MICROSCOPICAL EXPLORATION TWENTY FOUR

A CLOSE LOOK AT PLANT STEMS

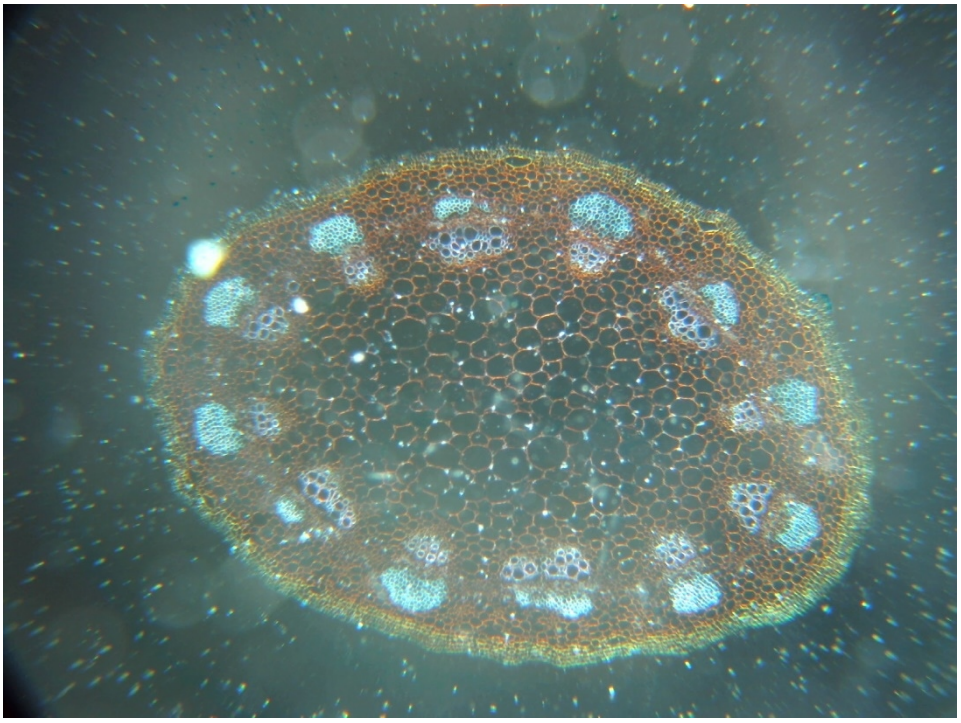
For this short microscopical exploration I revisit my collection of prepared slides, built up over the decades that I have used microscopy as part of my career in science and, post retirement, as a highly valued hobby.

The slides chosen for ME24 show sections taken from the stems of monocotyledonous and dicotyledonous (old git speak) plants, which are these days more usually referred to as monocots and dicots, angiosperms producing flowers and fruit. I also include one stem from a plant which is neither monocot nor dicot, namely the pine which is a gymnosperm and which produces 'naked' seeds rather than flowers and fruit.

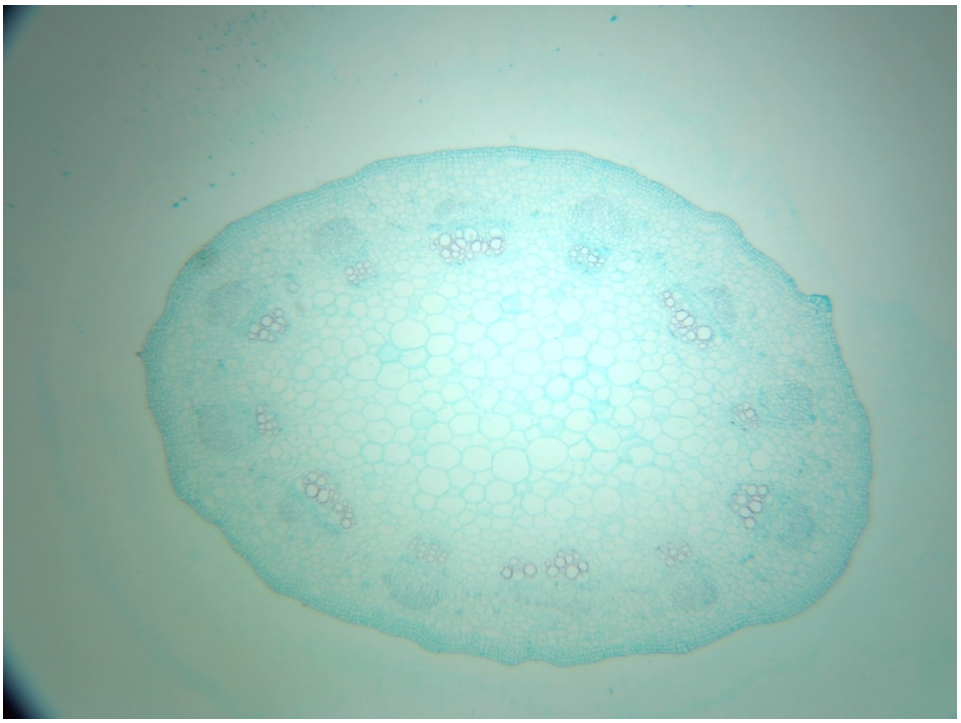
Although the slides came with no definite information regarding the staining techniques used in their production, it is likely that the various tissues within the sections were differentially stained using stains such as Toluidine Blue, Safranine-O and Methyl green. These stains are used to differentiate between lignified tissue, eg. xylem, and cellulosic tissue eg. phloem in vascular bundles within the stem.

The label above each of the following images is a transcription of the label on each of the slides, and both darkfield and brightfield images of each slide are shown. All images were captured using a x4 objective and a 5Mp digital eyepiece camera fitted with a 0.5X reduction lens.

