

Amazing exploration of a single plankton sample

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Often when we collect marine plankton samples, it's a bit like a fisherman who one day does not bring back any fish and another day takes lot of them!

This article wants to illustrate several things:

1 - It is not necessary to have sophisticated and / or expensive equipment (plankton net, boat ... bathyscaphe?) to collect plankton: a small jar (jam ...) is sufficient

2 - For those new to microscopy who are looking for interesting things to see and don't always have ideas when they get their first microscope, those are hours of sightings guaranteed! (This same approach is also valid in fresh water.)

3 - After observation and taking pictures (do not think that expensive equipment is needed - all the images are taken with a mobile phone (not even a smartphone!) We can then spend some exciting moments looking on web sites for the names and particularities of the found species.

What is the origin of this exceptional sample named ECH1910? (19/10 being the date)

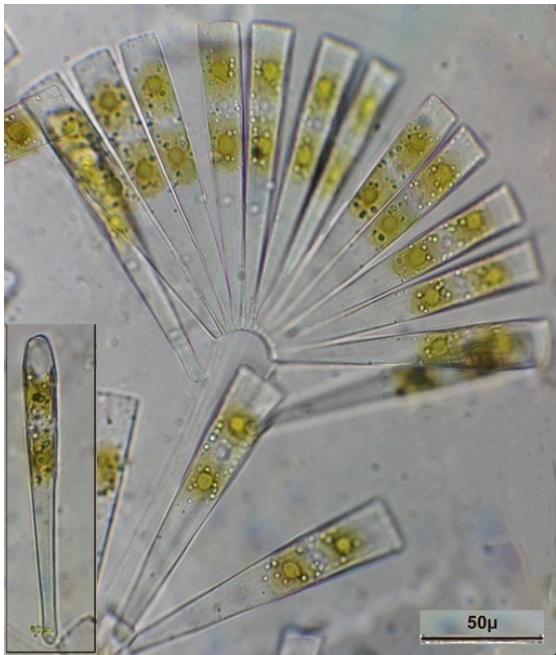
I am fortunate to live in a town located between the sea and a large salt pond (19 km x 8 km and average depth 5 m). The pond communicates with the sea by channels that cross the city and allow the exchange of water. So it was at the edge of one of these channels that this extremely rich sample was taken, on a rope soaked in water. The collection in a jam jar is obtained by scraping the rope several times with the lid of the jar and diluting the result in 20 ml of sea water. Here is the 1-meter-long line taken out of the water for the occasion: note a bush of bryozoans at the left side of the picture:



We find a lot of things already known: copepod cyclops, caprella, various common small-sized diatoms, such *Navicula*, *Cocconeis*, *Thalassionema*, *Coscinodiscus*...subjects which will not be presented here but we will see some of the less common, even rare. Note that the images re taken with a 5 Mpx cell phone held behind the ocular lens!

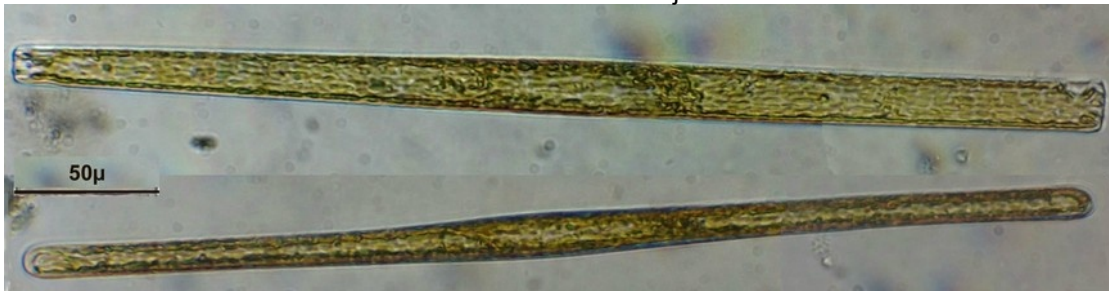
A graceful *Gyrosigma* diatom we distinguish the nucleus in the center:



