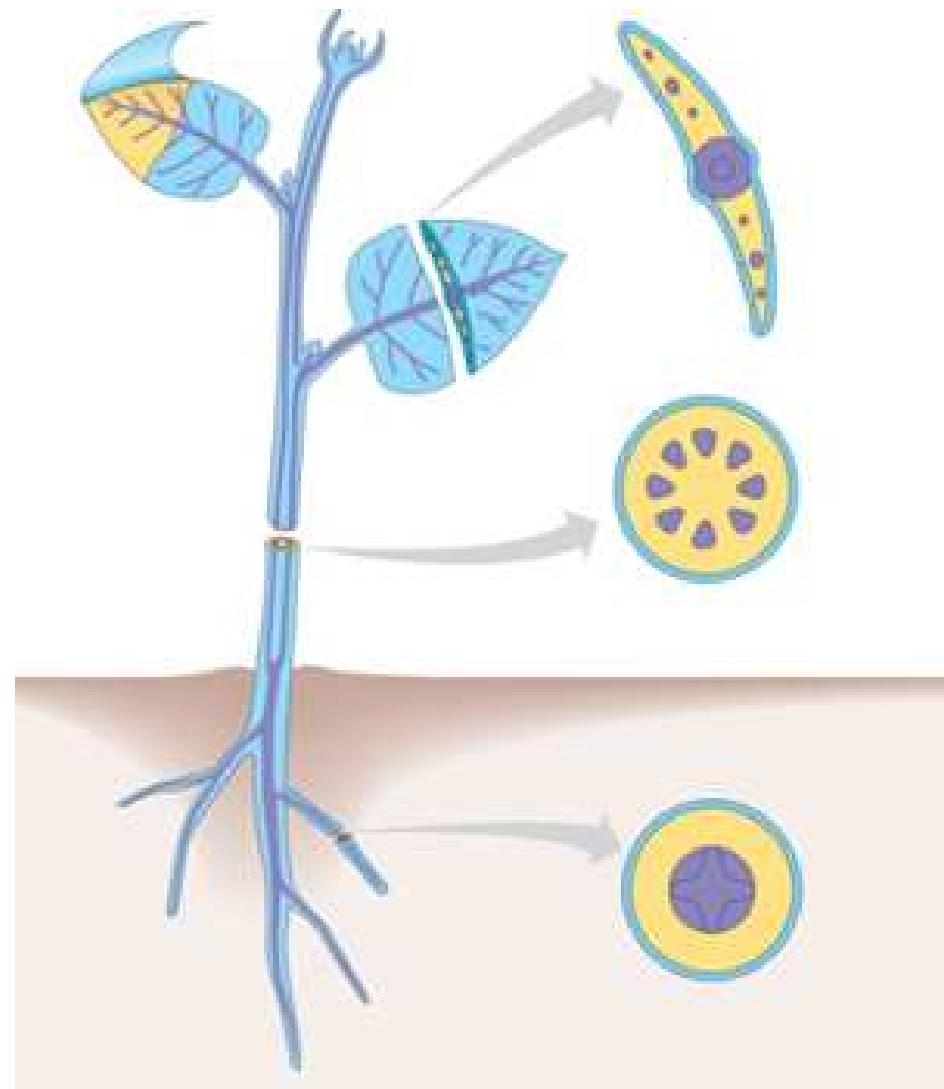
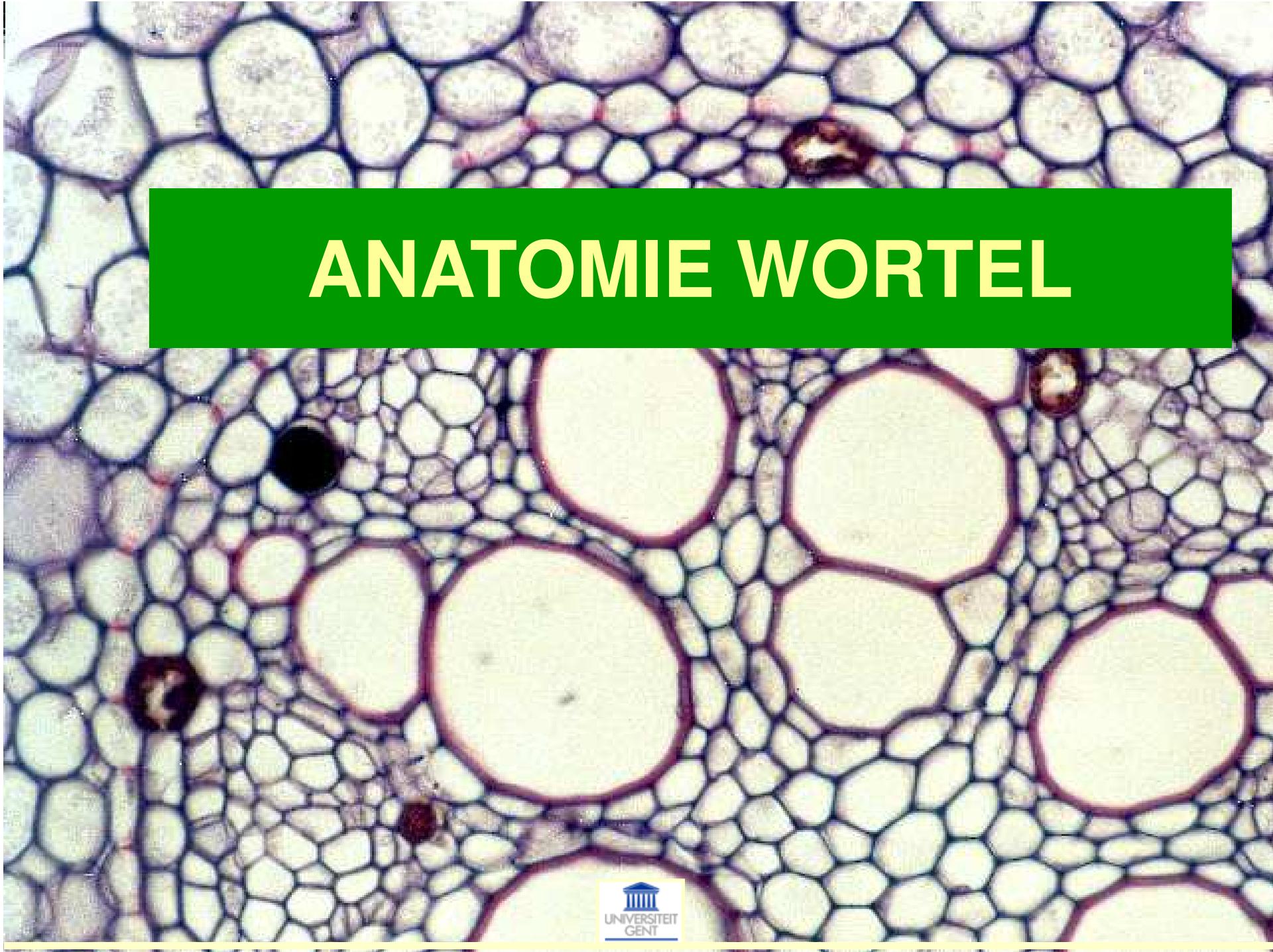


# ANATOMIE

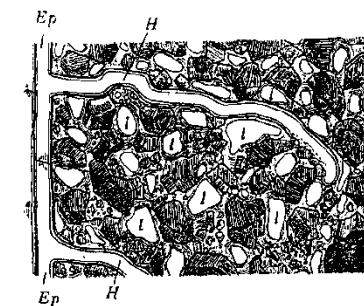
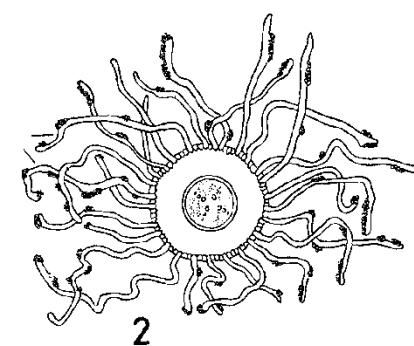
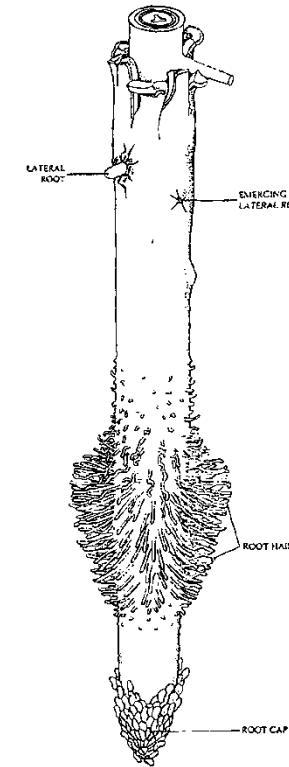
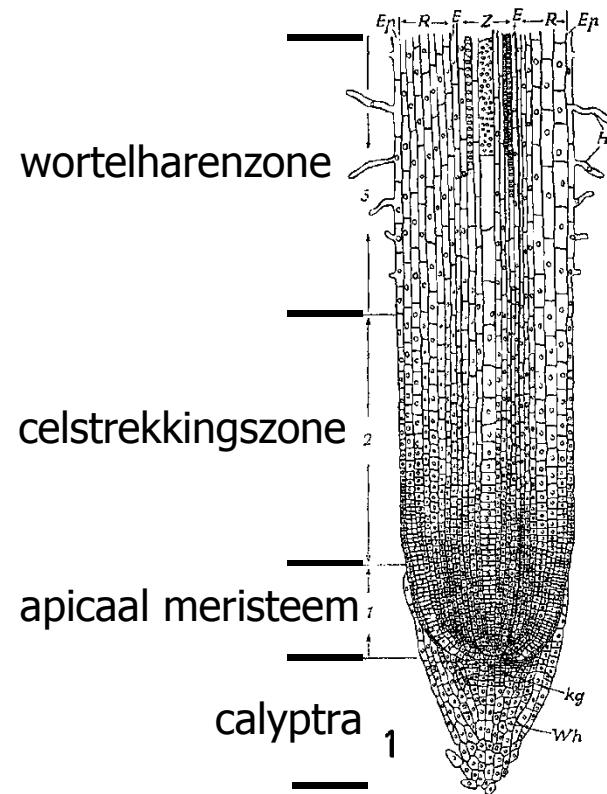
PLANTKUNDE  
1<sup>e</sup> ba Biochemie & Biotechnologie

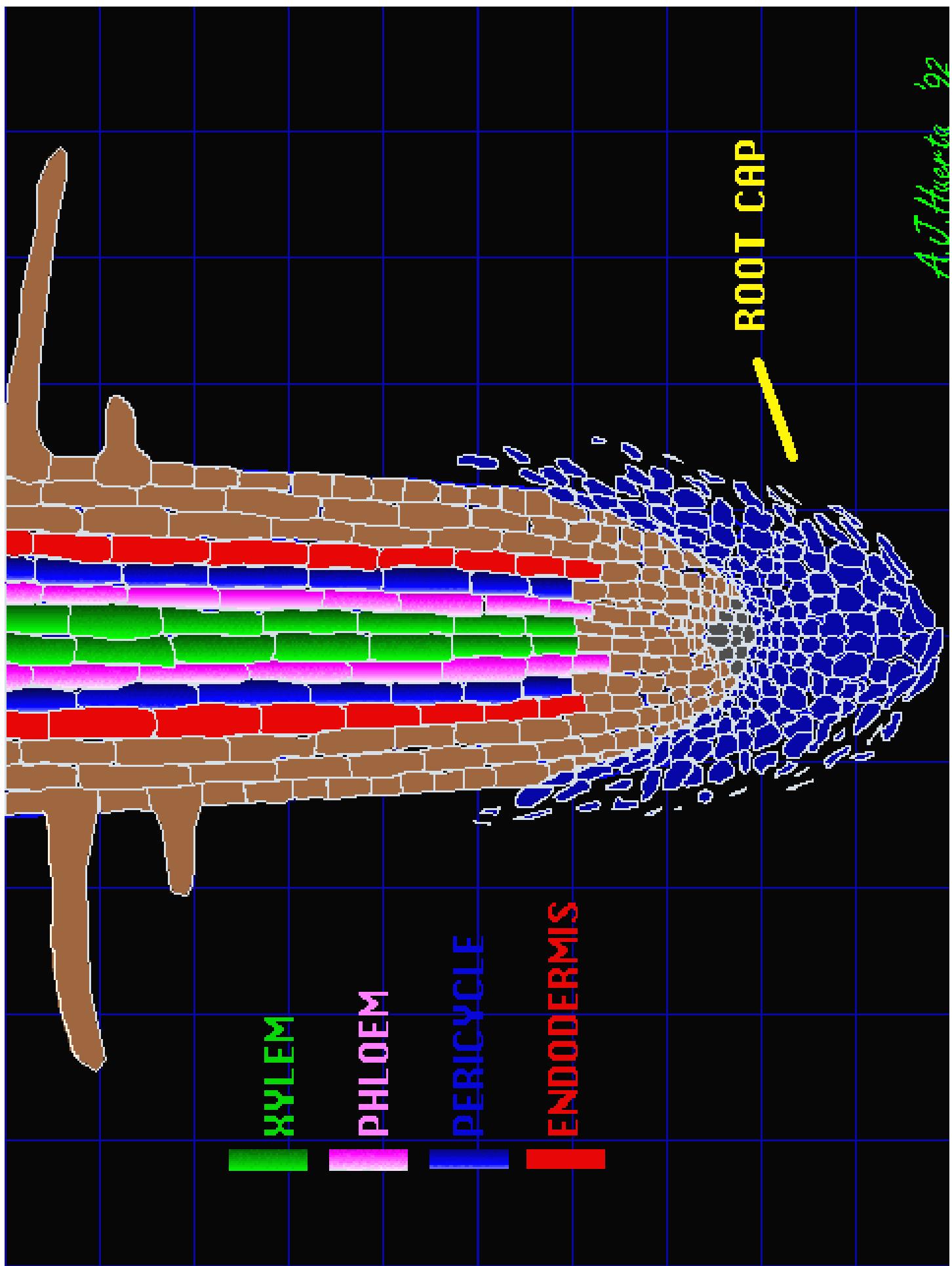




# ANATOMIE WORTEL

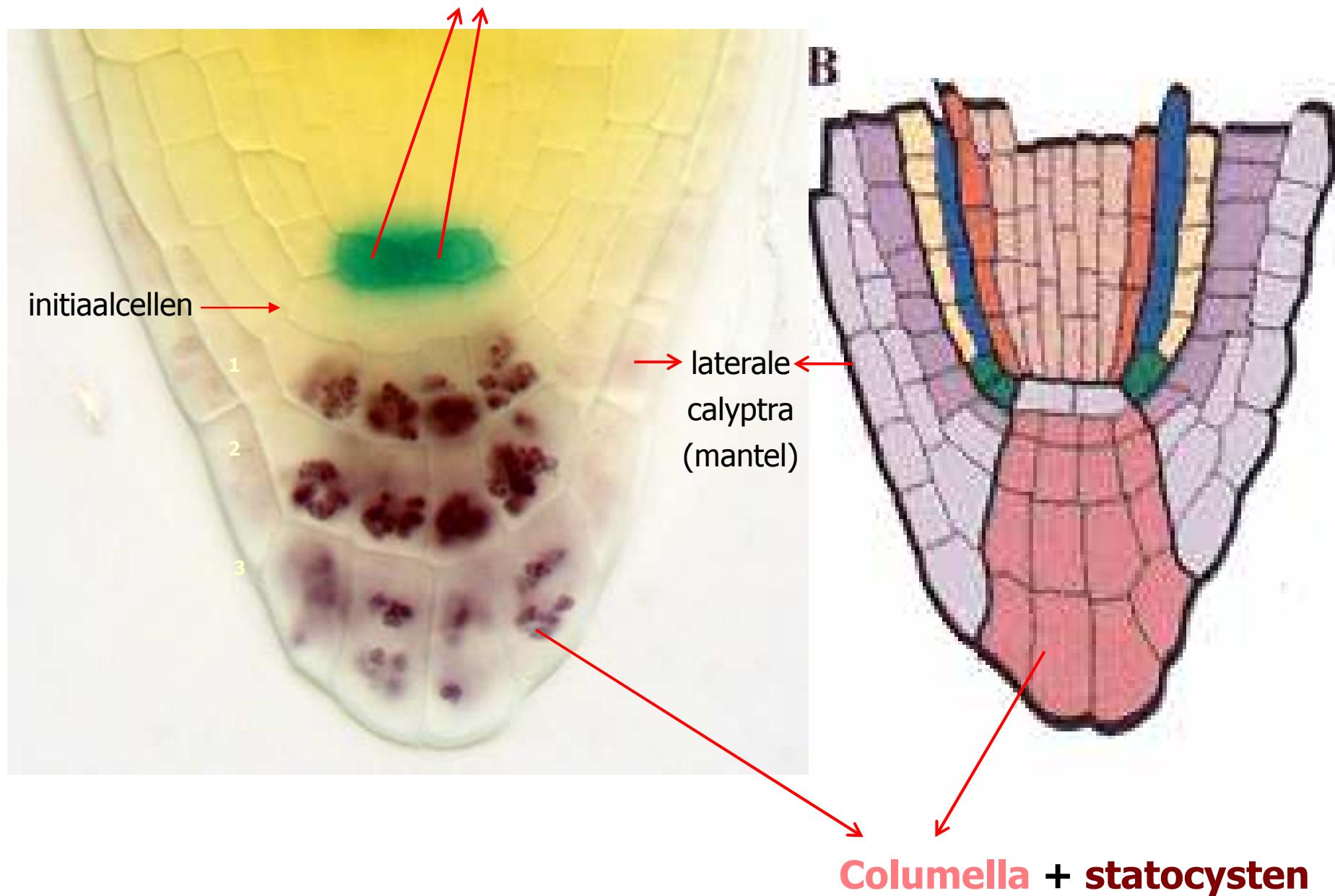
# AW 1. Primaire wortel, morfologie & anatomie



