

# 10 000 years old pollen

By Christian Autotte, Montréal, Canada

Peat, as you may know, is the compacted remains of plants that can be thousands of years old. It forms in bogs, and when the bogs dry up peat can be exploited, either to be burned, as they do in Scotland and Ireland, or to be used to improve garden soil, as we do in North America.

I am currently working on a book about post-glacial seas that inundated southern Quebec at the end of the Ice Age: the Champlain, Goldthwait and LaFlamme seas. They lasted a few thousand years before retreating. The glaciers also left plenty of bogs behind them, which are now exploited for their peat. For decades now, scientists have studied those peat bogs for their ability to conserve bits of vegetation and thus open a window on past ecosystems.

When you take a close look at chunks of peat it's very easy to distinguish pieces of vegetation. Using a binocular, I tried to find pollen grains directly in the peat, but the task proved to be impossible; those tiny grains are lost in the confusion of fragments. So I chose to look for my quarry another way.

Now, I'm not a professional palynologist, only an amateur scientist, so my lab is limited. When I first got the idea to document what can be found in peat, I had some doubts about the possible outcome.

A quick search on the internet gave me some clues on how to proceed. I started with tiny bits of peat, shred to pieces in a test tube filled with 95% alcohol. The broth was mixed vigorously with a small brush until it looked like lumpy dirty water. Using a fine pipette, a drop of the liquid was taken from the bottom of the tube and transferred to a slide. It didn't take me long to locate several pollen grains, which is what I was after. One of them I quickly dubbed the "Mickey Mouse Pollen": it sports a pair of large "ears" on its round "head". More research identified it as the pollen of an evergreen tree, probably spruce. Triangular grains are probably birch, while some round grains could belong to hemlocks.

I experimented a bit with methylene blue to try and color the grains. In the end, it didn't really matter: pictures came out very well with or without dye.



In some regions of Quebec you can find vast fields of dried up bogs where peat is collected with huge vacuums. It is then bagged and sold to amend soil in gardens and potted plants.



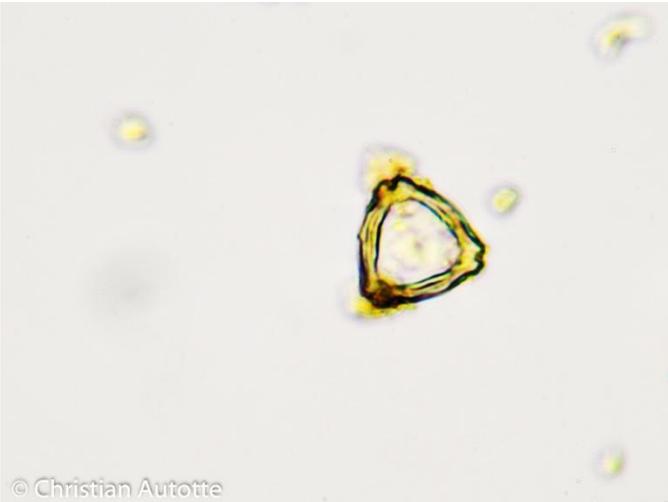
© Christian Autotte

Unknown



© Christian Autotte

Spruce or pine



© Christian Autotte

Probably birch



© Christian Autotte

And possibly one more Birch



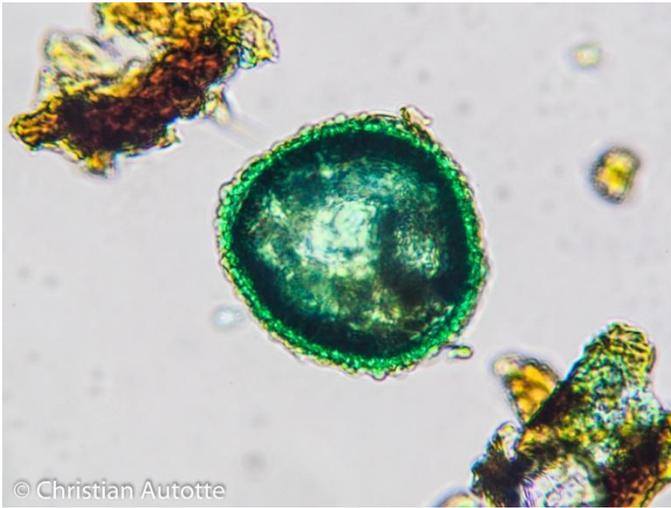
© Christian Autotte

Pine or spruce



© Christian Autotte

Here is that same unknown again



© Christian Autotte

That could be Hemlock



© Christian Autotte

Probably birch, this one stained with methylene blue



© Christian Autotte

Then at the edge of a slide, I saw something elongated that looked more like a seed. Switching to a larger magnification I finally realised what it was not vegetal, but animal. It's impossible to tell whether or not it dates back 10 000 years or if it found its way through the peat later on, but it was a nice surprise nonetheless. I first thought it to be a tardigrade, but some doubts have been raised. So what is it? If some of you have an idea, let me know...

Comments to the author Christian Autotte welcomed, email: [cautotte.9001 AT videotron DOT ca](mailto:cautotte.9001@videotron.ca)

Published in the February 2019 issue of *Micscape* magazine.

[www.micscape.org](http://www.micscape.org)