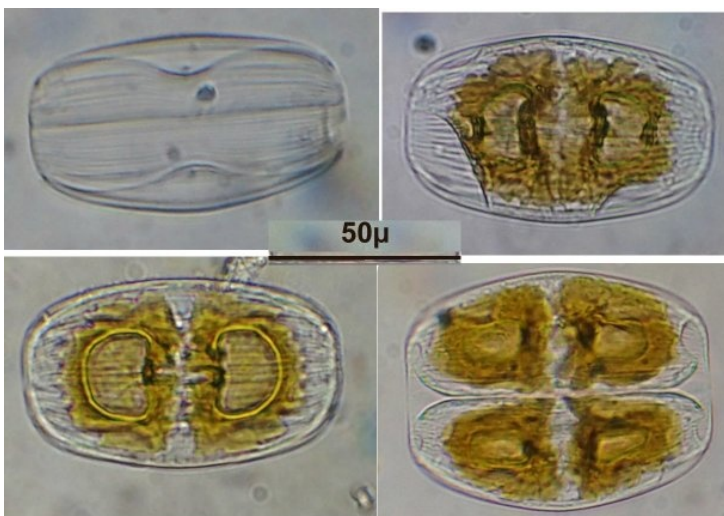


Another but colonial diatom:
Limophora flabellata: diatoms fixed on their peduncle in valve view, and lower left, inset, a diatom in connective view. The club shape explains that from a valve view it is difficult to see clearly both the center and the extremities which are not at the same level in focus

Ardissonia in valve and connective view of the same subject

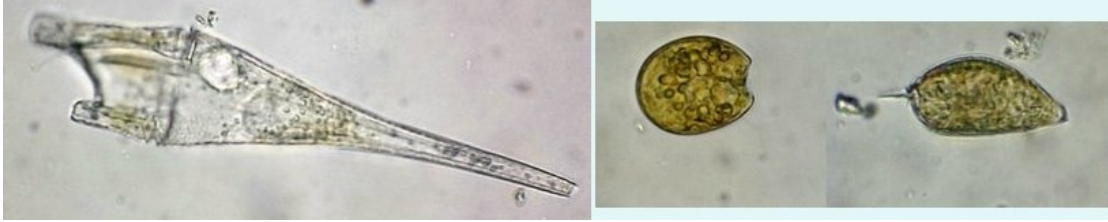


Cylindrotheca

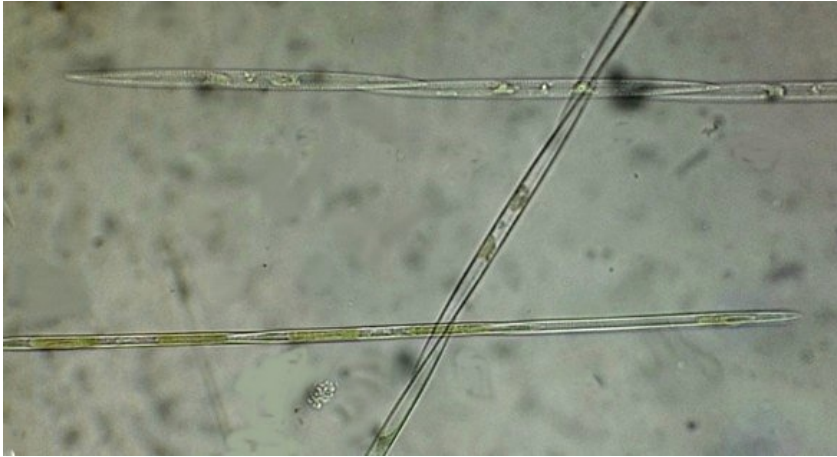


Amphora laevis: Top left empty frustule, bottom right start of division: we see the two daughter cells.

