Title: An historic impression of the water quality in Brussels in the late nineteenth century

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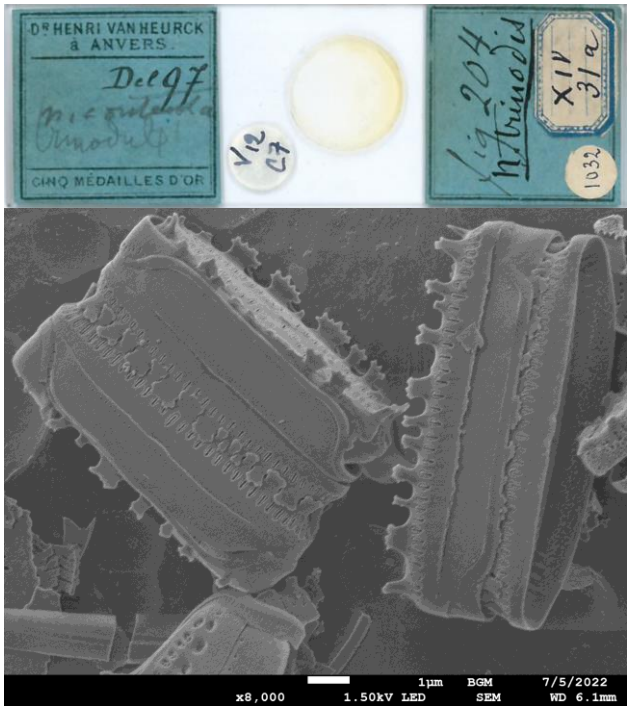
Summary: Diatoms are very powerful bio-indicators, reflecting the quality of their environment. Nowadays, they are one of the key organisms used in biological monitoring programs in the European Union. Their peculiar cell wall structure is very resistant to chemical erosion, and allows species identifications, even hundreds of years after being sampled. As each species represents a typical ecology, these historic species compositions can be used to determine the water quality from an era when modern-day equipment was not yet available.



Recently, a large historic collection, containing several hundreds of well-preserved diatom samples gathered between 1876-1878 in the northern and eastern edge of Brussels, was retrieved in Meise Botanic Garden. This collection, made by the famous Belgian botanist Charles-Henri Delogne, offers a unique view on the environmental quality of the waterbodies in the north/eastern edge before the urbanization of Brussels started. A preliminary analysis of a handful of samples already showed the presence of a very diverse diatom flora.

In the present proposal, we would like to analyse the diatom assemblages in a set of selected historic samples from Brussels. The diatoms in the samples will be investigated using light microscopy and, when needed, scanning electron microscopy techniques. The diatom assemblages in each sample will be characterized. For each sample, the water quality will be calculated based on the diatoms with special attention for several specific aspects of the water quality such as salinity, saprobity and trophic conditions.
Additionally, when the analysed waterbodies still exist nowadays, new samples can be collected to compare the diatom composition and water quality of the recent samples with the historic data.

Keywords: Brussels – water quality – microscopical algae – historic collections

Practical info: This proposal does include field work. A substantial part of the research will involve microscopical analysis. Samples will be analyzed in the Diatom, Phycology and Myxomycete Unit at Meise Botanic Garden. As most of the research will be performed in Meise Botanic Garden, disposing of a personal car is a plus.