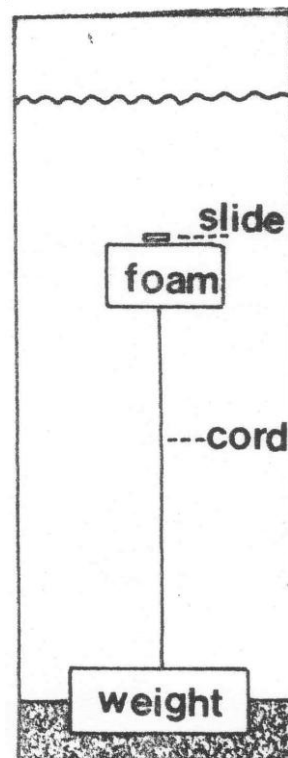


PROBLEM

To examine the algal flora of various lakes or rivers and to look at the growth at different depths, or at different times of the year etc.

INFORMATION

1. The algae present in lakes depends on whether the water is fresh or salty and whether it is poor in nutrients or rich in nutrients.
2. You can grow cultures of algae on glass slides tied to floats at different depths as shown in the diagram. Some people like to use more 'natural' substrates like autoclaved oyster shells etc. but these are harder to examine.
3. Leave slides in position 1-2 weeks then examine. Slides should be transported back to the lab. in water without unnecessary shaking which will dislodge the algae. Examine as soon as possible. Slides will keep o.k. in the refrigerator for one to two days. Wipe undersurface, add a coverslip to the top and examine under the microscope. About five transverse scans of the slide will usually be sufficient. Adjust time of exposure and number of scans in initial experiments. Score type of algae present and their relative abundance as this will give an indication of whether the lake is rich or poor in nutrients.
4. If you want to examine the succession of algae colonizing a slide you might have to examine the slide wet without a coverslip and return it to the lake as soon as possible.
5. Similar experiments can be done in the sea but it is more difficult to find your material again.

DESIGN OF EXPERIMENT

1. Think clearly about the comparisons you want to make; is it between depths in the one lake; at similar depths in different lakes; between areas with different flow rates; upstream and downstream from effluent entry; between different times of the year in the same lake? It is better to do one or two comparisons well, than lots badly.
2. If you want to do five replicates at a certain depth – will you put five slides on the same float, or set up five different floats in various places?
3. How will you relocate your material?
4. What other features of the water could you measure?

REFERENCES

- Boney, A.D. (1975). *Phytoplankton* (studies in Biology No. 52) (Edward Arnold : London) (the algae you will grow are periphyton not phytoplankton.)
- Belcher, H. and Swale, E. (1976). *A Beginners Guide to Freshwater Algae* (Institute of Terrestrial Ecology NERC London HMSO).
- Nuffield Foundation (1966). *Keys to small organisms in soil, litter and water troughs* (Longmans : London).

Prescott, G.W. (1954). How to Know the Freshwater Algae (W. Brown : Dubuque) (not as easy to use as you might hope).