is the case is rendered probable by the strict localization of the *antheridia* on the antheridial ridge, and by the occurrence of the reproductive organs on the upper surface of the gametophyte. It is interesting in this connection to note the scattered disposition of the *antheridia* in the very young prothallus; for this is probably to be regarded as a primitive feature. An embryological comparison between the two forms is not possible, as the embryology of *B. Lunaria* is at present unknown. The young sporophyte of *B. virginianum*, in that it is attached to the upper surface of the prothallus, and has a completely developed and assimilatory cotyledon, differs from the sporophyte of *B. Lunaria*. The young spore-plant also remains much longer attached to the gametophyte than is the case in the latter species. *B. virginianum* seems, of all the representatives of the genus in Canada at least, to be the most completely adapted to modern conditions; for it is everywhere abundant in rich woods, and always outnumbers the other species.

The prothallus of *Ophioglossum pedunculosum* does not very closely resemble that of *B. virginianum*. The presence of a primary tubercle and the formation of green prothallial lobes are its characteristic features. It should be remembered, however, that within the single genus *Lycopodium*, *L. annotinum* resembles in its prothallus *B. virginianum* and *B. Lunaria*, whilst *L. cernuum* and *L. inundatum* have a gametophyte like that of *Ophioglossum pedunculosum*. It is possible that a species of *Botrychium* may yet be found in which the prothallus is like that of *Ophioglossum pedunculosum*. The *antheridia* and antherozoids of the present species quite exactly resemble Mettenius' description of those of *Ophioglossum pedunculosum*. The *archegonia* correspond, too, in so far as the earlier description offers points of comparison. In the development of the embryo, the account of Mettenius is rather too meagre to allow of any exact inferences in regard to points of likeness in the successive phases of segmentation. The young sporophyte of *Ophioglossum pedunculosum* develops its cotyledon early, and the primary root is slow in pushing its way out, which exactly reverses the course of events in *B. virginianum* and probably also in *B. Lunaria*.

Bower[34] has recently fully discussed the relationships of the *Ophioglossaceæ* to the other groups of the Pteridophyta. He comes to the conclusion that the ventral fertile leaf-segment of the *Ophioglossaceæ* is the morphological equivalent of the single ventral sporangium of the homosporous *Lycopodineæ*, and derives it from the former by a process of septation and branching. He also compares the two groups in

34. Studies in the morphology of spore-producing members. Part 2. *Ophioglossaceæ*, p. 56, et seq.