

Topic: Cycadeoidea; Reproductive organs  
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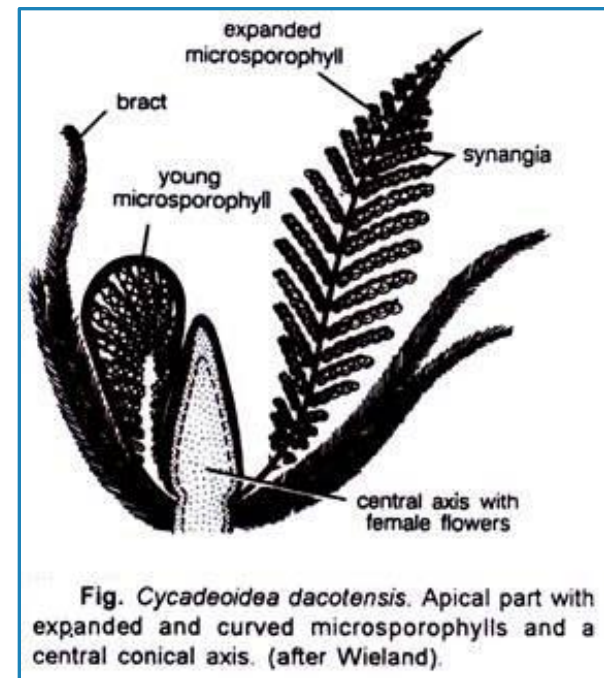
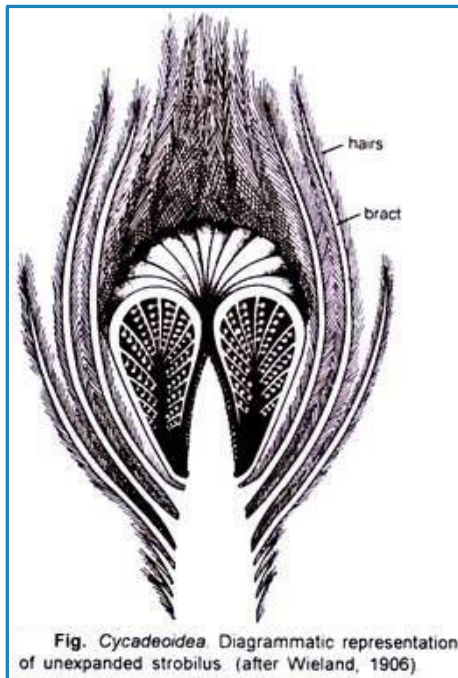
## Reproductive Organs of *Cycadeoidea*

The Bennettitalean reproductive organs are designated as “flowers “. The flower buds in the plants were present in the axil of leaf bases. As many as 500 flower buds were present on a single trunk in species such as *Cycadeoidea dartonii*.

In several species of *Cycadeoidea* all the flower buds were present on a trunk at almost the same stage of development. Some palaeobotanists believe that such a plant might have flowered only once during its lifetime. Except a few species (*C. wielendii*) the flowers in *Cycadeoidea* were bisexual.

The hermaphrodite flower developed on a short pedicel. They were surrounded by as many as one hundred bracts, which were hairy and protective. Flowers in different species were of different size. In *Cycadeoidea dartonii* they attained a length of about 2 cm and a diameter of about 1.5 cm while in *C. dacotensis* each flower was about 8 cm long and 3 cm in diameter.

In *C. dacotensis* the lower two-third portion of the floral axis had about 100-150 bracts. A whorl of stamens was present above the bracts. Each stamen was pinnately branched and each pinna had a double row of purse-shaped sporangia. Each sporangium resembled with a synangium. A conical floral axis was present just above the whorl of stamens. The entire compact structure resembled with a strobilus.



