

WINTER BEACHCOMBING

As long as the beach remains free of snow and ice, it can yield some interesting subjects for both macro and micro photography. Combing the beach after a few days of high wind and stormy weather is the best time to look for something that has been taken from the depth and tossed on shore.

Among the common denizen on the shores of the St-Lawrence are green sea urchins (*Strongylocentrotus droebachiensis*). They tend to look green when alive and covered with green needles. While the naked test itself is green outside, it shows shades of violet on the inside. They are a common sight on the beach. Often they are broken in bits, and if you're lucky, the broken urchin still contains a marvellous apparatus: the Aristotle lantern. Philosopher, Aristotle also studied and wrote extensively on natural history. Here is what he wrote about the mouthparts of sea urchins: "...The mouth apparatus of the urchin is continuous from one end to the other, but to outward appearance it is not so, but looks like a horn lantern with the panes of horn left out." I'm not sure what that lantern looked like, but when other naturalists later wrote about the same apparatus, they started to refer to it as "Aristotle's lantern" and the term was carried on to today.

Being echinoderms, like sea stars, sea urchins are known for their radial symmetry; some of their organs come in groups of five, like their teeth, which crown a hard triangular support on which the muscles are attached. And strong muscles they are; sea urchins are known to be able to chew their way through solid rocks!





Last summer I visited a nearby nature centre that houses local fauna in several aquariums. In most of them were the ubiquitous sea urchins. Using their peduncles, they are able to climb up the glass and give us a look at their underside, with the mouth right in the centre. On some pictures you can see their funny little buck-toothed smile...

Then in one of the aquariums was an urchin busily chomping its meal. It gave me a good look at the Aristotle lantern in action!

Sea urchins are also upside down critters. When alive, their mouth is at the bottom and their "bottom", so to speak, are on top... What we see here, on top of the empty test, is the anus (in that circle). Around it are seen three of the genital openings.



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Top side of test, 5x



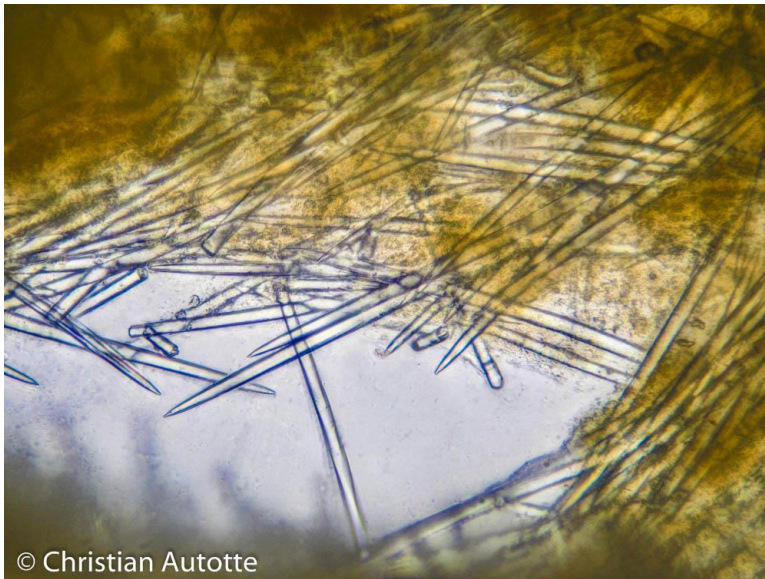
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Madreporite, 10x



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Sponge on the beach

In December I visited one of the local beaches after a few stormy days. To my surprise, it was littered with several yellow sponges. I just had to bring one back home and try to look at its spicules. A quick search in my library identified the species as the Common Palmate Sponge (*Isodictya palmata*).

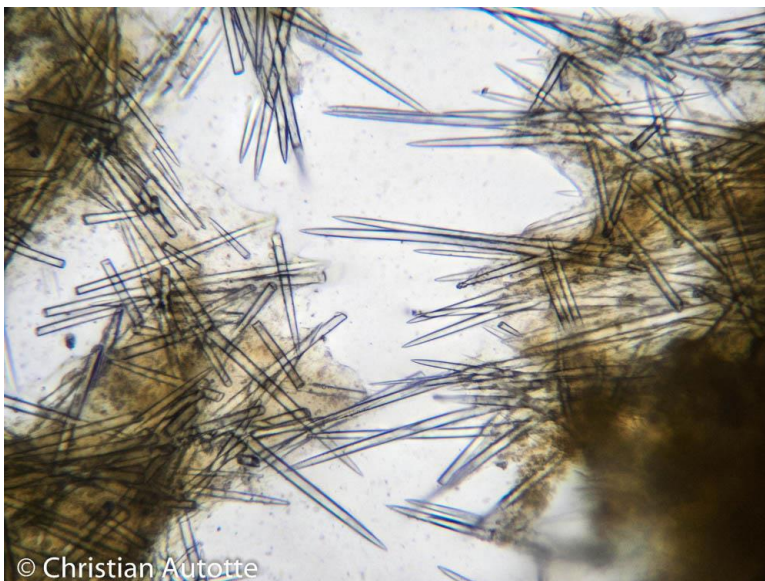
My first attempts were to simply make a thin slice with a razor blade. Using a manual microtome, I was able to get a few decent slices that were thin enough to be sufficiently translucent for both observation and photography.



