COLLECTING PLANKTON IN THE FALL

by J.M CAVANIHAC – France

Sometimes, microscopists are located in big towns and they think they are too far from wildlife to find interesting subjects. This article illustrates examples of things easy to collect in a (Big!) town (here it is Montpellier in the South of France with more than 400 000 inhabitants).

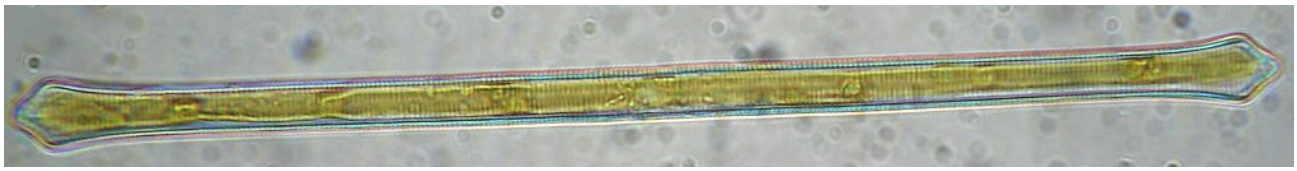
I take samples at the beginning of the Fall but at two different locations and 2 years in between collecting at each of the locations.

All pictures were taken with an old Wild M20 and 12 Megapixels Pentax camera located above a wide field eyepiece.

First shown is the oldest observation and a quick look on a satellite image shows the sampling site in the heart of the city! An arrow shows the exact location. The little creek has edges made with concrete! But a little space is covered with grass and some trees …

But the microscopic world can fit into only a 50 cm3 vial!:

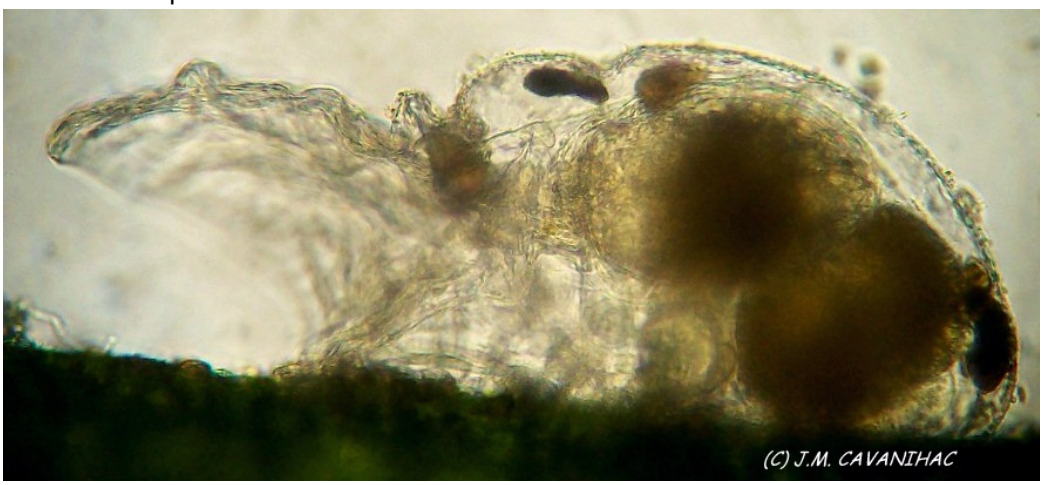
Many diatoms are present, but the most impressive by its length is *Fragillaria capitata*:



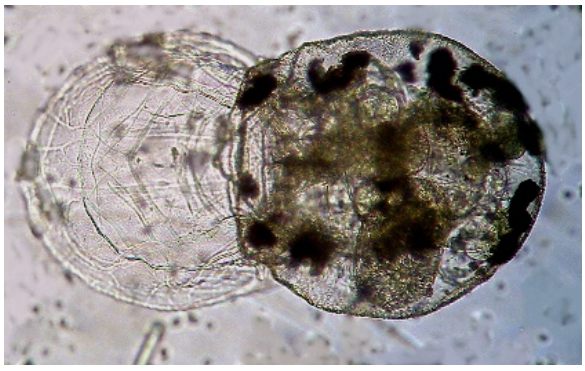
Numerous *Bacillaria paradoxa* are moving and making strange patterns, but I like especially to observe rotifers and the sample offers some species a little less common: probably (I am not sure!) *Dissotrocha* with a sort of spines on its body:

Another rotifer, often difficult to see between algae: *Ptygura*

But …. It has a frightening neighbor: I keep this best one for the end: *Cupelopagis vorax* which is in side view (rare picture!) and you can observe at left side of the picture the redoubtable organ which falls on the prey in the same manner that you capture a fly under a glass …The prey being mainly another small species of rotifer!



