

Cross sections of a healthy sword fern.

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On March 1 I was given a salvaged, healthy sword fern for dissection. On March 8, it was dissected and photographed. Not only will these photographs be a reference for later dissection of symptomatic sword ferns, but I learned a few new things about sword ferns. I think they will prove educational for all of us as we try to understand more about sword ferns and about the die off in particular.

I will mostly let the photos speak for themselves, but first a couple of points.

First, the color of the exposed interiors quickly changes from green to brown, probably from oxidation. After 4-5 minutes the change is quite noticeable.

Second, the fern does not seem to be very old. Based on the length of the rhizome and the number of fronds, it is probably 6-7 years old, and certainly not more than 10. It would be very interesting to look at the rhizome of a much older fern to see the changes in the rhizome over time.

Third, there are some bits of unknown nature that are embedded in the rhizome. My best guess is that they fall onto the growing tip of the rhizome and are eventually incorporated into it, but I really don't know what they are. A beer to anyone who can identify them.

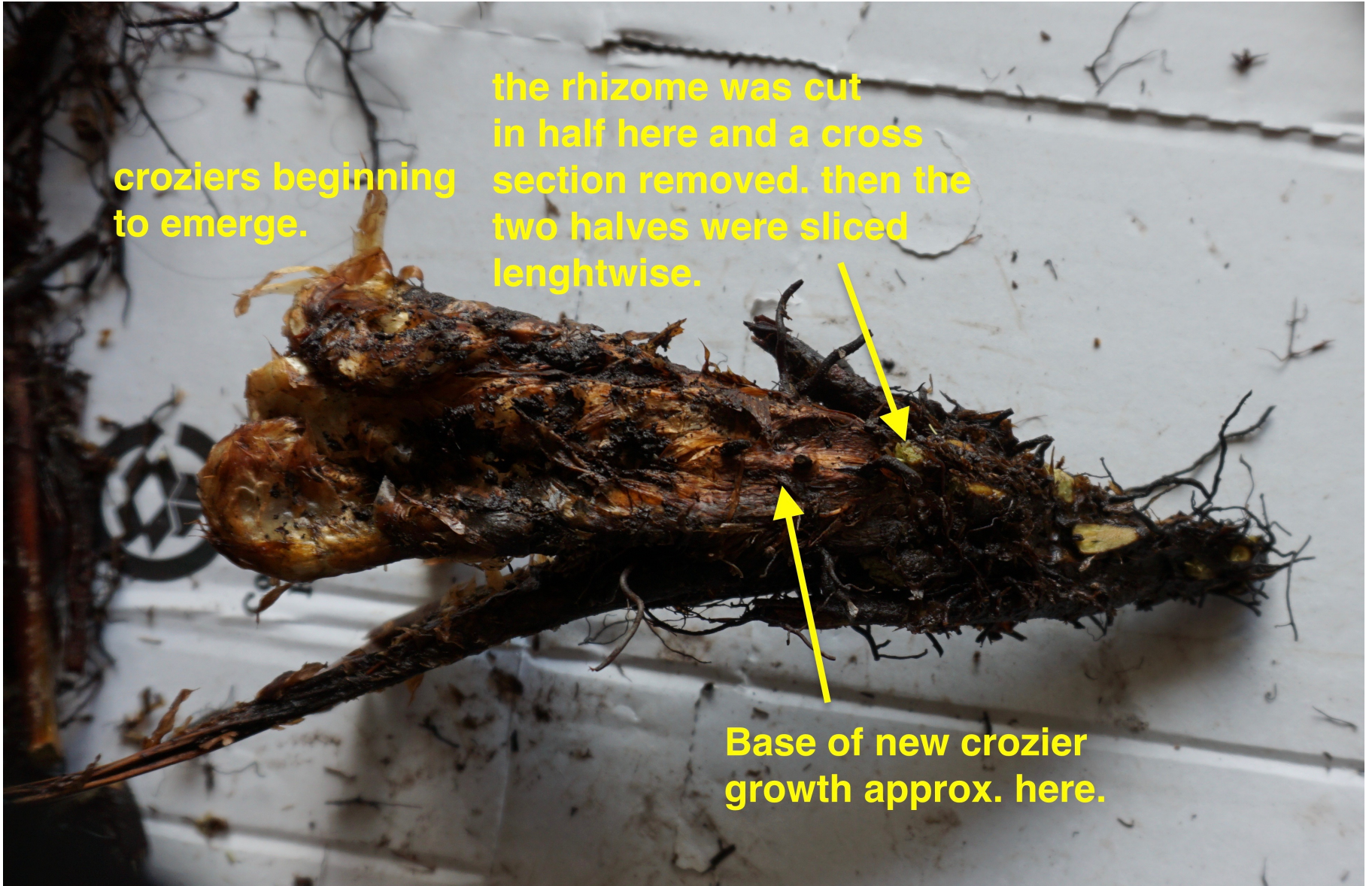
I want to express my appreciation to the Washington Native Plant Society which donated the fern, and to Richard Droker, an amazing photographer, who photographed the specimens at a much higher quality than I could ever have achieved.