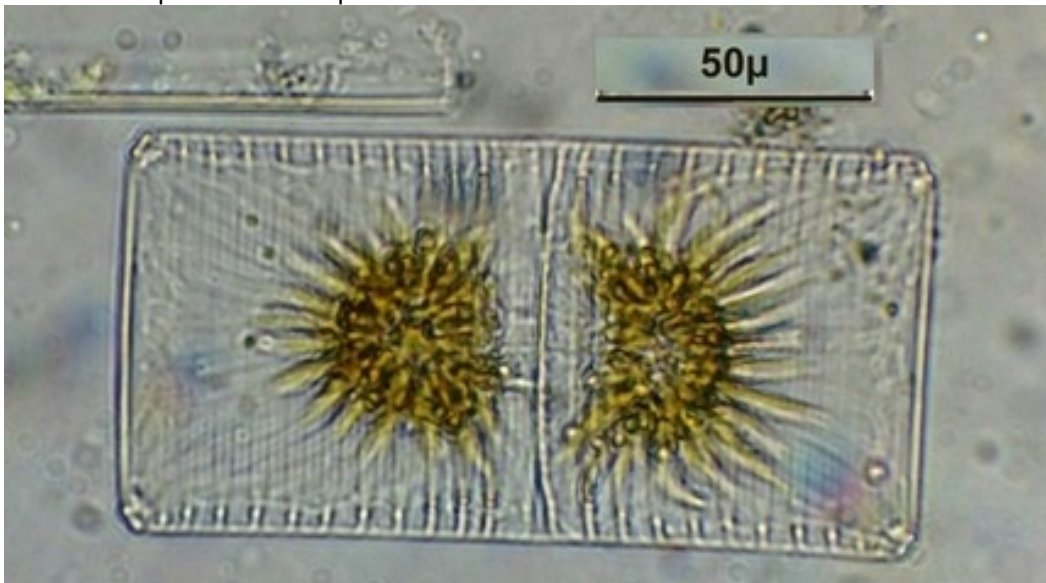
Dinoflagellates: *Ceratium* left side and two varieties of *Prorocentrum*: right picture:



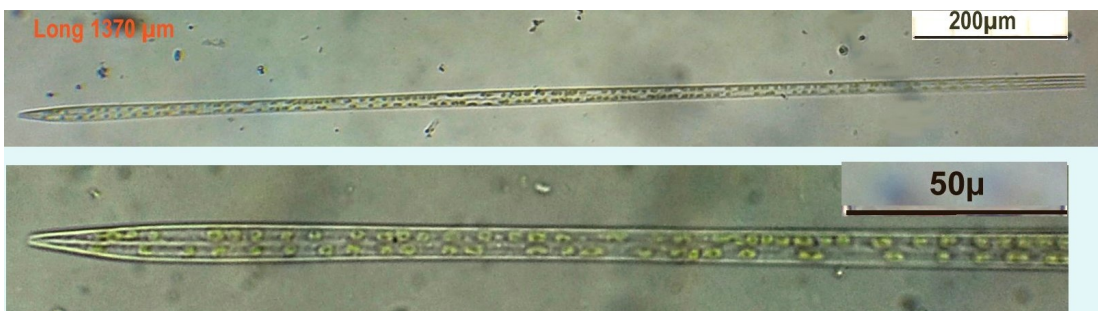
Pseudonitschia:



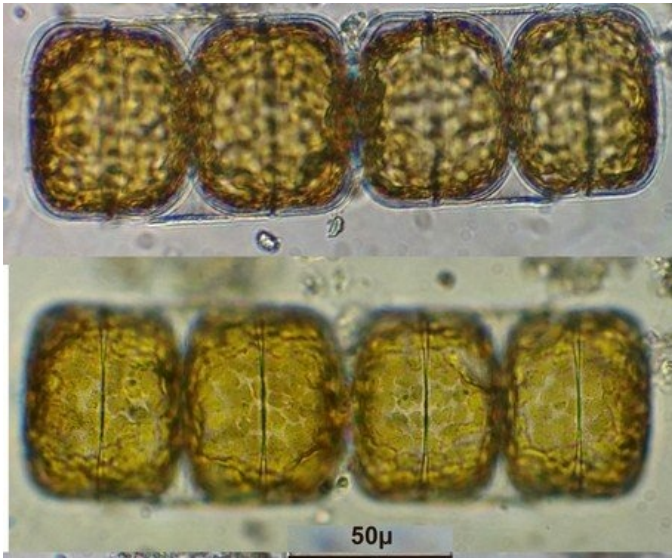
Striatella: a specimen in the process of division :



Rarer (she gave me trouble identifying it!) *Thalassothrix* 1.3 mm long!: bottom detail of the tip at the start of the division:



Another unusual diatom! *Toxorium undulatum* in connective view :

