

# MICROSCOPICAL EXPLORATION

## THIRTY

### OLD vs. NEW (A BRIEF COMPARISON)

Over the course of many years as an amateur microscopist, I have collected several instruments, both old and new, which I continue to use in the pursuit of what I consider to be a fascinating hobby. For this Exploration I will observe a number of specimens using old and new compound and stereoscopic microscopes and capture images using the same 10 Megapixel eyepiece camera fitted to each instrument in turn.

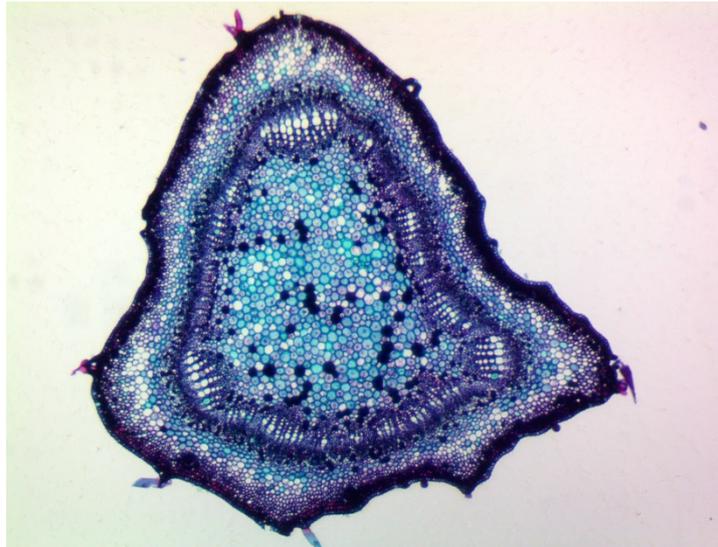
### THE OLDs

The first '**OLD**' of the exploration is a compound microscope which was manufactured by Ernst Leitz of Wetzlar in Germany and dates from sometime in the 1940s, as far as I can determine from the name and serial number engraved on the body tube. It must have been, in its time, a research instrument, as it was gifted to me on my retirement from the R&D laboratory where it had been used for many years previously, and before my time at the establishment. The microscope has a rotating turret with x4, x10 and x40 objectives, and has a sub-stage plane/concave mirror and Abbe condenser with a removeable top lens. It also has a rotatable stage, which is very useful when undertaking polarised light investigations. The microscope is shown in the image below.

