September 7th is Van Leeuwenhoek Day.

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On September 7th we'll celebrate the discovery of the micro world. On September 7th, 1674 Antoni van Leeuwenhoek wrote the letter to the Royal Society that contained the first description of microbes. It's the discovery of the micro world, the birth of microbiology.
We celebrate Van Leeuwenhoek Day by taking out our microscope to a local pond or lake, fill a bottle, make a slide and show everyone who is passing by the wonders of the micro world. With a microscope anyone can make discoveries. In case you don't have a microscope, just use your imagination and celebrate the day microbes were discovered in a way you feel is appropriate. And don't forget to share it.

L - R. Antoni van Leeuwenhoek (part of an oil painting by Johannes Verkolje (1632-1723) made in 1686).
The Oost Meer where he was believed to have first collected samples.
A replica Van Leeuwenhoek microscope which used a single lens.
Dolichospermun, the cyanobacteria which matches closely his description in his letter dated Sept. 7th, 1674 (not to Spirogyra previously assigned, see Resource 3 below).

Who was Antoni van Leeuwenhoek?

Antoni van Leeuwenhoek (1632−1723) was a draper (cloth salesman) who lived in Delft. He was not the inventor of the microscope but he was the first person who made microscopes with high magnification and a very detailed image. The instrument was very small and used a tiny lens with a diameter of not much more than a millimeter. With this he made many discoveries. The most famous one was of bacteria he found in pepper water in 1776. But the most important discovery he made two years earlier in water from a lake called the Berkelse Meer, two hours walking from Delft.

What did he discover in the Berkelse Meer?

In a letter dated September 7th 1674 he described how he set out to investigate why the water of the Berkelse Meer turned whitish during summer. He filled a little bottle and examining the water with his self-made microscope he found green tendrils, spirally wound serpent wise, made out of

interconnected little balls. And between these he found many little animals, some as small as a thousandth the size of the smallest animals he had seen on the crust of cheese.

Read a translation of the original Berkelse Meer letter here with modern annotations.

The 'whitish water with green tendrils' we can now identify as a cyanobacteria bloom with the helical colonies of *Dolichospermum*. There is no other organism that fits the description so well. The little animals are impossible to identify from the description but were probably a mix of single cellular organisms like Euglenas, ciliates, green algae and microscopic animals like rotifers. But he ends the account by explaining the smallest organisms he saw were 1/thousandth the size of what we can identify as a cheese mite. They are smaller than a millimeter. This would mean the organisms he saw were about a micron. The size range of bacteria. Although it is not possible to identify all these organisms we can be sure he saw bacteria, two years earlier than previously thought. The most important thing is that this is when microbes were discovered.

That's why we thought it would be worth celebrating this discovery. And giving a bit more attention to the Berkelse Meer letter of September 7th 1674.

A modern view of where it all started in 1674.

Where was the Berkelse Meer?

He wrote in his letter that the lake was two leagues from the city of Delft. There is a beautiful map published in 1712 by the Kruikius brothers. On this map you can see that there were actually two lakes. The west lake (Westmeer) and the East lake (Oostmeer). The lakes were drained in 1777. I superimposed the lakes on a recent satellite view from google maps and than you can see the exact

location. If you want to have an idea where this is, these are the Google Maps coordinates of the Oostmeer : 52°00'09.3"N 4°27'46.1"E (center of the Oostmeer)

There are still many questions to be answered. I am at the moment doing a study of the location and why Van Leeuwenhoek was there in the first place. The information is fragmented but I hope it will be is possible to put the pieces of the puzzle together.

A map from van Leeuwenhoek's time (1712 by the Kruikius brothers) overlaid with a Google Images aerial view.

Selected resources:

1) Van Leeuwenhoek's original letter dated Sept. 7th 1674 published in the Royal Society *Philosophical Transactions*. (Relevant entry 'About two Leagues from this Town ...” starts at the bottom of page 181 of the letter facsimile.) *More observations from Mr. Leewenhook, ...*
Phil. Trans. 1674 9, 178-182, published 1 January 1674.

2) Lens on Leeuwenhoek the definitive online resource carefully compiled and written by Douglas Anderson on Van Leeuwenhoek's life, work and publications.

3) 'The riddle of the 'green streaks'. In search of the first microorganism which Antoni van Leeuwenhoek described.' by Wim van Egmond, the Netherlands in collaboration with Frans Kouwets. *A careful study where the first microorganism reported is reassigned to Dolichospermum.*

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