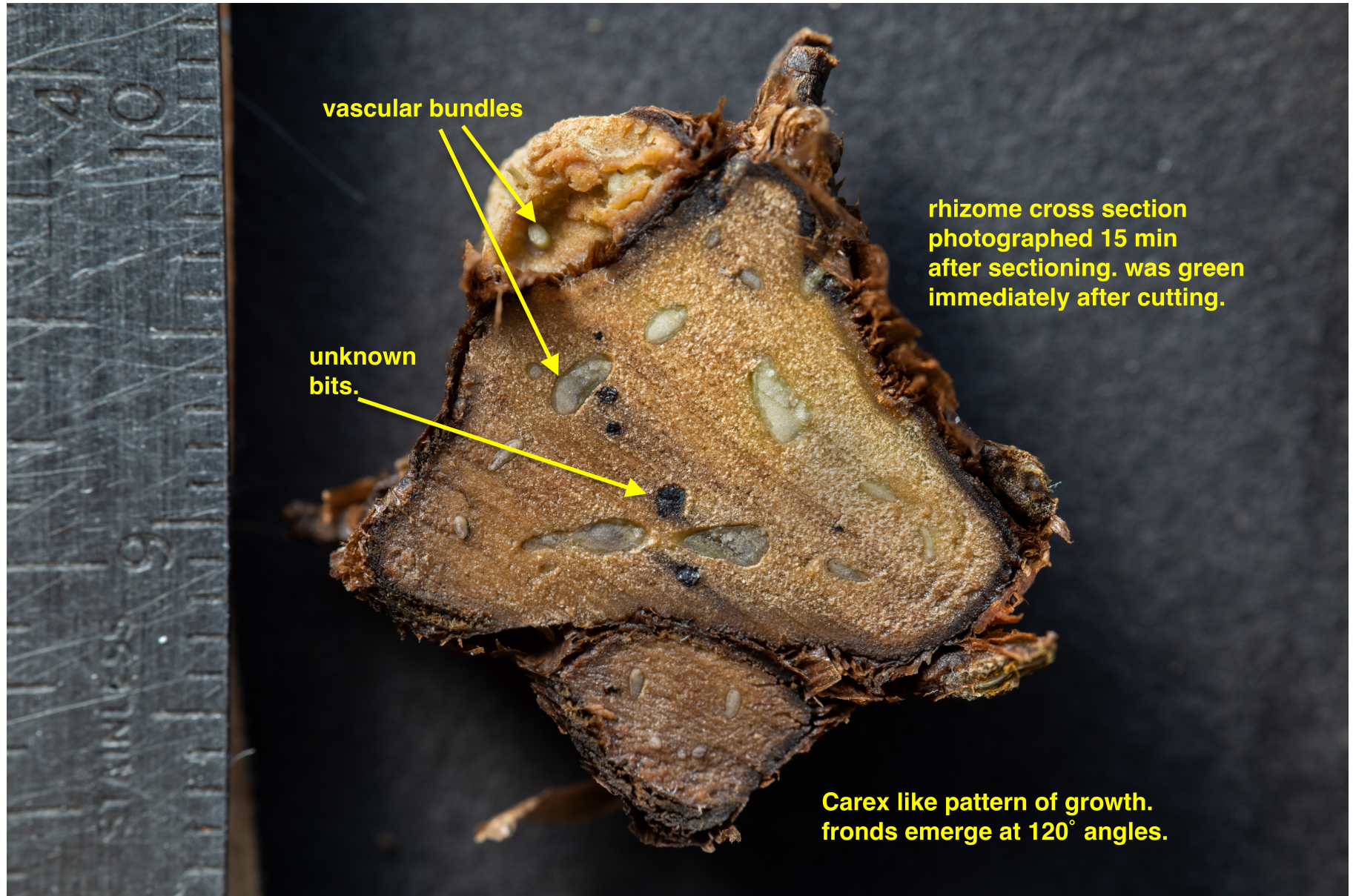
now, on to the photos.

croziers beginning to emerge.

the rhizome was cut in half here and a cross section removed. then the two halves were sliced lengthwise.

