

A simple device for obtaining contiguous peat samples of small volume for pollen analysis

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Summary

A device for taking very closely-spaced samples from cores for pollen analysis is described and illustrated.

Introduction

In pollen analysis, close sampling of peat cores is often necessary where peat accretion is slow, where rapid changes in pollen influx have occurred, or where vegetation changes need to be analysed with high temporal resolution.

Where the sediment is very fibrous, this kind of sampling may prove to be quite tricky, and a simple device which facilitates such sampling, and which is cheap and easily made, is described here. This device has been used very successfully by several workers in the author's Department.

Description of the sampler

A number of sheets of perspex (5.0 x 2.5 x 0.2 cm), corresponding to the number of contiguous samples required, are sandwiched together with a larger block of perspex (5.0 x 2.5 x 1.0 cm) placed at each end. Thus, in the example illustrated here, samples of 0.2 cm thickness are obtained.

Two holes are drilled through the whole sandwich and a threaded bolt inserted into each 'tunnel' thus created. A double-edged razor blade is placed between each piece of perspex, each one resting on the threaded bolt. The whole structure is then secured by four nuts, one on each end of each bolt, as shown in Fig. 26.

Method of use

The sampler is held perpendicular to the peat face and then pushed into the sediment. The peat becomes wedged into the spaces between the razor blades and is easily removed with a small spatula or scalpel, without any need for the device being dismantled.

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Advantages of the sampler

- (1) The thickness of perspex can be varied so that the individual peat samples can be of any volume required.
- (2) Sample volume can be doubled, trebled, etc., simply by omitting some of the razor blades.
- (3) The sharpness of the blades enables the analyst to sample fibrous material relatively accurately.
- (4) A reasonably accurate calculation of the volume of the peat sample can be made very simply since the length of the blade, the amount of blade protruding, and the distance between the blades are easily measured.
- (5) The sampler is effective in both organic and mineral sediments and may be used in the field or the laboratory.

Discussion

The device has proved to be remarkably effective in obtaining contiguous samples of almost identical volume for any given core of sediment. This consistency has been demonstrated by estimation of both the wet and dry weights of samples after their removal from between the razor blades and, even in fibrous peat, the replication of sample mass was good. Indeed, it was in deposits rich in monocotyledonous leaves and roots that the sampler proved its worth; it was able to slice through the fibres and so avoid the disruption of the peat that so commonly occurs during conventional sampling.

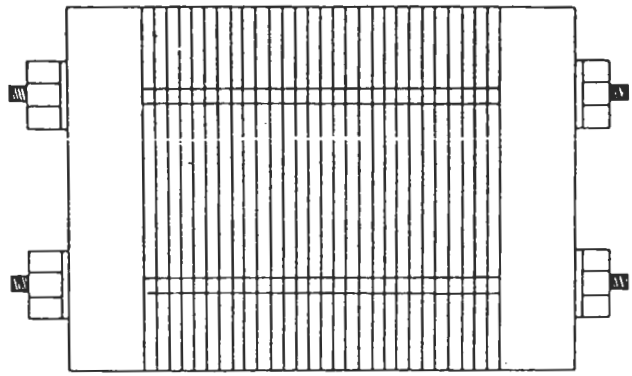
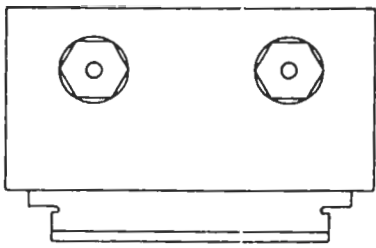
In spite of there having been no mishap so far amongst the numerous undergraduates who have used the sampler, the device is potentially dangerous and should be kept in some sort of protective container (such as a small box) when not in use.

Acknowledgements

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Figure 26 (opposite). Diagrams showing the structure and construction of the peat sampler. Above, left: end view; above, right: top view; centre: side view; below: partly assembled.



Threaded bolt

Intermediate perspex block

Nut

Perspex end block

Razor blade