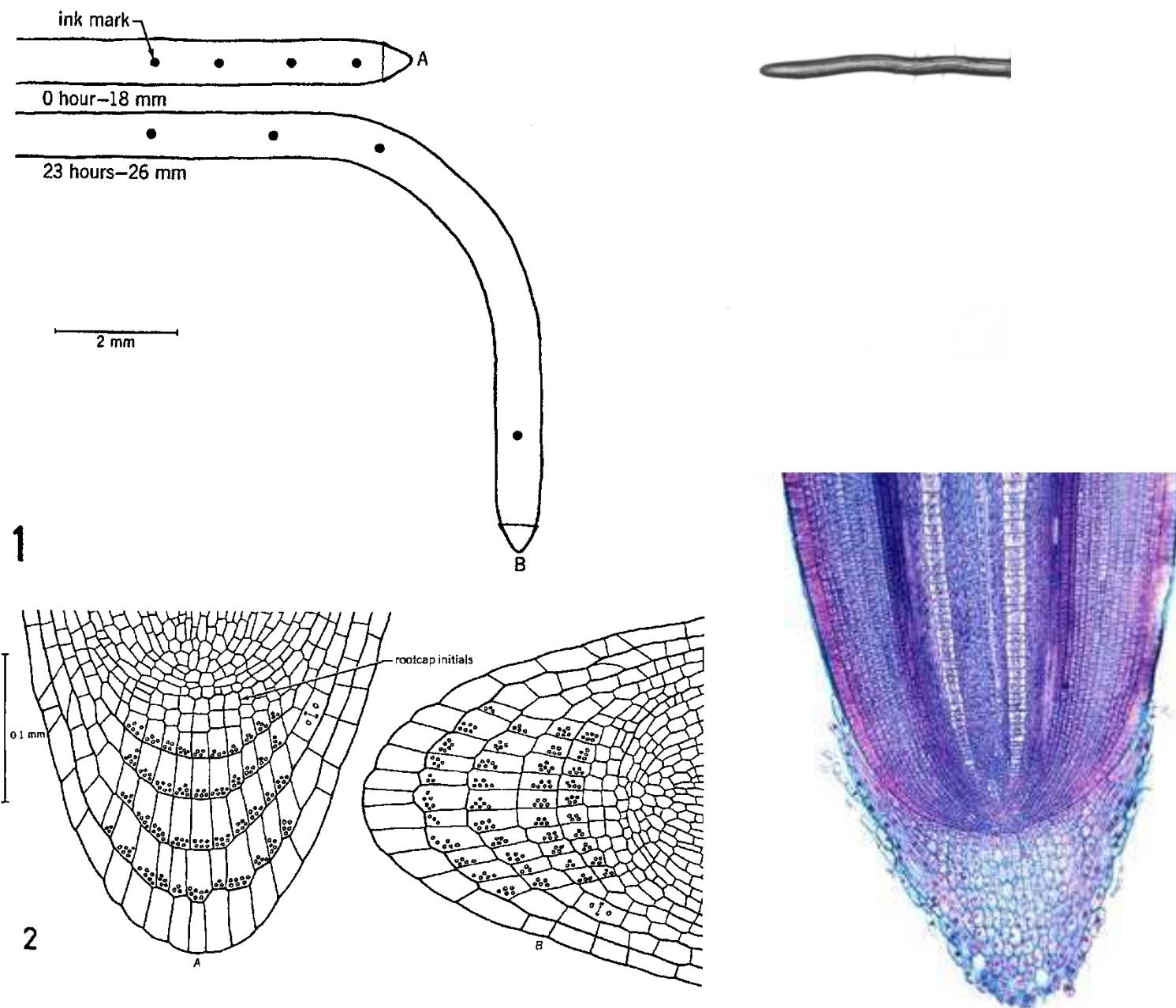


A.J. Thorsen '92

Bij Arabidopsis: **4 quiescent center (QC) cellen** omgeven door initiaalcellen

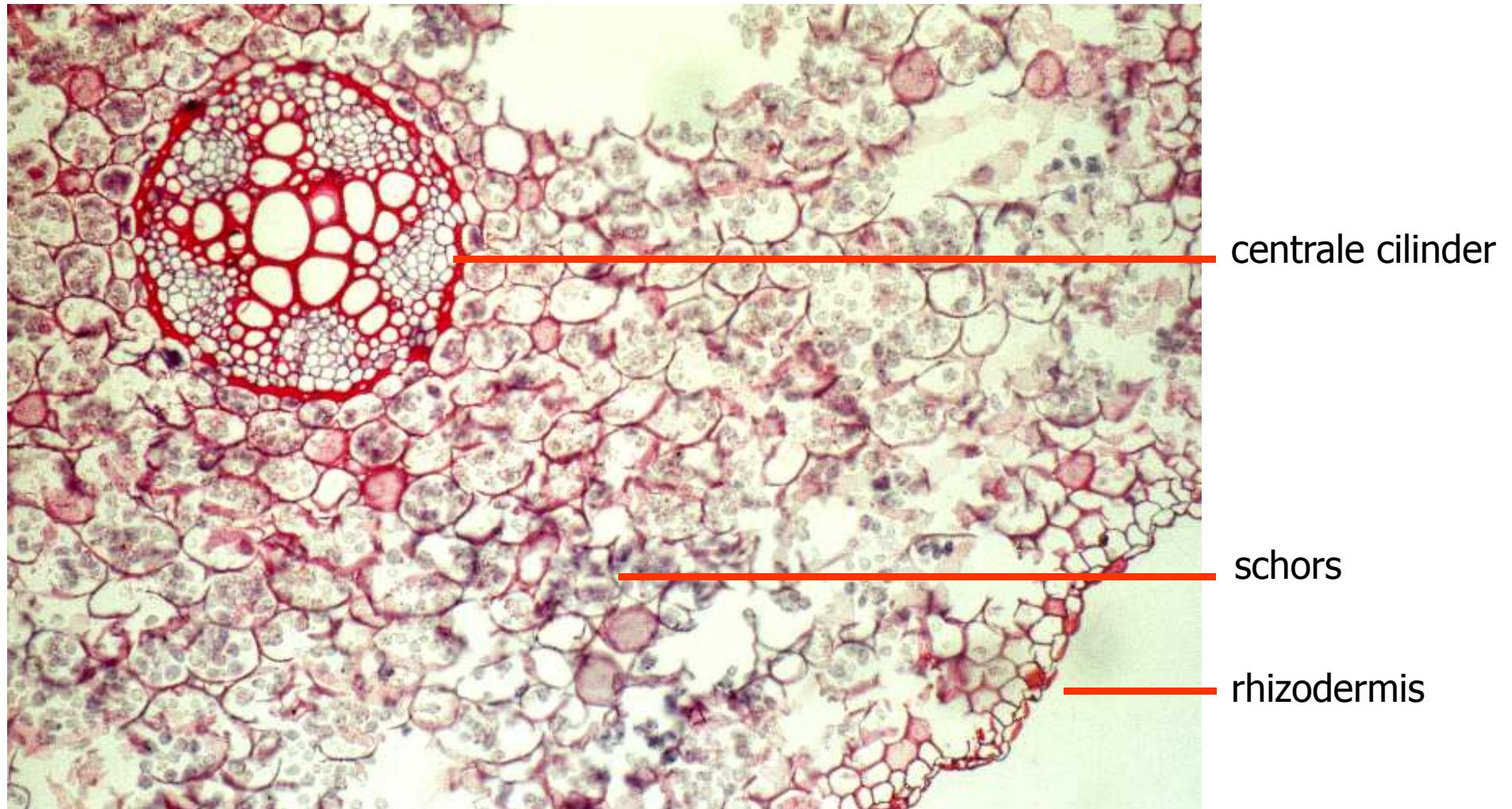


## AW 4. Worteltop :celstrekking en gravitatieperceptie

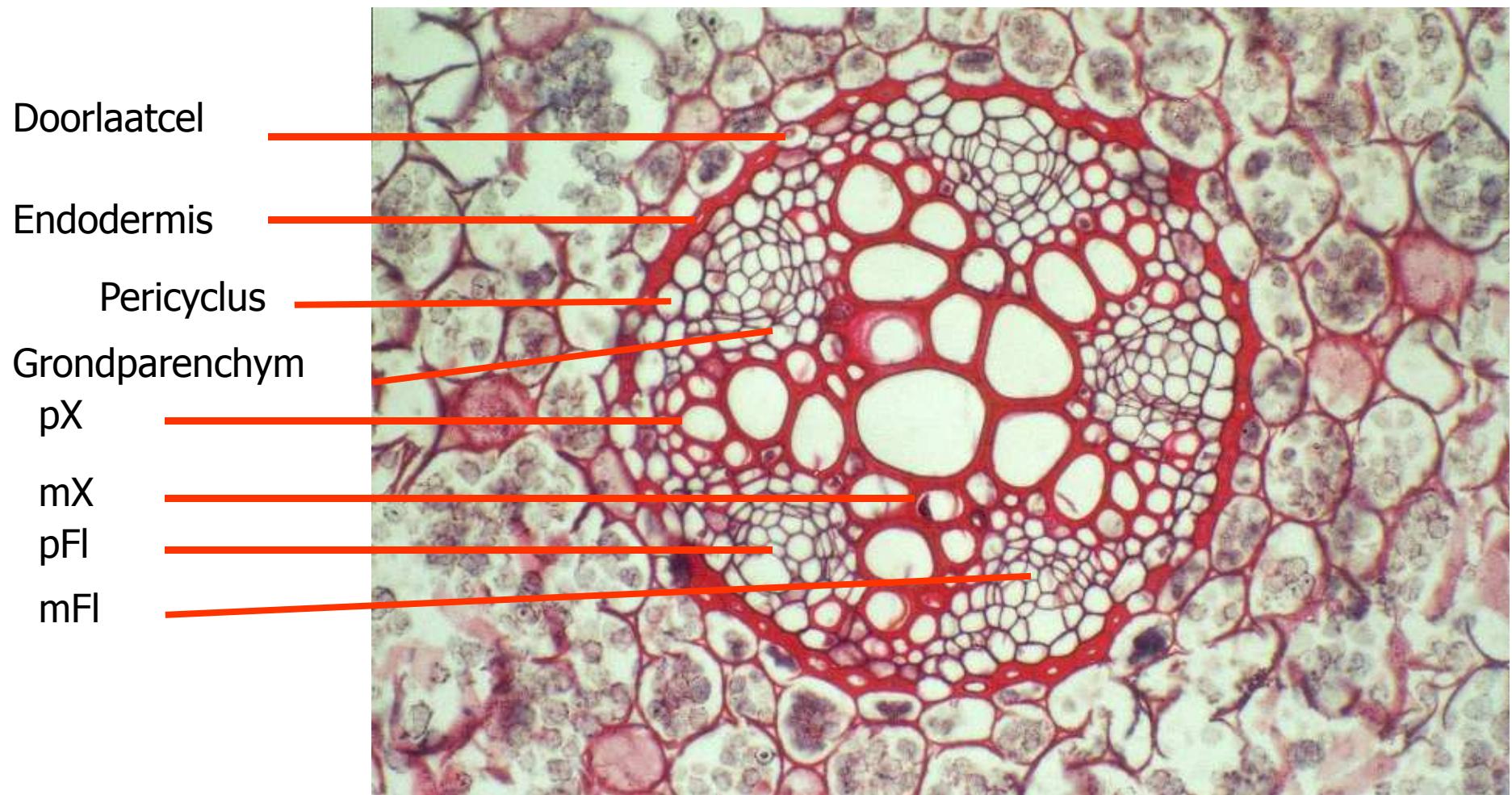


# Dwarse doorsnede WORTEL dicotyl

## Overzicht

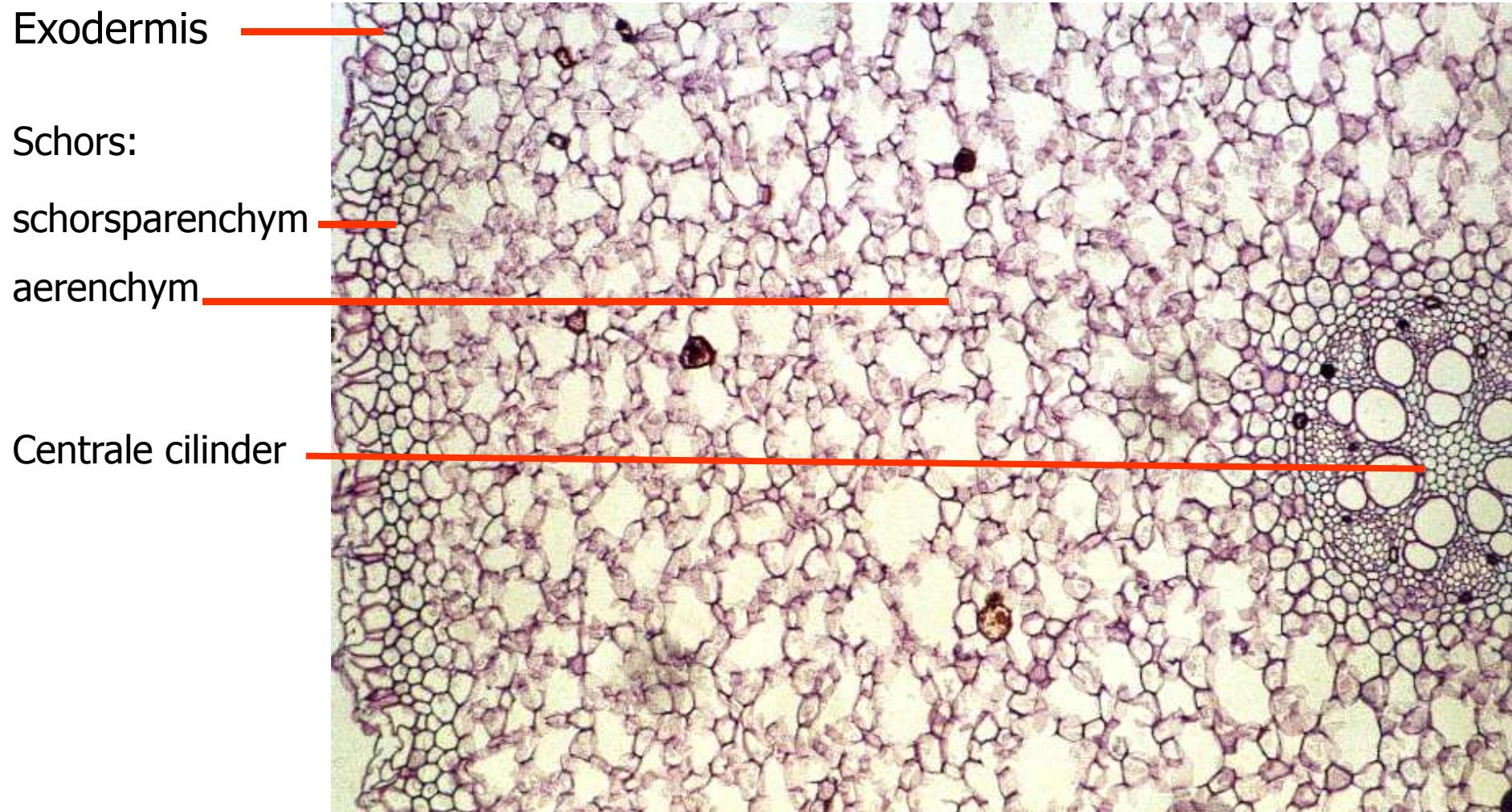


## Detail centrale cilinder



# Dwarse doorsnede WORTEL, monocotyl

## Overzicht



## **Detail centrale cilinder**

Endodermis + punten  
van Caspary

Oliecel

Pericyclus

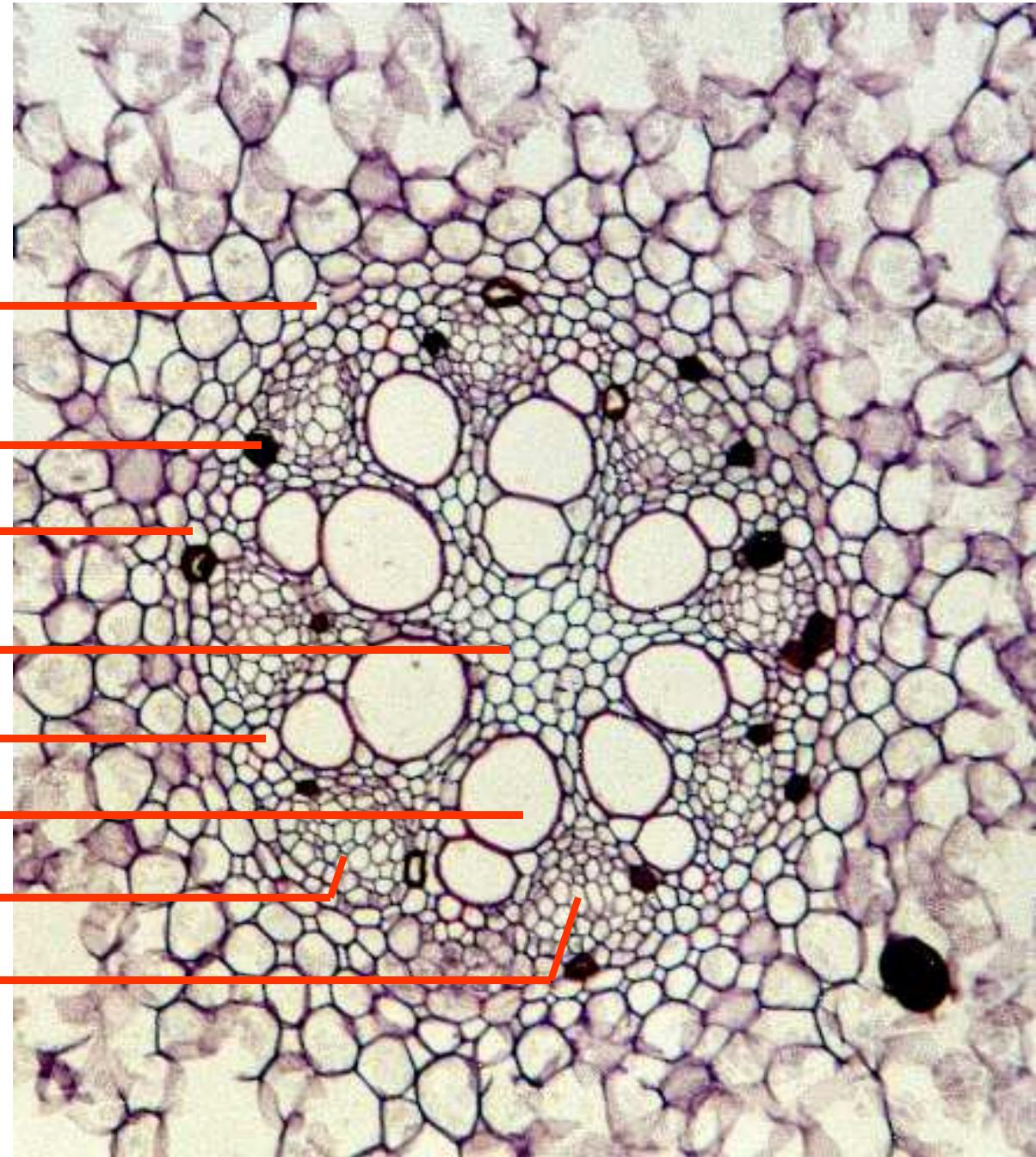
Grondparenchym