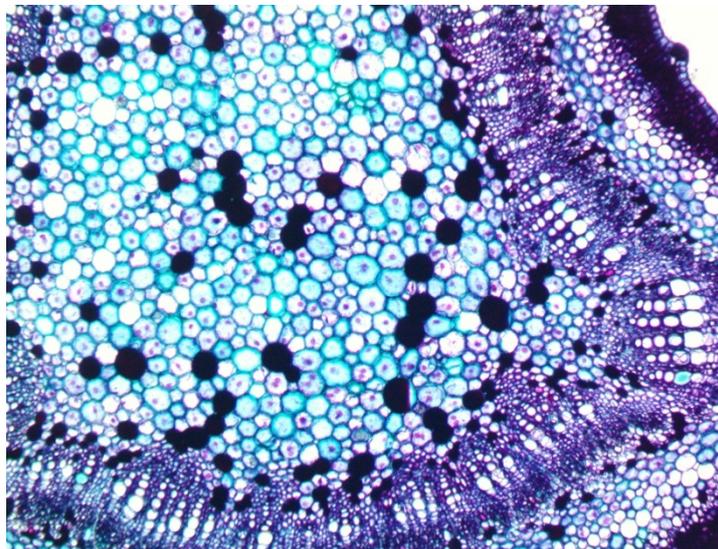


**Ernst Leitz monocular microscope fitted with Swift SC1003 camera**

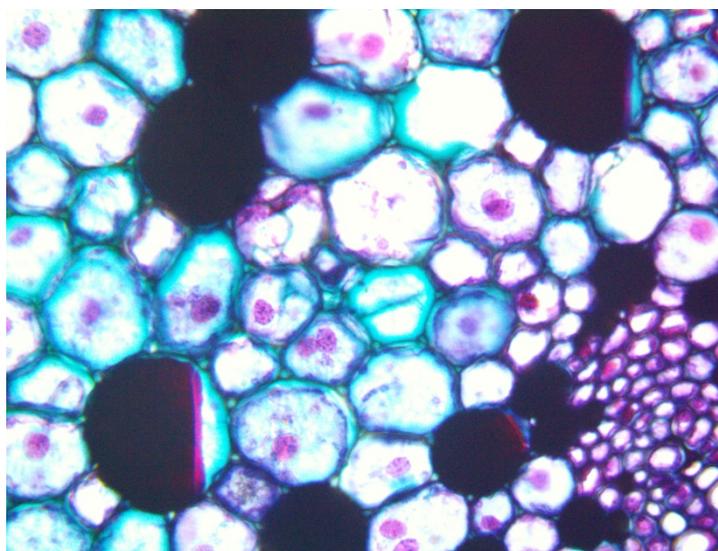
The next six images were taken using the old Leitz monocular:



