

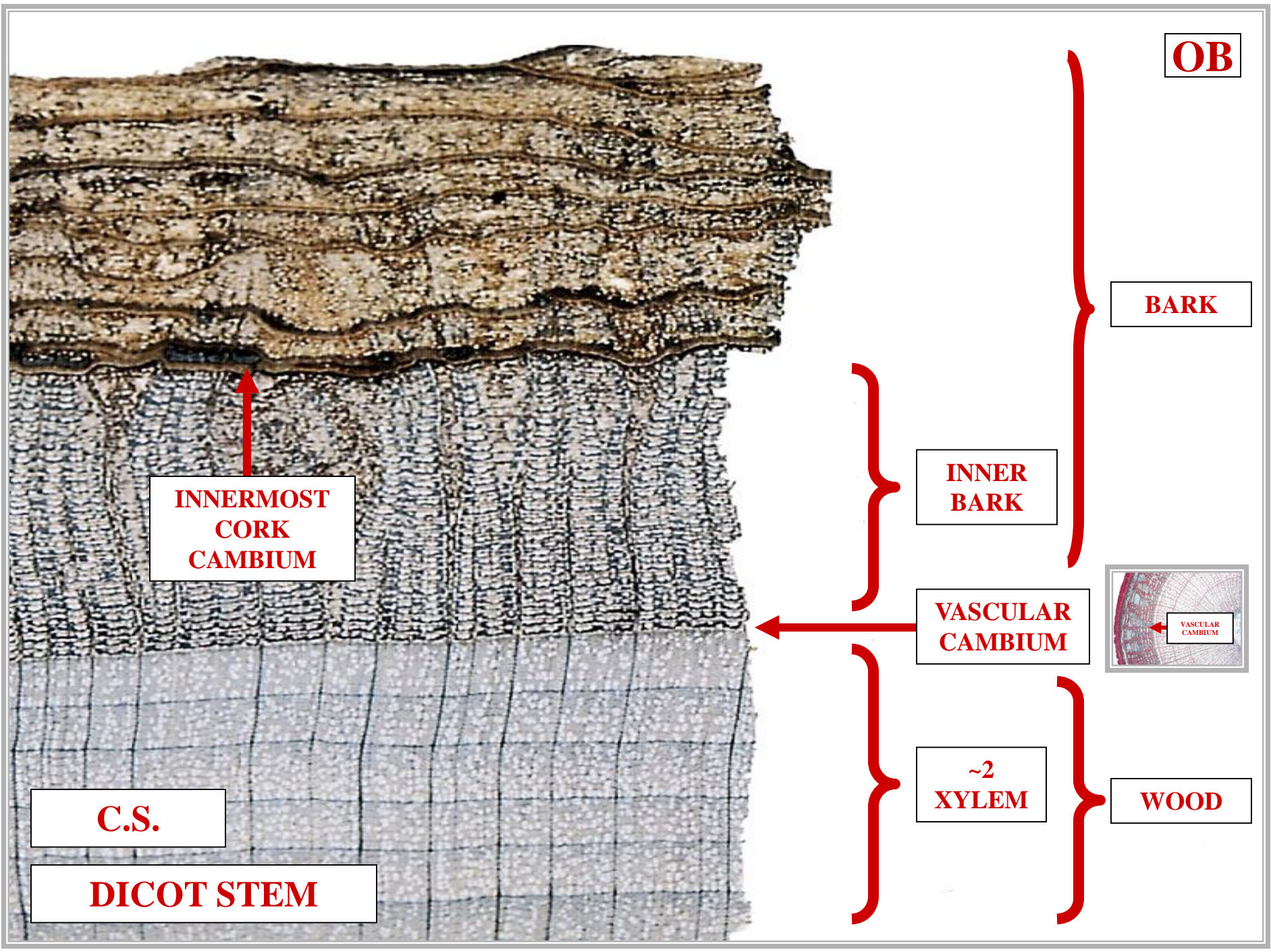
**OUTER BARK**



**IN**

**INNERMOST  
CORK CAMBIUM  
OUTWARD**

**OUTER BARK**



**OB**

**BARK**

**INNER  
BARK**

**VASCULAR  
CAMBIUM**

**~2  
XYLEM**

**WOOD**

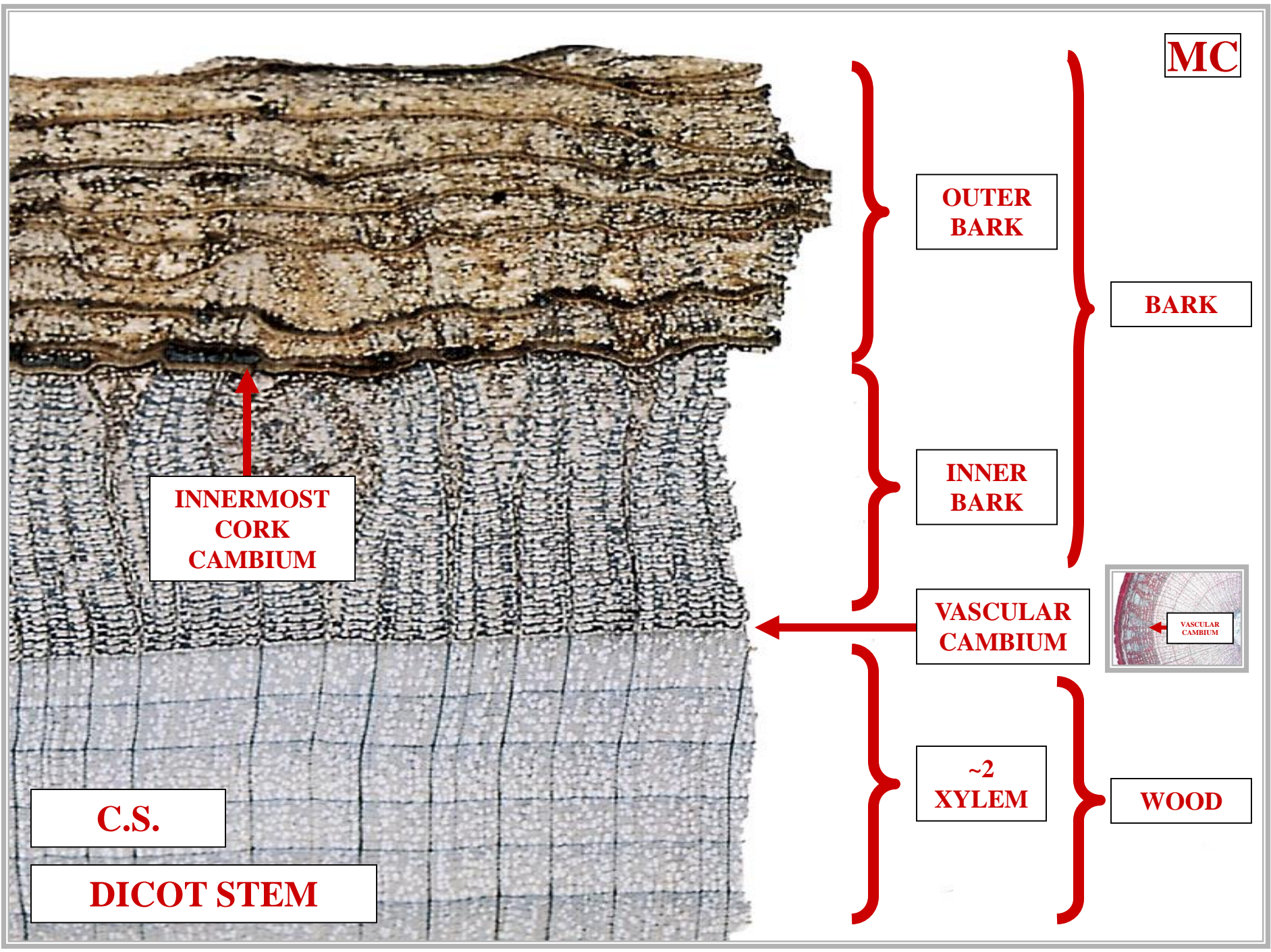
**INNERMOST  
CORK  
CAMBIUM**

**C.S.**

**DICOT STEM**

**VASCULAR  
CAMBIUM**





**MC**

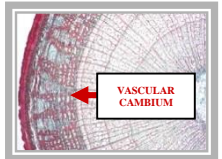
**OUTER BARK**

**BARK**

**INNER BARK**

**INNERMOST CORK CAMBIUM**

**VASCULAR CAMBIUM**



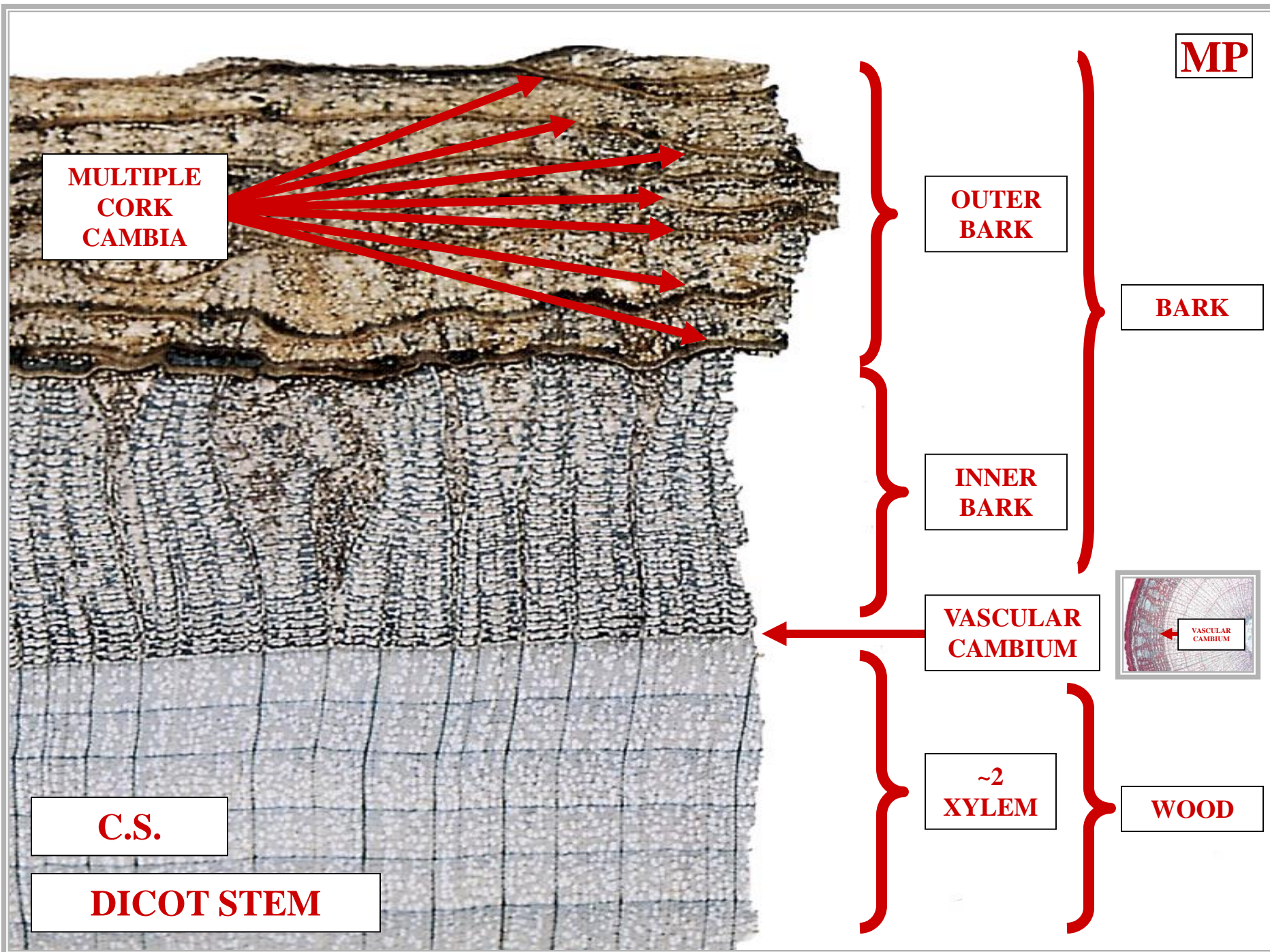
**~2 XYLEM**

**WOOD**

**C.S.**

**DICOT STEM**





**MP**

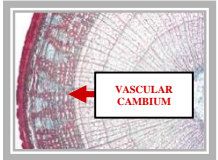
**MULTIPLE  
CORK  
CAMBIA**

**OUTER  
BARK**

**BARK**

**INNER  
BARK**

**VASCULAR  
CAMBIUM**



**VASCULAR  
CAMBIUM**

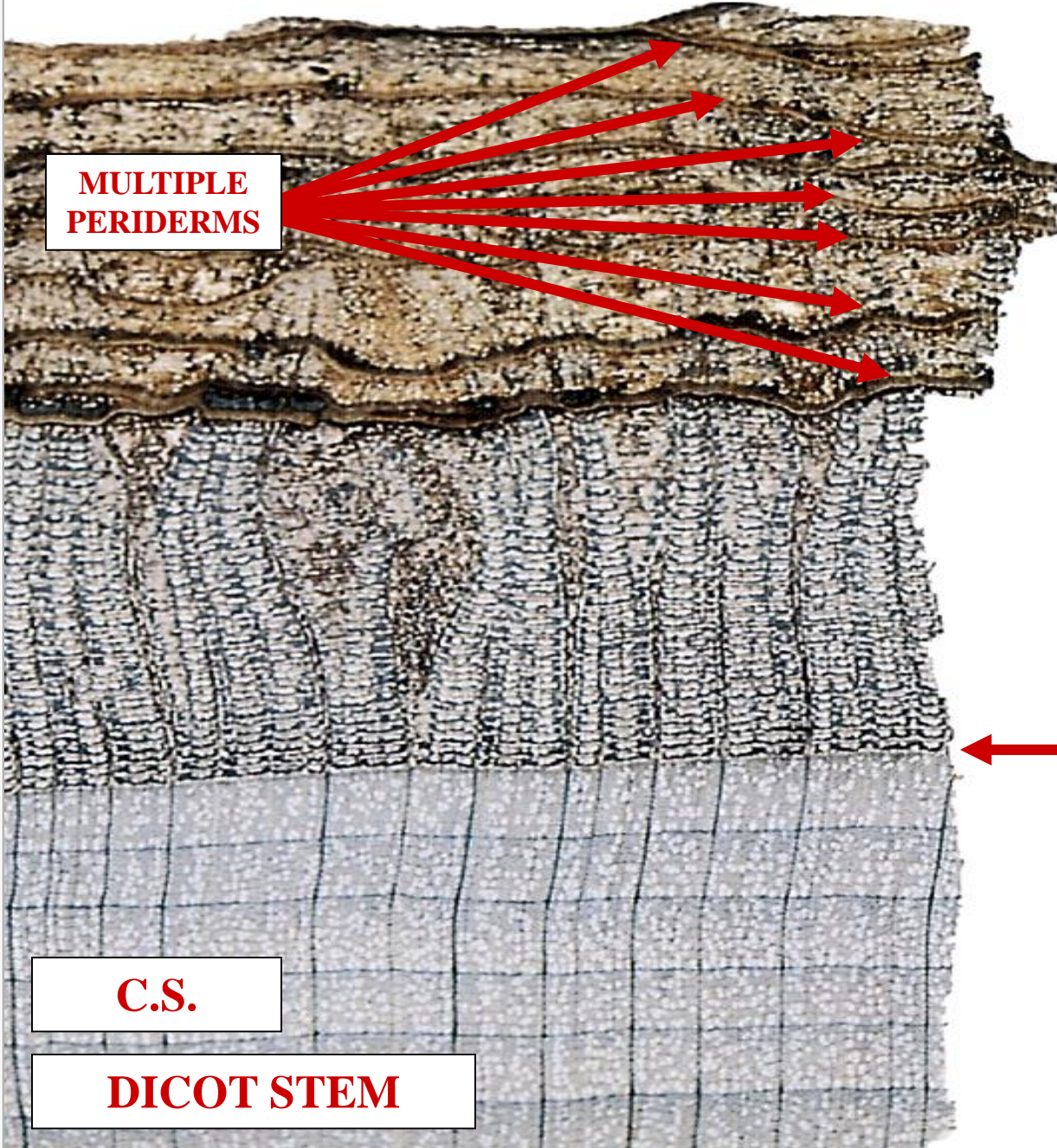
**~2  
XYLEM**

**WOOD**

**C.S.**

**DICOT STEM**





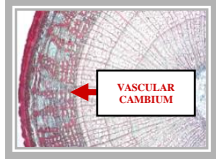
**MULTIPLE PERIDERMS**

**OUTER BARK**

**BARK**

**INNER BARK**

**VASCULAR CAMBIUM**

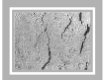


**~2 XYLEM**

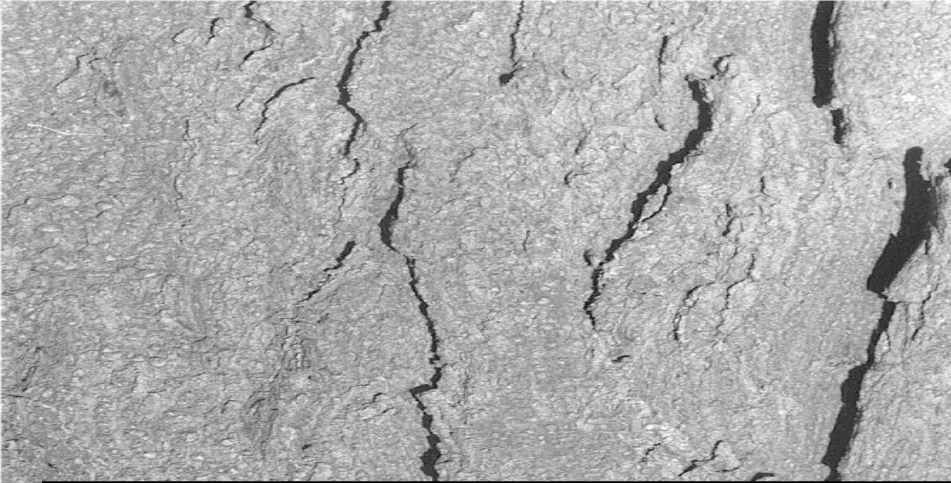
**WOOD**

**C.S.**

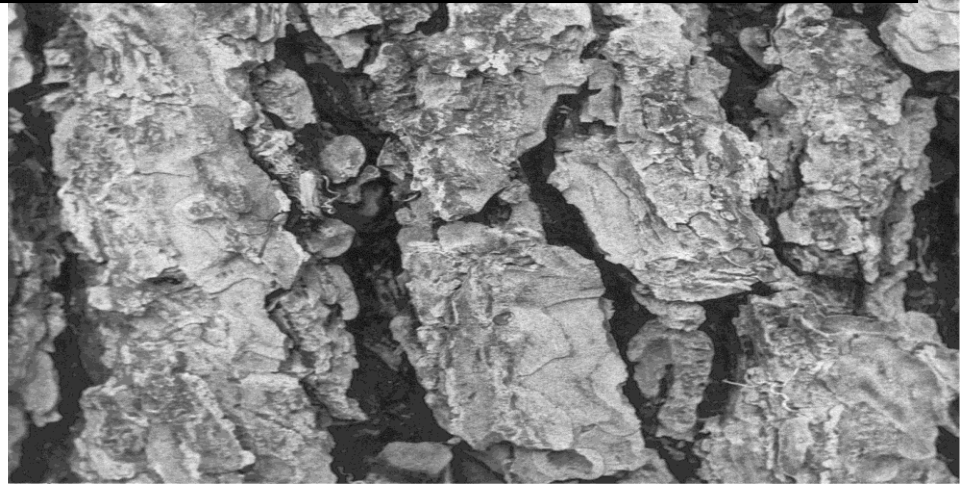
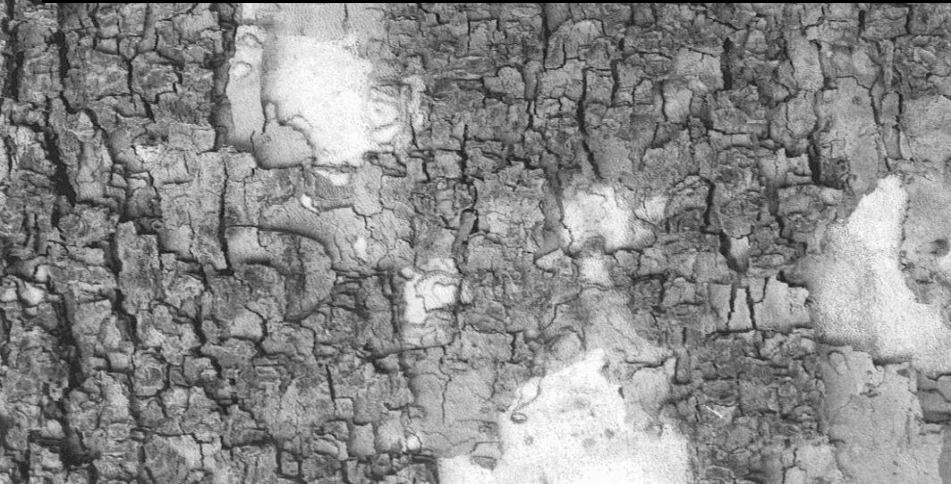
**DICOT STEM**



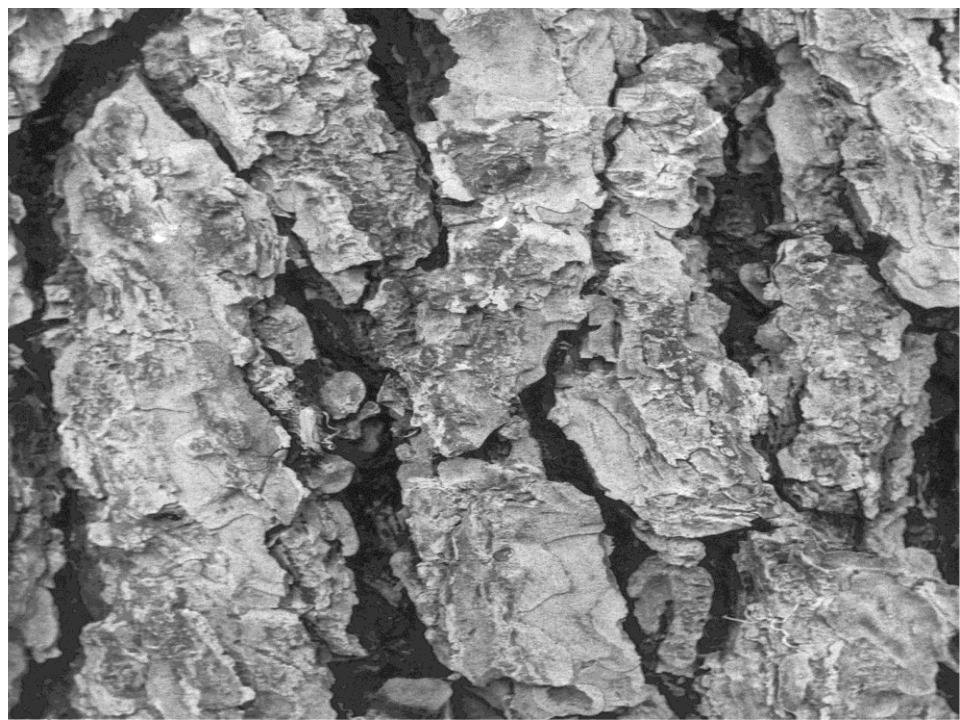
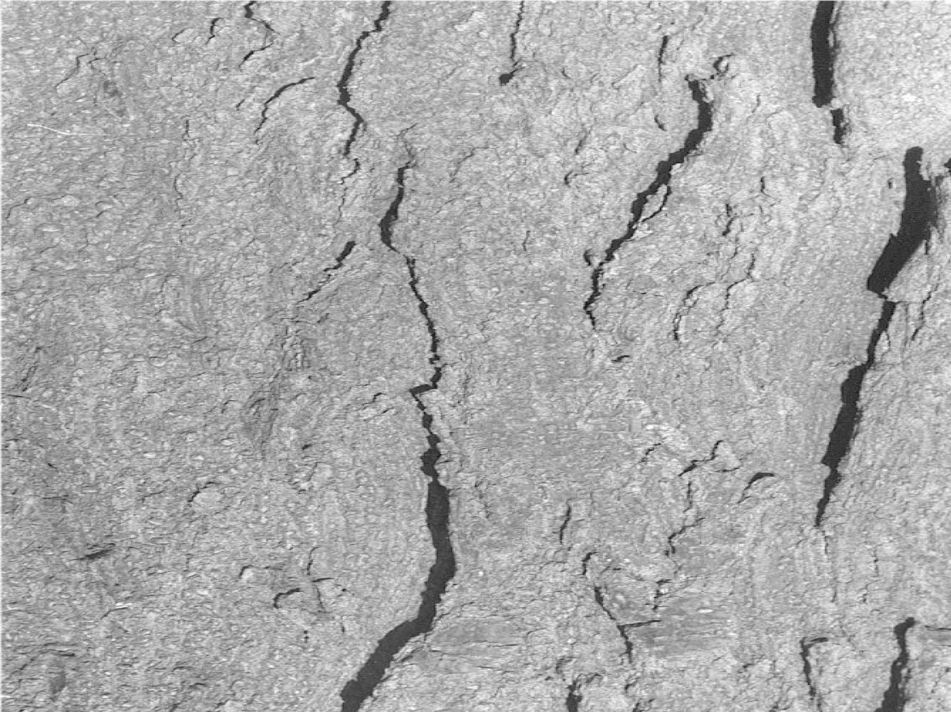