pX

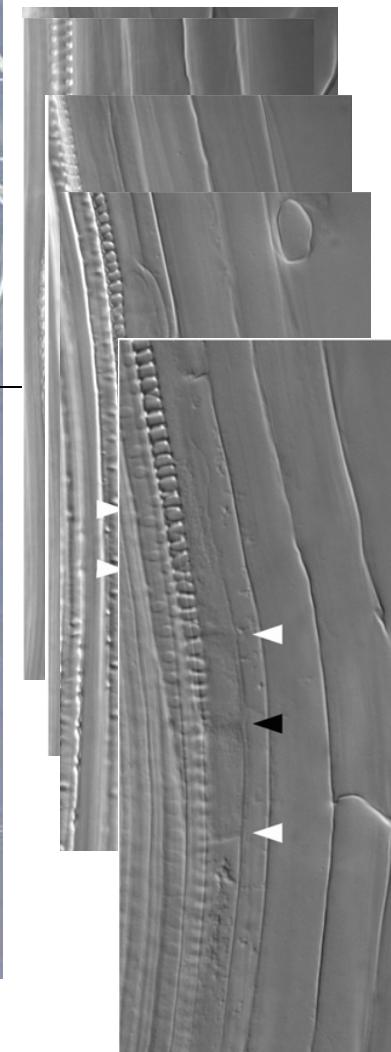
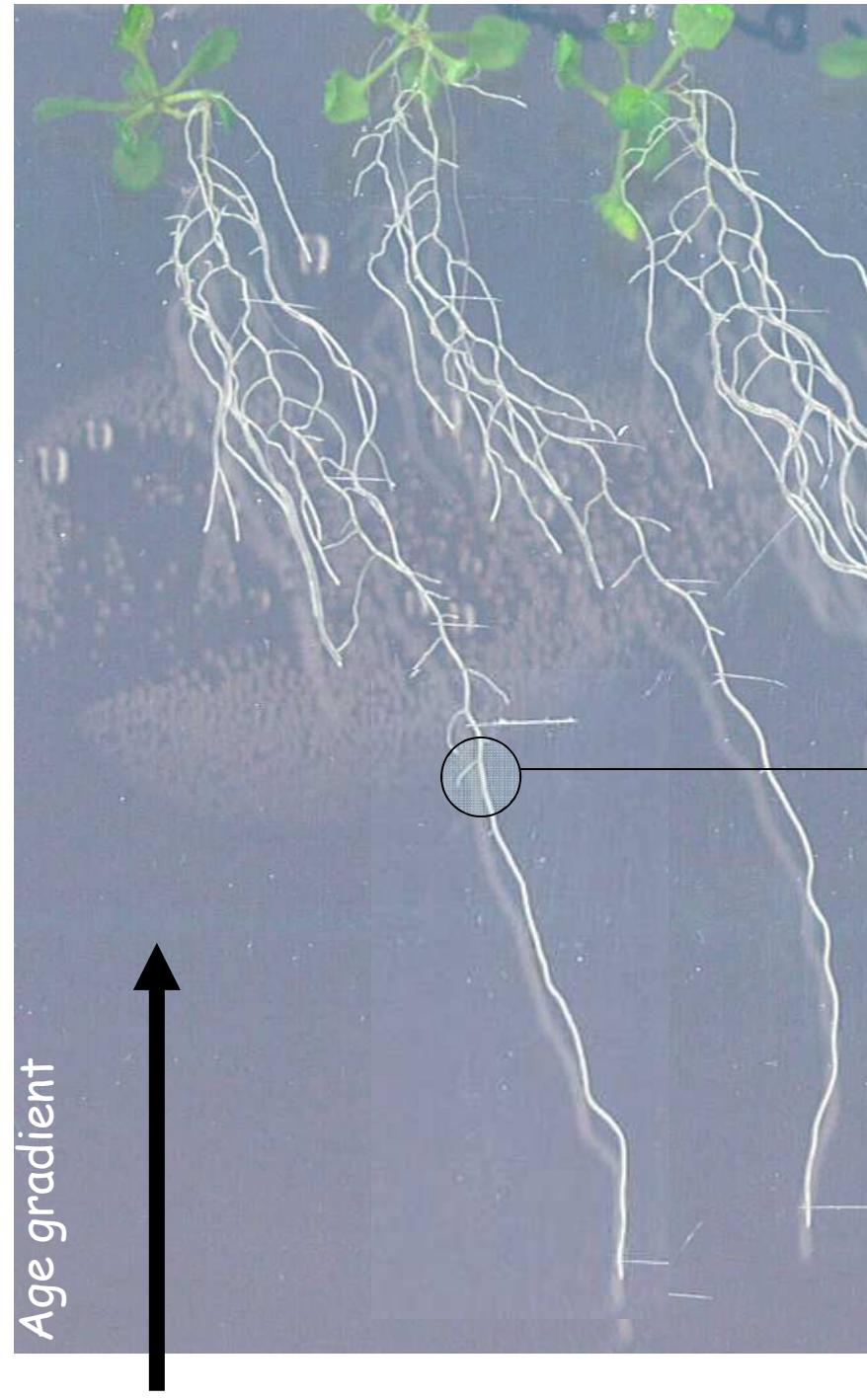
mX

pFl

mFl



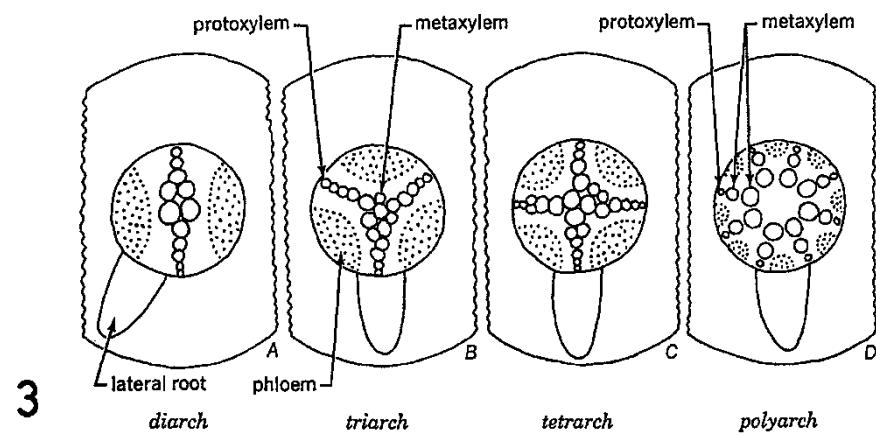
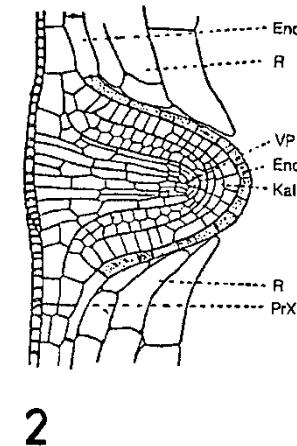
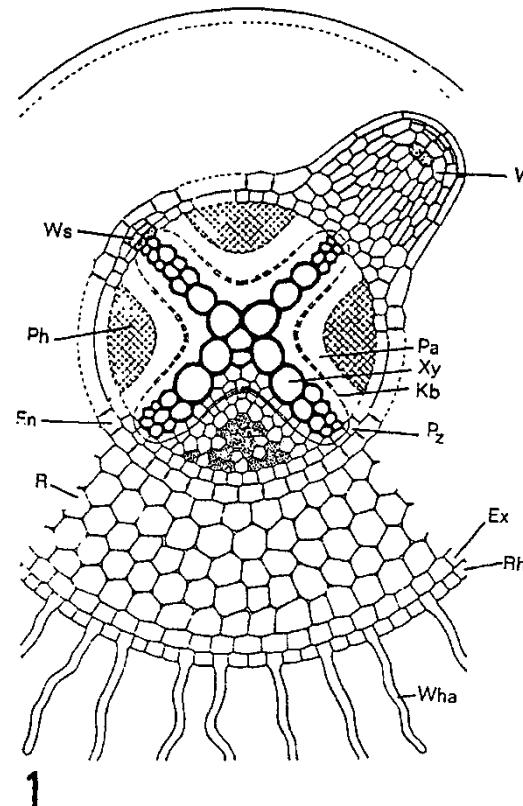
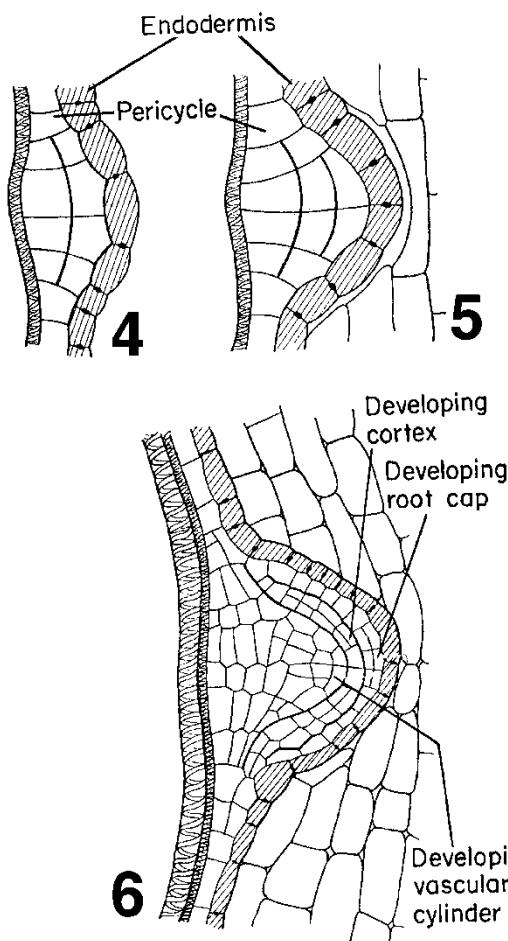
Endogeen ontstaan van  
een zijwortel



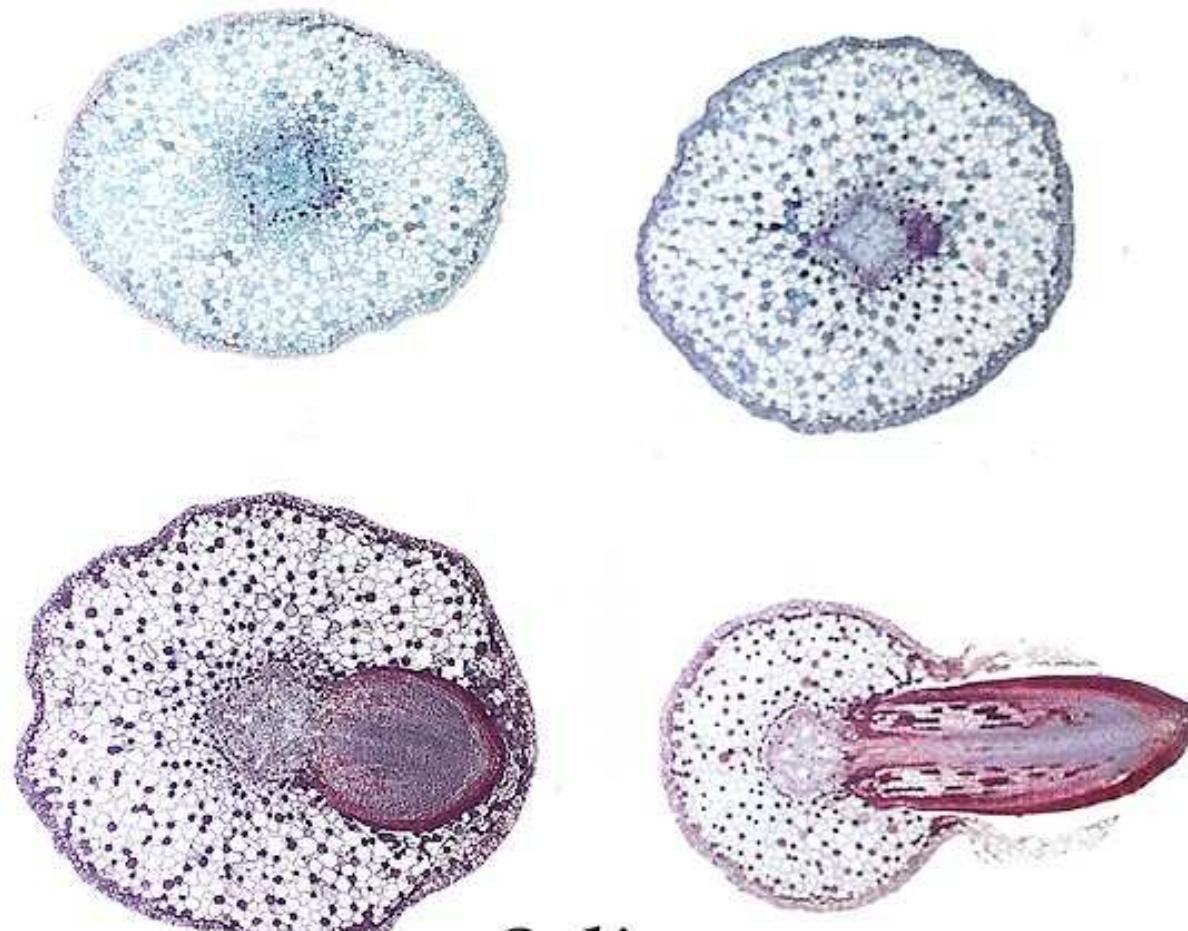


Bethan  
Cummings

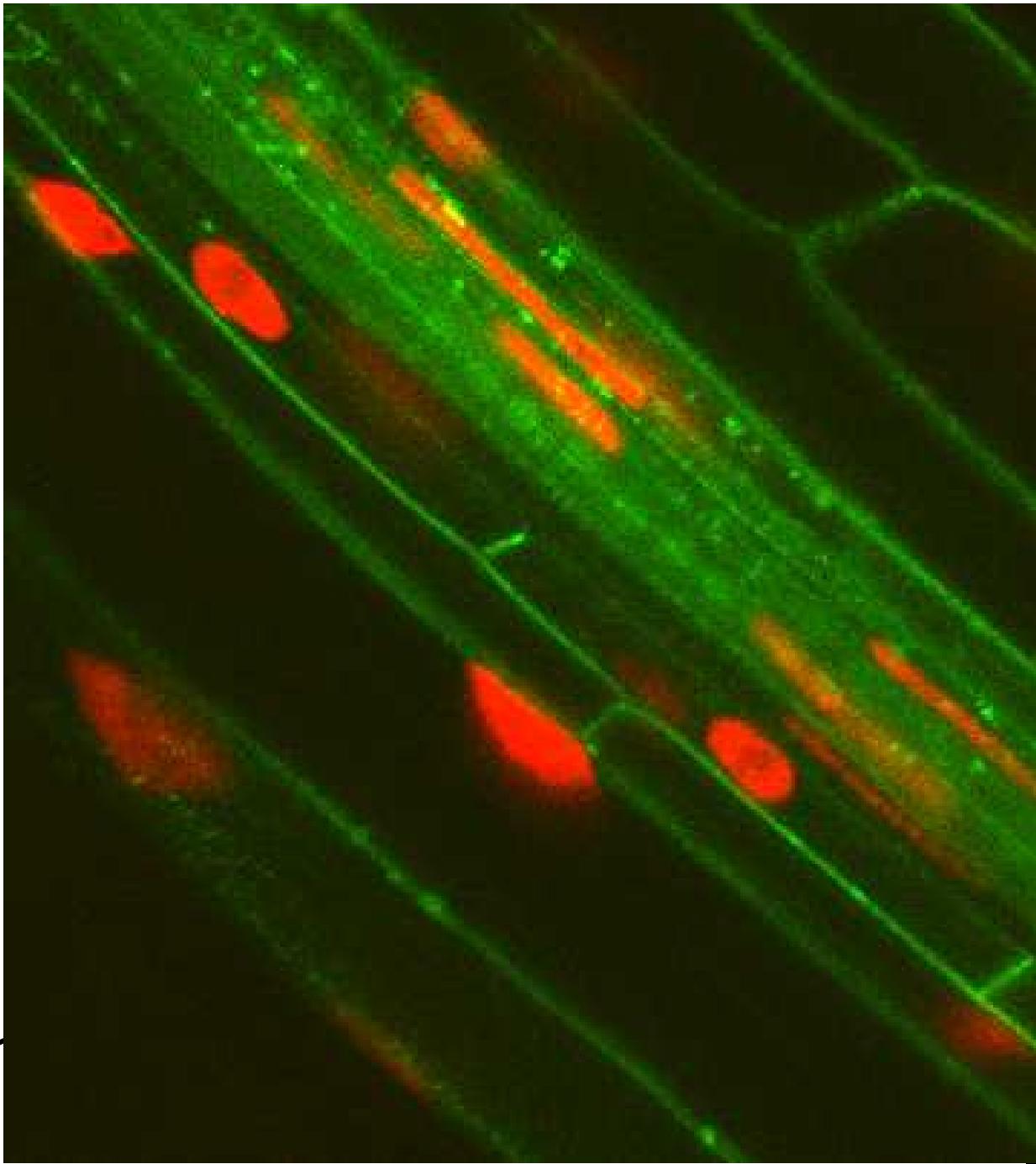
# Zijwortel, ontogenie



## Ontogenie van zijwortel bij Wilg

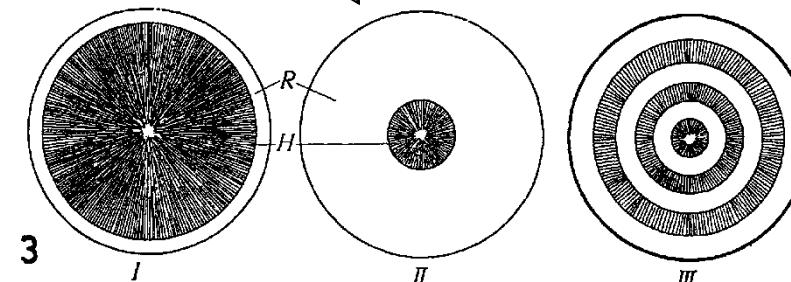
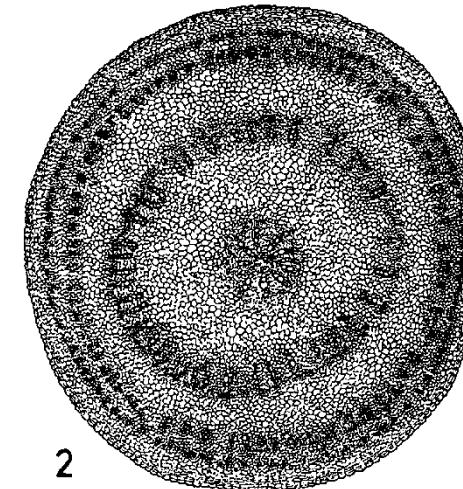
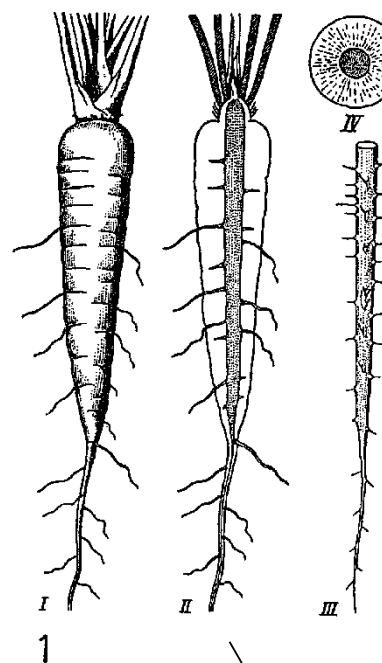