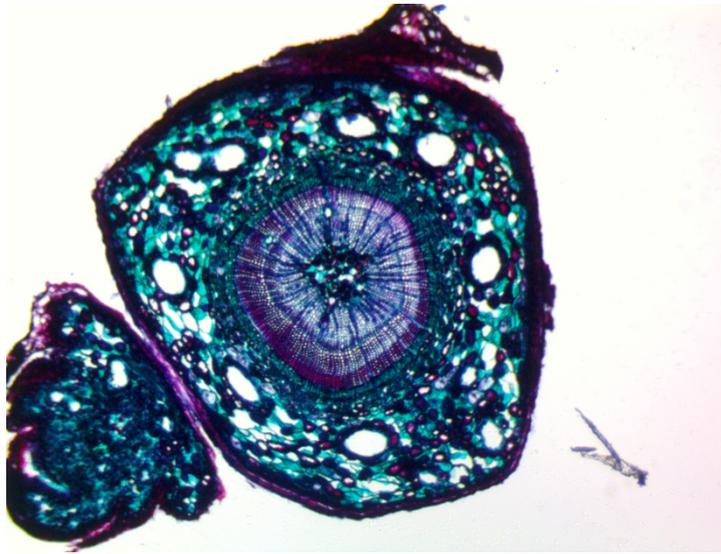
**Cotton stem x4 objective**



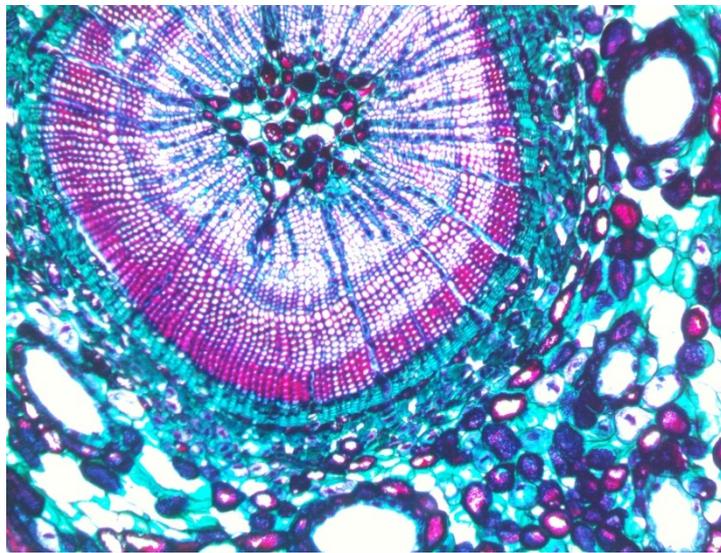
**Cotton stem x10 objective**



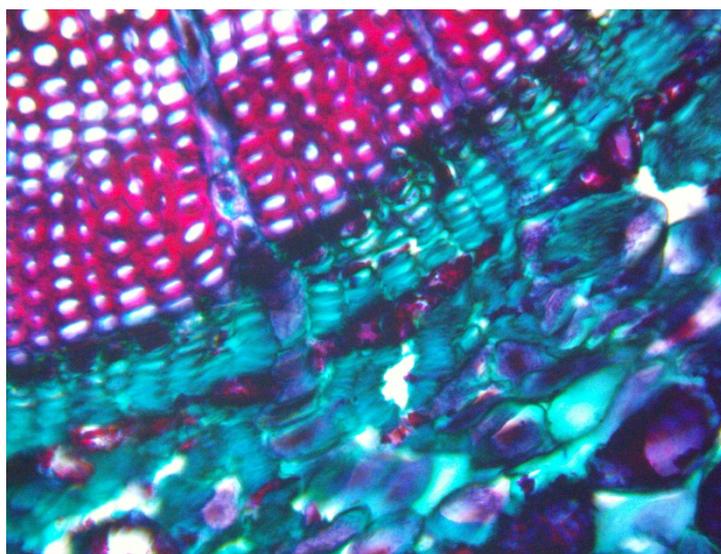
**Cotton stem x40 objective**



**Pine stem x4**



**Pine stem x10**



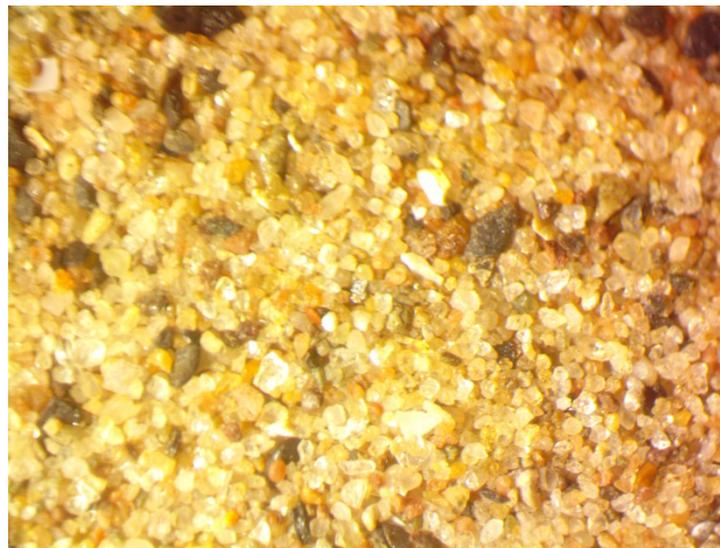
**Pine stem x40**

The second '**OLD**' in this exploration is my Olympus VA-II stereomicroscope, which, according to the certificate on the inside of its box door, dates from March 1966. It is equipped with two interchangeable objective pairs of x1 and x2 magnification, and is shown in the following image. Incident specimen illumination was provided by a free standing LED lamp

