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AN ISOETALEAN LYCOPSID FROM THE MARGIN OF THE GREENBRIER-BLUEFIELD SEA (LATE MISSISSIPPIAN) OF VIRGINIA.

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Our knowledge of Late Paleozoic lycopsids has increased significantly over the last decade and ideas of major evolutionary trends have changed. However, there are gaps in the knowledge of the smaller lycopsids that did not reach tree size. We present here a monospecific assemblage of a fossil lycopsid that contains nearly all parts and allows a complete reconstruction. This lycopsid represents a new taxon that is found in Tazewell County, Virginia. The plant parts occur in two thin beds of calcareous shale that are intercalated in the marine limestones of the Late Mississippian uppermost part of the Greenbrier Limestone and lower part of the Bluefield Formation

The plant has only fertile leaves (sporangioophores) that are attached to a thin (less than 2 cm), short stem. Thus, the plant can be described as a cone with underground parts and roots. This lycopsid is heterosporous and megaspores are found alone and in tetrads in the matrix. The characters mentioned make this taxon very similar in overall organization to the living genus *Isoetes*, the only survivor of the isoëtalean clade of lycopsids. Thus, we present a Late Mississippian example of a plant that is not too different from the only living relative whereas the contemporaneous and later tree-like isoëtalean lycopsids became extinct.

The Greenbrier lycopsid occurs in sediments that can be interpreted as lagoonal or estuarine. This observation together with the fact that it is a nearly monospecific assemblage points to local origin of the material (parautochthonous). Facies and stratigraphy, together with the taphonomy, indicate that the plant was a pioneer species in a nearshore or island setting. It is a common trait of isoëtalean lycopsids to be adapted to flooded or partially flooded environments. We find it in the tree-lycopsids of the Pennsylvanian and in the living genus *Isoetes*. Thus, our new taxon is proof that small, herbaceous isoëtalean lycopsids represent a separate and simultaneous lineage to the tree-lycopsids of the same clade.

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Remark: The lycopsid mentioned in this abstract was also found in more complete specimens by other colleagues who published it under the name *Hartsellea dowensis* Gastaldo, Gibson et Blanton-Hooks 2006.

Gastaldo, R.A., Gibson, M.A., Blanton-Hooks, A., 2006. A Late Mississippian back-barrier marsh ecosystem in the Black Warrior and Appalachian Basins. In: Greb, S.F., DiMichele, W.A., Wetlands through time. Geological Society of America Special Paper 399, p. 139-154.

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