**IMPARTS DIFFERENT  
OUTER BARK  
MORPHOLOGY**







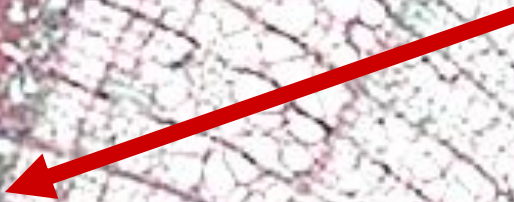


# LATERAL MERISTEMS SUMMARY



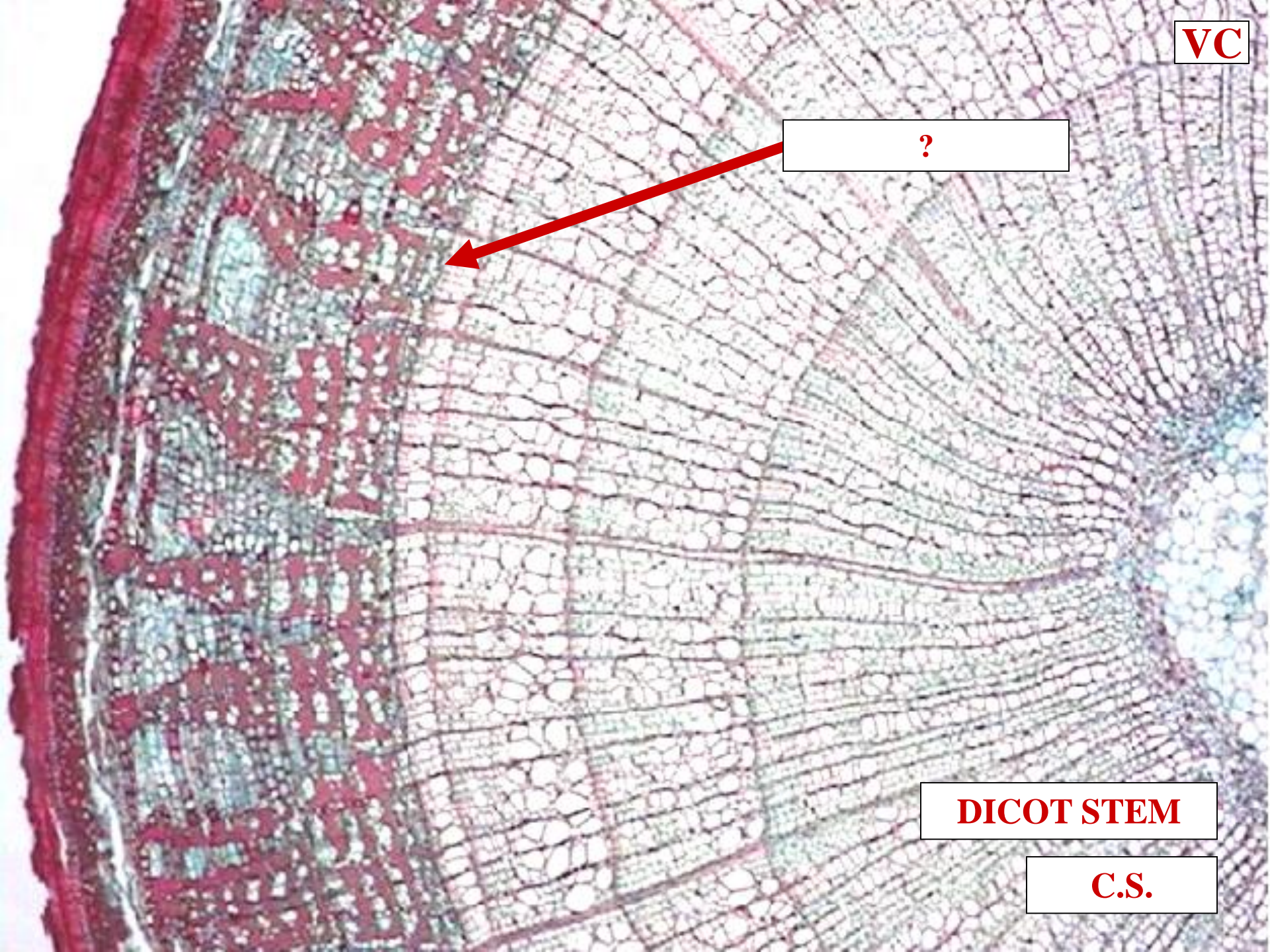
**VC**

**?**



**DICOT STEM**

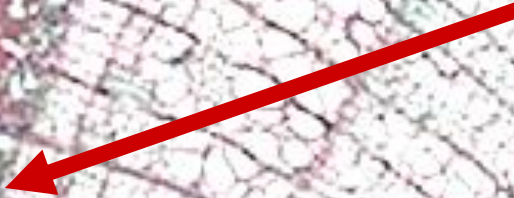
**C.S.**





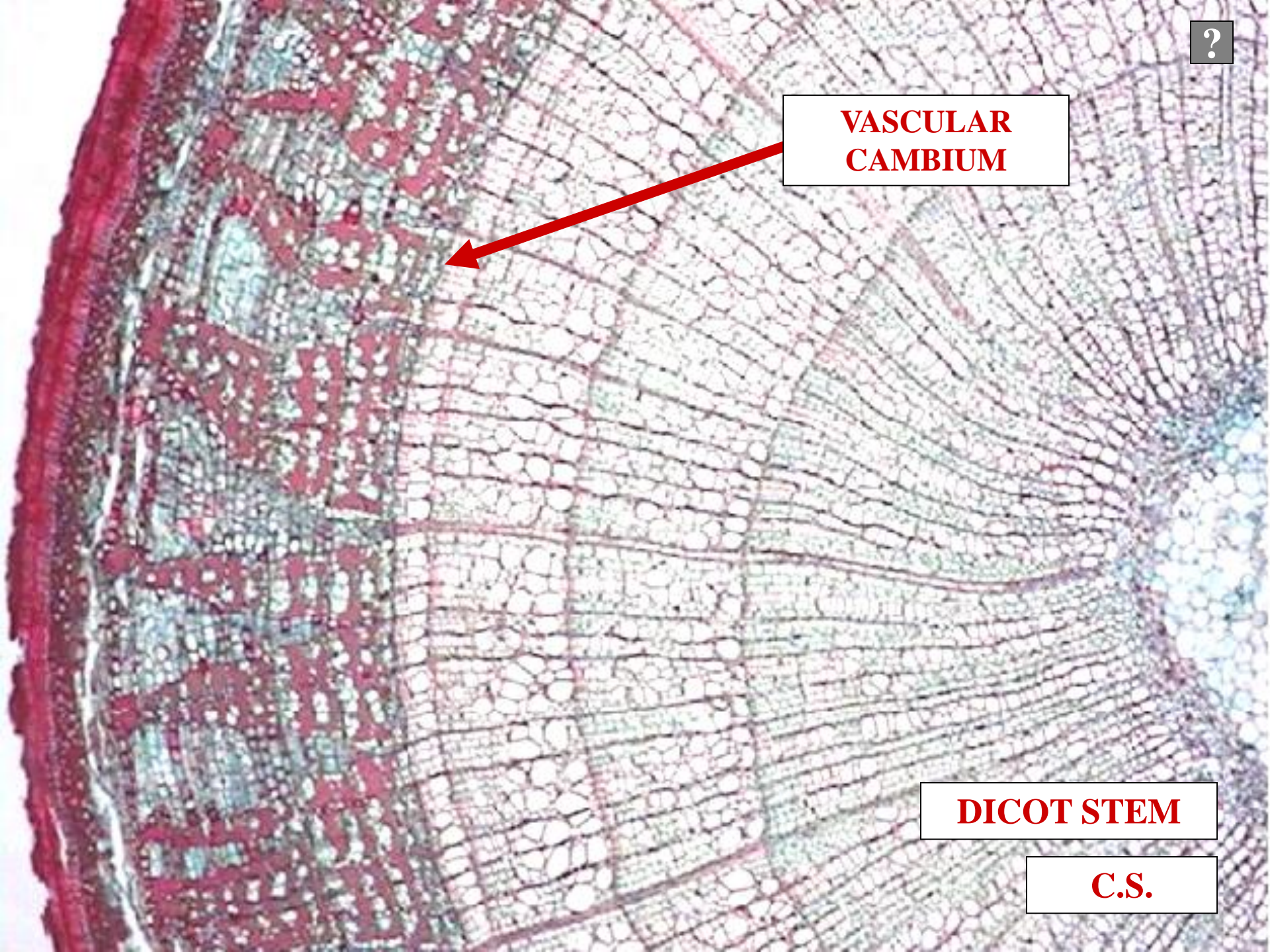
?

**VASCULAR  
CAMBIUM**



**DICOT STEM**

**C.S.**



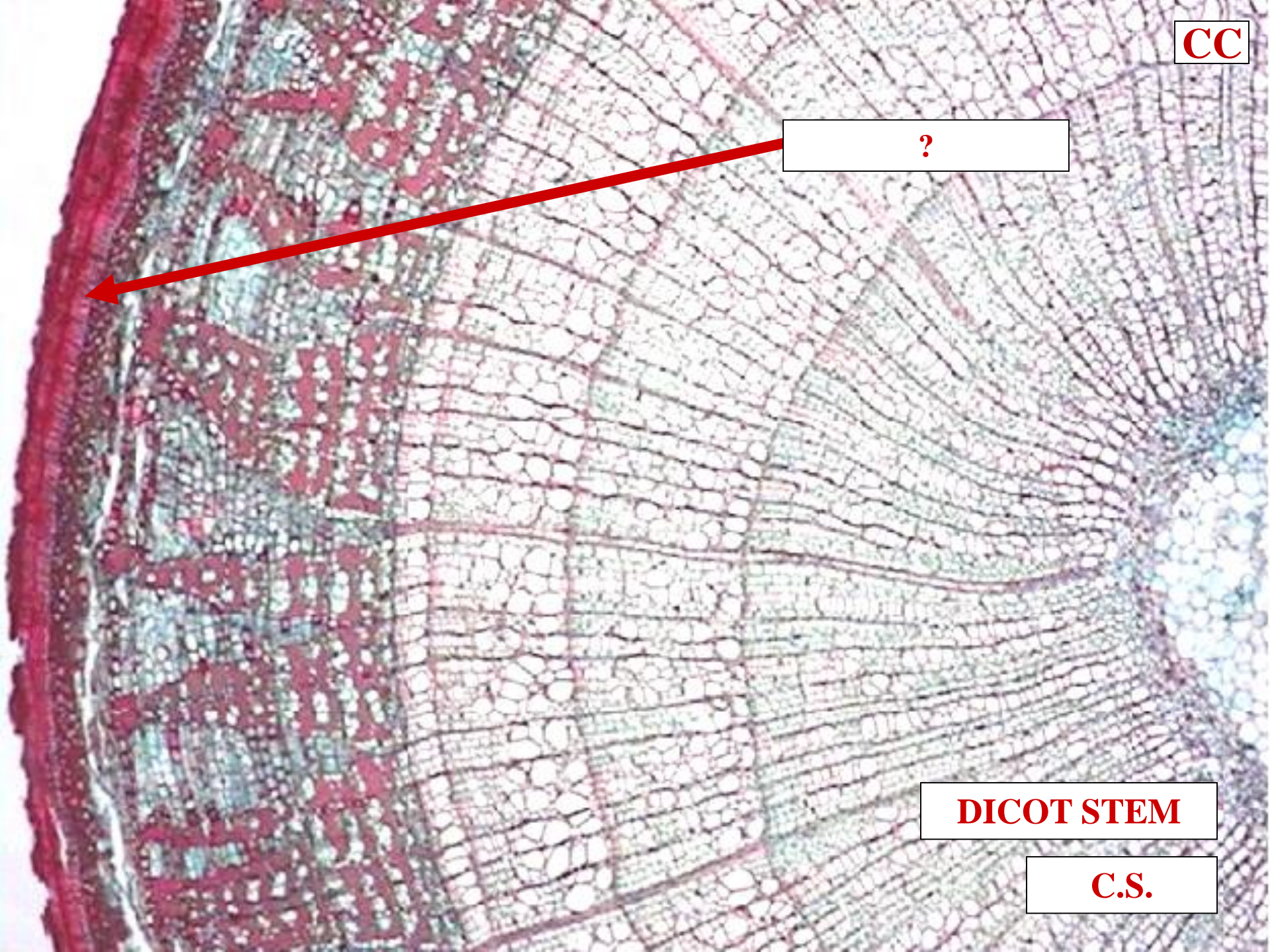


CC

?

DICOT STEM

C.S.