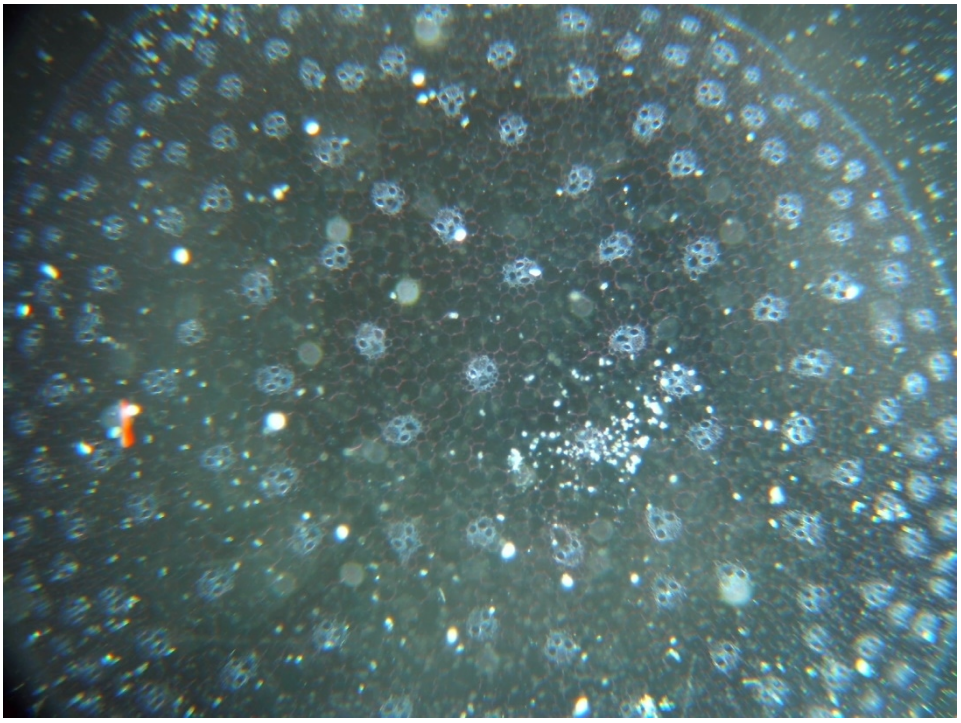
Stem of Dicotyledon XS darkfield



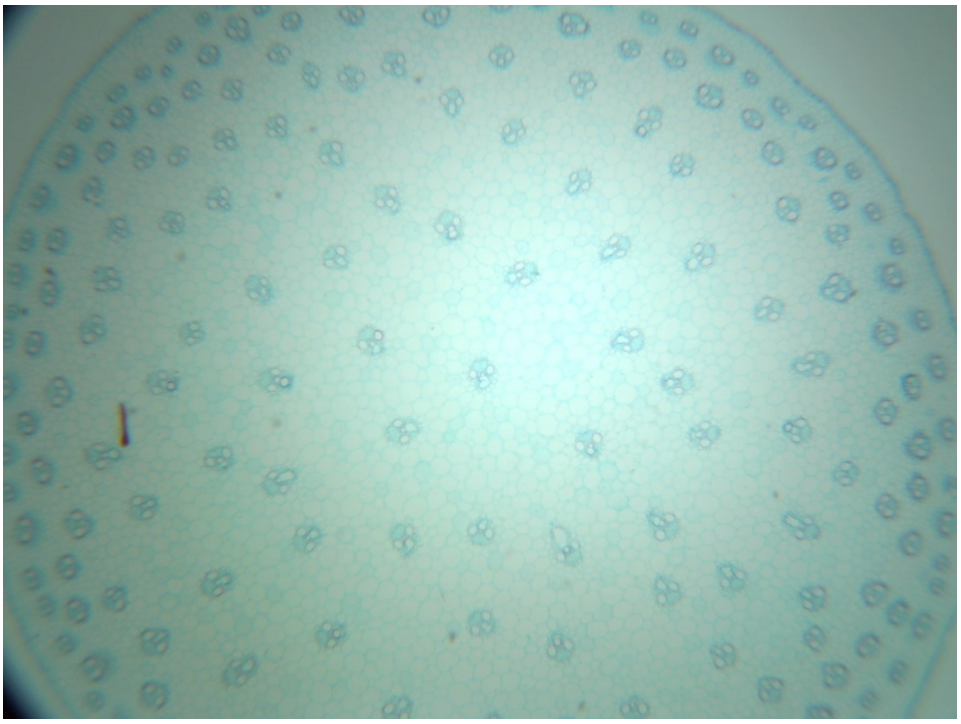
Stem of Dicotyledon XS brightfield



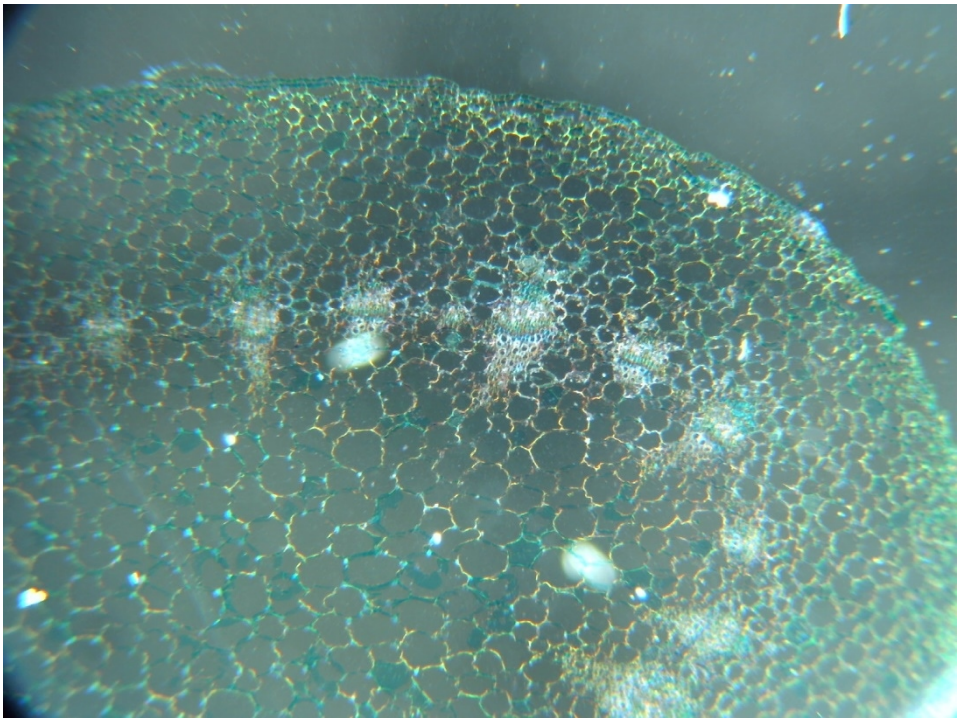
Stem of Monocotyledon XS darkfield



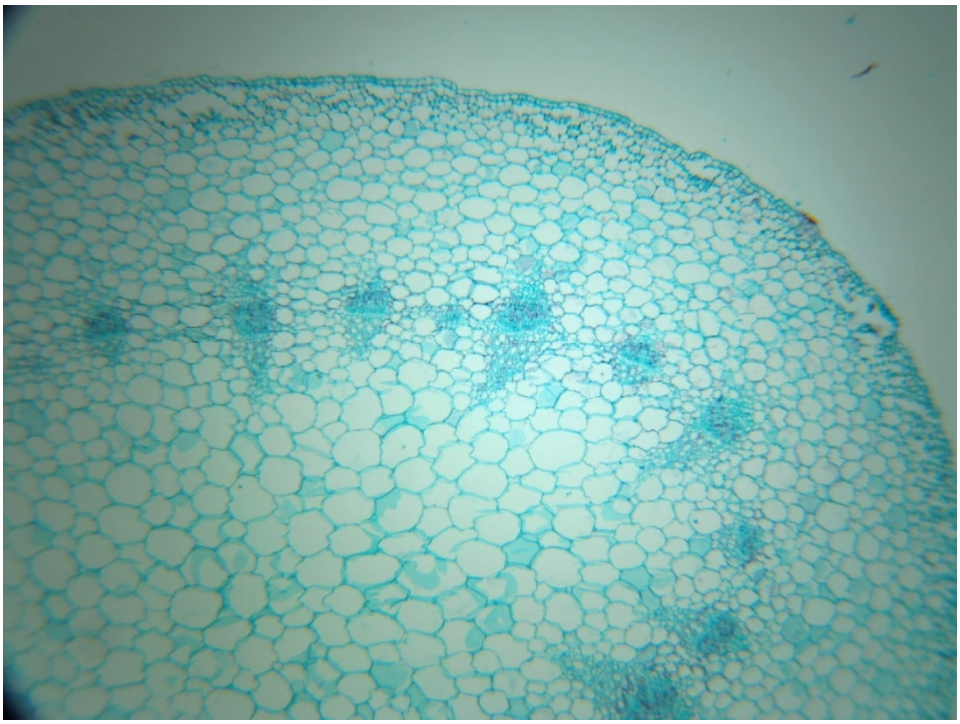