*Salix*



pDR5:NLS-GFP ■  
x  
p35S:H2B:RFP ■  
x  
p35S:FH6:GFP ■

# Secundaire diktegroei van wortels

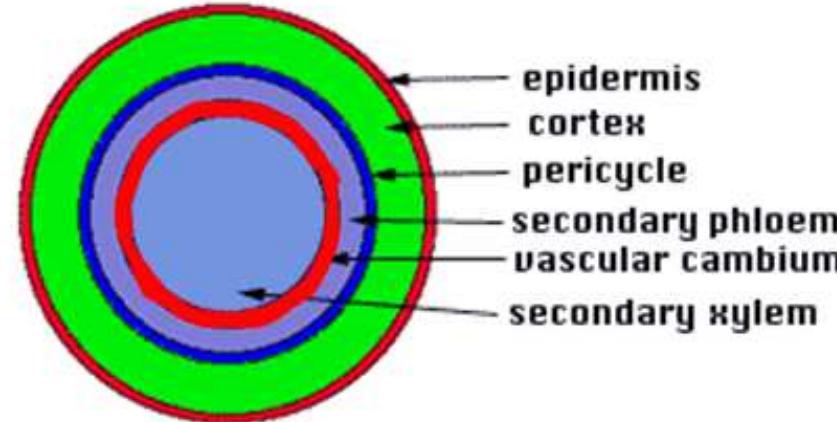
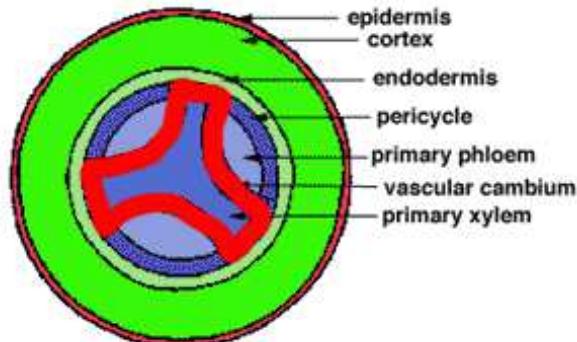


R = secundair F + cortex  
H = xyleem

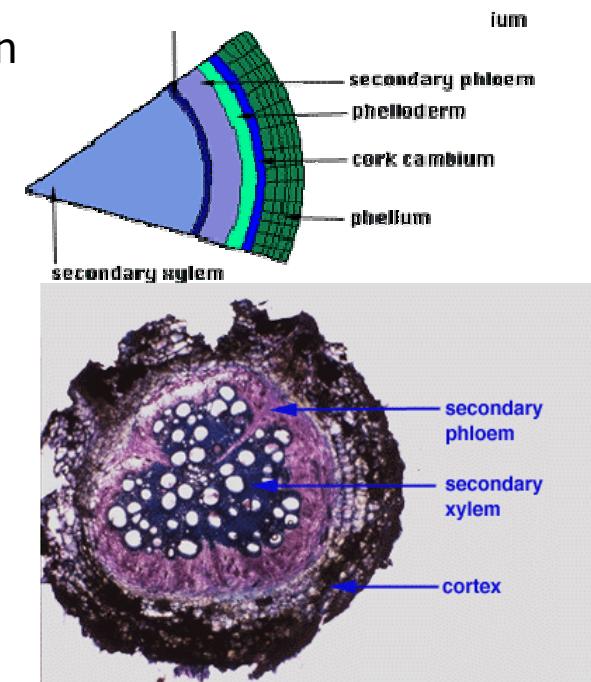
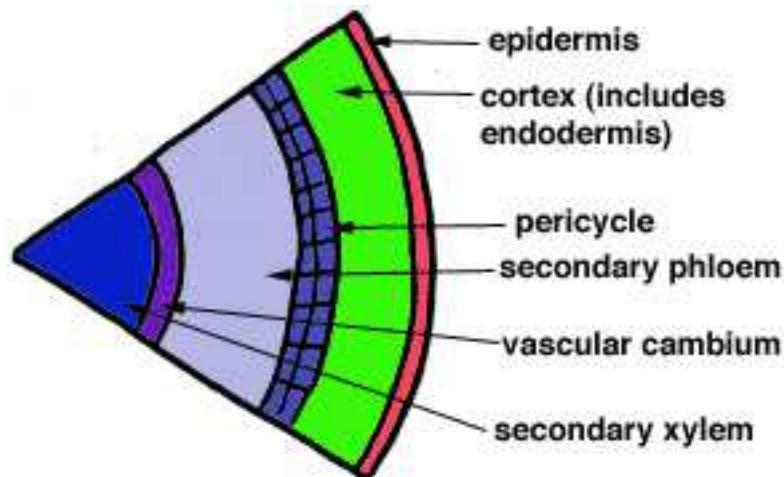


# Secundaire diktegroei van wortels

De secundaire diktegroei start met re-embryonalisatie en delingen van parenchymcellen tussen X en FL en van pericycluscellen t.h.v. de Xyleemnollen.

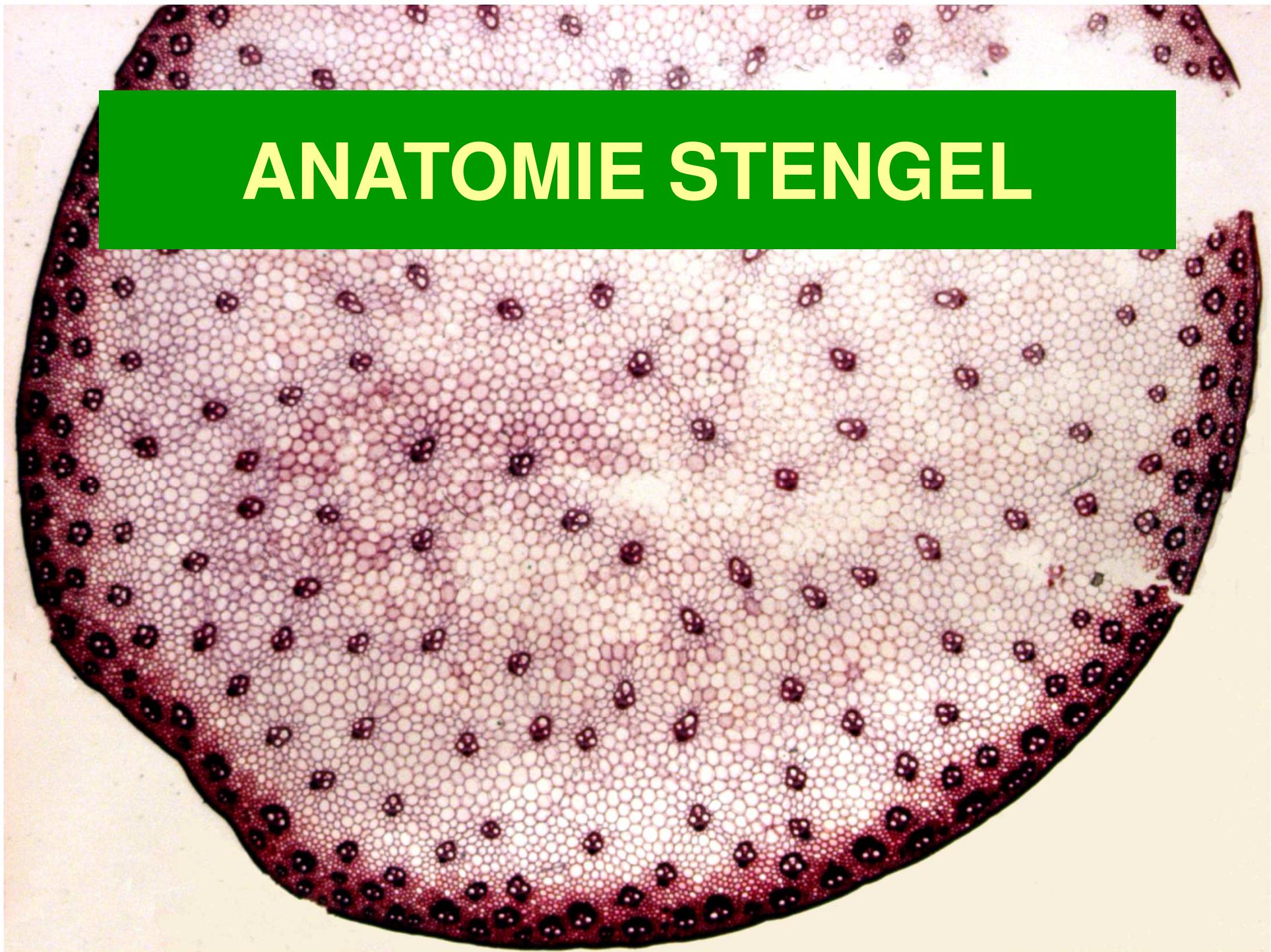


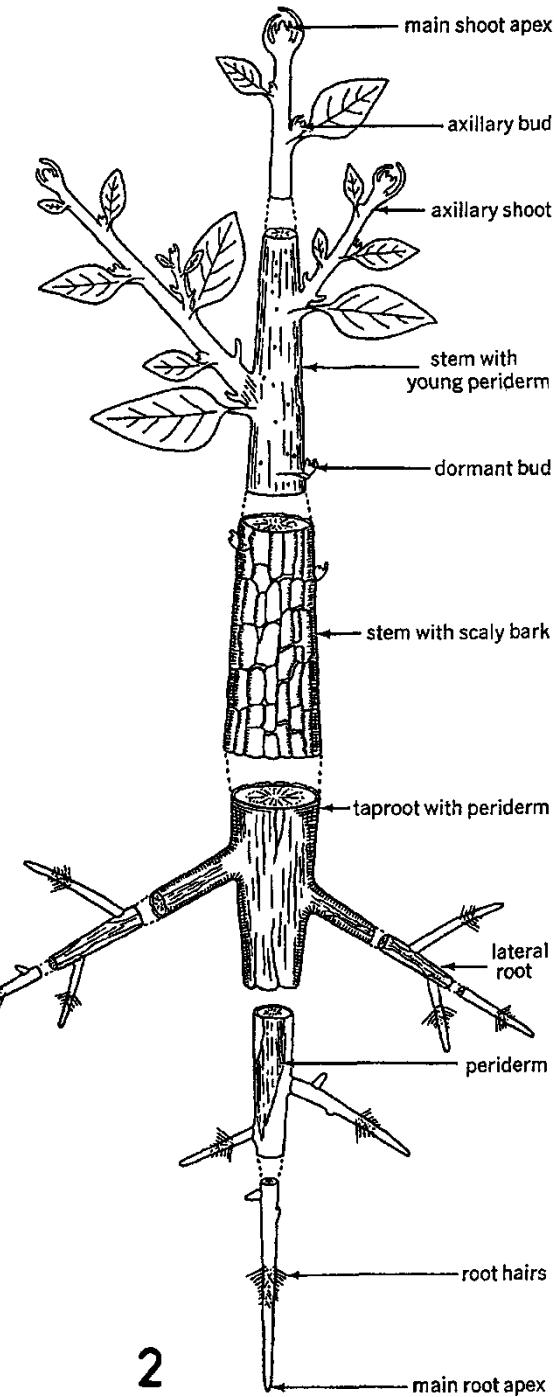
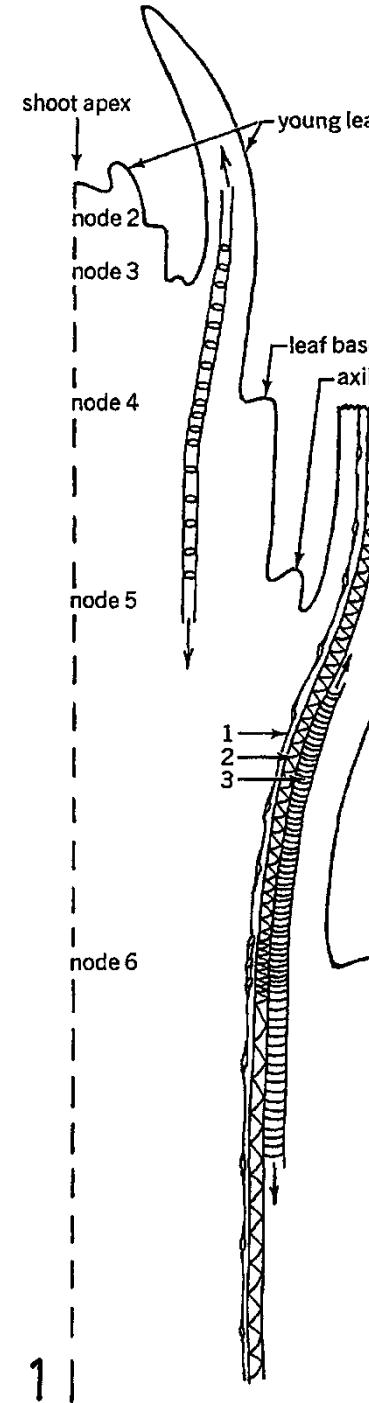
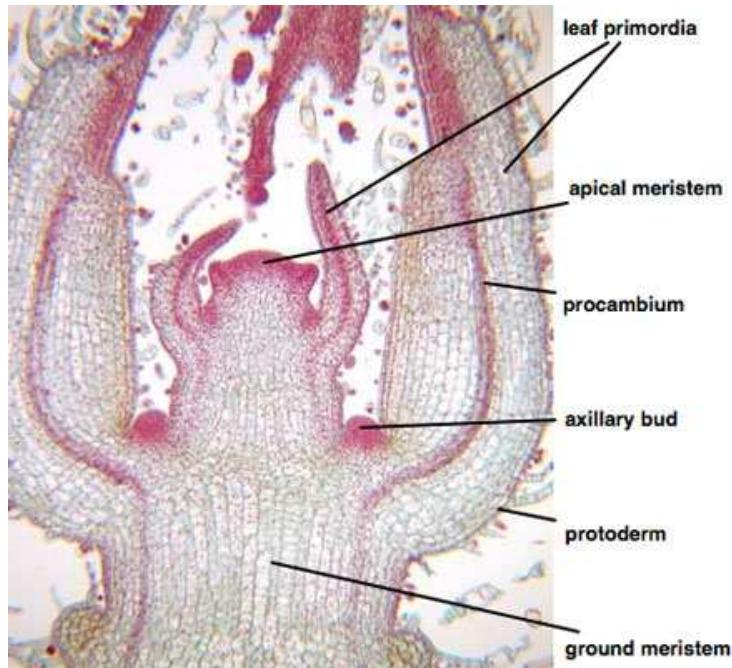
De rhizodermis wordt vervangen door een exodermis en later door secundaire schors of periderm