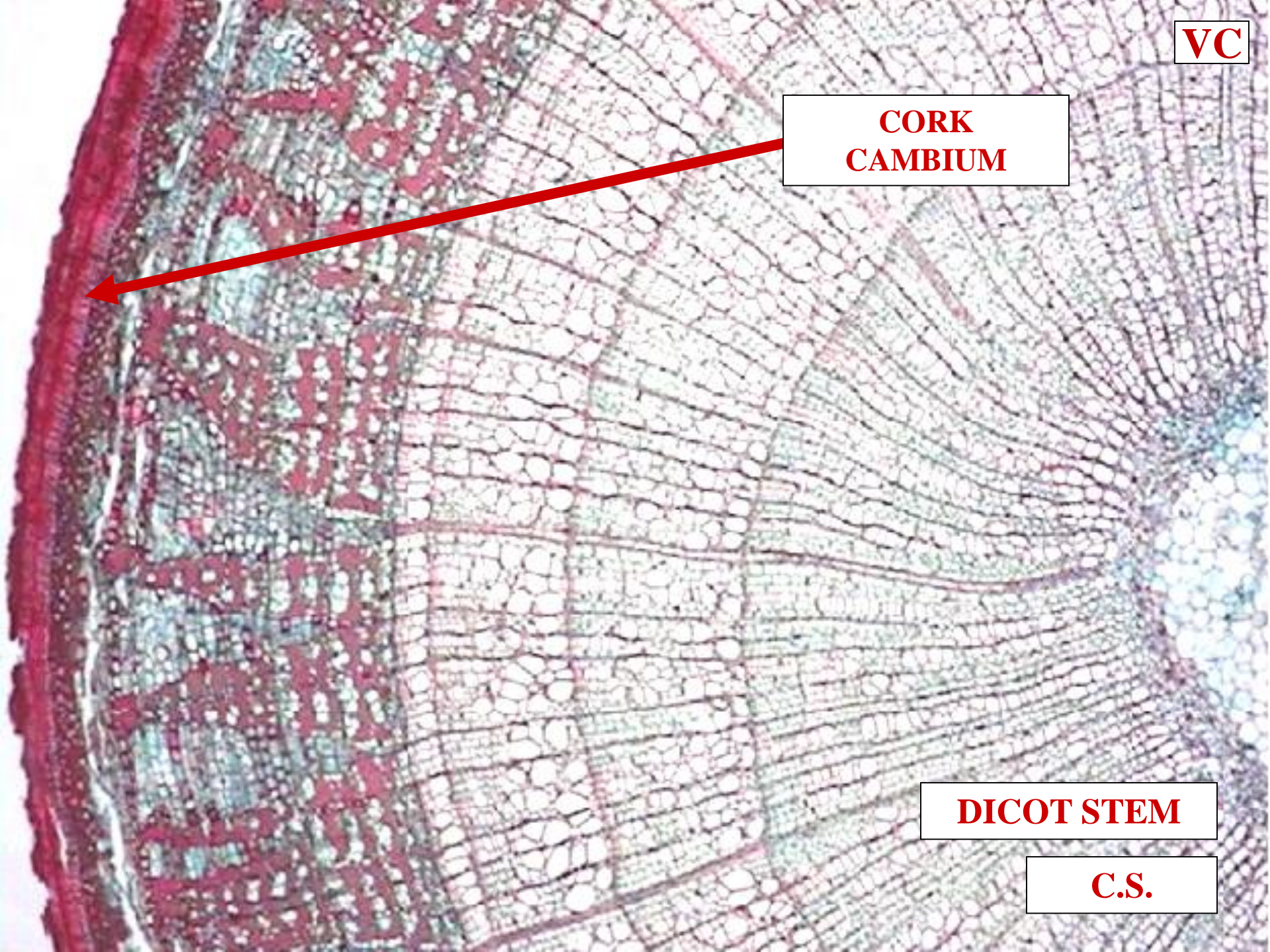
**VC**

**CORK  
CAMBIUM**



**DICOT STEM**

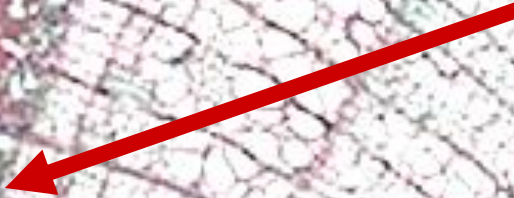
**C.S.**





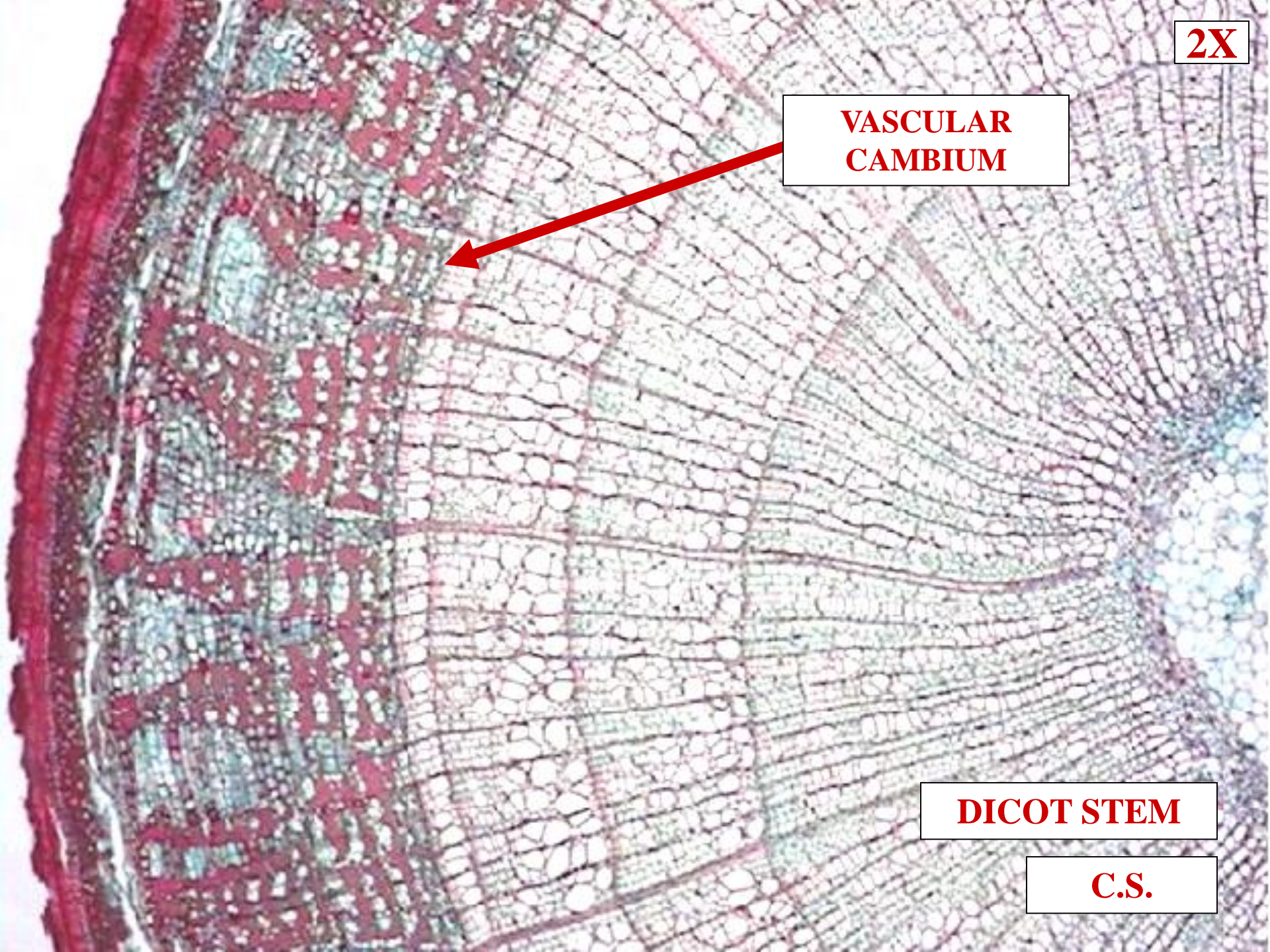
**2X**

**VASCULAR  
CAMBIUM**



**DICOT STEM**

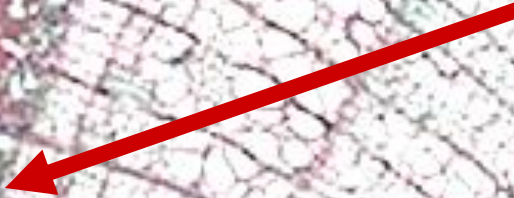
**C.S.**





**2P**

**VASCULAR  
CAMBIUM**

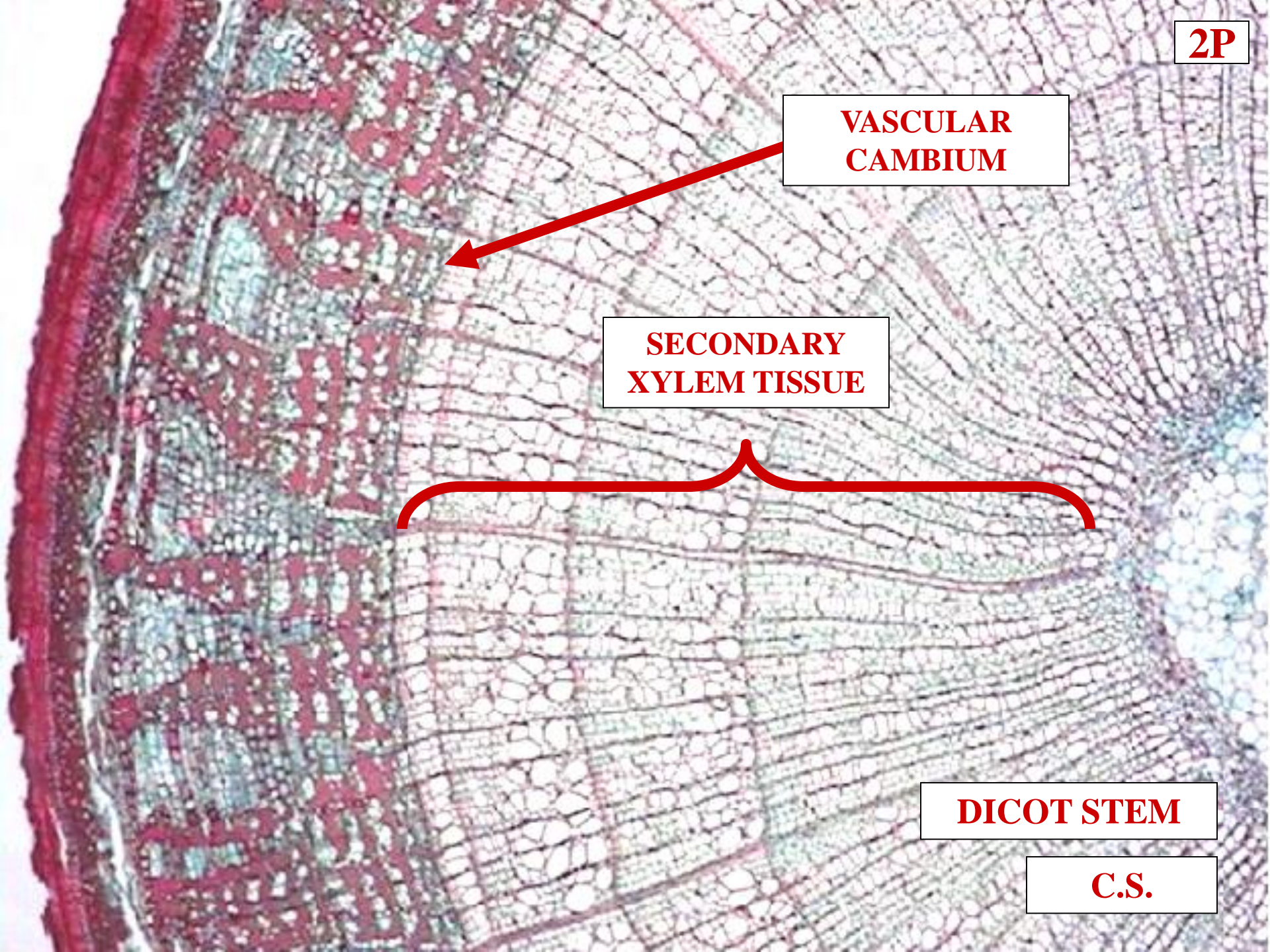


**SECONDARY  
XYLEM TISSUE**

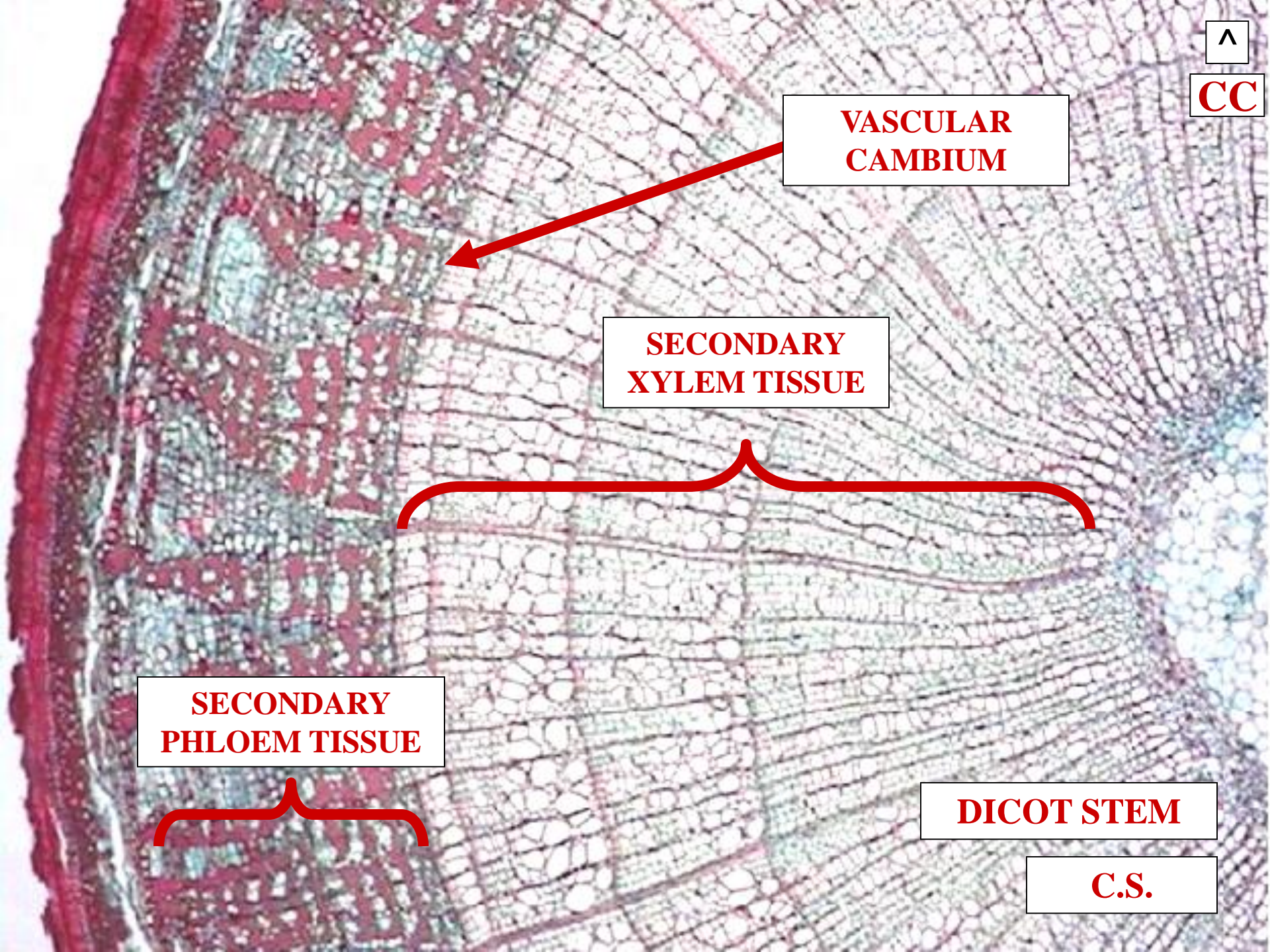


**DICOT STEM**

**C.S.**







^

CC

**VASCULAR  
CAMBIUM**

**SECONDARY  
XYLEM TISSUE**

**SECONDARY  
PHLOEM TISSUE**

**DICOT STEM**

**C.S.**

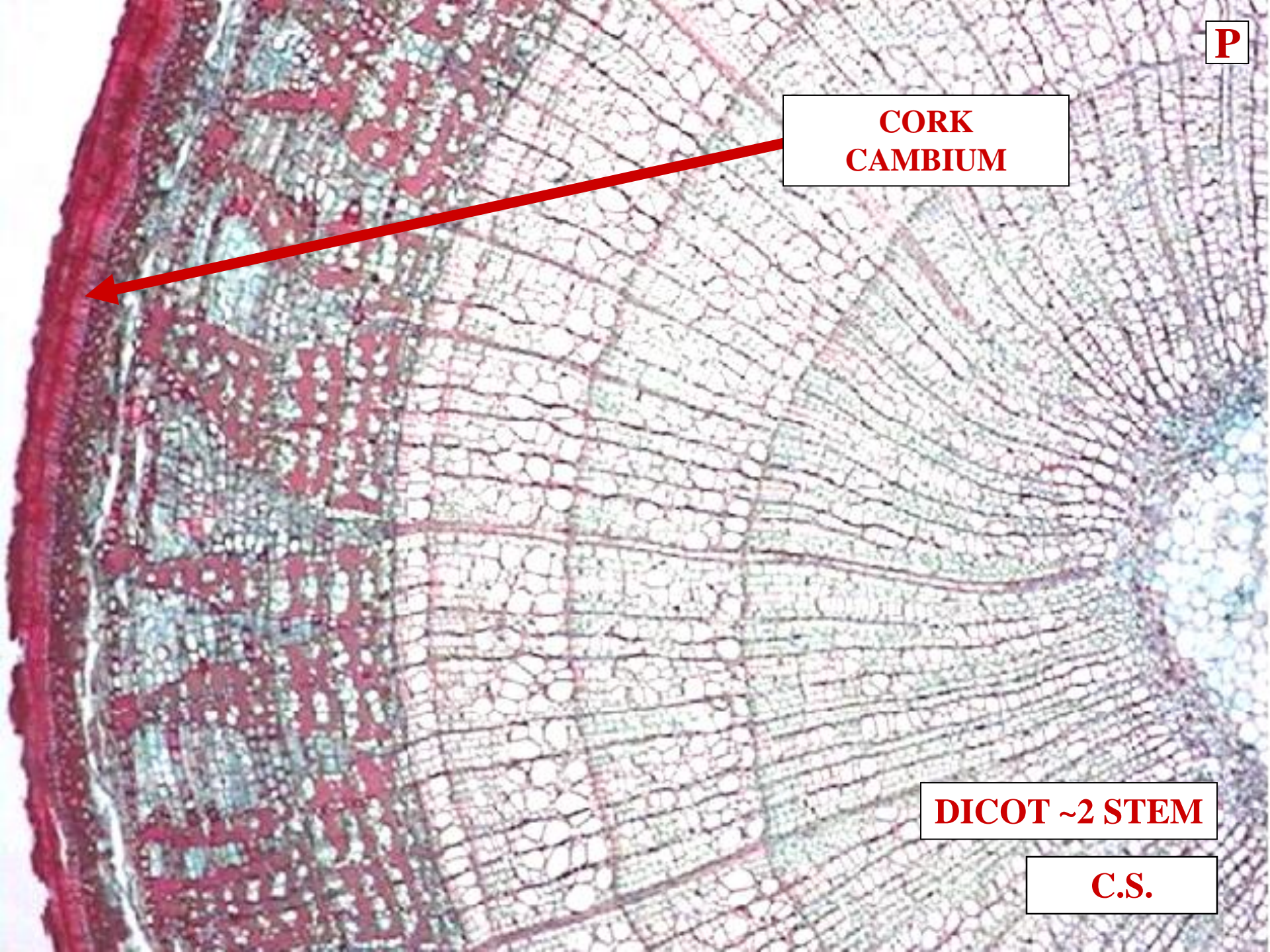


**P**

**CORK  
CAMBIUM**

**DICOT ~2 STEM**

**C.S.**





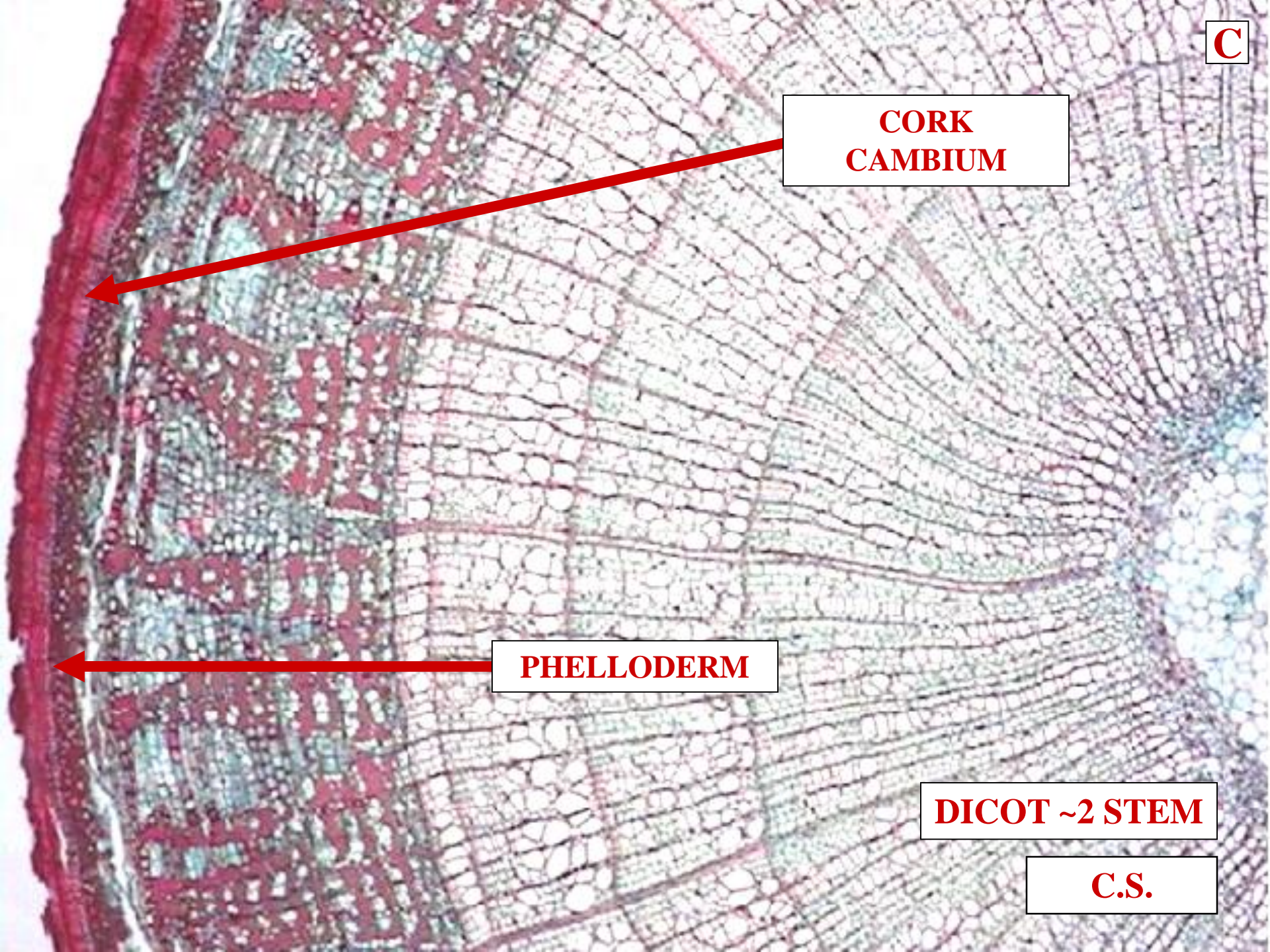
**C**

**CORK  
CAMBIUM**

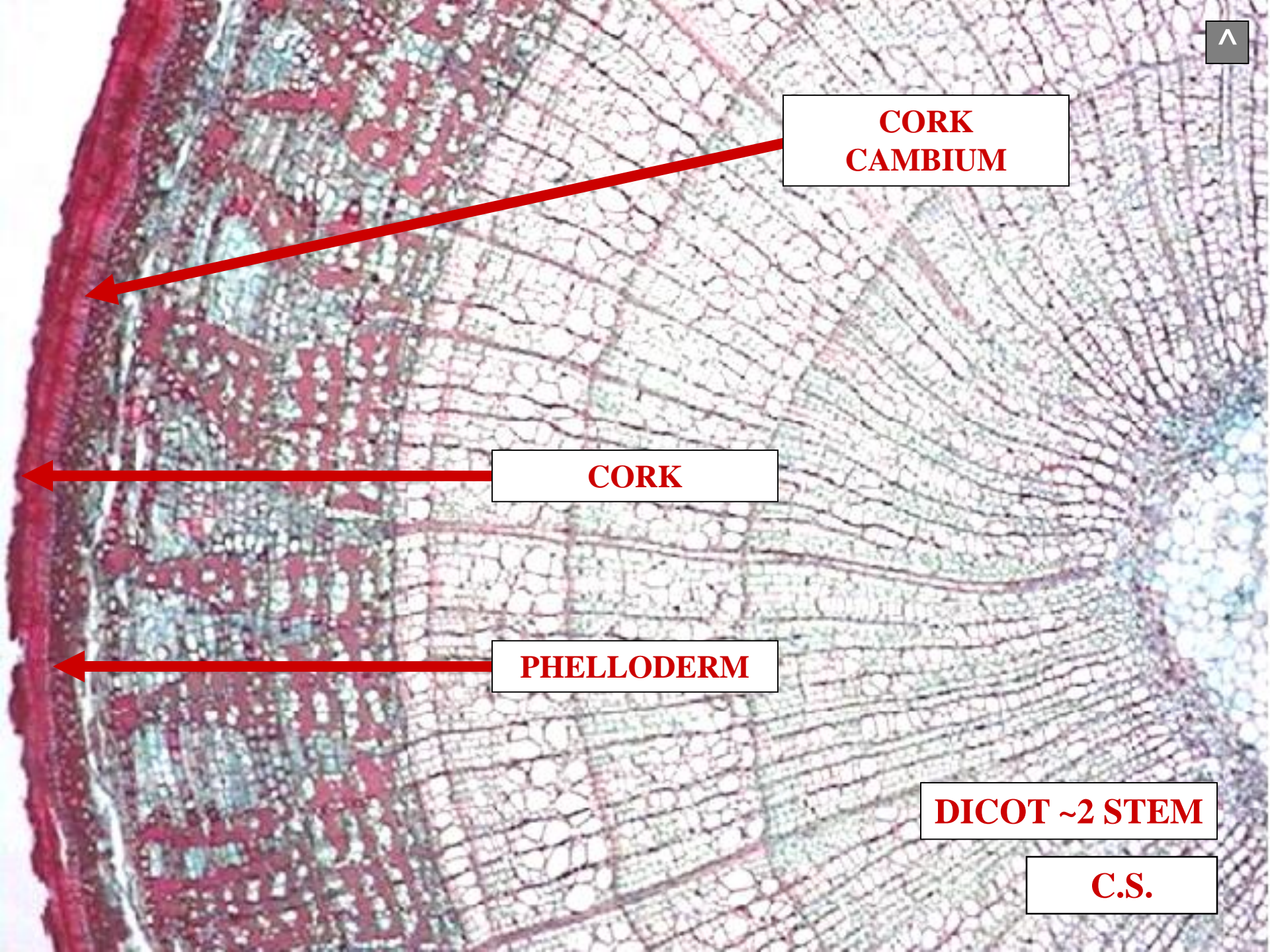
**PHELLODERM**

**DICOT ~2 STEM**

**C.S.**







**CORK  
CAMBIUM**



**CORK**



**PHELLODERM**



**DICOT ~2 STEM**

**C.S.**





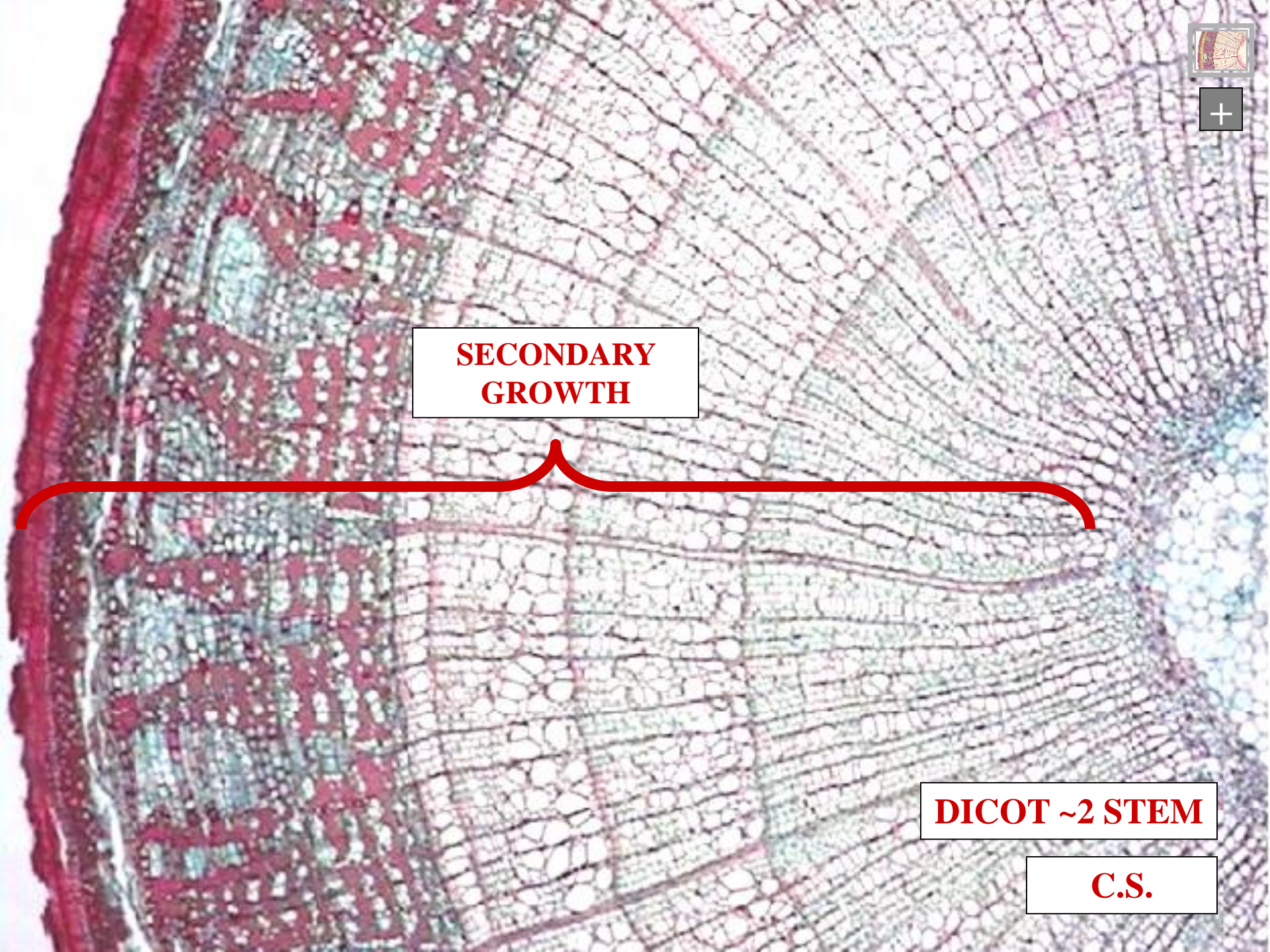
# **STEM & ROOT SECONDARY GROWTH SUMMARY**





# **DICOT STEM SECONDARY GROWTH SUMMARY**





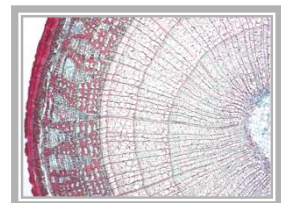
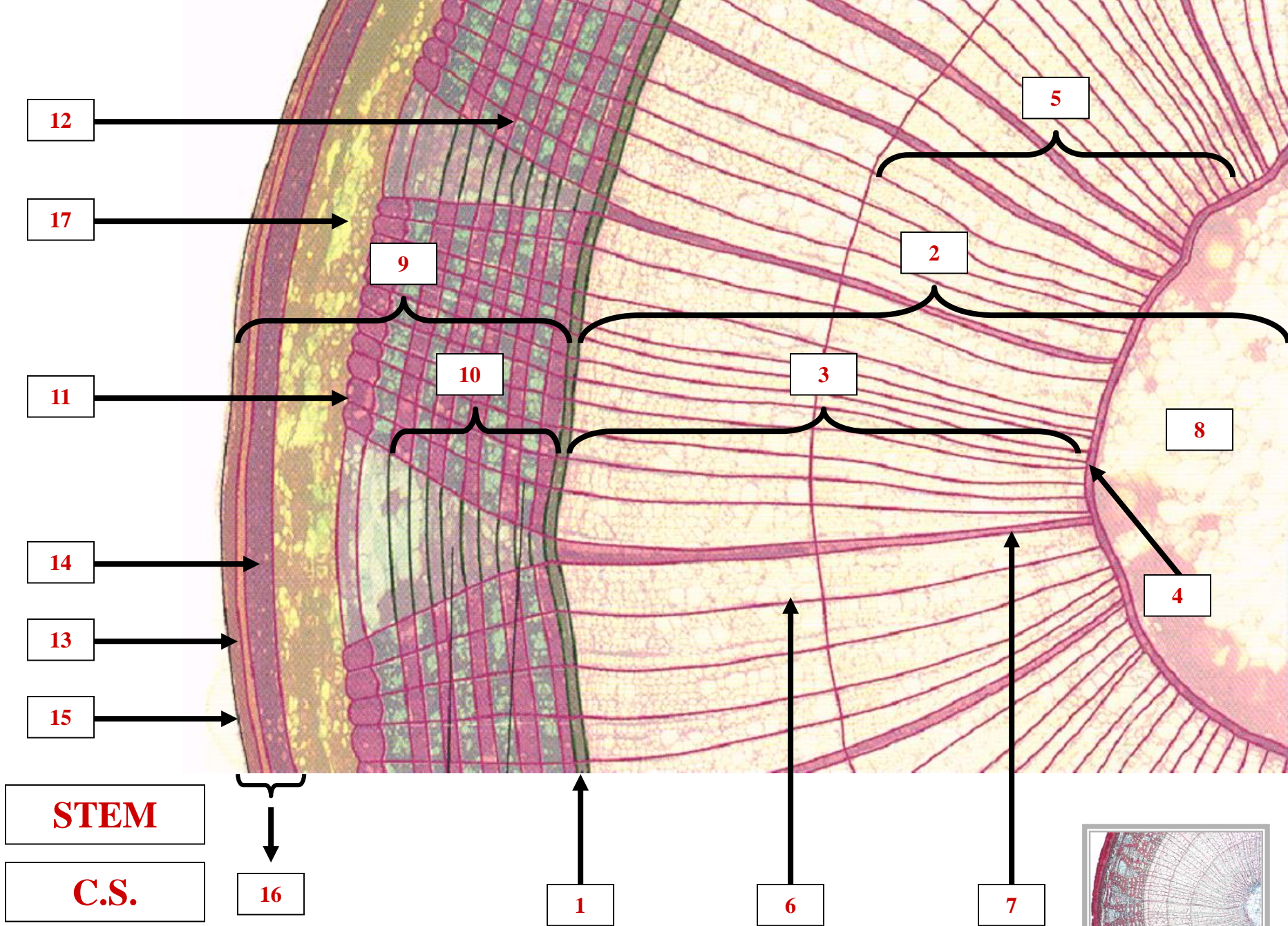
**SECONDARY  
GROWTH**



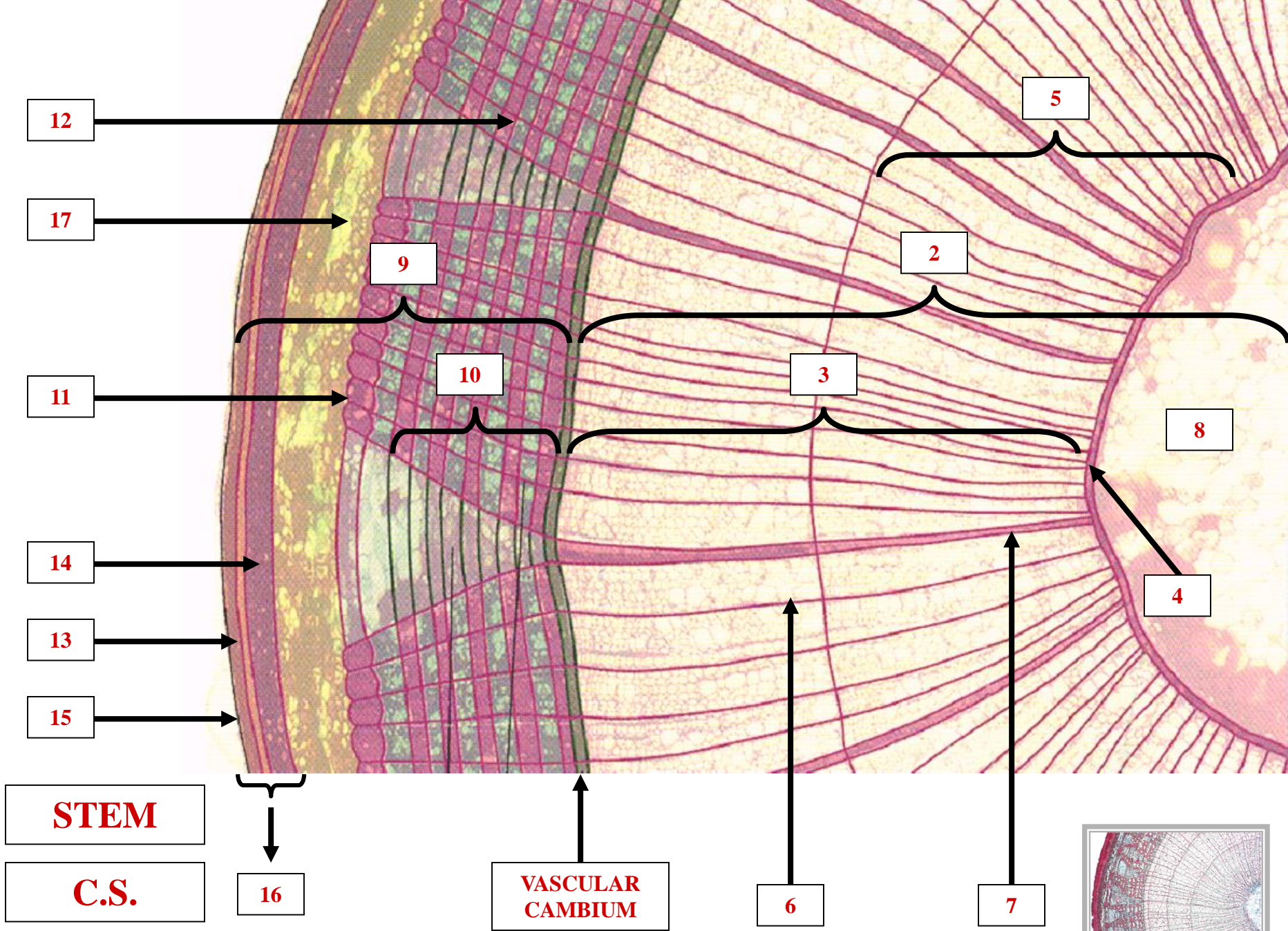
**DICOT ~2 STEM**

**C.S.**

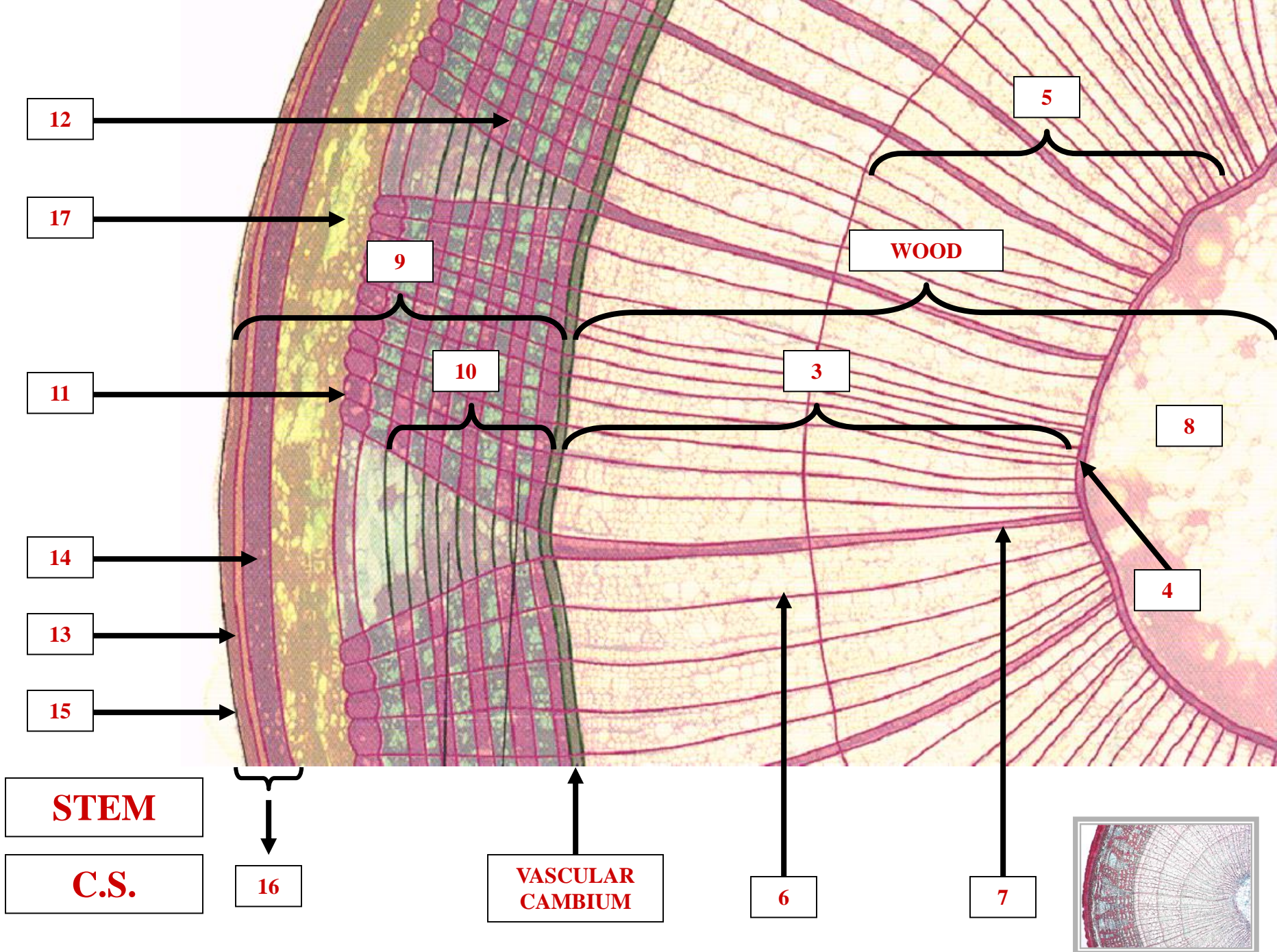




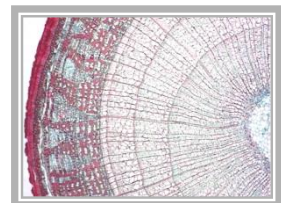
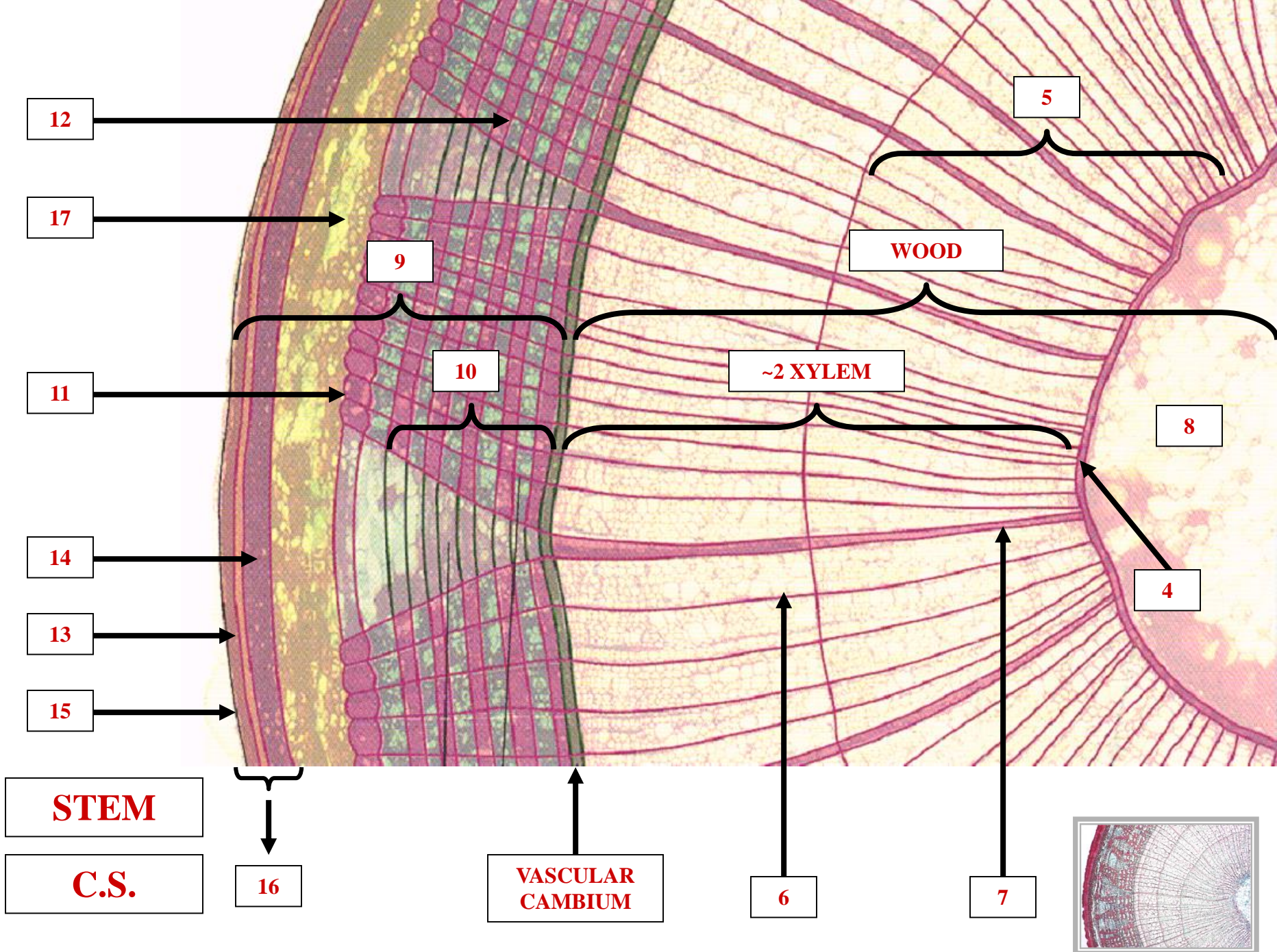