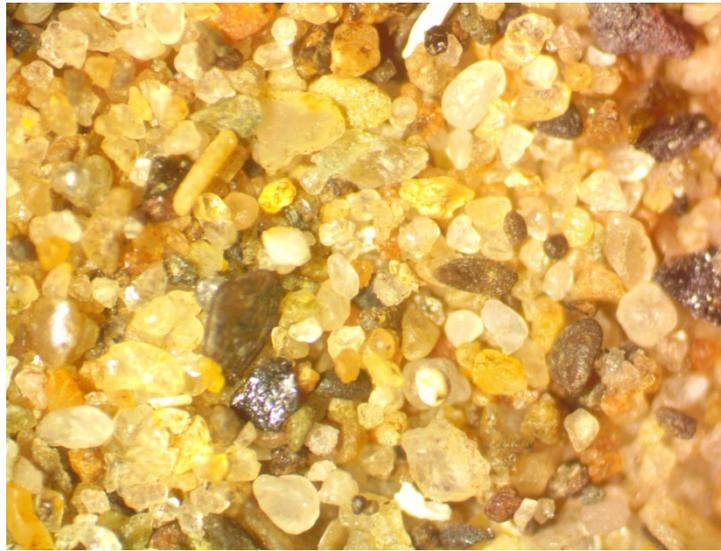


**Olympus VA-II stereomicroscope fitted with Swift SC1003 camera**

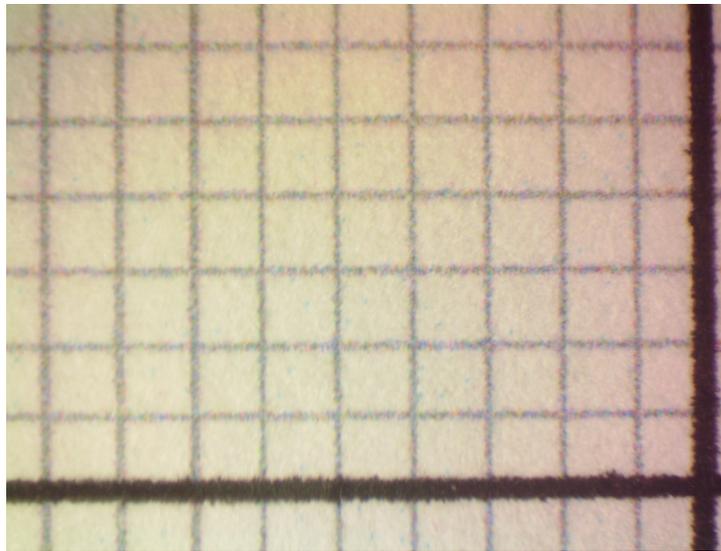
Images captured using the Olympus VA-II:



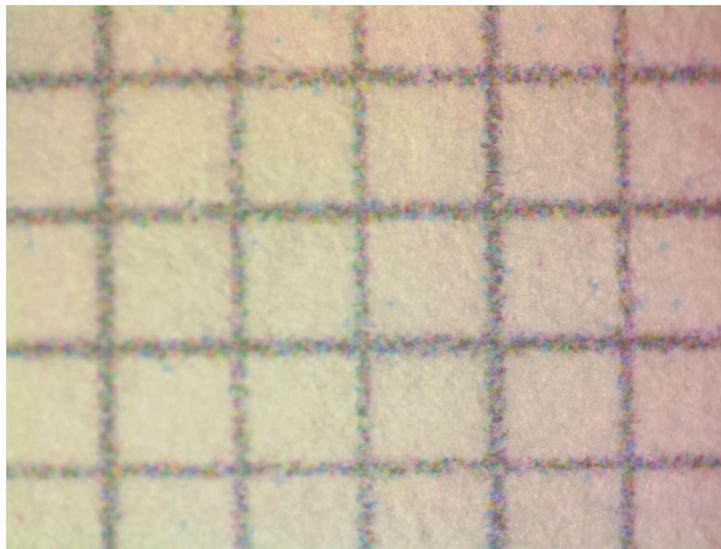
**Sand x1 objective pair**



**Sand x2 objective pair**



**1mm graph paper x1 objective pair**



**1mm graph paper x2 objective pair**



**Farthing x2 objective pair**

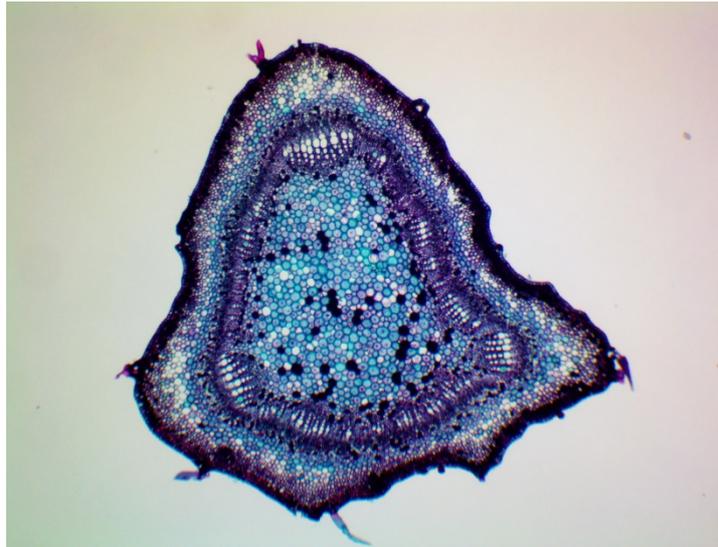
## **THE NEWS**

The first '**NEW**' of the exploration is a Swift SW380T trinocular compound microscope, the specification for which can be viewed [here](#). As can be seen, this microscope is supplied with an objective turret with four objectives, x4, x10, x40 and x100(oil), although for this exploration a non-immersion x60 objective was substituted for the x 100(oil) lens. The SW380T is shown below fitted with a Swift SC1003 10Mp eyepiece camera.