secundair verdikte tomaatwortel

# ANATOMIE STENGEL



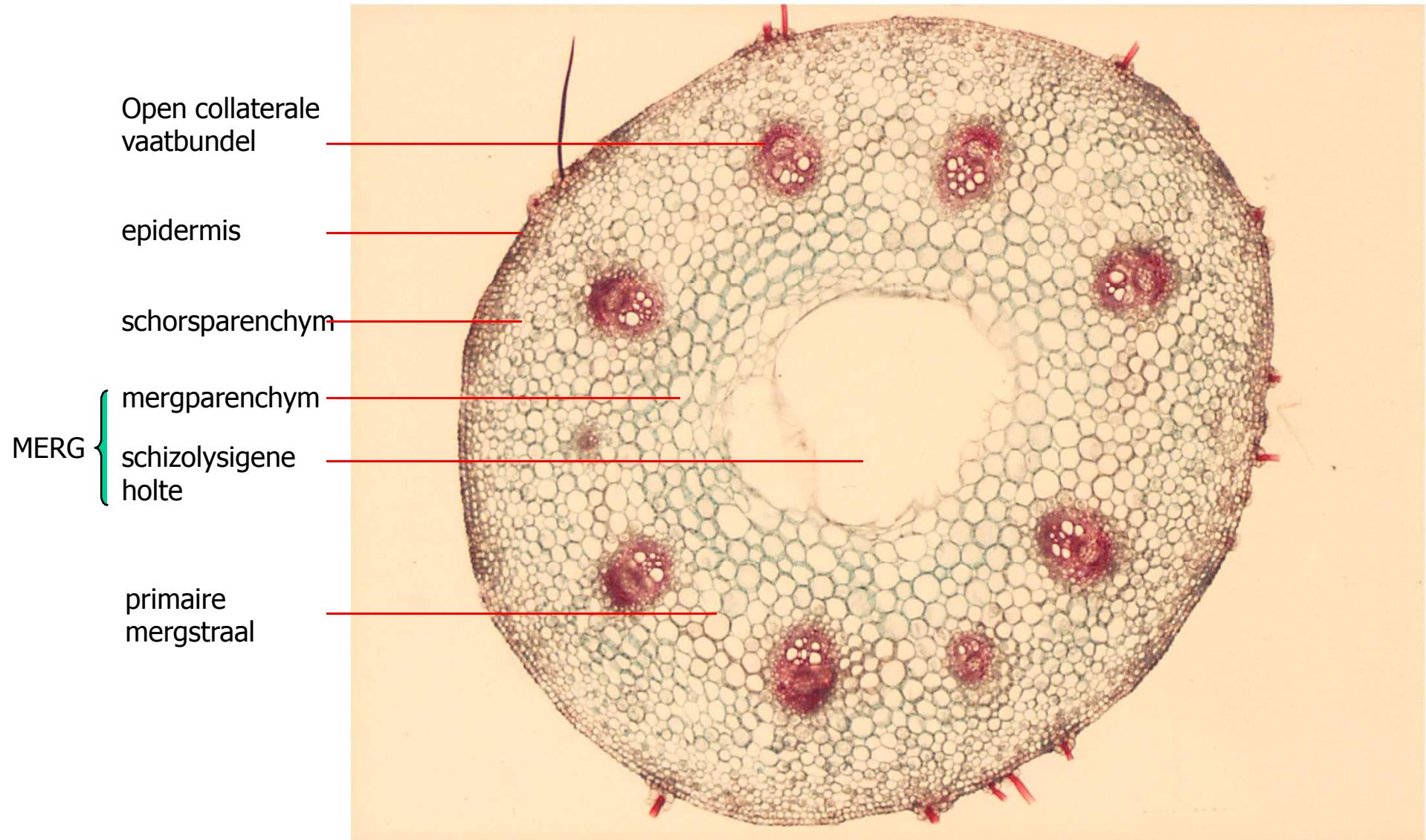


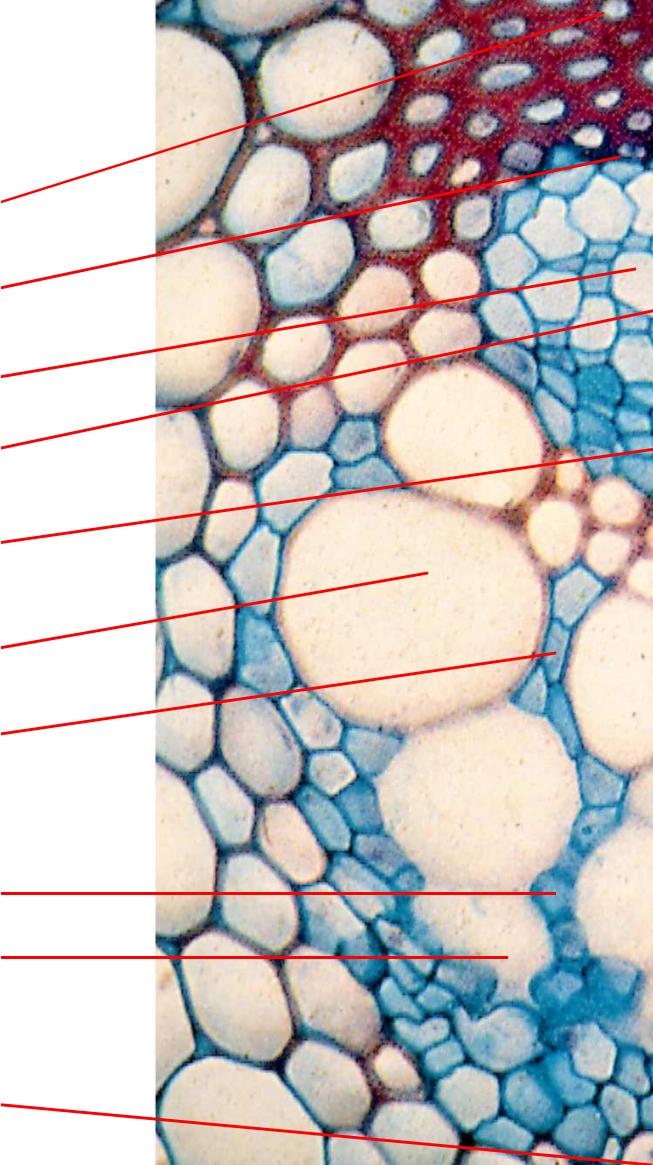
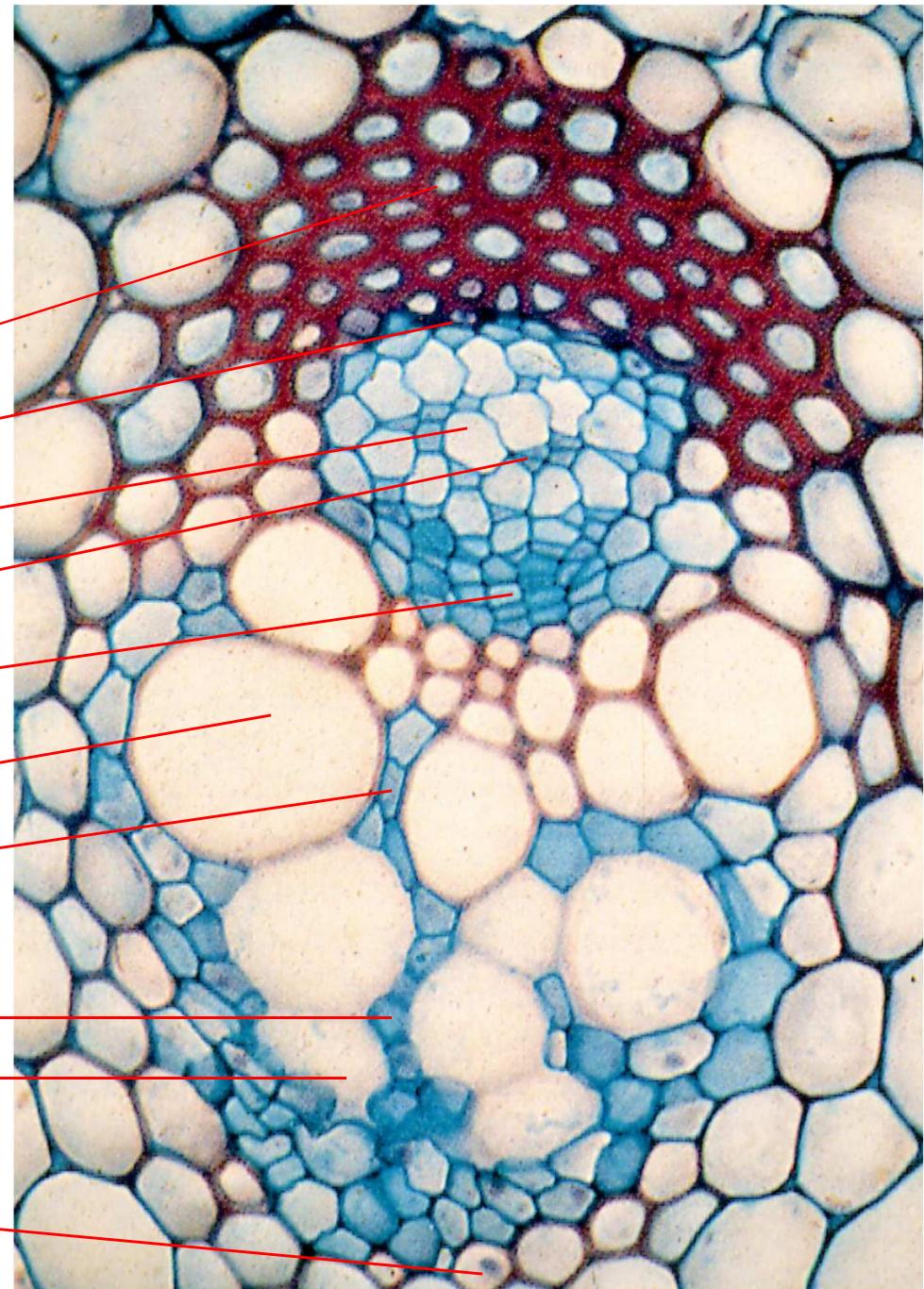
AS1

1

2

*Ranunculus repens* L.  
Dwarse doorsnede stengel  
EUSTELE





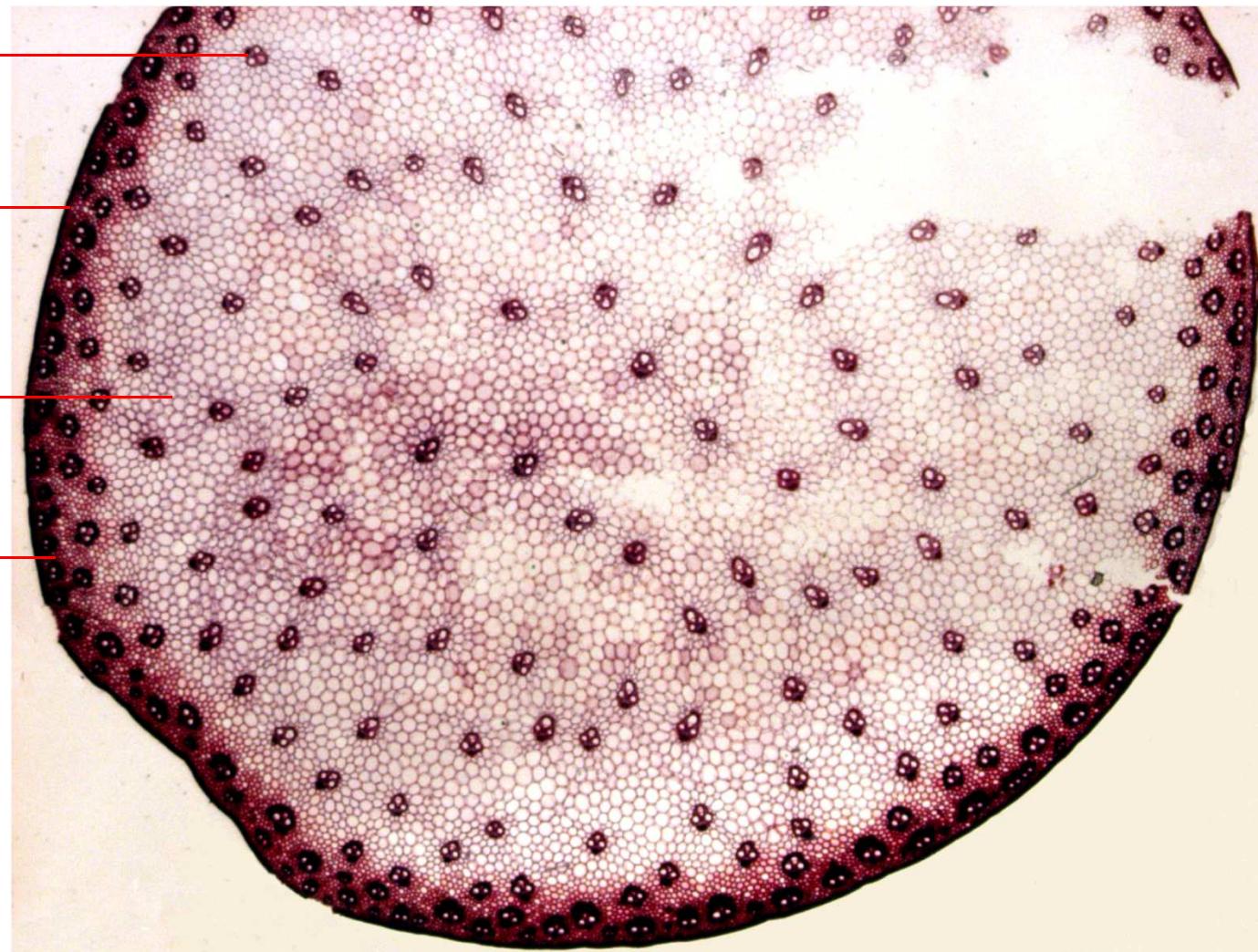
*Zea mays* L.  
dwarse doorsnede stengel  
**ATACTOSTELE**

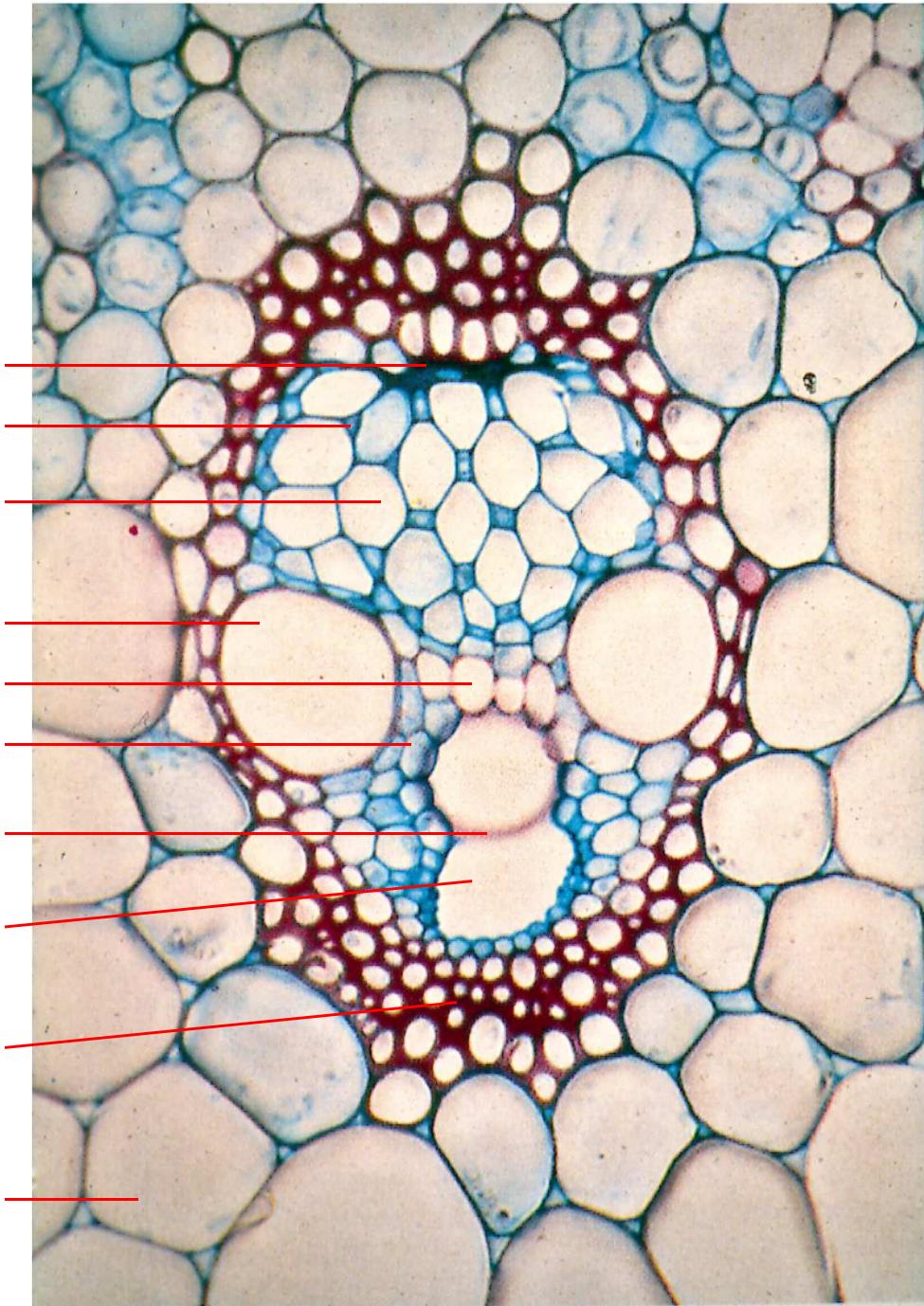
Gesloten  
collaterale  
vaatbundel

epidermis

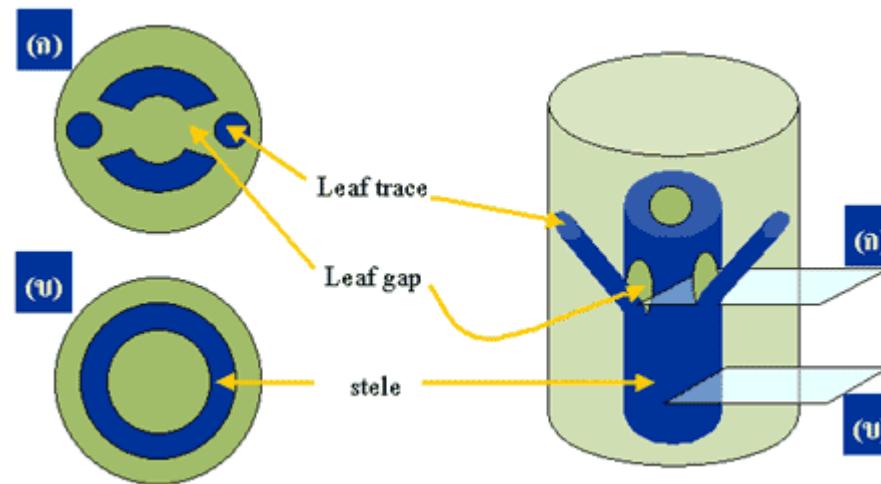
grond-  
parenchym

hypodermis

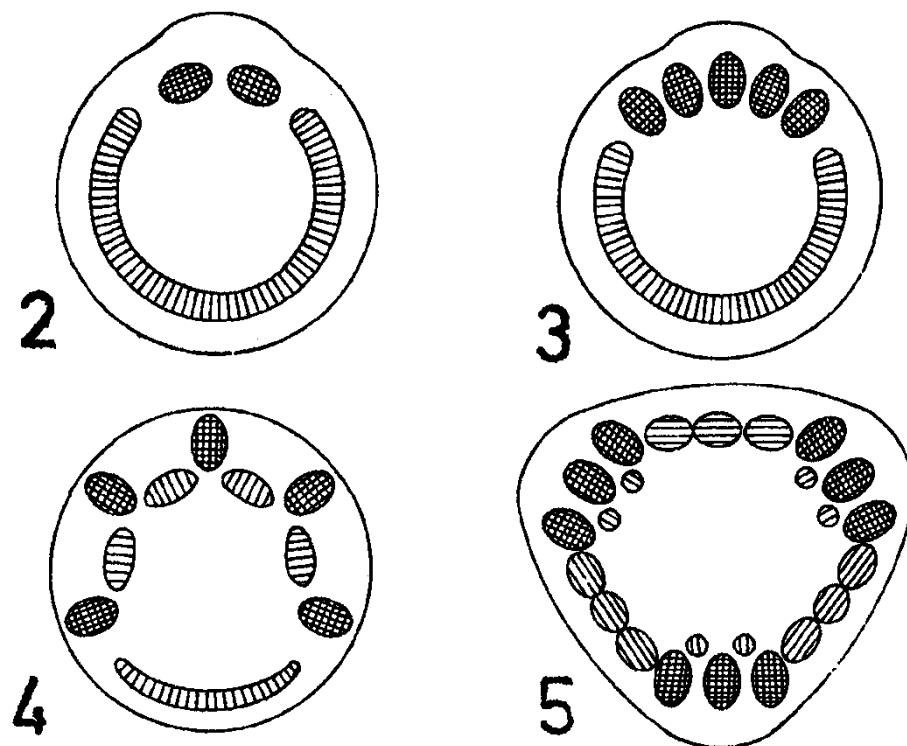
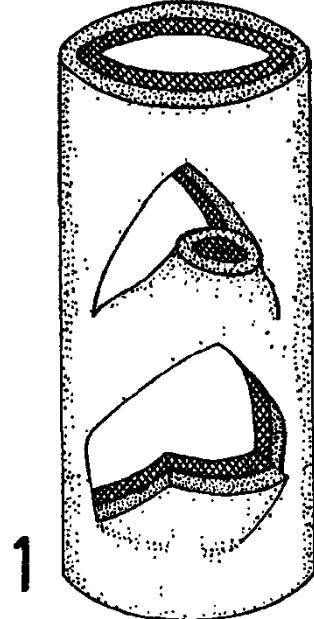