## **Microsporophyll in Cycadeoidea**

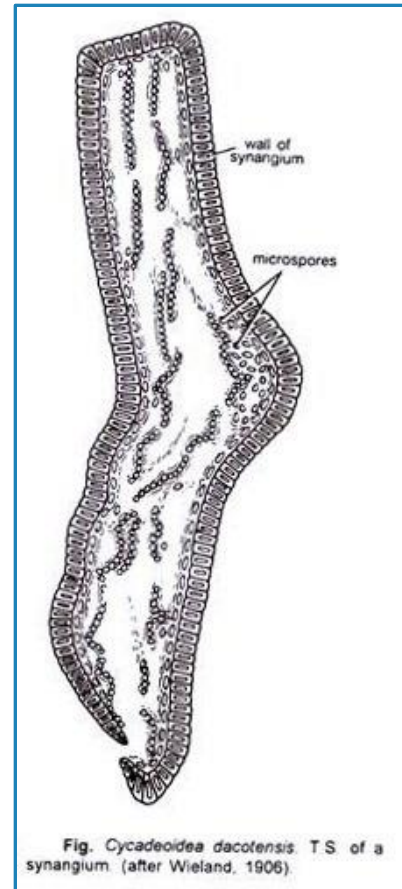
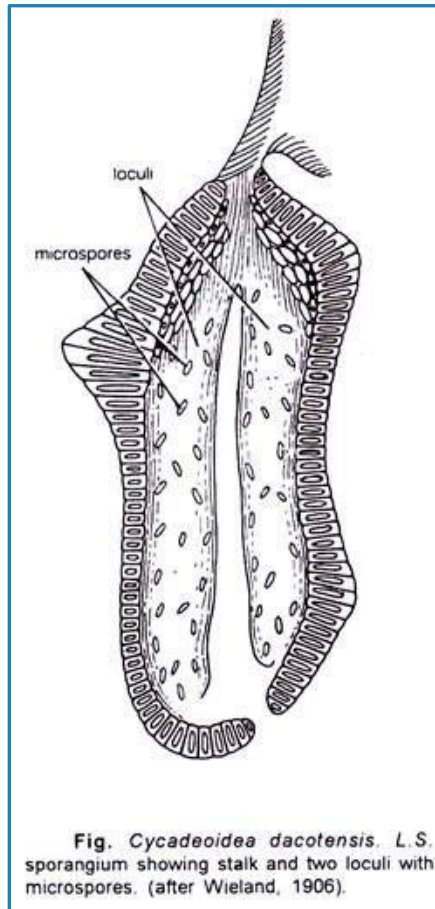
According to Wieland (1906, 1916), the androecium or pollen-bearing region consisted of about 20 pinnate, microsporophyll's. These were somewhat fixed or united at the base. Bean-shaped pollen capsules were arranged in two rows on each pinna of the sporophyll.

These microsporophyll's remained folded round the gynoecium when young, but probably at maturity they expanded. Delevoryas (1963), however, opined that the microsporophyll's never expanded.

He further concludes that synangia-bearing structures, described as pinnae by Wieland (1906), were similar to the trabeculae. These trabeculae established a connection between outer and inner walls of the androecium. Pollen capsules or synangia were borne along these trabeculae.

Several (20-30) pollen sacs or microsporangia were present in a pollen capsule or synangium. The wall of a synangium consisted of outer palisade-like, thick-walled cells followed by thin-walled layer and then a tapetum.

The tapetum was not clearly demarcated. The pollen grains were oval in shape and measured up to 68 $\mu$ m in length. Multicellular pollen grains in *Cycadeoidea* have been reported by Taylor (1973).



## **Gynoecium of *Cycadeoidea***

The gynoecium receptacle was spherical or conical in shape. The hundreds of the stalked ovule along with an approximately equal number of inter-seminal scales were present on the receptacle. Each ovules was about 1 mm in length. The integument of the ovule was fused with the nucellus, except at the apex.

The ovule was orthotropous with a long micropylar beak. A pollen chamber and a nucellar beak was present in each ovule. The seed was somewhat elongated or oval in shape and possessed two cotyledons. Crepet and Delevoryas (1972) reported a linear tetrad in the nucellar region of *Cycadeoidea*.

