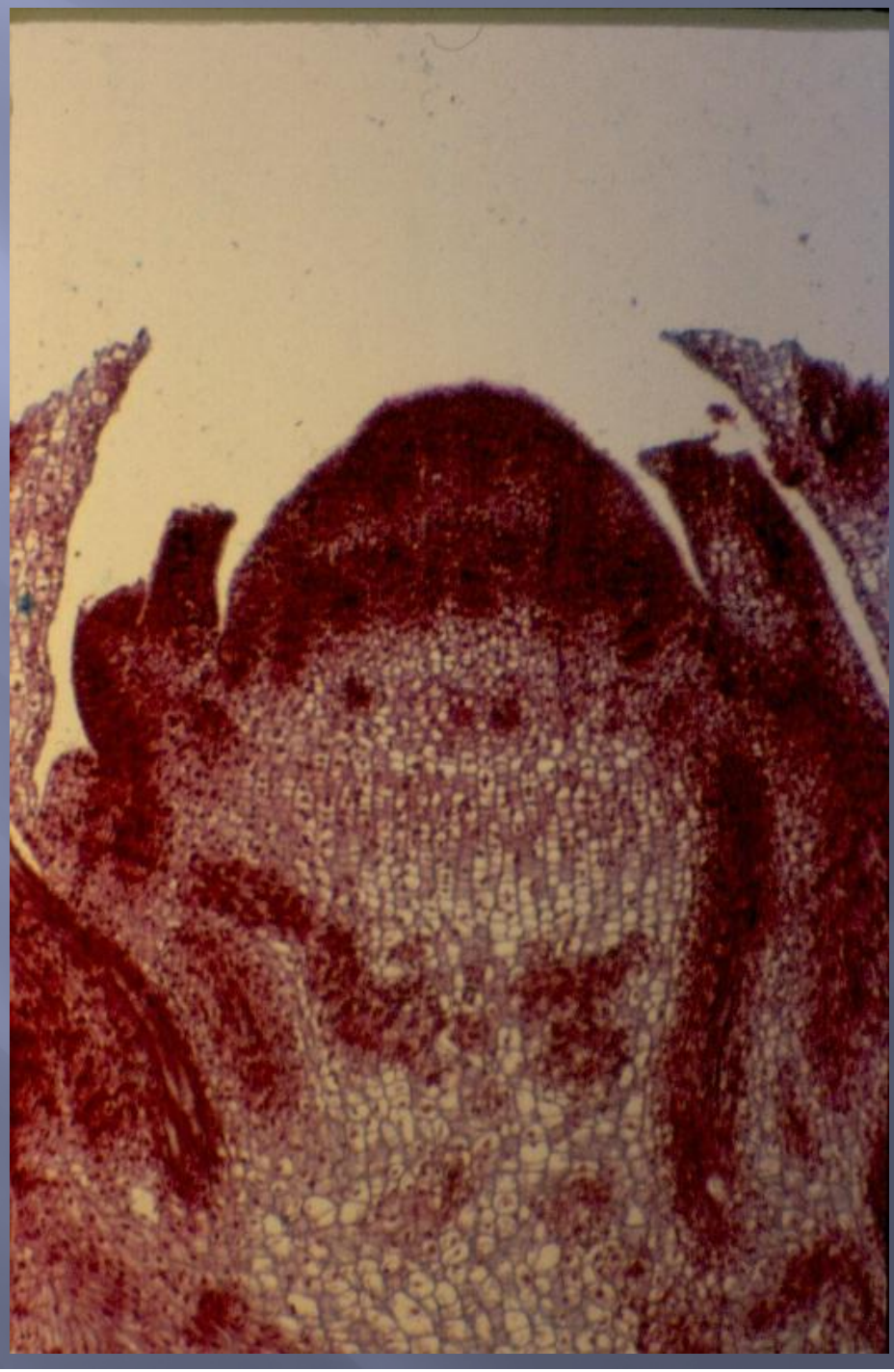
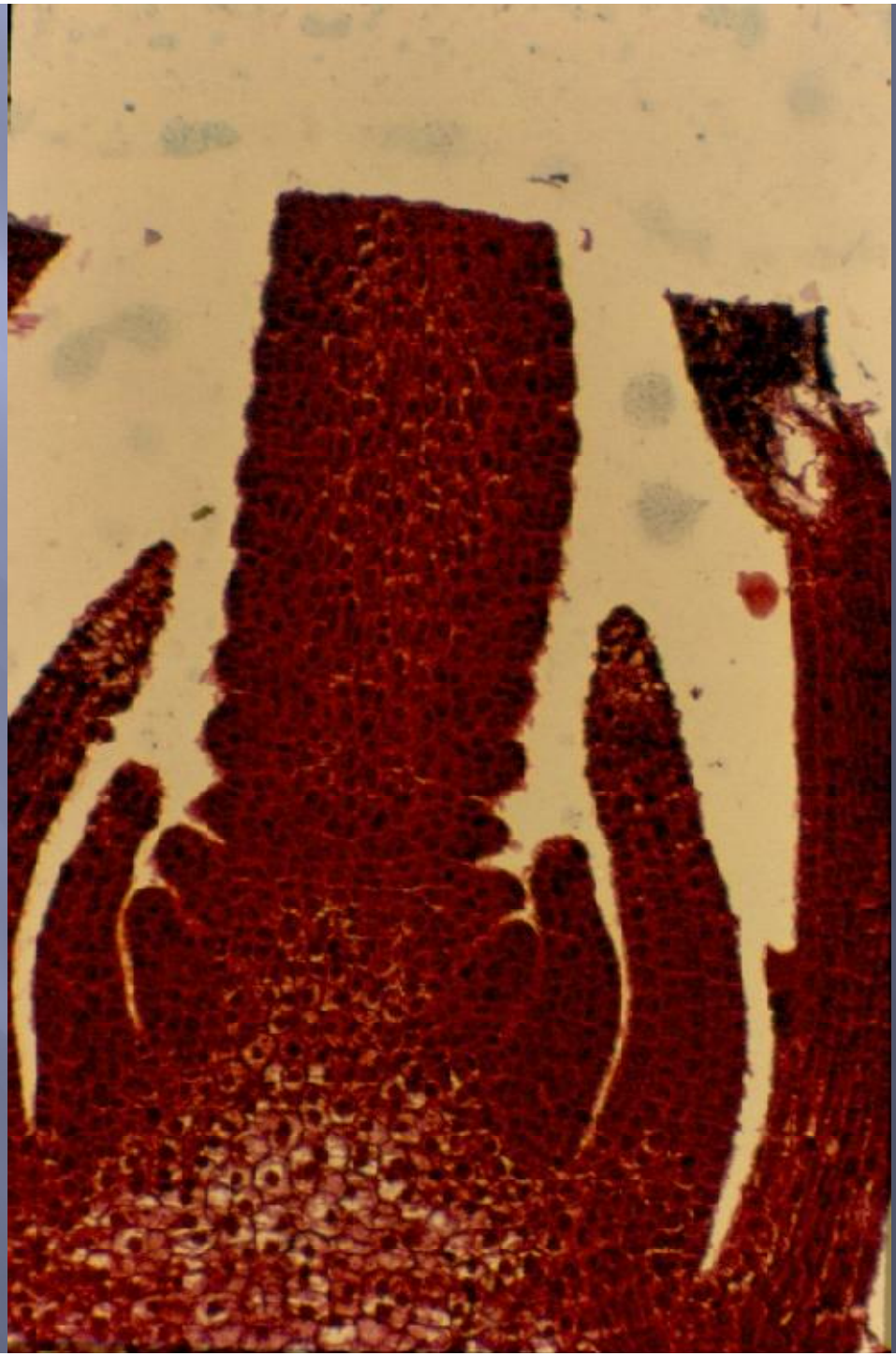
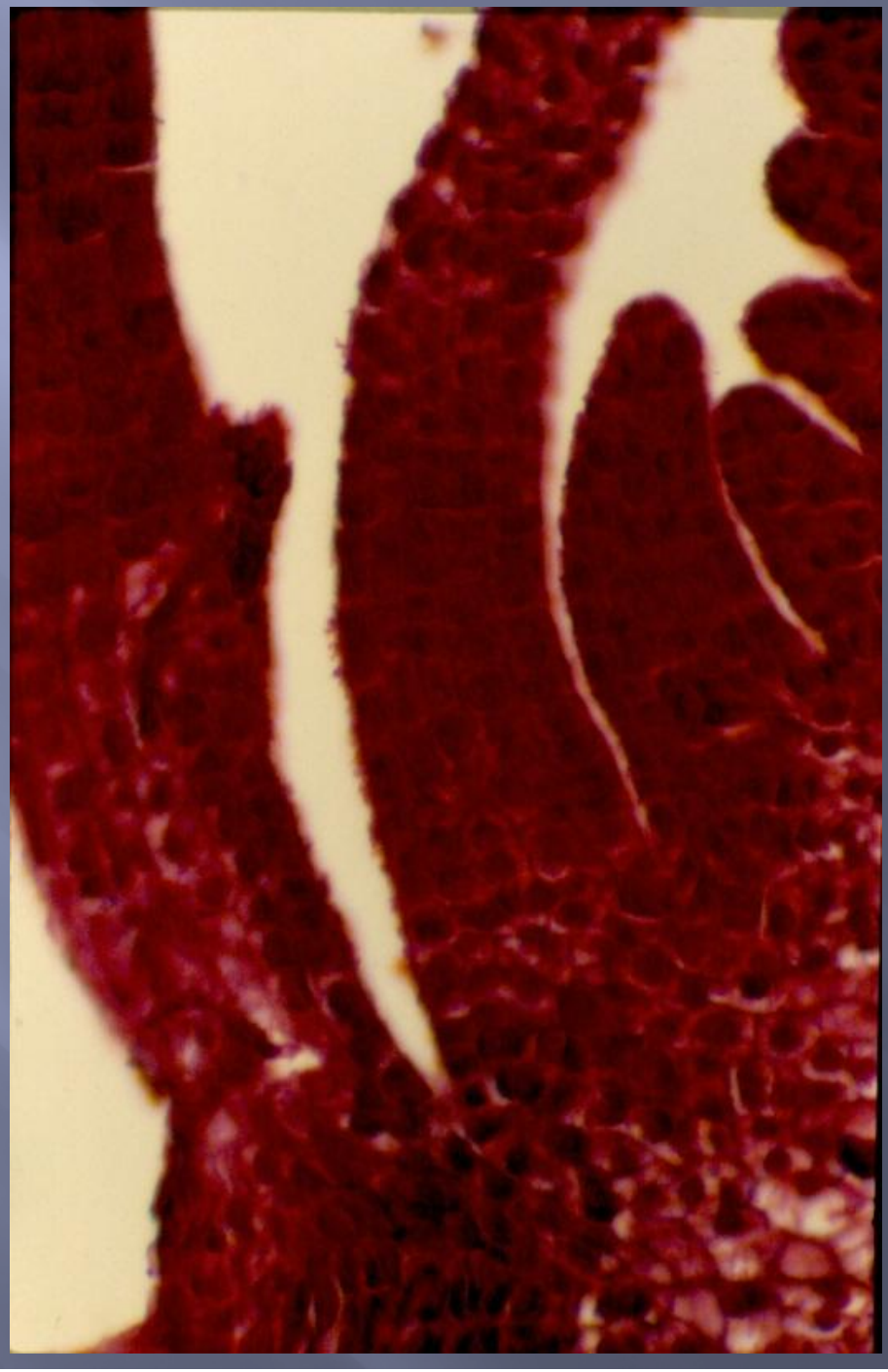
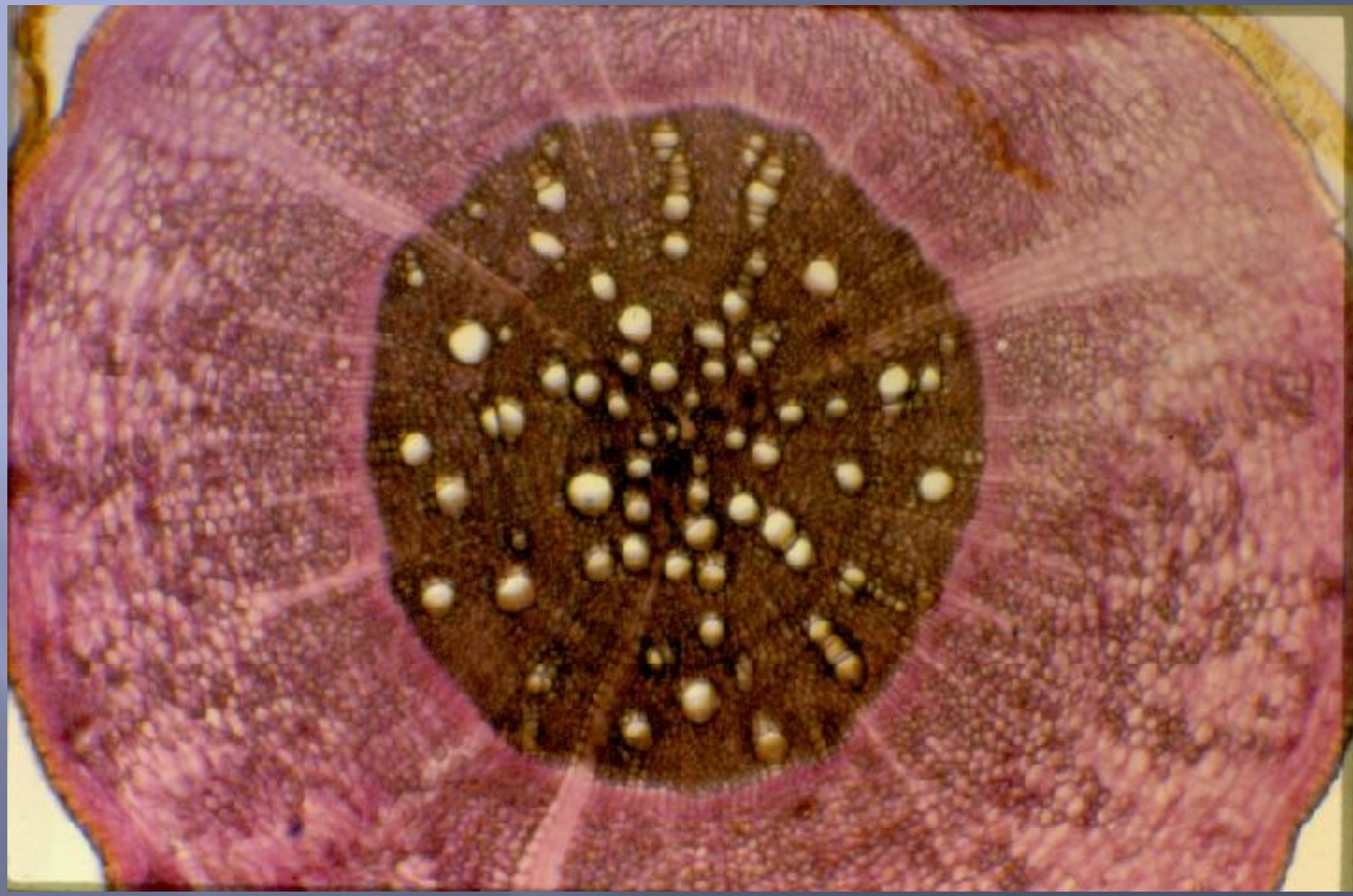
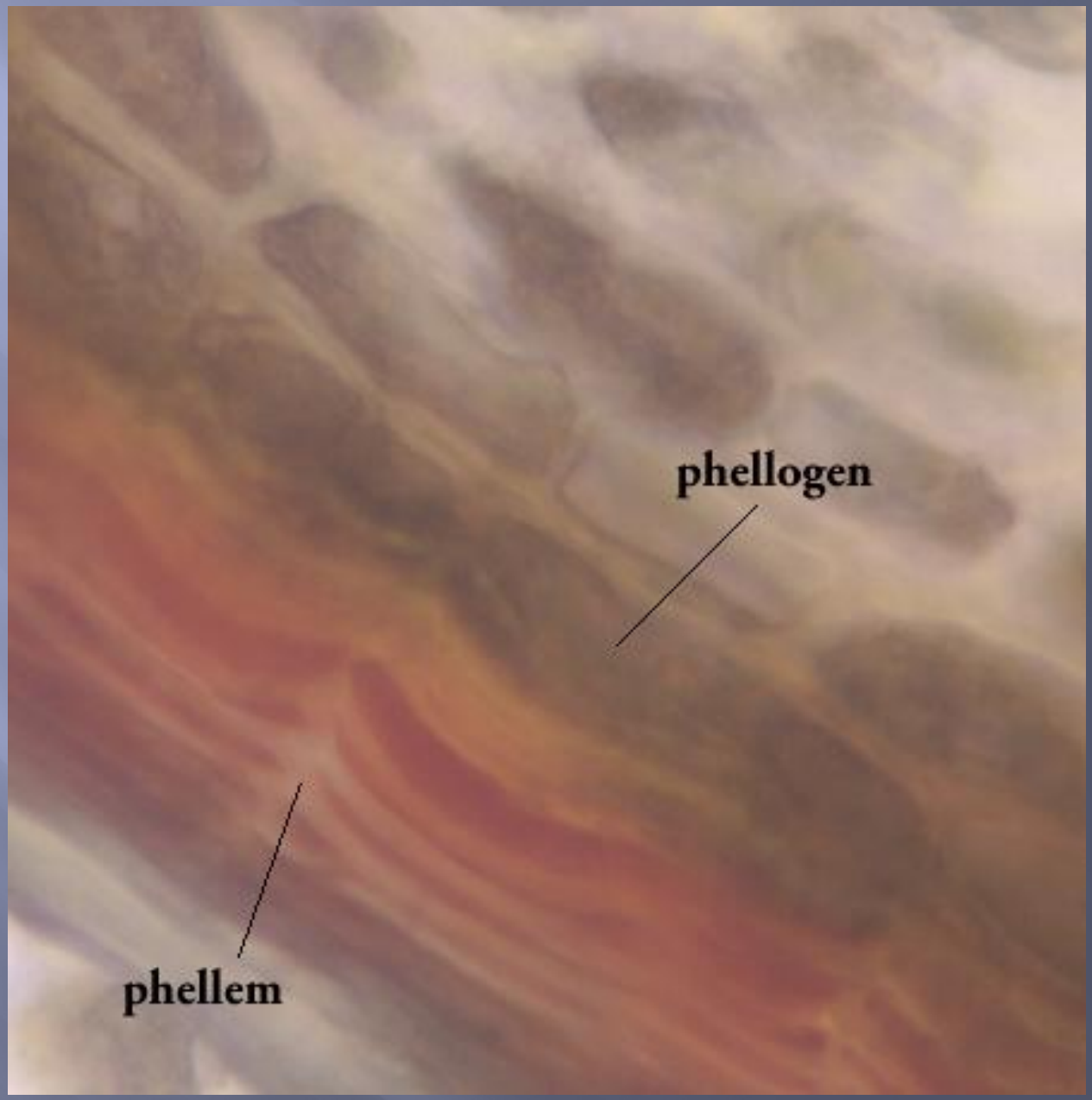
بسم اللّٰه الرّحمن الرّحيم

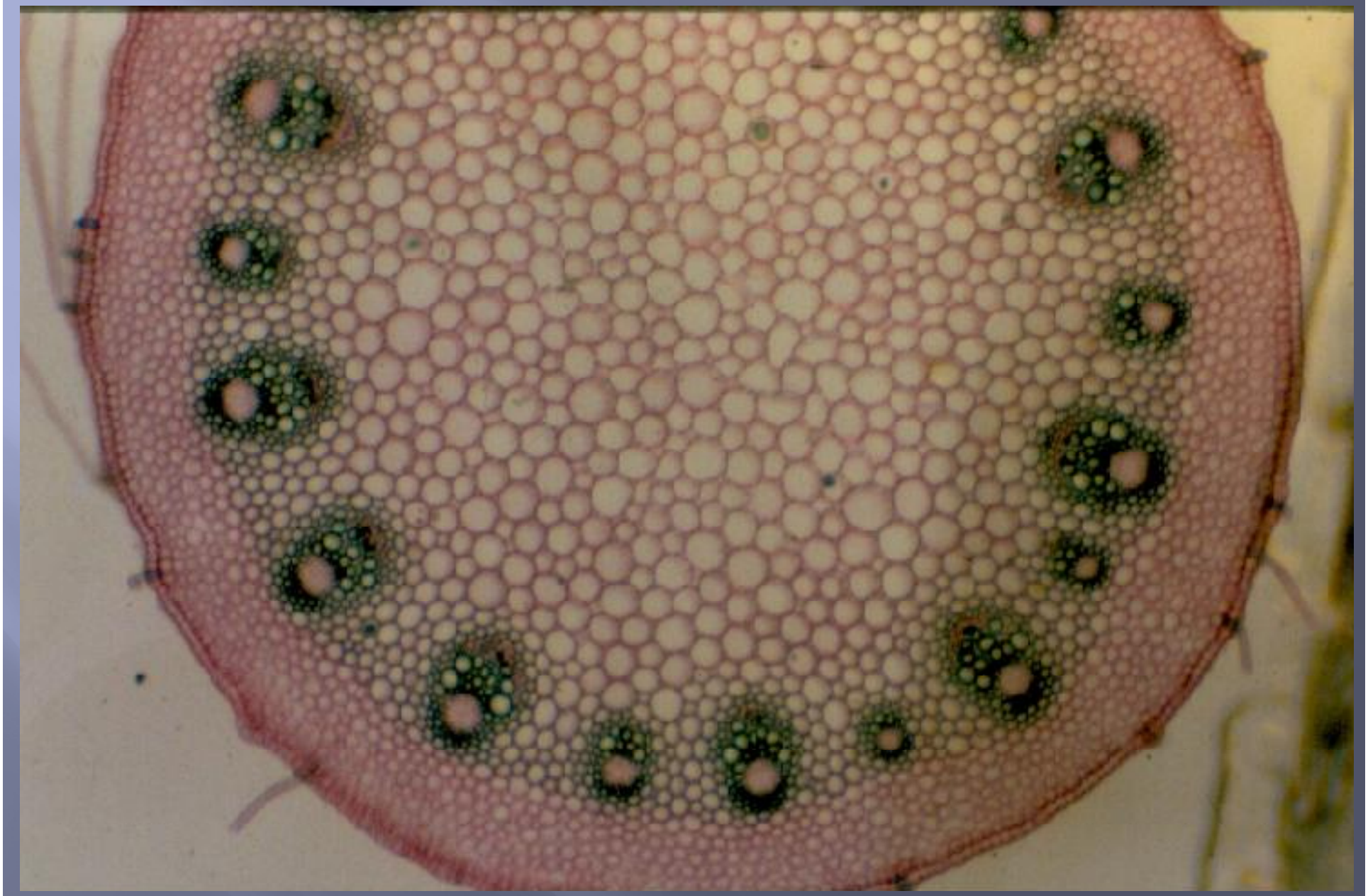


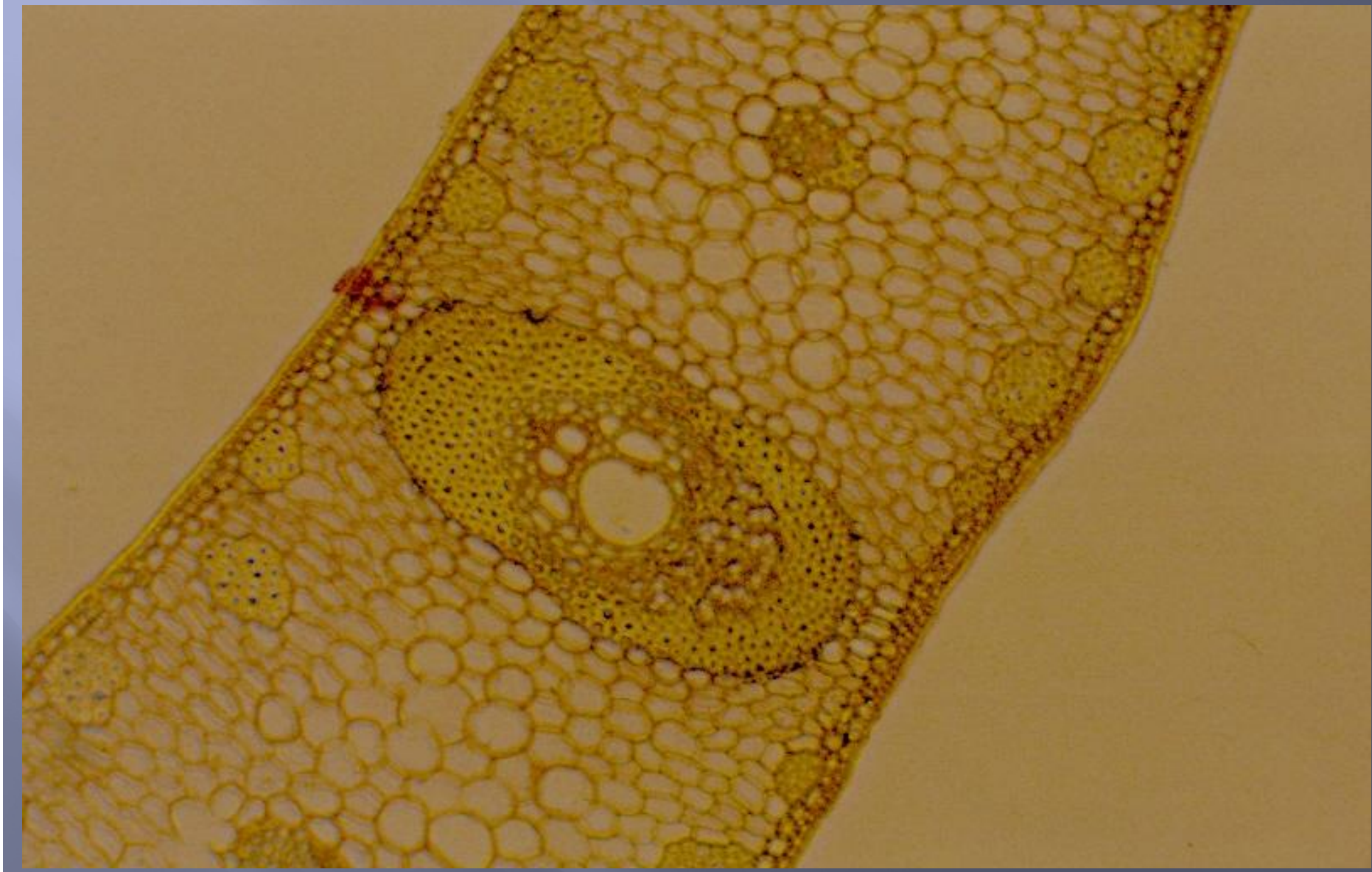






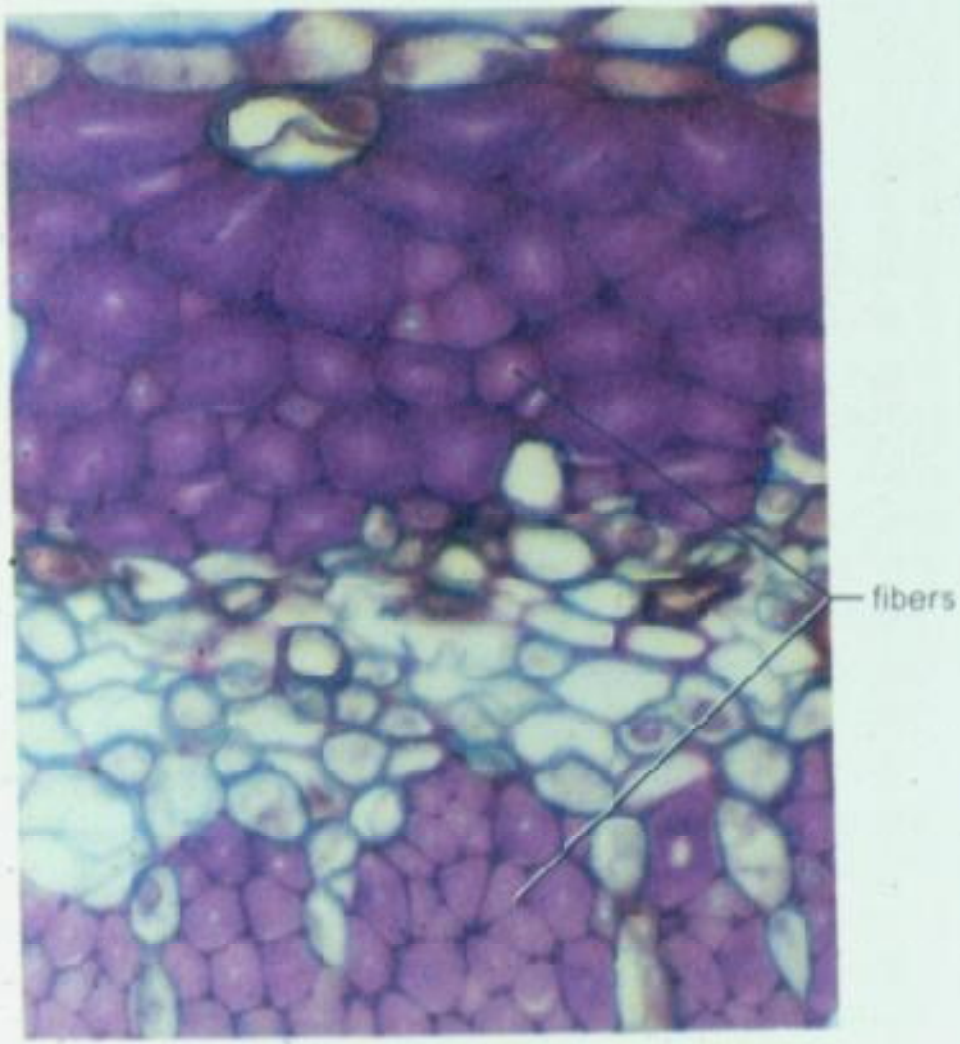

phellogen
phellem





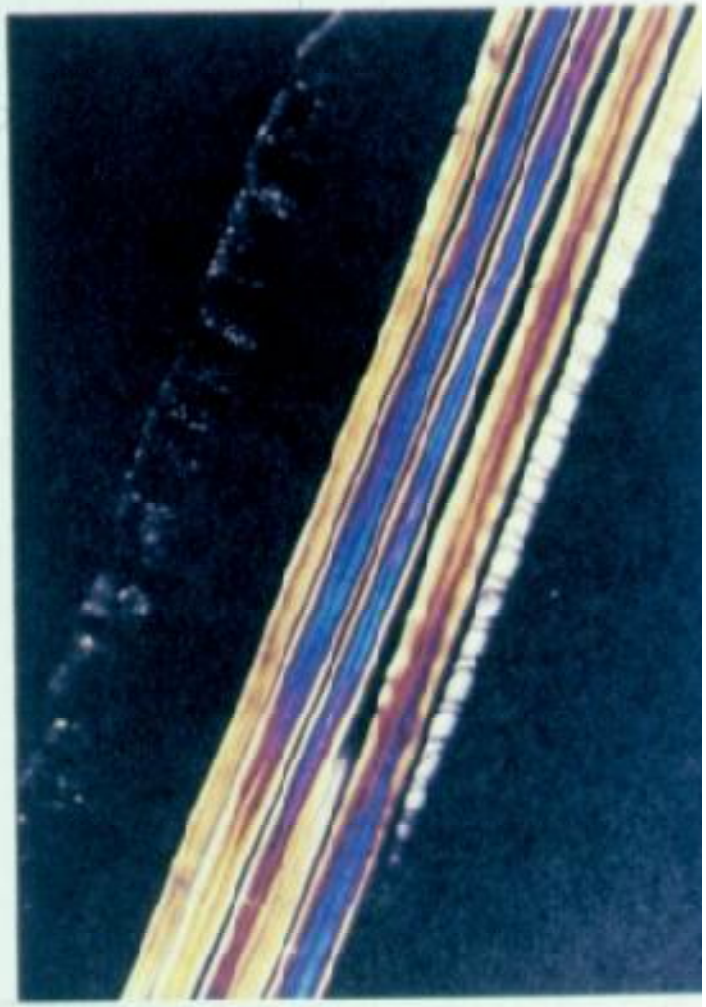
ssue from a linden tree. Note the thickness of the walls of the
arker fibers. *B.* A single fiber in longitudinal section. *C.* A

(Photomicrographs by G. S. Ellmore)



A.

B.