Stem of Monocotyledon XS brightfield



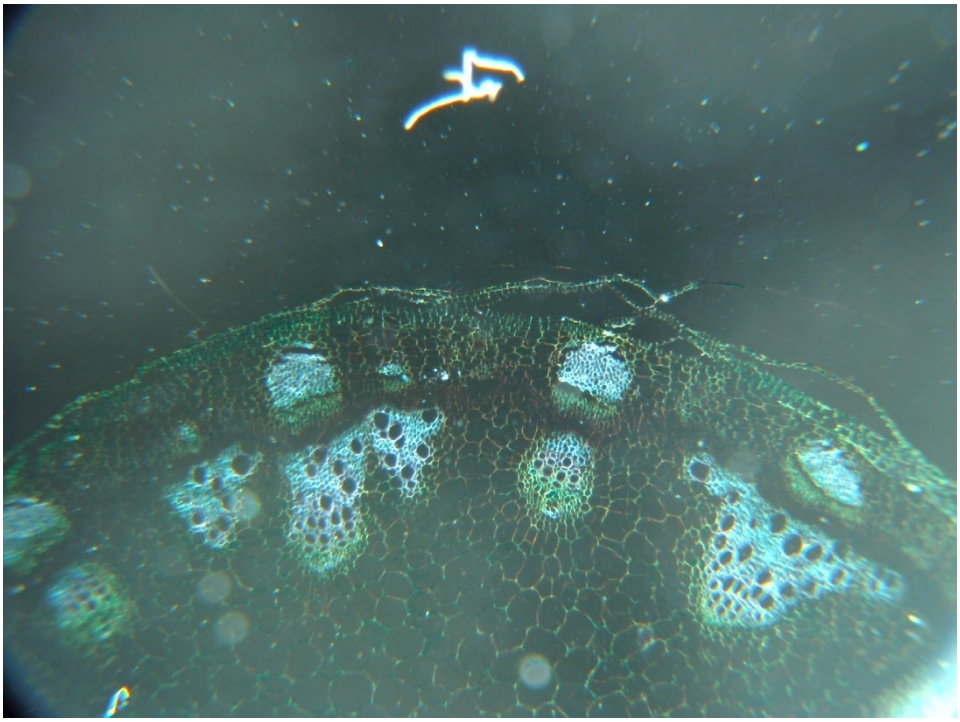
Begonia Stem CS darkfield



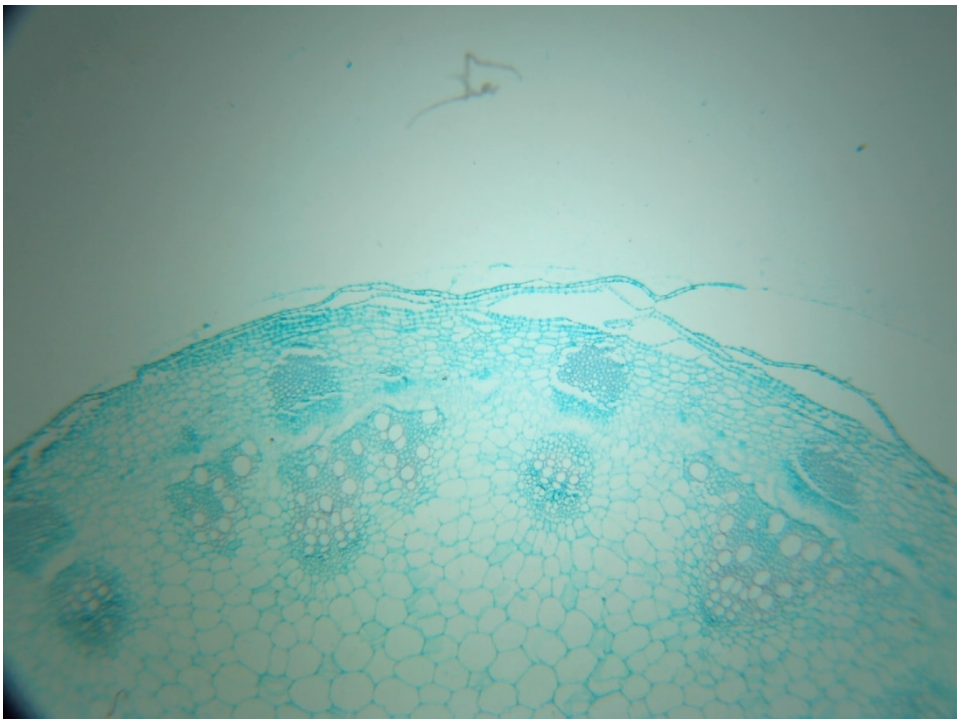
Begonia Stem CS brightfield



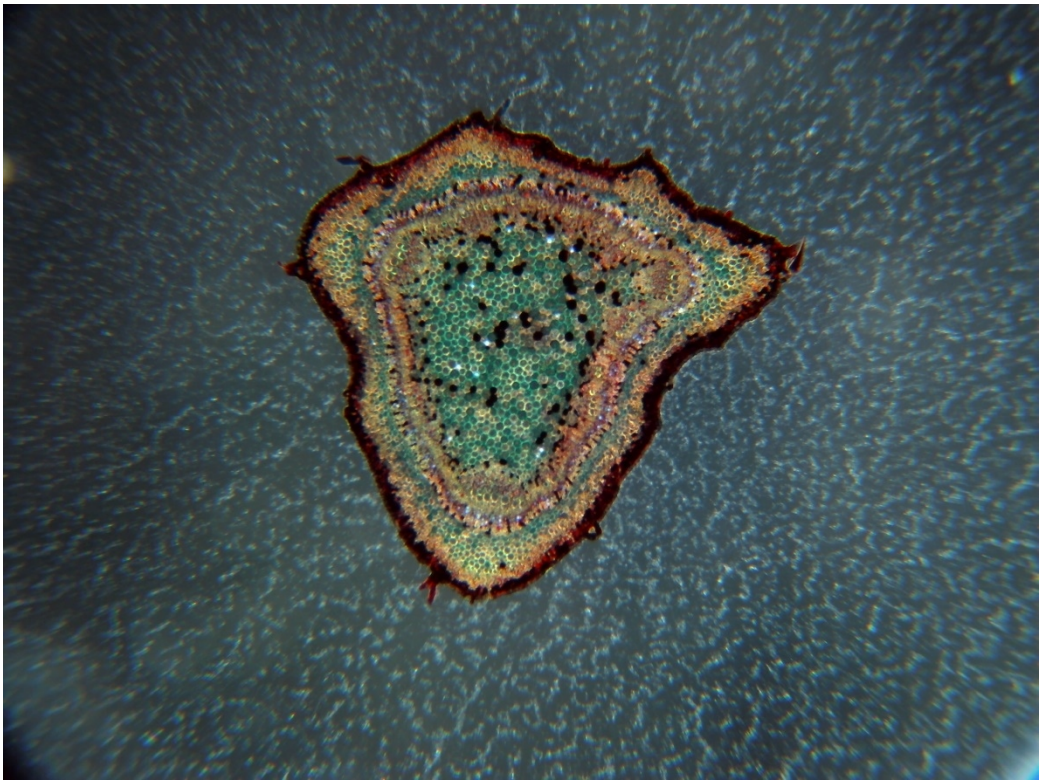
Coleus Stem, CS darkfield



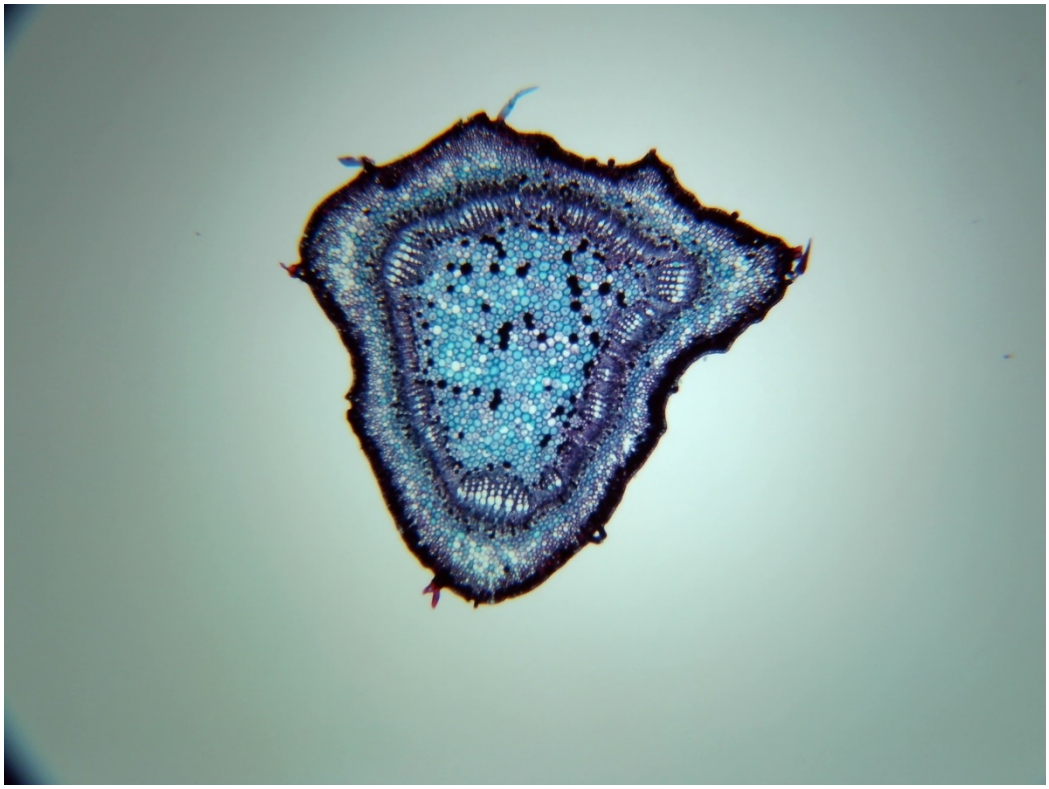