Base of new crozier growth approx. here.



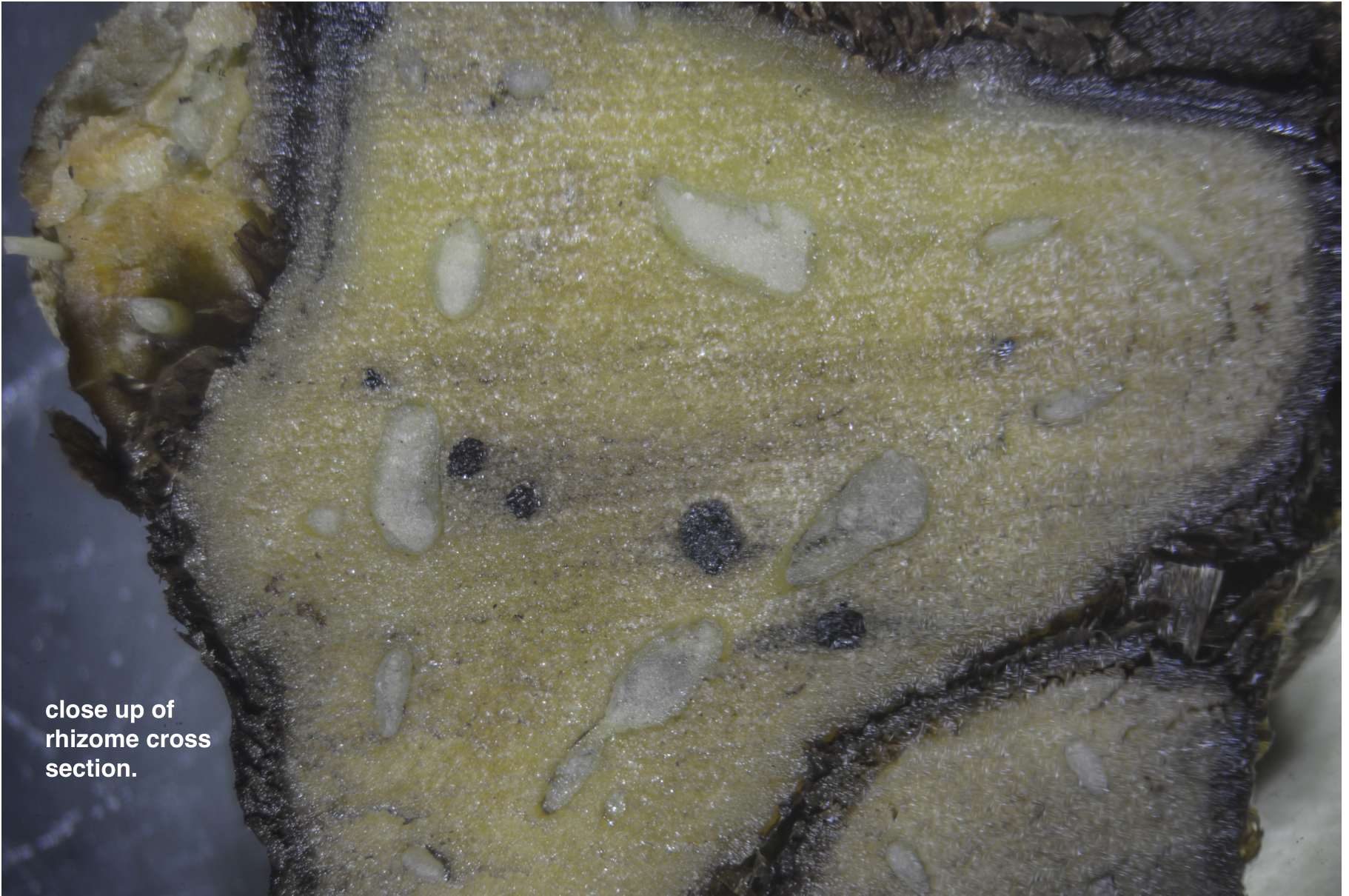


vascular bundles

unknown bits.

rhizome cross section
photographed 15 min
after sectioning. was green
immediately after cutting.

