

ANATOMY OF A PICTURE



Photomicrographs are not always the result of simply hitting the trigger to get a good shot. This shot of a bed bug was a lot more complicated to make than it may appear at first glance.

The specimen is part of my collection of microscope slides. I was looking at various slides with a Wild M20 to see if anything would be interesting in phase contrast. At first glance, some sections of this bug looked promising. Unfortunately, the bug is large and the 4x lens is not phase contrast, so I had to use the 10x lens and thus shoot with a 100x magnification. Needless to say, the field of view was somewhat narrow...

This bug is not only large sideways it's also somewhat thick, which means that depth of field was limited to say the least. This problem was solved by shooting a series of pictures with different focus which were focus-stacked with Zerene Stacker. The number of pictures in each stack would vary according to the perceived depth of field needed. In all, three rows of five shots were made; in all 120 shots were assembled to make the final picture.

My first attempt did not go smoothly, in fact it failed miserably. Photoshop could not find enough matching elements to assemble the different images. It turns out that the tube holding the camera was at a slight angle, which made the row of pictures moving sideways instead of being perfectly horizontal. In the end, I deleted the whole works and did it over.

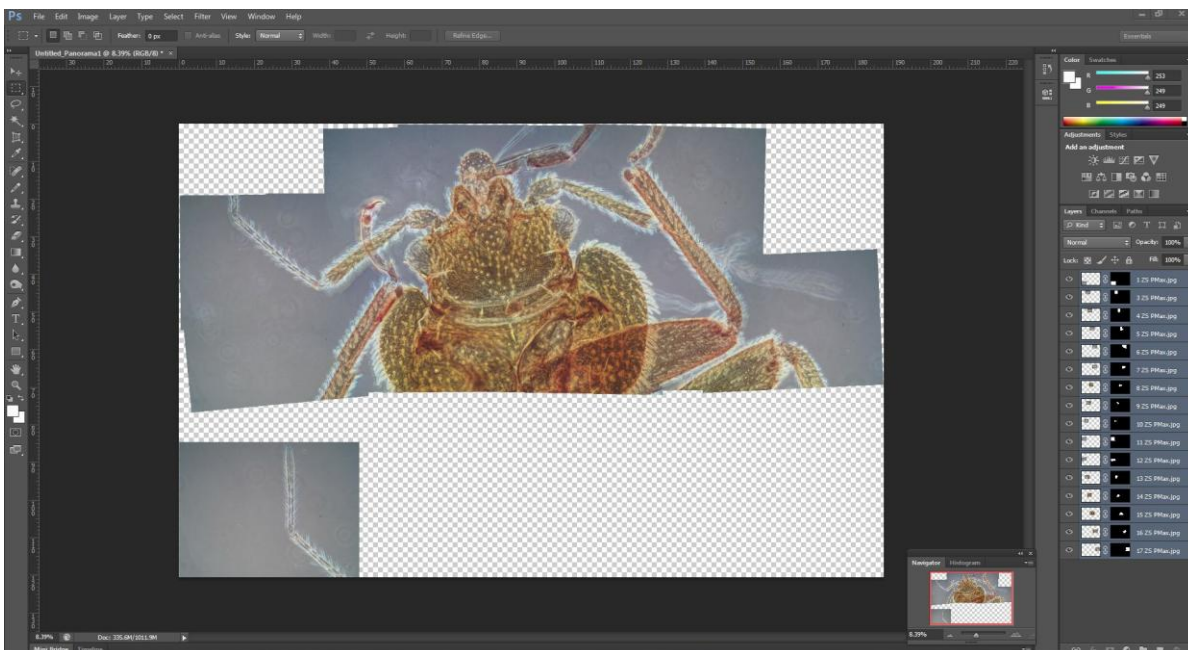


The Wild M20 with the photographic tube, which can swing independently from the binocular.