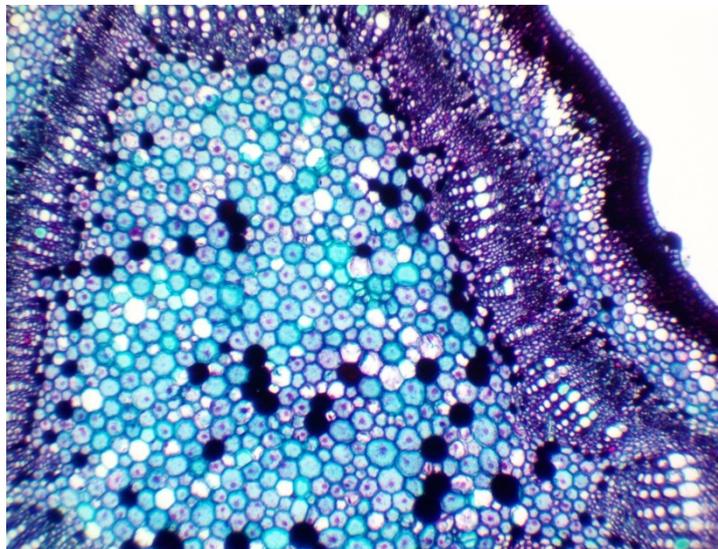


**Swift SW380T trinocular microscope fitted with Swift SC1003 camera**

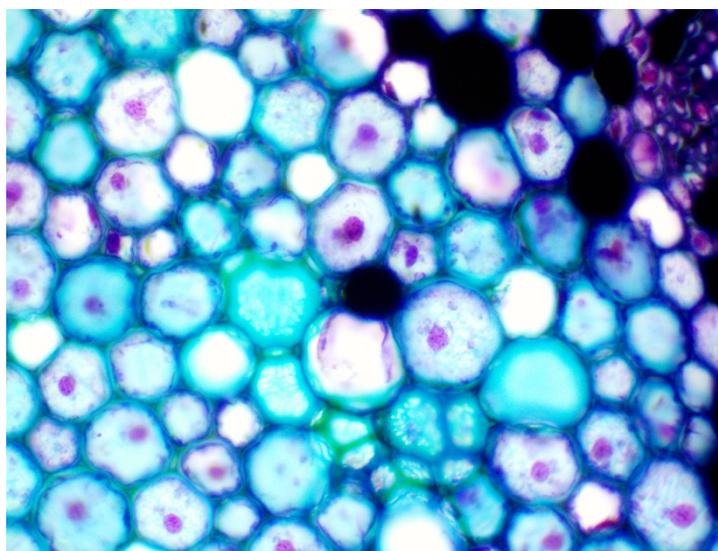
SW380T pictures of the same specimens as viewed with the old Leitz monocular are shown below:



