

Ugh!...

I have a theory: the uglier, the smellier, the more disgusting a water sample may look, the more fun you will have looking at it through the microscope...

Late last summer, while on a hike in my favorite park, I spotted an area at the edge of a lake. About the size of a large diner plate, it looked like mold growing all over twigs and fallen leaves. It was really repulsive, and since I never saw anything like it, I had to take a few samples and bring them back home.

The main component of the white fluffy stuff looked like some kind of mold. A few hours of research in my library and on the Web, seem to confirm that suspicion. The following entry was found on Britannica.com:

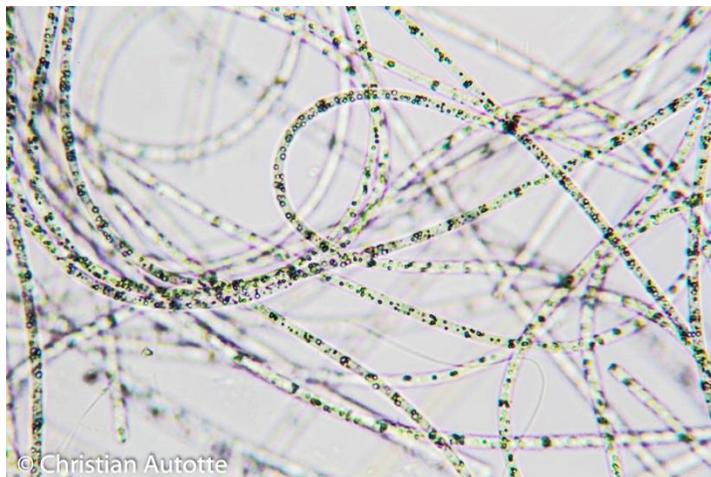


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Something disgusting at the edge of a lake... take a sample!

“Water mold, (order Saprolegniales), also spelled water mould, order of about 150 species of filamentous funguslike organisms (phylum Oomycota, kingdom Chromista). Many water molds live in fresh or brackish water or wet soils. Most species are saprotrophic (i.e., they live on dead or decaying organic matter), although some cause diseases in certain fishes, plants, algae, protozoans, and marine invertebrates. Common genera include Achlya, Leptolegnia, and Saprolegnia.”

(<https://www.britannica.com/science/water-mold>)

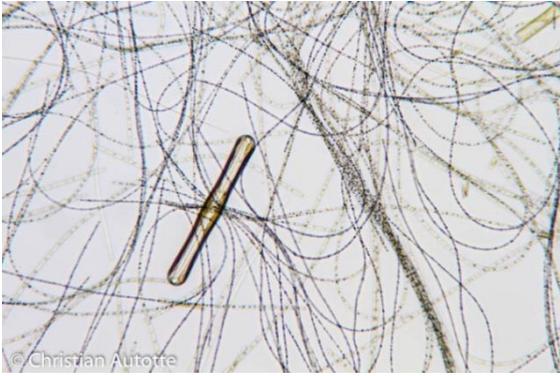


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Water mold, 640x

That description, and a few pictures also seen on the web, seems to describe what I found.

Under the microscope those mold filaments kept moving constantly, like the snakes on Hydra's head... It was both fascinating and hypnotic. And they were far from alone. There were accompanied by numerous diatoms, desmids and ciliates.



Diatom, 160x



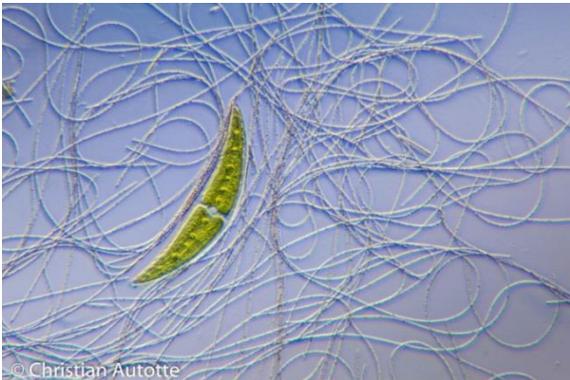
Diatoms, 320x



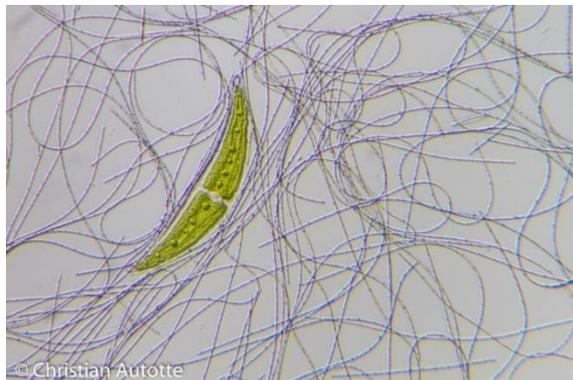
Diatoms, 400x



Diatoms, note the oil globules, 320x



Desmid (Closterium), 320x, in oblique/rheinberg lighting



Desmid (Closterium), 320x, in oblique lighting



Desmid, 640x

Diatoms and desmids were found among the mold. Some gave me an excuse to experiment with various lighting. Some of the best results came with a combination of oblique and rheinberg lighting done with a home-made filter.



Many of the plants were being consumed by ciliates and other feeders.



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Well-fed Ciliate... 200x



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Ciliate full of diatoms, 320x



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Stentor, 320x



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Amoeba, 320x



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Arcella, 640x

Beside the classical amoeba I found a few Arcella, a shelled amoeba. As far as I could tell, it was only the empty shells.

Among the ciliates I found many Paramecia. I even saw a pair in conjunction but was unable to photograph them.



Paramecium, 320x



Paramecia, 160x



Paramecium, 320x



Paramecia, 320x



Unidentified Ciliate, 320x



Unidentified Ciliate, 160x

Many more ciliates I have not yet identified.



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If we take a closer look at the mold, we can see what looks like small “worms” all over the place. There were found by the thousands, and at first I really thought of them to be worms. But the more I looked and searched to identify them, the more I thought that they had to be something else than worms. Eventually, pictures in one of my books (Guide to Microlife) lead to a search for confirmation on the Web. An article by Micscape contributor Wim van Egmond confirmed it: this thing is not a worm but one giant ciliate, Spirostomum, a single cell organism which can measure up to 4 mm in length. Among other things, it is known for its ability to contract to 1/4 its normal size in 6 to 8 millisecond, the fastest contraction known to any living cell. I did see it a few times, but did not think of taking pictures of it... Now that I know more about it, I will try to find them again next summer to study them in detail.

If you wish to read the article by Wim van Egmond you will find it at:

<http://www.microscopy-uk.org.uk/mag/artoct98/spiro.html>



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Spirostomum, about 48x



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Spirostomum, about 48x



In one of the samples I found a single dead copepod. There might have been more, but I saw none swimming in the water column of my small sample. It may be due to the late season; I tend to see copepods mostly in spring and summer.

This small sample of dirty water gave me several days of fascinating explorations and a few dozen good pictures. As usual, every time I explore some new environment I discover things I never saw before. Just one more reason to go out and look at the dirtiest water I can find... if only to confirm my theory about dirty water...



Water mold, 160x

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