Another picture in top view (not the same specimen, nor at the same scale)



After these little beasts, a look toward the protist kingdom:

Desmids: *Pleurotaenium*

- *Scenedesmus :*

- *Cosmarium :*

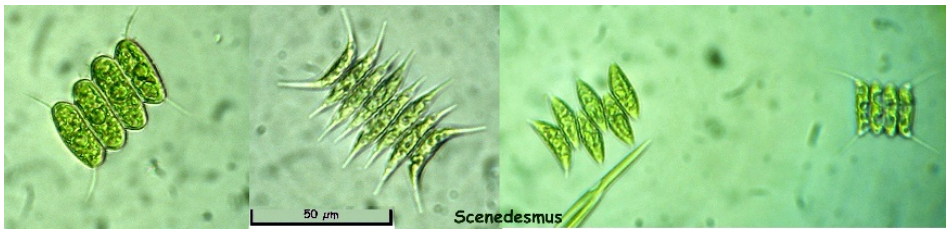
Dynobrium :

Protozoans are rare but some beautiful stentors are hidden between sediments:

Here was the oldest observation. Two years later, and near Montpellier but a couple of miles outside the town, a little river flows quietly toward the sea: here edges appear…wilder:

The first interesting critter (you can see with naked eyes glued on the wall of the jar or sometimes floating at water surface) is freshwater hydra, and two species was present, one of them being a green hydra (here with a bud): Note in the right upper corner, details of cnidocysts (circular) located on the arms. The «hairs» which act as a trigger are clearly seen at the top of this picture.

Sample contains some species of *Scenedesmus* :



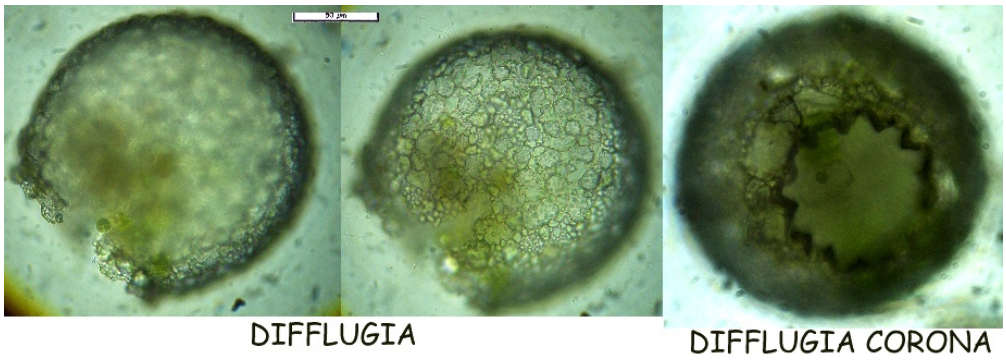
Some species of *Closterium* too:

But this time, *Cosmarium* are rarely encountered: (the water contains a lot of calcium carbonate, which

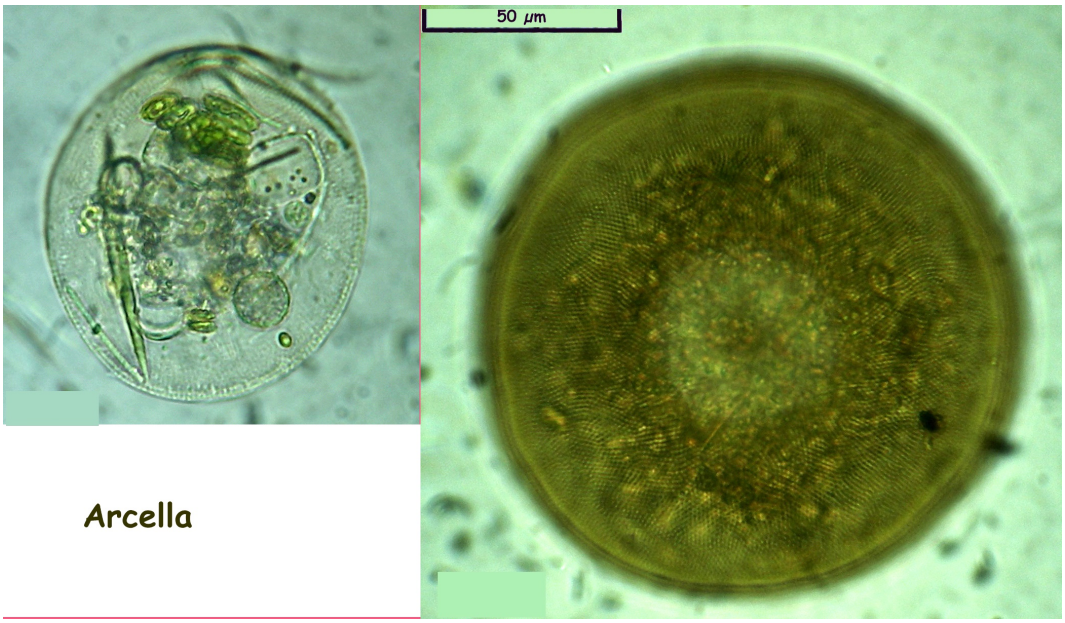
may be the explanation).