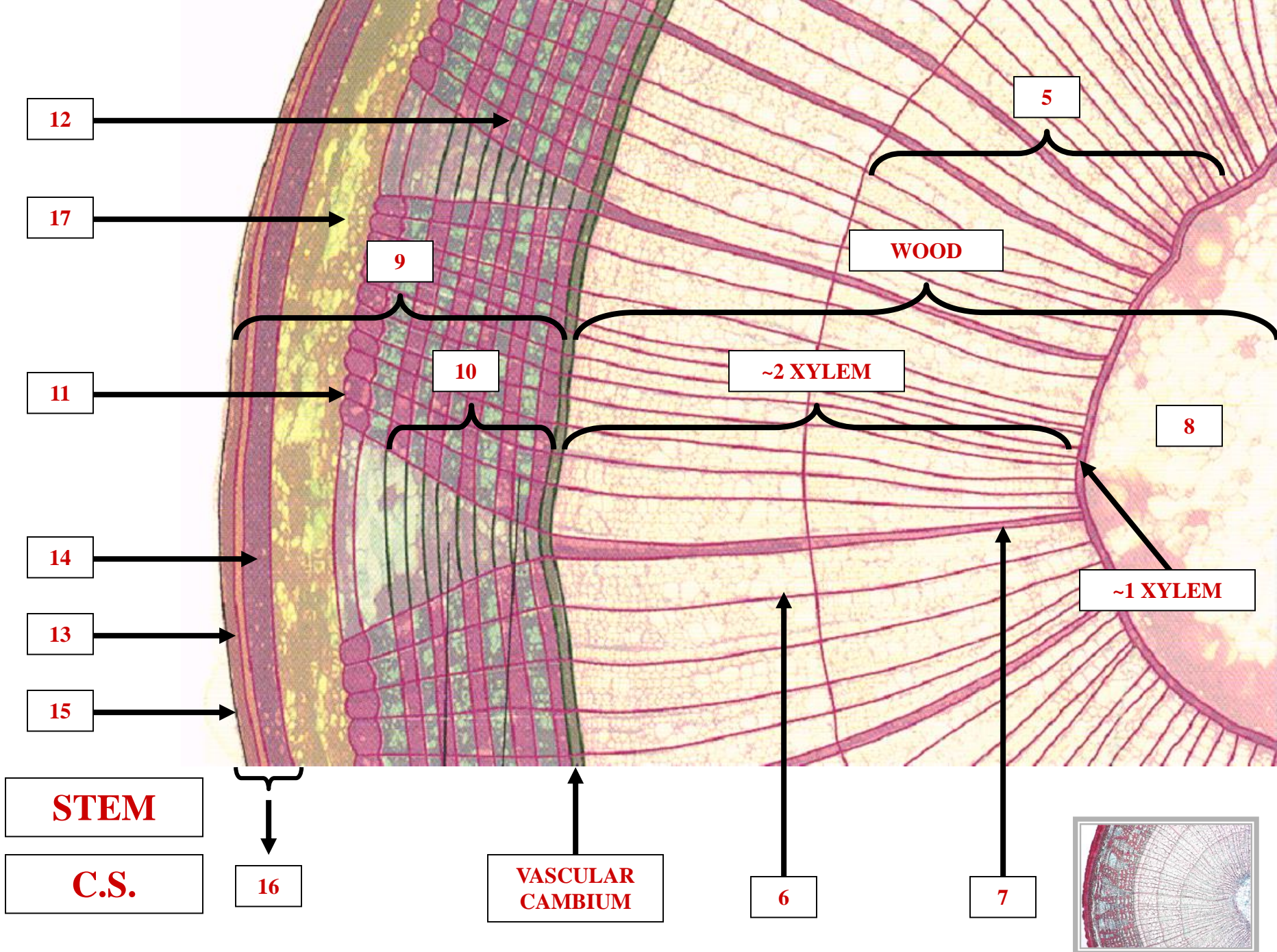




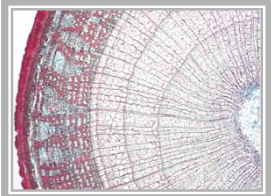
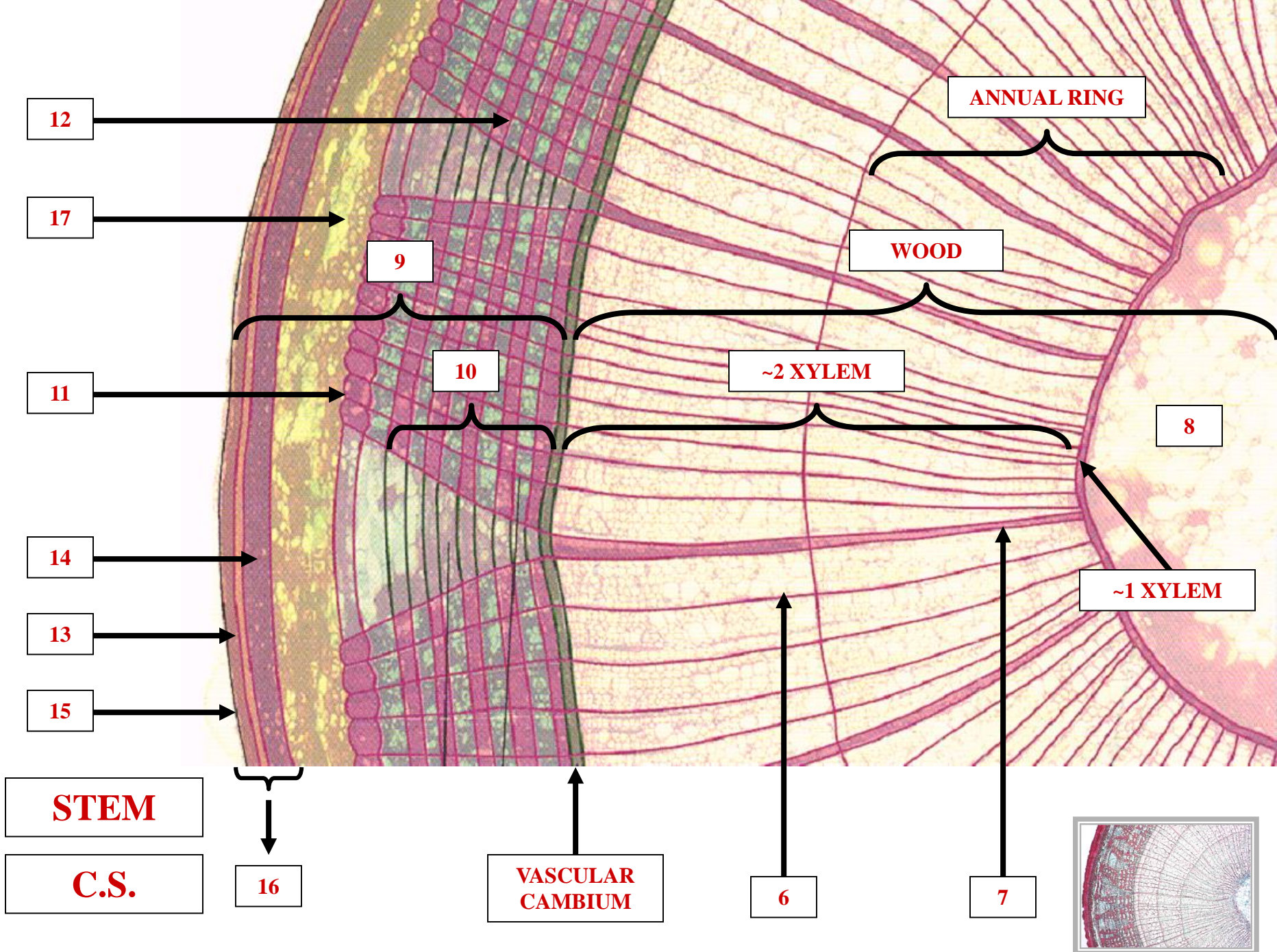




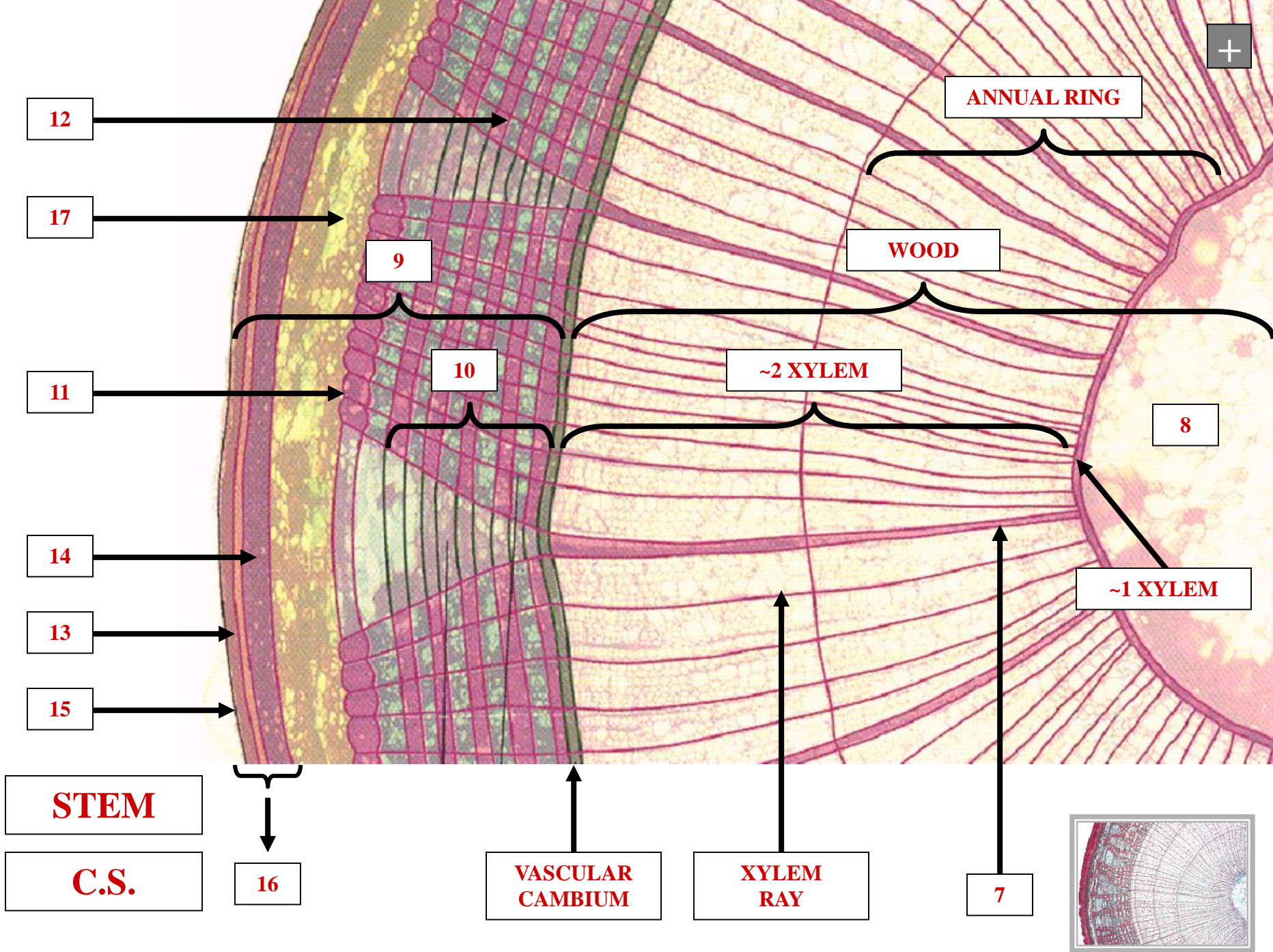




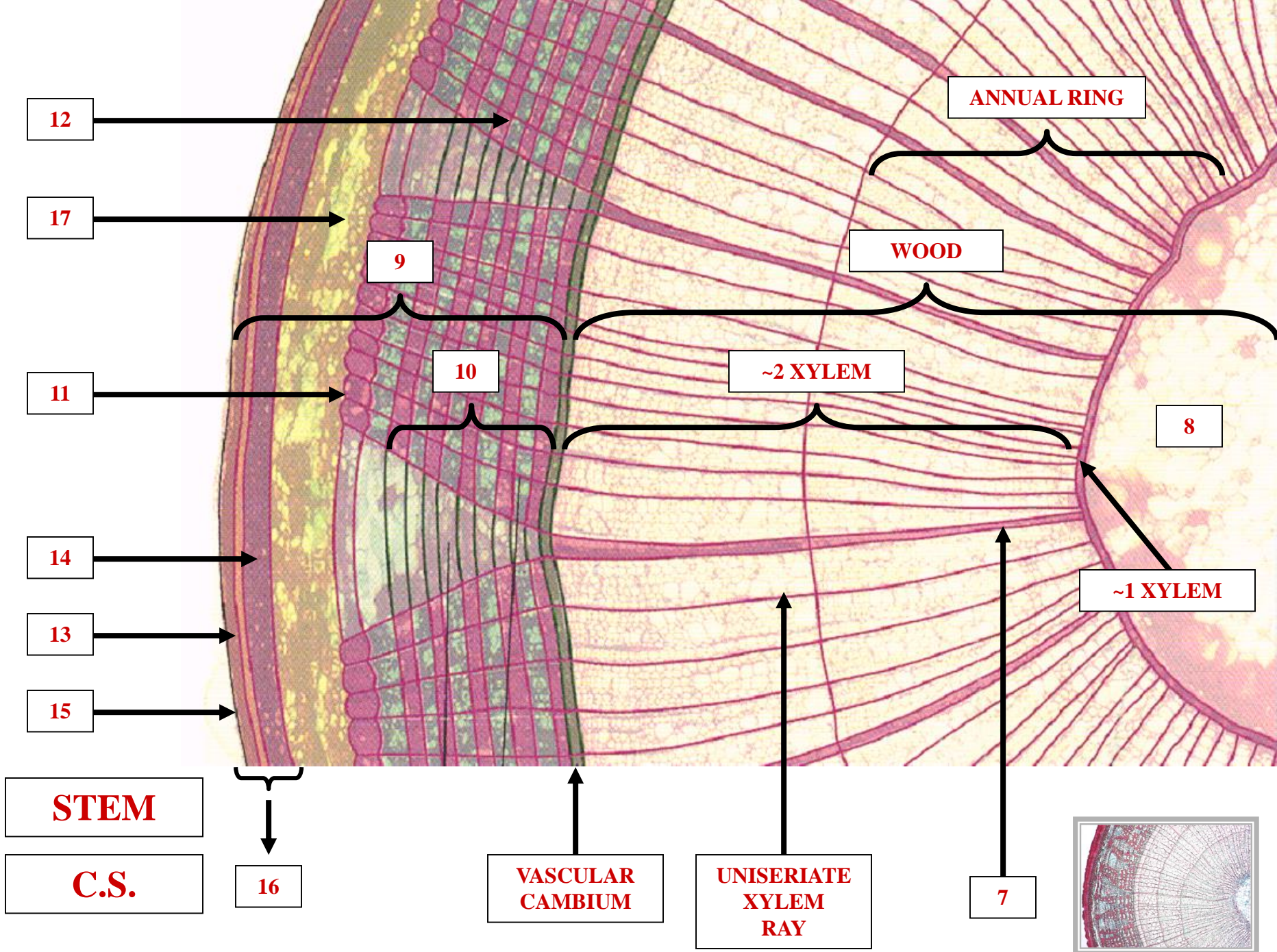




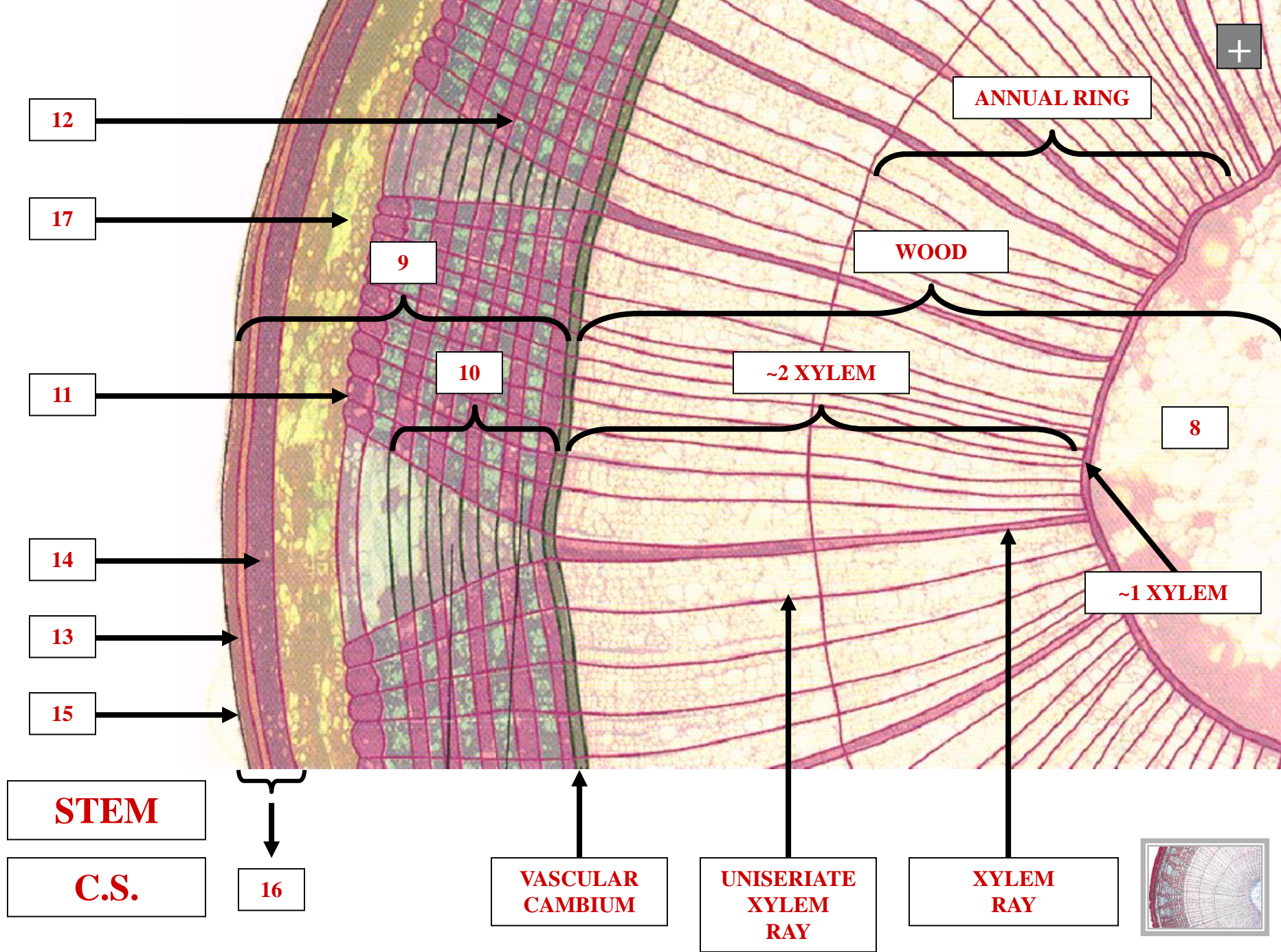




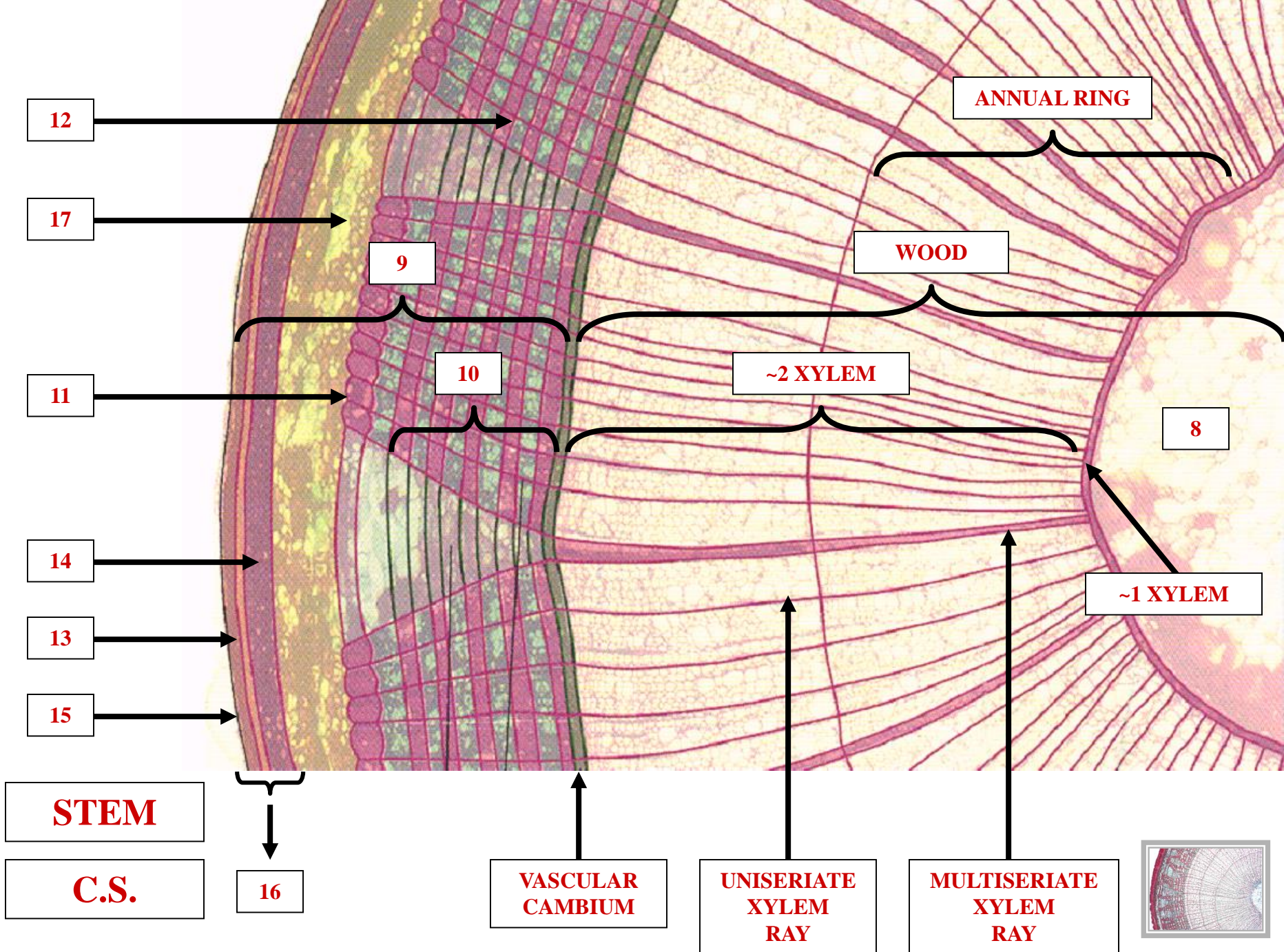




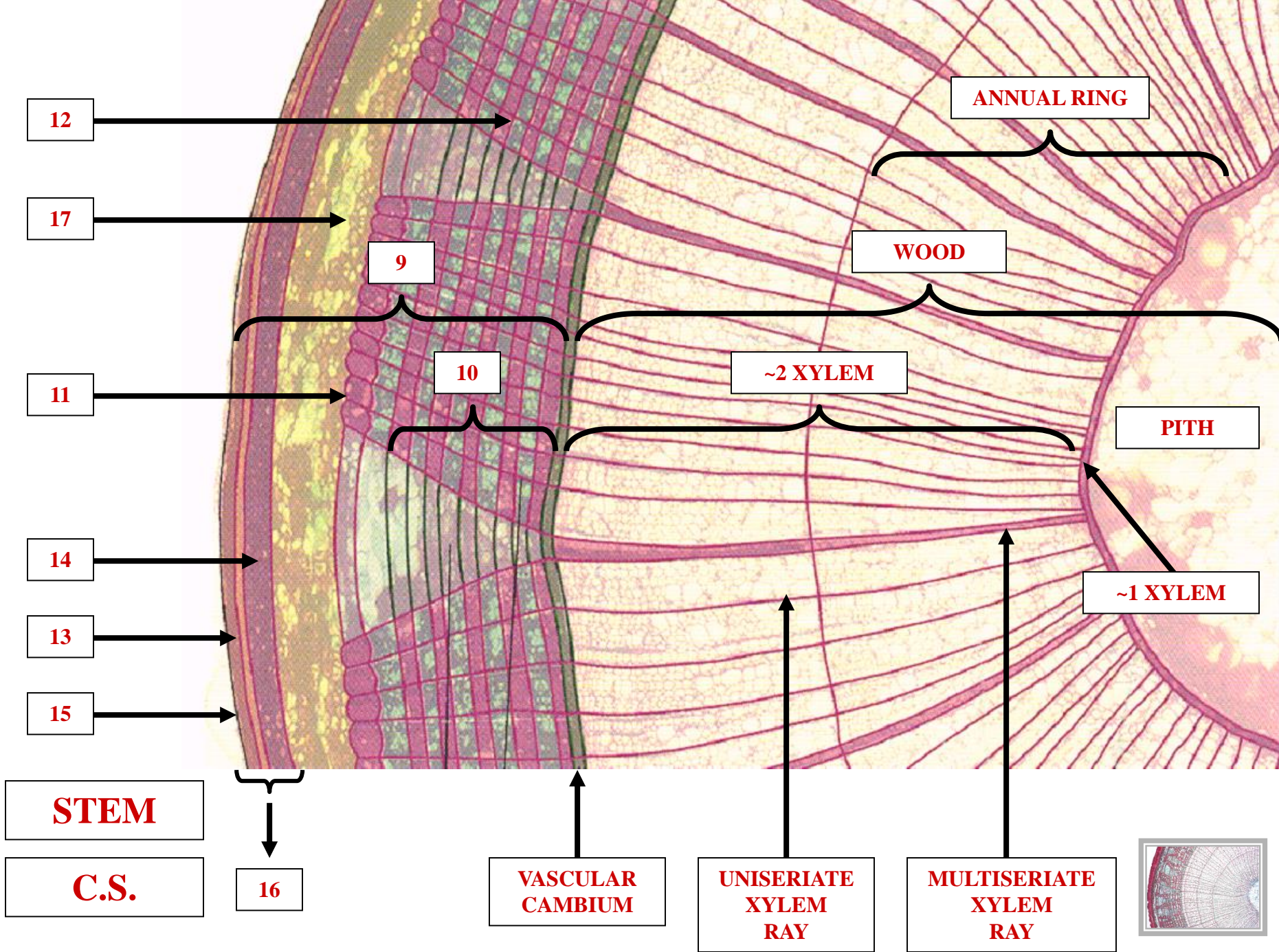




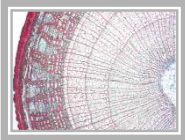
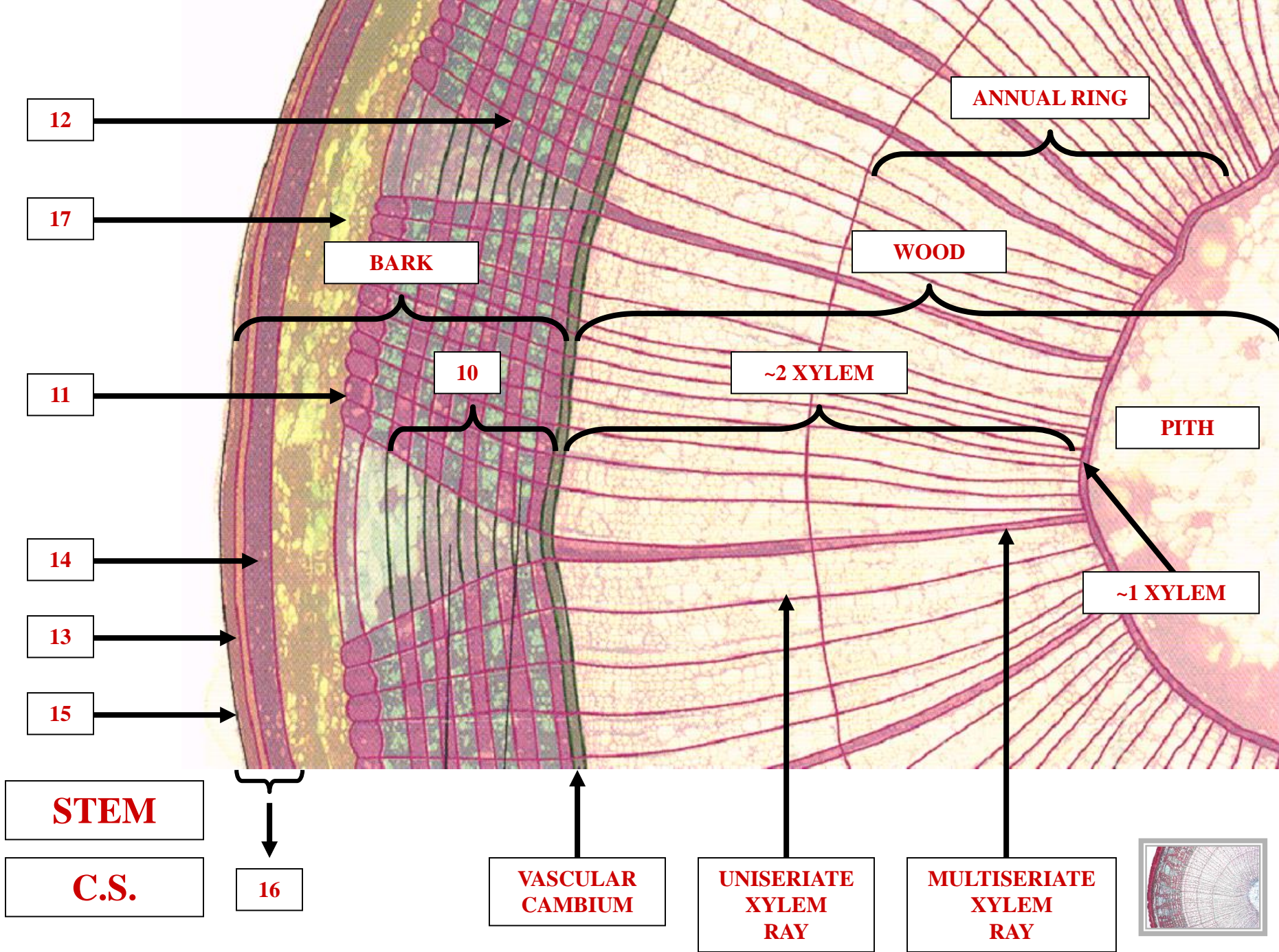