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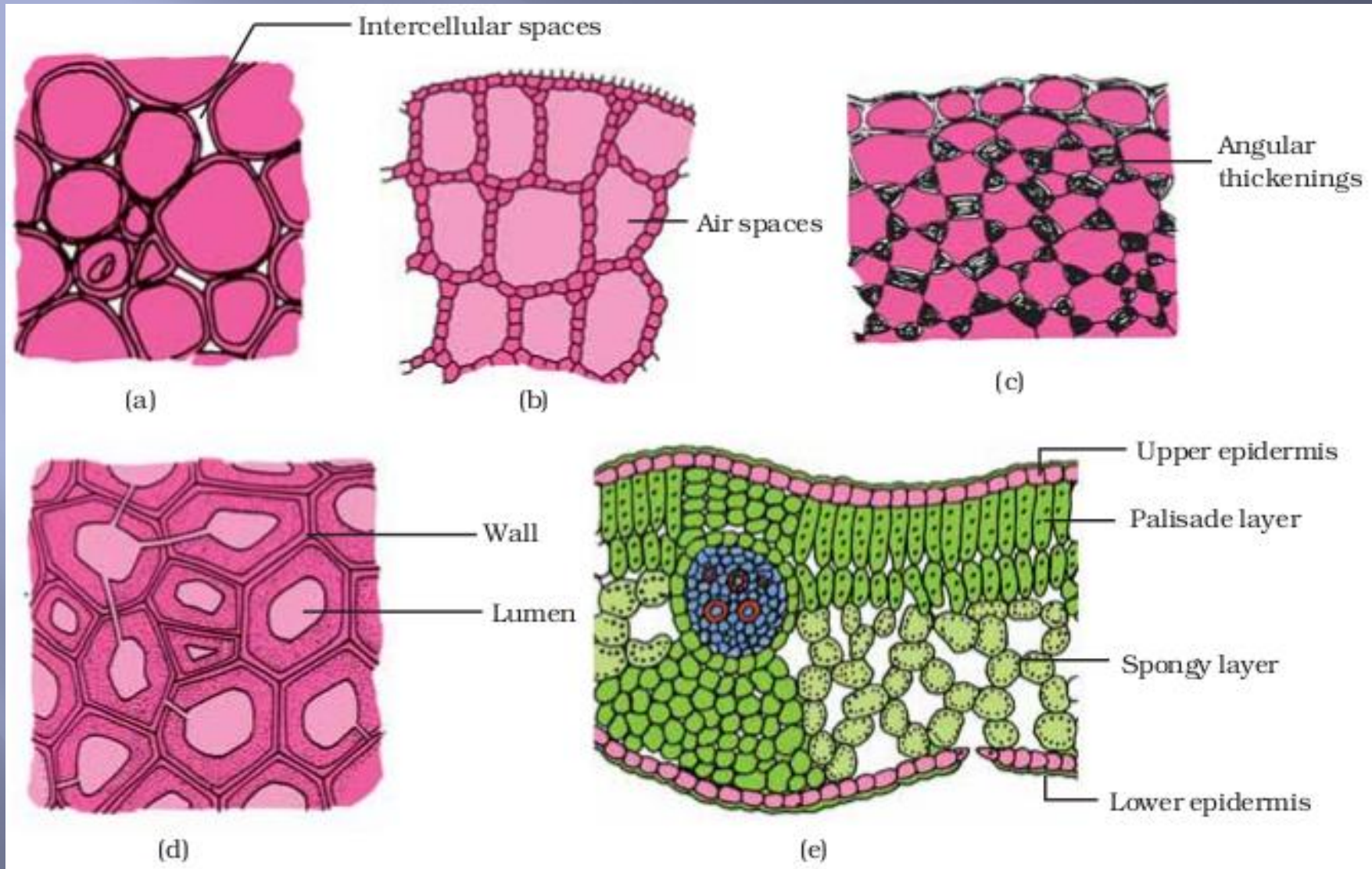
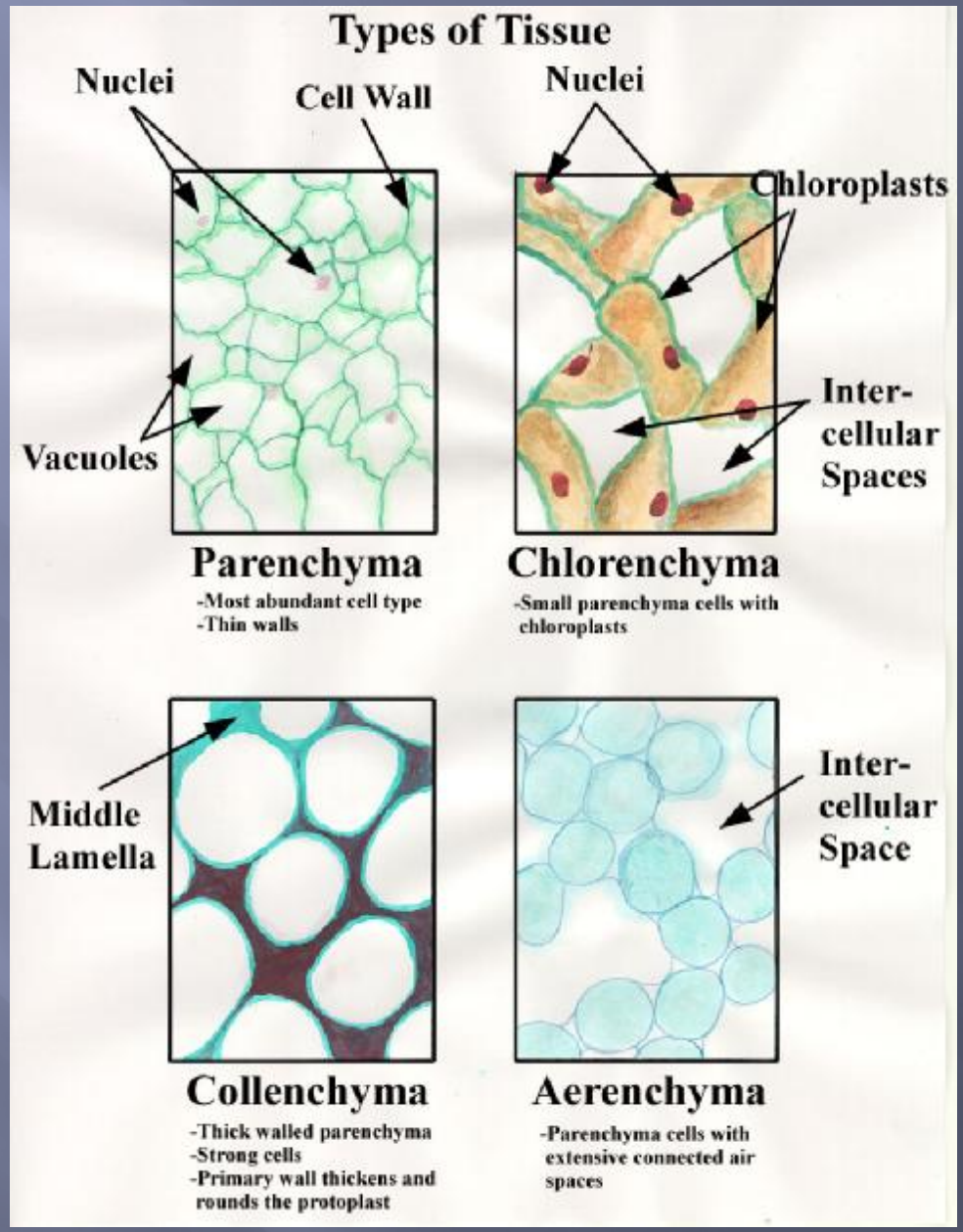
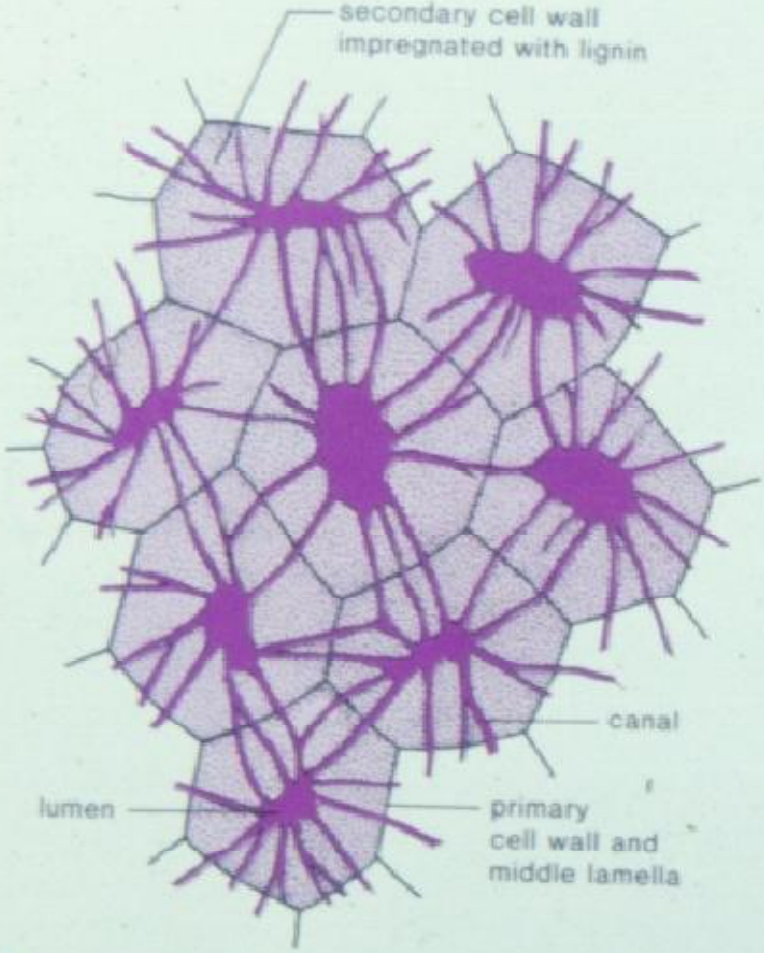


Fig. 4.1 Different plant tissues (a) Parenchyma (b) Aerenchyma (c) Collenchyma (d) Sclerenchyma (e) Palisade and spongy tissues of leaf

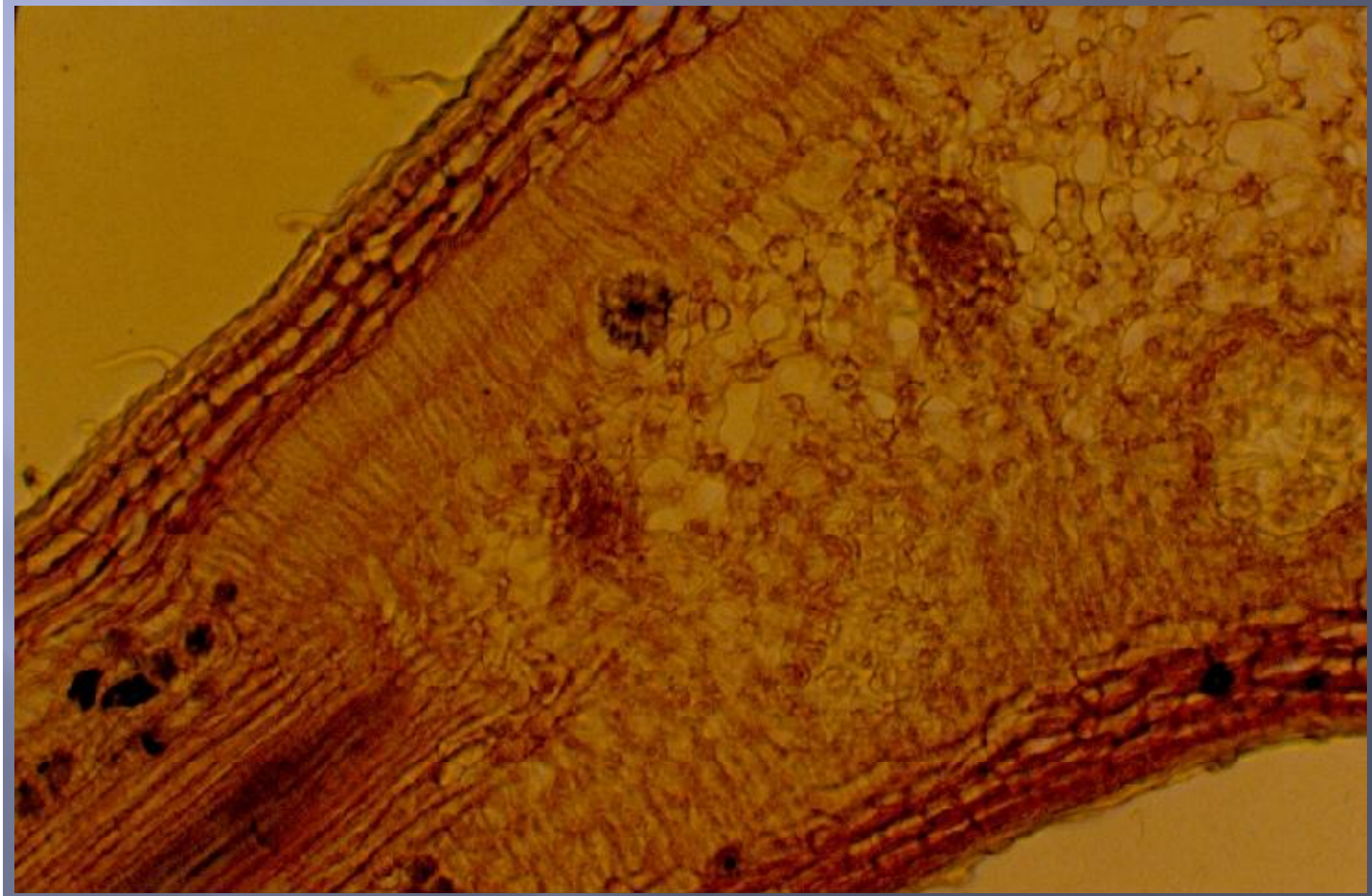

Types of Tissue
Nuclei
Cell Wall
Vacuoles
Parenchyma
-Most abundant cell type
-Thin walls
Nuclei
Chloroplasts
Inter-
cellular
Spaces
Chlorenchyma
-Small parenchyma cells with
chloroplasts
Middle
Lamella
Collenchyma
-Thick walled parenchyma
-Strong cells
-Primary wall thickens and
rounds the protoplast
Inter-
cellular
Space
Aerenchyma
-Parenchyma cells with
extensive connected air
spaces

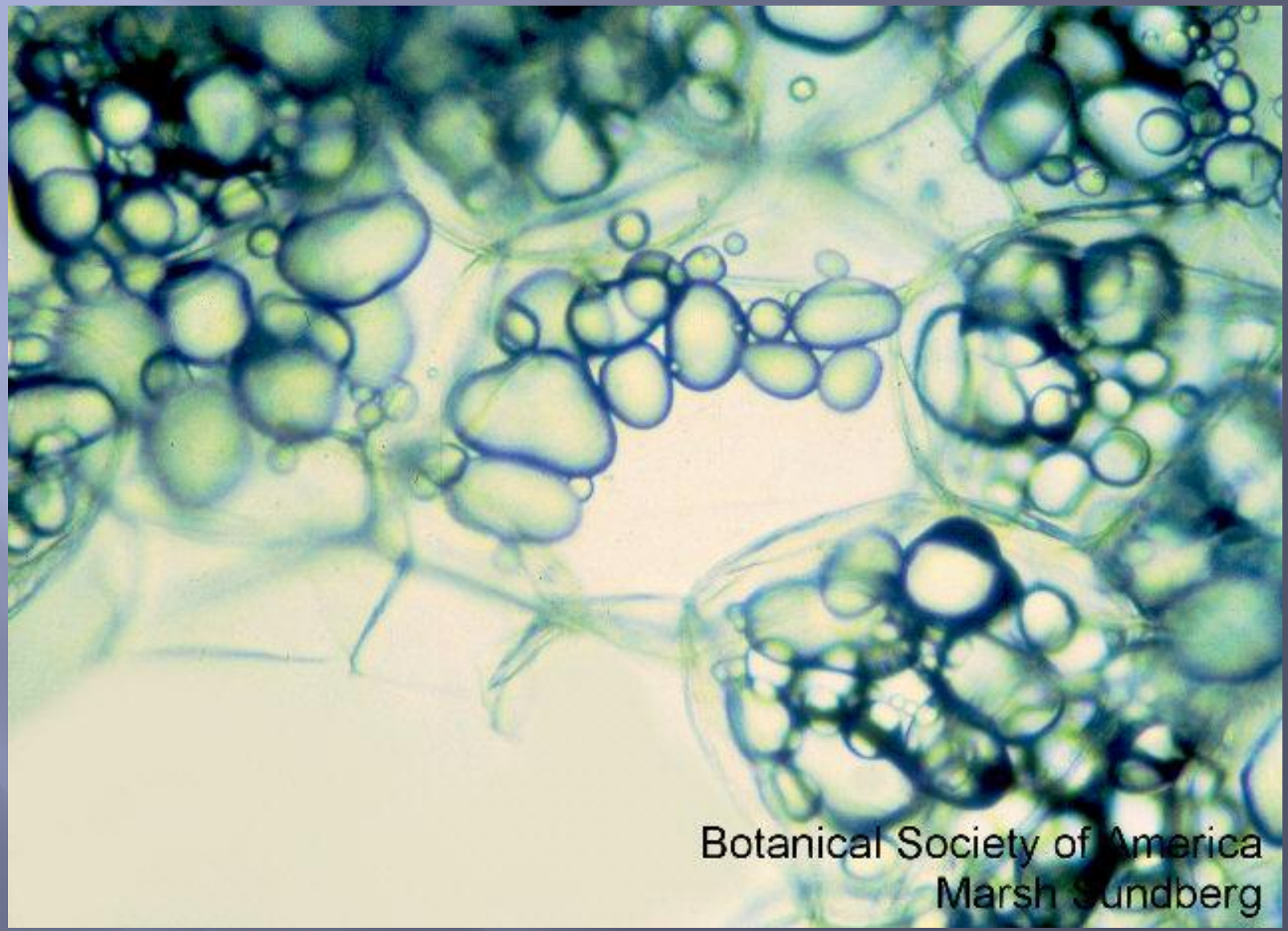
(Photomicrograph by G. S. Ellmore)

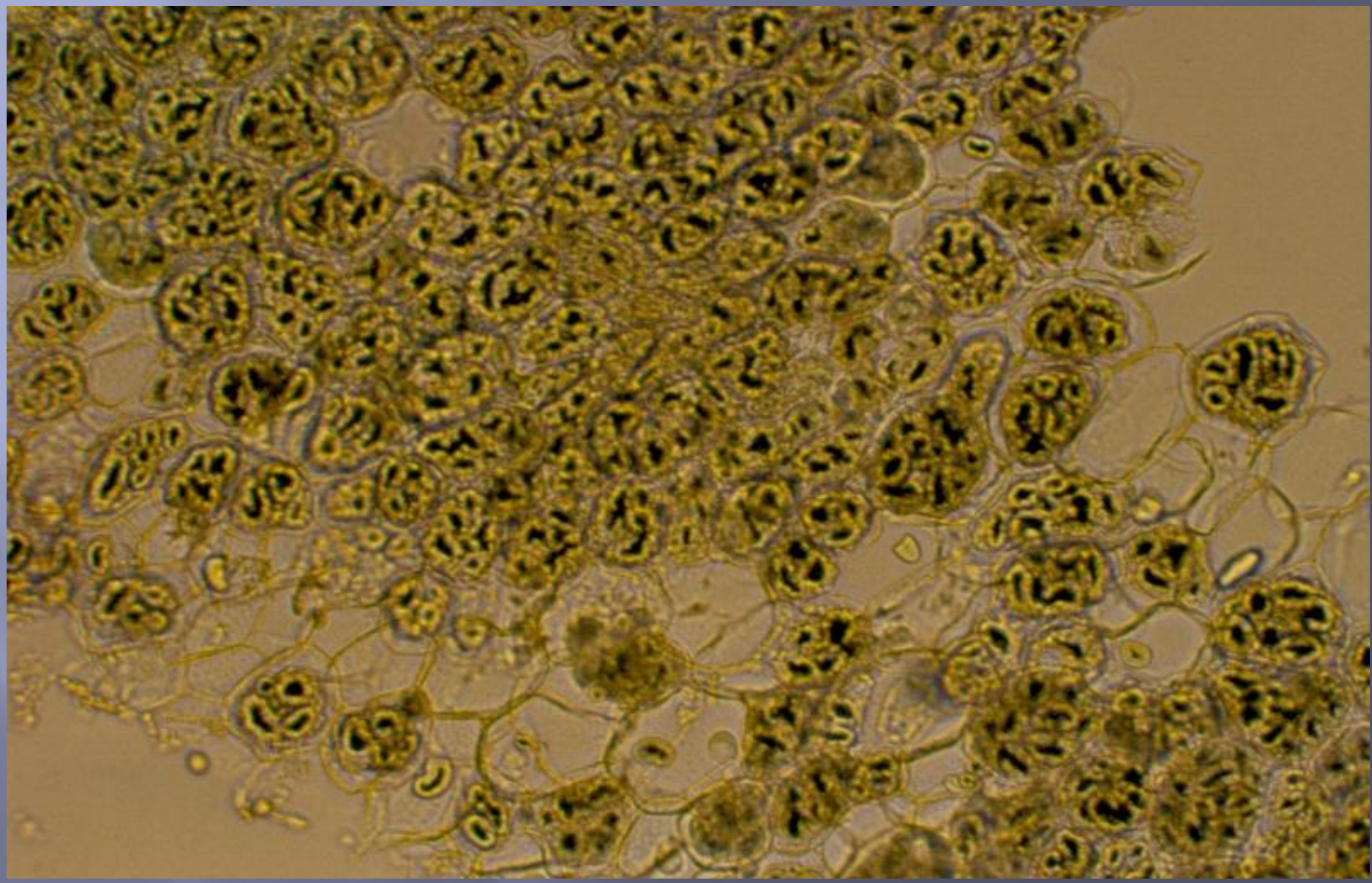


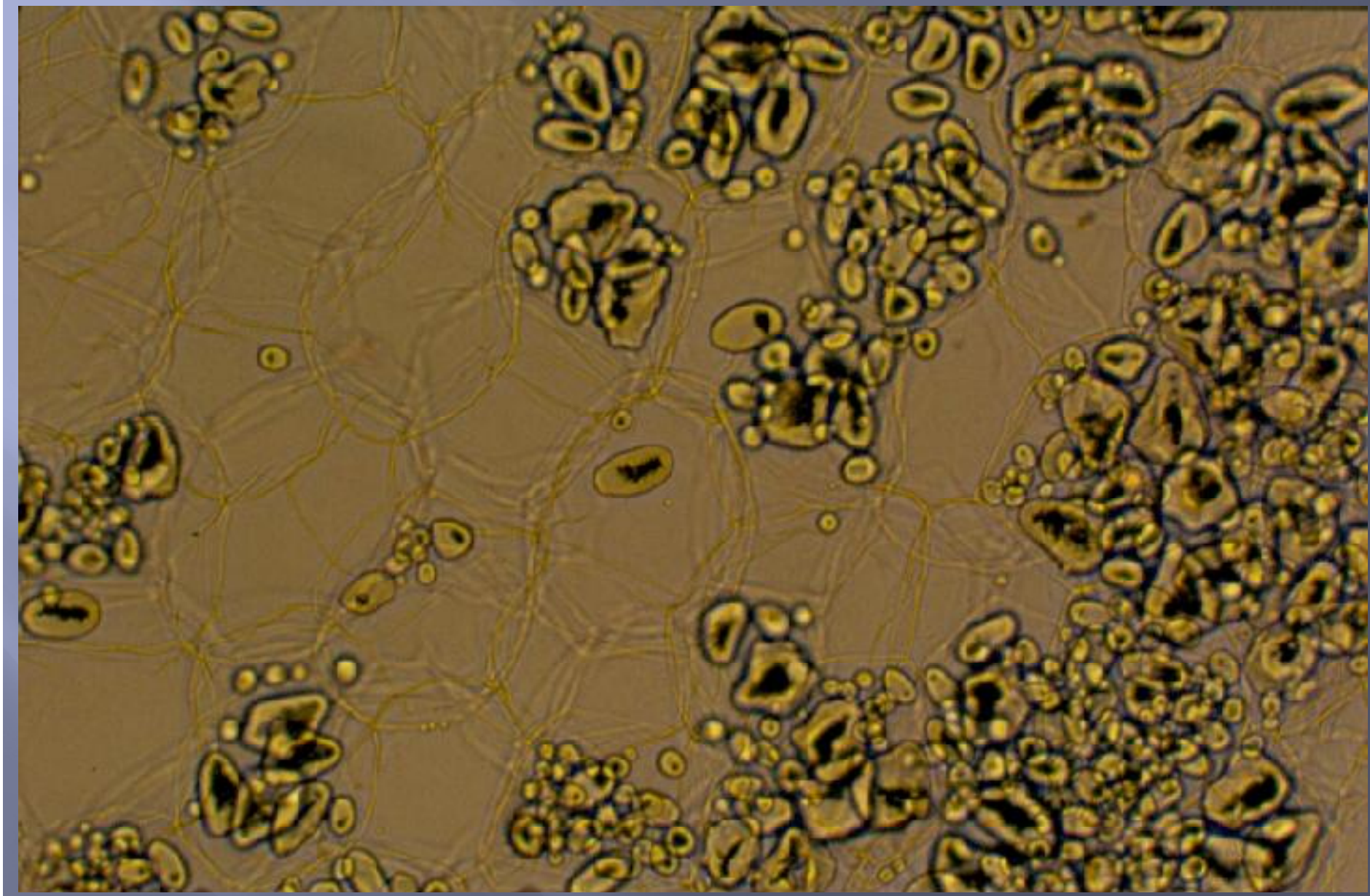
A.

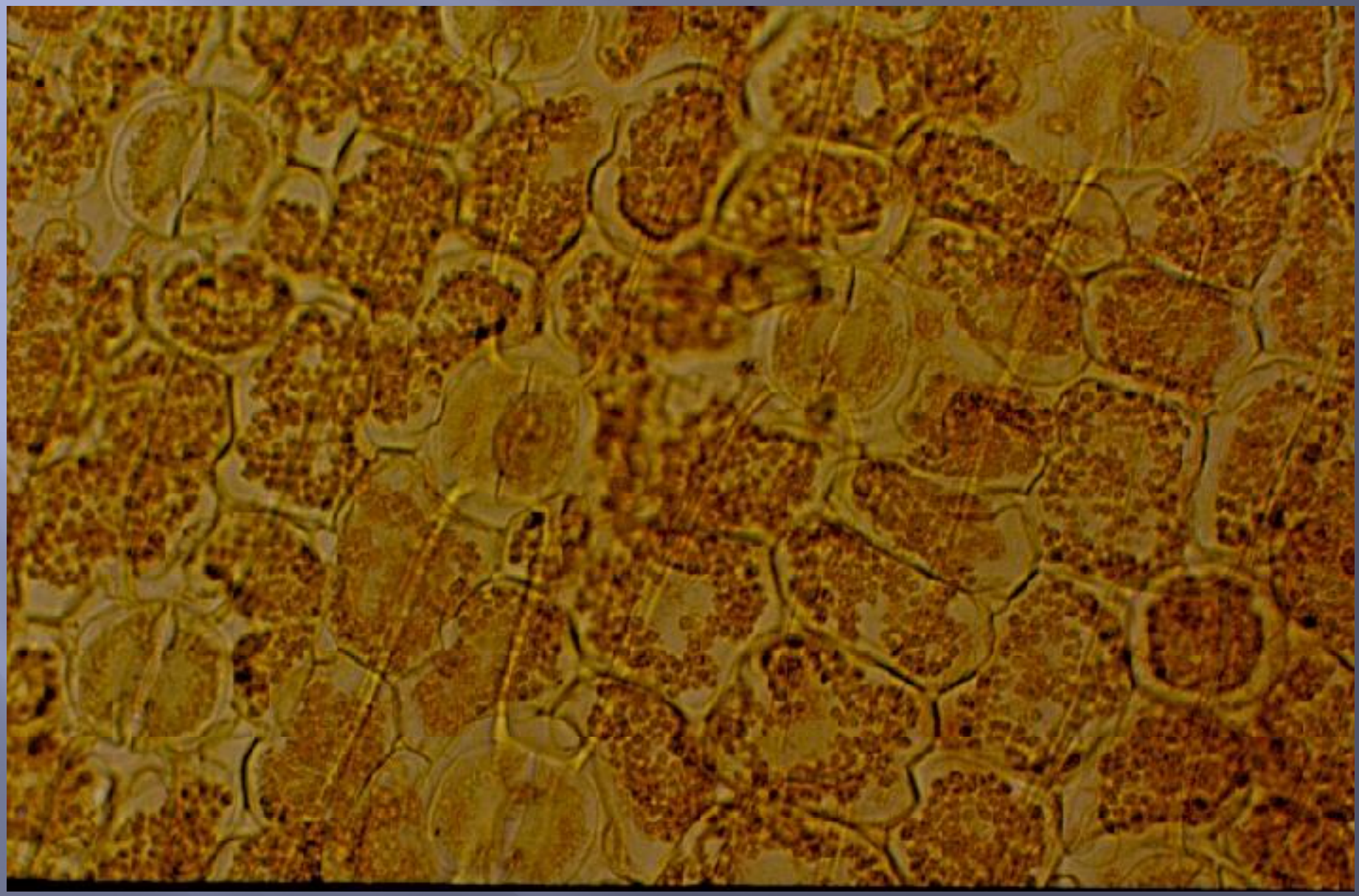
B.




