

stout rubber tubing makes the connection between the air-pump and the specimen tube.

As to the efficiency of the apparatus the vacuum produced in the smaller pump (Fig. 1) after a few strokes, is of the order of about 10 to 12 cm. ; in the universal one (Fig. 2) it is of a higher order. The vacuum produced helps the sinking of the material in two ways:—(1) by expelling the air between the surface of the fixing fluid and the uneven surface of the material, and thus helping it to “get wet” soon; and (2) by extracting the enclosed air within the material itself, thus making it “heavier” and readier to sink in the fixing fluid. It is our common experience that materials sink in the fixing fluid within a minute of the working of the pump.

Figure 3 shows a photomicrograph of a stage in meiotic mitosis in the microsporangogenesis of *Hibiscus mutabilis*—all the buds of

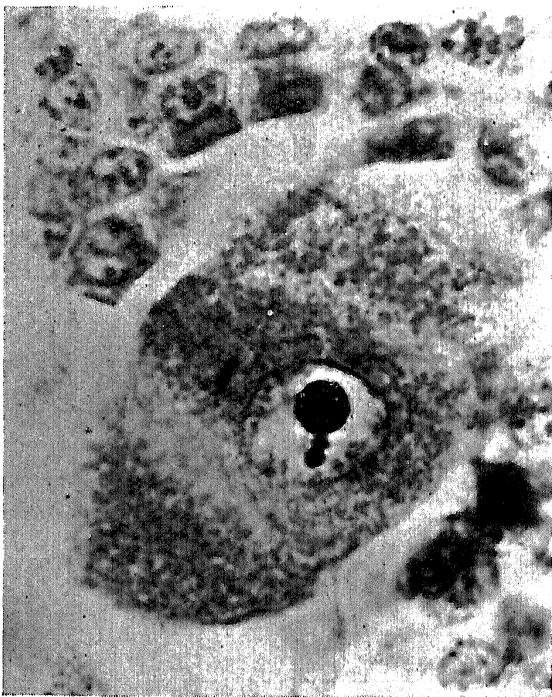


Fig. 3.

Photomicrograph of a pollen mother cell showing the fragmentation of the nucleolar bud in the nucleus.

which were fixed in the field with the help of these pumps. The detailed investigation of this material will form a separate paper.

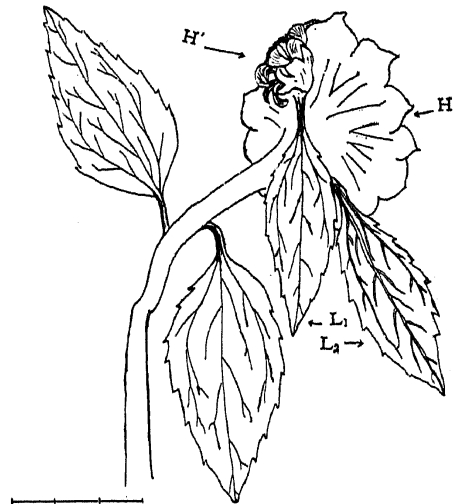
ROBINDRA MOHON DATTA.

Department of Botany,  
Presidency College, Calcutta,  
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An Interesting Case of the Insertion of the  
“Leaves and Head” in *Helianthus annus*,  
Linn.

It is a point of every-day observation that cauline leaves arise at the nodes of a stem and the radicle leaves appear to grow directly from the root or the roots, but are borne by the reduced stem. A slight deviation from this usual mode of insertion has been observed recently in *Helianthus annus* under cultivation.

The plant is about two feet in height and bears at the top a small head-inflorescence (see text-fig. H). The plants of this species usually grow to six feet and



*Helianthus annus*, Linn.

bear a few axillary and terminal heads. In the case under consideration, the growth is stunted. The head mentioned above is drooping towards one side as it is sufficiently old. The lower part of the involucre, therefore, is exposed towards the sky and bears two foliage leaves ( $L_1$  &  $L_2$ ) opposite to one another. In the axil of one of these, is another smaller inflorescence ( $H'$ ) just opening. The point of insertion is fairly above the peduncle, which usually bears the leaves. Seeing that the flattened portion of the peduncle on which the leaves and the inflorescences are growing is a modification of the stem, there is certainly no point of wonder in the above phenomenon; but the fact that it is of unusual occurrence is a point of interest.

S. A. PARANDEKAR.

Biology Department,  
Rajaram College,  
Kolhapur,  
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