Sir William Dawson (1820-1899): A Very Modern Palaeobotanist[1]

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Sir William Dawson was one of Canada's most influential Nineteenth Century geologists. Although a lifelong opponent of the concept of evolution, a stance that resulted in him being sidelined by the scientific community, he made enormous contributions to Pennsylvanian palaeobotany, especially at the Joggins fossil cliffs of Nova Scotia. Key to Dawson's success was his recognition of the importance of a field-based research program, in which fossil plants could be observed in their precise geological context over a sustained period of time. Uniquely trained as both geologist and botanist, he was skilled in the microscopic analysis of permineralized plant anatomy, and appreciated the enormous potential of fossil charcoal as an untapped source of systematic information. Arguably his most extraordinary insights came in the field of plant taphonomy, in which studies of modern sedimentary processes and environments were used to interpret the rock record. His analysis of fossil plants in their sedimentary context allowed Pennsylvanian coal swamp communities, dominated by lycopsids and calamiteans, to be distinguished from the coniferopsid forests, which occupied mountainous regions further inland. The lasting significance of Dawson's palaeobotanical work is emphasized by many recent papers concerning the Pennsylvanian coal measures of Atlantic Canada, which have either directly built on research topics that Dawson initiated, or have confirmed hypotheses that Dawson framed. Until recent times, the discipline of palaeobotany has been dominated by systematic fossil plant description with little or no reference to geological context. By virtue of his distinctively holistic approach, synthesising all available geological and botanical data, Dawson is marked out from his contemporaries. His methodology does not appear old-fashioned even today, and it is therefore with justification that we describe him as a very modern palaeobotanist.

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