

TRANSACTIONS.

On a SECTION and a MOUNTING INSTRUMENT.

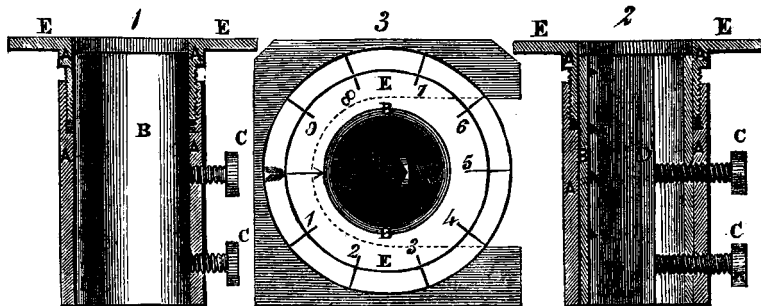
By MR. JAMES SMITH.

(Read June 29th, 1859.)

The Section Instrument.

DRAWING No. 1 represents a partial section of the instrument, No. 2 a full section, and No. 3 the top of it.

As shown in sketches No. 1 and 2, it consists of an outer tube (A), the upper part of which screws into the lower, and has at the top a flat circular plate (E, No. 3), which forms the cutting-table. Firmly fixed to the lower part of the tube A, and extending throughout its whole length, is the inner



tube B, which forms, with the moveable bar D, a holding for the specimen to be cut, while, at the same time, it supports the upper part of the tube A, and gives it greater firmness in screwing up and down. The bar D moving backwards and forwards in the tube by means of the screws CC, serves, in conjunction with the points FF, to fix the specimen to be cut, which is effected as follows:

The cutting-surface E being slightly screwed up, as shown in the drawing, and the bar D being drawn back a sufficient distance, the specimen to be cut is placed in the instrument, and firmly fixed by turning the screws CC; it is then cut level

with the surface by a proper knife or chisel, and the table being screwed down one or more divisions (as shown in drawing No. 3), a section is cut, which, if found of sufficient thinness, a number of sections may be cut by continuing to turn the table down a similar number of divisions, until it will screw no further, when the table must be again screwed up and the wood loosened and raised, if more sections are required. The principal points of the instrument are :

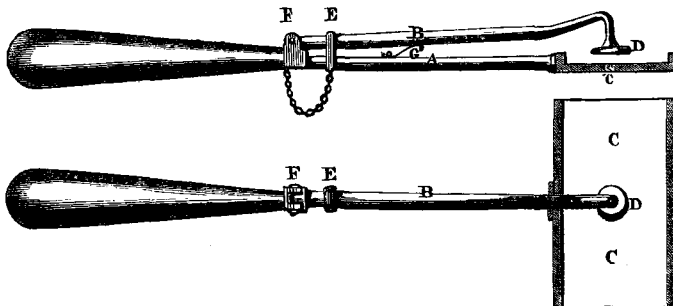
1st. Its portability; the tube being about two and a half inches long by one inch in diameter.

2d. That the specimen to be cut is fixed once for all, and the cutting-surface screwed down to it, a feature that will render it peculiarly applicable to the cutting of soft substances.

3d. The ease with which a number of sections may be cut without disturbing the specimen when once properly fixed, while the size of the tube, and the facility with which it can be adapted to specimens of various diameters, enable the operator to get sections of stems of plants, &c., whole. In cutting sections of hard woods, which require considerable purchase, it is proposed to place the instrument in a semi-circular opening in the edge of the working-table, so that the flat plate or cutting-surface may rest upon it, and the strain thrown on the table, as represented in drawing No. 3. When cutting soft substances it can be held in the hand.

The Mounting Instrument.

This instrument, as shown in the drawings, consists of a brass rod (A), with a handle at the one end, while the other terminates in a flat brass plate (c), one inch wide by two or three long, slightly turned up at the sides for the purpose of



holding the slide; another arm (B) is joined by a hinge to the first at r, and terminates in a small disc (D), which comes

down in the centre of the flat plate, a spring (g) keeps the two arms apart, and, where permanent pressure is required, a loose ring (e) (or, if found more convenient, a small screw) keeps the upper arm in a fixed position by sliding it up as far as it will go.

To use the instrument the object to be mounted is placed dry on the glass slide, which is put in the plate or holder, and a thin glass cover being placed on it the upper arm is pressed down, bringing the small disc upon the thin glass cover and holding it in its place during the process of mounting; a sufficient quantity of balsam being put at the side of the cover, the instrument is held over the flame of a lamp and sufficient heat applied to melt the balsam, which runs in by capillary attraction.

The advantages offered by this process being the facility with which specimens can be mounted, as well as that objects of great delicacy can be placed on dry, and the balsam then run in without in any way disturbing their several parts; a slight extra pressure also frequently serves to disperse the air-bubbles entirely from the specimen.

In the mounting of Marine Algæ, &c., by this process, with a gelatine medium (Deane's), the specimen can be laid on the glass with a small quantity of water, and properly arranged in it, the glass cover being then put on, and a sufficient quantity of the medium placed at the side of it; when heat is applied, the gelatine drives out the water and leaves the object mounted.