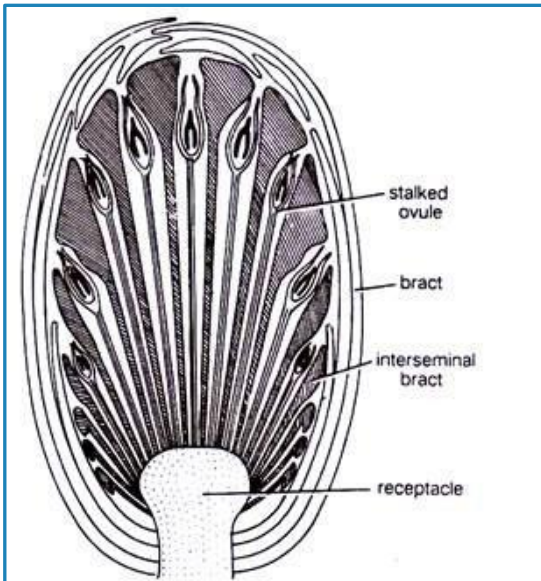


Fig. *Bennettites gibsonianus*. A female strobilus showing terminal seed with dicotyledonous embryos

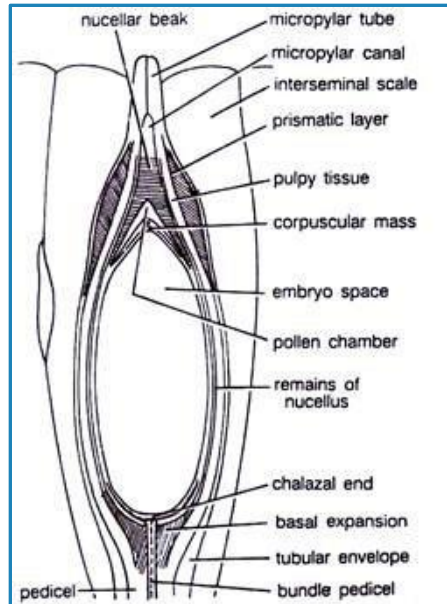


Fig. *Bennettites morieri*. L.S. seed. (after Wieland, 1906).

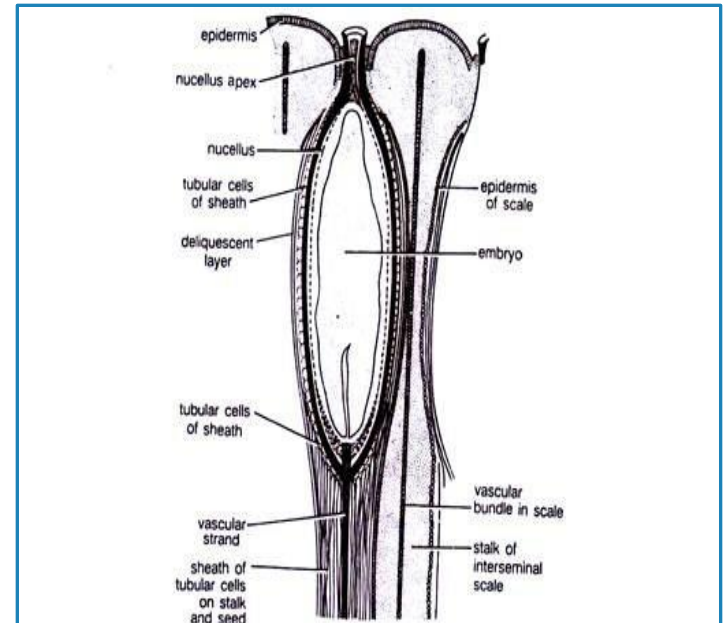


Fig. *Bennettites albianus*. L.S. seed along with two surrounding interseminal scales. (after Stopes)