ON THE CONTINUED GROWTH OF CERTAIN FERN PROTHALLIA.[1]

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Prothallia of *Osmunda claytoniana* and *Matteuccia nodulosa* have been grown upon soil for three and one-half and four years, respectively, under cultural conditions which prevented the production of sporophytes. When an occasional sporophyte appeared it was amputated in such a manner as not to injure the gametophyte.

Prothallia thus grown branched both dichotomously and by the production of lateral shoots or proliferations. Proliferations, large and small, develop from the margins, from both surfaces of the midrib, and from the older proximal tissues, as well as from the growing point or apical sinus.

In older prothallia archegonia may be developed from both upper and under surfaces. In such prothallia antheridia are produced chiefly upon small marginal proliferations, or upon small granular protuberances on older parts. In some cases small protuberances are produced along the midrib on the upper side. Such protuberances bear many archegonia.

The cell walls in older parts of the midrib are relatively thick. They are marked by numerous pits varying in size.

Spine-like processes developed from near the growing point in a few prothallia of *Matteuccia nodulosa*. These outgrowths dried up as the prothallia became older. Apogamous sporophytes did not develop in any case.

If sporophytes are not produced, the continuation shoots of the prothallia of the two species in question seem to be able to continue growth indefinitely.

ON THE OCCURRENCE OF AN ENDOPHYTIC FUNGUS IN THE PROTHALLIA OF OSMUNDA CLAYTONIANA L.

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The presence of endophytic fungi in the non-chlorophyll-bearing, subterranean parts of the gametophytes of certain Ophioglossaceae and Lycopodiaceae is a well-known and expected phenomenon. In ferns with green prothallia, however, the phenomenon is much less common. Of these Campbell (Am. Nat. 62:154-165. 1908) has enumerated the

[1] Summary. The paper in full will appear in the Botanical Gazette.

"Proc. Ind. Acad. Sci., vol. 36, 1926 (1927)."