## Bladspoor en bladvenster



AS7

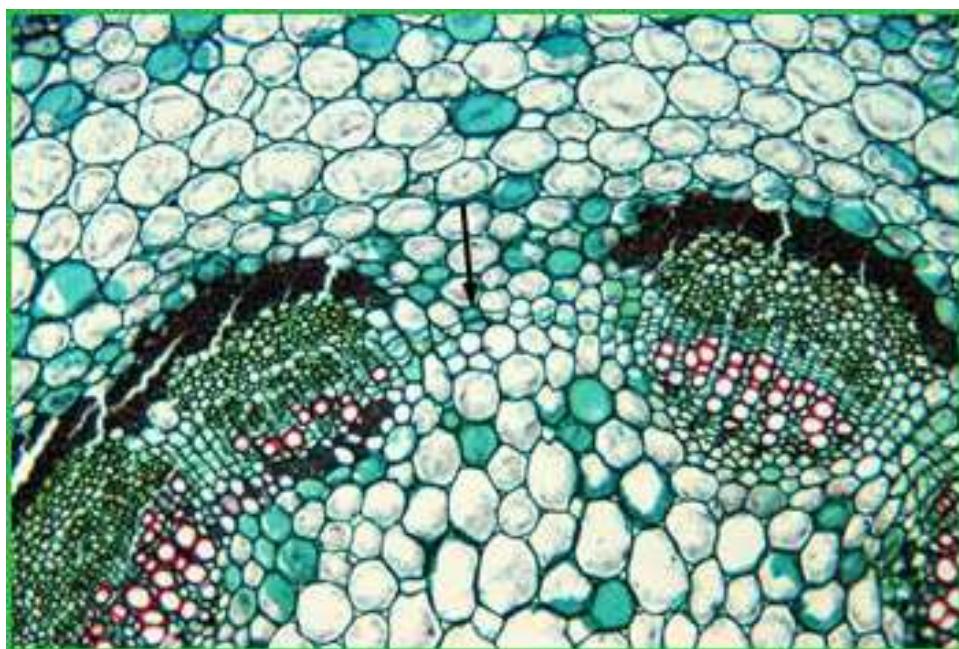




Secundaire diktegroei



interfasciculair cambium





## Open collaterale VB

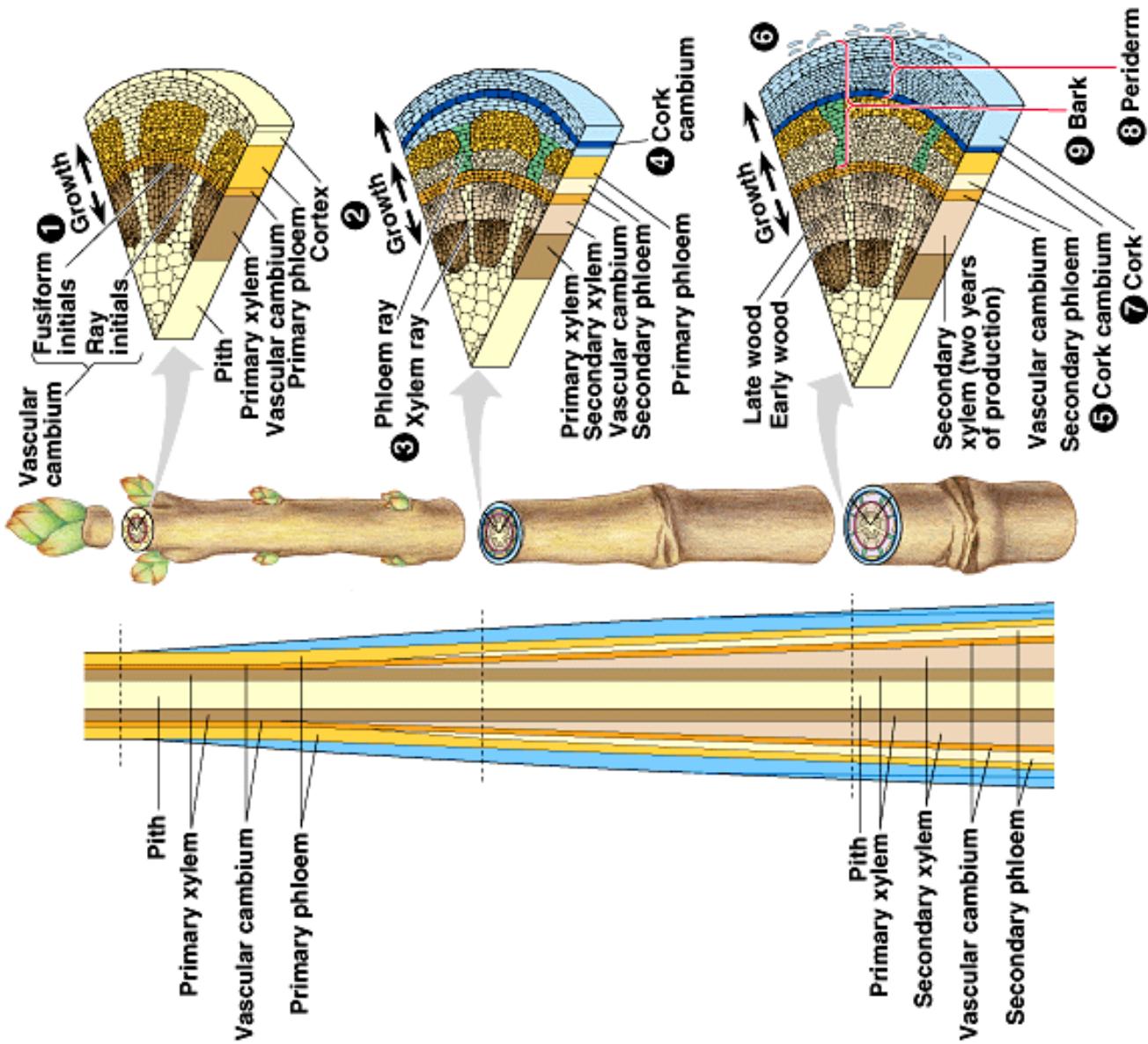
primair floeem

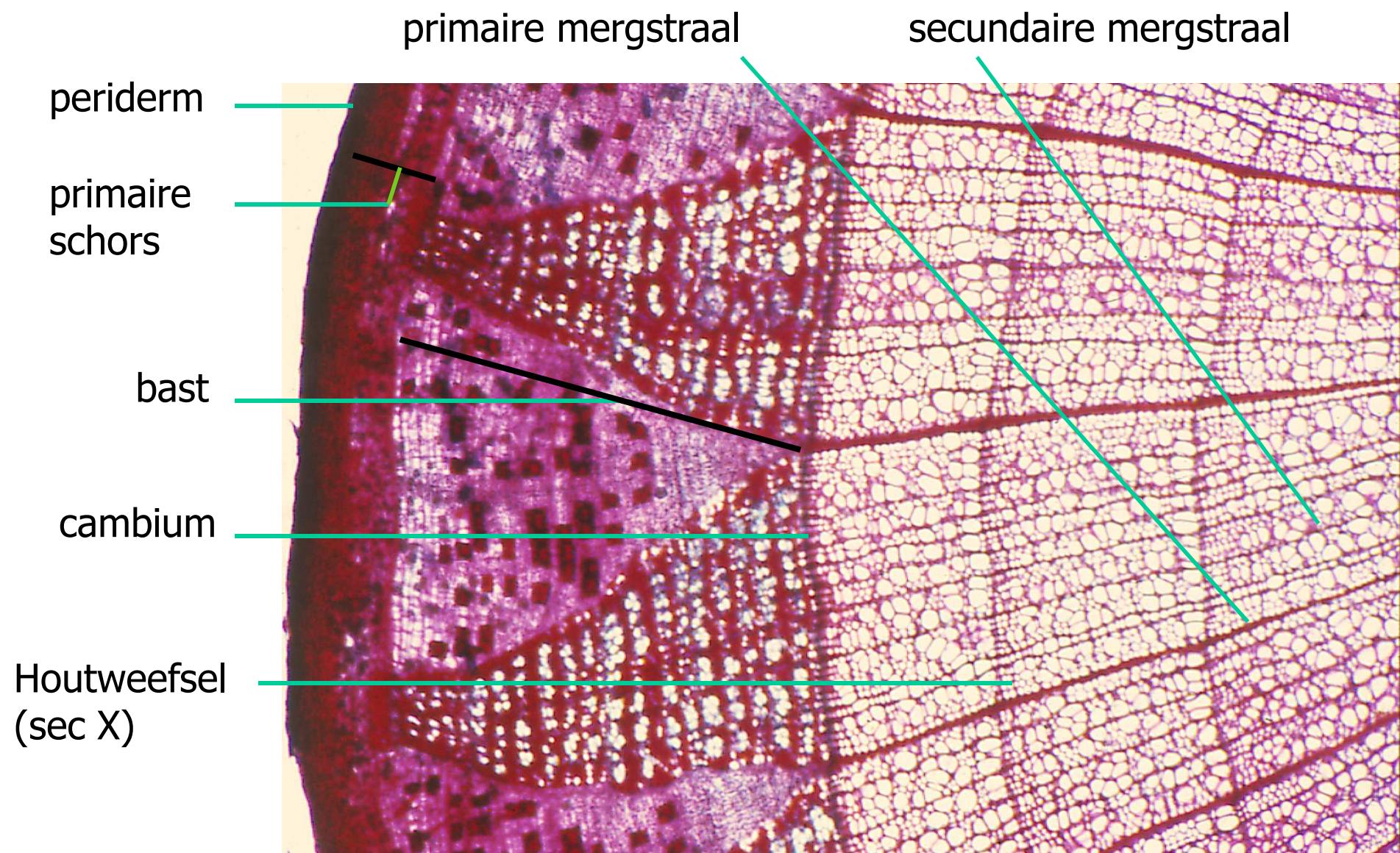
secundair floeem

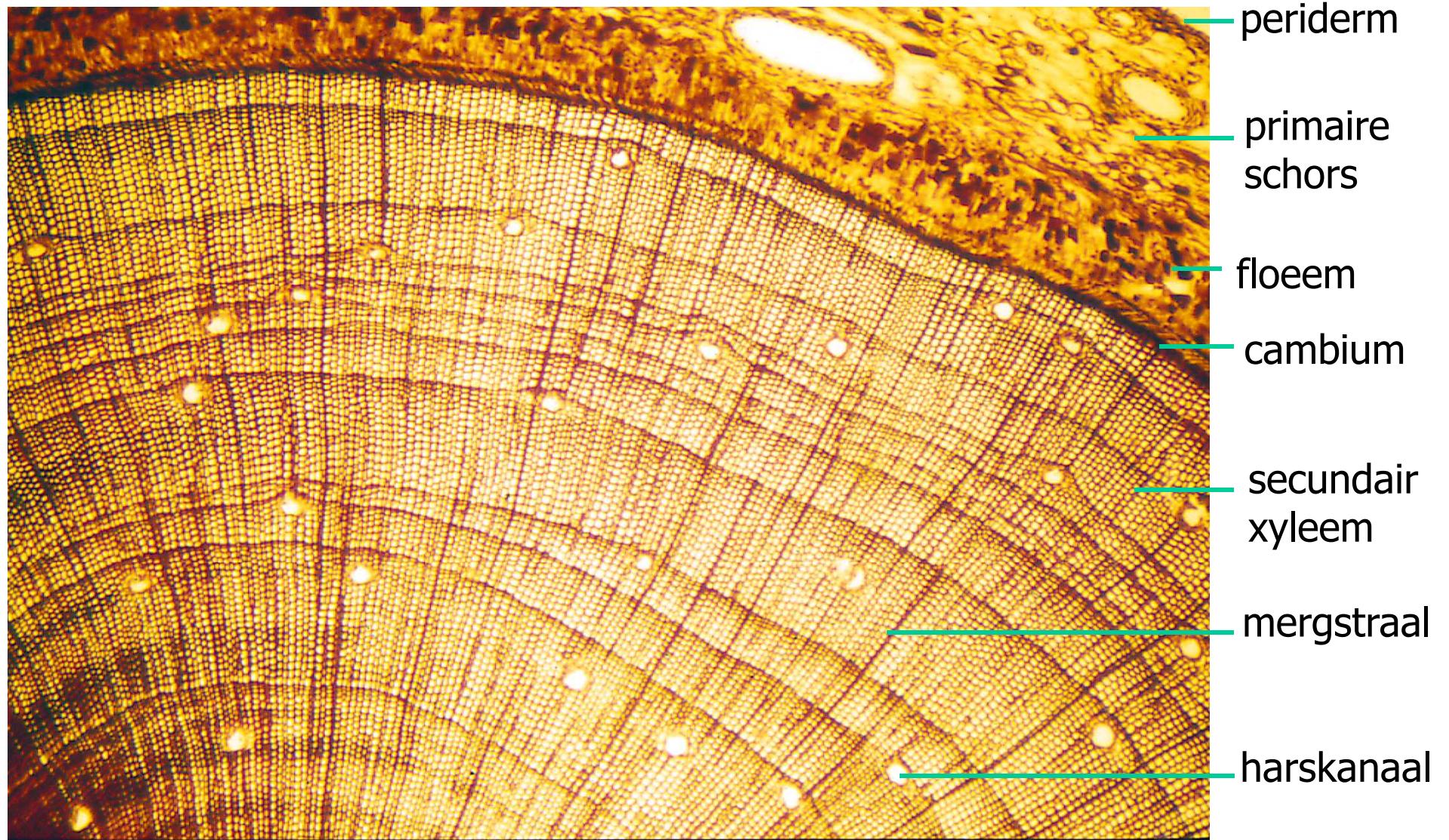
fasciculair cambium

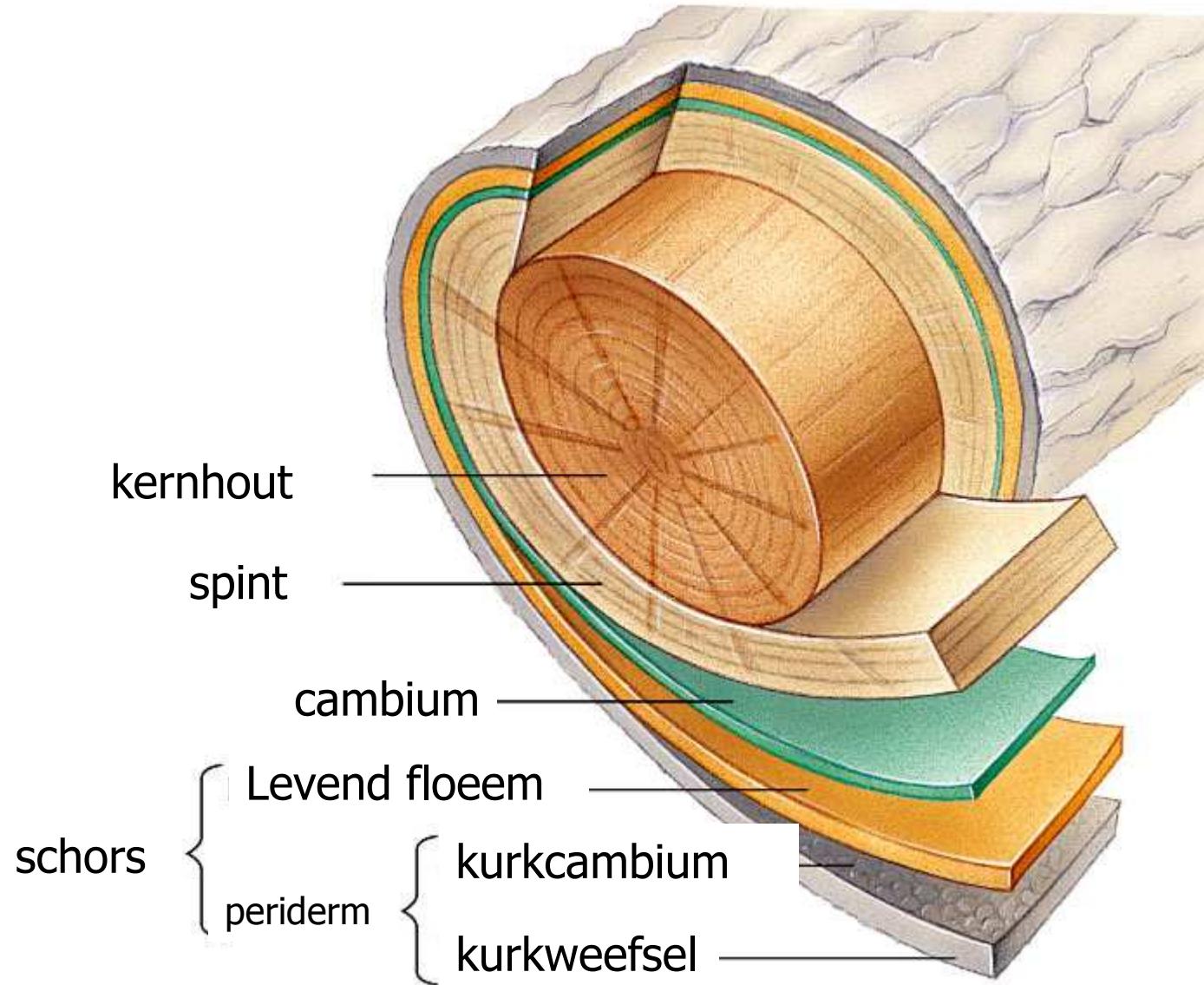
secundair xyleem

primair xyleem



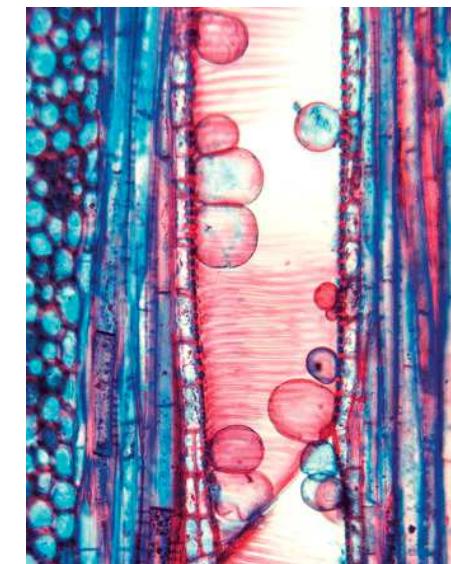
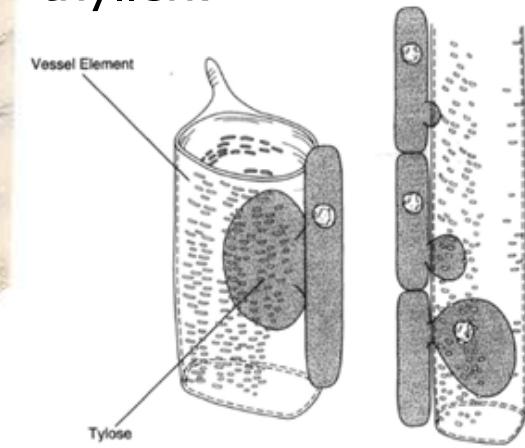