Botanical Society of America
Marsh Sundberg





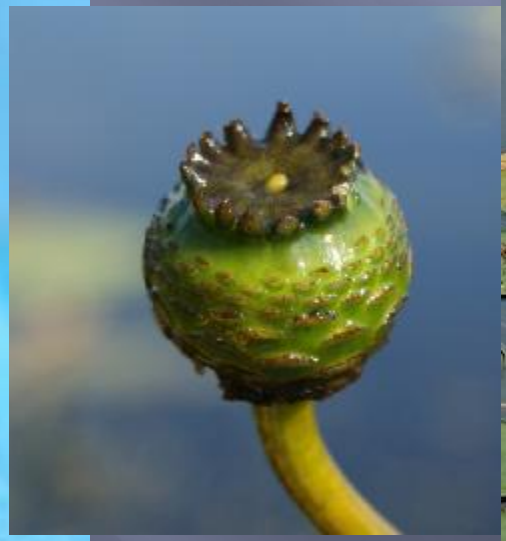


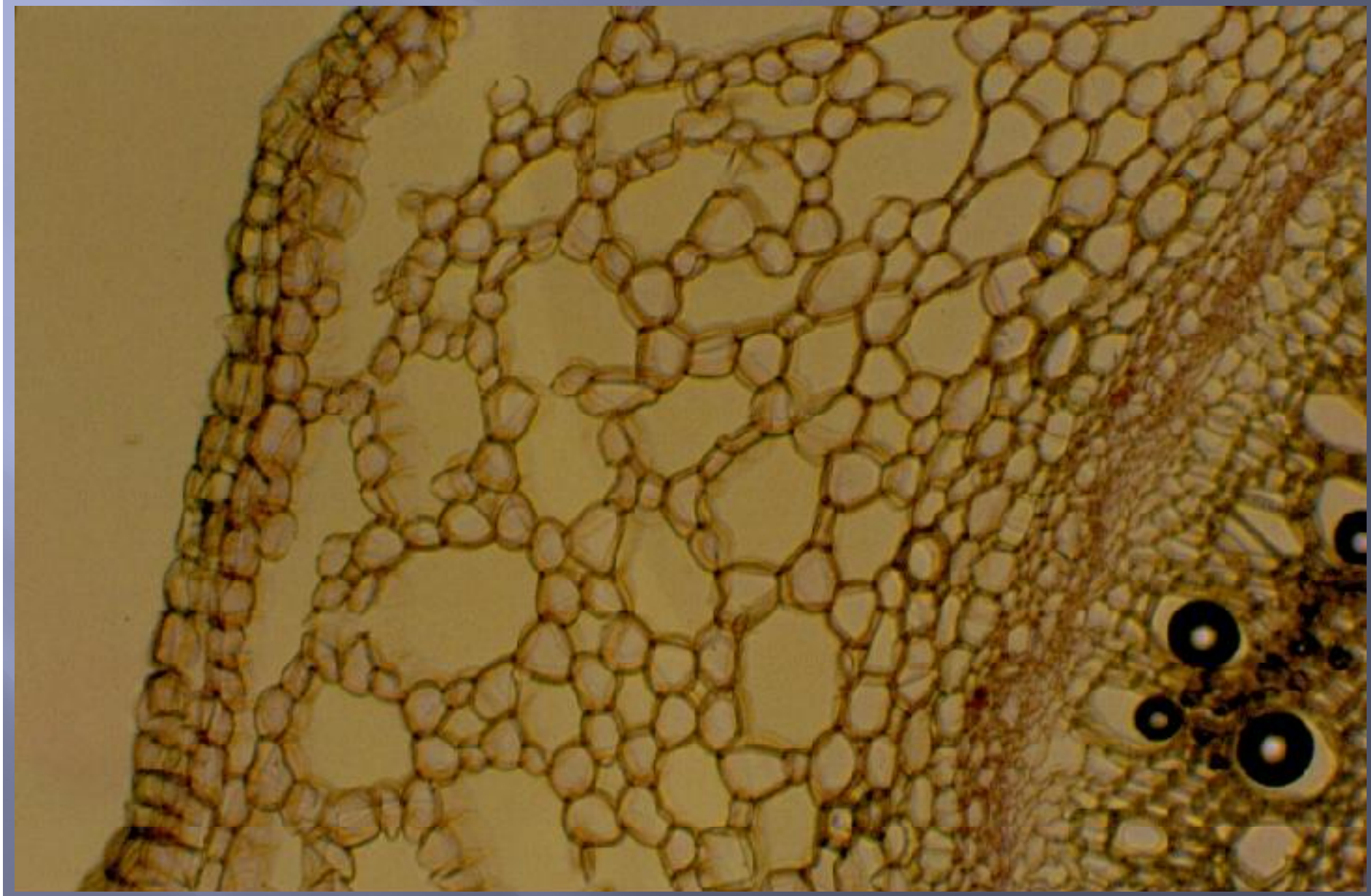
Nelumbonaceae

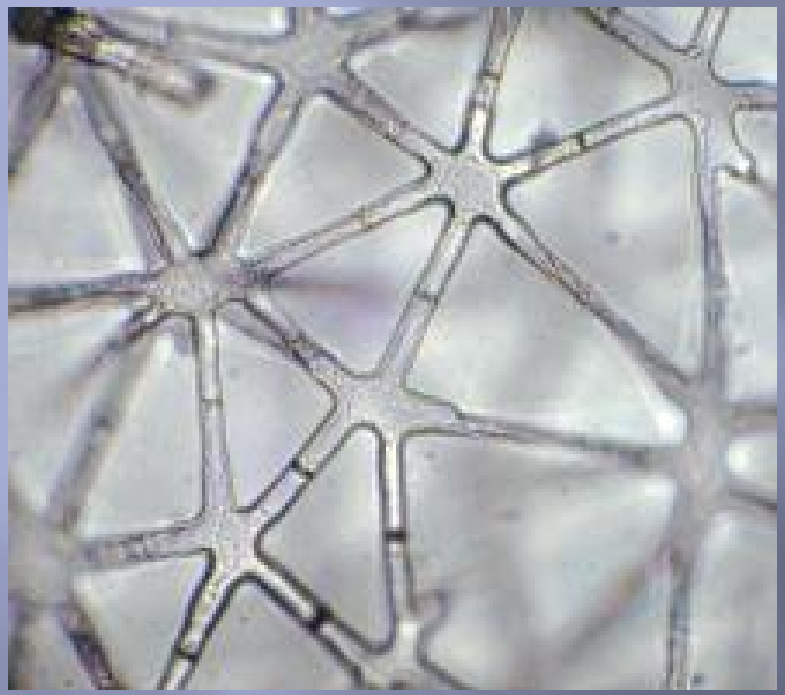
Nelumbo nucifera لاله مردابی -باقلای مردابی

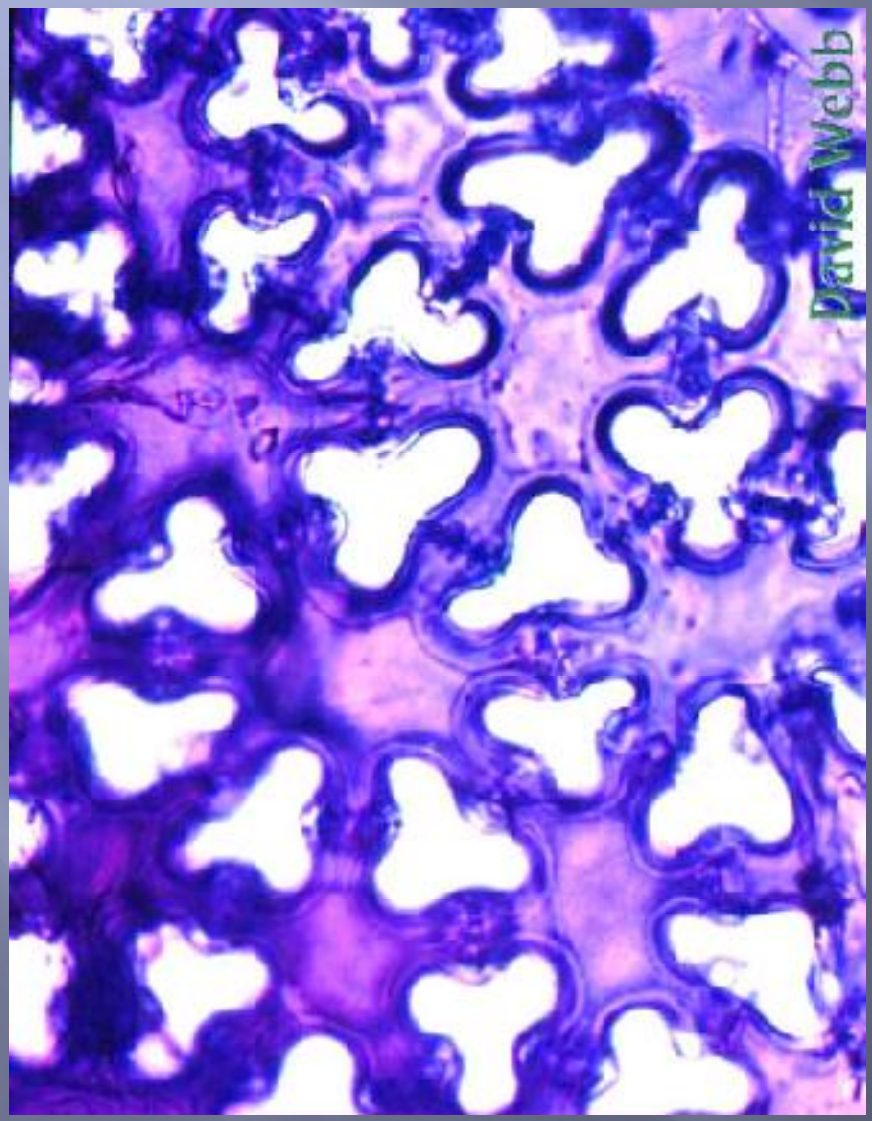
Nymphaceae

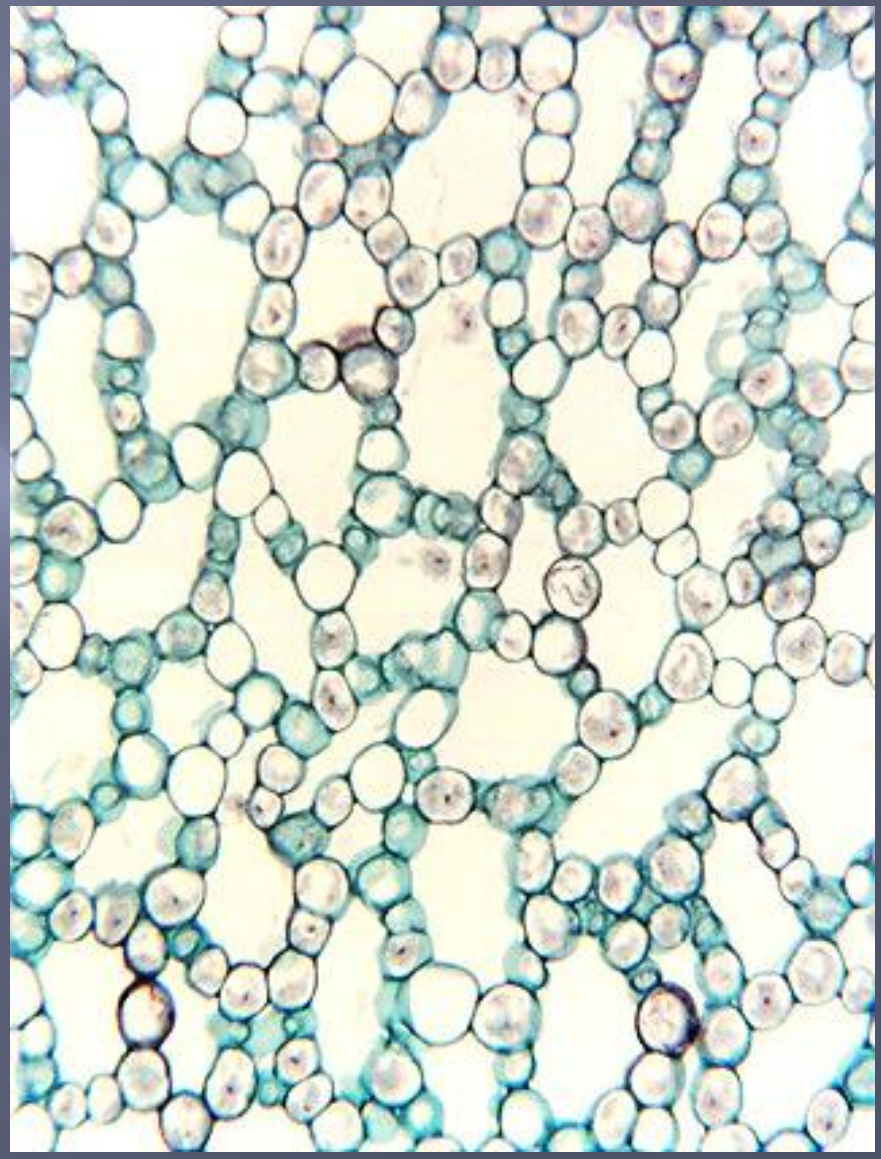
Nymphaea alba

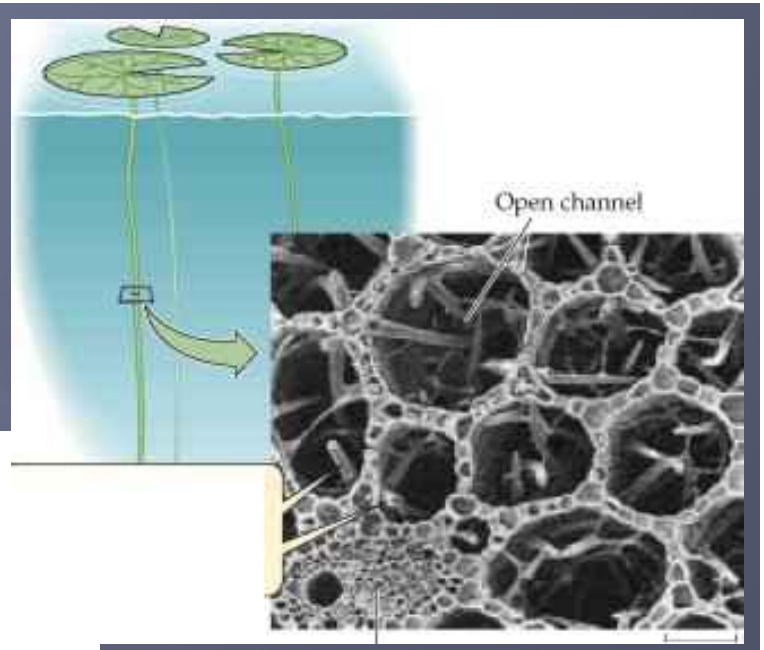


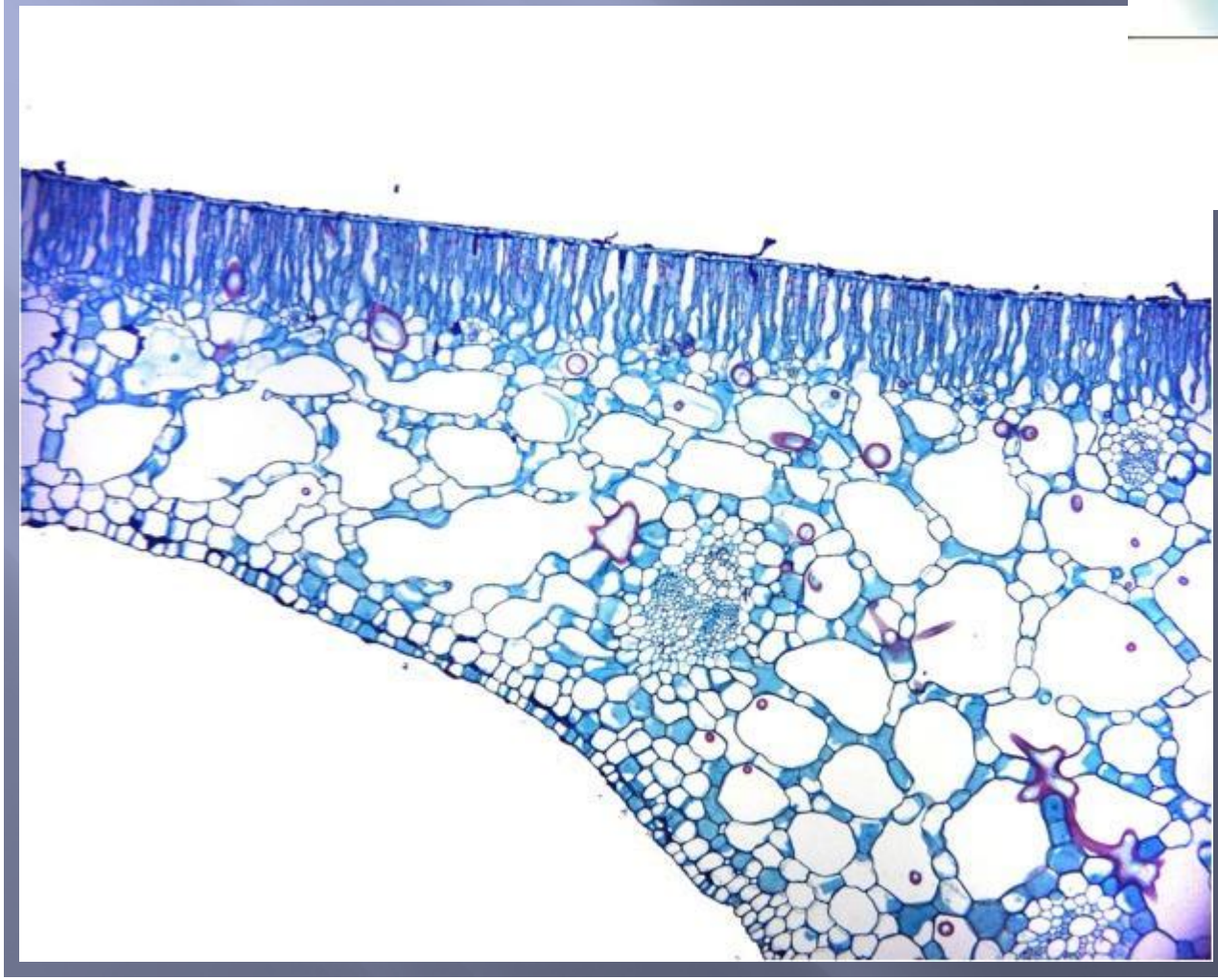




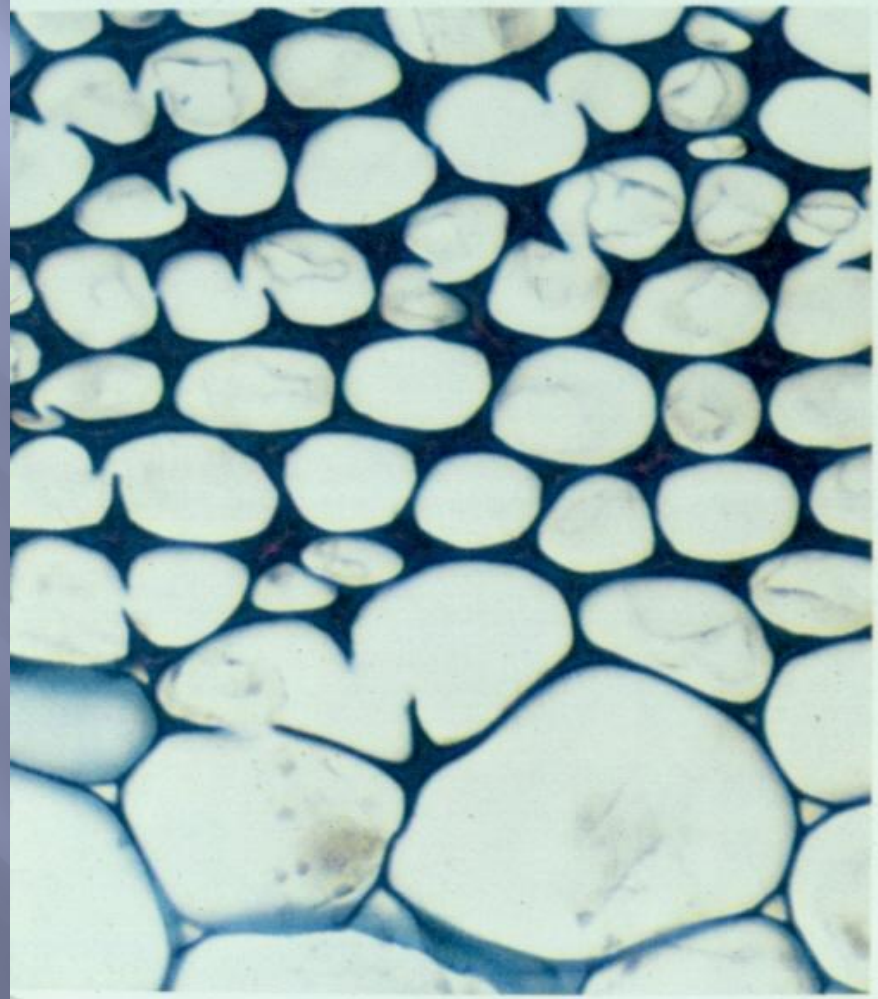

David Webb

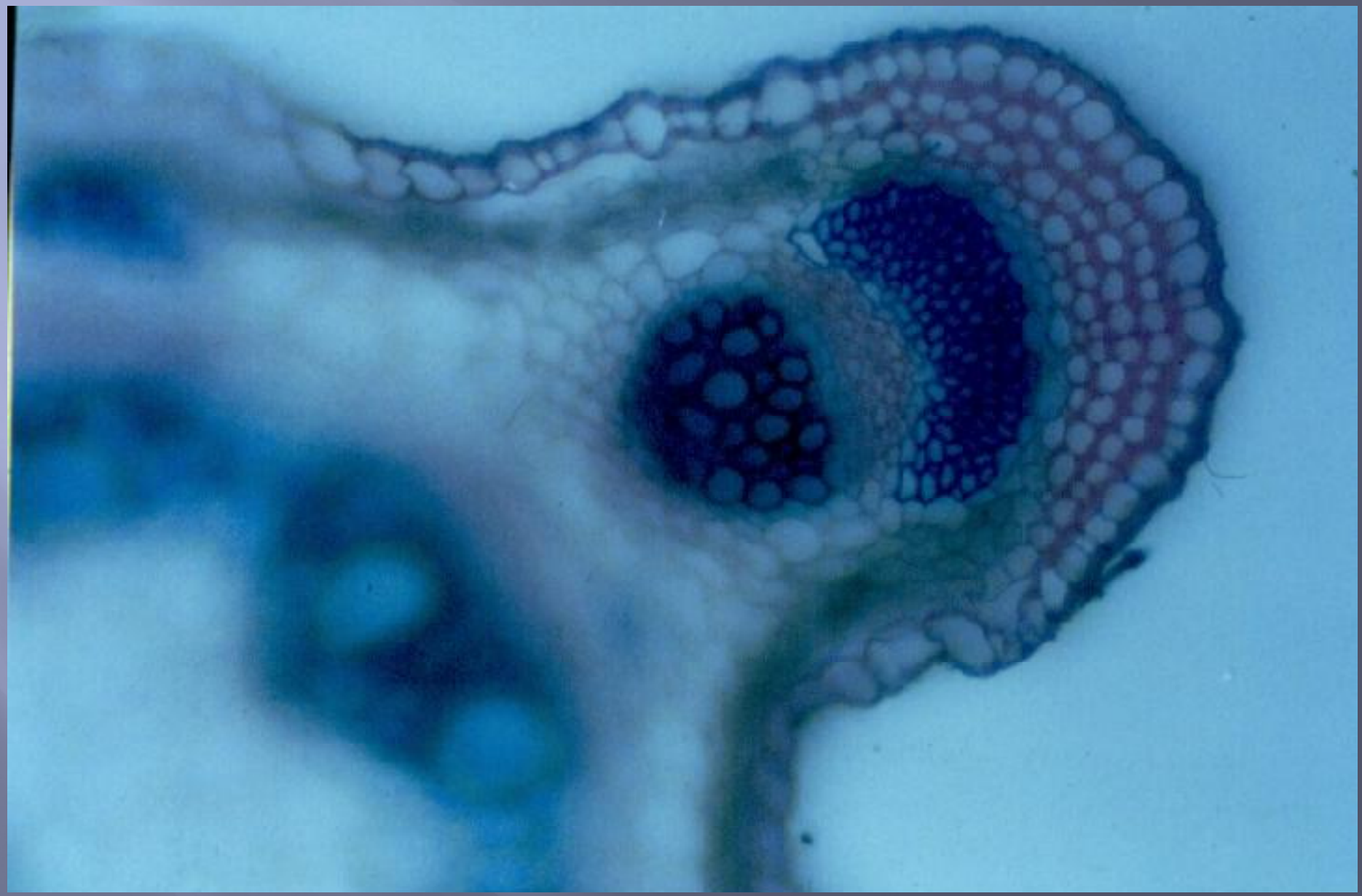


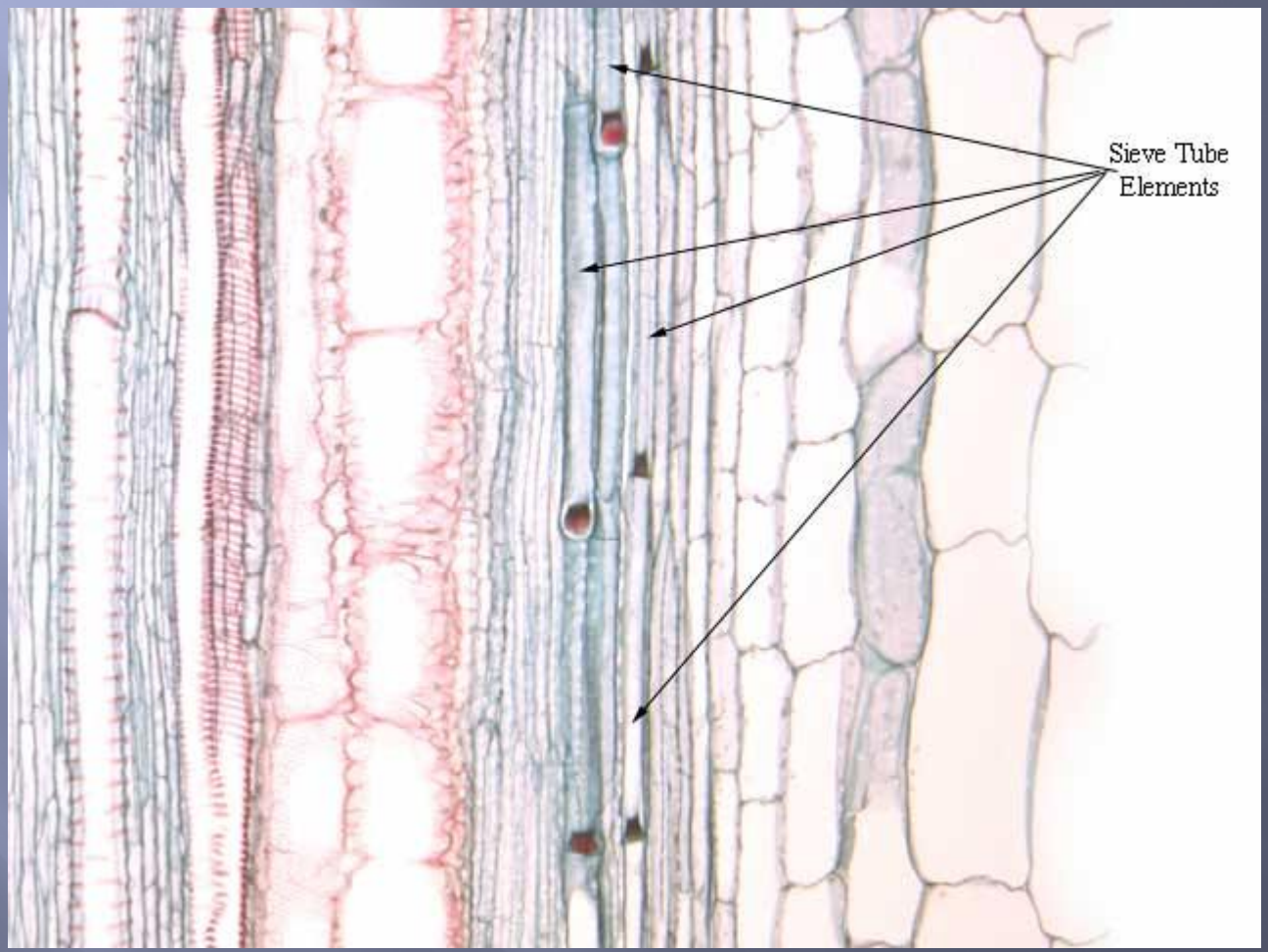

Open channel

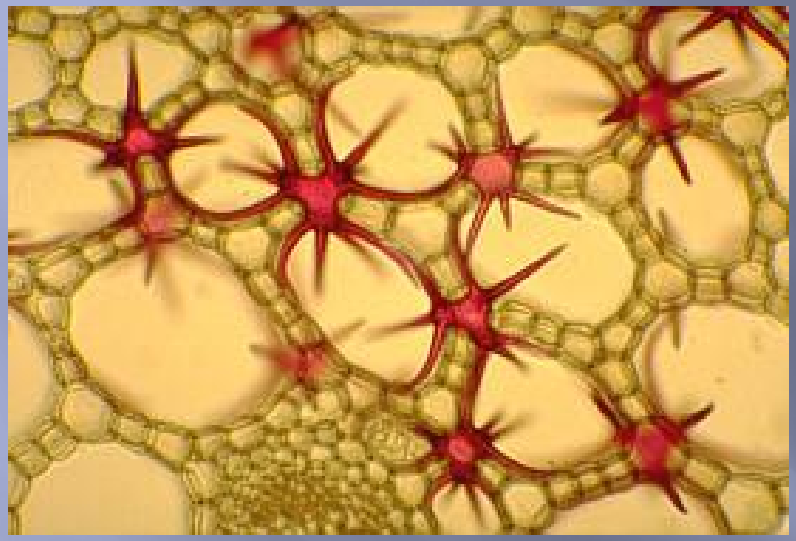


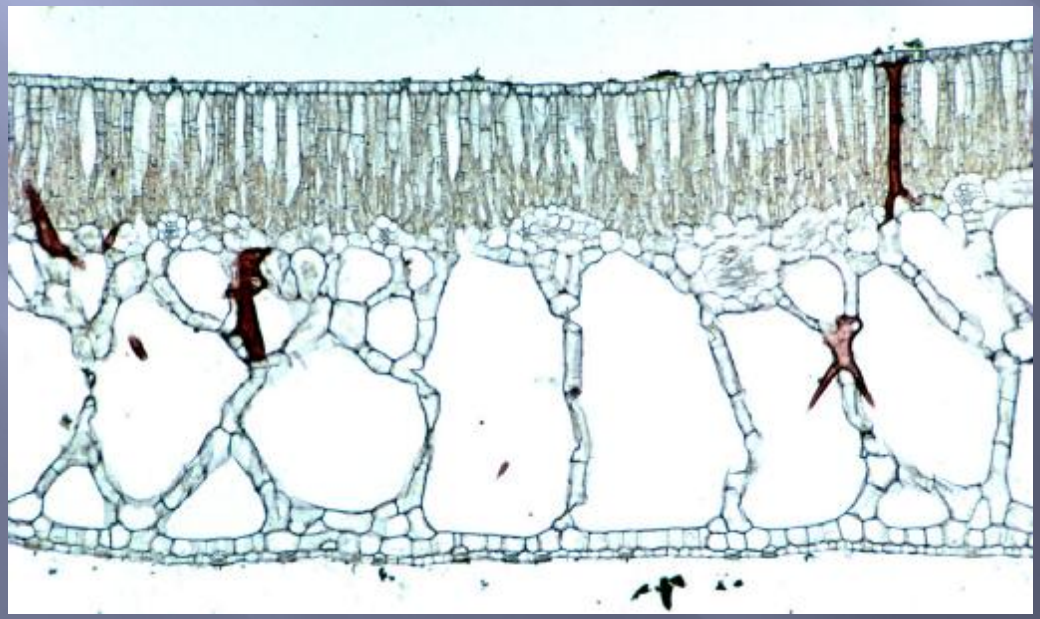
URE 4.4 Collenchyma cells in cross section. Note the venly thickened walls. (Photomicrograph by G. S. Ellmore)

