

Some Mediterranean Diatoms

J.M. Cavanilhac - France

I have always admired amateurs who have the patience to create diatom slides. Indeed, if we want to obtain precise images allowing us to identify the species, we must prepare these by a meticulous protocol which takes time: treatment with hydrogen peroxyde, strong acids, or « burn mount » then mounting of the slides with high refractive index medium etc.... This process is especially interesting when many diatoms are collected but when we have very few specimens there is also a risk of losing them and deteriorating them during these treatments.

The aim of this cleaning is to obtain cleanest frustules to count the streaks, observe the punctuations, better see the raphes etc...

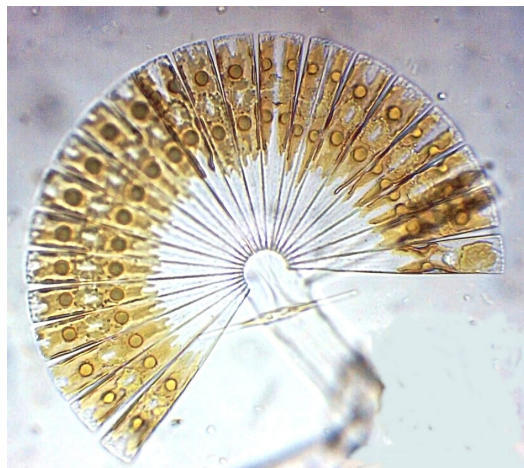
But these processes cause the loss of certain informations such as the organization of specimens in their natural environment, particularly for species occurring in colonies...or can break the fragile extensions of the frustules of certain species.

And there's also the loss of color!..a living diatom is more pleasant to look at and resembles a work of art: for example this *Coscinodiscus* and this *Pleurosigma*



We will see some diatoms from the Mediterranean sea that are not found in the same form in collections and many of which would not tolerate the treatments mentioned above.

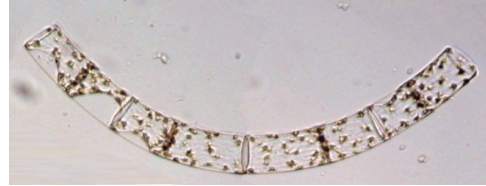
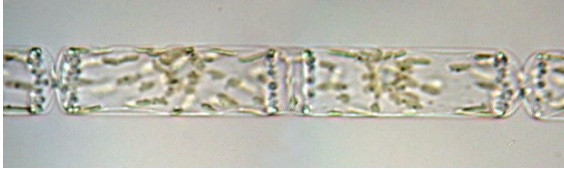
Coming back to the organization, here are some examples: *Licmophora* whose colony is in the shape of a fan.



Other species occurring in chains: *Asterionella* and *Bacteriastrum* (in box, isolated cell seen from the front):



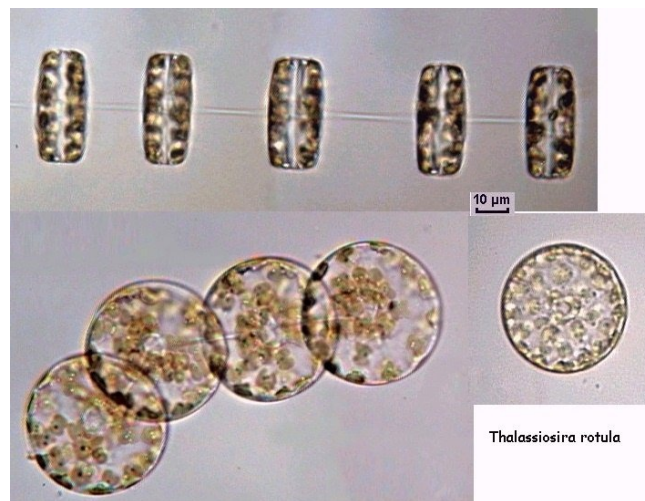
Two other species in colony: *Ceratulina* and *Eucampia* (right hand picture).



This *Chaetoceros socialis* could not be mounted on a slide in this shape !



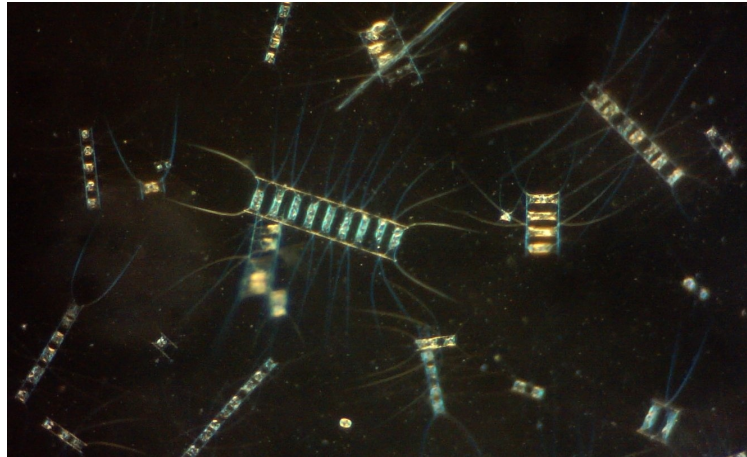
Another species: *Thalassiosira rotula* : here is the same specimen in free form and under coverslip (below).



