

# EMBEDDED IN RESIN

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I have a few arthropods that were embedded in transparent resin, some I bought in a kind of “magazine”; others were a gift from a friend. Normally, they sit on top of a shelf in my library. This kind of embedding is not easy as it is nearly impossible to prevent air bubbles from forming in the resin. Parts of these arthropods are obscured by sheets of air that look like a layer of mercury. Although interesting when examined under low power with a binocular, they did not look like they could be photographed with good results.

And yet, one afternoon I decided to give it a try. The microscope of choice was one of those I modified for focus stacking. Because magnification had to be kept quite low, I decided to photograph with a Laowa Super Macro lens; it can give magnification between 2.5 and 5x with a full frame, which is visually doubled when using a Micro 4/3 camera, like my Olympus. With these camera bodies, I can get the equivalent of 5 to 10x magnification, and the following pictures were all shot at these magnifications. Light was provided by a pair of LED lights equipped with “barn doors” to control light from spilling over where it should not shine. That helped reducing the risk of reflections on the resin.





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Beetle mouth parts, 5x, stack of 6 images

The first one I tried was a long-jawed beetle (lower right in the group picture). When it was embedded, a sheet of air formed on parts of its body and mandibles. They should be shiny black, but now they take on a silvery sheen. Here and there, larger air bubbles cling to the subject.

Starting easy, the first few pictures were made at 5x, but in view of the results I quickly decided to stretch the lens to its maximum magnification of 10x. Even then, the result remained surprisingly sharp, especially when focus stacking was used, a technique I used in most of these photographs.



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Beetle mouth parts, 10x, stack of 7 pictures



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Beetle eye, 10x, stack of 9 pictures

The same beetle also gave me a surprising picture of its eye: it is partly divided in two by an extension of its carapace. Of course, to get that shot I had to shoot from the side, through a thicker layer of resin, but the result is still acceptable.





Wasp head, 5x, stack of 14 pictures

Moving on to a kind of wasp (upper left in the group), I also got some interesting shots of more eyes, including three ocelli, the simpler one lens eye found on top of some insects heads. They are believed to be used to detect movements and help in orientation by detecting polarized light, even on cloudy days.

While the larger magnification is still acceptable, it does show more defects, some of which may come from the stacking but more likely from defects in the resin itself.



Wasp head showing three ocelli, 10x, stack of 21 pictures

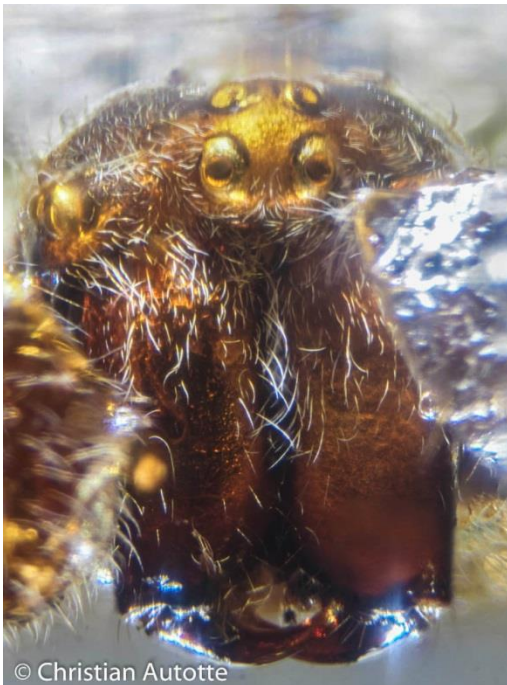


More eyes were interesting in the spider (upper right in the group). Shooting from above was easy enough, but trying to shoot it from the front brought more defects, not only in the thicker layer of resin but also in the position of the spider's pedipalp. One of them was covered with a sheet of air and come up as a shiny undefined surface.



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Spider cephalothorax, 5x, stack of 5 pictures



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Spider face, 10x, stack of 10 pictures

The abdomen was also shining with such a layer of air, but the result was quite interesting.