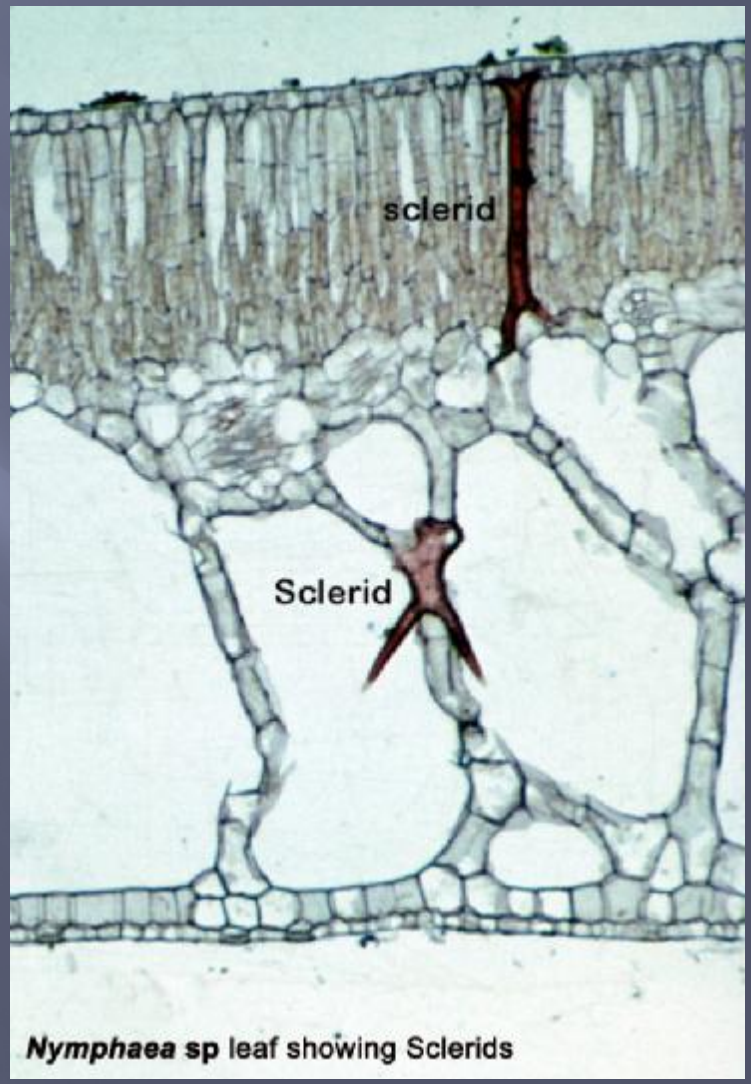


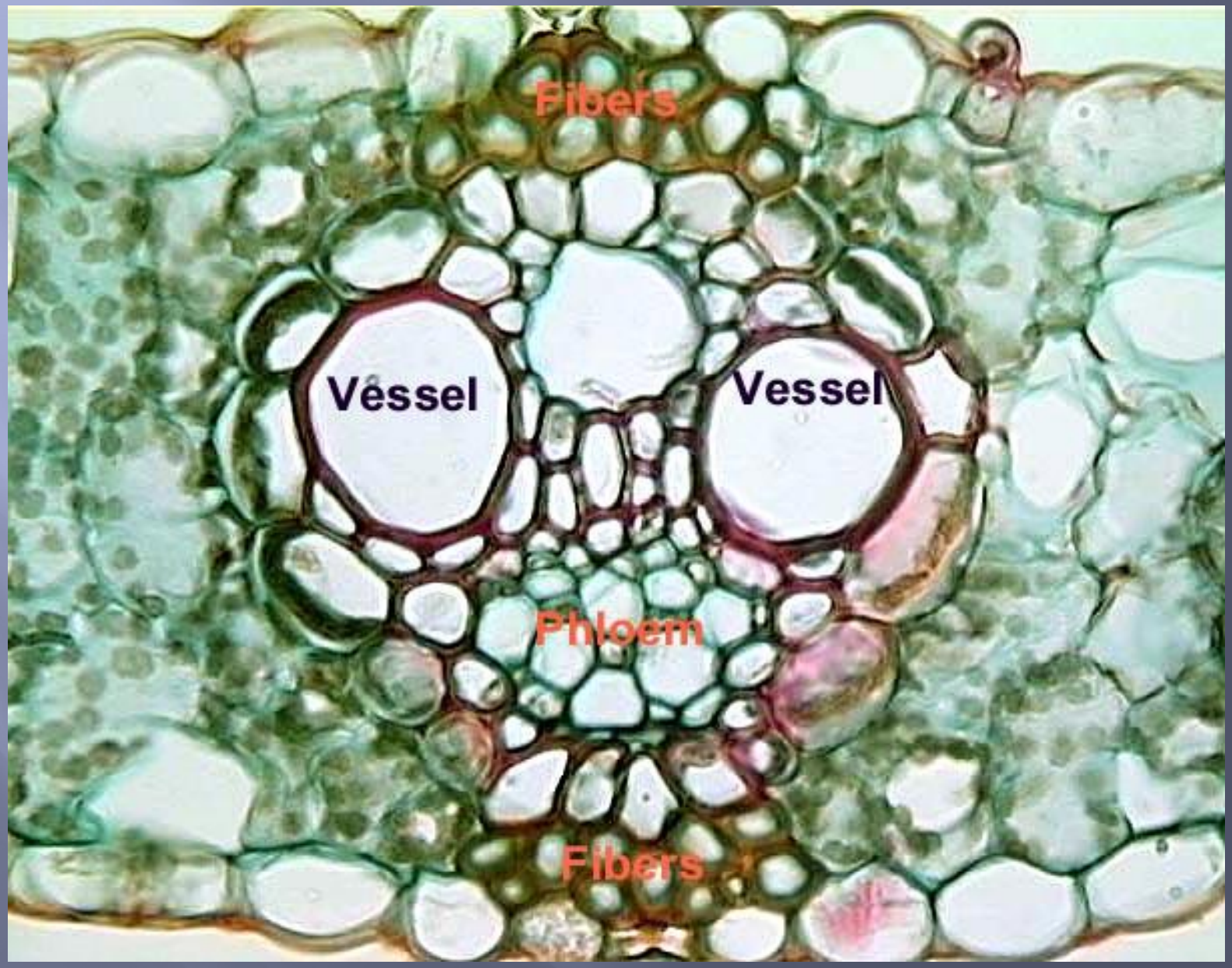


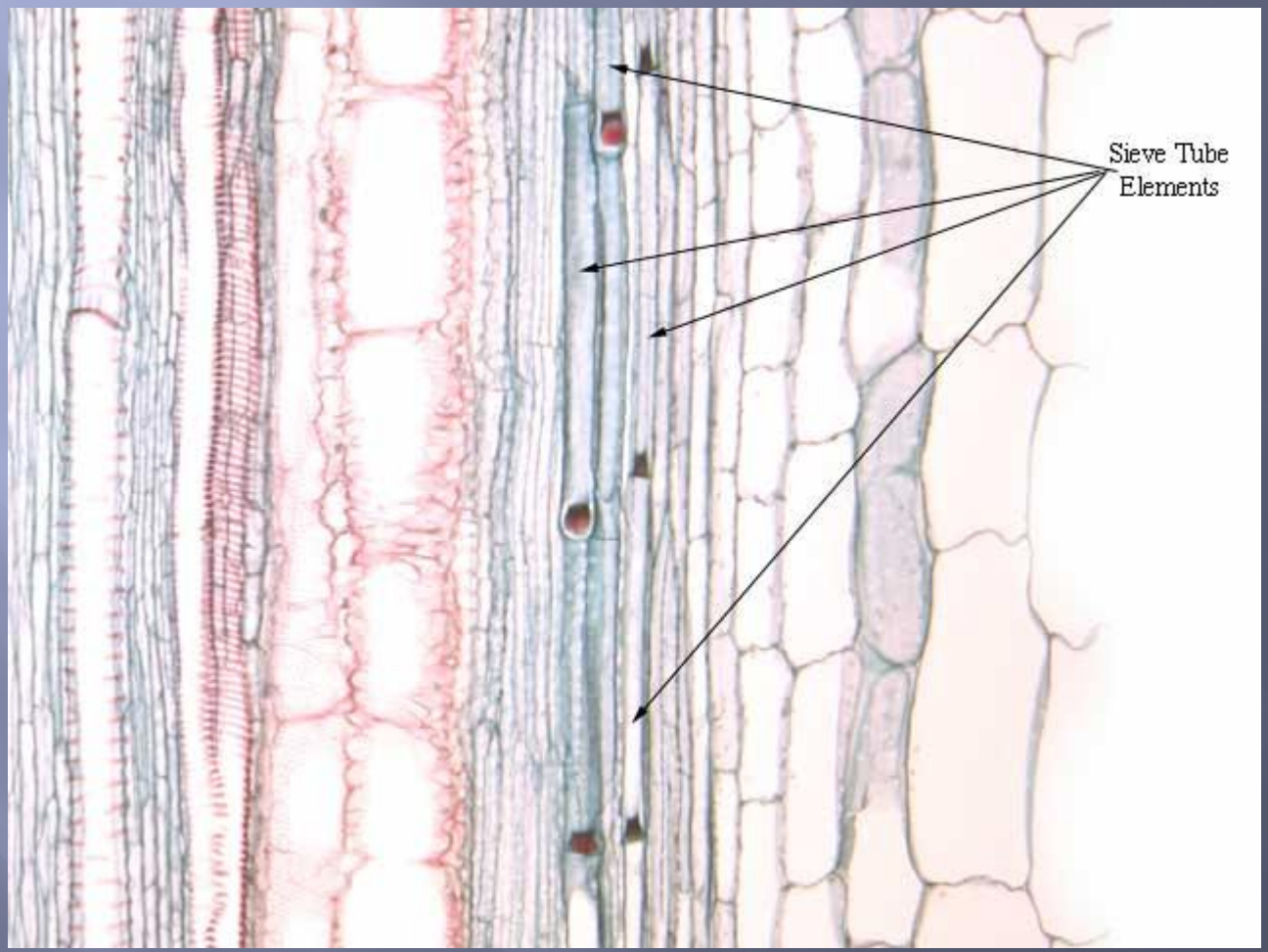

Sieve Tube
Elements



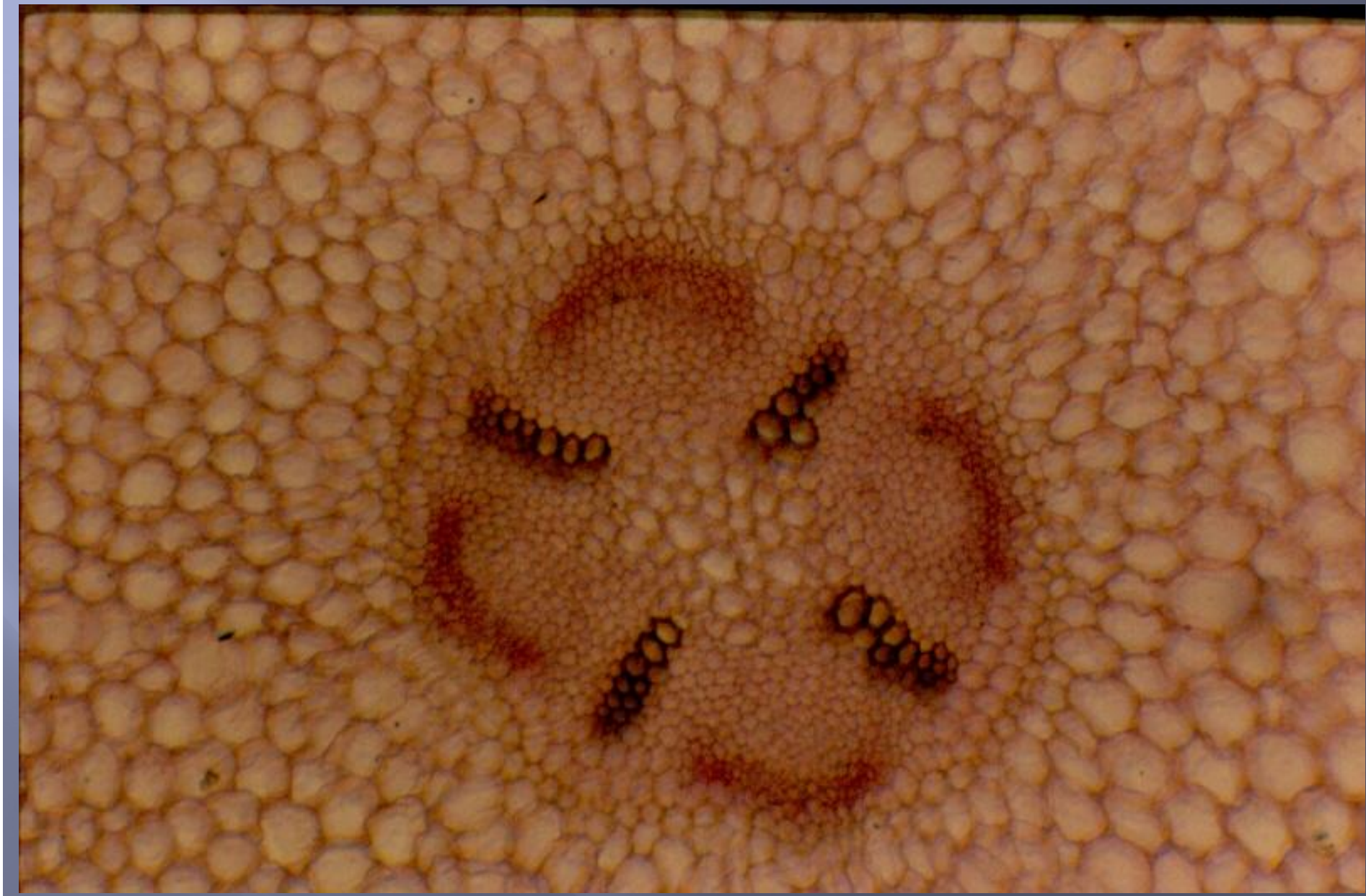



sclerid
Sclerid
Nymphaea **sp** leaf showing Sclerids


Fibers
Vessel
Vessel
Phloem
Fibers


Sieve Tube
Elements

region of maturation
region of elongation
apical meristem (region of cell division)
root cap
A
protoderm
ground meristem
procambium
apical meristem (region of cell division)
root cap
B



S. Ellmore)

A cross section through the region of maturation

FIGURE 6.6 A cross section through a willow (*Salix*—a dicot) root showing the origin of a lateral (branch) root.
(Photomicrograph by D. S. Ellmore)

FIGURE 6.8 A manroot water-storage root weighing over 25.3 kilograms (60 pounds). (Courtesy Robert A. Schlising)

longitudinal section through part of the root
mycorrhizal roots
normal roots
B.
hyphae
cortex of root
mycorrhizal sheath
epidermis
A.

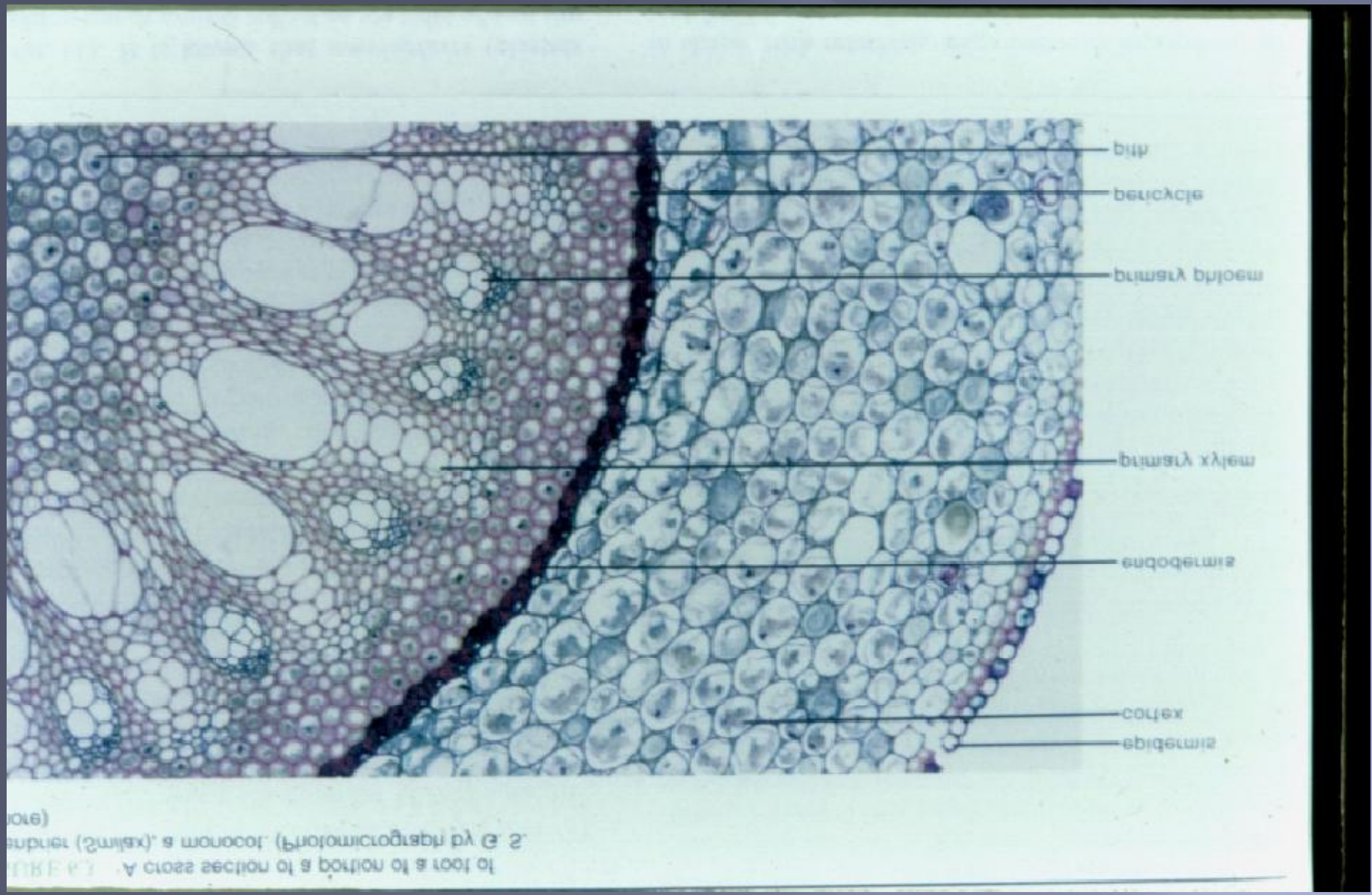
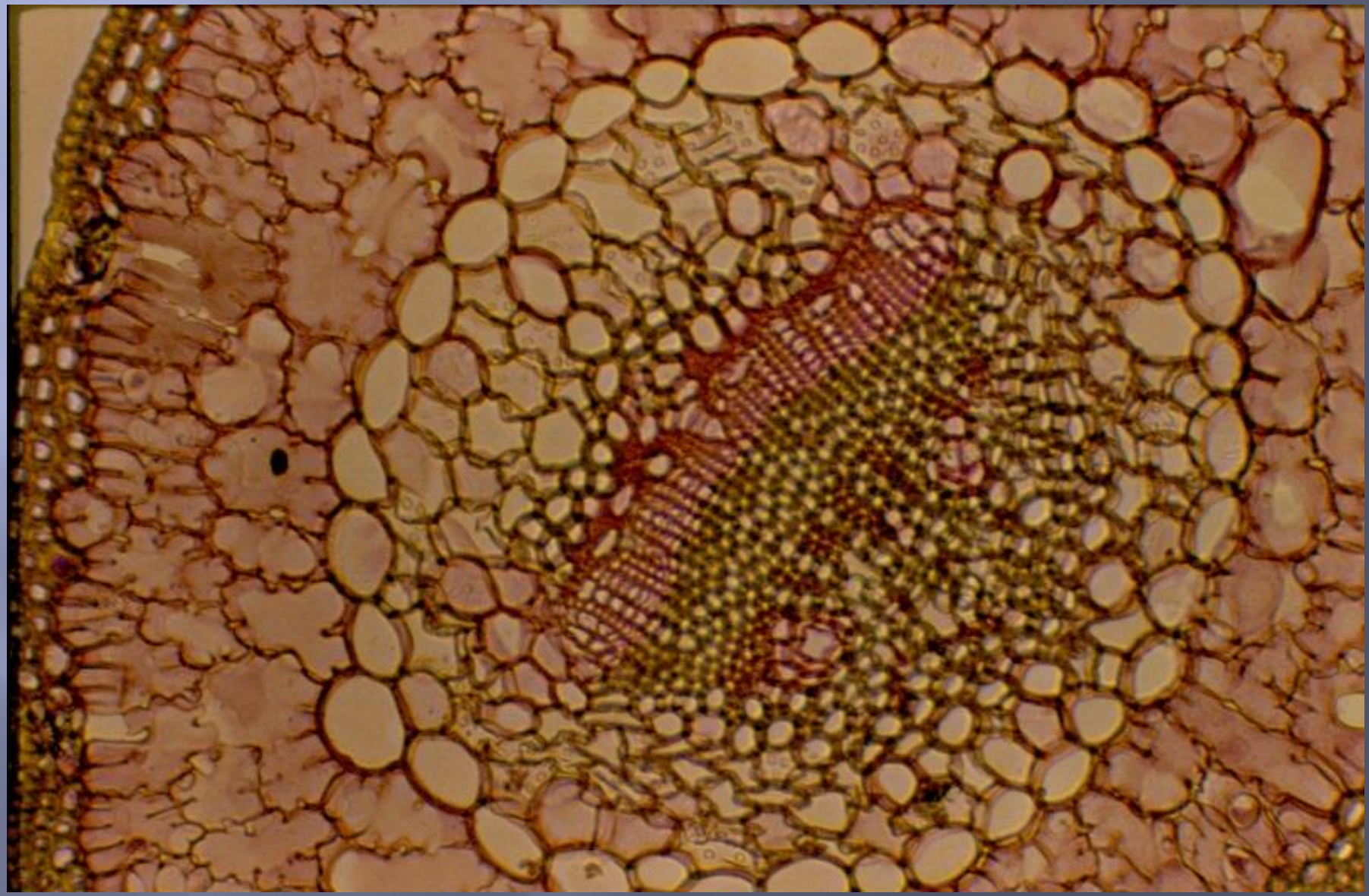

pith
pericycle
primary phloem
primary xylem
endodermis
cortex
epidermis

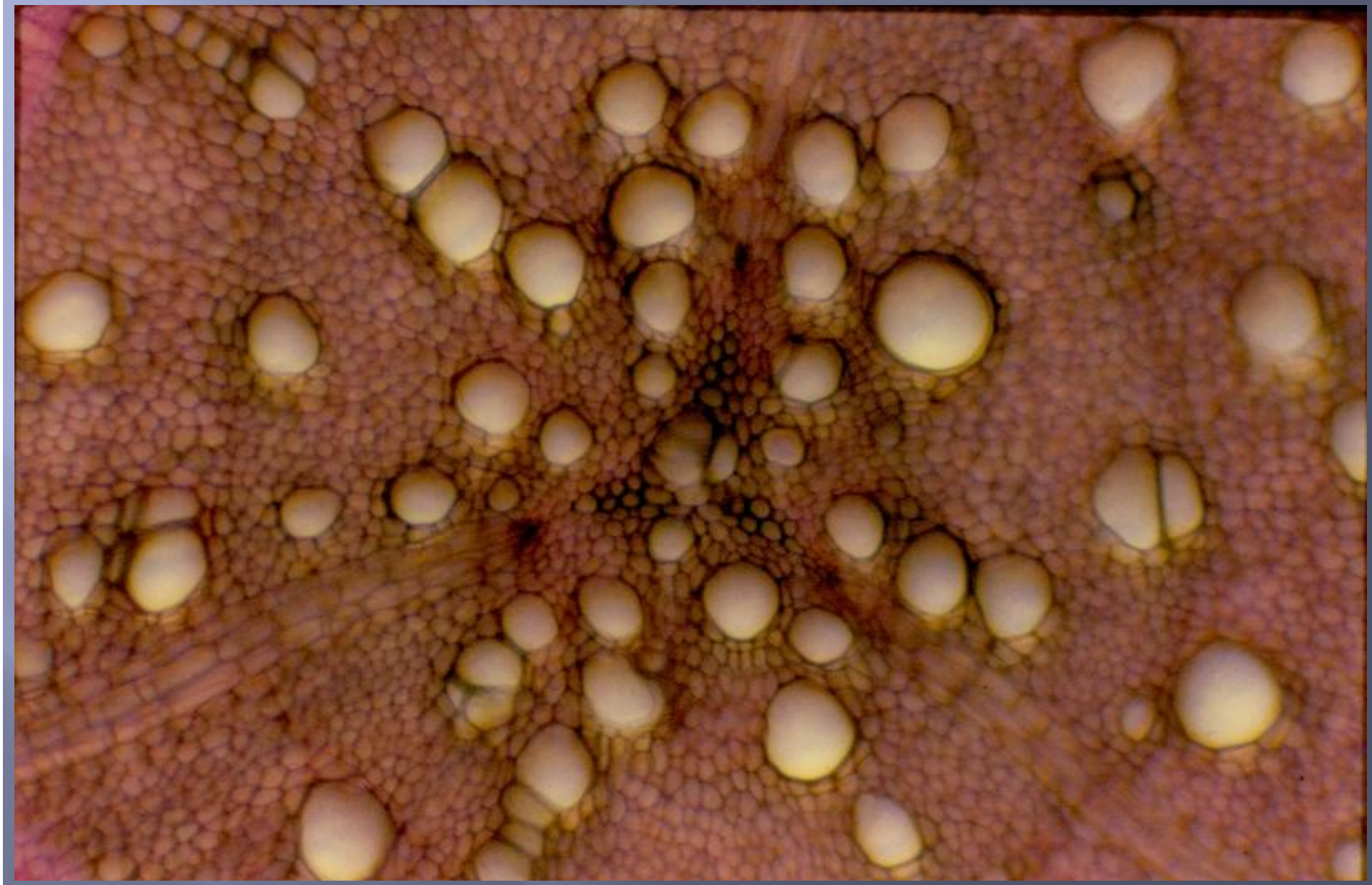
FIGURE 8.29 Corn. A. Grain structure. B. Germination and development of the seedling.

A
seed coat
plumule
hypocotyl-radicle axis
hilum
micropyle
cotyledon
B
first true leaves
cotyledon
hypocotyl
seed coat
epicotyl
withered cotyledons
hypocotyl
primary root
secondary root
hypocotyl
seed coat
primary root

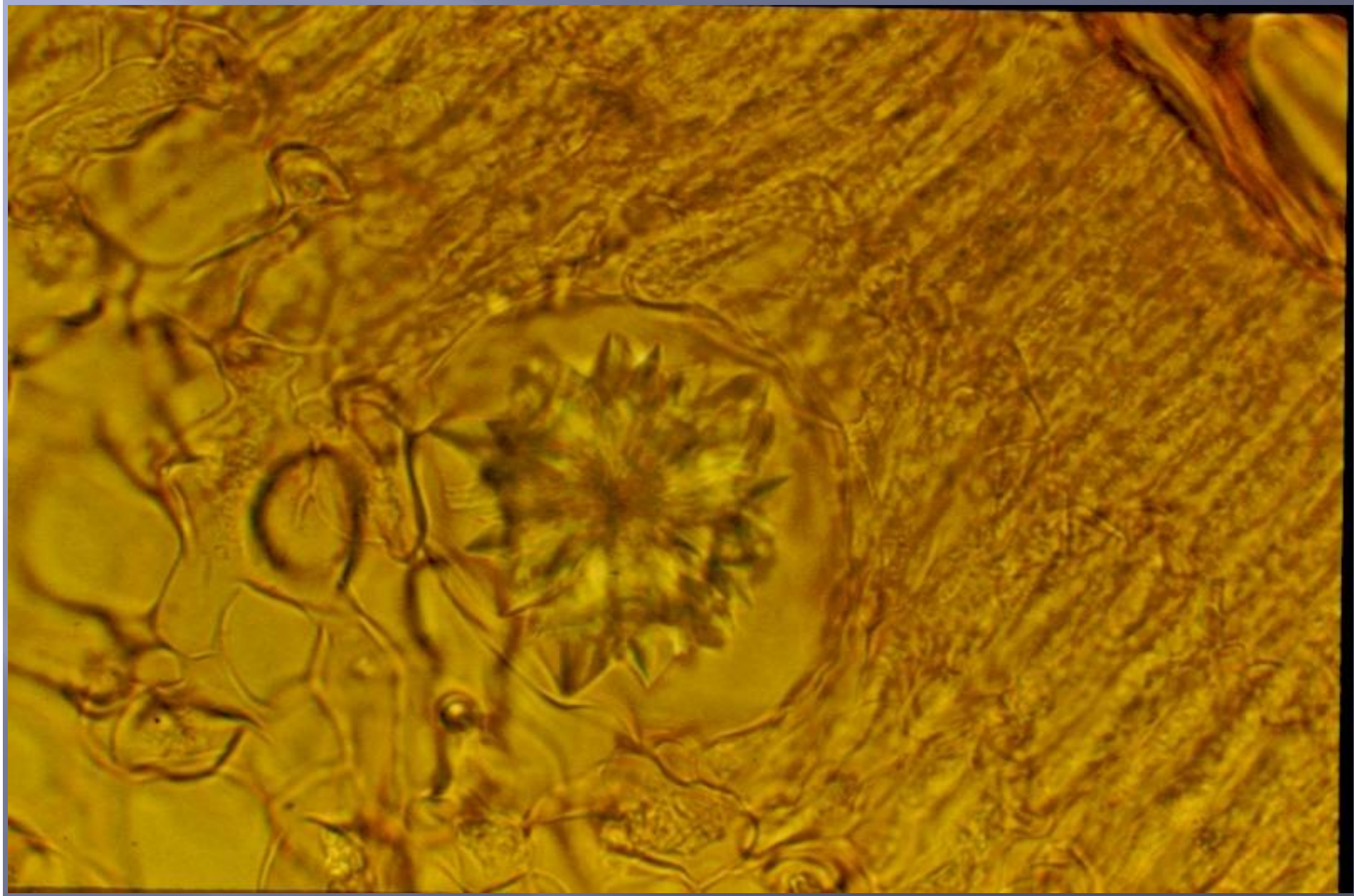


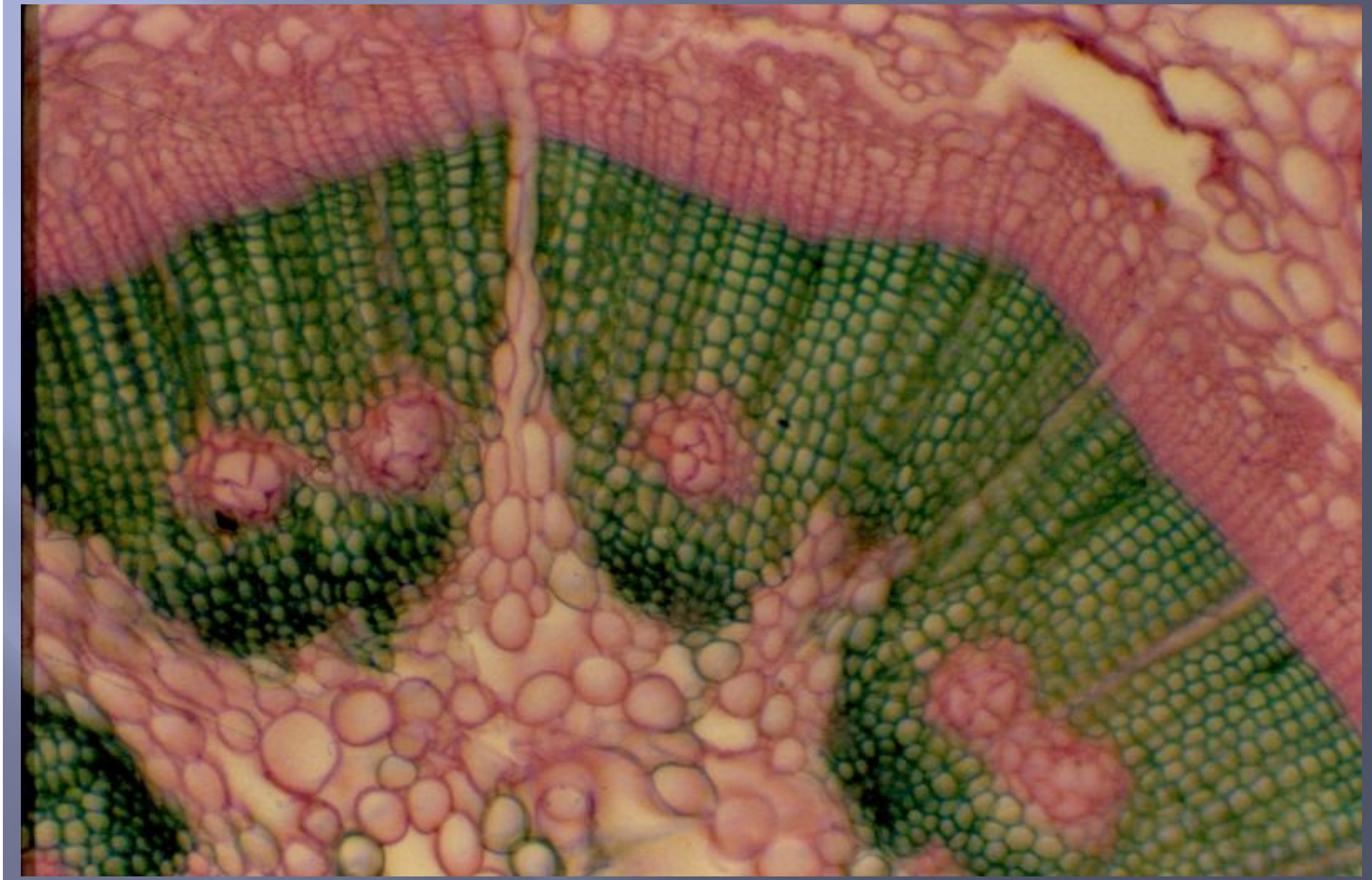
epidermis
hypodermis
sunken stoma
endodermis
phloem
xylem
transfusion tis
mesophyll
resin canal

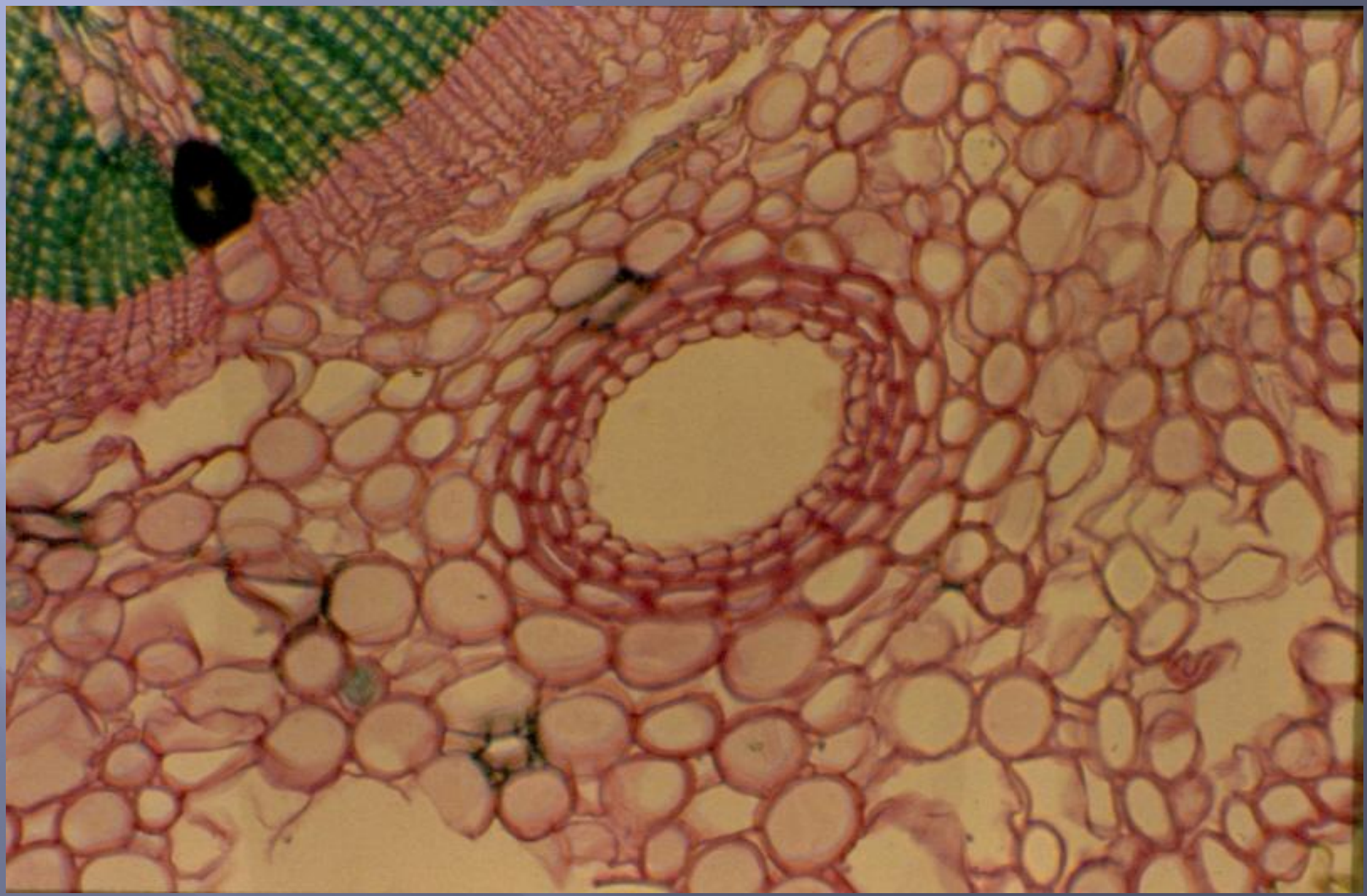
mangroves rising above the sand at low tide. The pneumatophores are spongy outgrowths from the roots beneath the surface. Pneumatophores facilitate the exchange of oxygen and carbon dioxide for the roots, which grow in areas where little oxygen is otherwise available to them. (Courtesy Lani Stemmerman)