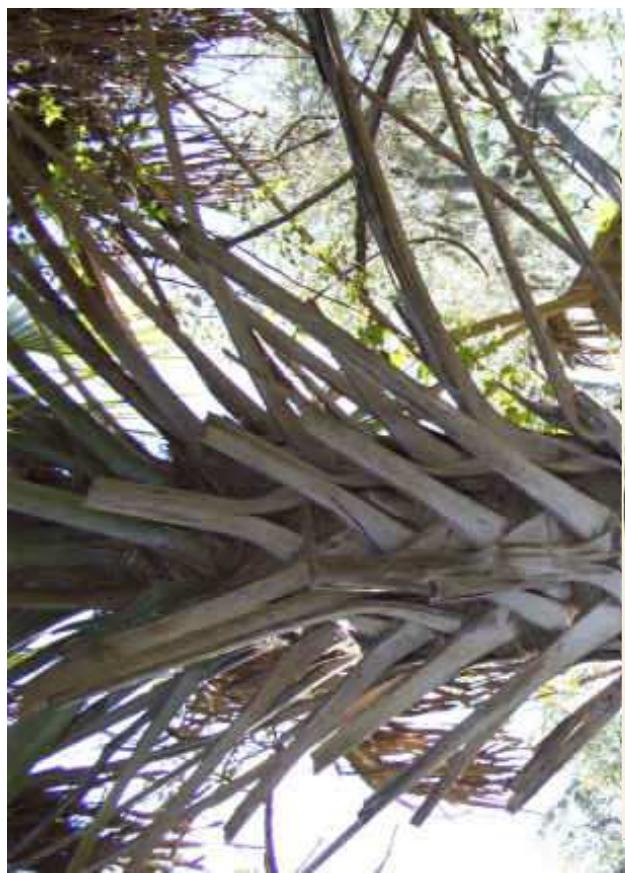




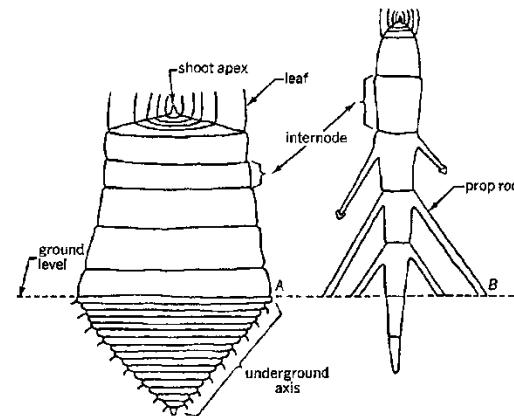
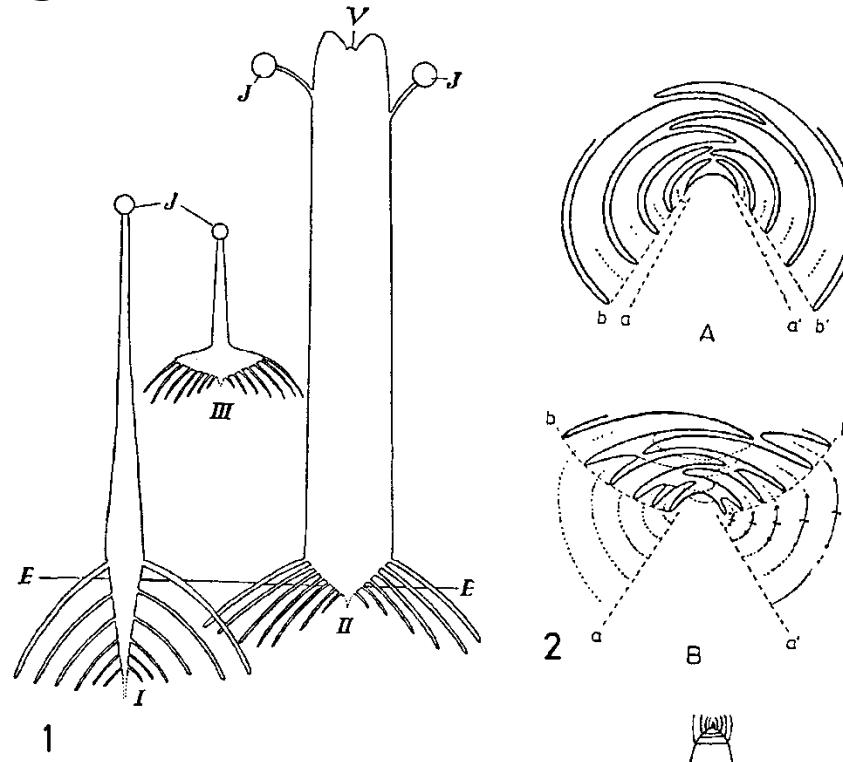
Copyright © Pearson Education, Inc., publishing as Benjamin Cummings.

Kernhout +  
thyllen:

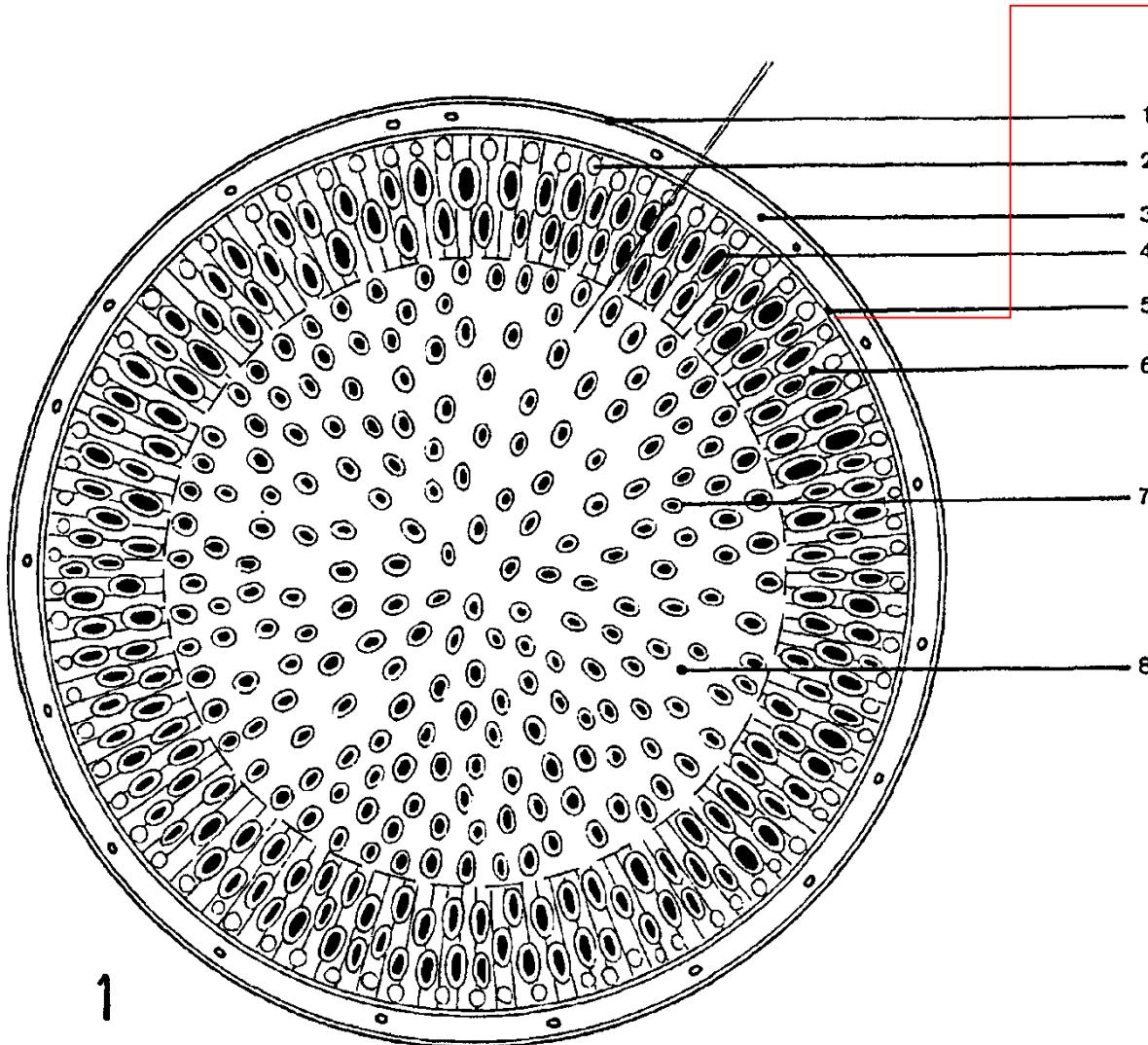




# Monocotylen: primaire diktegroei: meristeemmantel of primair verdikkingsmeristeem

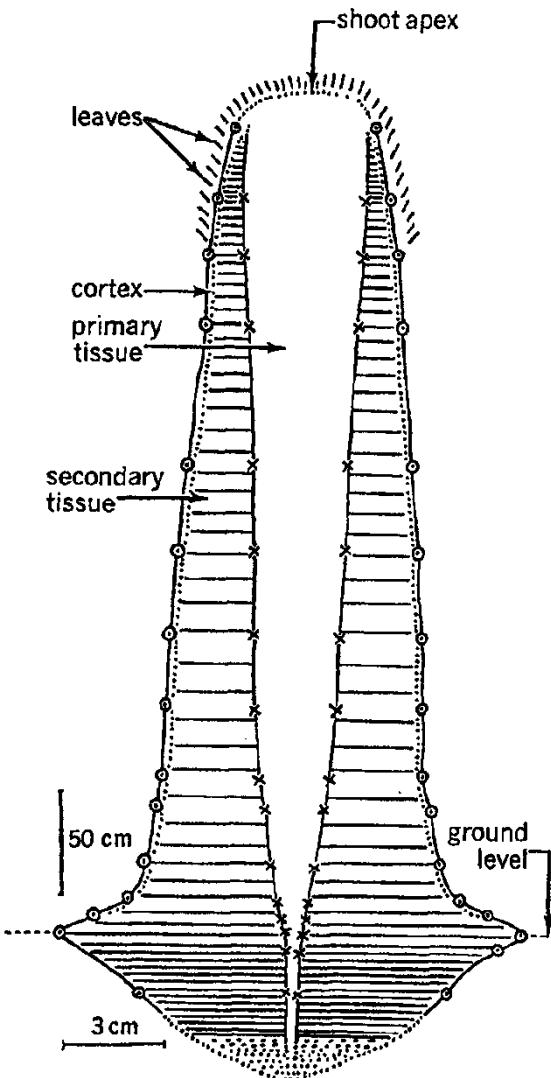
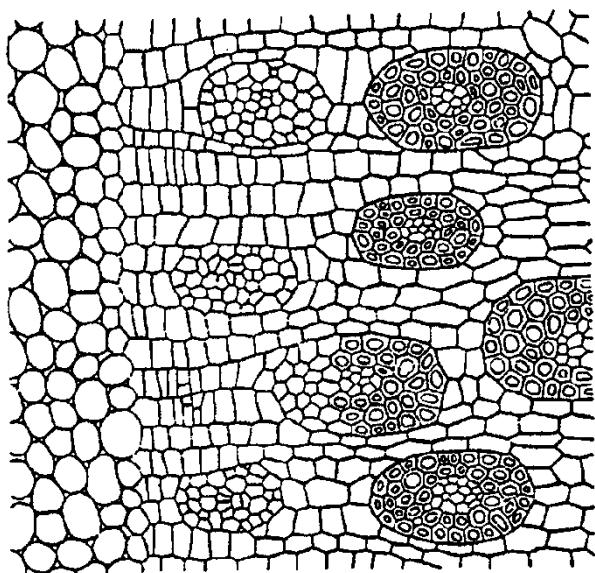