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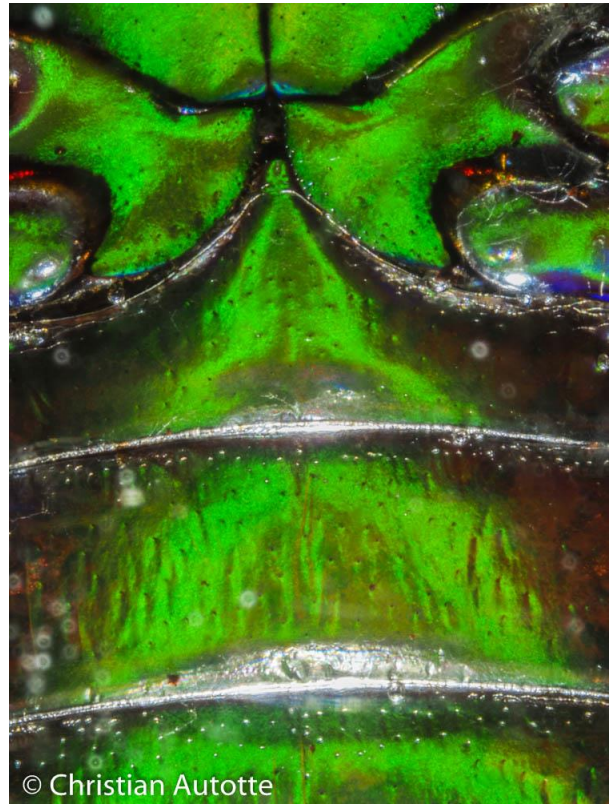
Spider abdomen, 5x, single picture





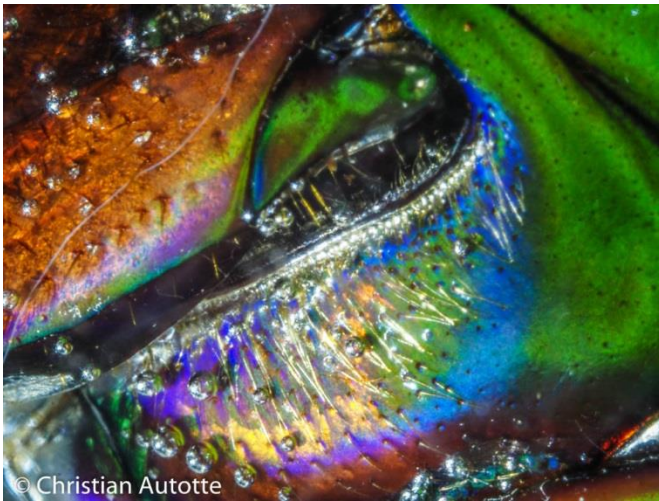
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Beetle elytra, 5x, single picture



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Junction of the legs and abdomen, 5x, single picture



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Under the abdomen, 5x, single picture



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Elytra, 5x, single picture



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Junction of the legs, 5x, single picture

For a while I played with abstract images of elytra and abdomen. I tried a few pictures of legs, but was disappointed with the results.



The largest specimen in the group is a big centipede. Looking at its jaws, I am glad that it is forever locked in resin: getting bitten by those large mandibles would not be a very pleasant prospect... The quality of this image is quite remarkable, considering the circumstance of the subject.



Centipede jaws, 5x, stack of 9 pictures

I tried a few pictures of this centipede segments, both from above and below. A few came were interesting, but are truly impressive. As with other images that were shot as single pictures, I took advantage of the remarkable sharpness afforded by the Laowa lens when its diaphragm is closed down all the way to f/16. Most lenses closed down at these apertures cause refractions that degrade the image.



Centipede segment, 5x, single picture





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Hemiptera head, 10x, stack of 14 images

The last subject is an Hemiptera (true bug). Photographed from below, its face is covered with air bubbles. With a bit of Photoshop magic and a few minutes of my time, I was able to remove all the bubbles, but I must admit: the one with the bubbles is more interesting, more intriguing. It has character...

It goes to show: even the most unlikely subject can yield some interesting results.



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