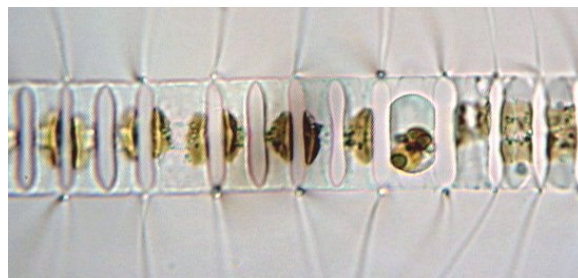
Or this *Toxarium undulatum* which seems to grow on a tree:



But other species have fragile extensions: there is a risk of disappearance of the setae (spines) which are present in *Chaetoceros* (dark field image - 2.5 x objective).

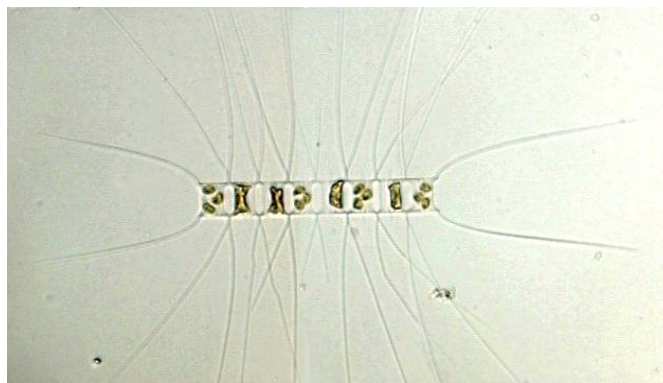


Detail of *Chaetoceros* cells (there are 400 species).

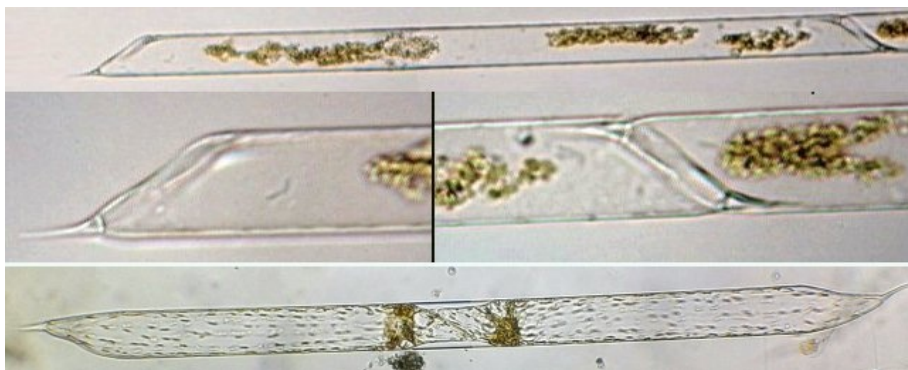


Another species of *Chaetoceros* in full view: a little more information here:

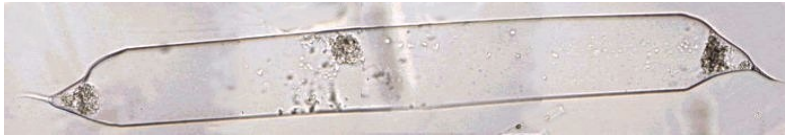
https://www.researchgate.net/publication/319628595_Diversity_and_distribution_of_the_planktonic_diatom_genus_Chaetoceros_Bacillariophyceae_in_the_Golden_Horn_Estuary_Sea_of_Marmara



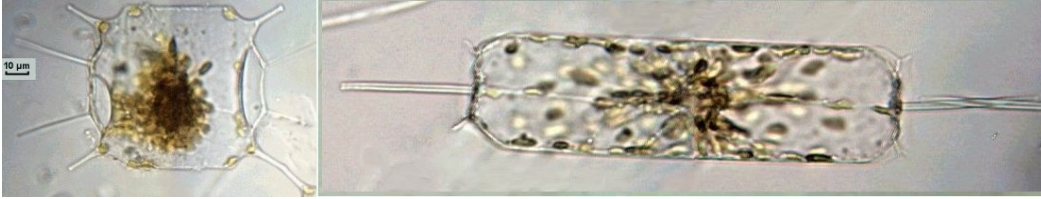
In these *Risozolenia*: after treatment we would not see how the specimens are intertwined during division and the fragile tips would probably not resist!



