

garden, field and grass soils were taken and portions of these dissolved in Detmer and Bristol culture solutions. The flasks were put in the green house and after about a fortnight onwards different forms of Algæ which appeared were studied and recorded. The material was fixed in 4 per cent. formalin in test tubes for future work. Permanent slides were made in pure glycerine.

*Myxophyceæ*: A number of species of *Oscillatoria* and *Lynbygia* have been described. One species of *Oscillatoria* seems to be new.

*Chlorophyceæ*: The interesting forms recorded here are a species of *Pandorina* and *Phacotus*. Both these two genera have not been reported before from the soil as far as it has been possible to ascertain from the literature.

*Euglenaceæ*: Here a new form from the soil, namely, *Trachelomonas* has been recorded.

Altogether three new genera, namely, *Pandorina*, *Phacotus* and *Trachelomonas* have been recorded from the soil and which have not been reported before. Full details of this work will appear in due course and intensive study of soil Algæ is in progress.

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#### A NOTE ON THE DEVELOPMENT OF THE FEMALE GAMETOPHYTE IN *ABROMA AUGUSTA* L. AND *PENTAPETES PHOENICEA* L.

*Abroma augusta* and *Pentapetes phœnicea* are both members of the family Sterculiaceæ. The former is commonly cultivated for its medicinal importance while the latter grows as weed in Bengal during the monsoon.

Literature on the embryology of the family Sterculiaceæ is meagre. Sharma<sup>1</sup> has referred to the relevant literature on the subject and recorded his observations on gametogenesis in three species in an earlier issue of this *Journal*.

The present investigation shows that the archesporial cell is hypodermal in origin in both the plants studied. It cuts off a parietal cell and then functions as the megaspore mother cell. The megaspore mother cell is pushed considerably inwards within the nucellus due to the division of the overlying cells. Two megaspore mother cells lying side by side have been observed, in *Abroma augusta*. The reduction division is normal and a linear tetrad of megaspores is produced in both the plants, but in *Abroma augusta* some "T-shaped" tetrads have also been observed. The chalazal megaspore becomes functional in every instance. The usual course of development follows and a normal eight-nucleate embryo-sac is produced. In *Abroma augusta*, however, two binucleate embryo-sacs have been observed to lie side by side. It appears that this has resulted from the activity of the second megaspore mother cell. The mature embryo-sac shows the normal organization but the antipodals are ephemeral. The ovules have two integuments and the nucellus is completely enclosed by these.

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<sup>1</sup> Sharma, Y. M. L., *Curr. Sci.*, 1938, 7, 284.

#### PHYSIOLOGY OF POLLINATION IN ORCHIDACEÆ

IN Orchidaceæ, the stimulus of pollination is necessary not only for the continued development of the ovary but also for the initiation of the ovules in several species. Normally pollination shortens the life of the blossom and brings about changes in the colour of the perianth. The gynostegium enlarges and the ovary is stimulated to grow into a fruit. These