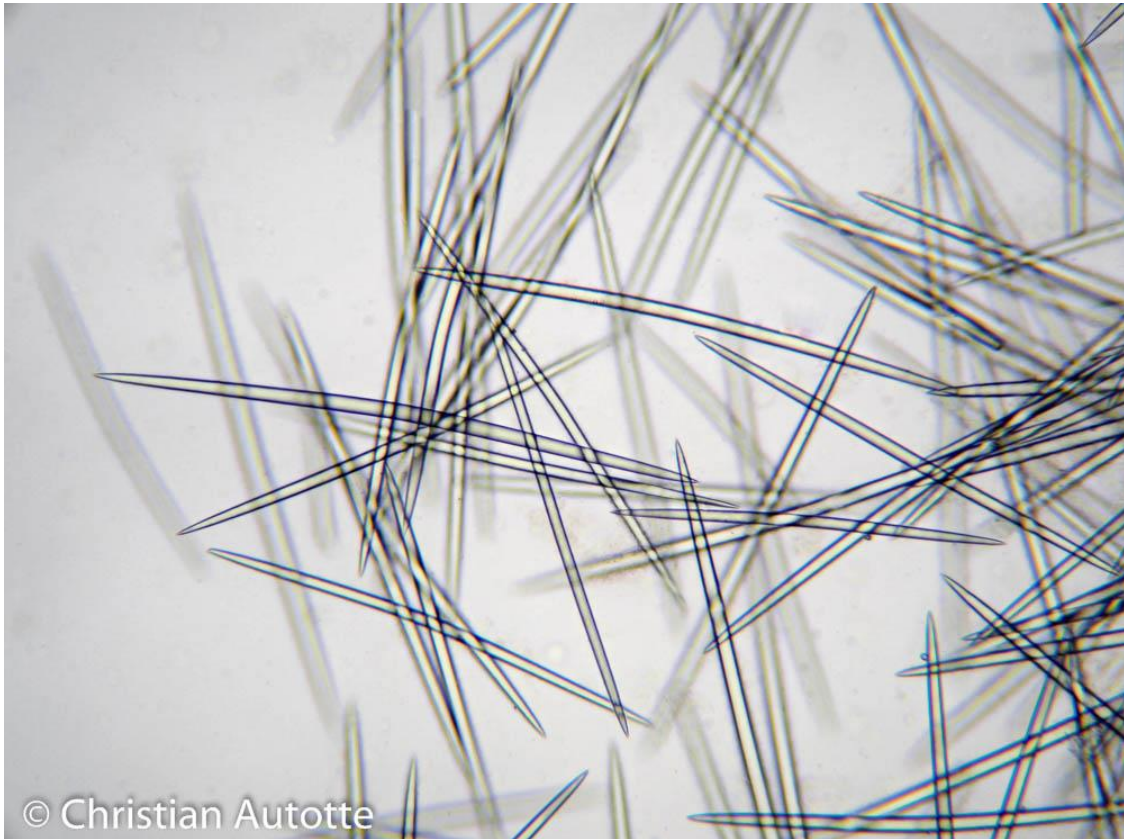
© Christian Autotte
Spicules, 200x, stack of 17 pictures



© Christian Autotte
Spicules, 100x



© Christian Autotte
Spicules, 100x, stack of 21 pictures



© Christian Autotte
Spicules, 100x, stack of 2 pictures

While the spicules “in situ” were interesting enough, I wanted to get them isolated. An article by fellow Micscape contributor Richard L. Howey gave me the recipe to get them; after a day in household bleach the orange sponge was partly dissolved and spicules could be collected with a simple eyedropper.

While some species can have spicules of varied shapes and sizes, those found in my sponge were simple straight needles. Nevertheless, they gave me some interesting pictures.

While working on the pictures, I did some stacking, and one case shown here illustrates the old adage that “less is more”. Trying to get too much sharpness does not always produce the best images. By stacking only two pictures, I was able to get just enough sharpness in foreground spicules while maintaining good separation from the background. Oh, the joy of photography...



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Spicules, 100x, stack of 7 pictures

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