

The Botanical Gazette.

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February 7. 1887-

My dear Deane:-

About your microscope -
Did the book come with it? - The
B eyepiece & $\frac{1}{4}$ obj. give only 250
diameters. It seems I have been
estimating all the time on the C.
which is the one that we have
with ours - A & C. Instead of
buying another objective I should
advise you to get a D eyepiece
which will cost you only \$4 or
perhaps I can get it for \$3 - In
case you want a condenser
you can get a substage adap-
ter ^{for \$1.00} and use your 1ⁱⁿ objective,
which answers admirably -

As to systematic work - Why
not use our handbook and
commence on the *Capsella*?
I can send you material for
histological work by mail or
express -

Replying to your questions.

1. A binary root is one having a double mass of xylem in the central f-v. cylinder, so arranged as to form a plate of tissue dividing the cylinder into 2 parts. The xylem plate extends diametrically from pericambium to pericambium. See Goodale figs. 93, 94, 95.

2. Bundle sheath = endodermis. The pericambium is the layer of cells just inside this from which in Phanerogams new branches of the roots arise -

"Peripheral layer" I presume means the cortex of the root, viz: all outside the axial cylinder. You will have to be guided by context as the term is not a special one -

3. I suppose not though I am not informed as to this special case. I presume the cambium simply arises from pericambial cells instead of from the parenchyma of the axial cylinder -

4. Yes; so long at least as new roots (i.e., branches) are being produced - How much longer I do not know -

5. Goodale fig. 75.

The sketch at the side shows more of the same figure.

The portion included by dotted line shows the part Goodale figures -

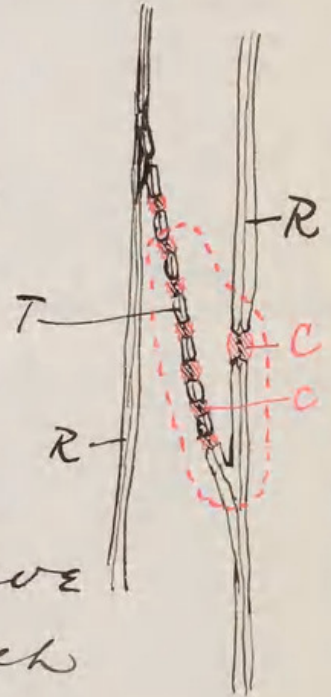
RR = radial walls of a sieve cells (i.e., those walls which are parallel to radii drawn from center of stem. In fig. 74 the two walls with sieve plates on them are radial walls)

T = terminal partition (i.e., the end ^{ward} of one sieve cell.)

CC = Callus, covering & closing the pores of the sieve plate -

In the explanation of fig. 75 change 6th word "tube" to plate - i.e., sieve plate - "Tube" a lapsus penne.

p. 113 § 343 1st paragraph - The roots of most monocotyledons remain small and hence the axial cylinder



~~does not undergo the secondary changes — i.e., the formation of a cambium layer, and the production from this of rings of wood and bark. But in the tree-like Monocots (Dracaena [and Palms?]) these changes do occur in order to produce the large roots necessary —~~

I see I've taken the wrong section, but I can't afford to throw away this sheet, so cross it out —

Understand by "level of the root" distance from the growing tip, and it will be clear, will it not? —

Yours sincerely
C R Barnes

[with Feb. 7, 1887, letter]

- At your leisure -

1. What is a binary root?
2. Distinguish bundle sheath, pericambium & endodermis, & peripheral layer -
3. You should see how in a root the cambium forms making a continuous ring inside the primary phloem and outside the primary xylem. Goodall on p. 113 & 346 speaks of wood & liber being formed by the pericambium in some cases - Does that mean that both these cambiums are working at the same time?
4. Does the pericambium always for a certain length of time continue active?
5. I don't understand in Goodall p. 93. fig 75 nor p. 113 & 343 re paragraph.



Barnes, Charles Reid. 1887. "Barnes, Charles Reid Feb. 7, 1887." *Charles Reid Barnes letters to Walter Deane* –.

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