Do not confuse *Risozolenia* with *Proboscia truncata*:



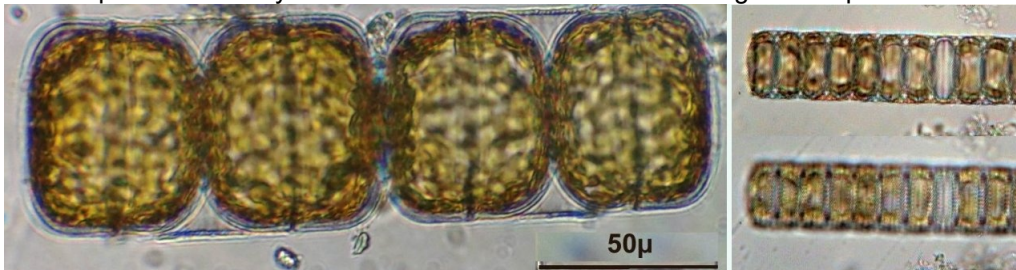
Same risk for the extensions of this *Odontella* or this *Ditylum* on the right hand picture.



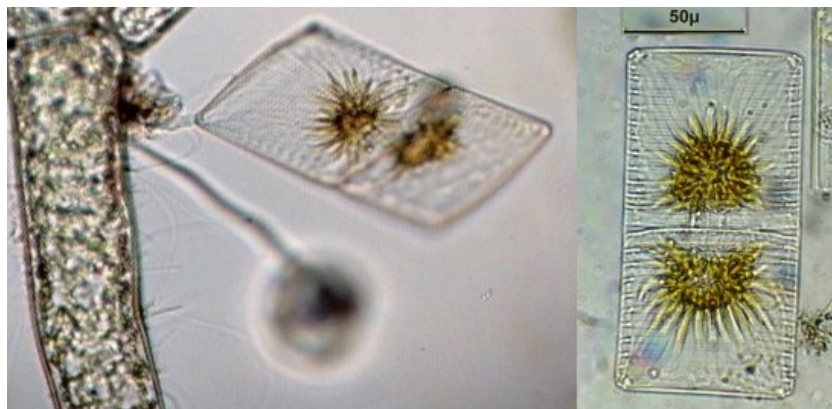
Fragile tips here too at *Cylindrothéca*:



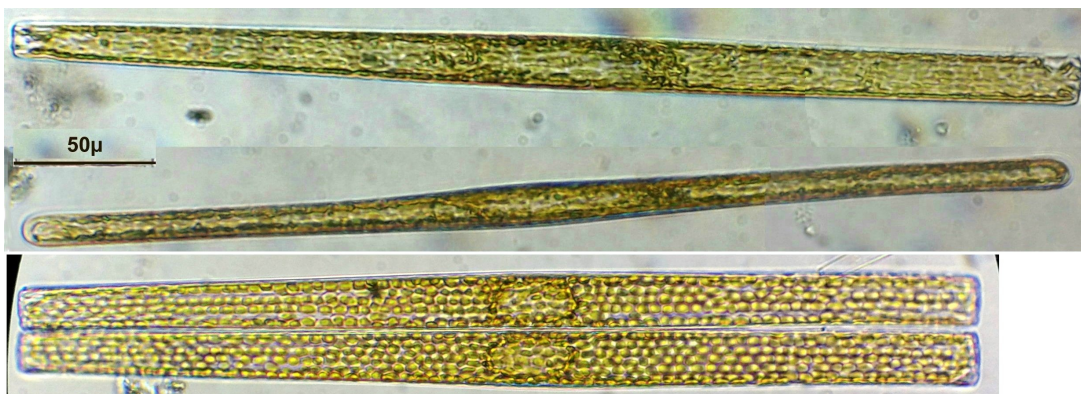
Two more species in colony *Melosira* and *Paralia sulcata* on the right hand picture.



