Papers in Systematics & Biological Diversity   Papers in the Biological Sciences

A Single Dendrometer

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§ 34. **A Simple Dendrometer.**—This instrument is constructed essentially as follows : A tube, t, about two inches in diameter, and nearly or quite a foot in length, is supported in a vertical position by two pins, pp, near its upper end; and these pins rest upon a ring, r, f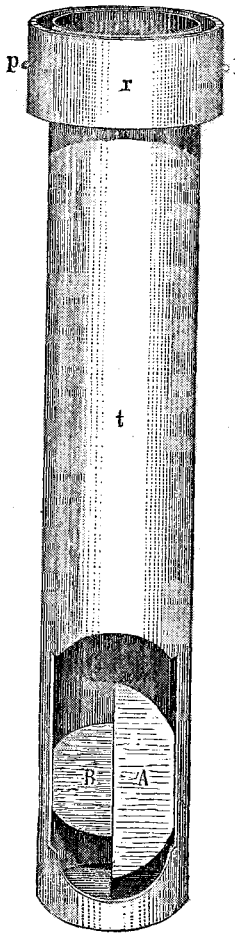orming a simple gimbal which allows the tube by its own weight to assume an exactly vertical position. In the lower end of the tube two mirrors, A and B, are placed side by side, each occupying one half of the section of the diameter of the tube. One of these mirrors (A) is inclined at an angle of 45° to the horizon when the tube is in a vertical position, and the other (B) has an inclination of $22\frac{1}{2}$°. One side of the tube is properly cut away (as shown in the accompanying figures) so that when it is held vertically the mirror A shall transmit to the eye (at c) at the top of the tube, the horizontal ray a, and the mirror B, the ray b, which makes an angle of 45° with the horizontal.

The method of using the instrument is simple. By holding the supporting ring, r, in the hand in the proper position, the centre of
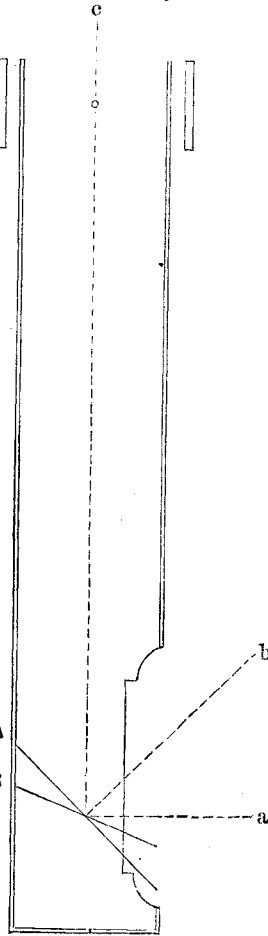

Fig. I.

Fig. 2.

the mirror A can easily be brought into the same horizontal line as the base of the tree (represented by a) ; then, by moving towards or away from the tree, its apex (represented by b) may be brought into view as it is reflected to the eye (c) from the mirror B. When both apex and base of the tree are seen at the same instant, the distance from the instrument to the tree along the horizontal line $x-a$ is equal to the

altitude of the tree.* A simple measurement of this horizontal, by
pacing the distance, or by other means, thus gives the height of the tree.

Fig. 1, front view of the instrument.   Fig. 2, vertical section of
the same, side view.

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* The letter x, omitted by the engraver, is supposed to be at the point of inter-
section of the lines a, b and c,