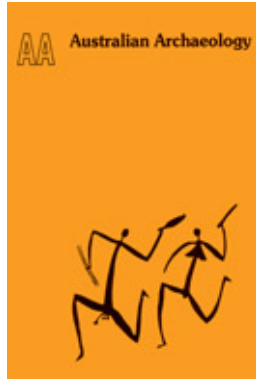


Australian Archaeology



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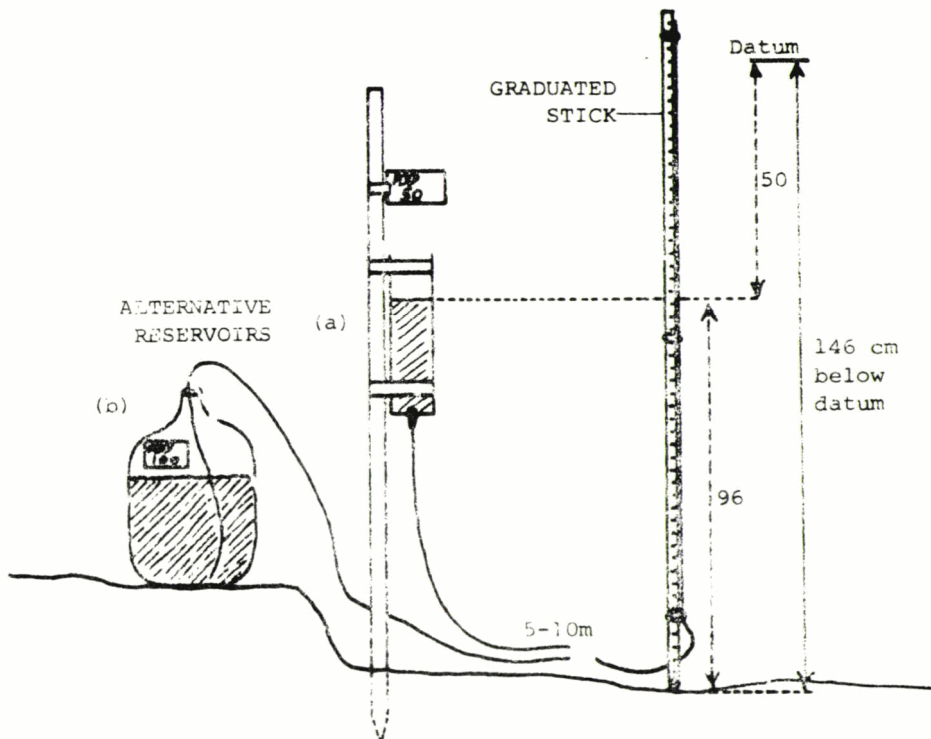
Johnson, I. 1978. Water levelling - A suggestion. 'Australian Archaeology', no.8, 172-173.

WATER LEVELLING - A SUGGESTION

Ian Johnson

Water levelling is a simple, rapid and reliable way of levelling on archaeological sites, yet it seems to be somewhat under-used in favour of other methods such as dumpy or line levels. This is probably because water levels tend to be do-it-yourself contraptions, requiring some experimentation. This note is intended to provide details of an easily constructed water level which has proved both convenient and reliable in use.

The water at one end of the tube is maintained at a (more or less) constant level by a reservoir of much greater diameter than the levelling tube, leaving the person using the device with a free hand for taking notes. The tube may either be attached to the bottom of the reservoir (a) or work as a siphon (b). The reservoir is set up above the level of any finds or features to be recorded, and can be adjusted to a convenient datum level, either by pushing the supporting pole further into the ground, or by moving the reservoir to higher or lower ground, depending on the reservoir type. Levels below the site datum are simply calculated by adding the reservoir level to the reading on the graduated stick (graduated from 0 at the bottom upwards). Several tubes can be attached to a single reservoir provided it is of reasonable diameter (20 cm or more).



Construction details

Reservoir: type (a) can be made from a plastic 'spaghetti container', attached to a support, such as a ranging pole, with masking tape. The pointed end of a biro tube is glued into a hole made in the bottom of the container (if the hole is made with a hot soldering iron the biro tube can be fused in position). The levelling tube can then be pushed onto the point. Type (b) can be made from a 5 litre orange juice container, a wine flagon, a bucket, or any larger container.

Levelling tubes: 5-10 m of 4 mm internal diameter clear polythene tubing. Longer lengths can be used but will progressively slow down the response, i.e. the speed with which the water level in the tube settles down.

Liquid: water with the addition of sufficient dye to make the level easily read. Dark colour clothing dyes are best. The addition of detergent or kerosene may speed the response of the device, but in practice the present arrangement was quite fast enough, and the addition of detergent tended to provoke the formation of air bubbles.

Graduated stick: up to 2 m of rectangular section wood or aluminium rod; 19 x 8 mm proved convenient in wood, but a thinner aluminium rod might be usable. The tube is attached to the rod with transparent tape, and the rod can be graduated directly with a fine point marker pen.

The open end of the tube must be kept above the level of the water in the reservoir. The graduated stick must therefore be stood upright, e.g. in a bucket, when not in use. A mark on the reservoir indicating the correct water level serves as a quick check that no significant amount of water has been lost (or gained).

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