Coleus Stem, CS brightfield



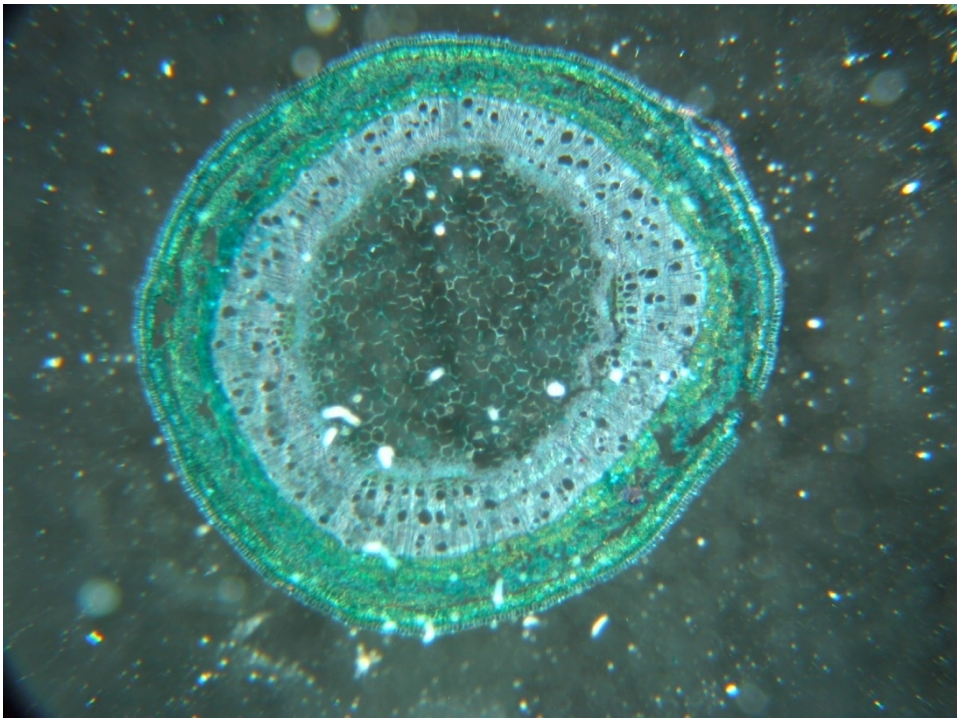
Stem of Cotton XS darkfield



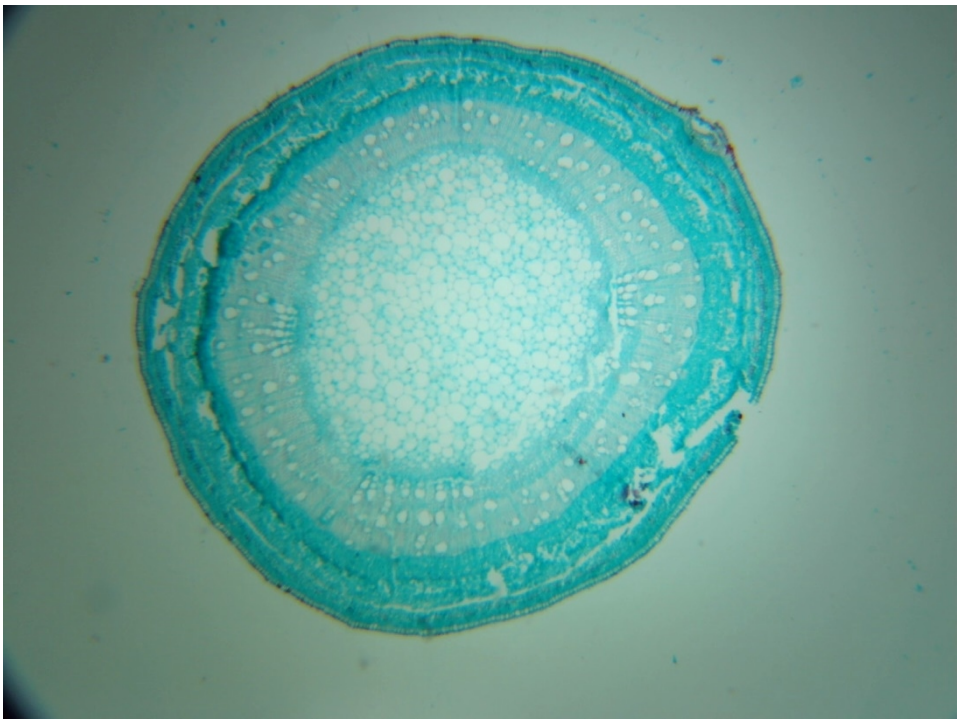
Stem of Cotton XS brightfield



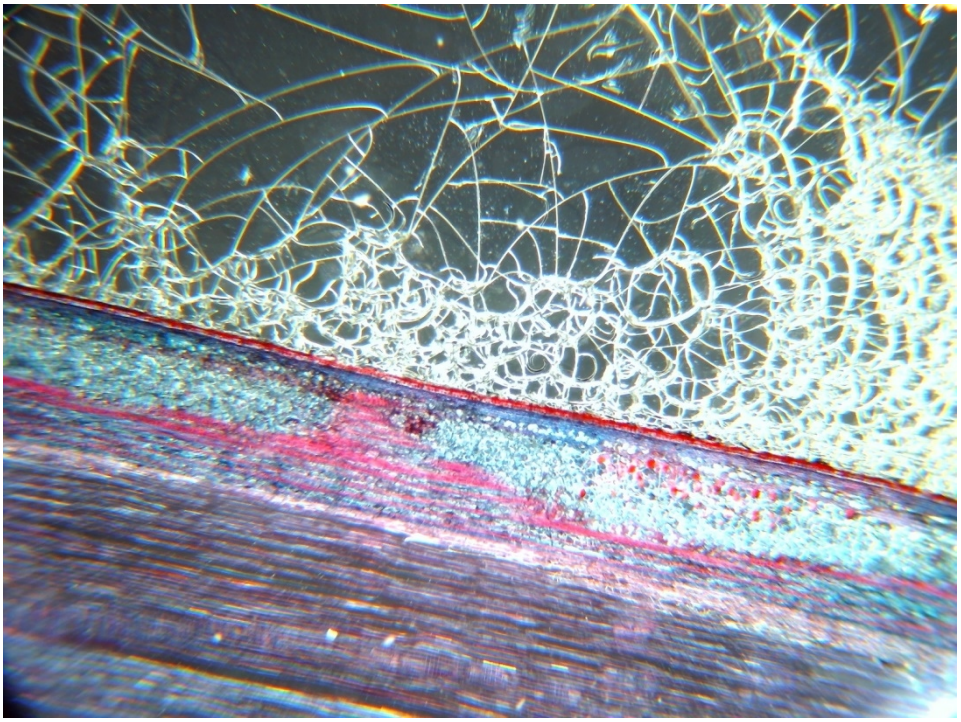
Hedera Helix Stem, CS darkfield



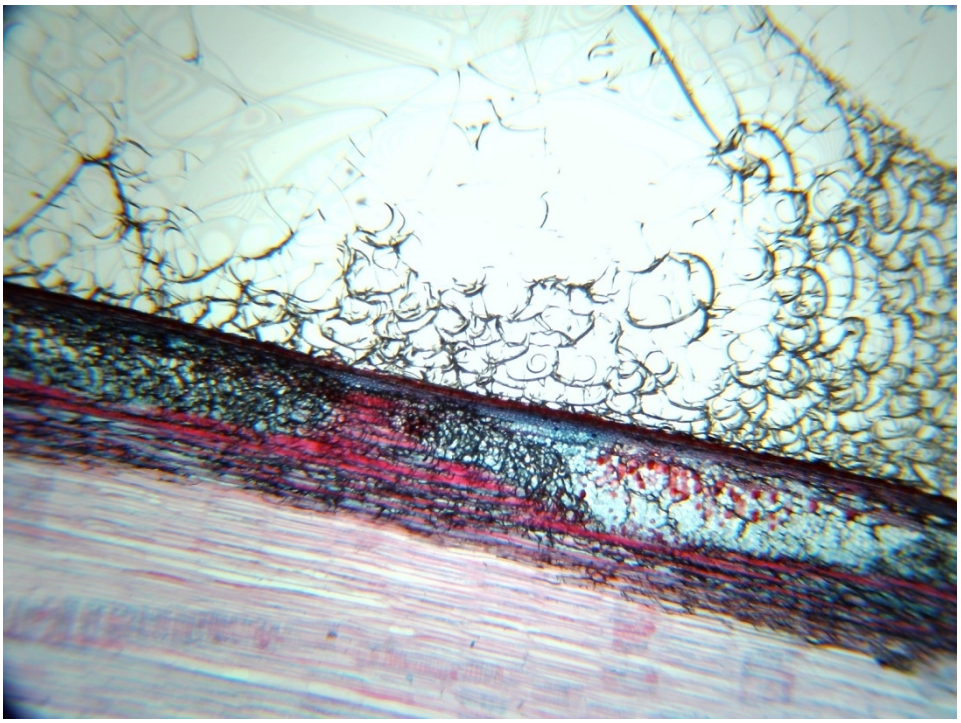