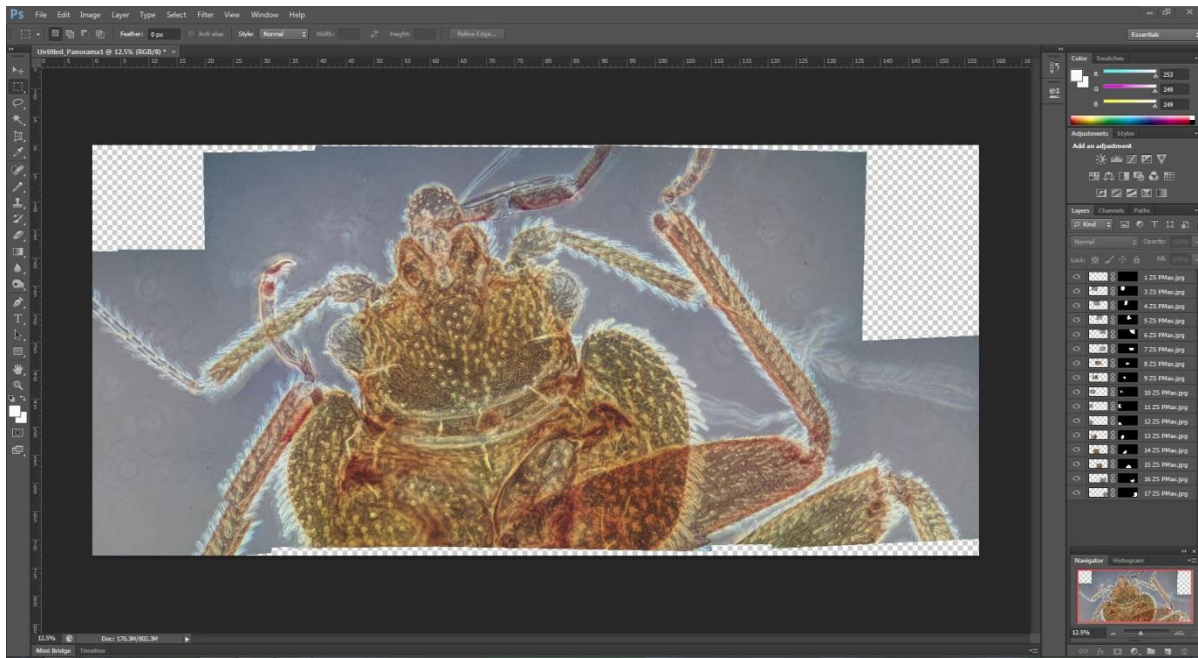
I started on the top left with a bit of antenna part of which was eventually cut off for a better composition. I then moved right, through the head, all the way to the leg, shooting five sets of pictures to be stacked. Then the camera was aimed for a second row, shot right to left. I used the locator marking on the microscope stage to make sure that my series of pictures would begin and end at the same distance left and right. Once the second row was done, a third one was made again left to right. Then the post processing began.



Each group of pictures was stacked individually with Zerene Stacker, the file saved as “Stack 1” “Stack 2” and so on. I then went on to Photoshop to do the panoramic assembly. At first, I tried to assemble pictures two by two, or at most three at a time, but final assembly failed for some unknown reason. Finally, I selected all the pictures at once, choosing the *Collage* option of *Photomerge*. This time Photoshop was able to assemble the image... up to a point...



The end of the left antenna somehow ended up separated; I first tried to move it manually, but eventually chose to cut it off.



Next, after flattening the layers to get a single picture I selected the empty spaces and deleted them with the *Content Aware* option. After a few tries I ended up with plain grey background. There were some disturbing defects in that background; they were smoothed out with the *Healing Tool*. To make it even more pleasant, sections of the background were selected with the *Lasso*; a *Lens Blur* filter was used to make it more even. Some defects resulting from the image stacking were also eliminated with the *Stamp Tool*. The image was finally imported in Lightroom, where some adjustments in contrast and clarity were added to the bug.

The next time you look at a picture you may now appreciate the amount of work behind it. If you want to learn a bit more from a master, look at the work of fellow Canadian Robert Berdan in the following Micscape article:

<https://www.microscopy-uk.org.uk/mag/artoct18/rb-Photomicro-Science-Art.pdf>

You may also visit his own website :

https://www.canadiannaturephotographer.com/photomicrography_tips.html

Comments to the author Christian Autotte welcomed, email:
cautotte.9001 AT videotron DOT ca

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