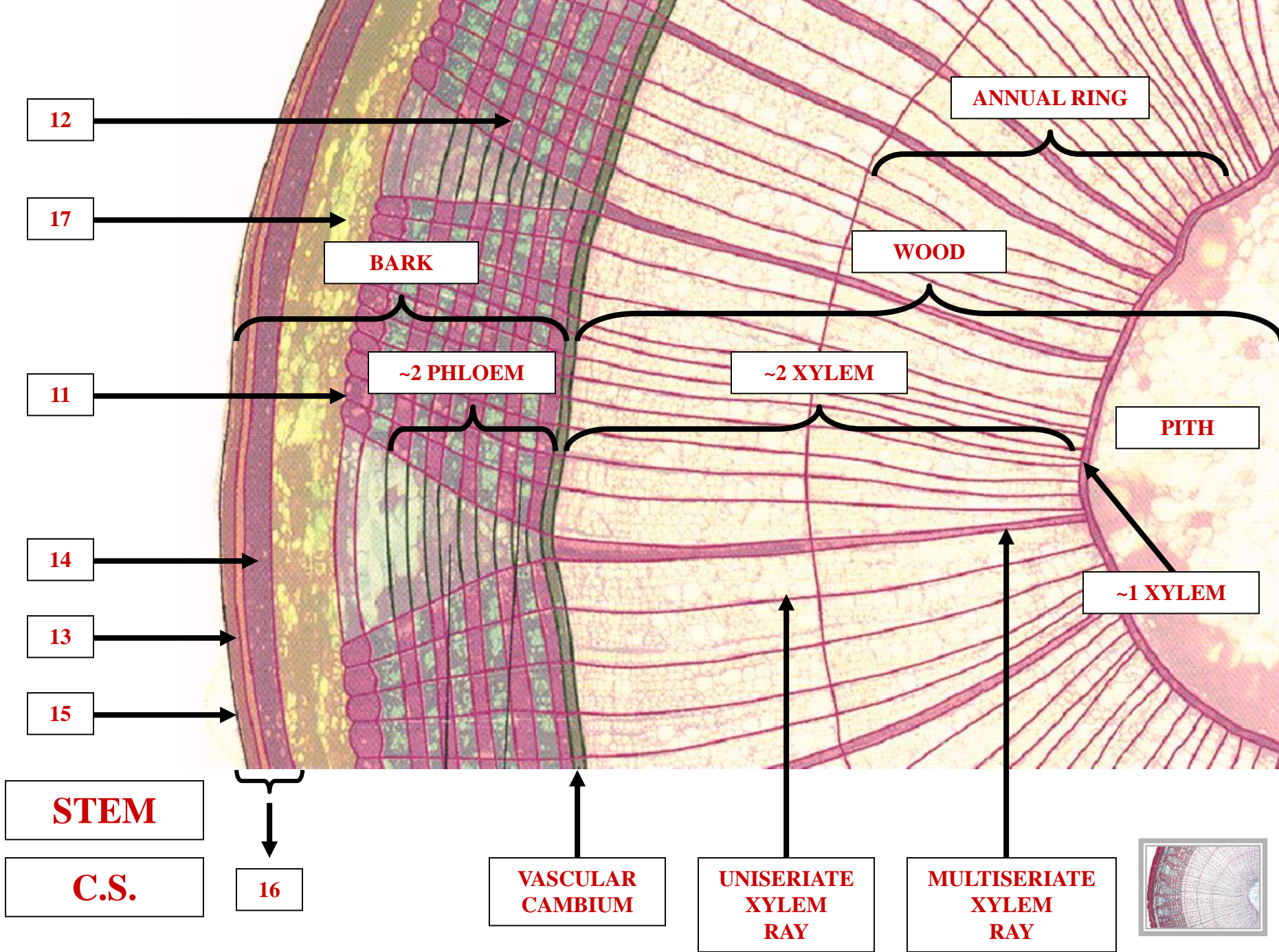




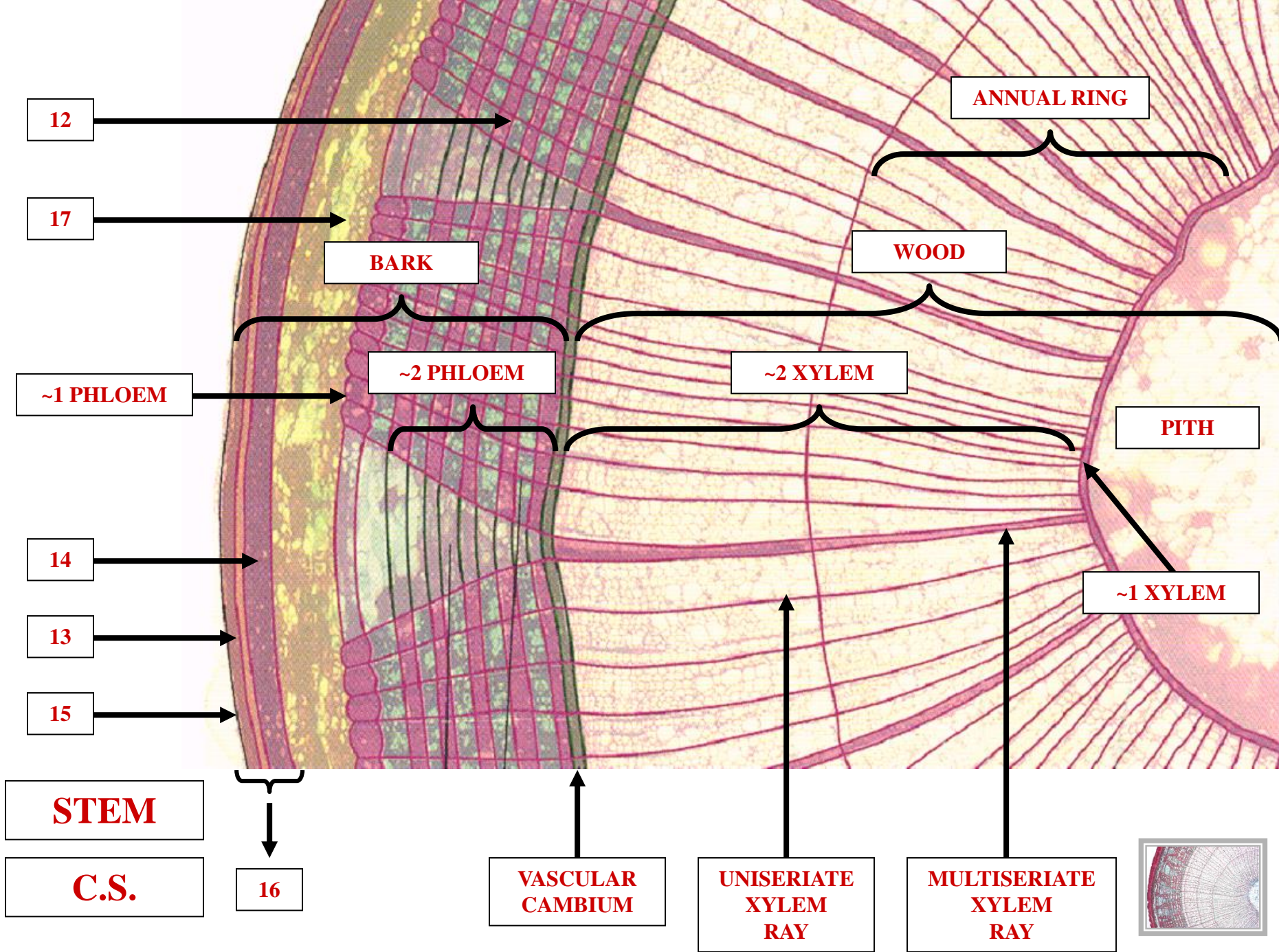




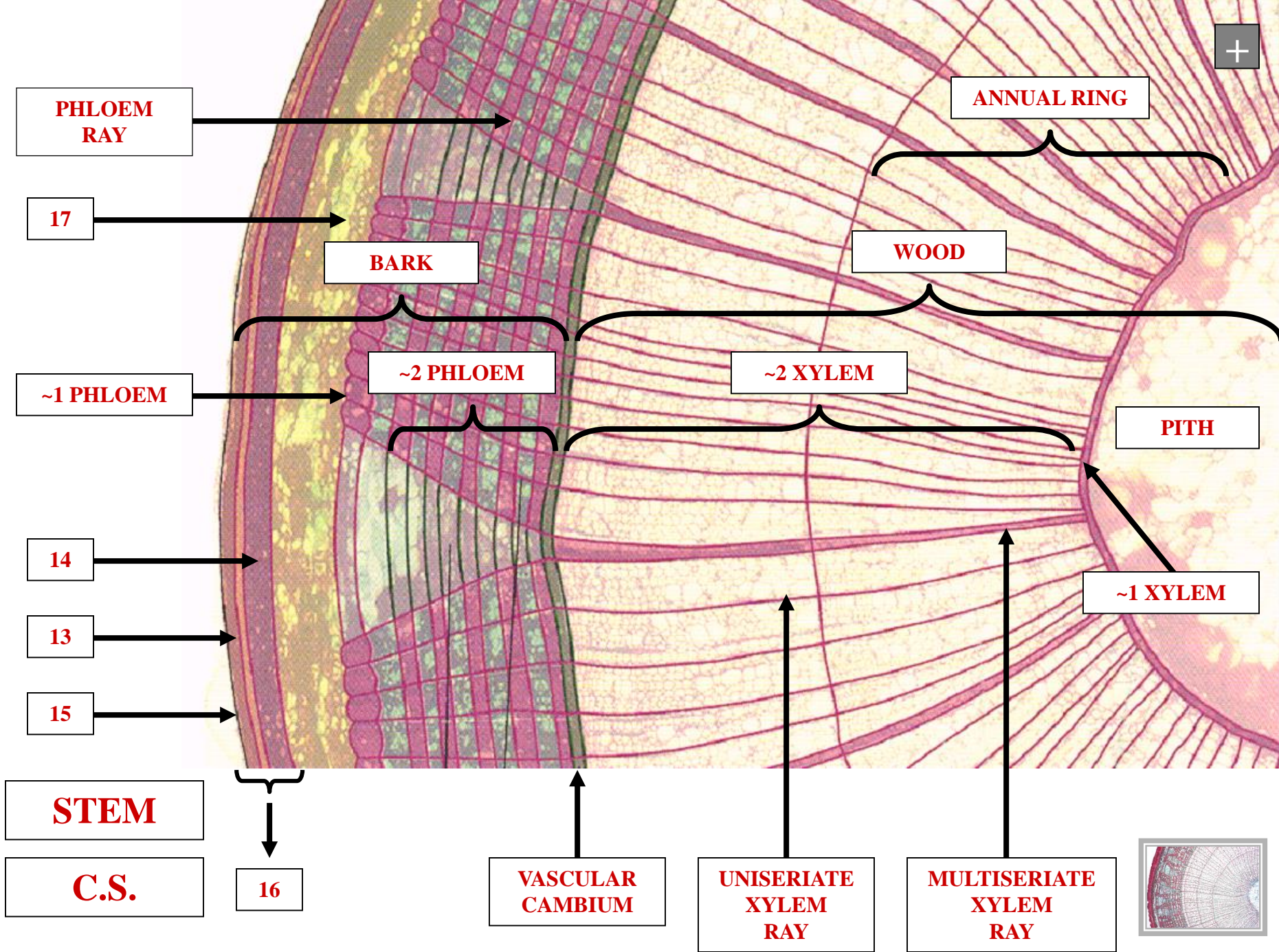




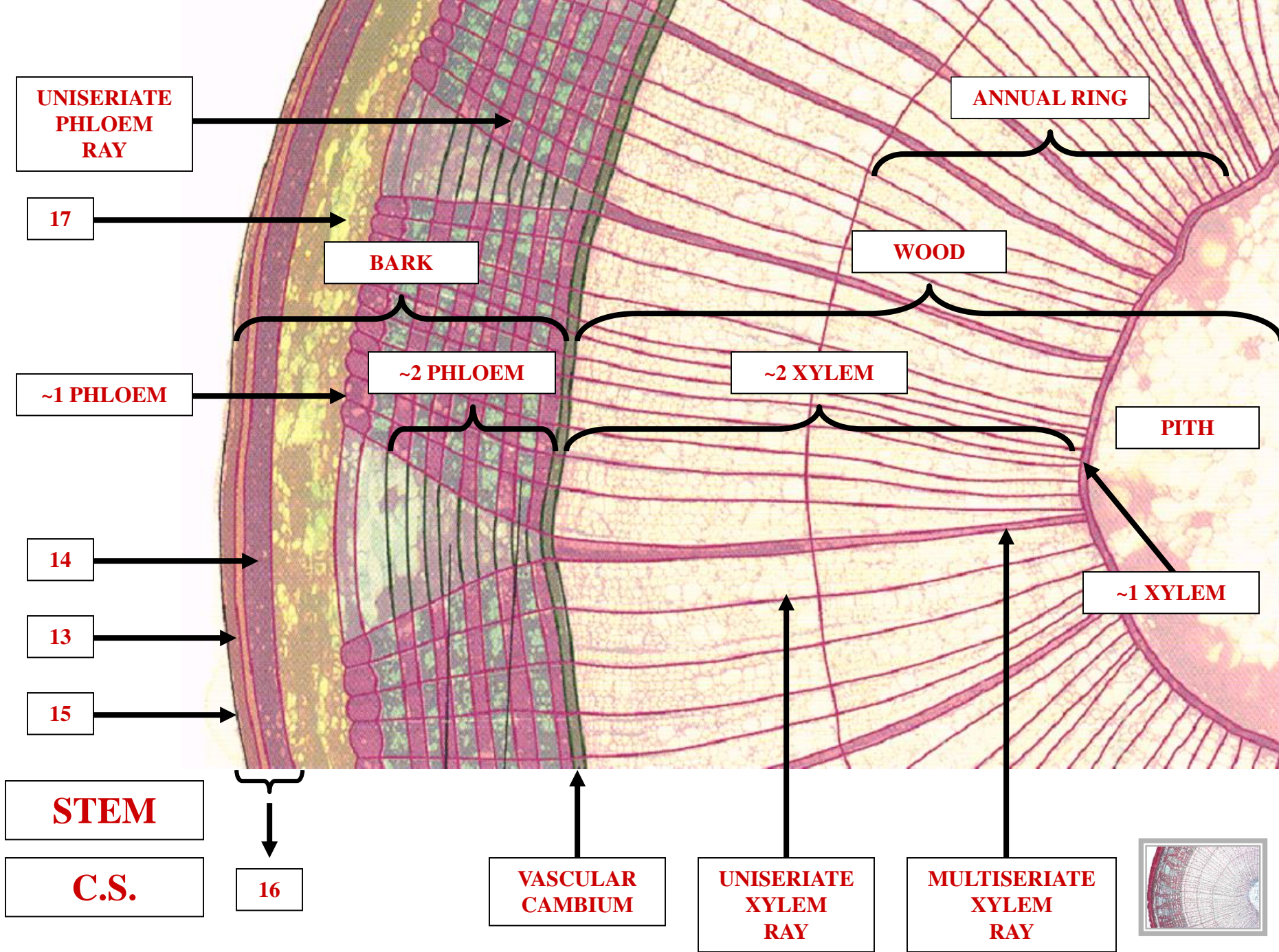




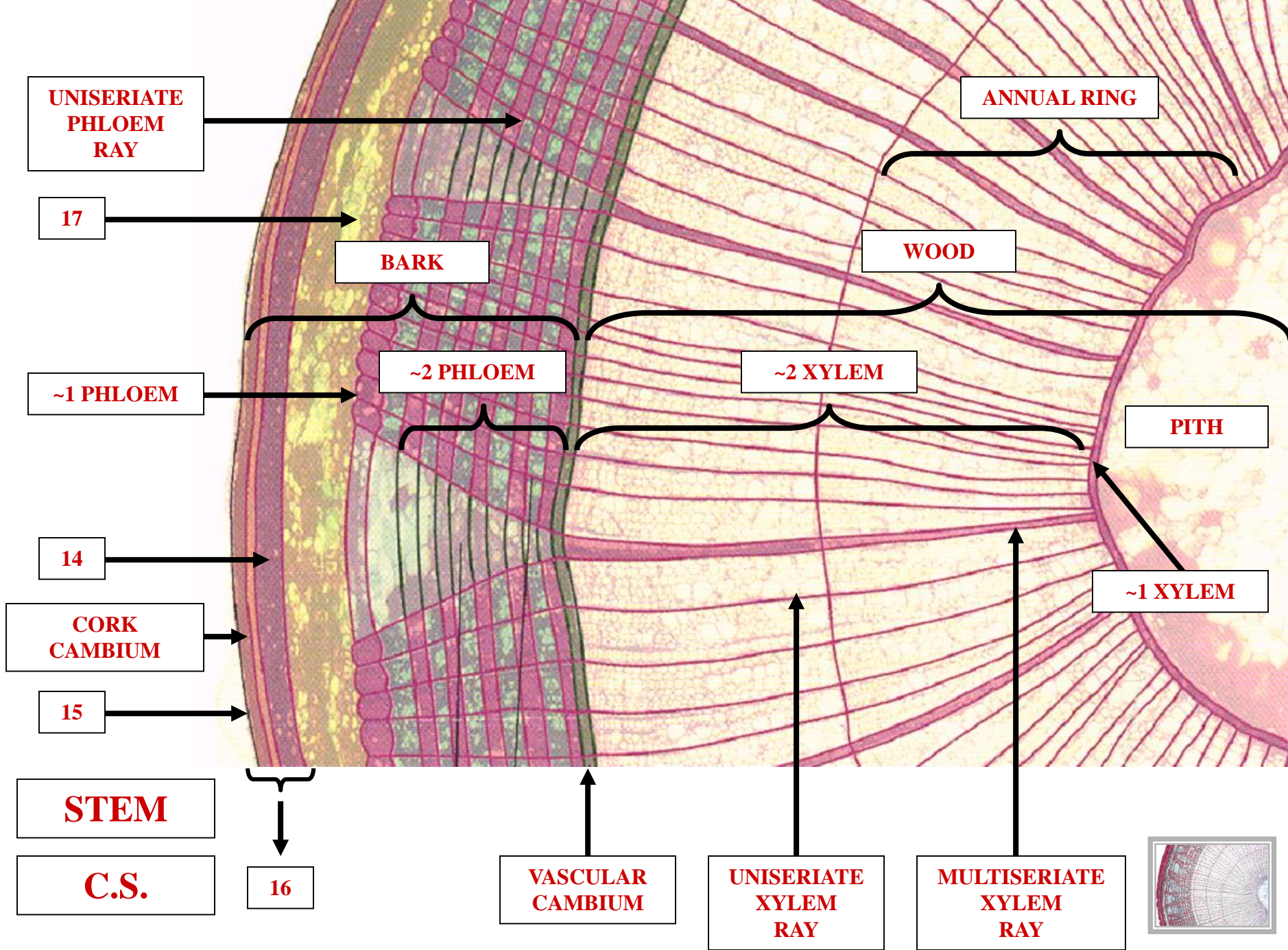




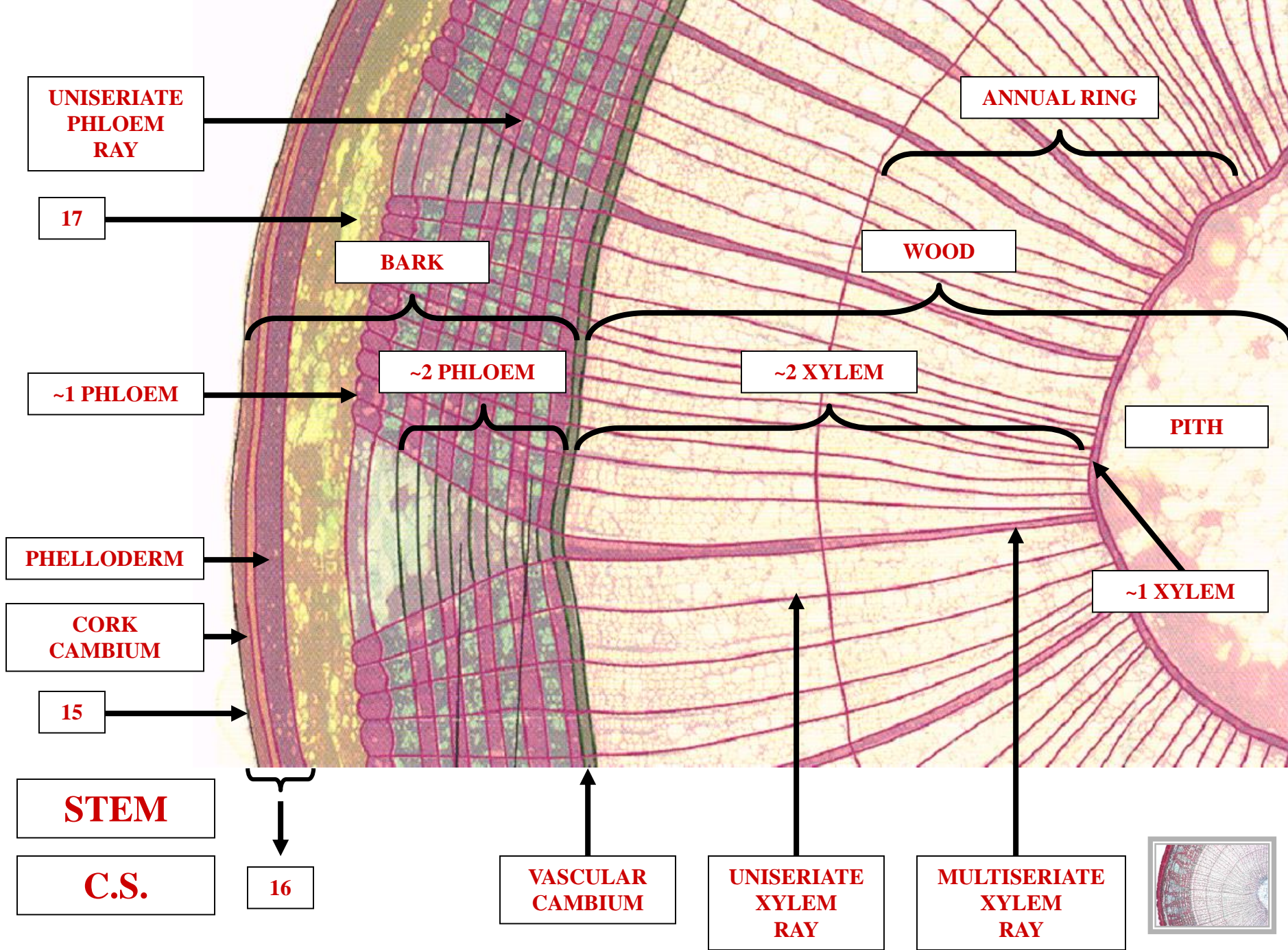




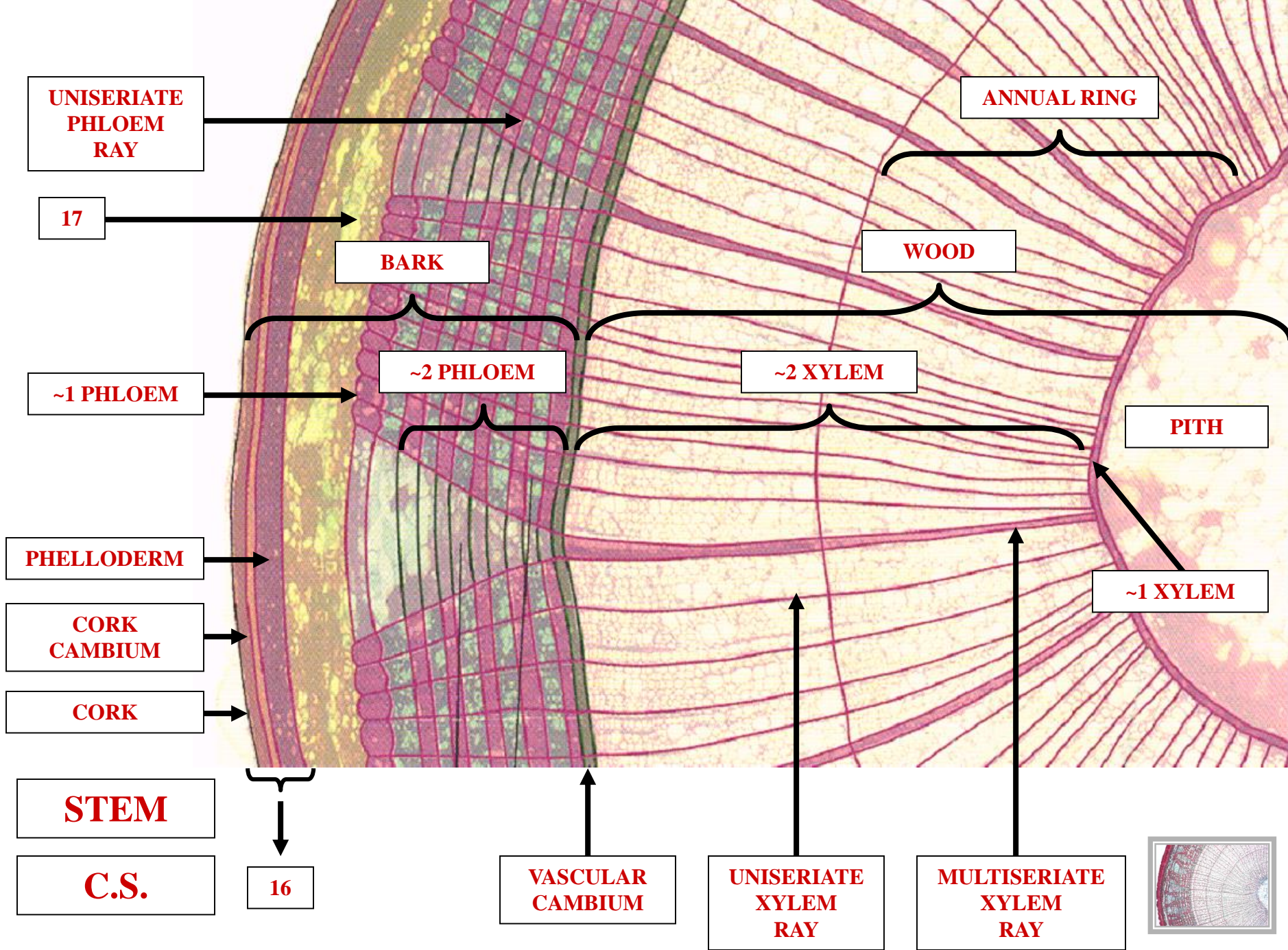




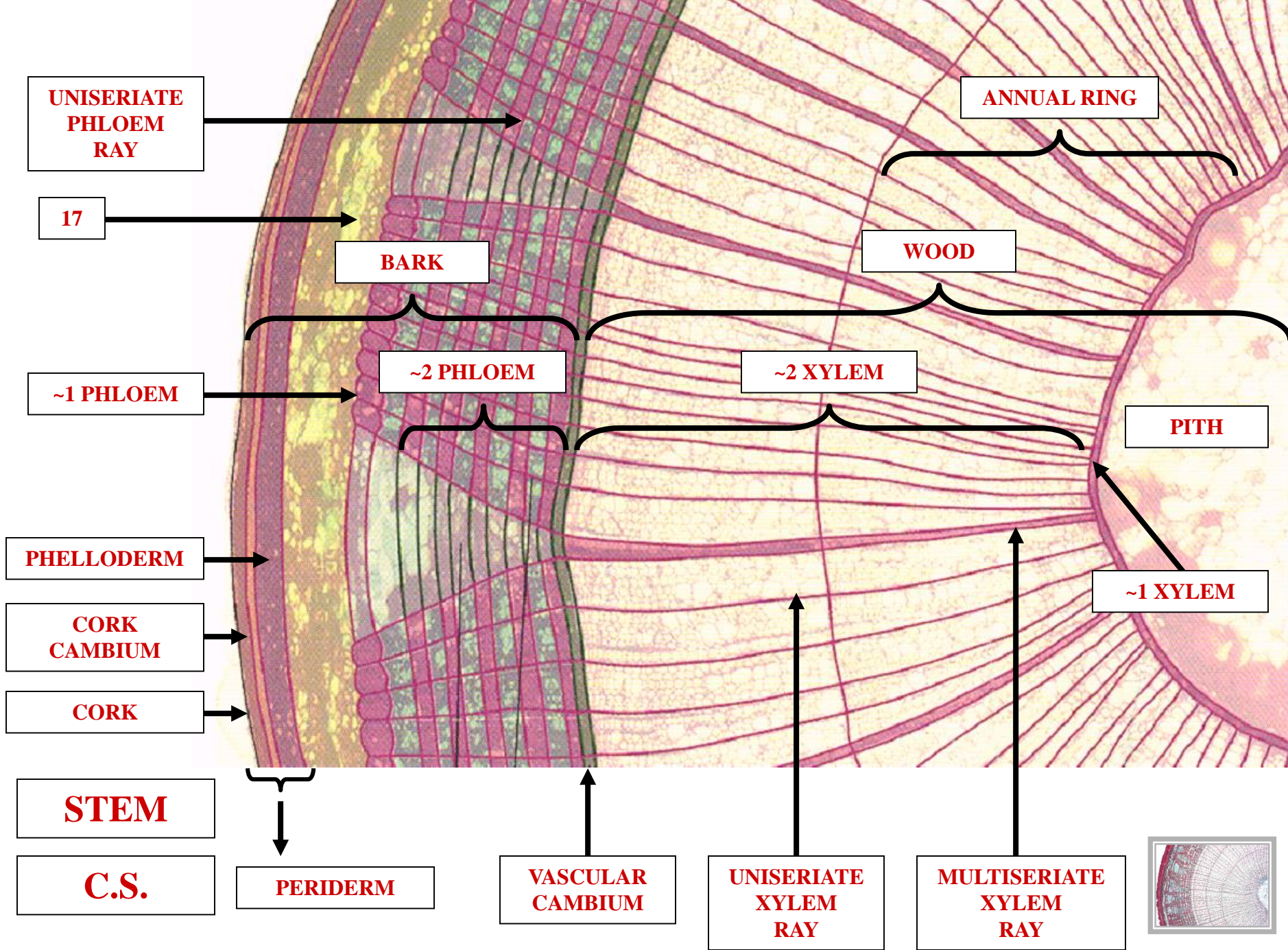




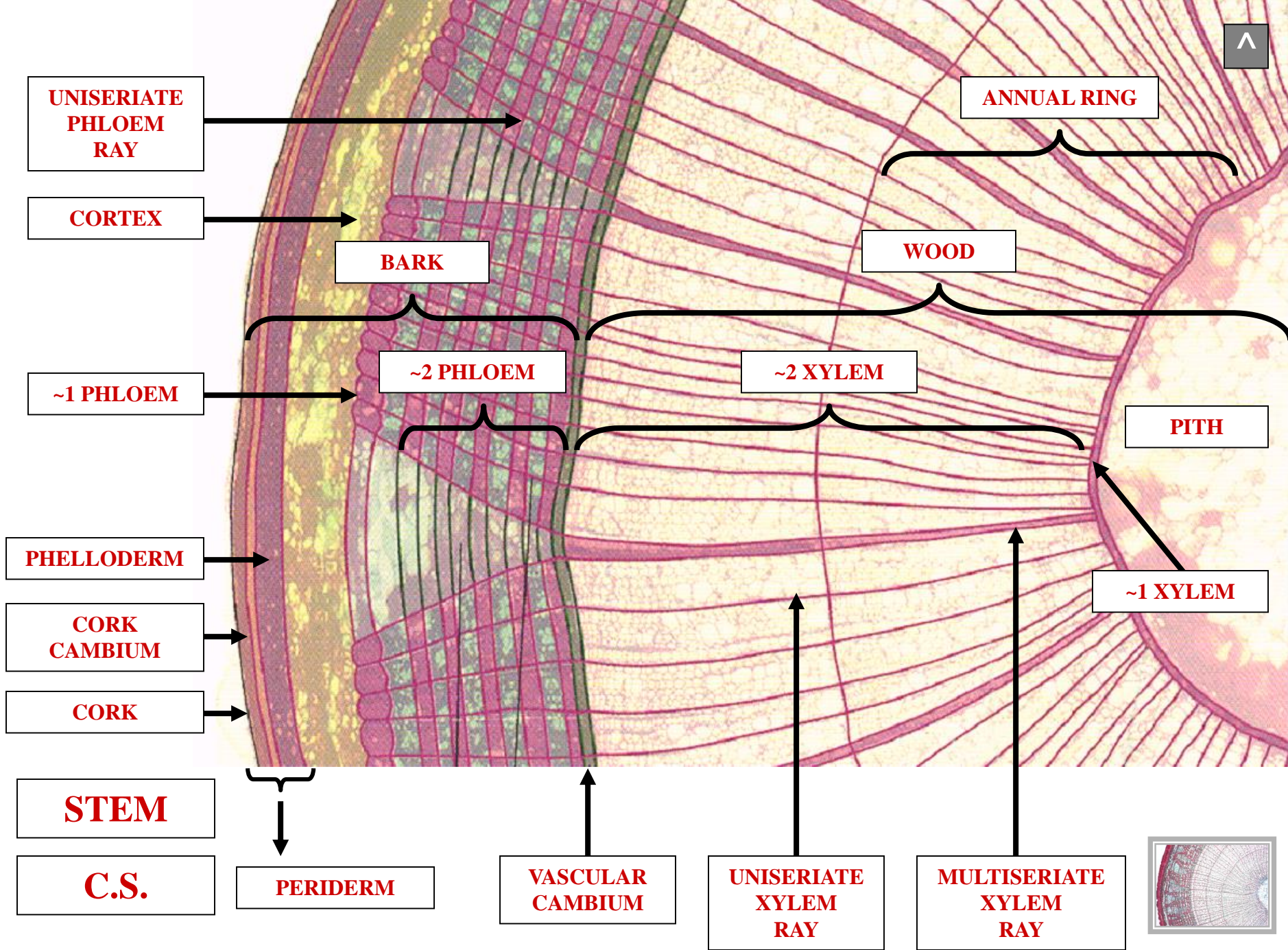










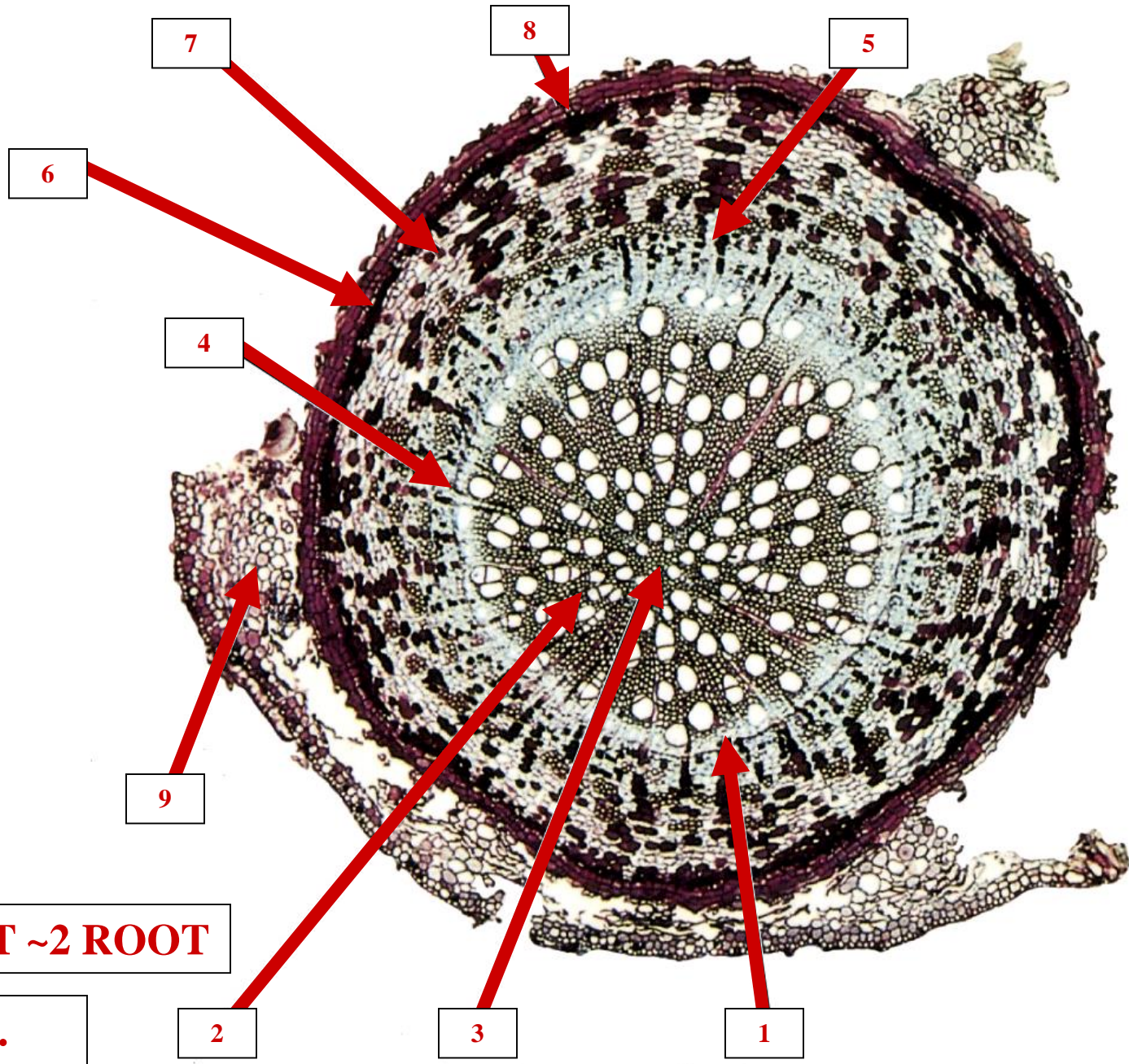






# DICOT ROOT SECONDARY GROWTH SUMMARY





**DICOT ~2 ROOT**

**C.S.**

**2**

**3**

**1**

**9**

**4**

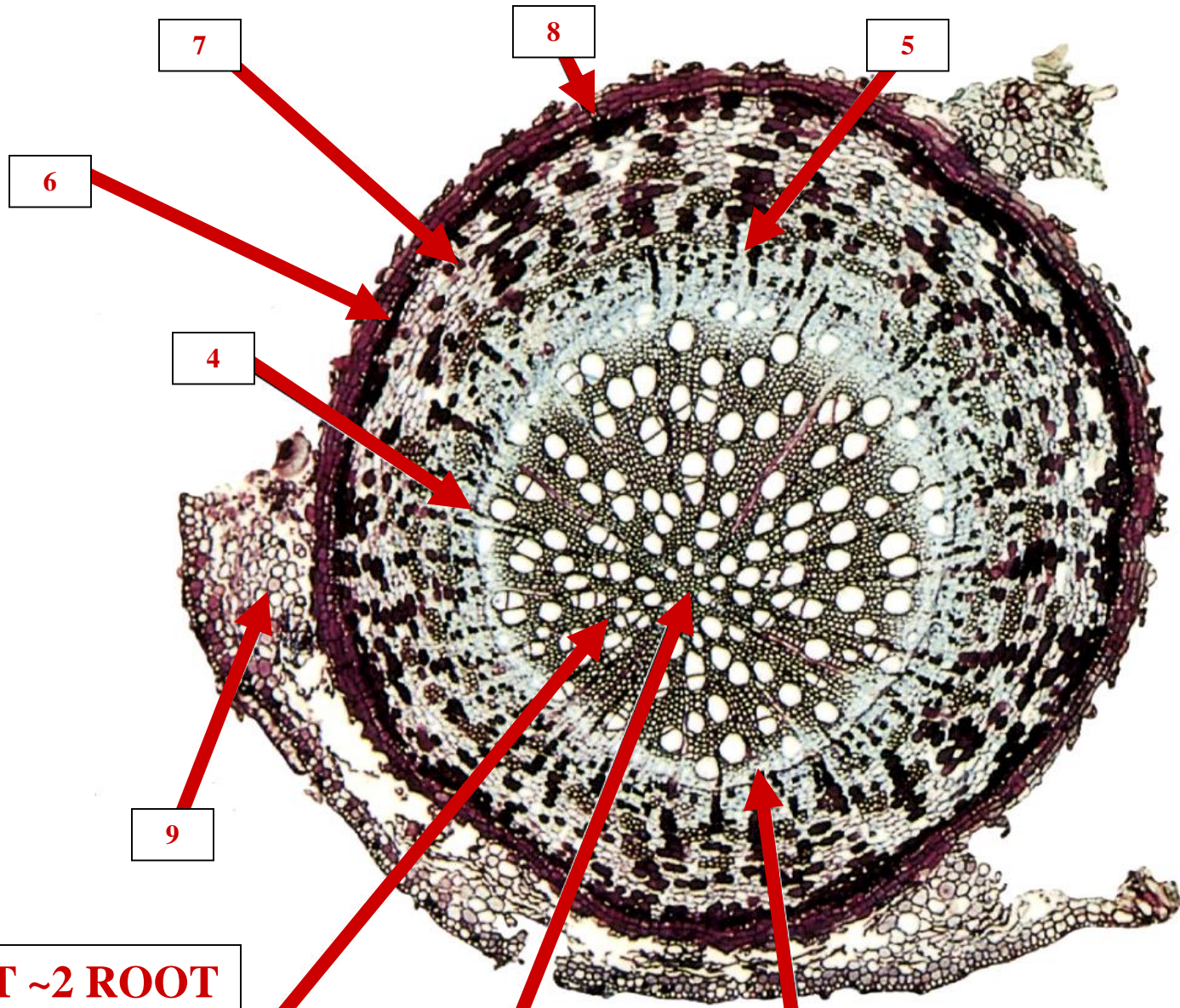