Hersera Helix Stem CS brightfield



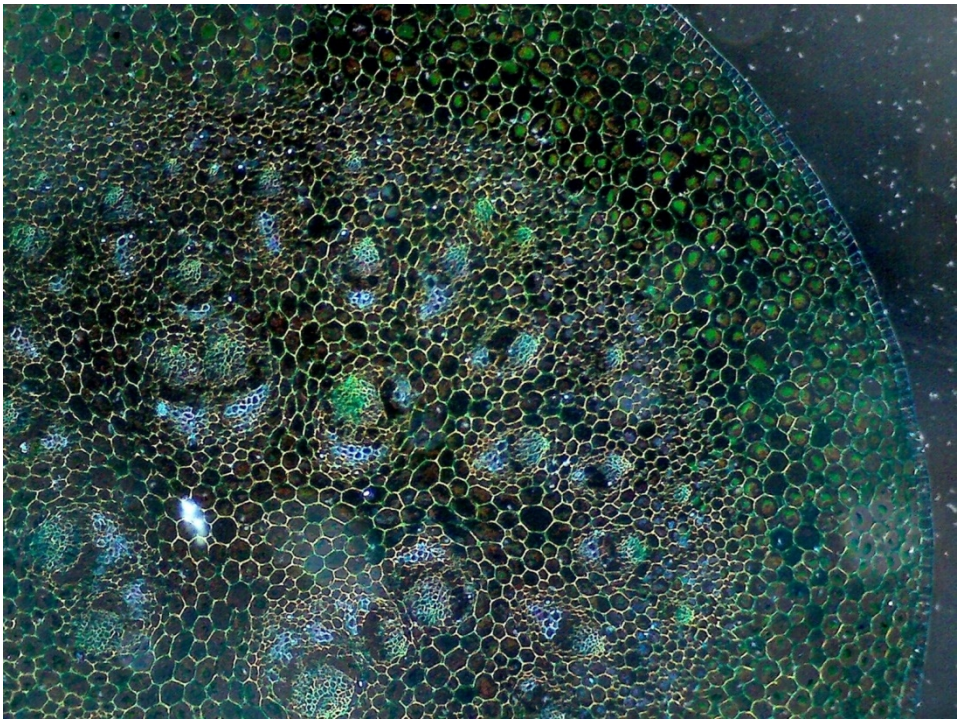
Lime Tilia, LS darkfield



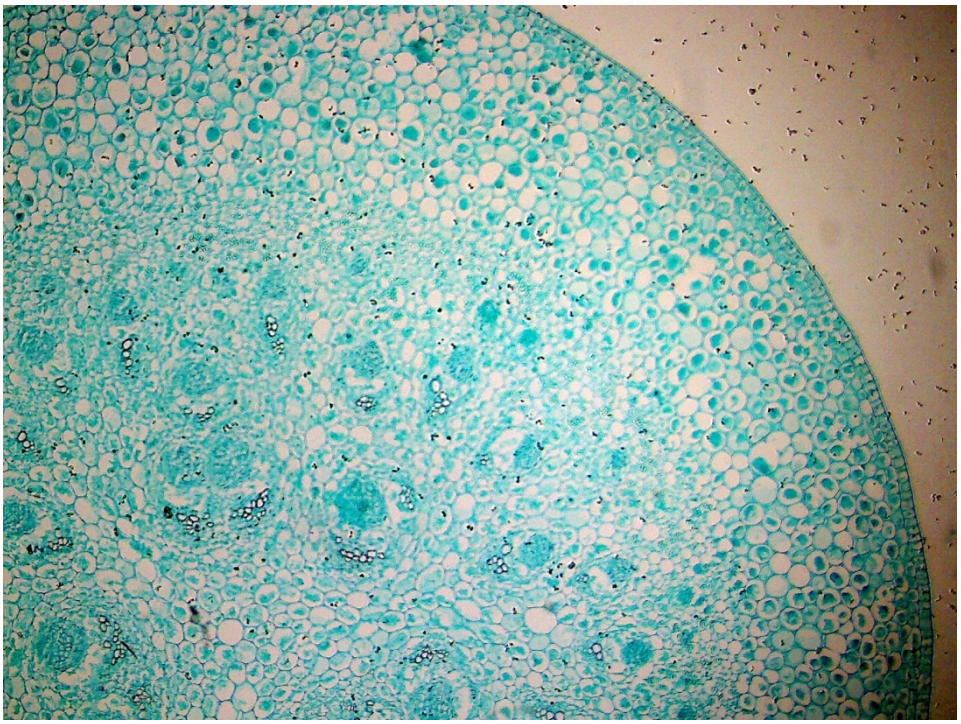
Lime Tilia, LS brightfield



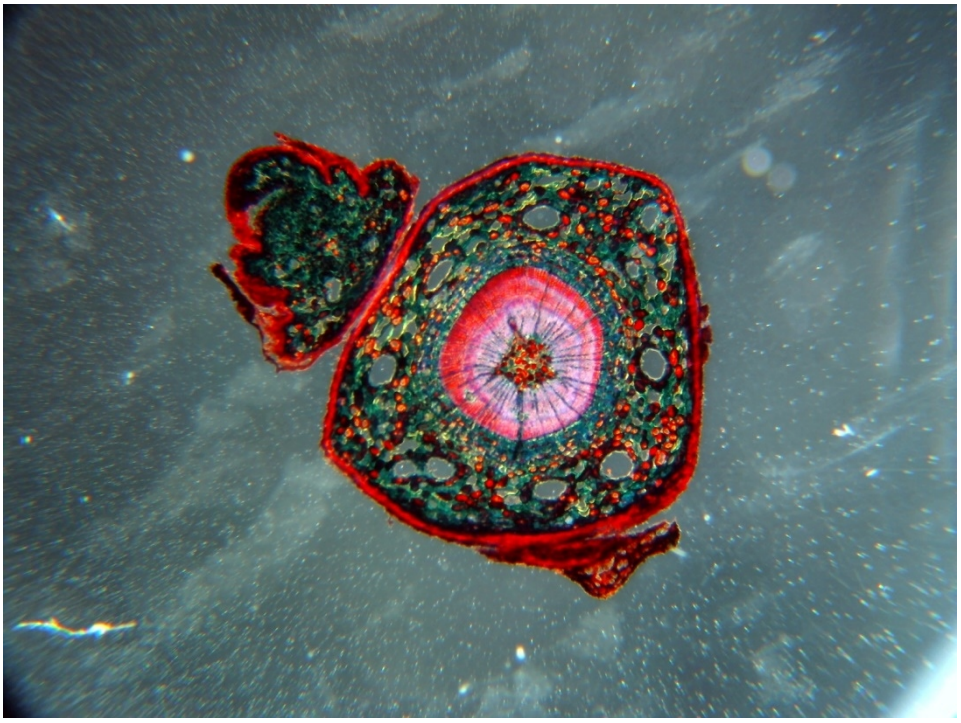
Lilium Michiganese Stem CS darkfield



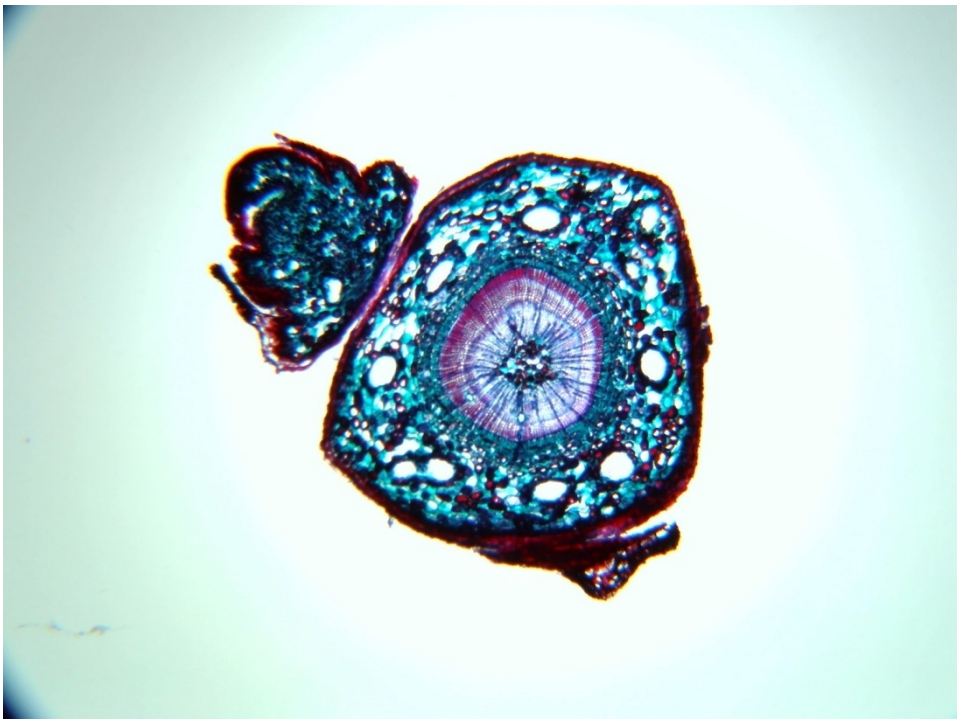