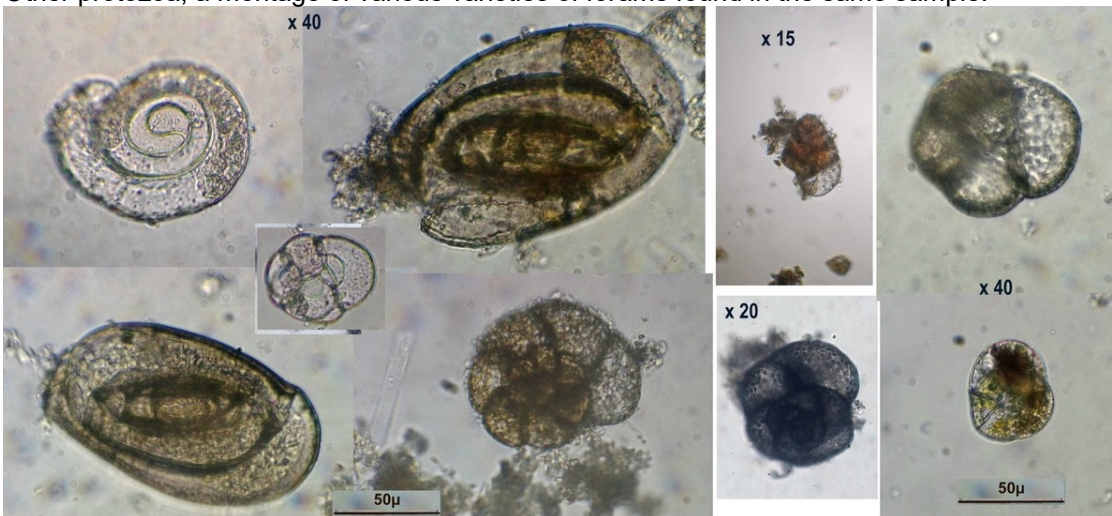


A variety of *Melosira*, two dividing cells (at two levels of focus):

Let's move on to the protozoa: *Vorticella* with two levels of focus and on the right a rare image seen from above!



Other protozoa, a montage of various varieties of forams found in the same sample!



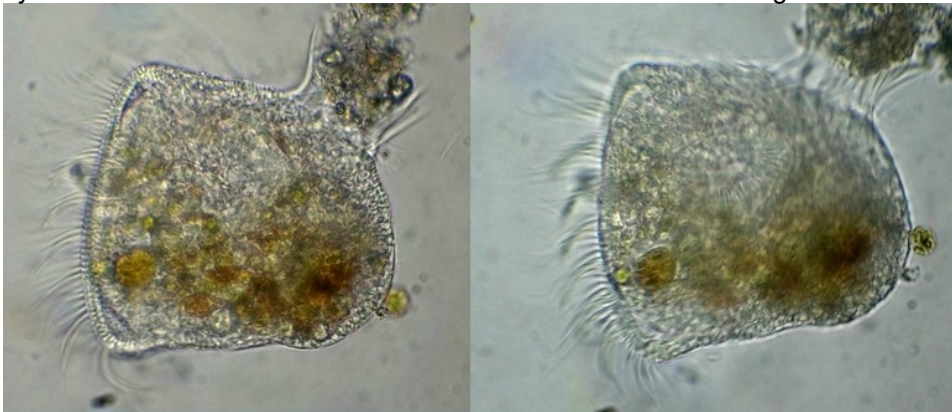
A nice *Loxophyllum*:



Another who made me look for a long time for his identification, and difficult to take picture because quite fast (therefore picture is a little blurry): *Epiclintes* (X15 objective) :



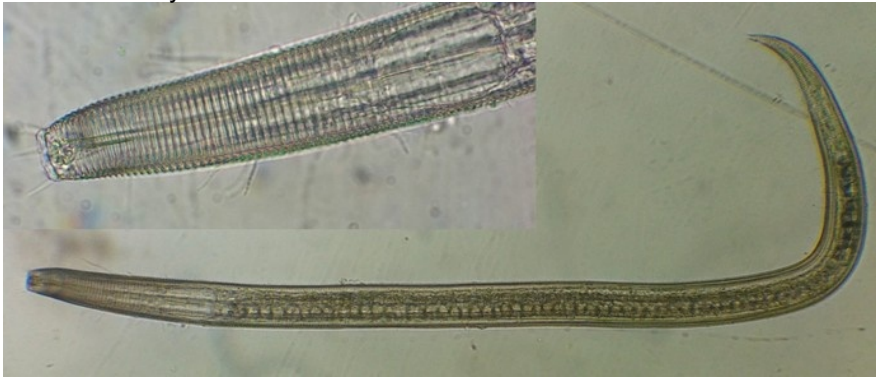
A rare protozoan difficult to identify: *Gastrocirrhus*: On the right image we can see the large cytostome which has a notch with the cilia in the center of the image :