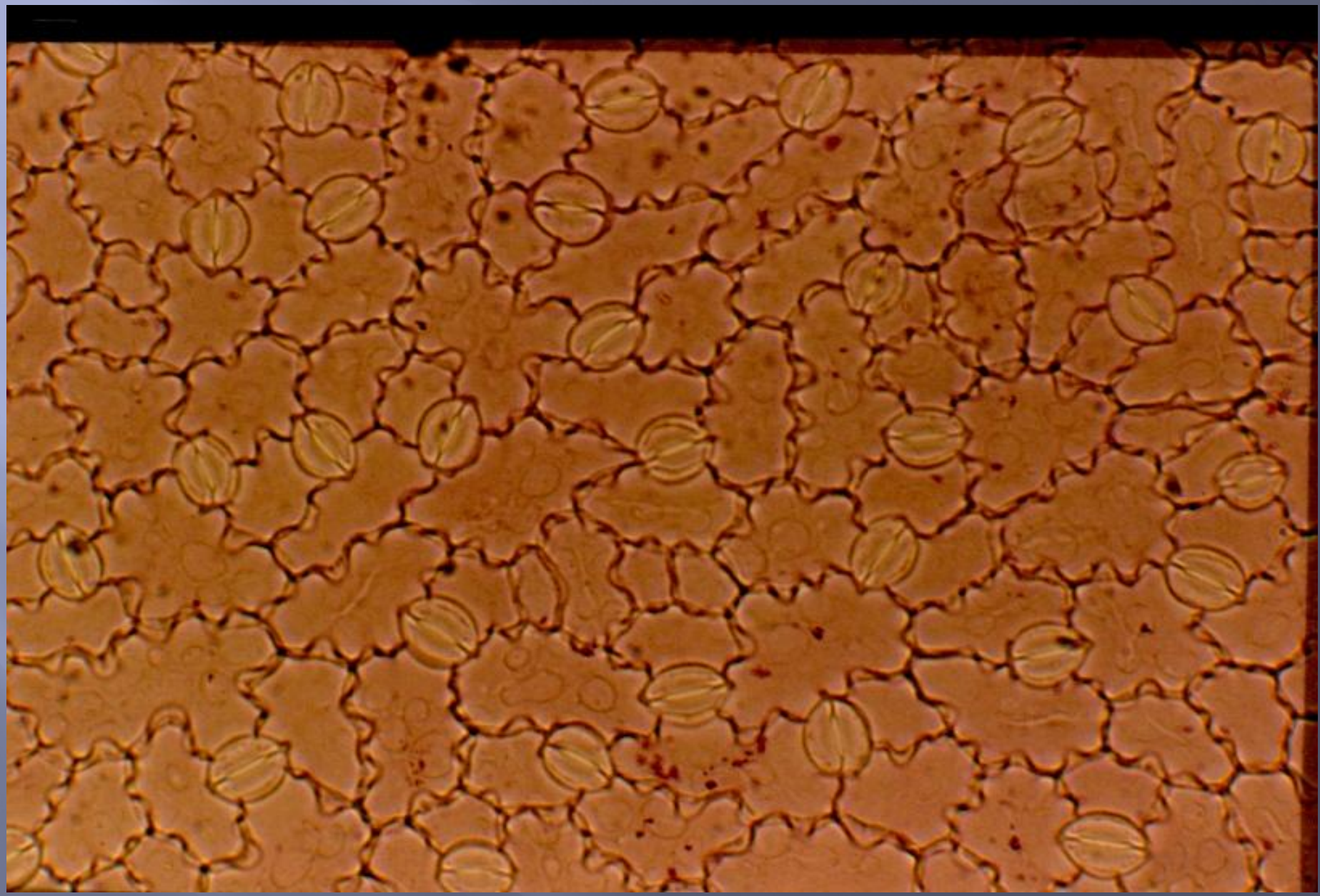


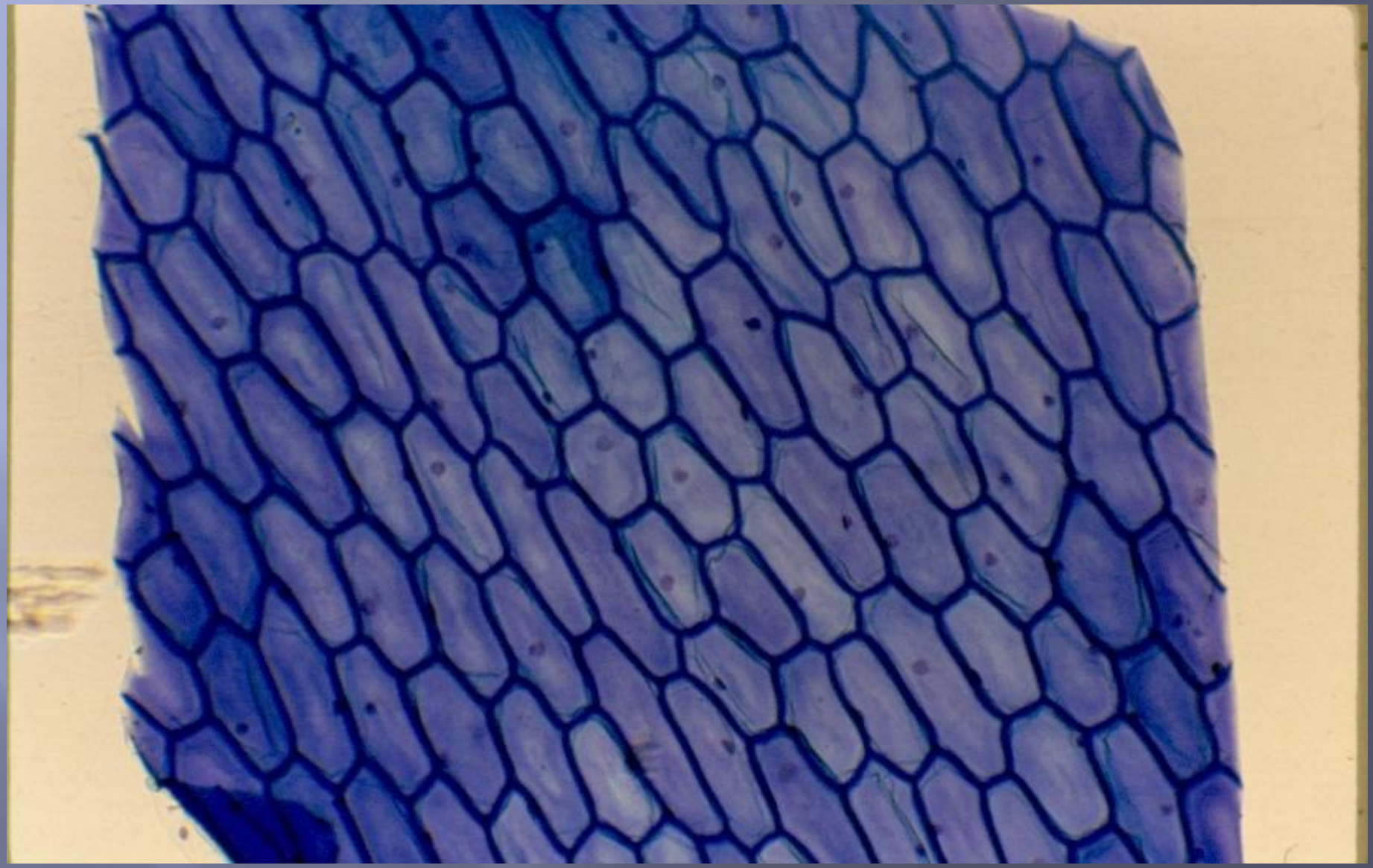
A longitudinal section through phloem of the stem of black locust. (Photomicrograph courtesy Wm. F. Derr)

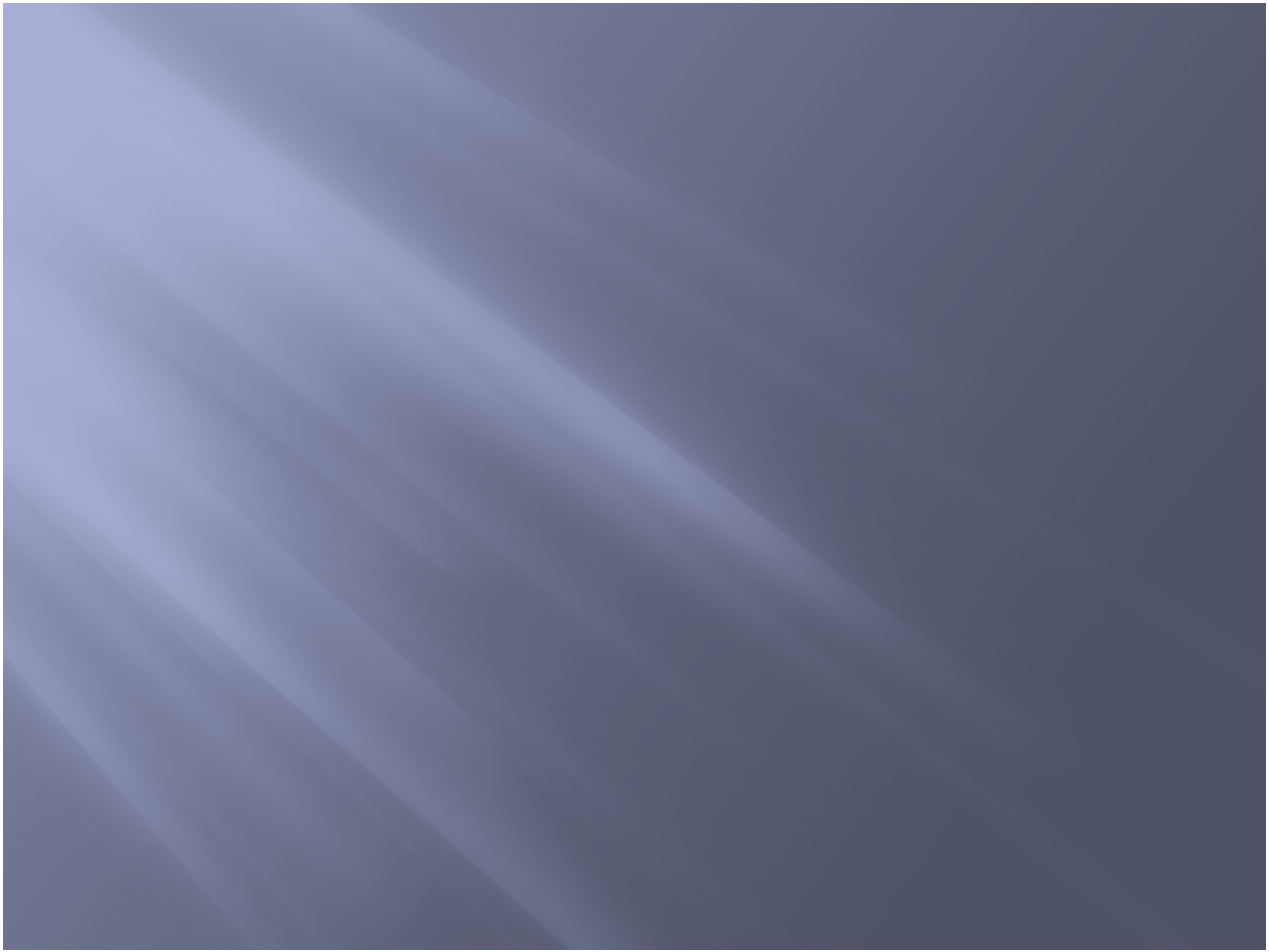






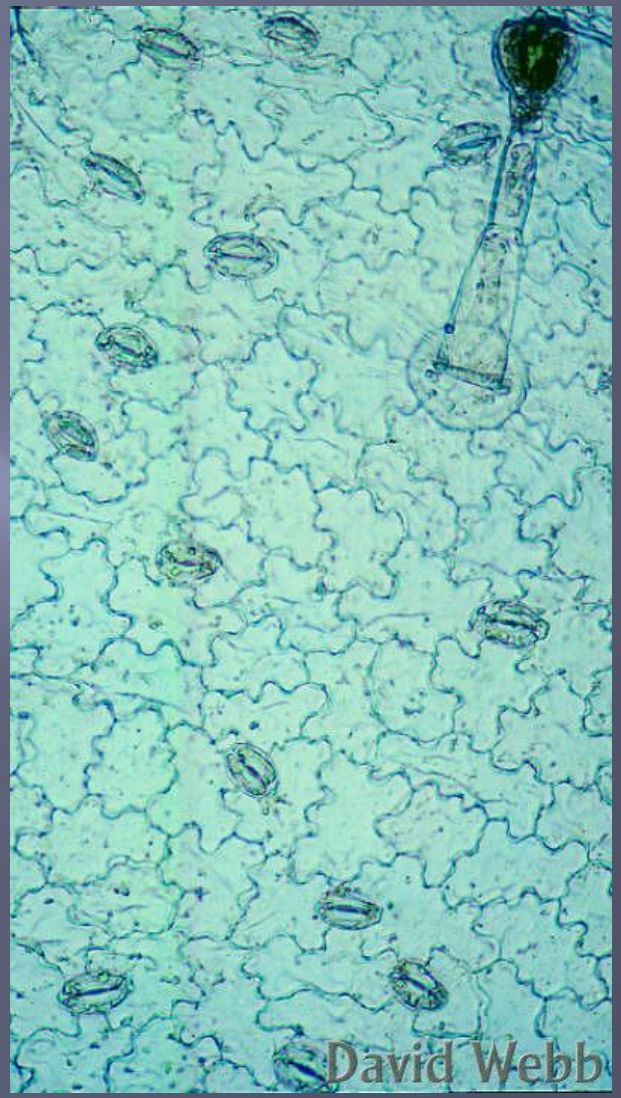


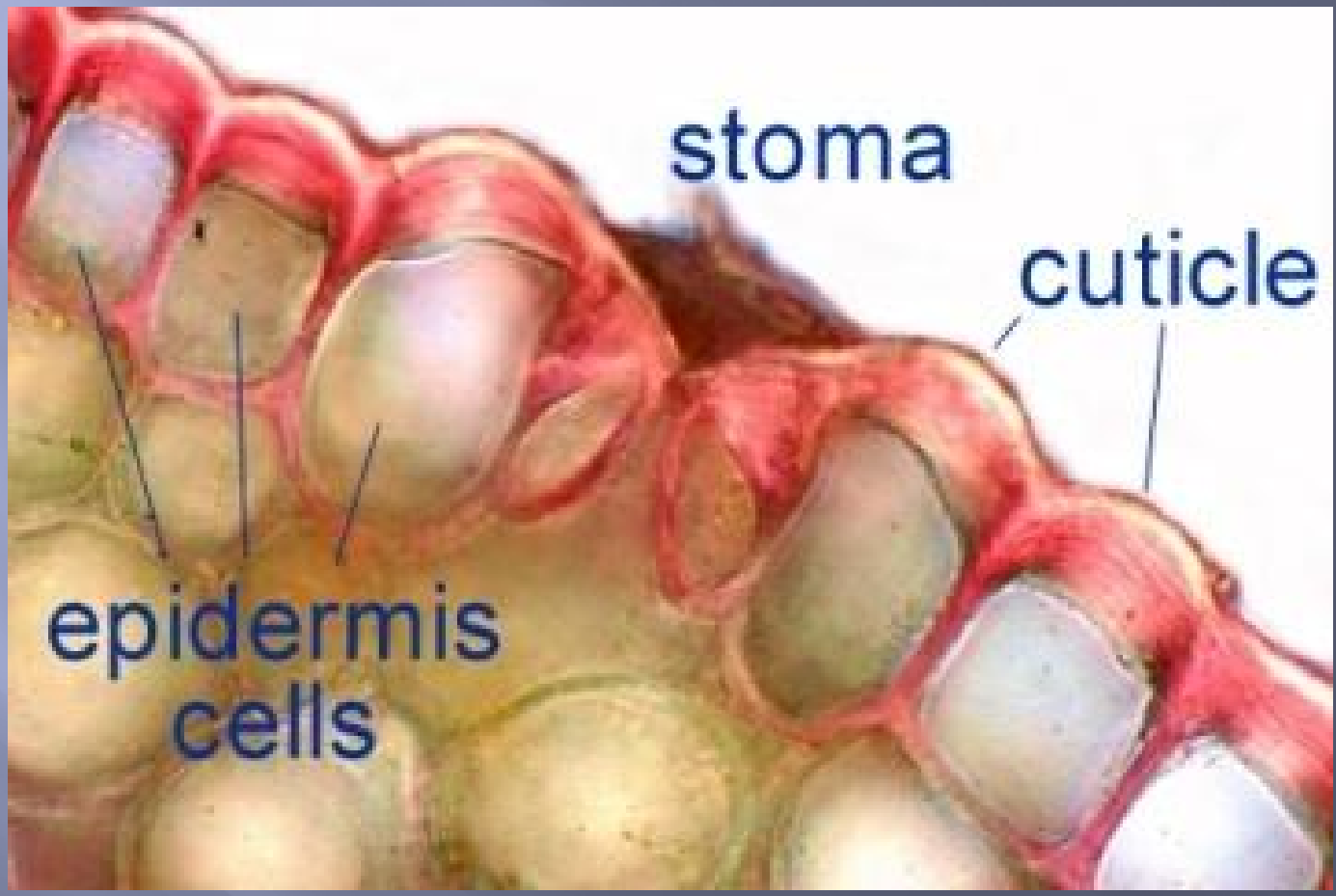




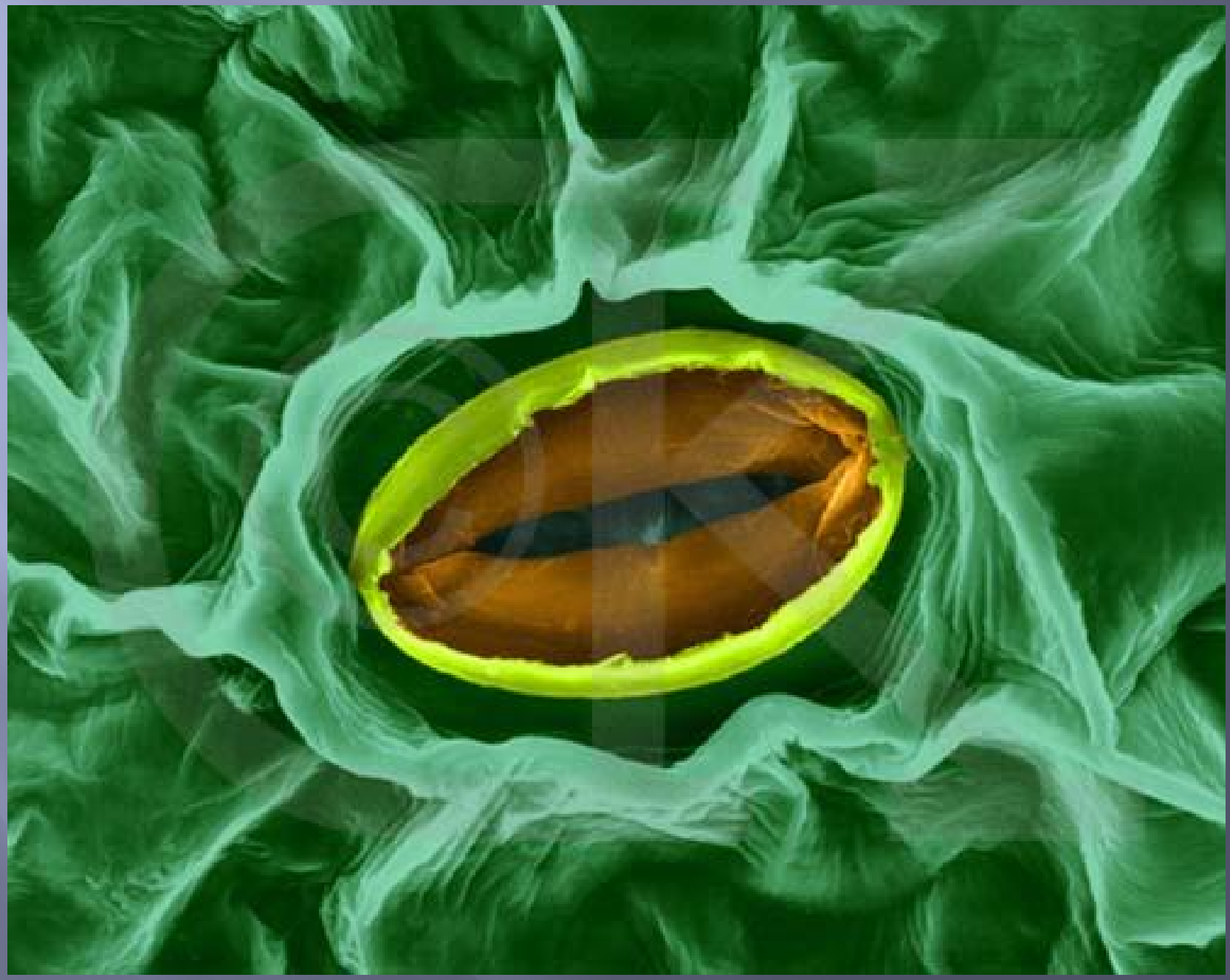
Multicellular Glandular Trichome (Coleus)

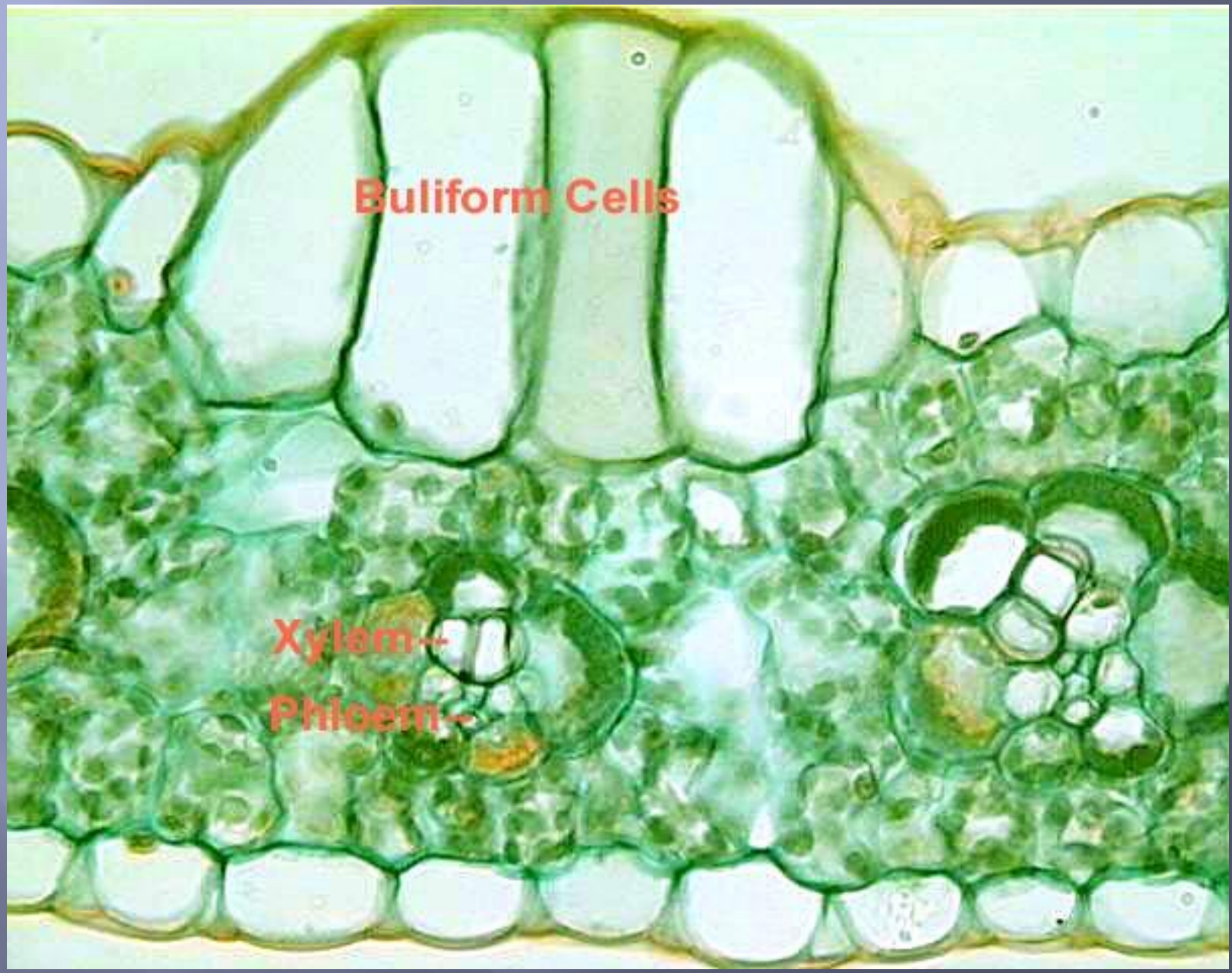
Unicellular Glandular Trichome (Urtica)