Monocotylen: secundaire diktegroei: secundair cambium:  
unidirectioneel

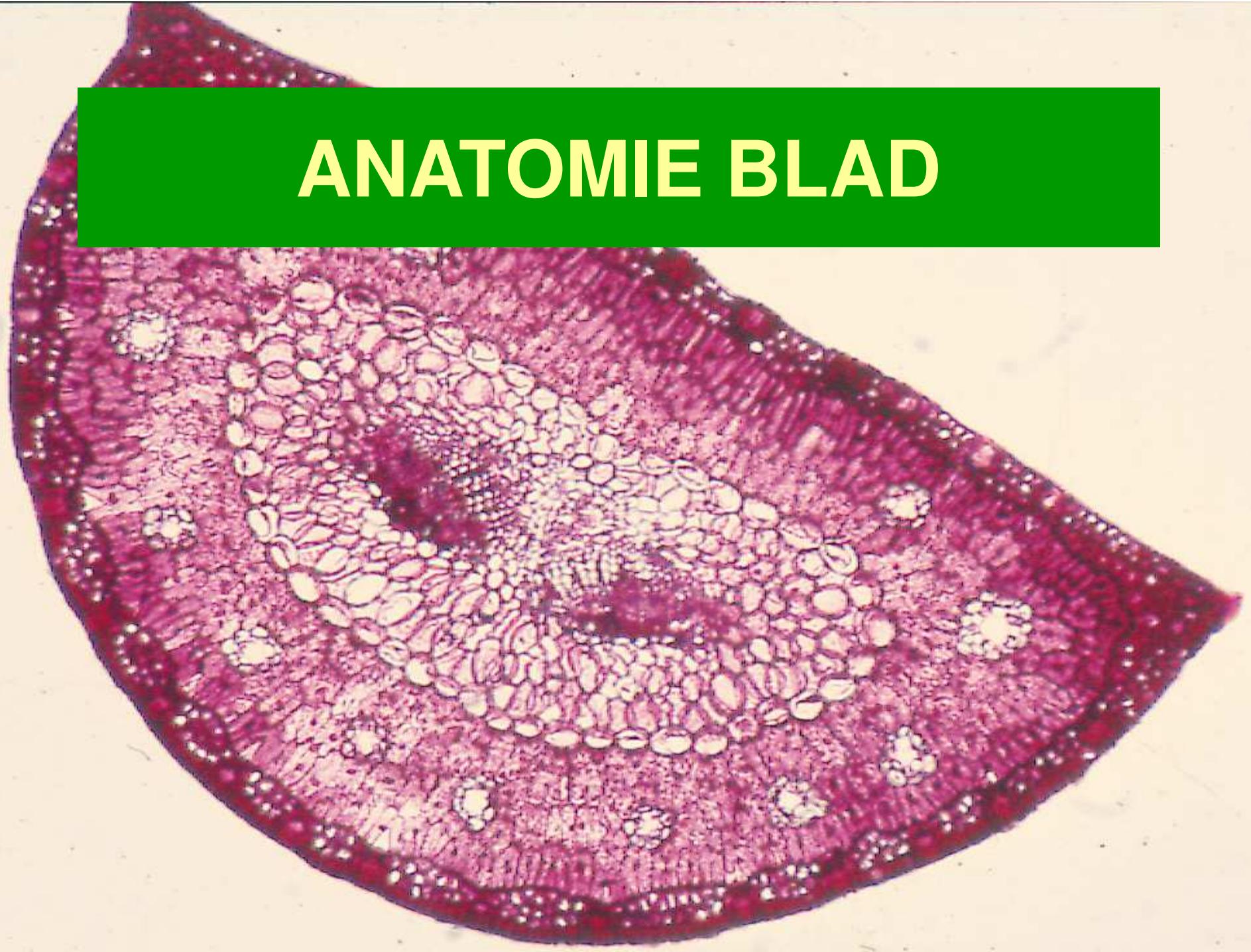


secundair cambium,  
met unilaterale  
delingen



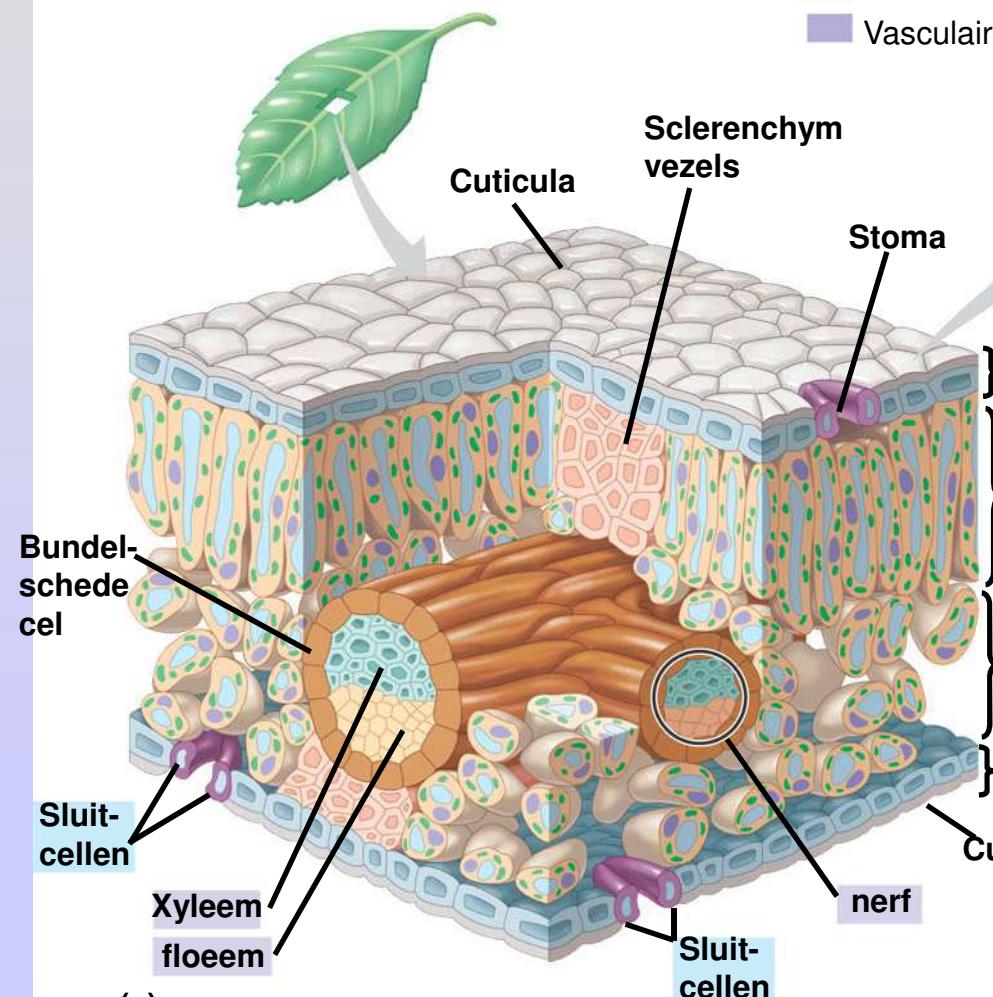


# ANATOMIE BLAD



## Bladeren: anatomie

### Bifaciaal blad



### Key to labels

- Dermaal
- Grond
- Vasculair

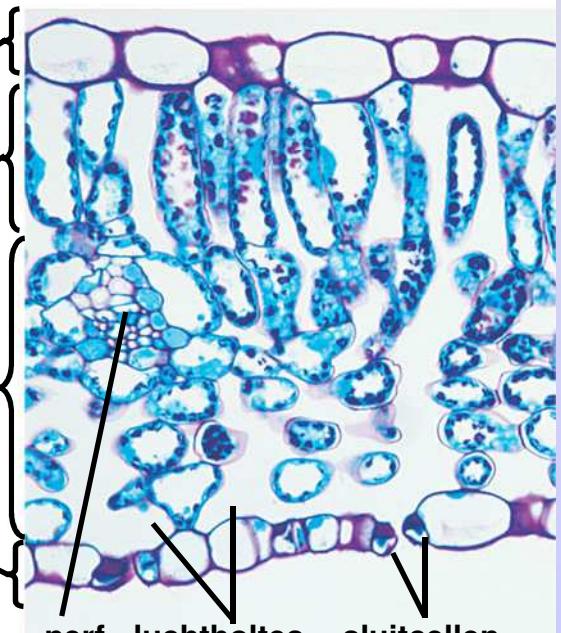
### sluit cel

- Stomatale porie
- Epidermis cel

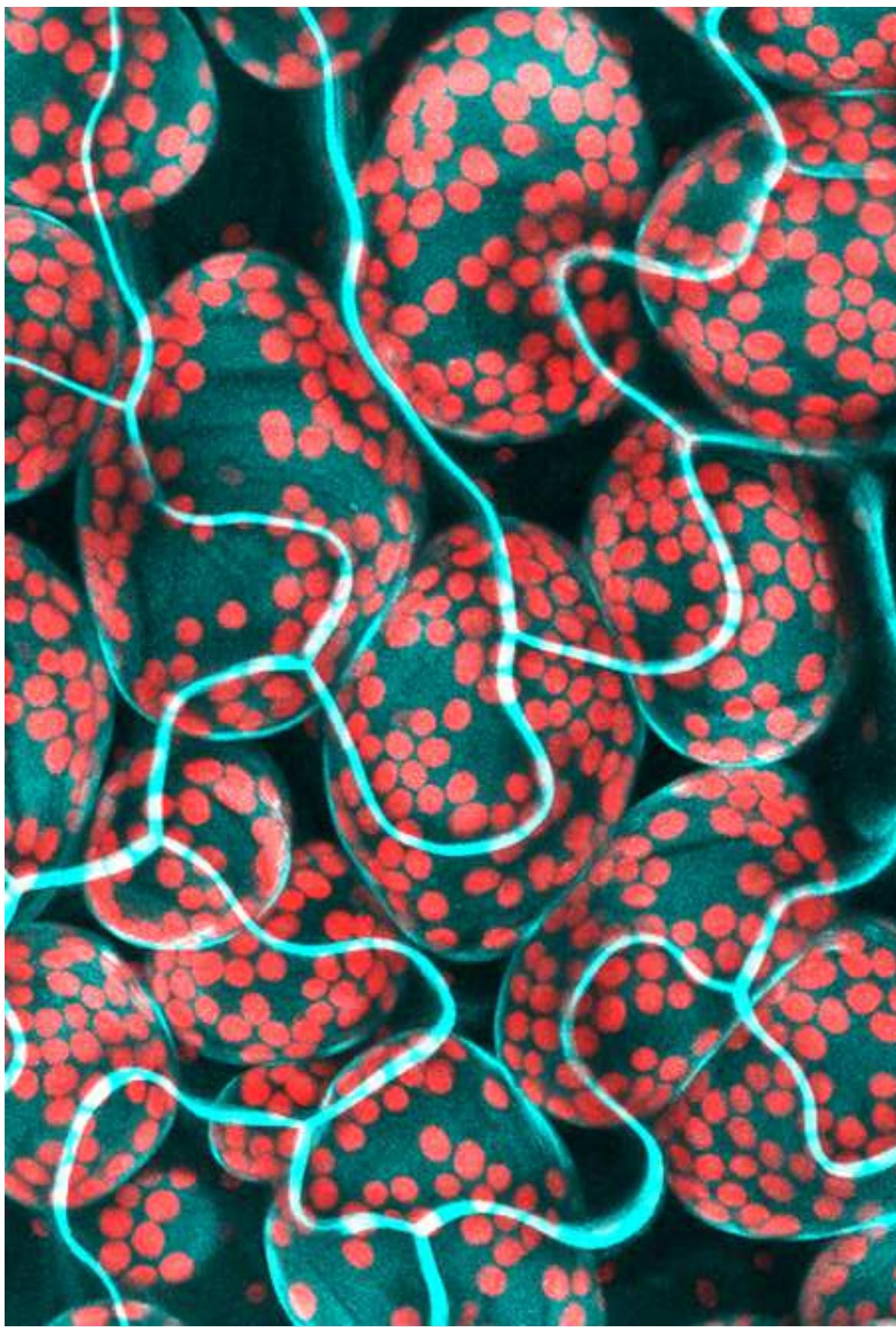
(b)



- boven  
epidermis
- Palissade  
mesofyl
- Spons  
mesofyl
- Onder-  
epidermis



(c)



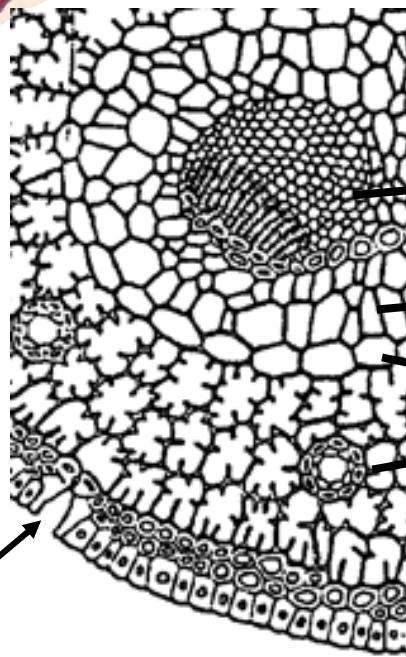
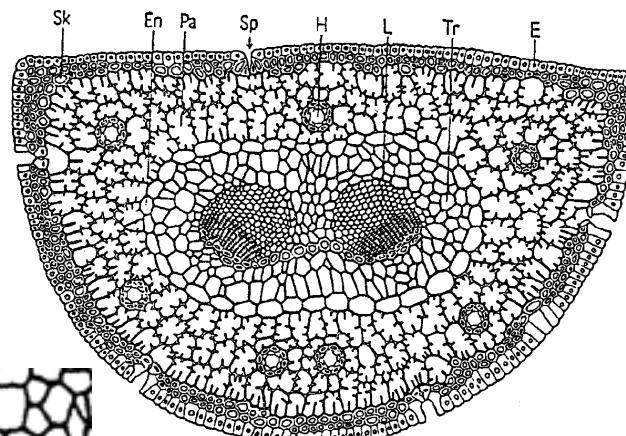


naald blad: equifaciaal

AL 4

*Pinus pinaster*

blad  
plano-convex  
amfistomatisch



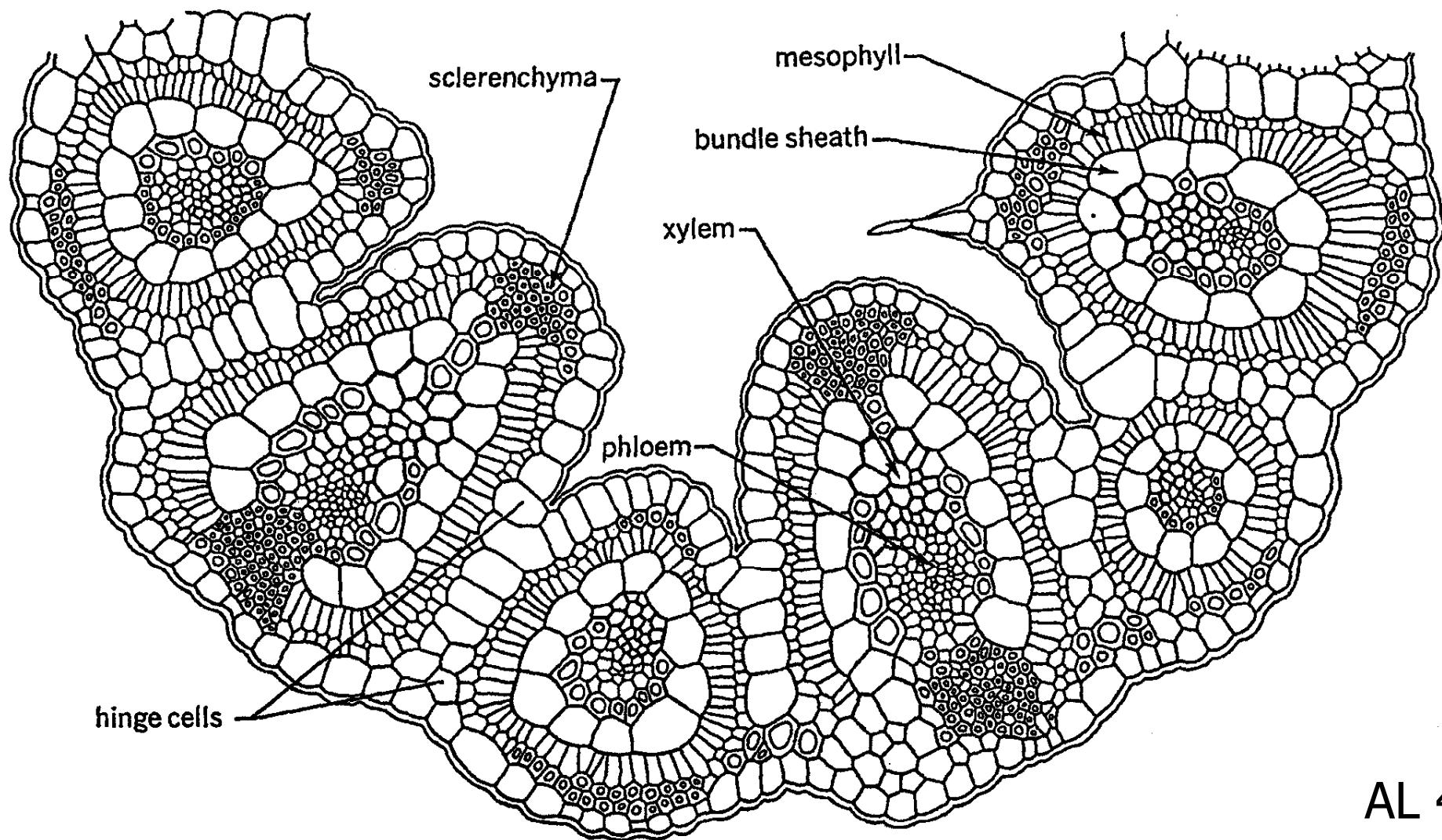
Cryptopore stomata

- vaatbundel
- transfusieweefsel
- endodermis
- harskanaal
- plooiparenchym
- Verdikte hypodermis
- epidermis

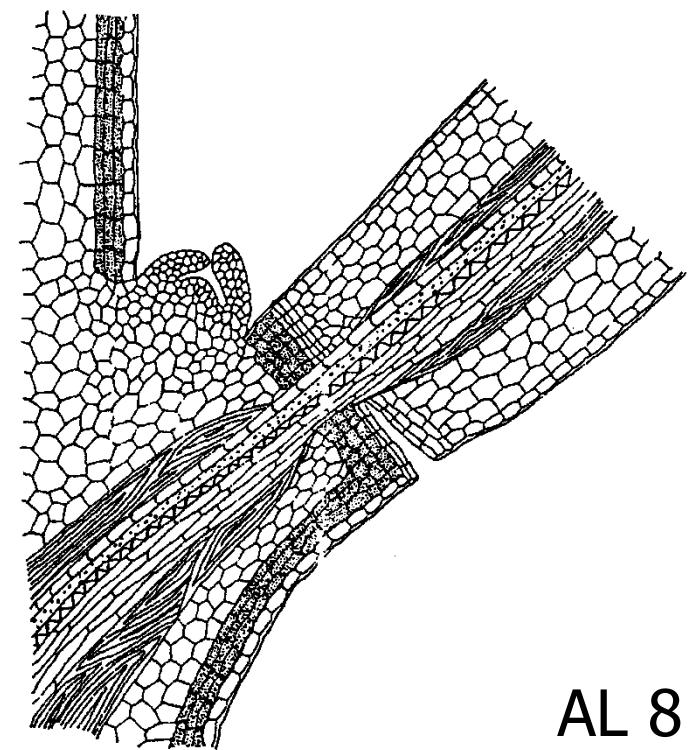
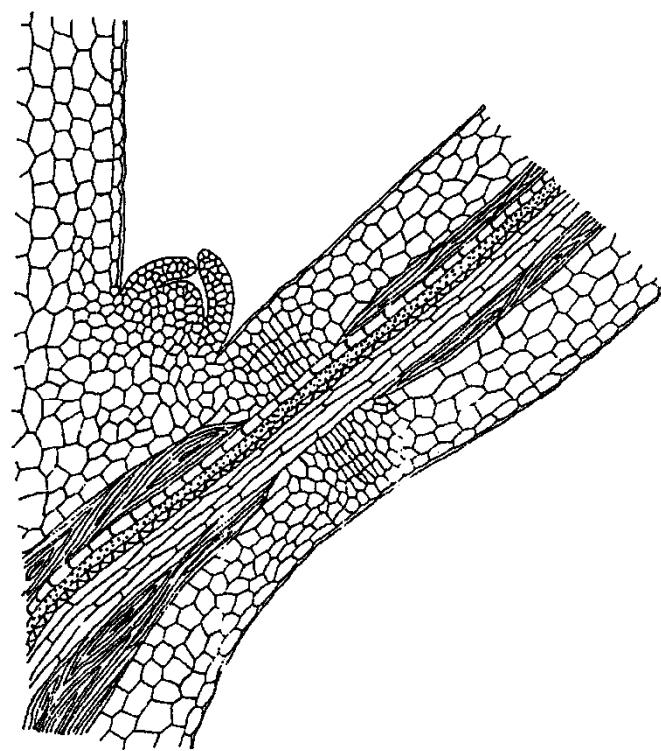
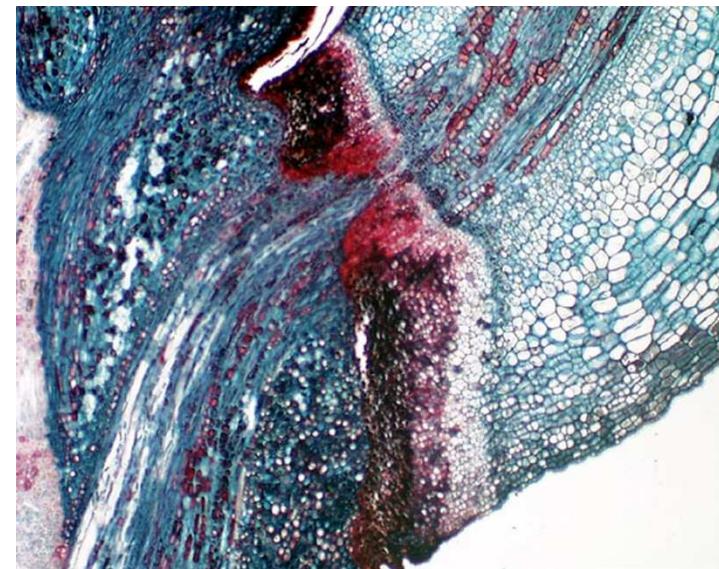
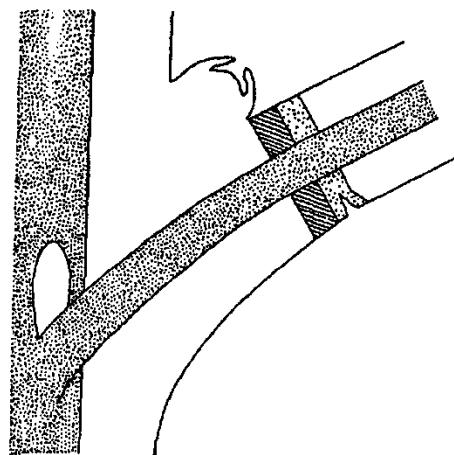
## *Grasblad: modulair*



Bulliform cells



AL 4



AL 8

