

XXIV. *On the Germination of Lycopodium denticulatum, in a Letter to the Secretary from Richard Anthony Salisbury, Esq. F.R.S. and L.S.*

Read June 3, 1817.

DEAR SIR,

PROFESSOR BROTERO'S description of the *Lycopodium denticulatum* agrees so exactly with the plant of which I send you some figures, TAB. XIX., that I have nothing to add to it, except that I have never found the capsule three-lobed, as he says it is, but invariably four-lobed: in some positions, however, it appears three-lobed, and he himself mentions that it always contains four seeds.

Notwithstanding I have examined many flowering branches, I have not been able to detect the manner in which the seeds are fœcundated, or to find any thing like an Embryo in them, though they come up in abundance spontaneously under the parent plant, and on the adjacent moist parts of the shelf, where it stands in Mr. Joseph Knight's greenhouse.

The seeds contain at an early period of their formation a clear liquor, which quickly evaporates, and flashes when applied to a candle: this liquor soon becomes milky, and is finally converted into what appears to me grumous albumen.—I am not certain how the seeds are inserted, and believe that I have not yet been so lucky as to meet with a single fœcundated seed, though *perfect* in all other respects; for this occurs in *Cycas*, when there is no male plant to fœcundate its seeds. In one capsule, in which the

seeds had ceased to swell, apparently from their earliest formation, they adhered together to something like a central placenta: in all the other capsules I found them loose, and suspect the placenta had been absorbed by the liquid remaining in the capsule. A very minute hilum remained always visible, and the three-radiated mark originating there appears to me to be only three stronger ribs of the reticulated cuticle of the seed.

The germination of this plant approaches much nearer to that of *Dicotyledones* than to that of *Monocotyledones*, especially if that part which Brotero calls *vitellus* be considered a *radicle*. I am, however, inclined to think that it is true albumen, though it does adhere to the embryo; and till we can succeed in getting plenty of perfect seeds, or to catch them in a still earlier stage of germination than the first figure I now send you represents, this point will remain dubious.

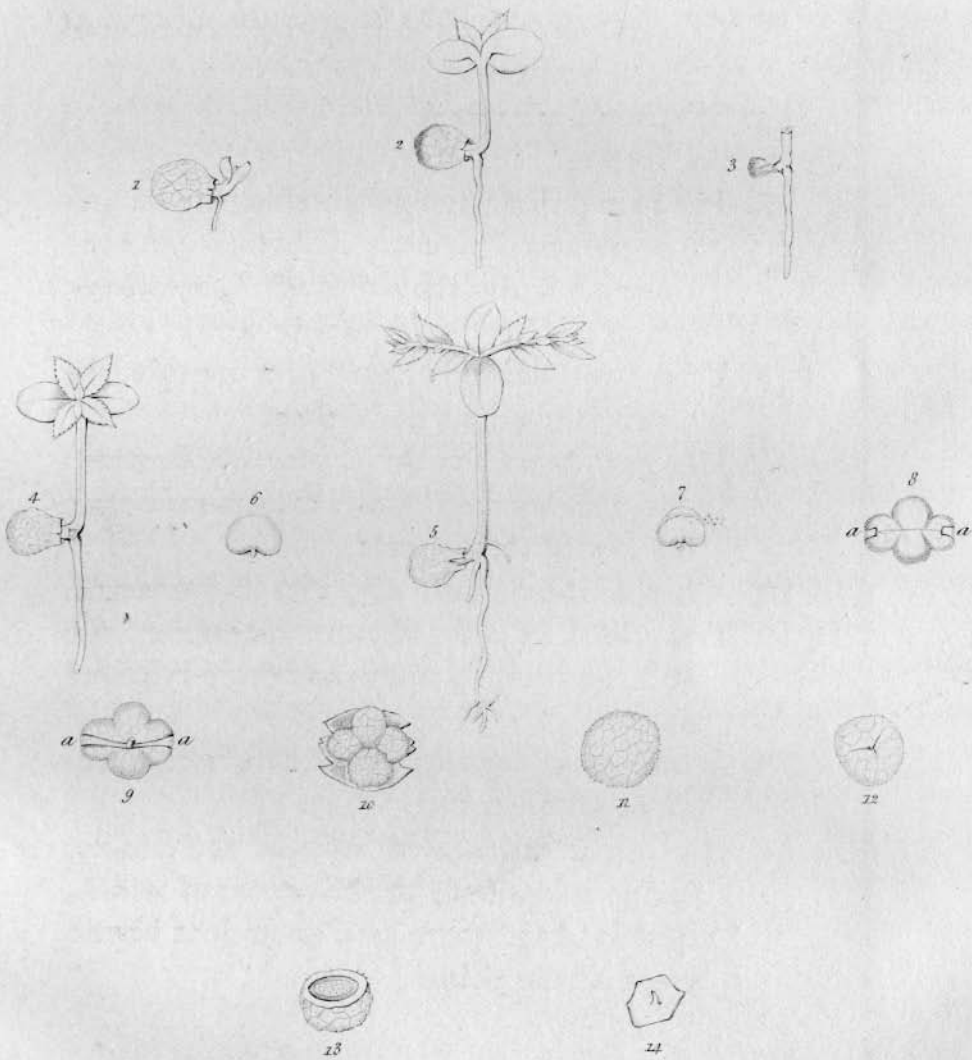
In the mean while, a comparison of the seeds of this *Lycopodium* with those of *Isoetes* and *Pilularia*, which they exactly resemble, will assist us; and as Brotero says that he has seen the part he describes for stigma "*liquore unctuosissimo diutissime perfusum*," I have little hesitation in believing that it is so: before I read his account, I took the suture at the top, where the capsule afterwards splits, for the stigma, and it is not very unlike the stigma of *Stylidium*.

I remain, &c.

18, Queen-Street, Edgeware-Road,
June 3, 1817.

R. A. SALISBURY.

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Lycopodium denticulatum.

REFERENCES TO THE FIGURES.

TAB. XIX. *Fig.* 1. A seed in the earliest stage of germination yet observed.

2. The same more advanced.

3. Its seed-coat removed to show the *vitellus* of Brotero adhering.

4, 5. Still more advanced.

6. An anther.

7. The same splitting and discharging its yellow pollen: I find no difference between this pollen and that of other *Lycopodiums*, which has been regarded as seed.

8, 9. Upper and under surfaces of a capsule, the latter showing its pedicellus.

aaa. The part described for stigma by Brotero: it is thinner and more transparent than the rest of the capsule.

10. A capsule burst naturally, with its four seeds.

11, 12. Two views of a seed more magnified, the latter showing its hilum and three-radiated mark.

13. A transverse section, filled with white grumous albumen?

14. One of the reticulated areas of the cuticle, highly magnified, in the centre of which, while young, there is a succulent bristle green at the point.