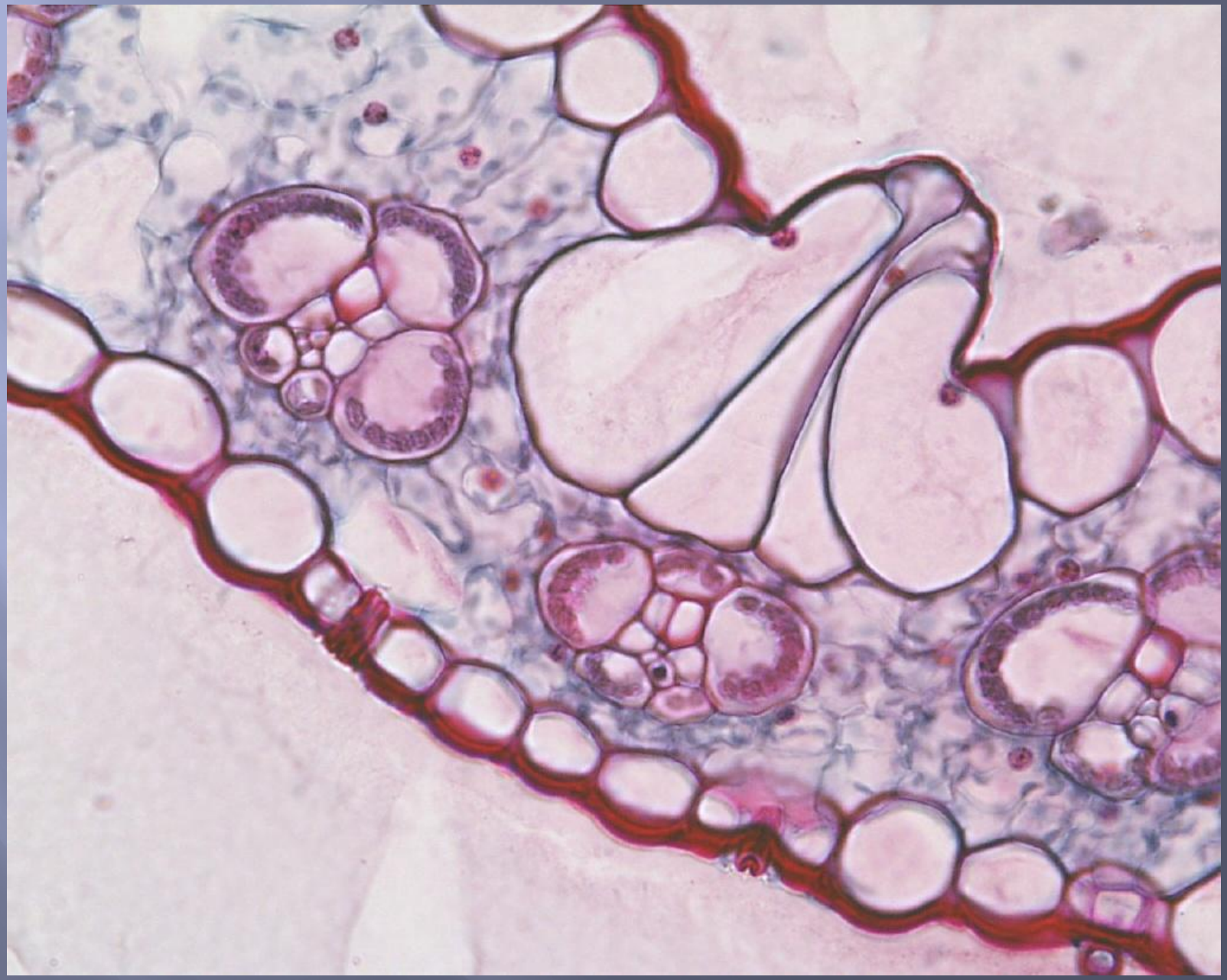

David Webb

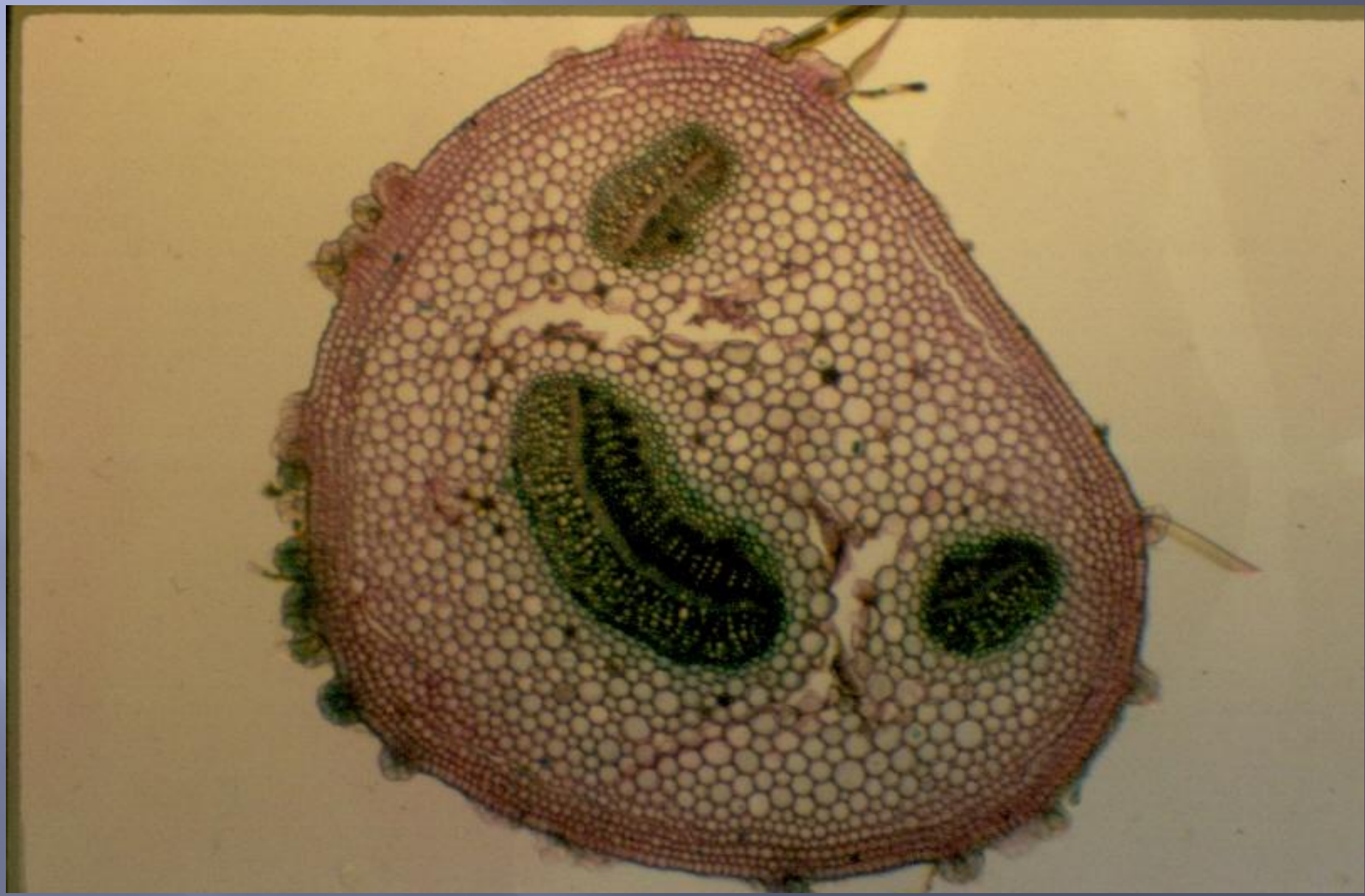

stoma
cuticle
epidermis
cells

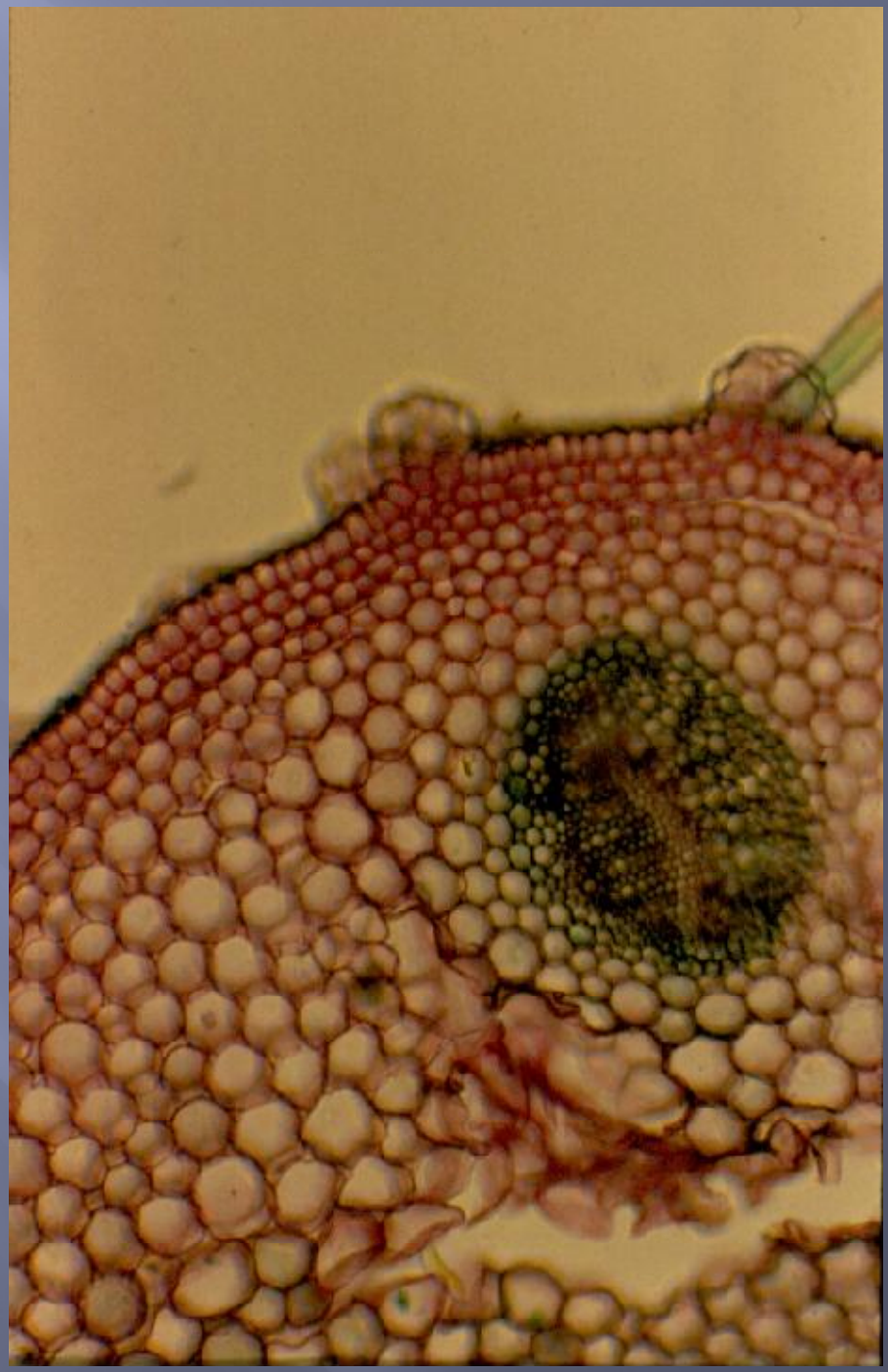

20 µm

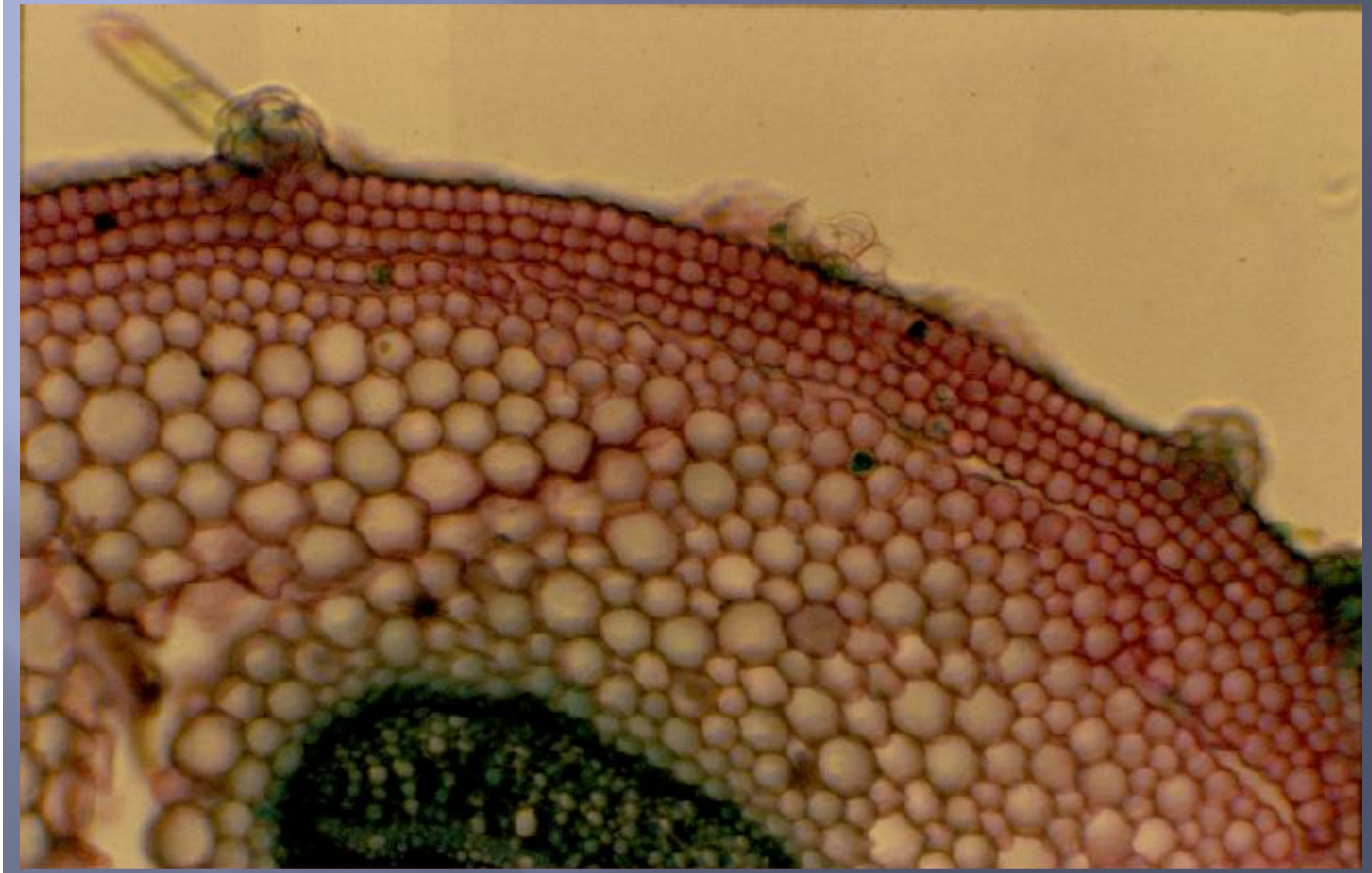


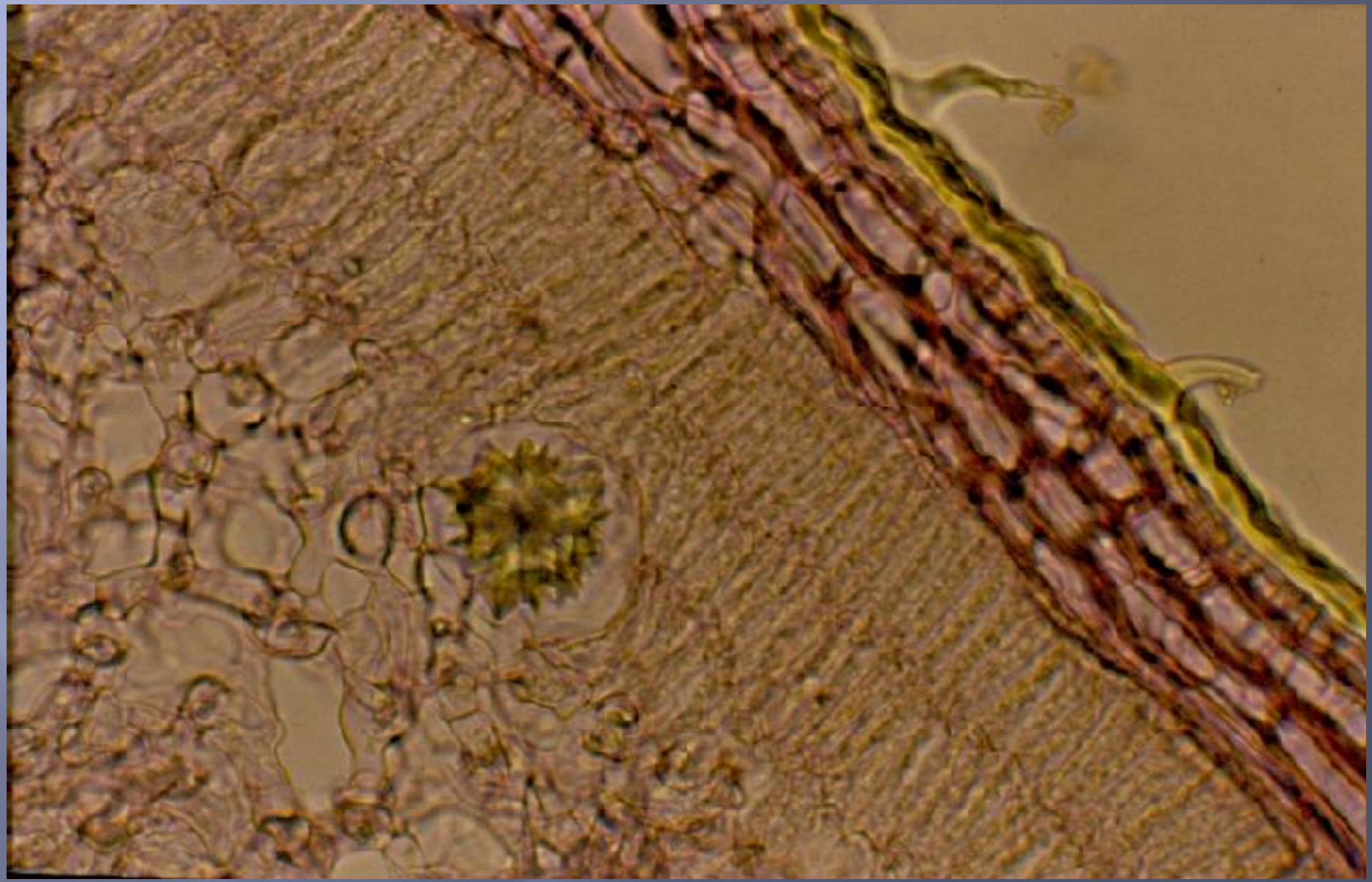

Buliform Cells
Xylem
Phloem

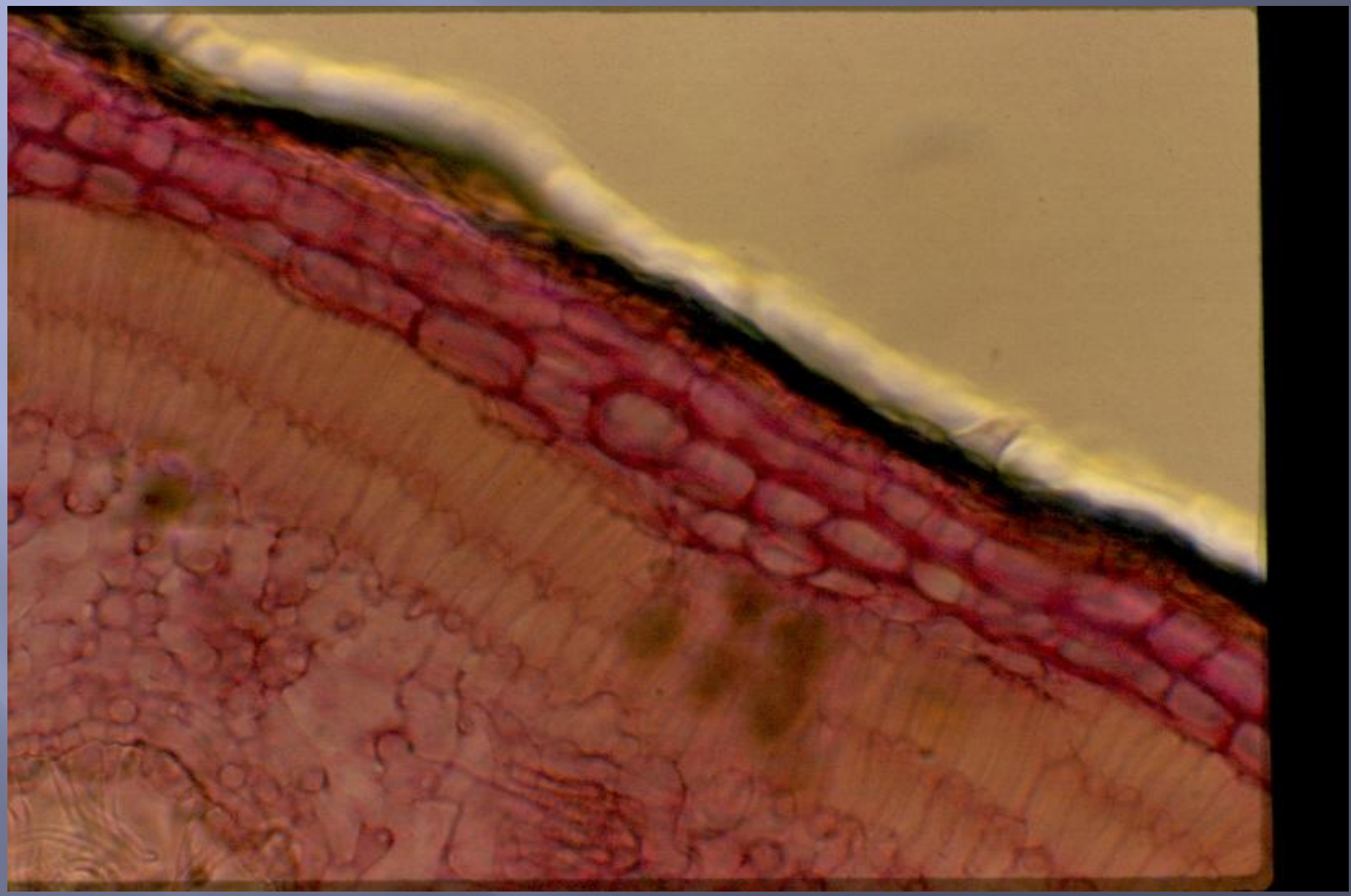


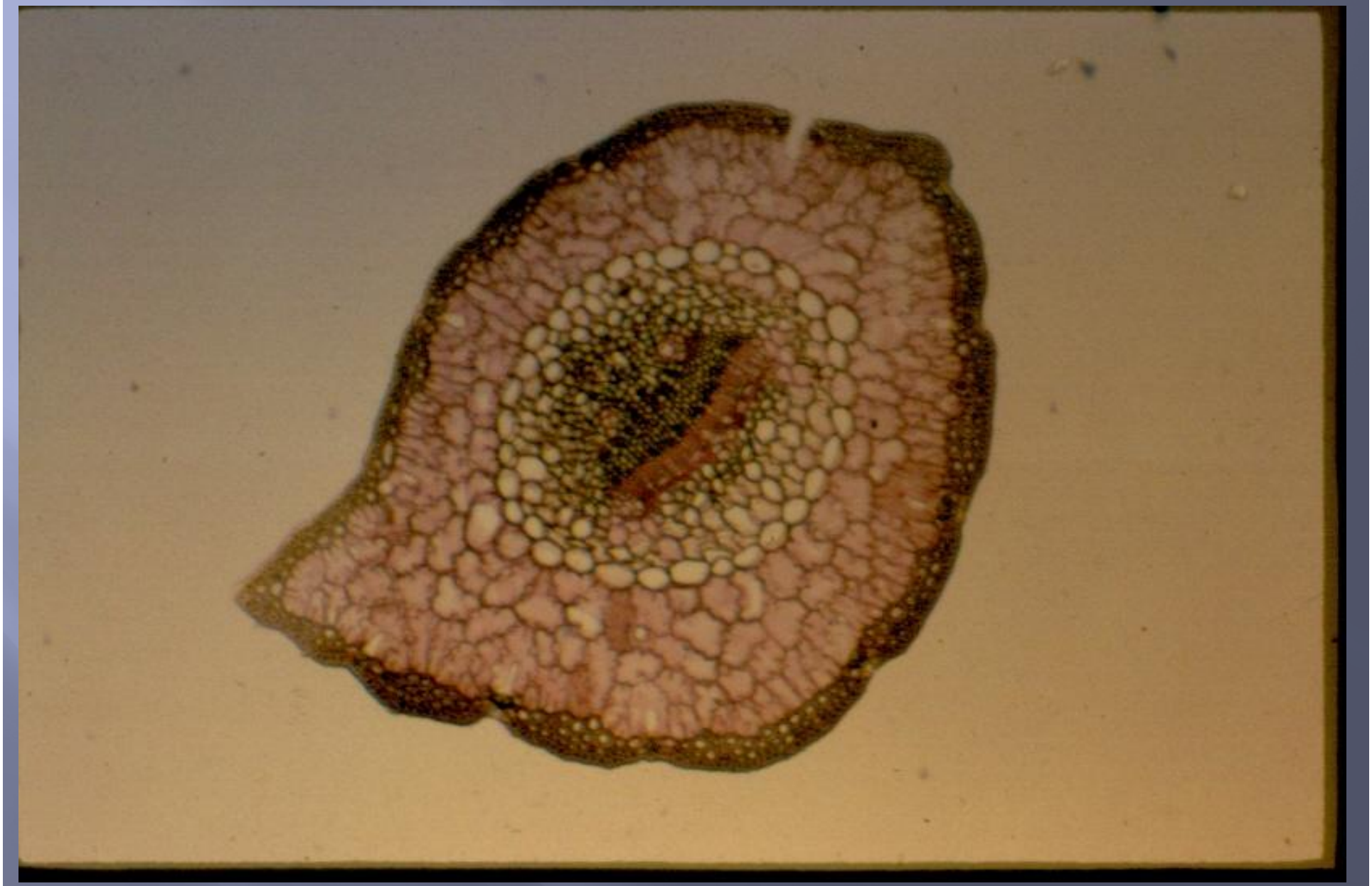


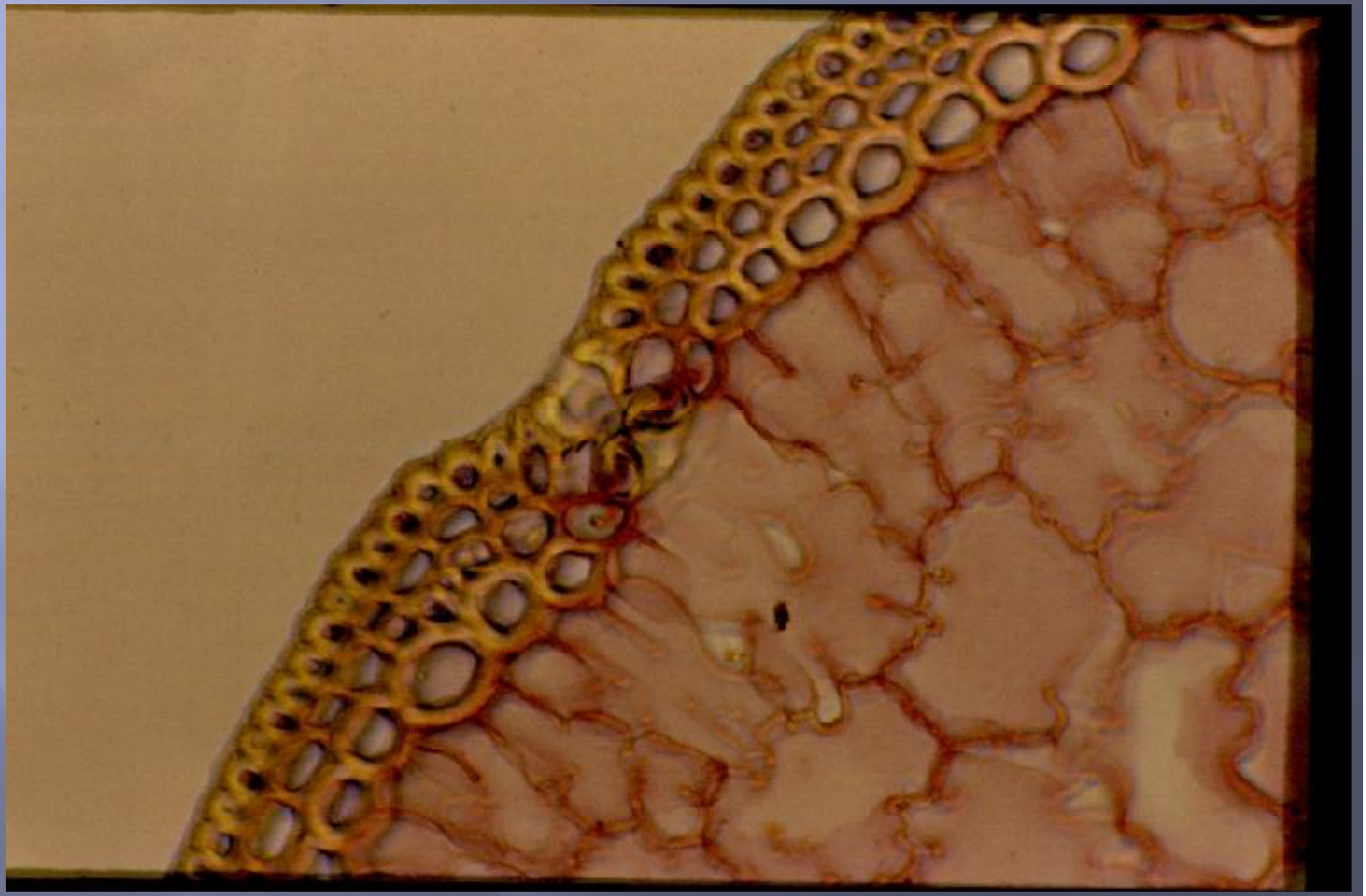


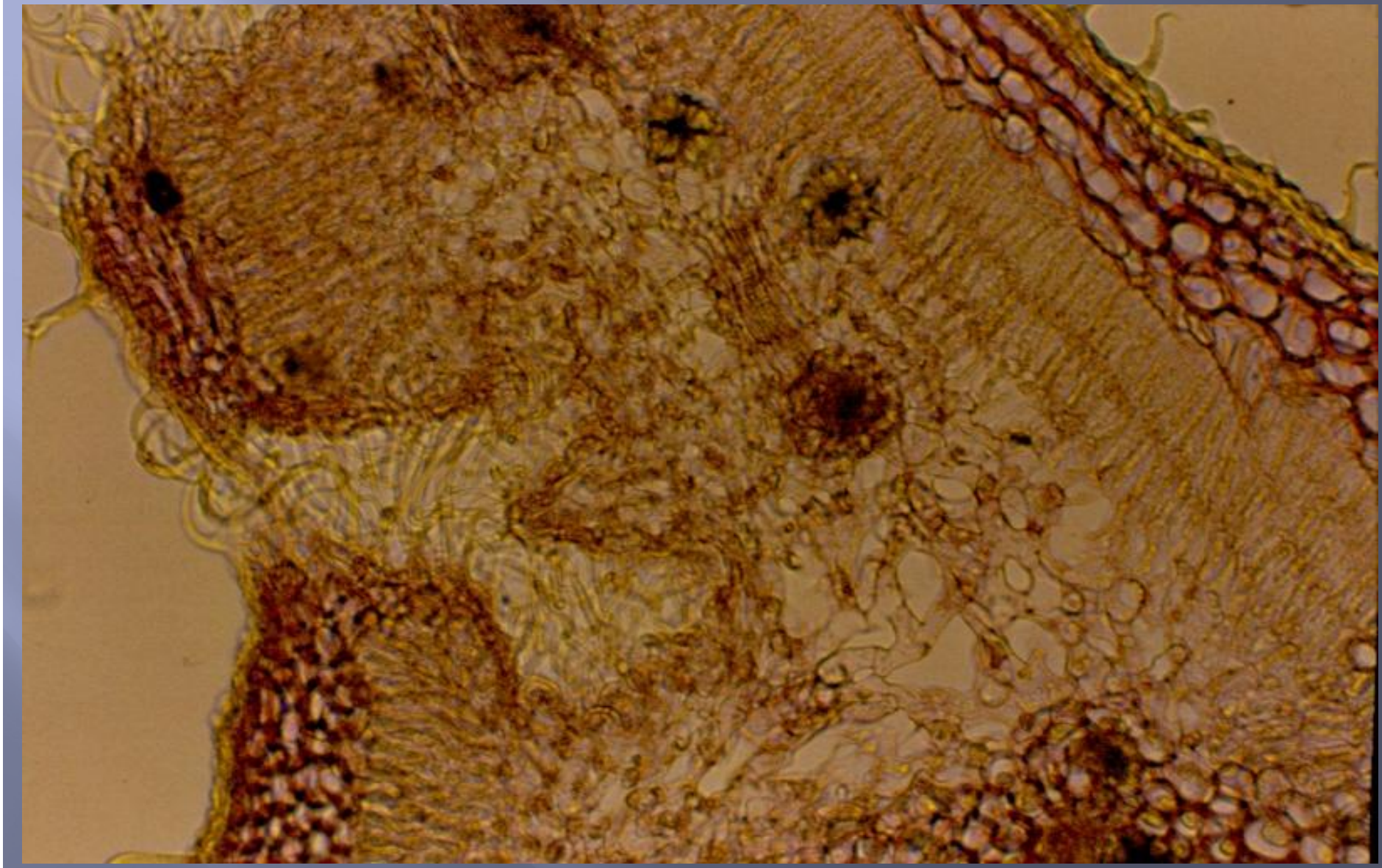


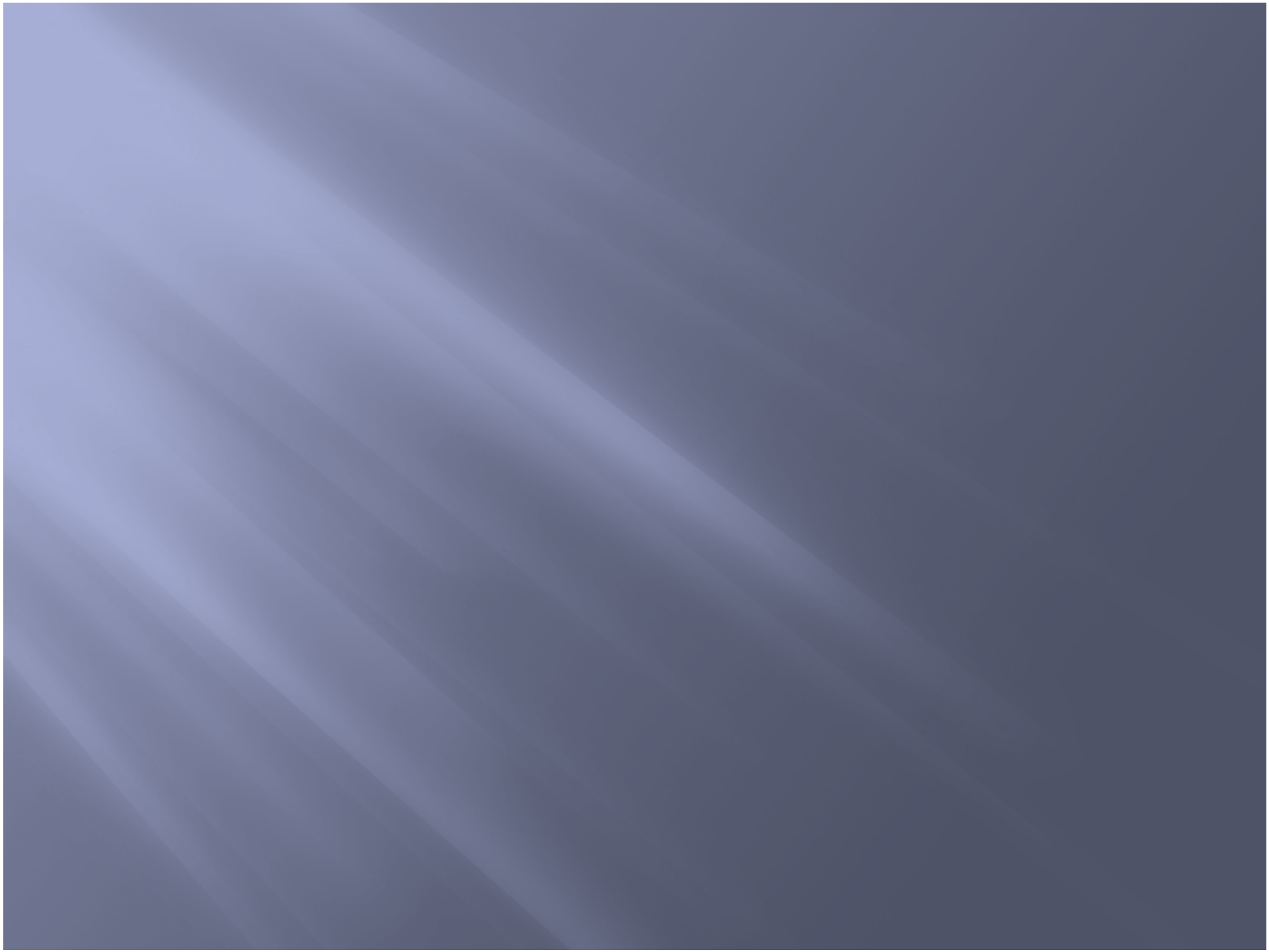


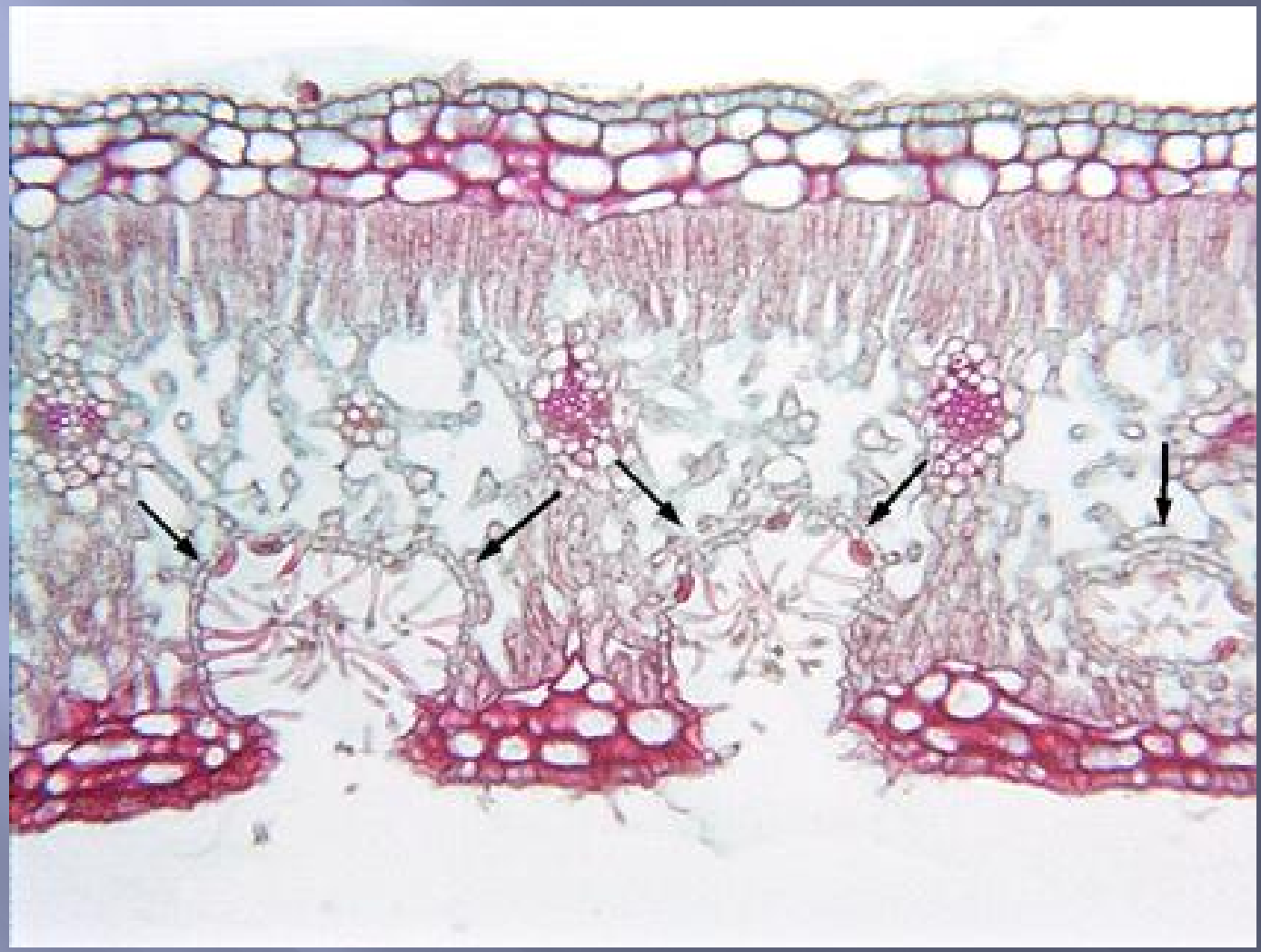








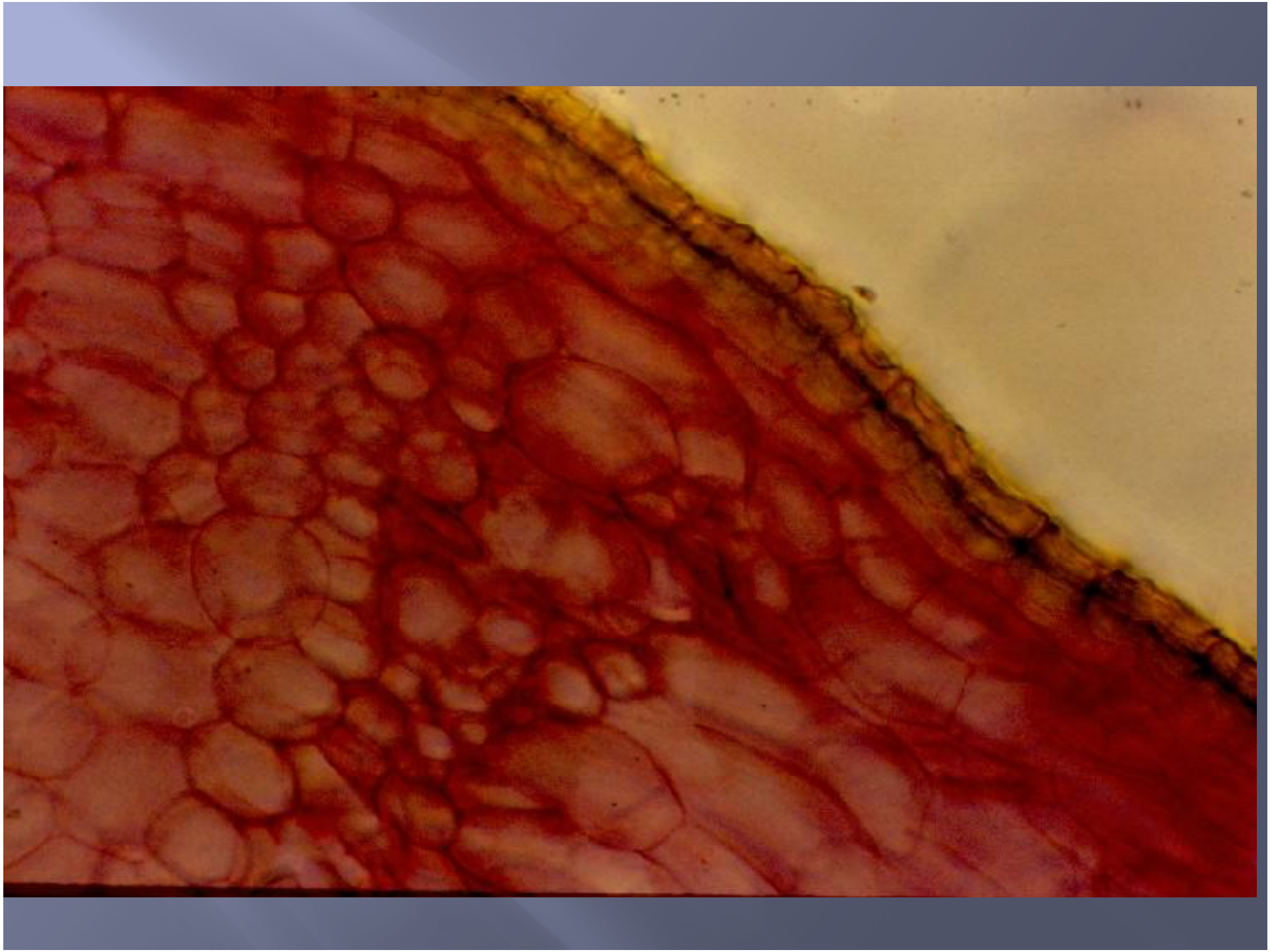


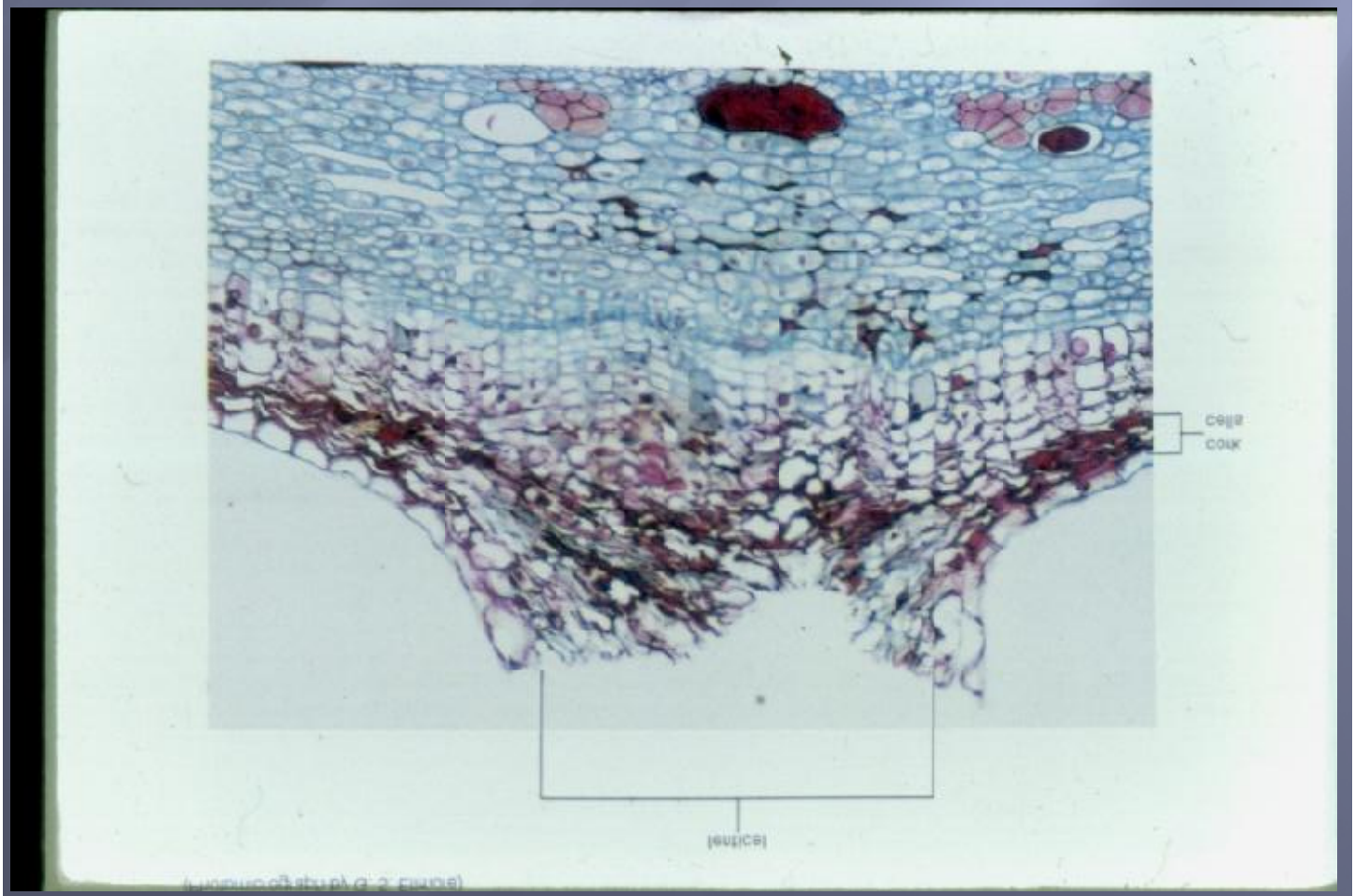


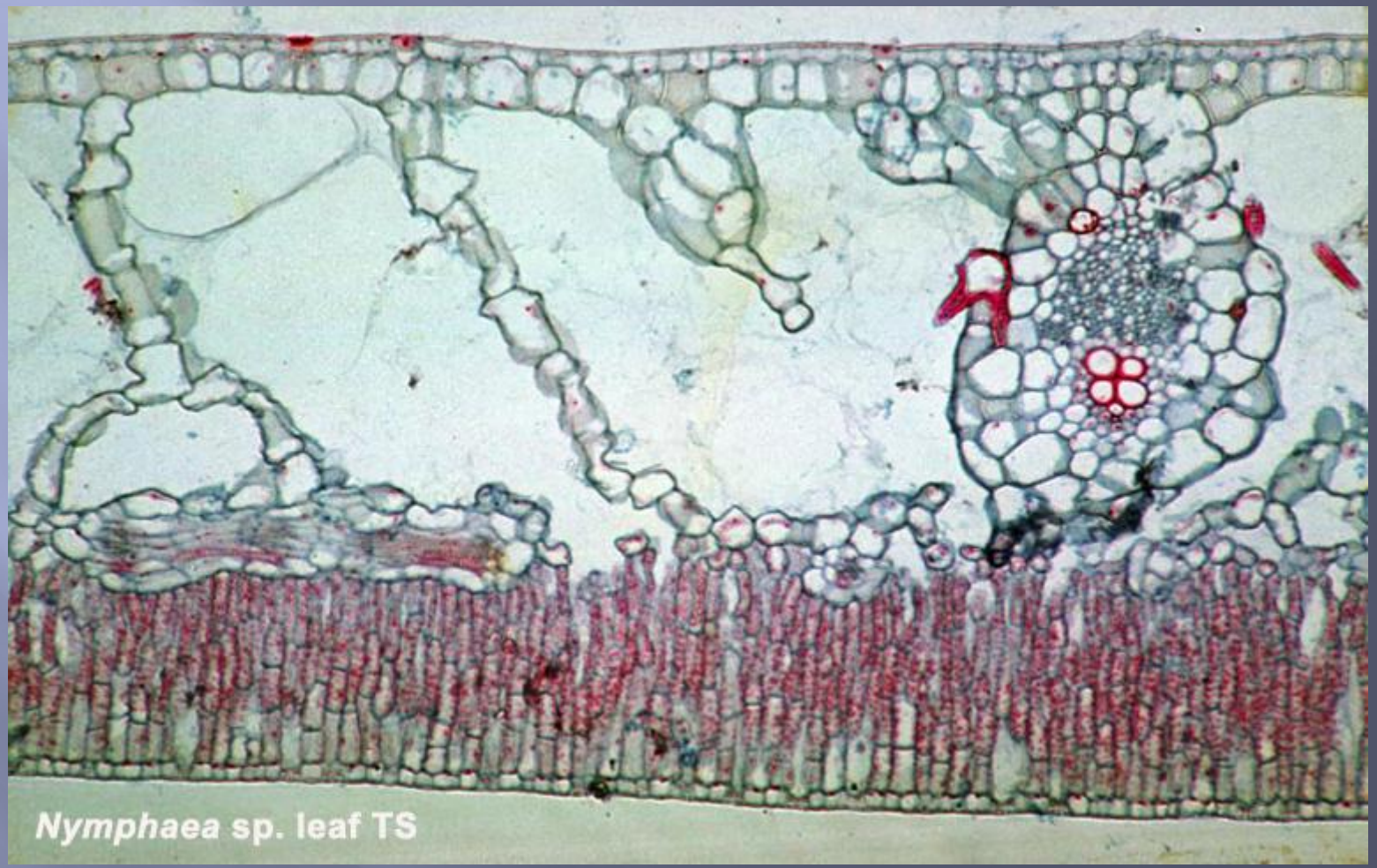
stomatal crypts

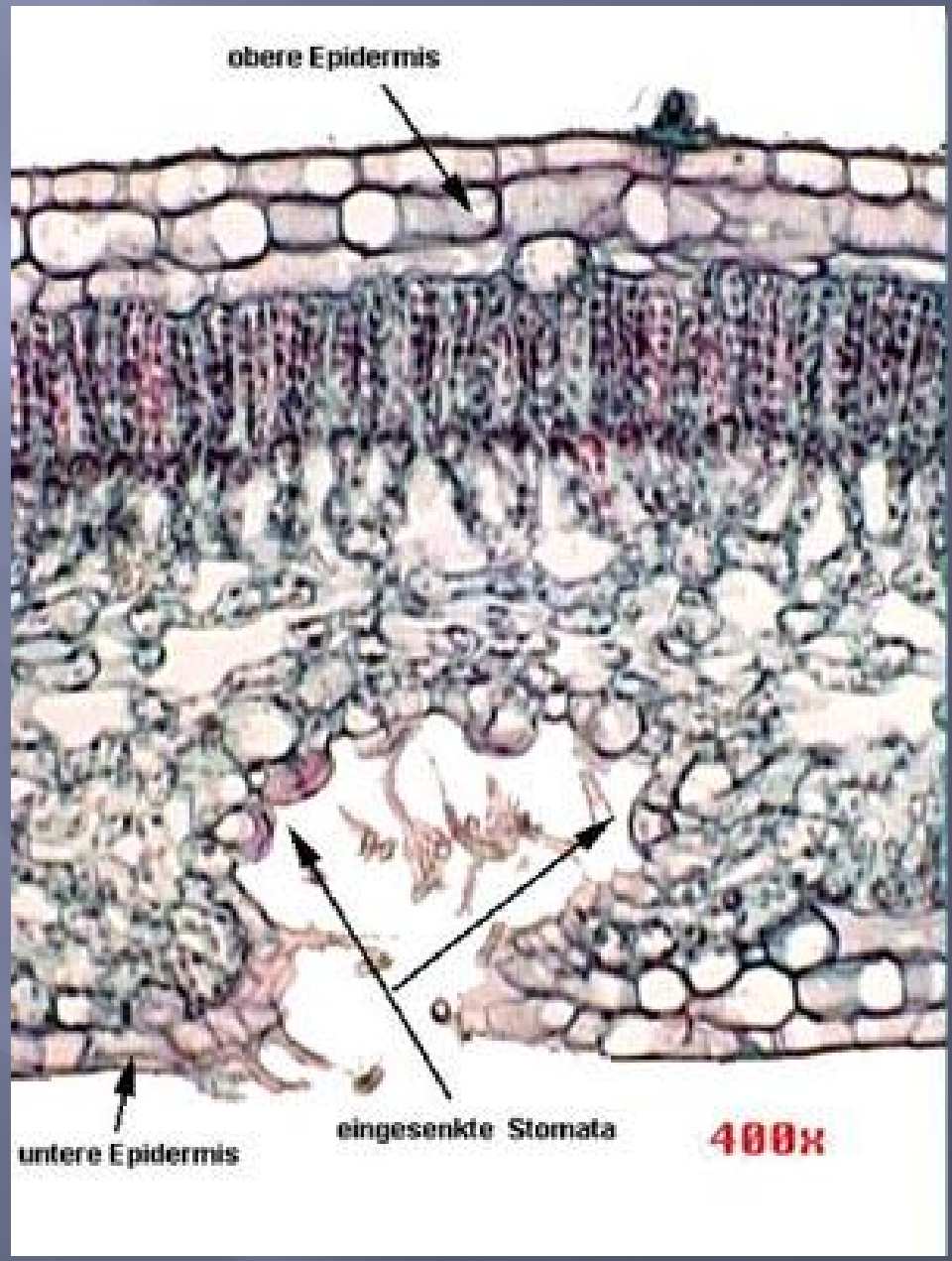