Volvocales: only ONE *Pleodorina* (right side) and many *Coleastrum* (left side) :

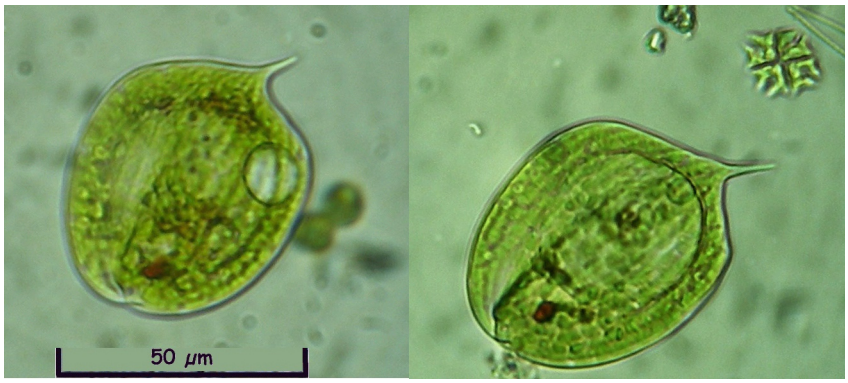
Protozoans are rare but some days after sampling, *Thecamoeba* were present: the theca are made with little particles of minerals clearly seen with two levels of focus on the *Difflugia* picture. At the right side picture note the pretty aperture of *Difflugia corona* .



Another common amoeba is *Arcella*. It seems that the theca becomes more orange with time and thicker too. At left side (same scale) is a young *Arcella*.



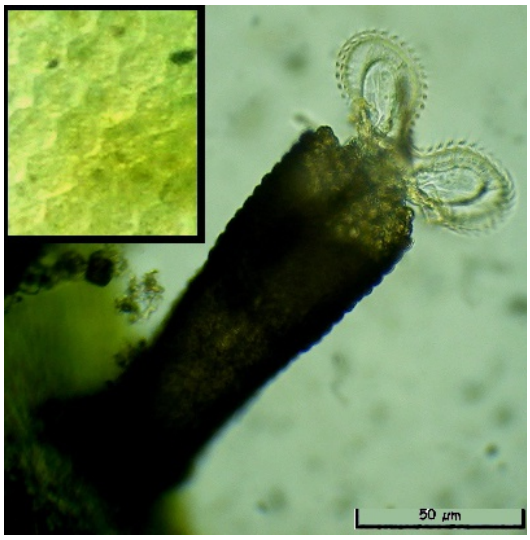
Very few euglena but some *Phacus* :



I have some doubts on the identity of the organisms below. Maybe (from left to right) (1) a dinoflagellate *Glenodium* (?), (2) *Selenastrum* (?) , (3) *Kirchneriella* (?), (4) *Ankistrodesmus* (?)

Below: may be *Monoraphidium* .

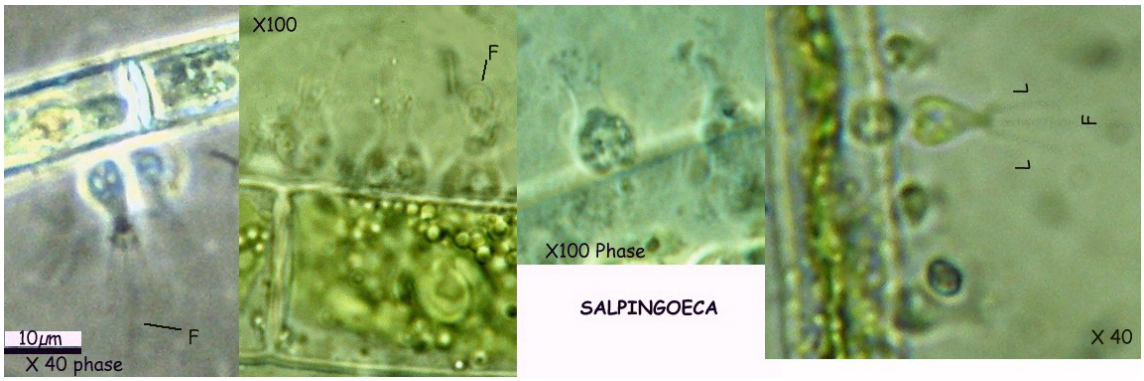
On algae I find this rotifer *Floscularia* with detail of its lorica made of fecal pellets.



When you are looking into the sampling jar, copepods are easy to identify because they swim in a jerky manner. At left side of picture, a female copepod (probably *Cyclops* species) with eggs and at right side picture, a copepod nauplius.

On the same alga as the *Ptygura* was this water bear:

Finally, on *Spirogyra* I have found these groups of *Salpingoeca* but very difficult to see. I have tried taking some pictures with x40 phase objective, x100 bright field, x100 phase, and x40 bright field. You can just see the sides of conical lorica (L) and flagellum (F) in the center.



**** Note : lighting is made with a 1 watt white led. Picture taken with an X100 oil objective (Phase objective used with bright field) is sufficiently bright.***

To conclude, don't hesitate to visit such places even in a big town. The same applies to fountains or artificial ponds … Freshwater creatures are easy subjects to observe without any difficulties to prepare them. Just a precaution: transfer your sample into a large jar to oxygenate well the critters and put it in an illuminated place but not directly toward the sun.

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