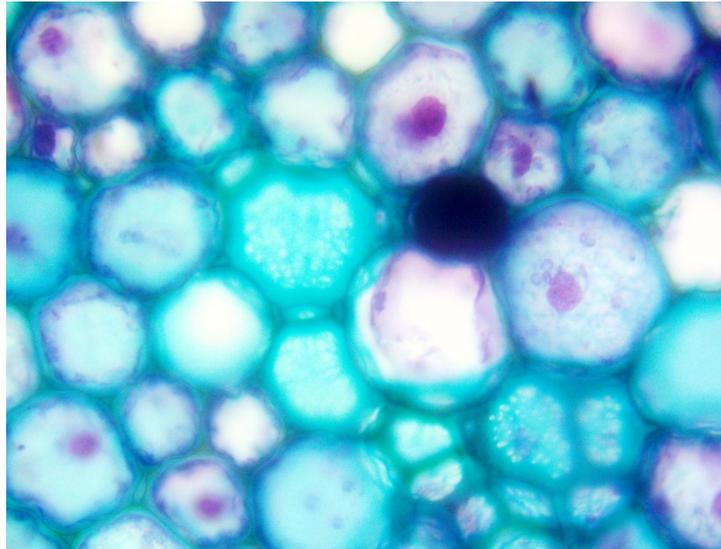
**Cotton stem x4 objective**



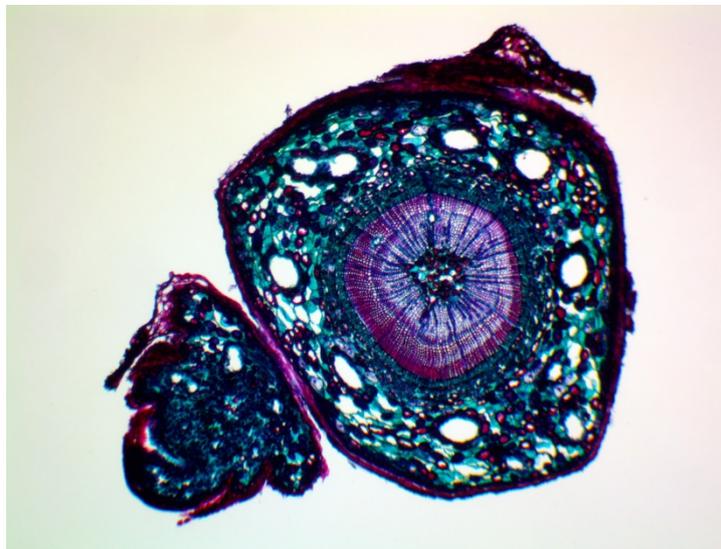
**Cotton stem x10 objective**



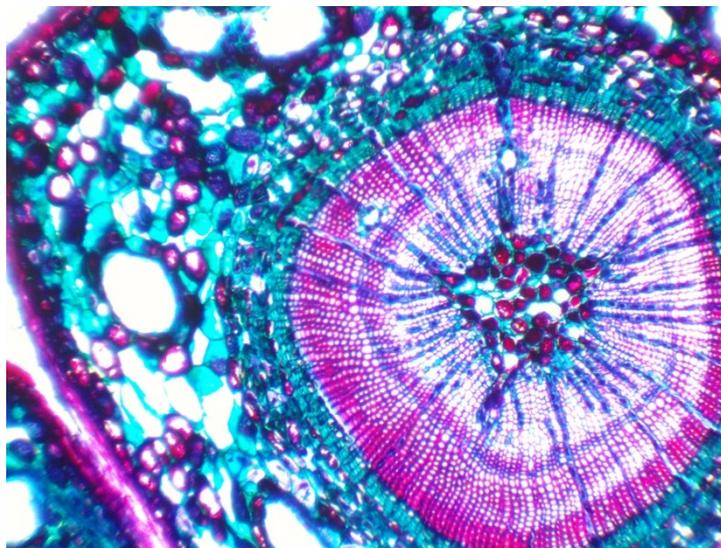
**Cotton stem x40 objective**



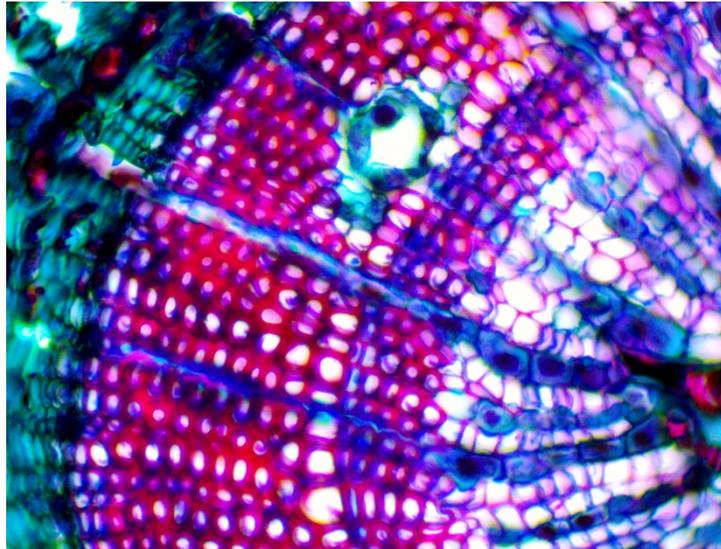
**Cotton stem x60 objective**



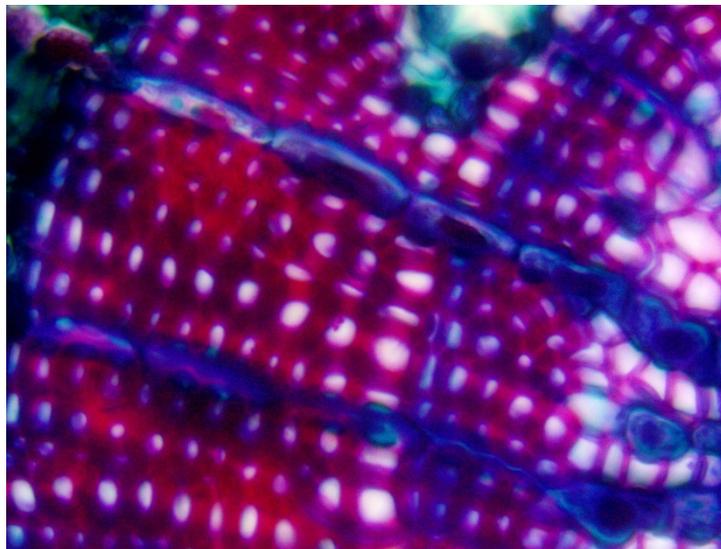
**Pine stem x4 objective**



**Pine stem x10 objective**



**Pine stem x40 objective**



**Pine stem x60 objective**

The second **'NEW'** is a Brunel Microscopes Ltd. MX7T stereomicroscope which has turret mounted x2 and x4 objective pairs, and is shown below fitted with the Swift SC1003 camera.



**Brunel Microscopes MX7T stereomicroscope fitted with Swift SC1003 camera**

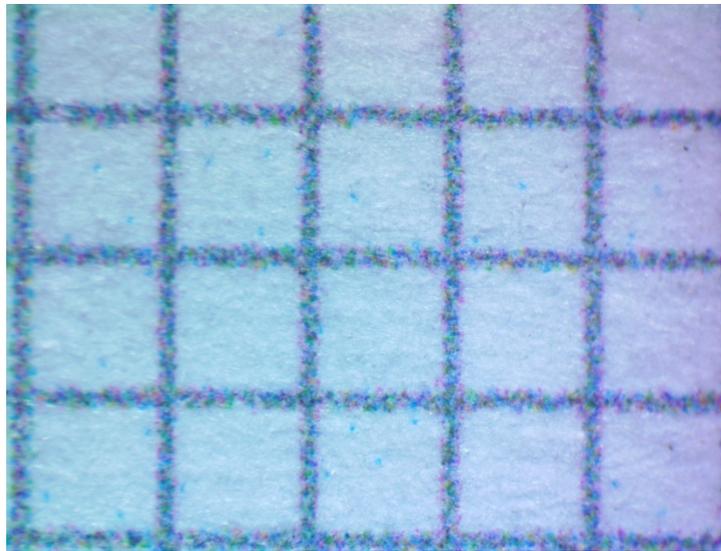
The images:



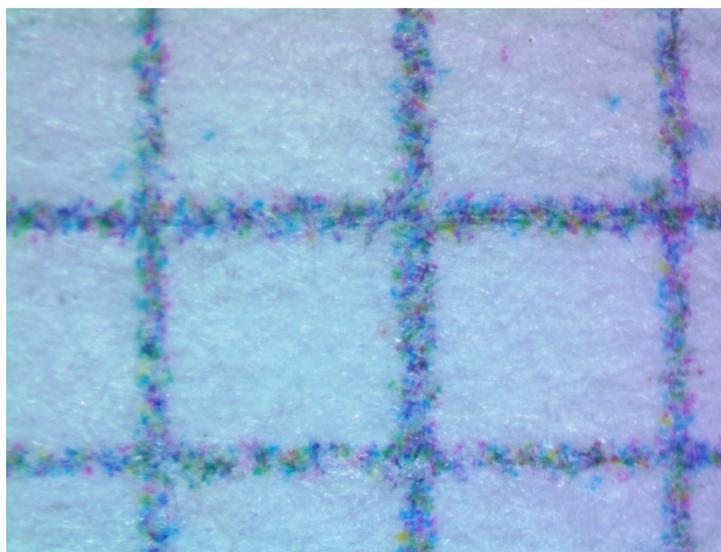
**Sand x2 objective pair**



**Sand x4 objective pair**



**1mm graph paper x2 objective pair**



**1mm graph paper x4 objective pair**



**Farthing x2 objective pair**

### **In Conclusion**

To my eyes, the images captured using both old and new compound microscopes are of a quality satisfactory enough to please the amateur microscopist.

Although the stereoscopic effect is absent when viewing through only one ocular of the stereomicroscopes, as with the eyepiece camera, and more distortion is apparent in the images from the Olympus instrument, I am happy to have both the 'OLDs' and the 'NEWS' in my collection and will continue to use them whenever the fancy takes me.

**James Stewart**

**As we say here in Cumbria:**

**'Ave a go yersel'!**

**Comments, gratefully received, to:**

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