(Nerium oleander)

cuticle
epidermal cell
xylem
chloroplasts
stoma

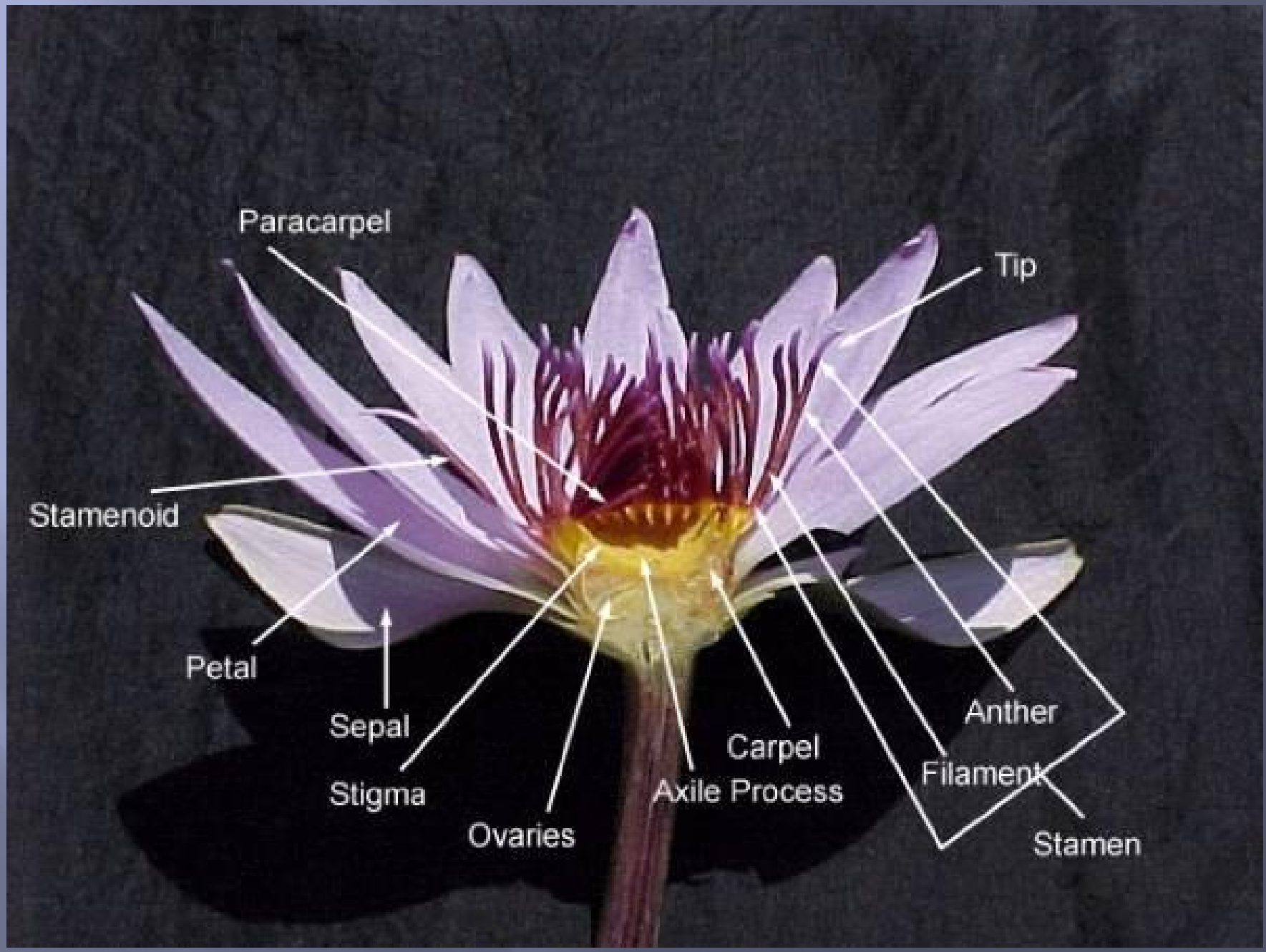


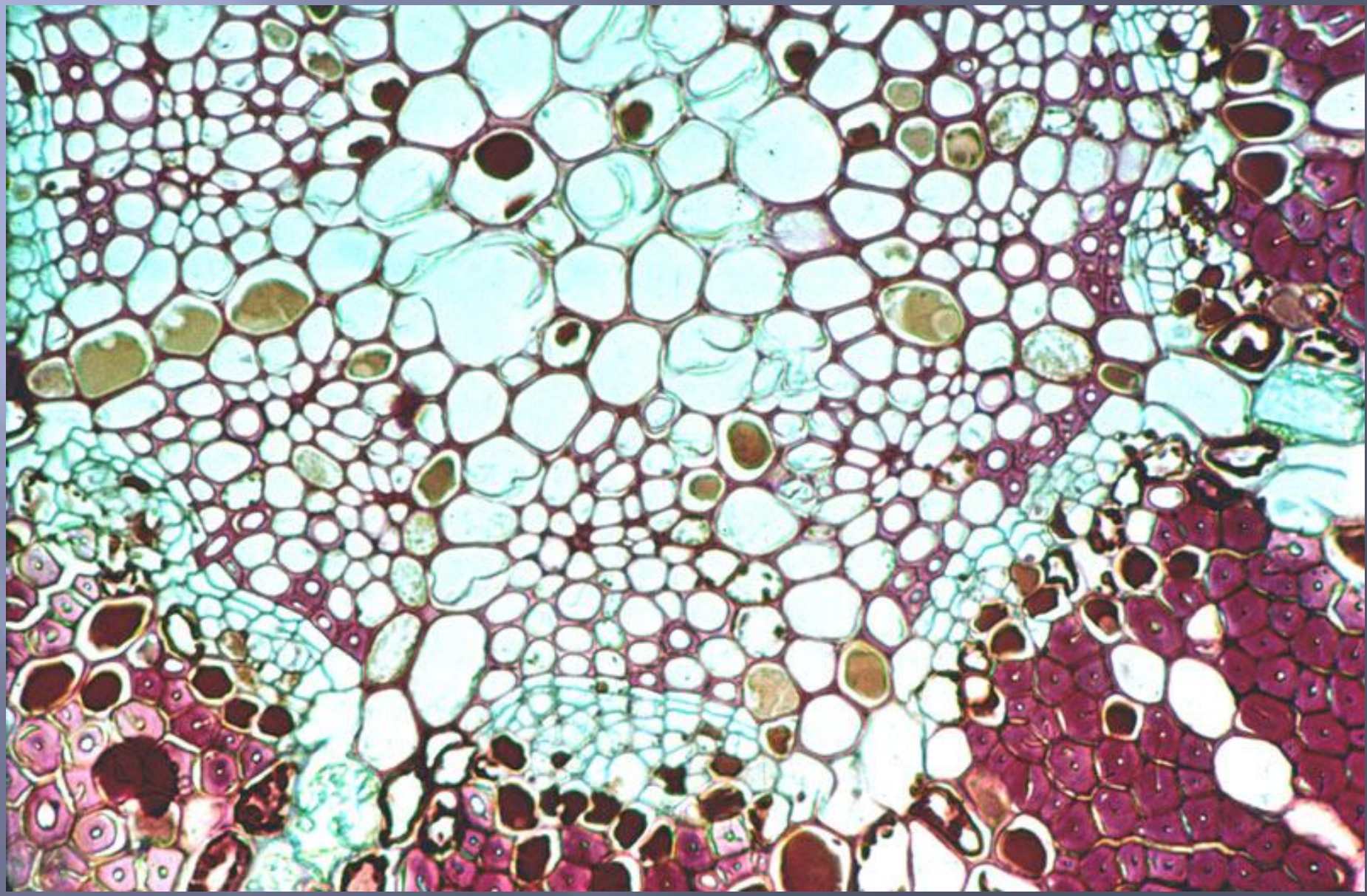



Nymphaea sp. leaf TS

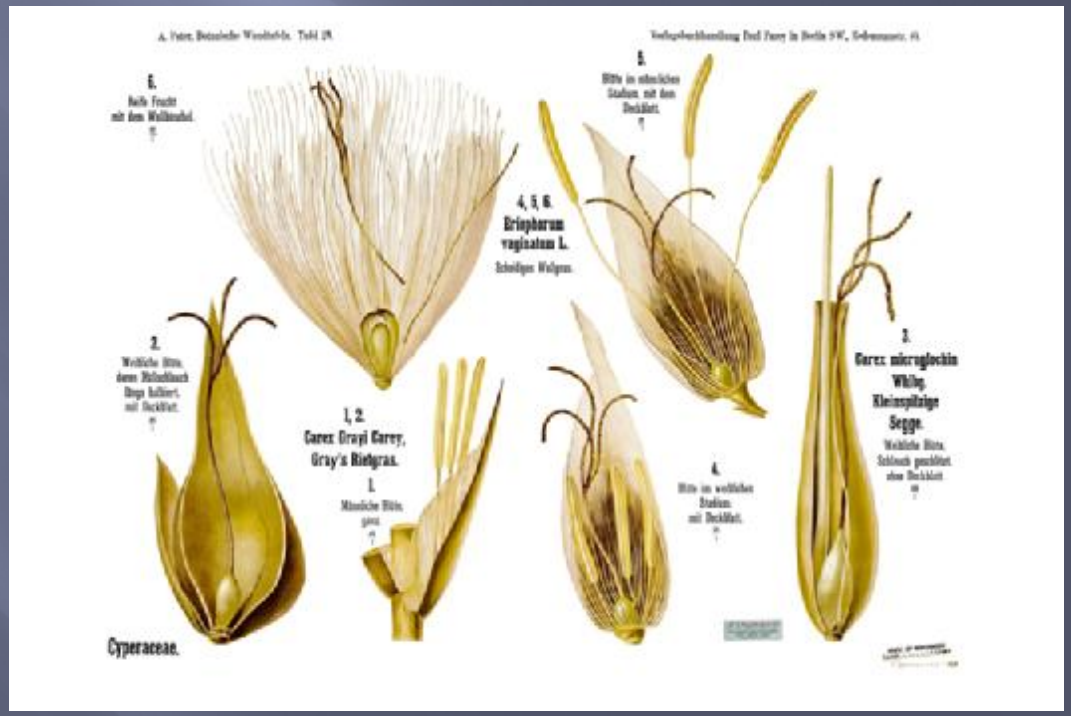

obere Epidermis
untere Epidermis
eingesenkte Stomata
400x


© MBC Graphics 2010


Paracarpel
Tip
Stamenoid
Petal
Sepal
Stigma
Ovaries
Carpel
Axile Process
Anther
Filament
Stamen

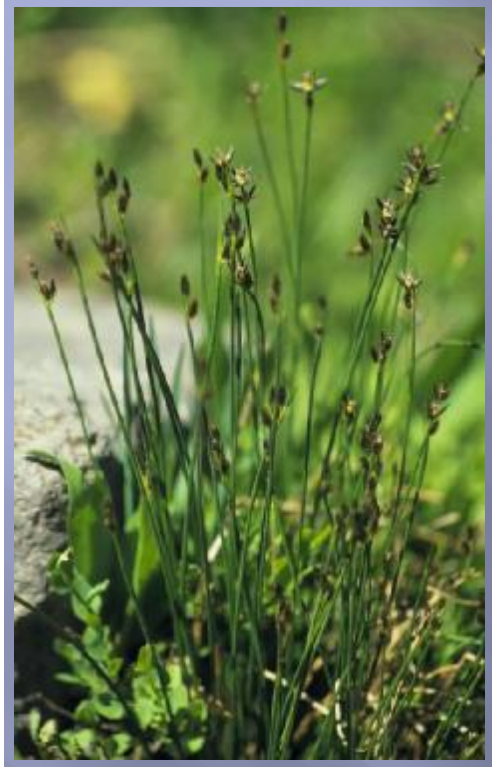


Cyperaceae تیره اویار سلام

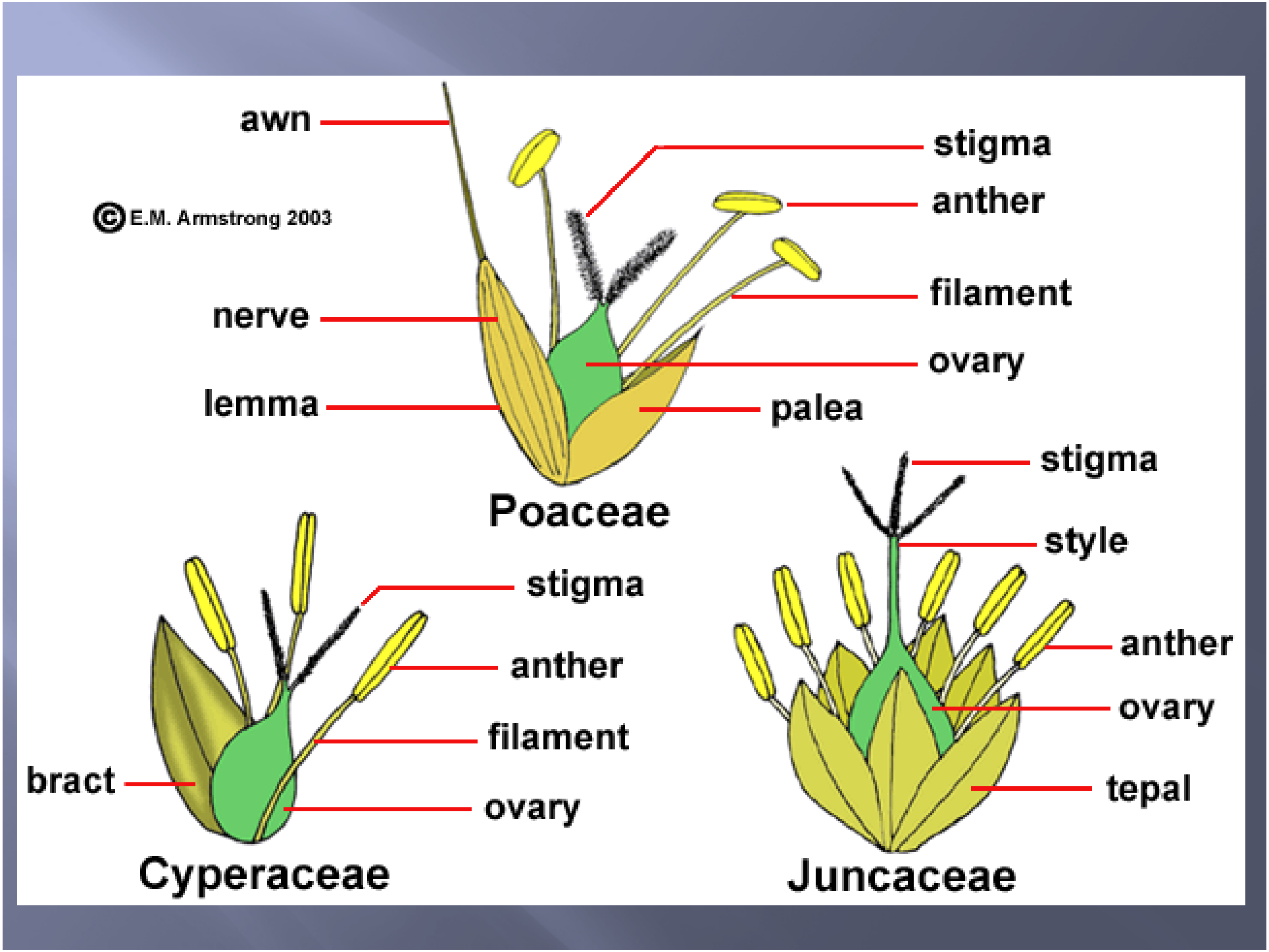


Cyperus اویار سلام

تیره جگن یا سازو Juncaceae



Juncus (جگن) سازو


awn
© E.M. Armstrong 2003
stigma
anther
filament
nerve
ovary
lemma
palea
Poaceae
stigma
style
anther
ovary
tepal
Juncaceae
stigma
anther
filament
bract
ovary
Cyperaceae

