

# A study of the algal plant transition based on organic remains from Cambrian strata

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Spores and small fragments of plant tissues isolated from Cambrian and Ordovician rocks demonstrate that plant life on land originated about 50 million years earlier than previously thought. Some spores (A) preserve clues as to the origin of the plant spore wall in addition to their evolution from the green algae. Other fragments show evolutionary relations more closely allied with the mosses than with the algae, such as filamentous tissues shown here (B). Cuticle-like fragments (C) appear to represent an evolutionary adaptation to living on land as opposed to fully aquatic algae. As we continue to explore new deposits, additional discoveries of these ancient precursors to the land plants, including possible remains of spore-bearing organs (D), are used to re-define the evolutionary history of land plant origins. Sheets of spore-like cells from the lower Ordovician (E) appear to represent the first examples of true intermediates between the algae and the land plants. Our research is resetting the clock on the origin of land plants back to the Cambrian - It appears now that the Cambrian explosion of marine life may have been matched with equally important evolutionary events in the terrestrial realm on land.