Lilium Michiganese Stem CS brightfield



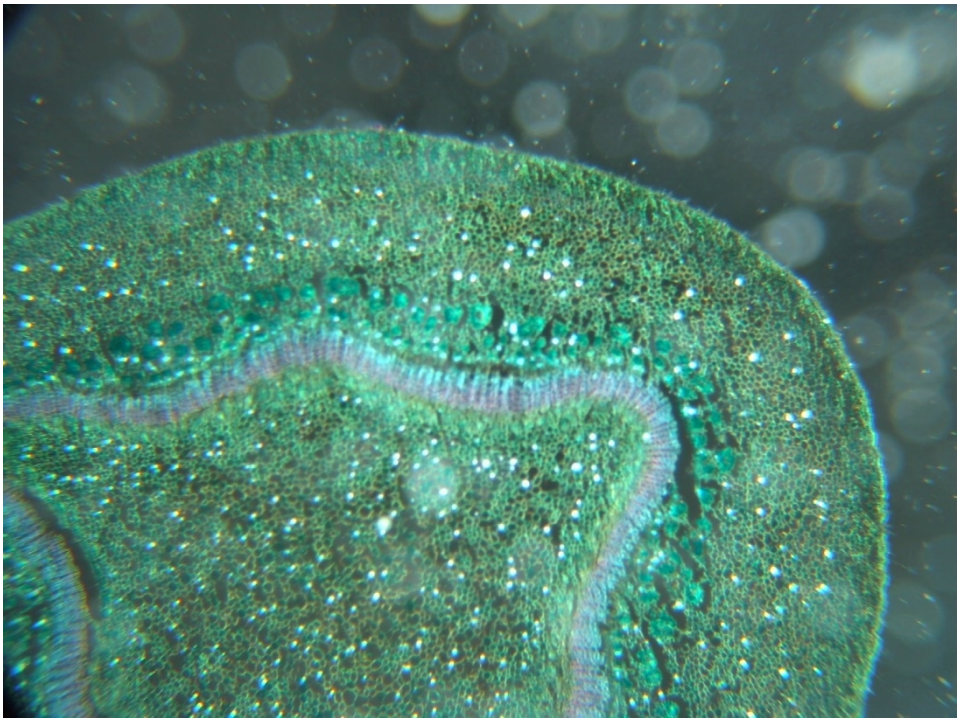
Pine Mature Wood X.S. darkfield



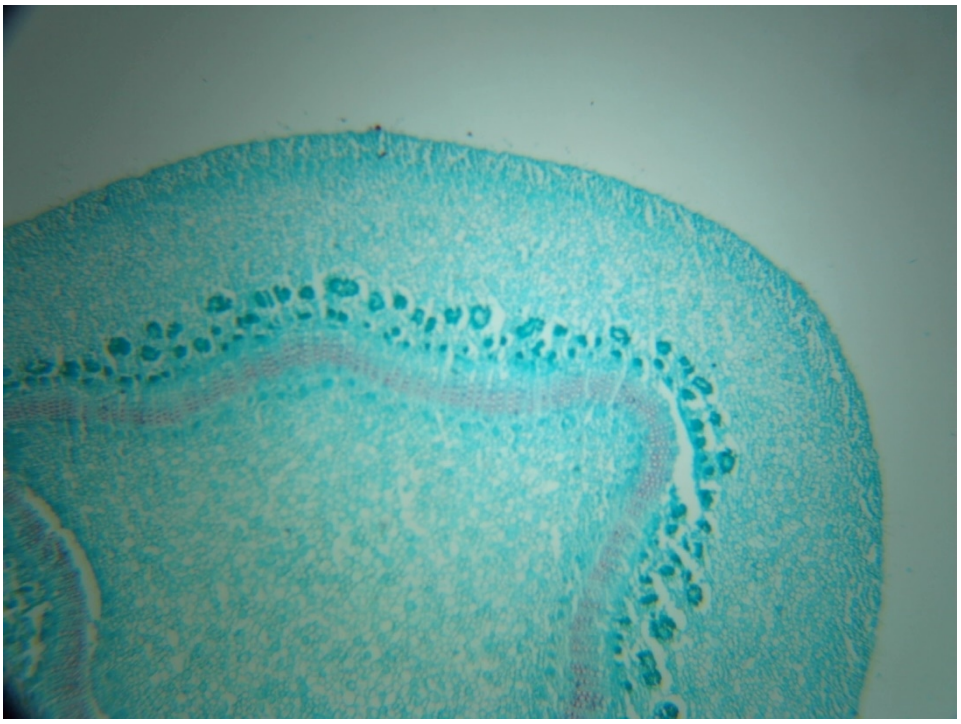
Pine Mature Wood X.S. brightfield



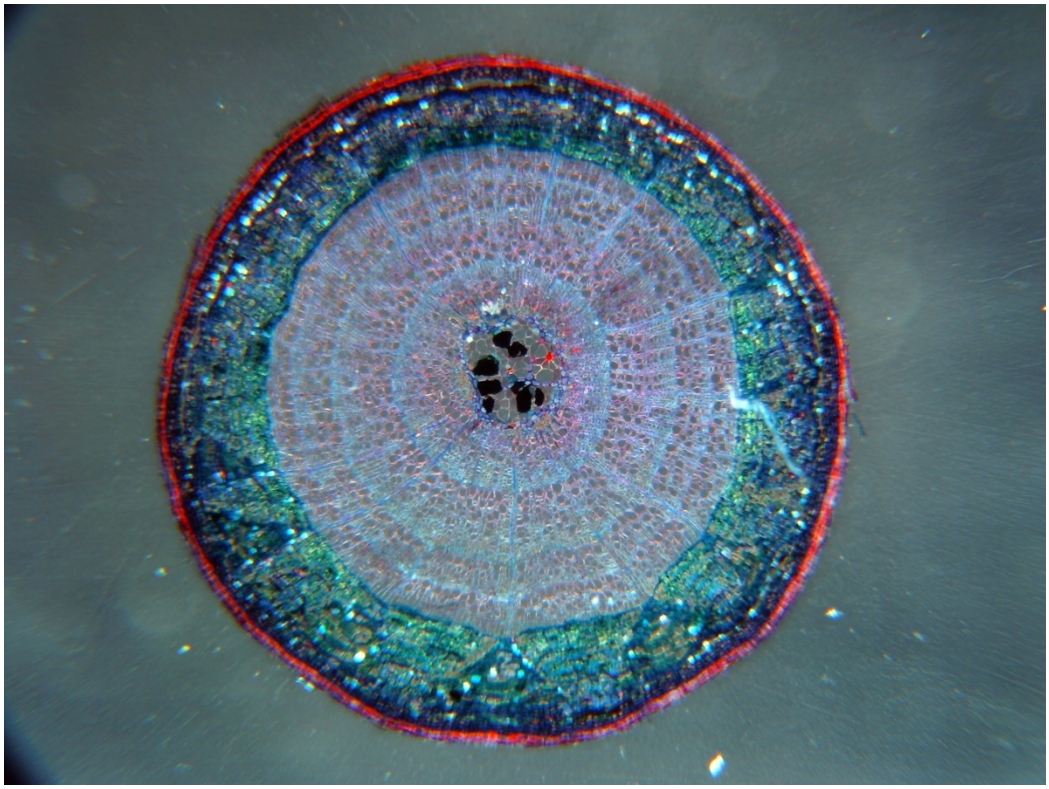
Pelargonium Young Stem CS darkfield