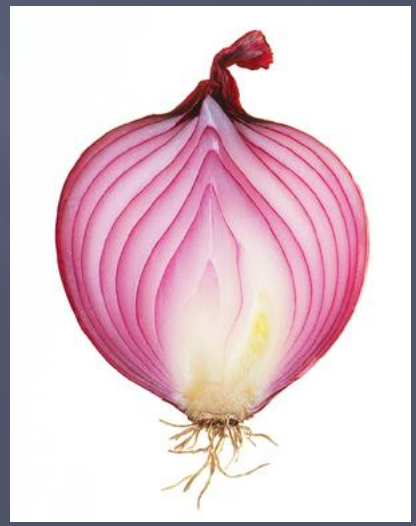
Liliaceae تیره سوسن (لاله)

Tulipa لاله

Fritillaria imperialis لاله واژگون (اشک مریم)

Lilium سوسن

Allium cepa پیاز خوراکی



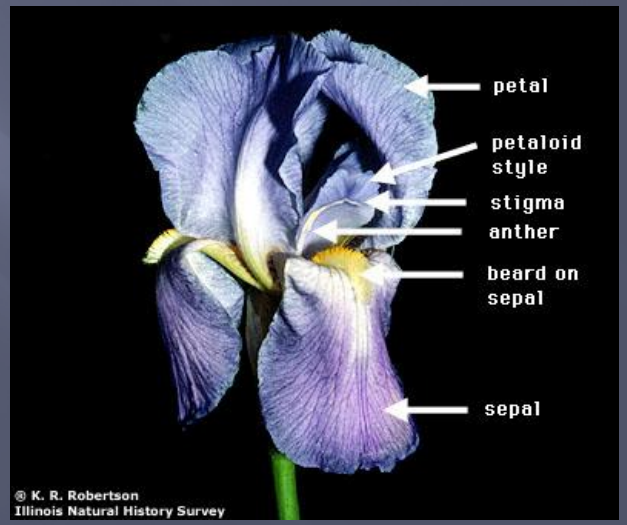
Amaryllidaceae تیره نرگس

Narcissus نرگس

Iridaceae تیره زنبق

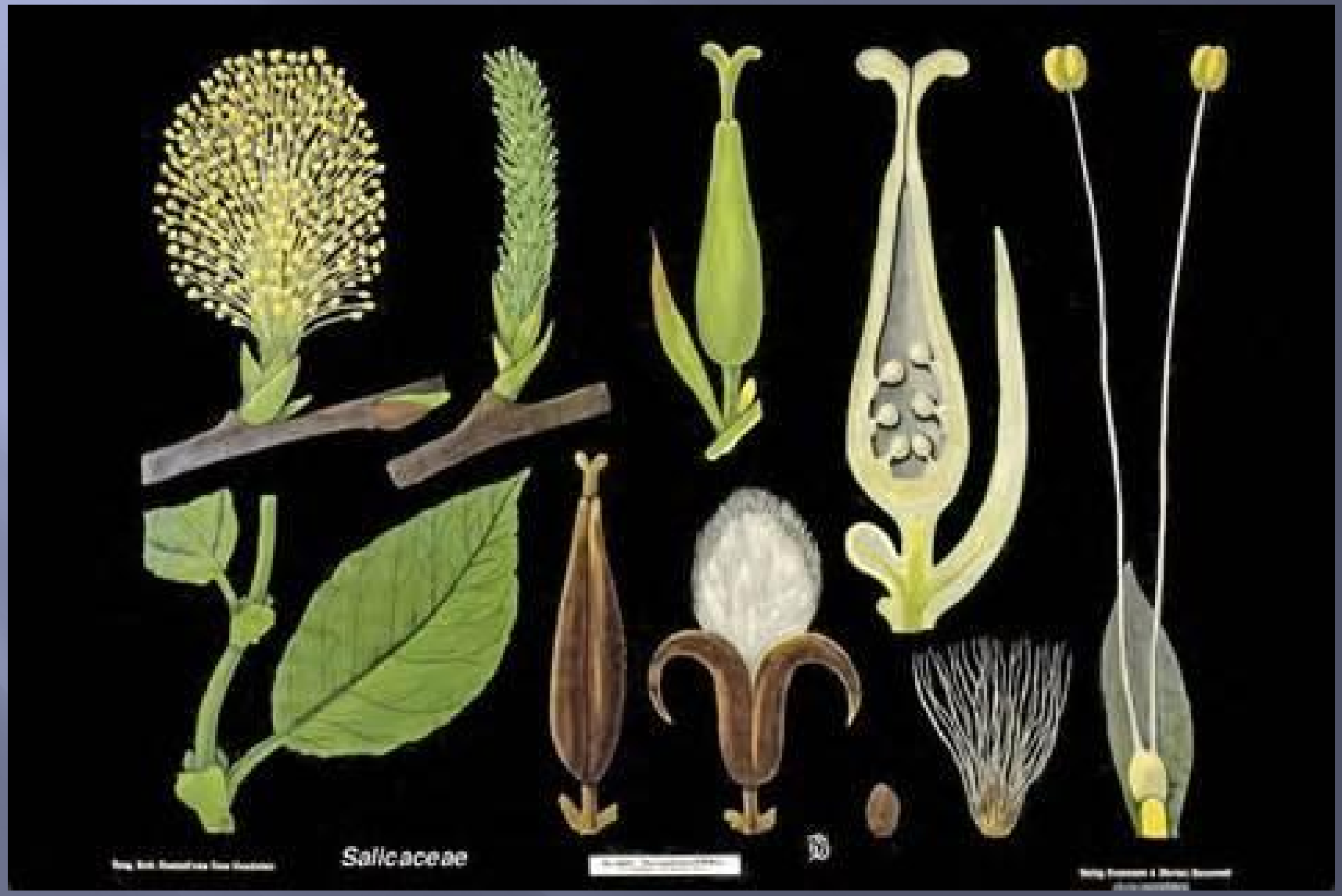
Iris زنبق


www.flowerpictures.net


petal
petaloid style
stigma
anther
beard on sepal
sepal
® K. R. Robertson
Illinois Natural History Survey

Crocus زعفران

Salicaceae تیره بید



Salicaceae تیره بید

Salix بید

Populus صنوبر ، سپیدار

تیره گردو Juglandaceae

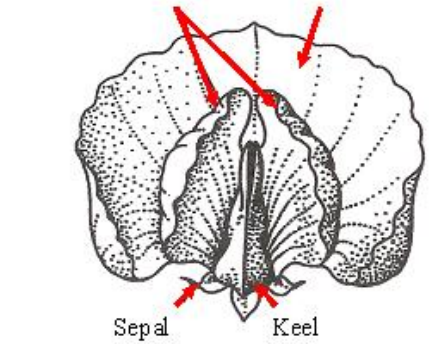
Juglans regia گردو

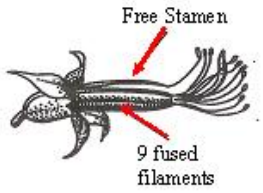
Moraceae تیره توت

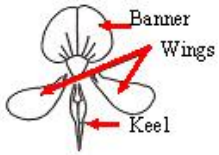
Morus alba.

1. A male flower; 2. clusters of females; 3. a female flower separate: flower separate: 4. the same with a part of the calyx cut away; 5 a vertical section of a ripe achænium; 6. a cluster of 6. a cluster of fruit consisting of succulent calyxes enclosing achænia.

Morus alba توت سفید

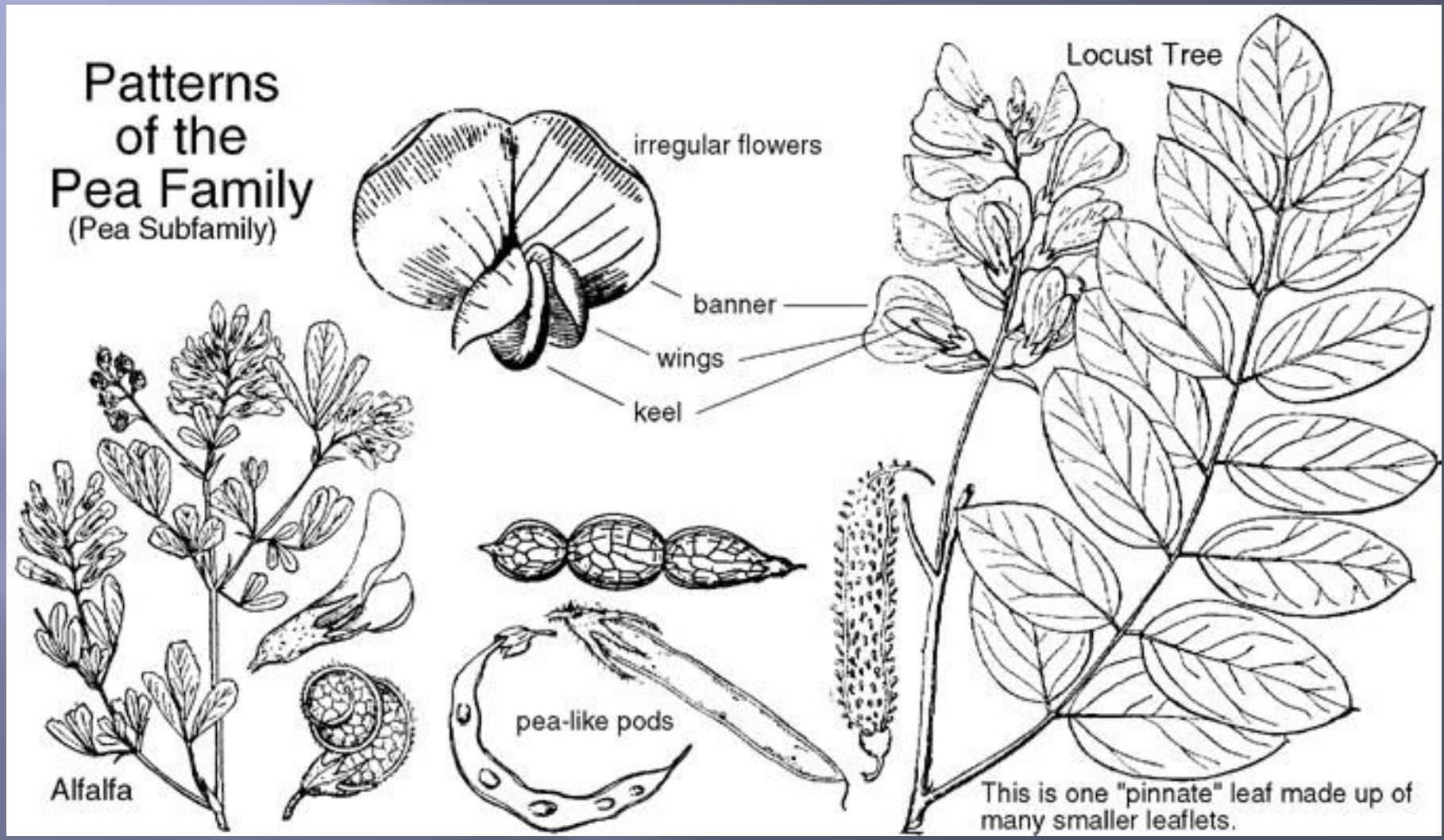






Flowers of the Fabaceae (legumes)

Fabaceae تیره نخود



Fabaceae تیره نخود

Cicer arietinum L. ə Ə

Fabaceae تیره نخود

Vicia Faba Or ***Faba Vulgaris*** باقلا

Fabaceae تیره نخود

Medicago sativa یونجه

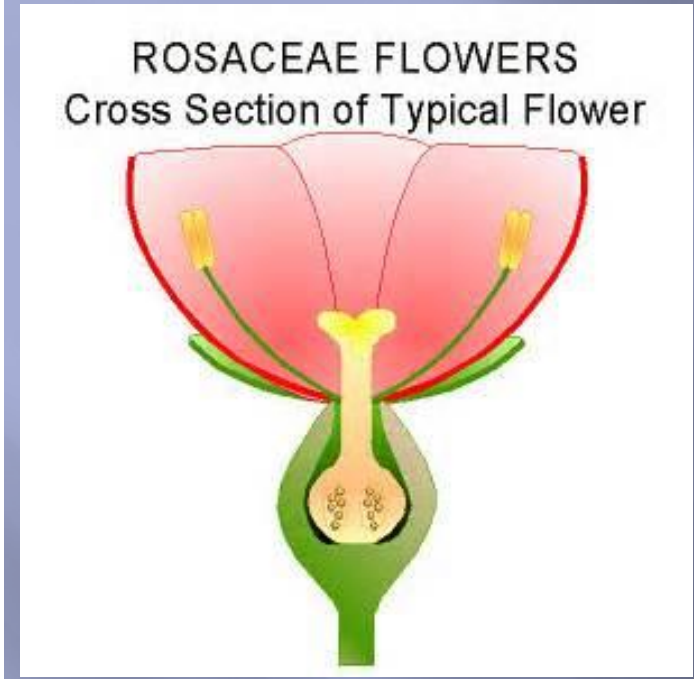
Fabaceae تیره نخود

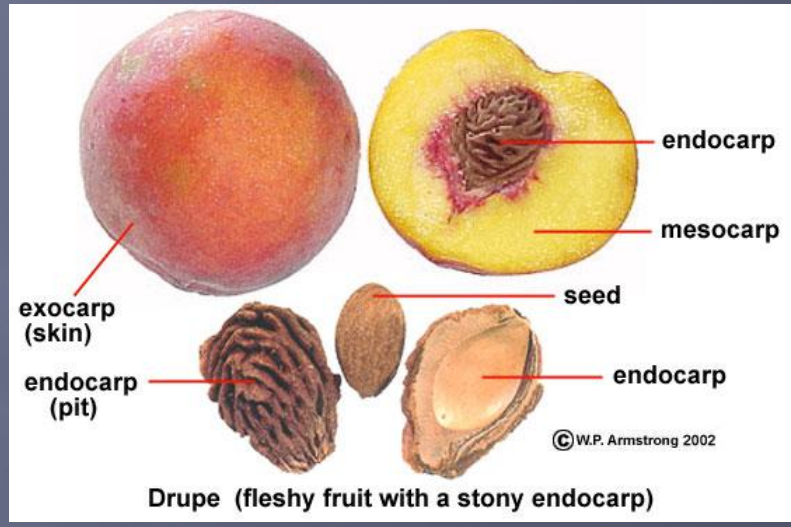
Trifolium repens شبدر

Caesalpinia gilliesii ابریشم مصری

Albizia julibrissin ابریشم شب خسب

Rosaceae تیره گلسرخ





Rosaceae تیره گلسرخ

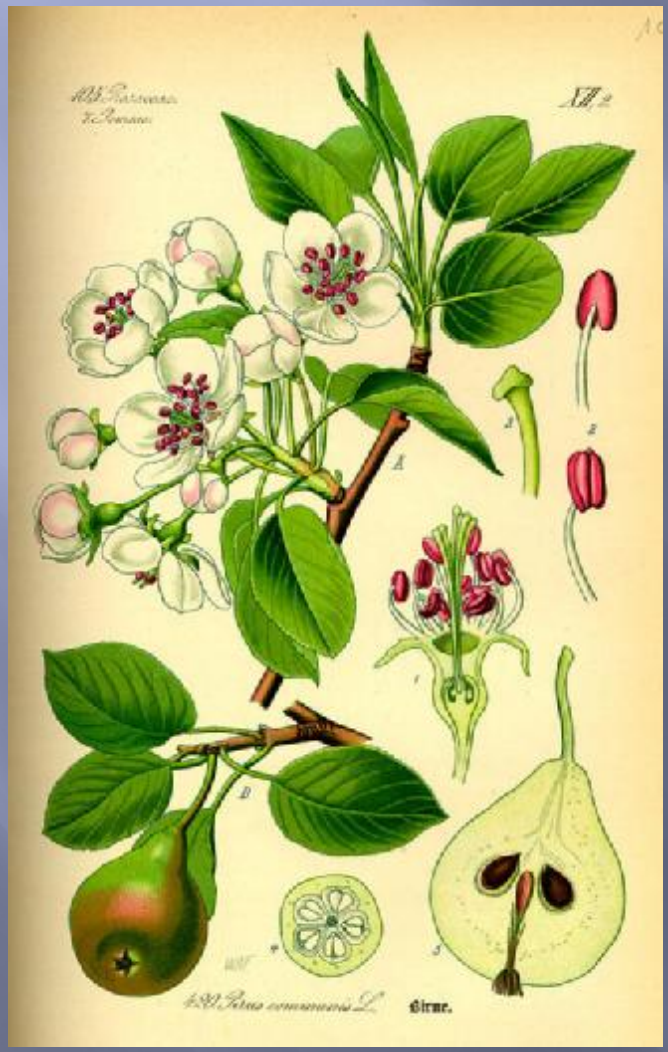
Malus Communis سیب

Rosaceae تیره گلسرخ

Rosa damascena گل محمدی

Rosaceae تیره گلسرخ

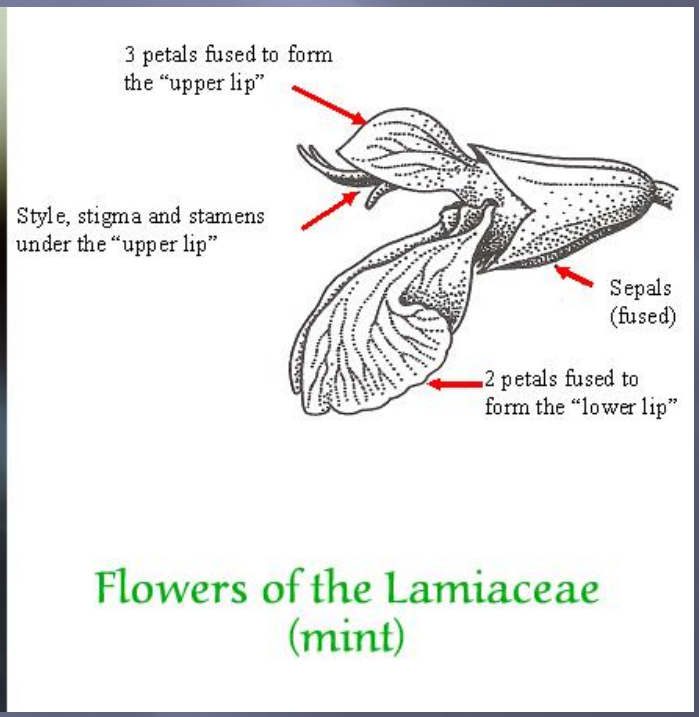
Pyrus communis گلابی



Rosaceae تیره گلسرخ

Fragaria vesca L. توت فرنگی

Lamiaceae تیره نعناع



Lamiaceae تیره نعناع

Mentha نعناع

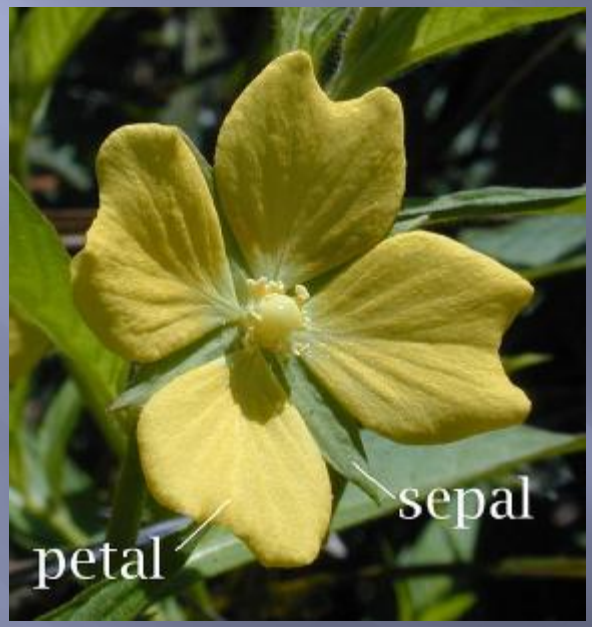
Lamiaceae تیره نعناع

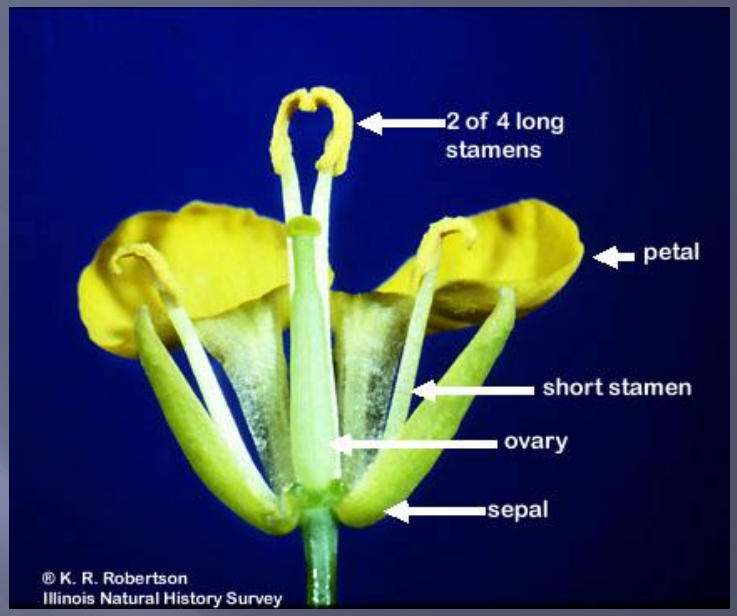
Rosmarinus officinalis رزماری

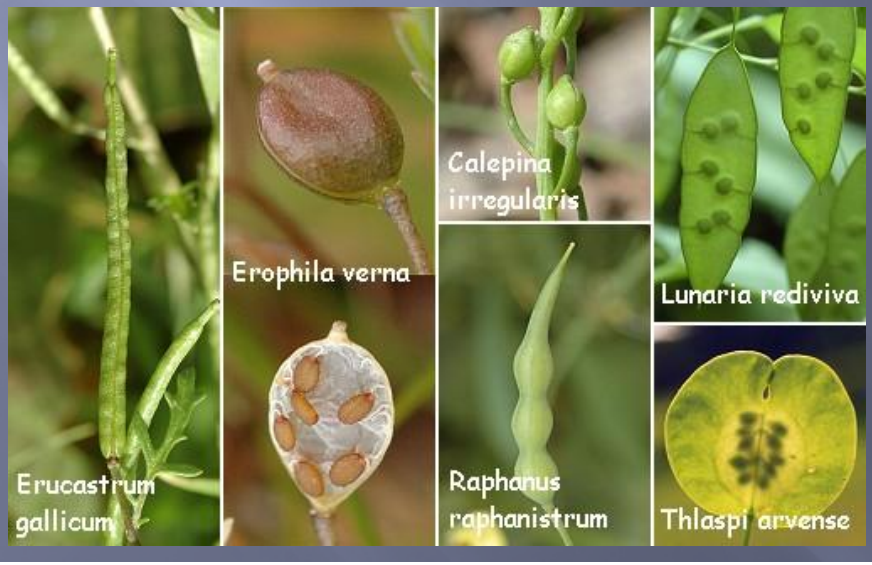
Lamiaceae تیره نعناع

Salvia spp. سلوی

Brassicaceae تیره شب بو







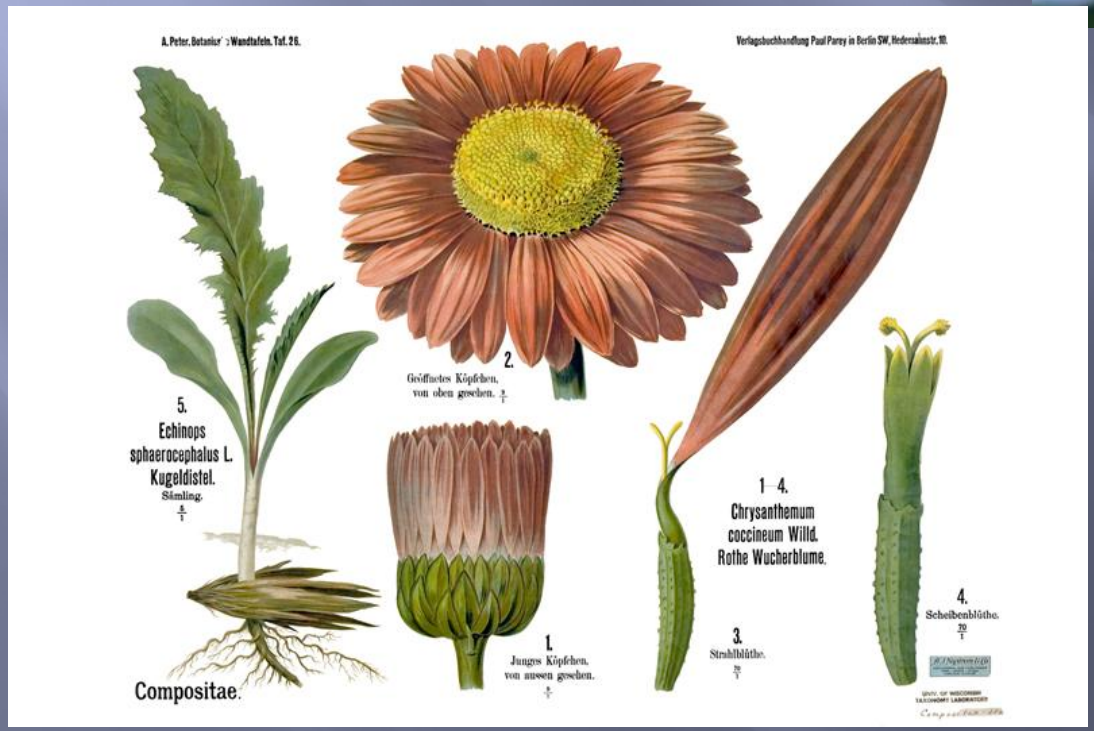
Brassicaceae تیره شب بو

Sisymbrium officinale خاکشیر طبی

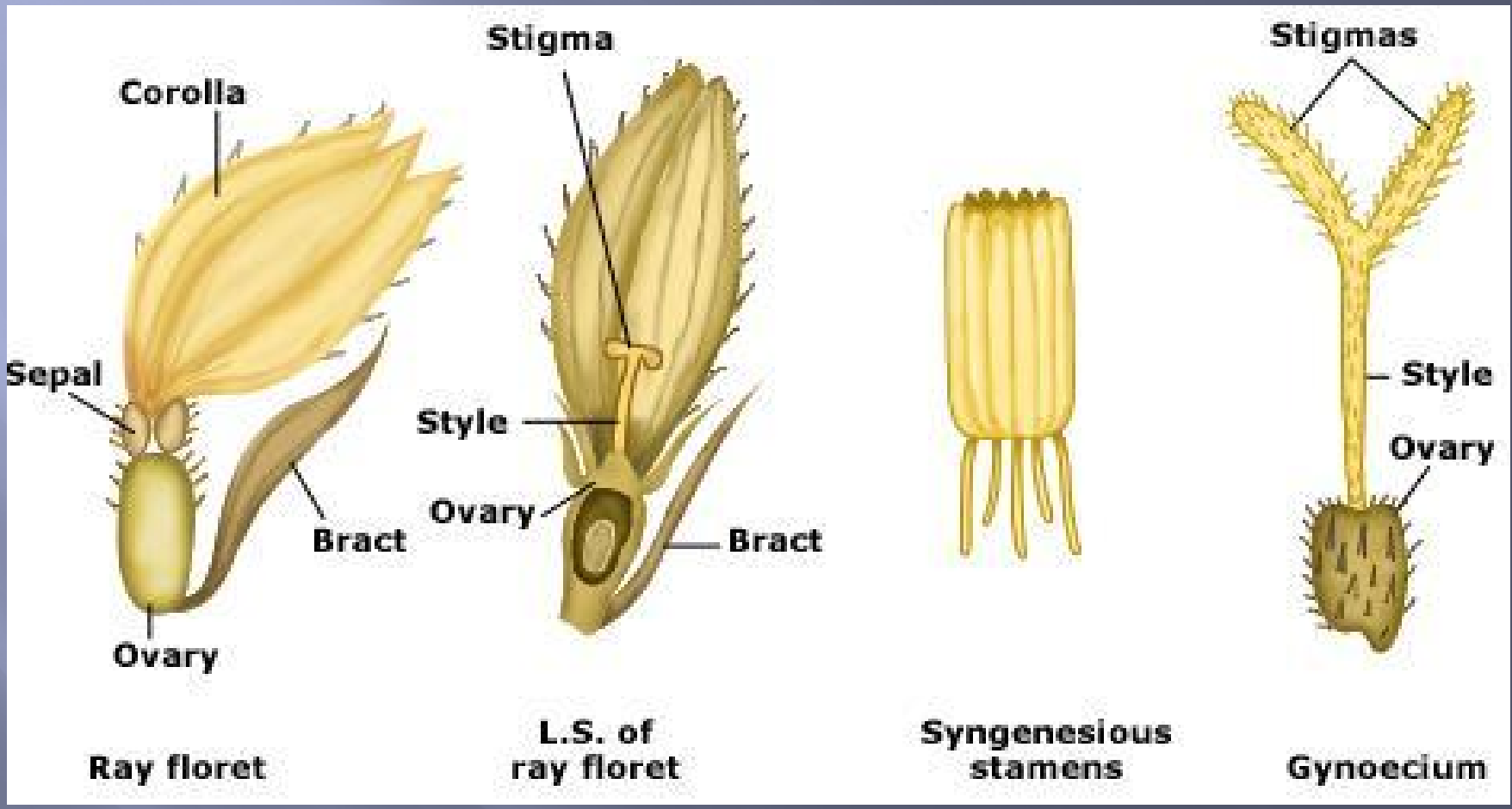
Brassicaceae تیره شب بو

Lepidium sativum شاهی

Asteraceae تیره آفتابگردان



تیره آفتابگردان Asteraceae



تیره آفتابگردان Asteraceae

گل قاصد ***Taraxacum officinale***

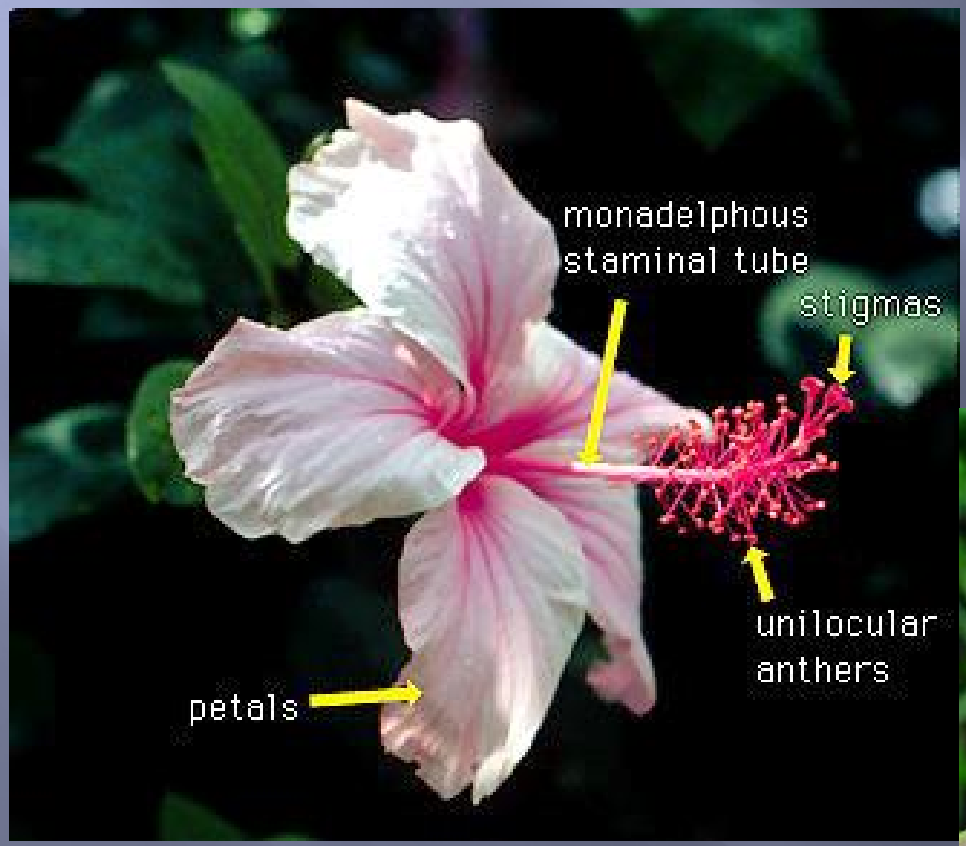
تیره آفتابگردان Asteraceae

Achillea millefolium بومادران

تیره آفتابگردان Asteraceae

Helianthus annuus آفتابگردان

Malvaceae تیره ختمی



تیره ختمی Malvaceae

Malva پنیرک ، ختمی

Platanaceae تیره چنار

Platanaceae تیره چنار

Platanus orientalis چنار