**6**

**7**

**8**

**5**





**DICOT ~2 ROOT**

**C.S.**

**2**

**3**

**VASCULAR  
CAMBIUM**

**9**

**4**

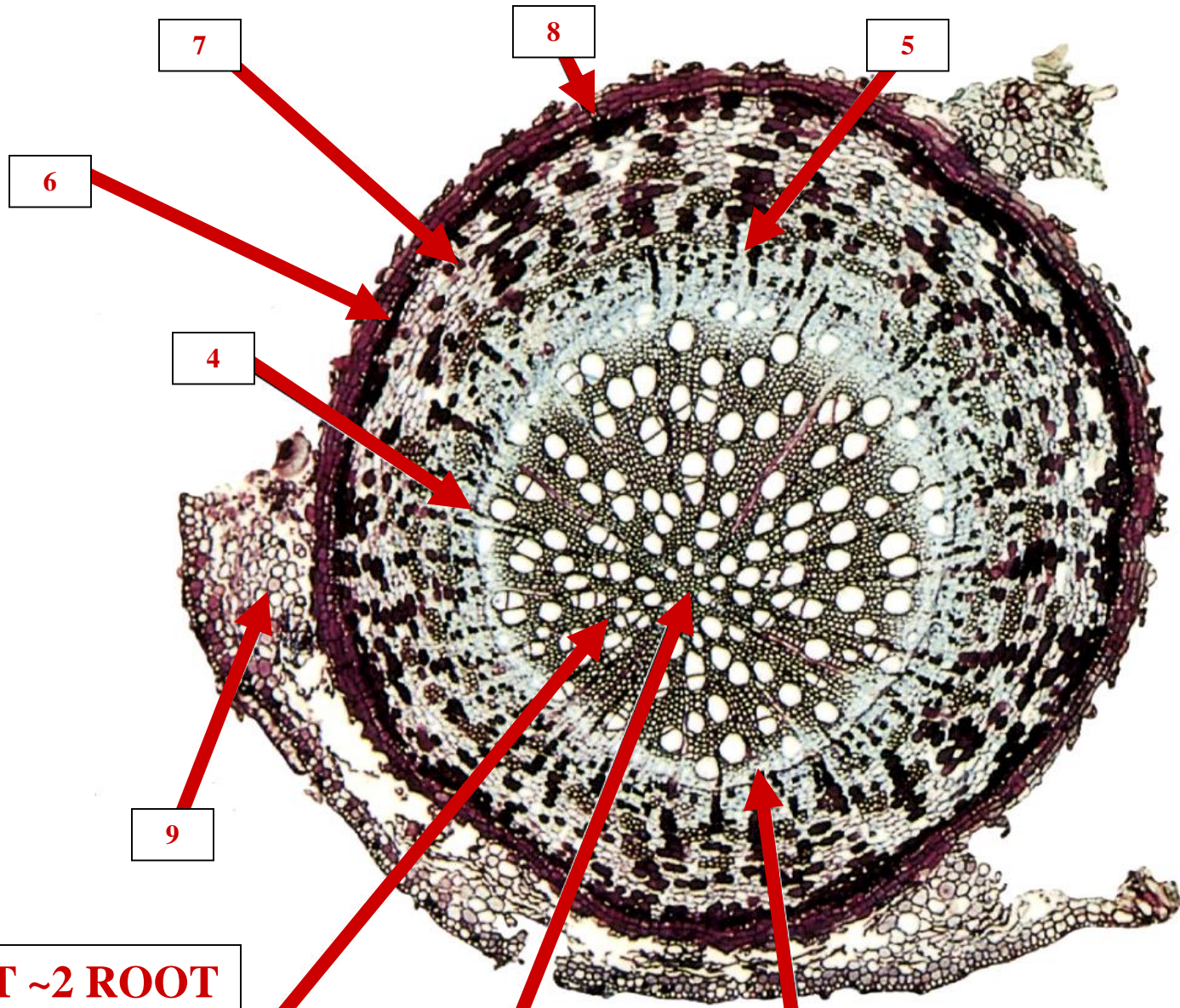
**6**

**7**

**8**

**5**





**DICOT ~2 ROOT**

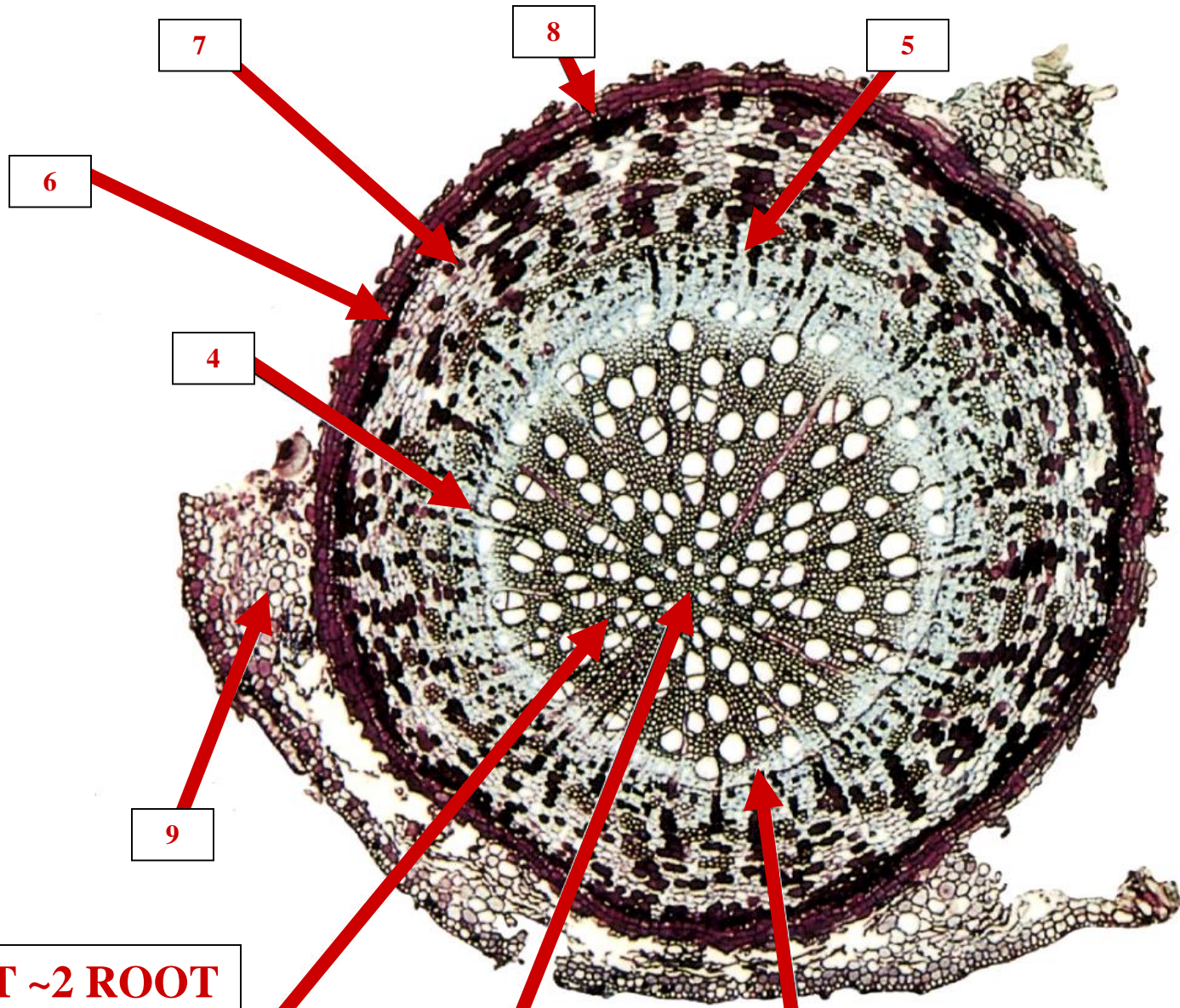
**C.S.**

**~2 XYLEM**

**3**

**VASCULAR  
CAMBIUM**





**DICOT ~2 ROOT**

**C.S.**

**~2 XYLEM**

**~1 XYLEM**

**VASCULAR  
CAMBIUM**



7

8

5

6

~2 PHLOEM

9

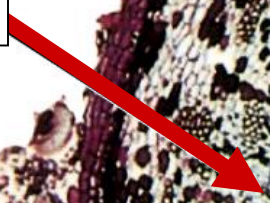
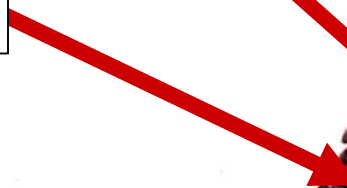
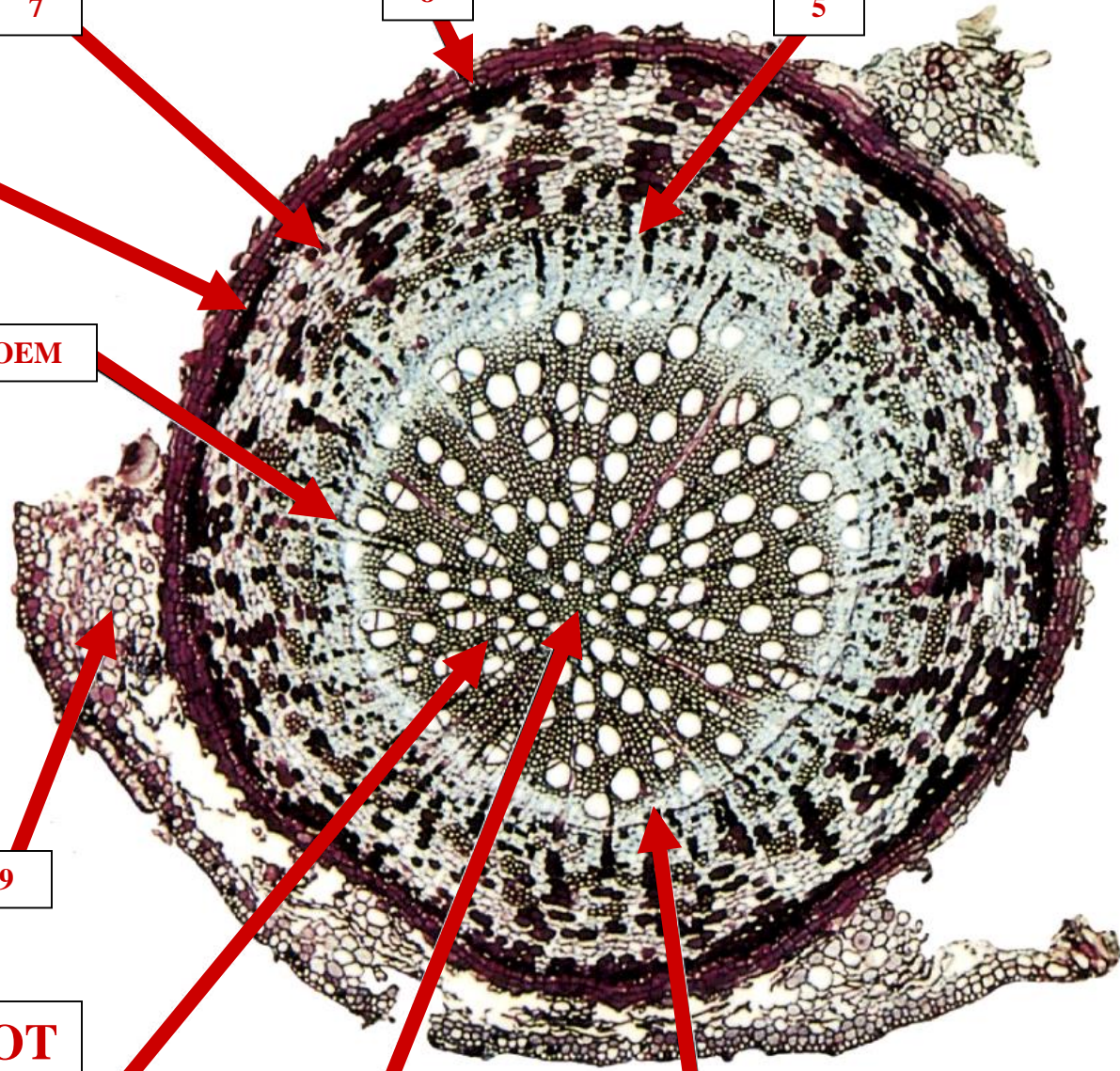
DICOT ~2 ROOT

C.S.

