ARCHEGONIA IN WILLIAMSONIA CARR.  
(BENNETTITALES)

Since the establishment of the genus Williamsonia by Carruthers more than 50 species have been described. The majority of them occurs as impressions or incrustations and only a few are known as petrifactions. During recent years sufficient details about the morphology and ontogeny of the fertile parts of this genus could be described on the basis of the material collected from the Jurassic rocks of Aunjola in the Rajmahal Hills, India. However, the archegonia remained unknown. The present investigation is also based on the study of the material collected from the same locality. The material is soft and fragile and thus was boiled in Canada-balsam prior to sectioning with the help of a wire band saw. Slides were prepared by the usual methods of cutting, grinding and polishing and mounted in Canada-balsam.

The megaspore mother cell is distinct and situated not very deep in the nucellus. The female gametophyte occupies maximum space of the nucellus and is made up of thin walled cells (Fig. 1C). In the apical part of the endosperm there are seen 2 (Fig. 1A, C), 3 (Fig. 1B) or more archegonia arranged in a ring. They are $30 \times 20$ to $40 \times 25 \mu m$ in size and quite distinct from the cells of the endosperm. However, details of the archegonia are yet to be studied.

Lignier and Seward in a reconstruction of the ovule of Cycadeoidea (Bennettites) morerei (S. & M.) showed the presence of archegonia in the apical part of the endosperm. The Williamsonia is an allied genus to Cycadeoidea in general morphology of seed bearing parts. The present discovery of archegonia in the ovule of the former adds support to the relationship with the latter and creates curiosity for the discovery of different stages of embryogeny in the fossil plants of Bennettitales.

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DEVELOPMENT OF STOMATA IN BARRINGTONIA RACEMOSA ROXB.

Stomata in members of Lecythidaceae are reportedly cruciferous. As their development was not known and material of Barringtonia racemosa was available, this aspect was studied and the results are reported.

Ontogenetic studies were carried out from temporary 7% acetocarmine mounts of lower epidermal peels.

In the mature leaves, stomata are more numerous on the lower surface, however, a few stomata are present on the upper surface as well.

Stomata develop in a mixed sequence. A protoderm cell of the leaf divides unequally (Fig. 1) and forms a small cell towards one corner and a larger cell (Fig. 2). The smaller cell enlarges and divides (Fig. 3) by a wall intersecting the first wall at an angle of $46^0$ (Fig. 4) and forming the second mesogene segment. Similarly, the third mesogene neighbouring

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Fig. 1 A-C. Williamsonia Ovule A. Longitudinal section ovule with two archegonia, $\times 120$. B. Same with three archegonia, $\times 120$. C. A part of Fig. A enlarged, $\times 450$. (Arrow indicates the archegonia).