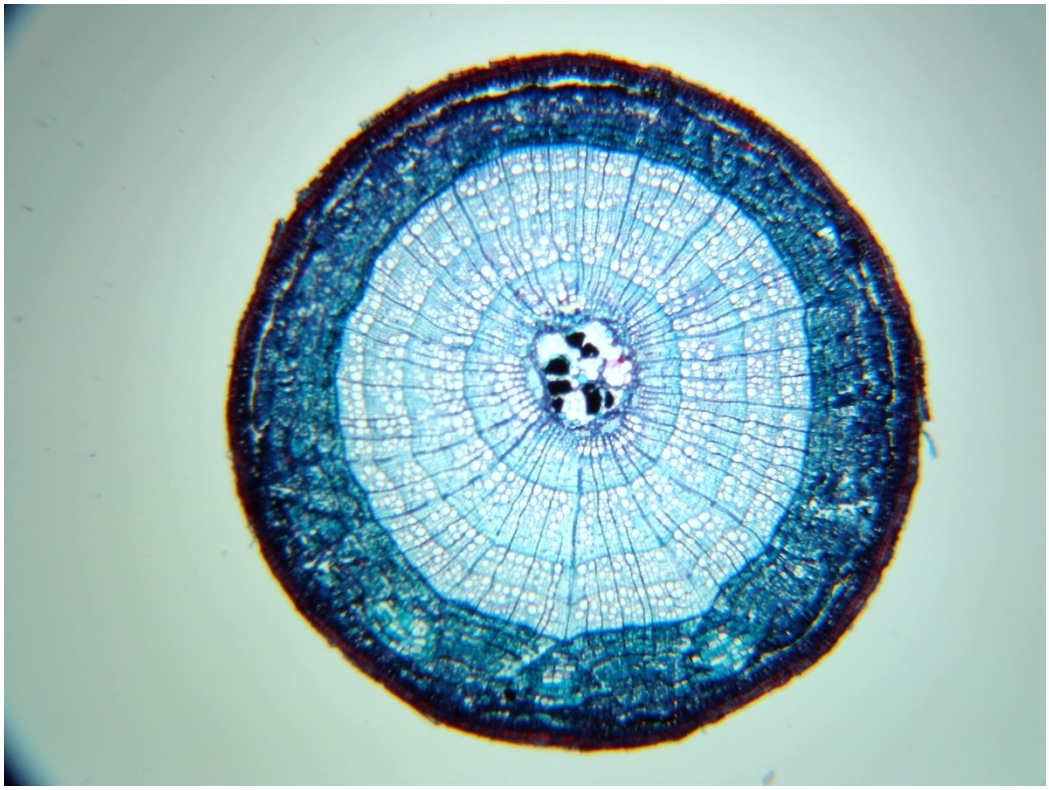
Pelargonium Young Stem CS brightfield



Stem of Wood Dicotyledon XS darkfield



Stem of Wood Dicotyledon XS brightfield



As is plain to see, particularly in the darkfield images, I did not manage to remove all the dirt, accumulated over the years, from the surface of the slides. For this I offer my apologies and hopes that the reader's enjoyment of those images is not too severely impaired.

As we say here in Cumbria:

'Ave a go yersel'!

Comments, gratefully received, to:

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