~2 XYLEM

~1 XYLEM

VASCULAR CAMBIUM





7

8

~1 PHLOEM

6

~2 PHLOEM

9

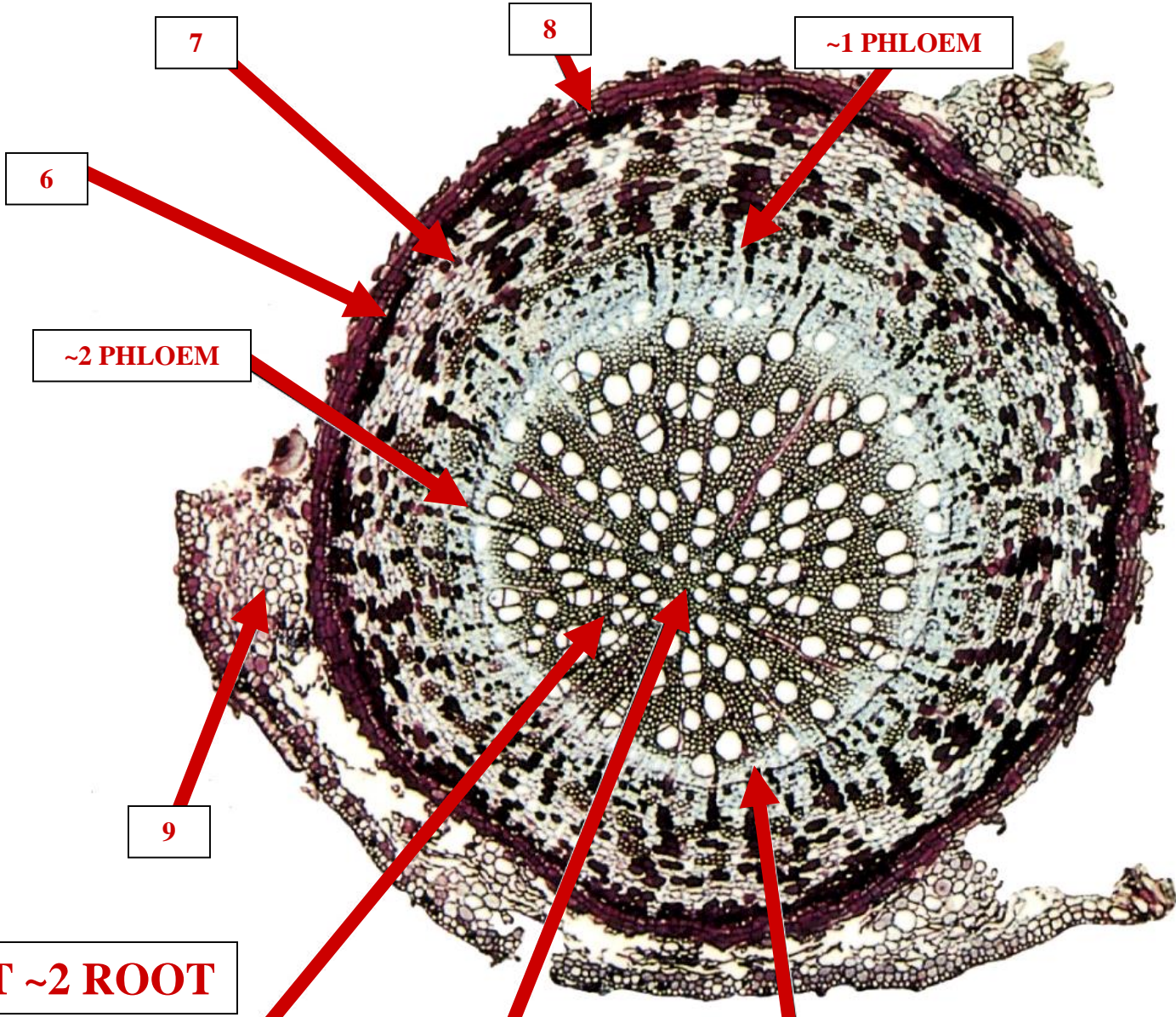
DICOT ~2 ROOT

C.S.

~2 XYLEM

~1 XYLEM

VASCULAR CAMBIUM





7

8

~1 PHLOEM

CORK CAMBIUM

~2 PHLOEM

9

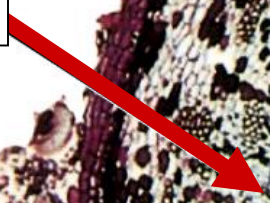
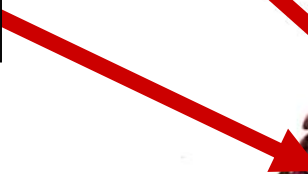
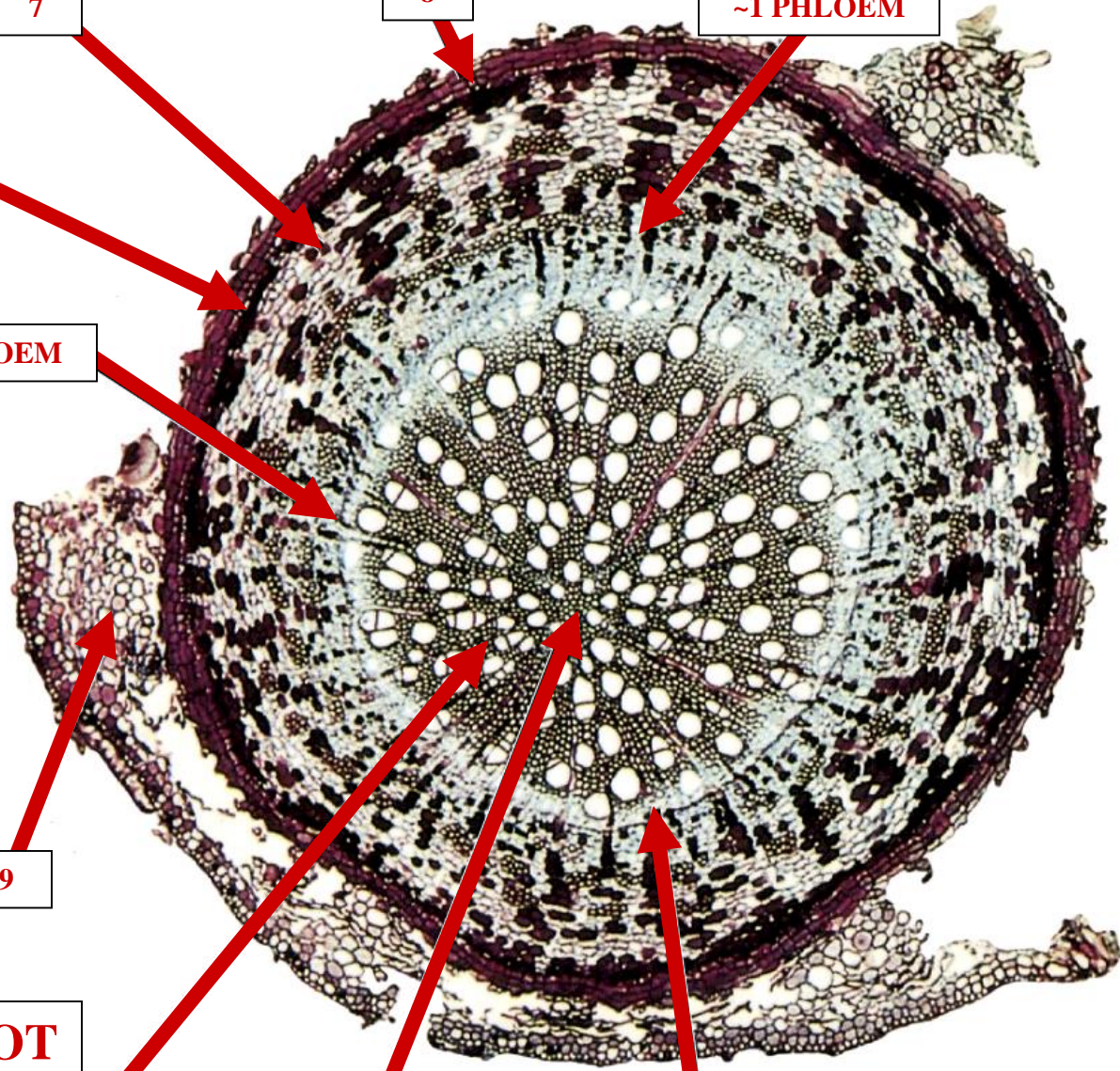
DICOT ~2 ROOT

C.S.