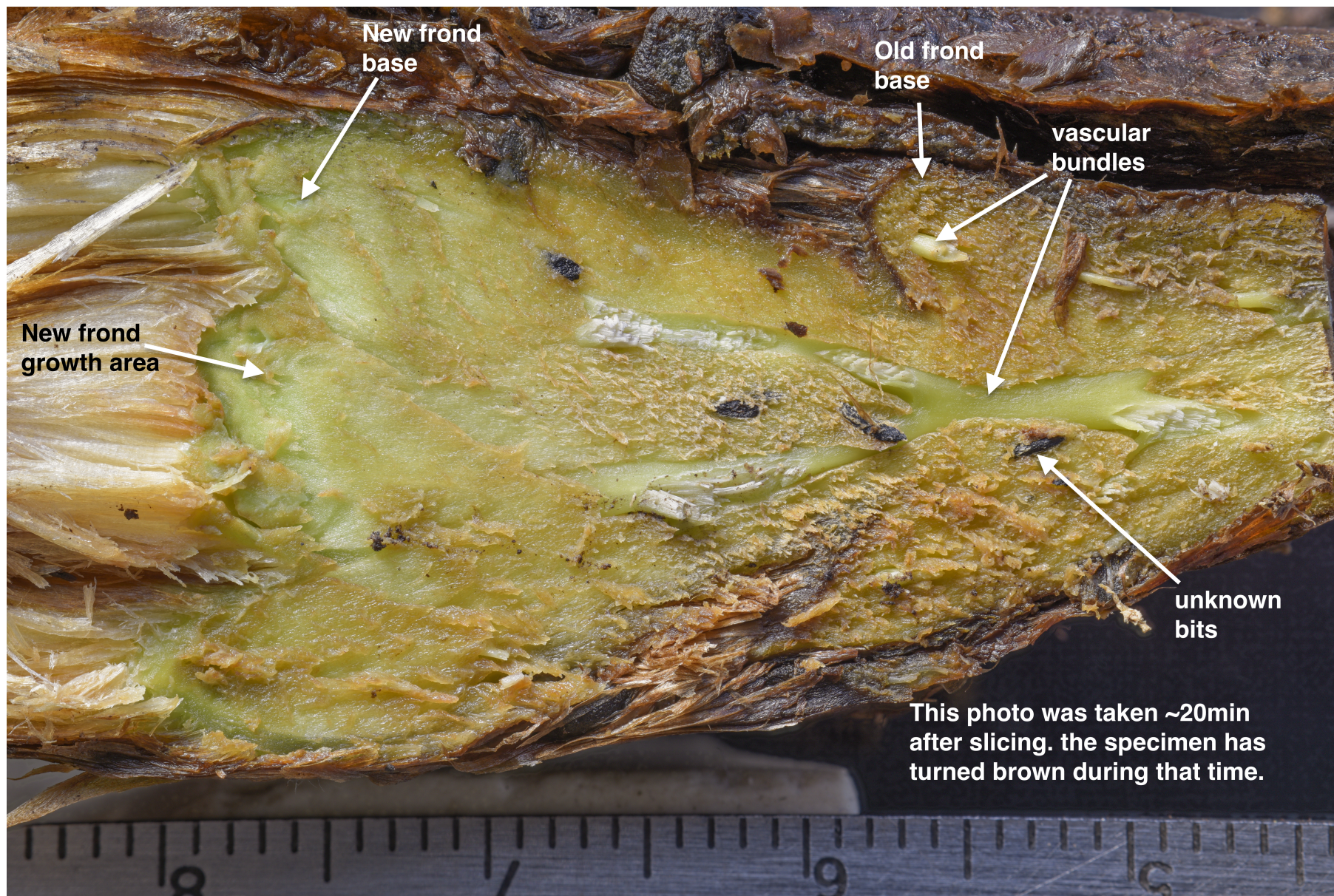
Carex like pattern of growth.
fronds emerge at 120° angles.



close up of
rhizome cross
section.

This photo was taken within 2 minutes of slicing. Shows original color before oxidation.