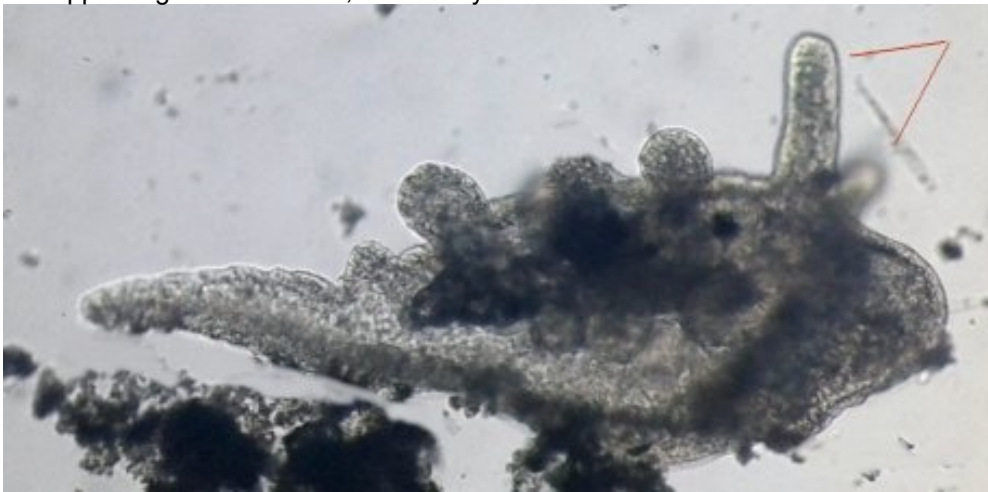
Several nematodes of which here are two varieties: details of the head showing the teeth :



Another variety of nematode with detail of the head:



Another rare subject (in this size!) A nudibranch also nicknamed "sea hare" because of the two appendages on the head, marked by the red lines:



A species of marine worm: Serpulidae, the tentacles of which can be seen emerging from the calcareous tube that it builds; inset detail of the conical stopper which is used to seal the tube. Picture taken X10 on inverted microscope :

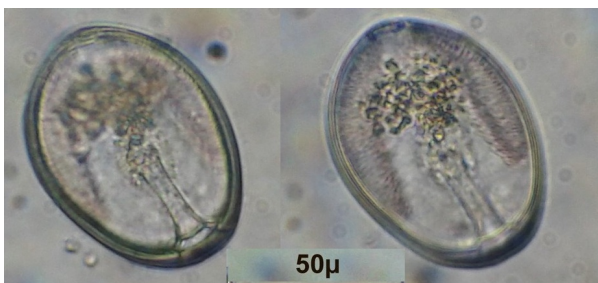


Obelia polyp of jellyfish: we see the tentacles covered with cnidocytes used for catching prey, the mouth is at their base :

I still have more images of this sample to show but they are less original! I will close by emphasizing once again that a single sample like this can provide hours of observations.

Most X40 images are taken without coverslip, and specimens are collected in the jar after observation.

The last images below, show moreover specimens returned to the jar and re-found, but I stumble on their identification ... I was thinking of a testate amoeba, but the ornamentation, or the opening (?) leaves me perplexed .. Top band is the same specimen that I moved by blowing on the slide, bottom band are 2 different specimens...



Another unknown subject, images with two levels of focus, which also evokes an amoeba?

If a *Micscape* reader has an idea, you could email me!

To conclude, no longer say "what can I see with my microscope?!" We can do the same kind of observation on a freshwater sample, on the edges of a basin, a river, a pond, an old washhouse, immersed branches ... by taking some precautions to avoid contamination if the water is a little stagnant (disposable gloves, separate storage of samples, etc.) and in addition, many of these subjects are mobile, which adds to their interest mainly for children!

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