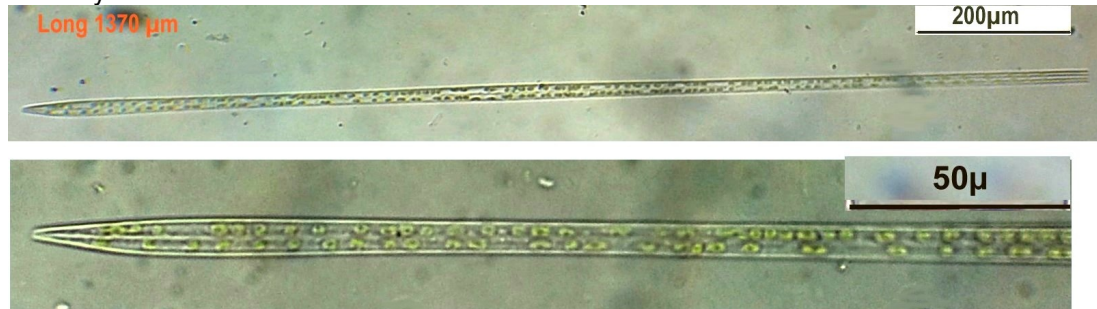
Observing fresh diatoms also allows us to see how they develop on a support: here *Striatella* being divided.



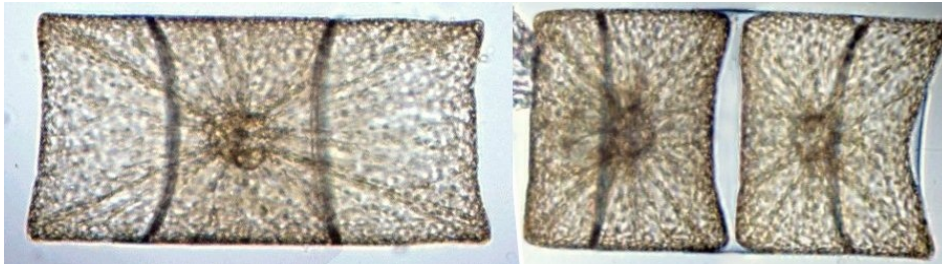
Other less common diatoms : *Ardissiona fulgens* : valvar and connective view and division.



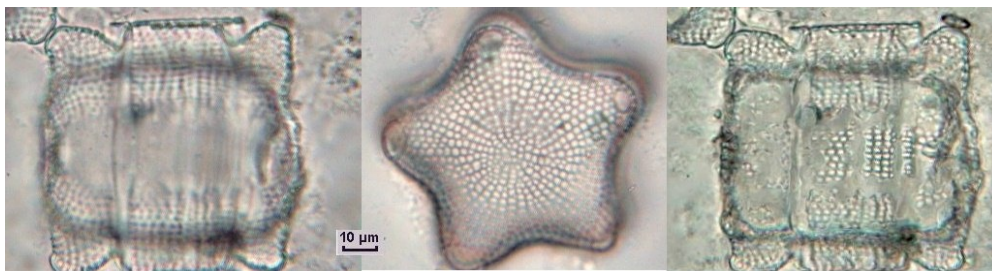
A rare and very long specimen: *Thalassiotrix*. Here too the 1.3 mm long frustules would certainly be broken. Below start of division.



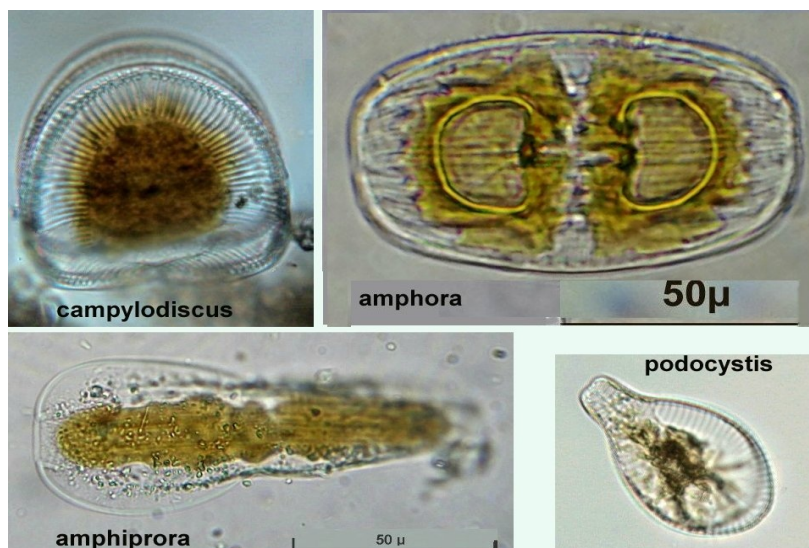
Another rare species *Biddulphia challengerii* (?) being divided.



Some rarer or complex-shaped specimens, which provide more information in their natural form without preparation: *Triceratium formosum pentacrinus* (?) the image on the right hand is a stack of 20 images.



Finally to complete, a selection of some diatoms of various shapes:



Comments to the author J.M. Cavanilhac are welcomed, email:
micromars1 AT orange DOT fr
Published in the April 2024 issue of *Micscape* magazine.