New frond base

Old frond base

vascular bundles

New frond growth area

unknown bits

This photo was taken ~20min after slicing. the specimen has turned brown during that time.



cross section
of older part
of rhizome.

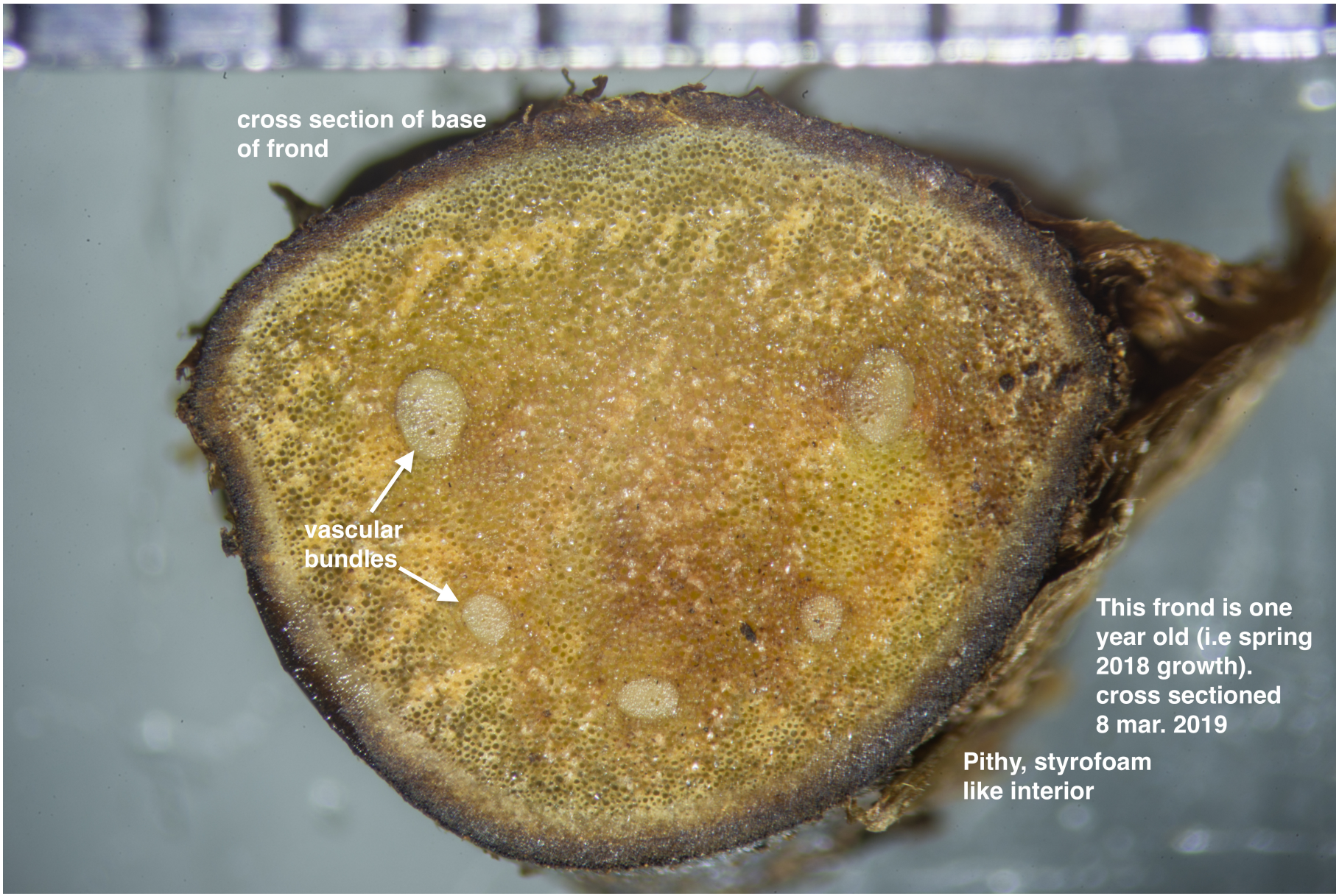
the old frond
bases hang on
for years.

cross section of base
of frond

vascular
bundles

This frond is one
year old (i.e spring
2018 growth).
cross sectioned
8 mar. 2019

Pithy, styrofoam
like interior



A cross section
higher up on the
frond.