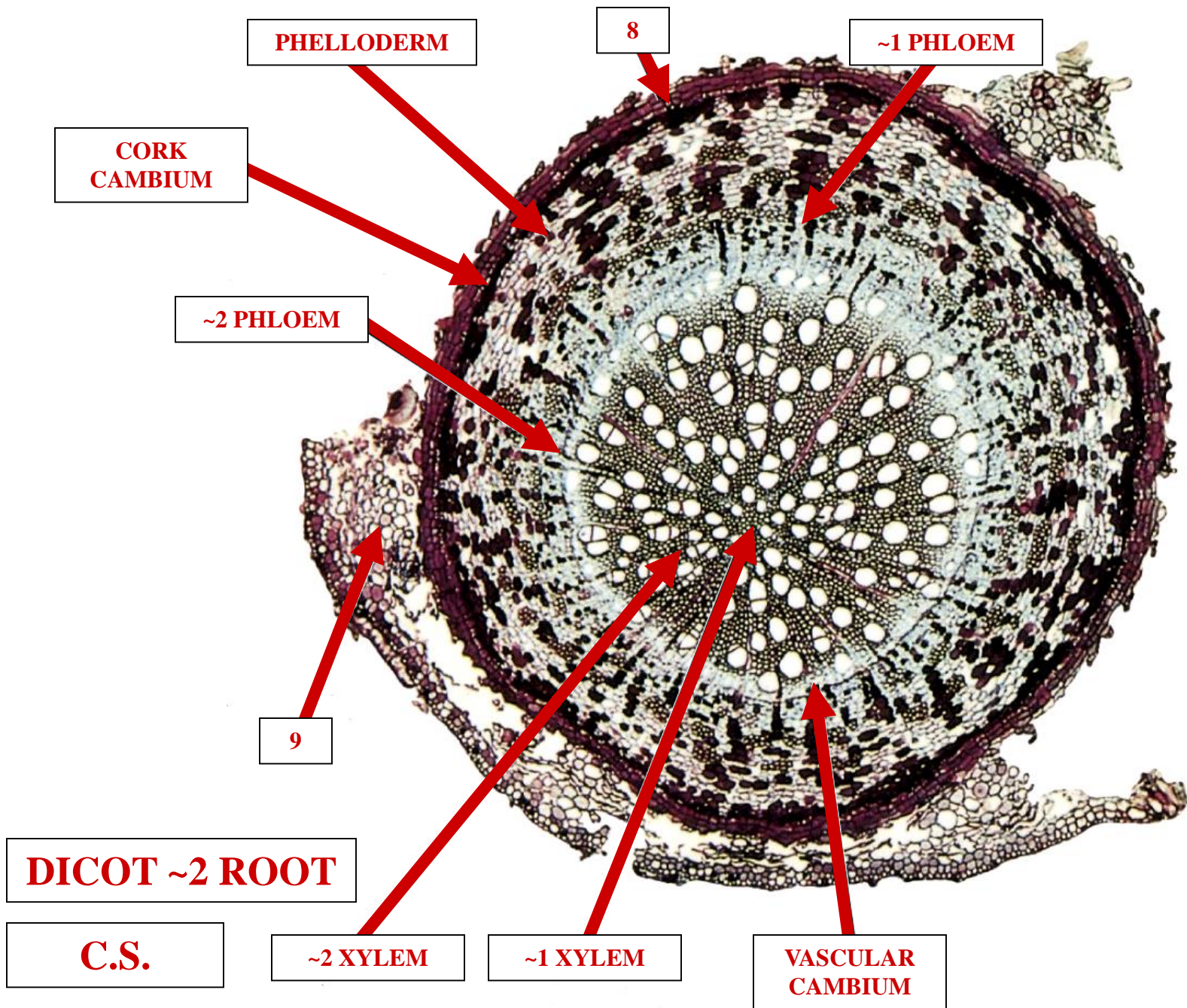
~2 XYLEM

~1 XYLEM

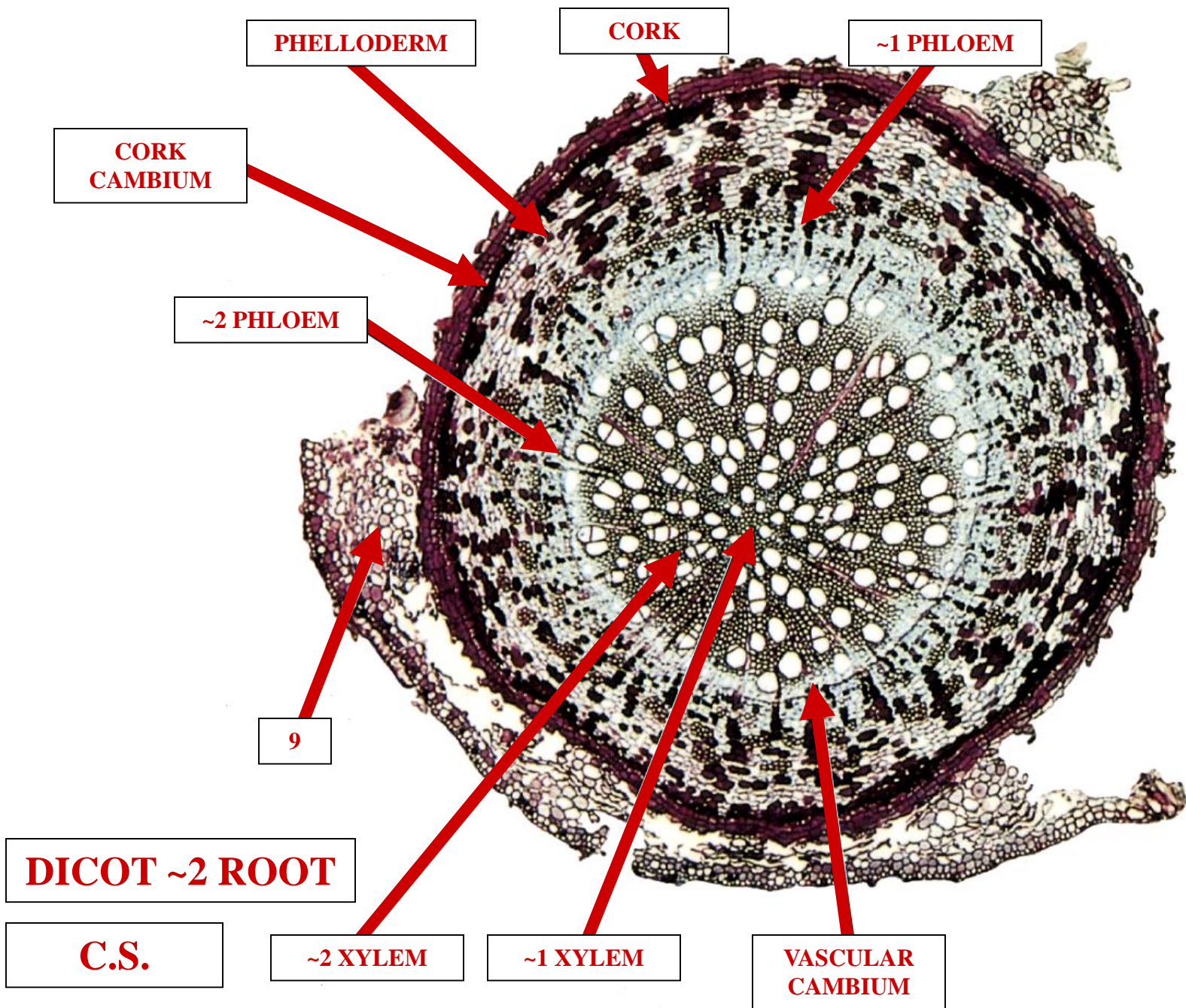
VASCULAR CAMBIUM



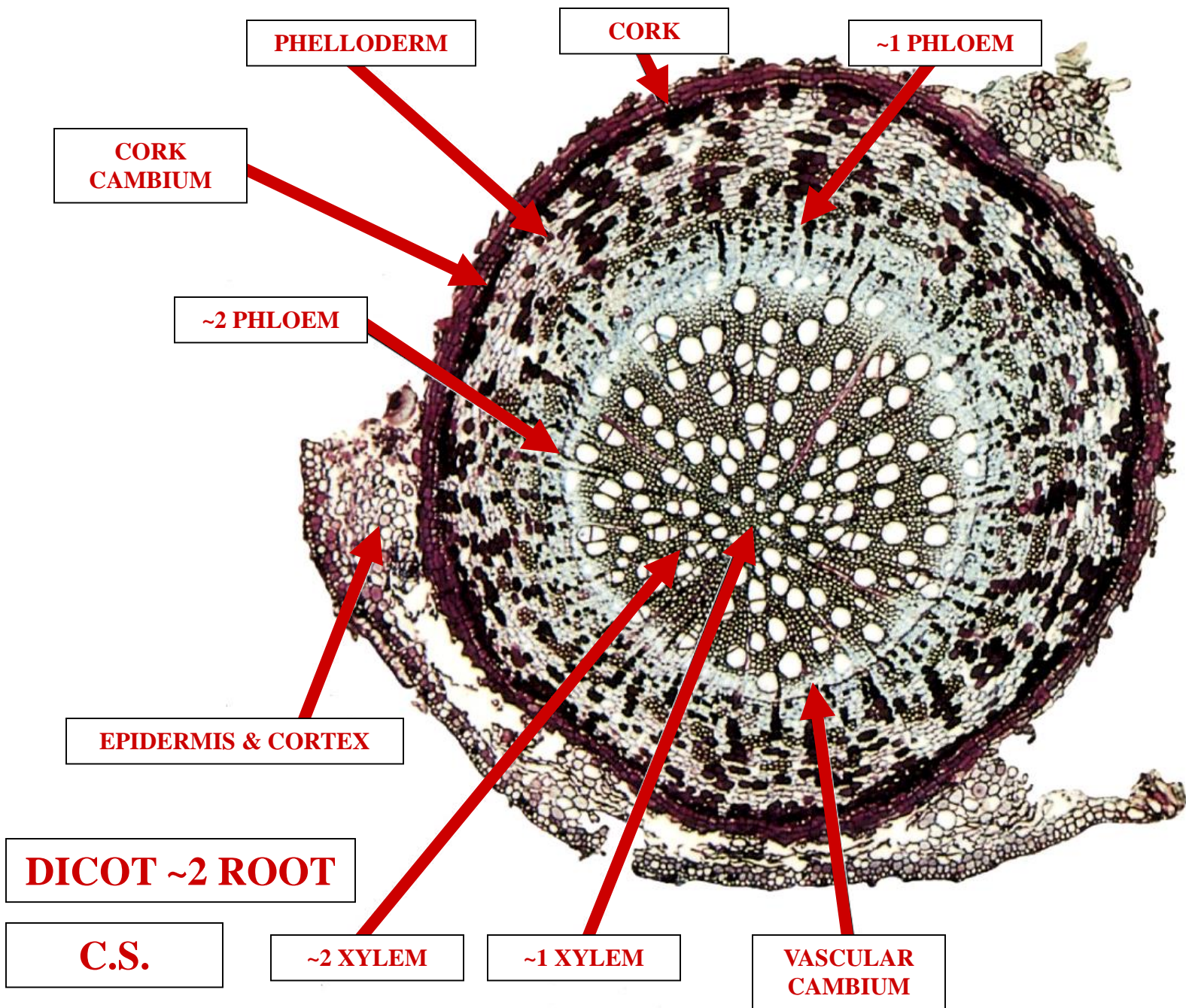














# **LECTURE QUIZ**

**MONDAY  
28 FEBRUARY**



# **LECTURE QUIZ**

**DICOT**

**ROOT & STEM**

**SECONDARY GROWTH**



# LECTURE QUIZ

FORMAT  
FILL IN  
QUESTIONS





# **LECTURE QUIZ**

**MUST  
SPELL CORRECTLY  
FOR FULL CREDIT**





# **MODIFIED STEMS**





**MODIFIED STEMS  
PROVIDE  
SPECIAL FUNCTION**





# **MODIFIED STEM TYPES**





# RHIZOME

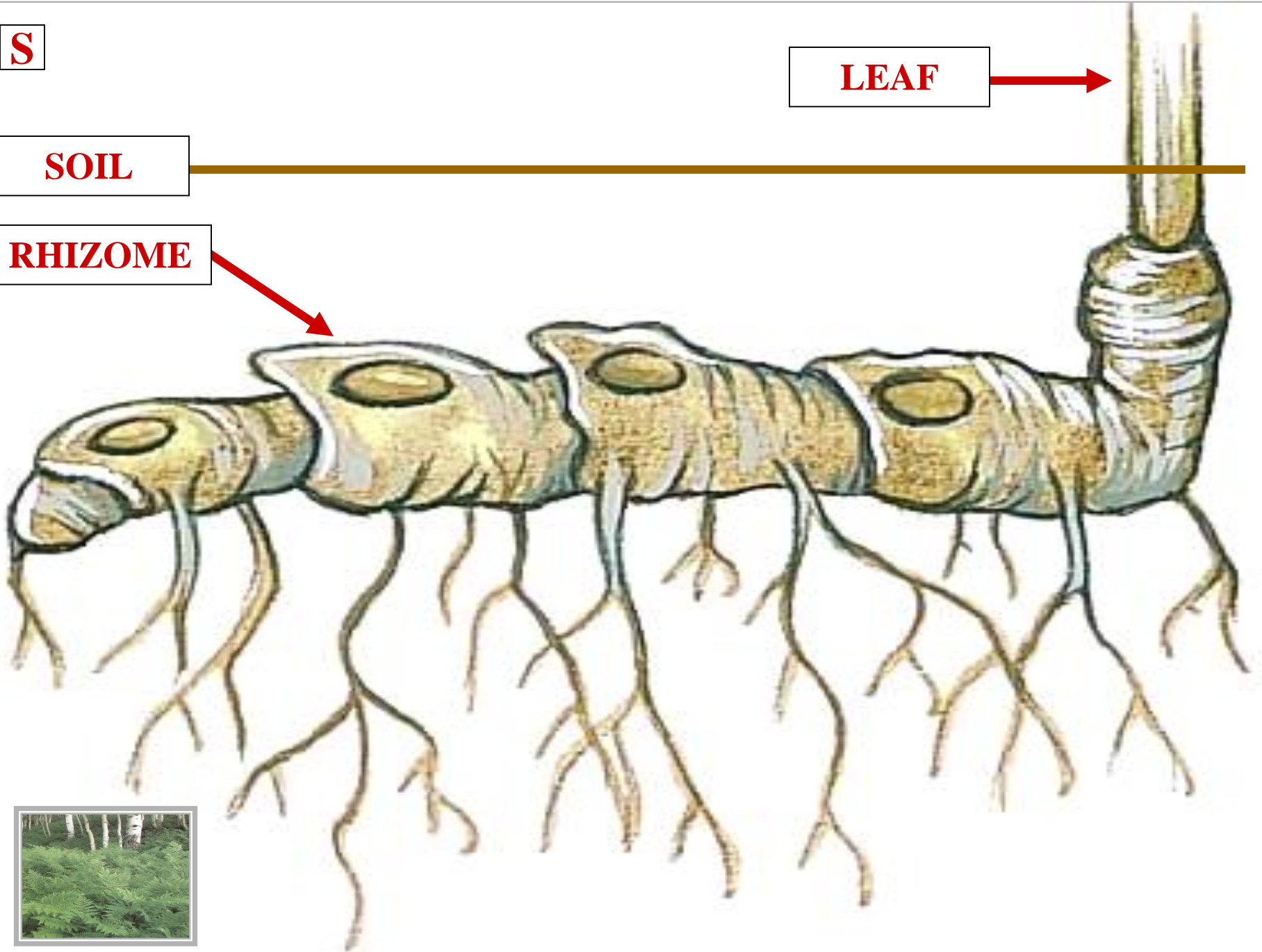


**S**

**LEAF**

**SOIL**

**RHIZOME**





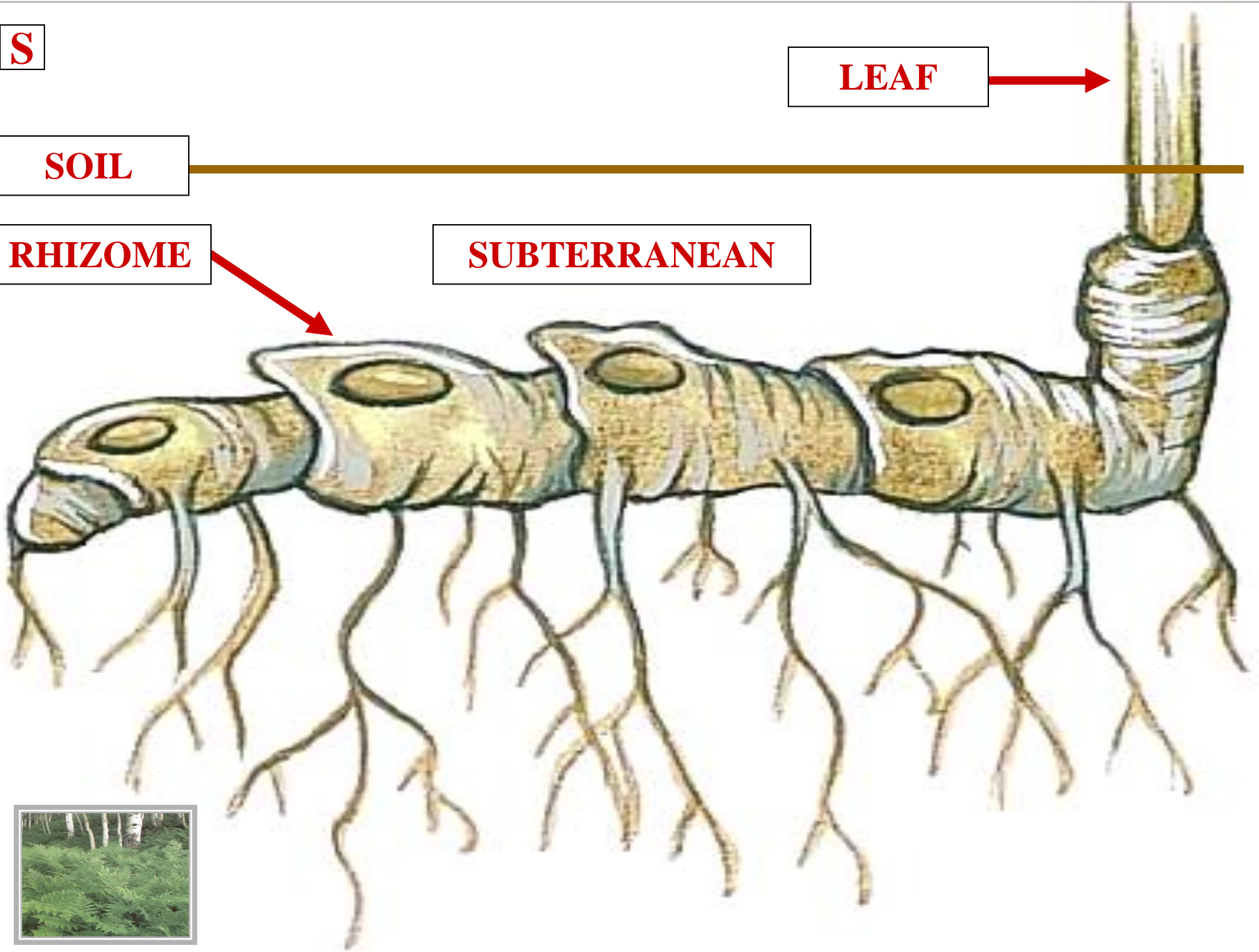
**S**

**LEAF**

**SOIL**

**RHIZOME**

**SUBTERRANEAN**







**LEAF**



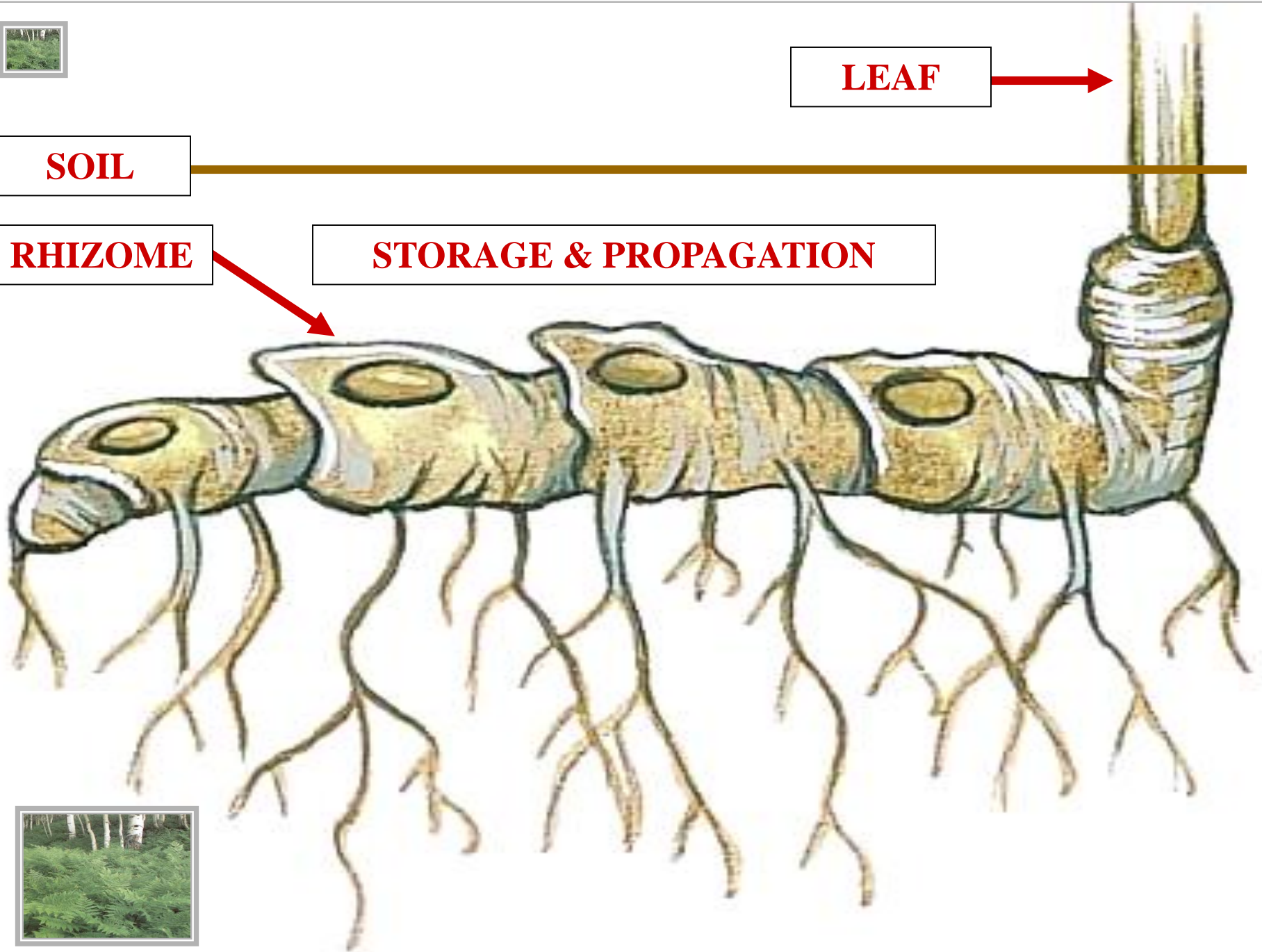
**SOIL**



**RHIZOME**



**STORAGE & PROPAGATION**







**RHIZOME  
SUBTERRANEAN  
LATERAL GROWTH**



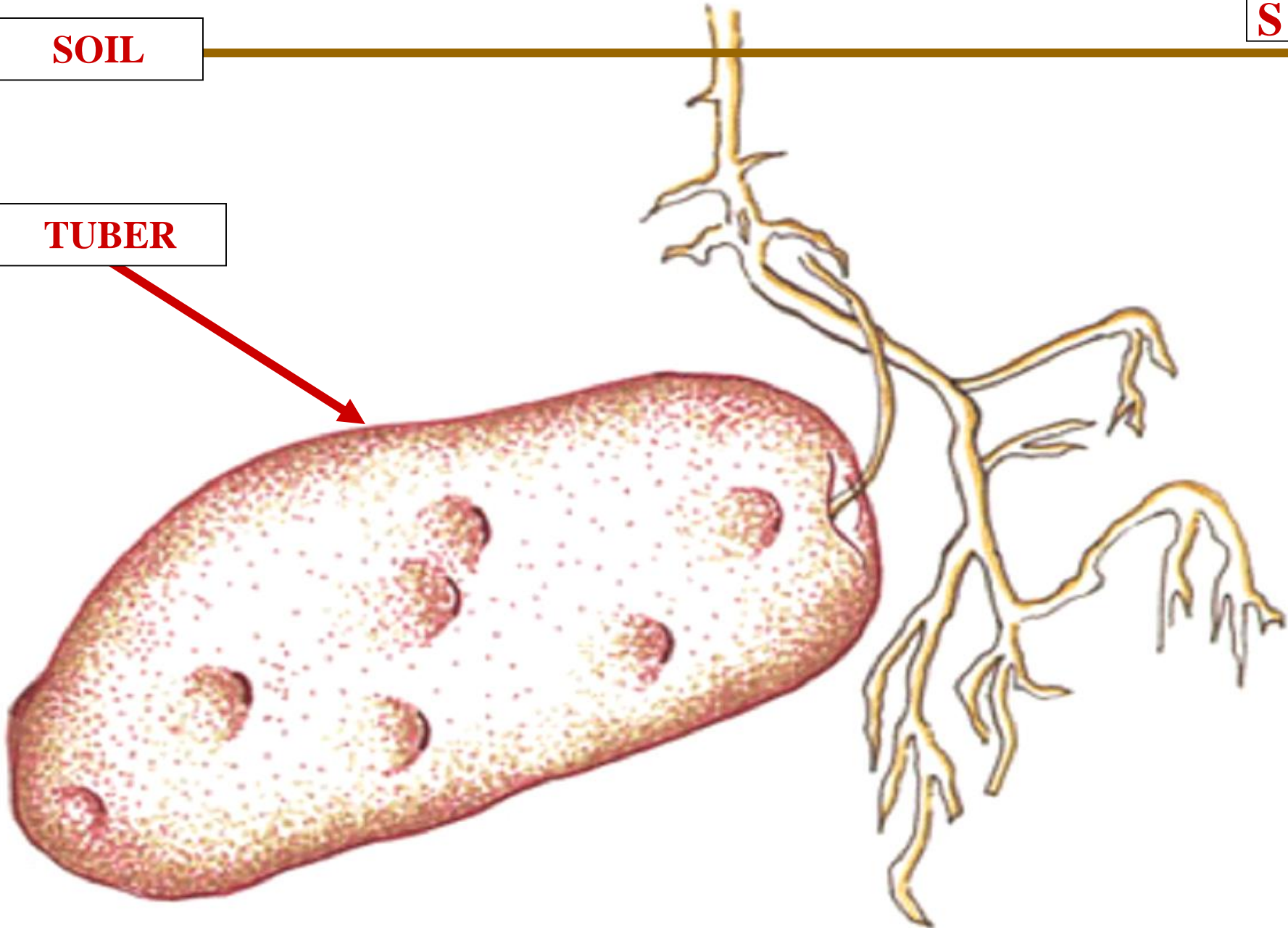


# TUBER



SOIL

TUBER

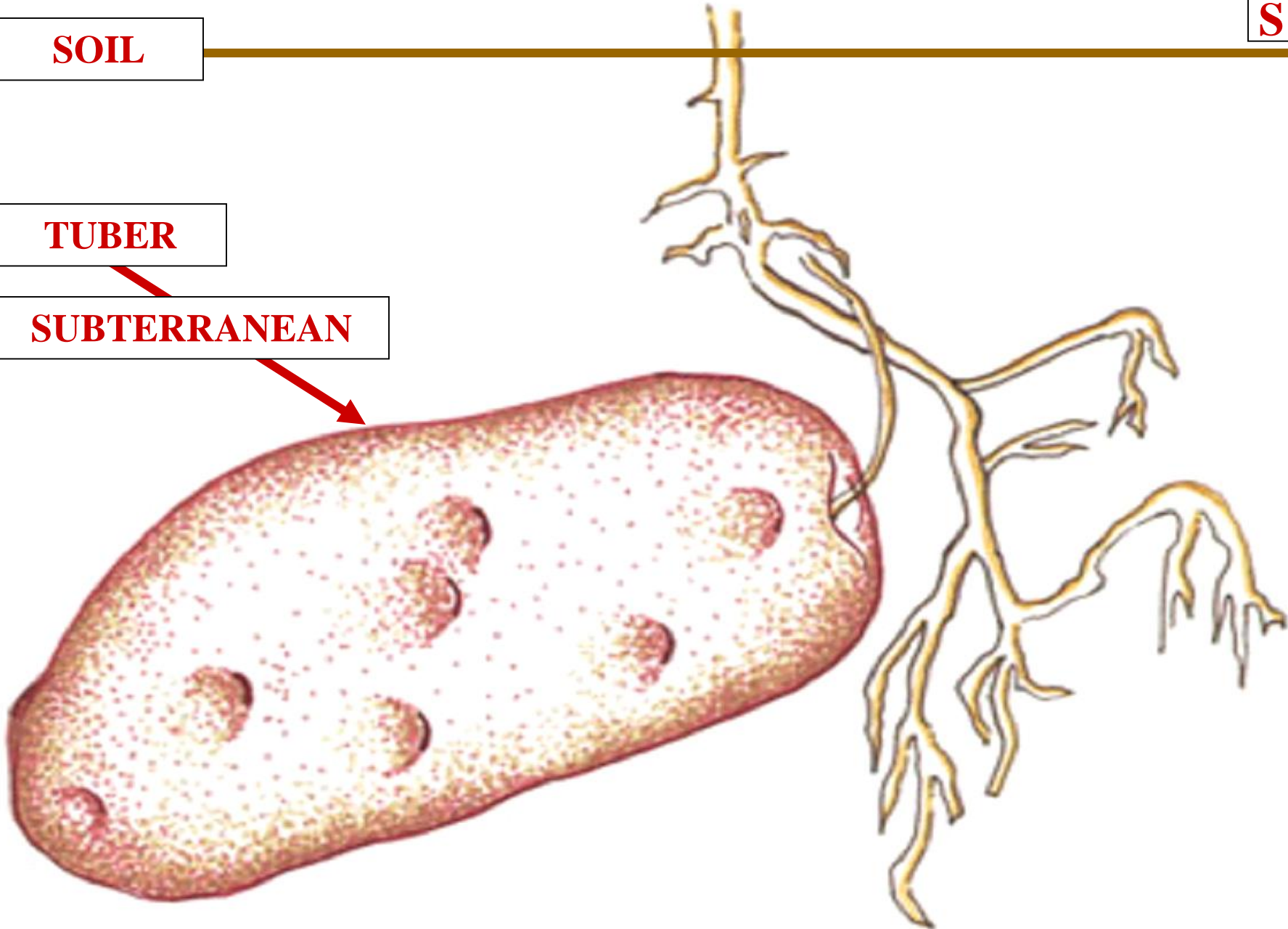




SOIL

TUBER

SUBTERRANEAN



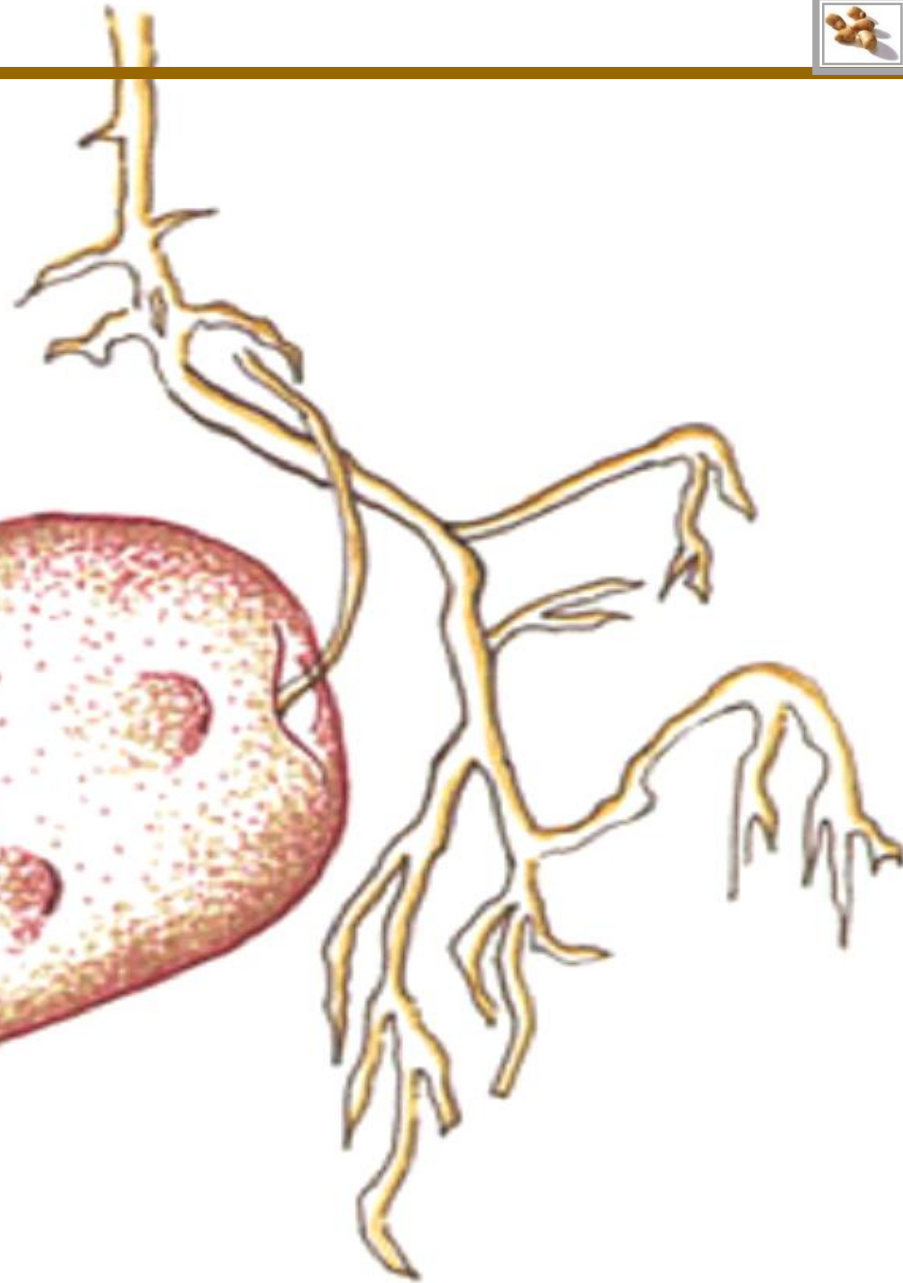
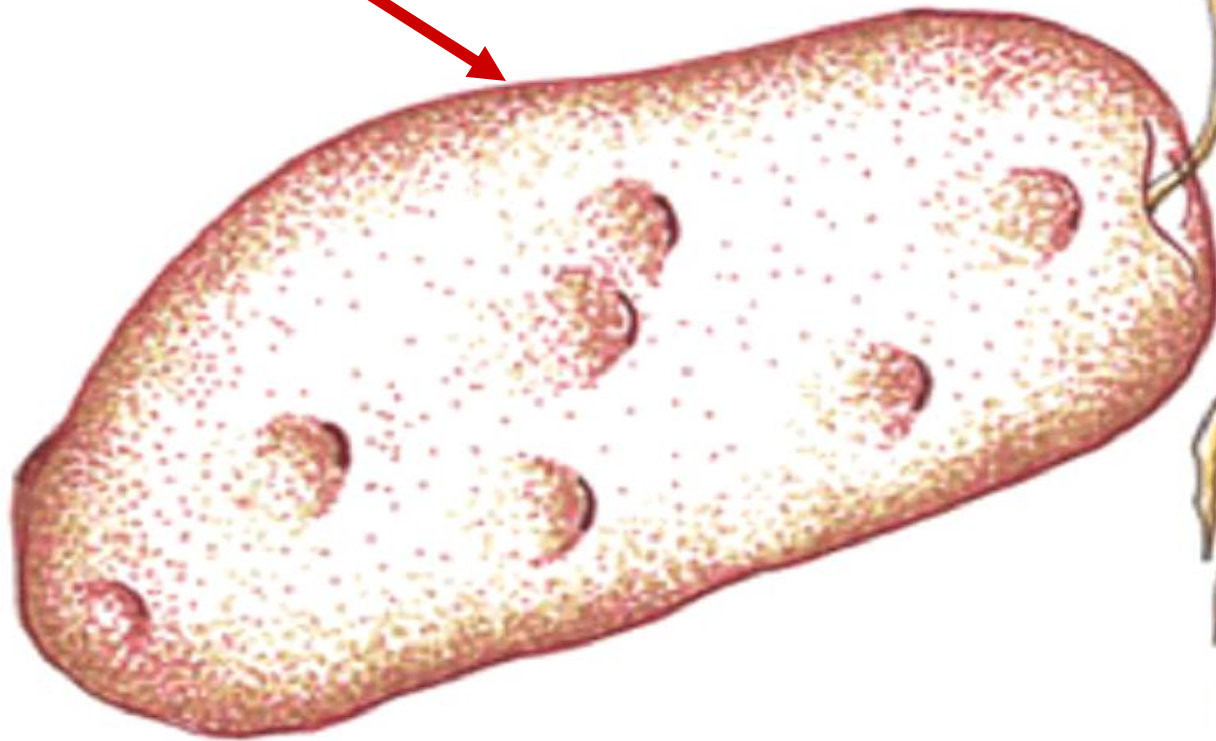




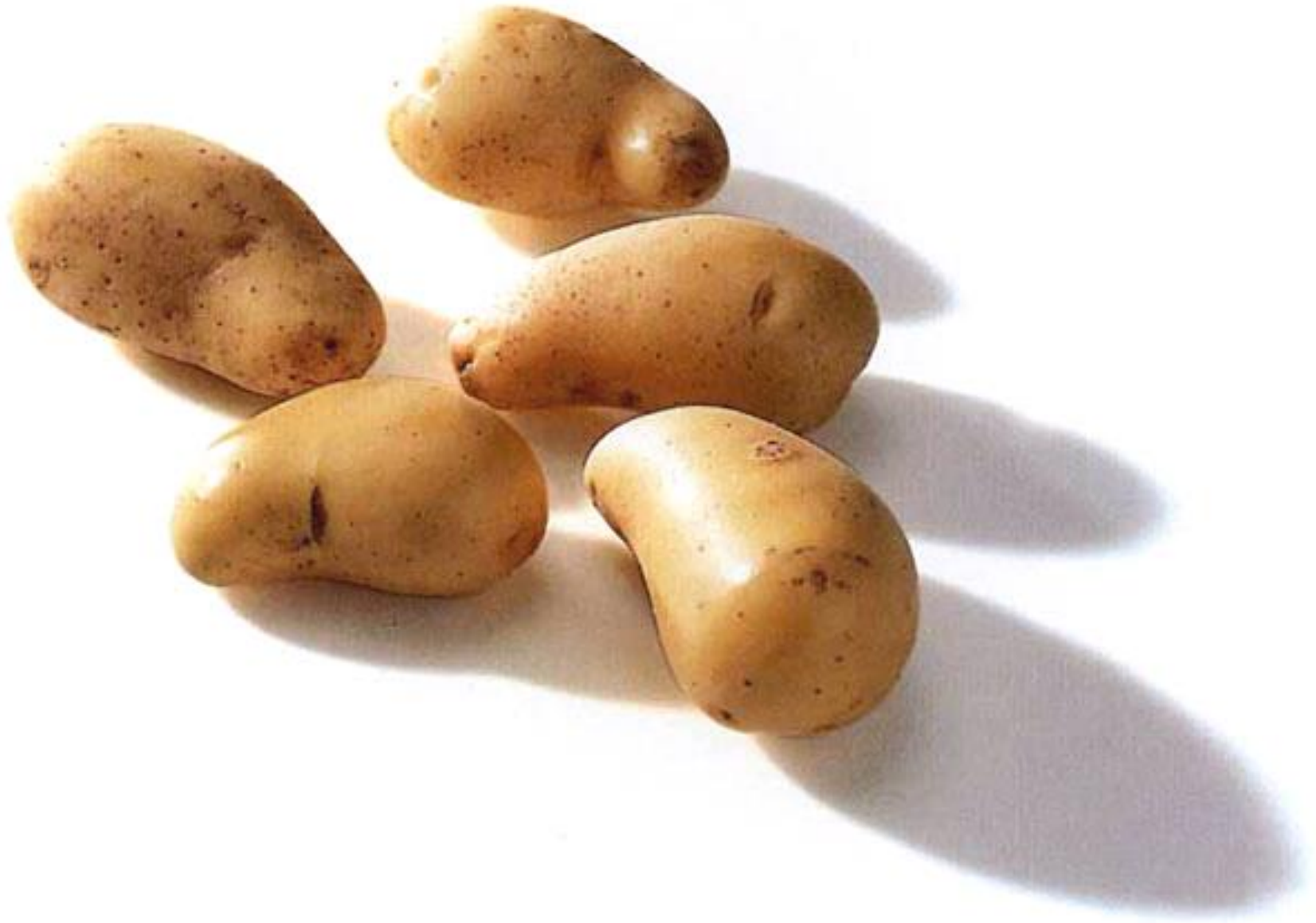
**SOIL**

**TUBER**

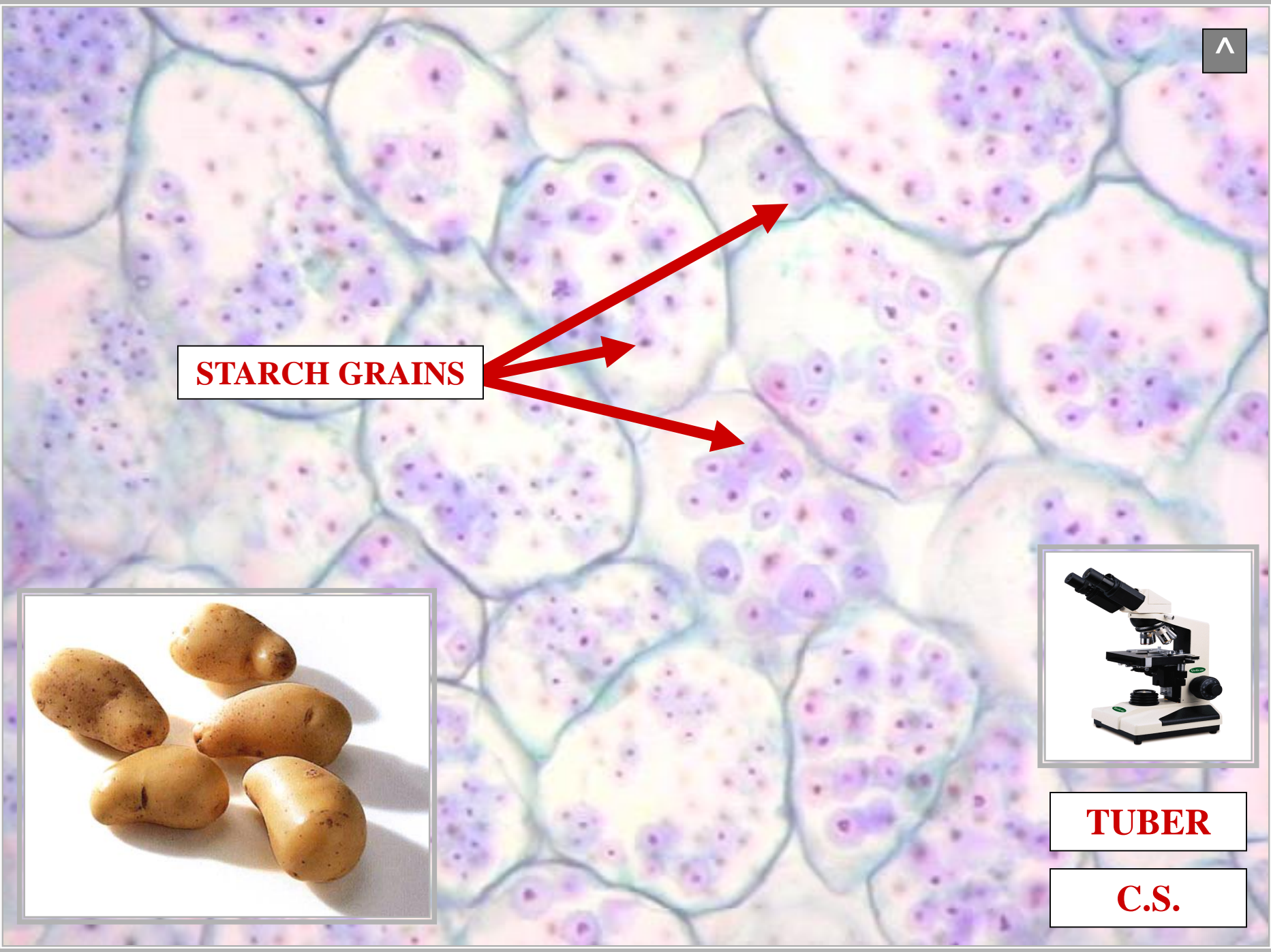
**STARCH STORAGE**



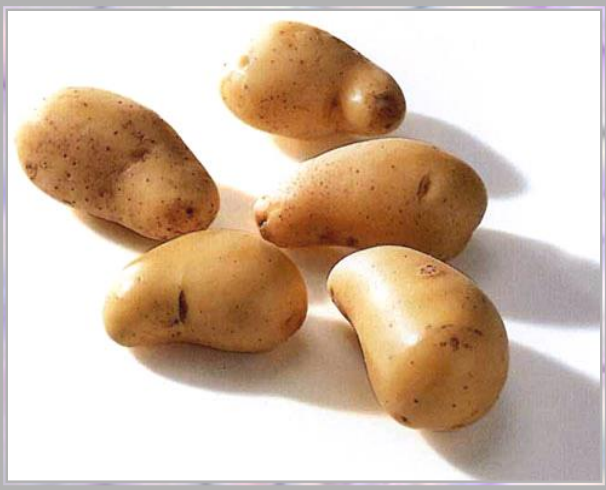
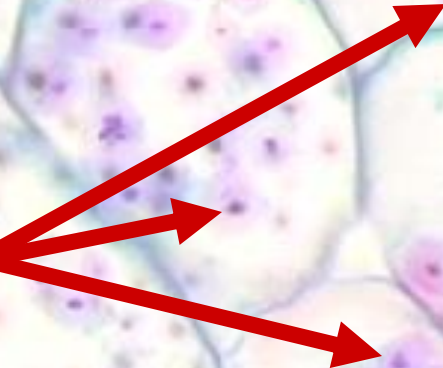








**STARCH GRAINS**



**TUBER**

**C.S.**





# THORN





# THORN



**ACACIA TREE**



**THORN**

**AFRICAN GIRAFFE**



**INHIBITS HERBIVORES**





**END**

**MATERIAL**

**EXAM #1**