



## **Evolution of animal behaviour in the Ediacaran–Cambrian transition**

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The transition from the Ediacaran to the Cambrian (~541 million years ago) marks a fundamental leap in the evolution of life: the evolution of complex animal behaviour, the decline in the microbial mats that characterised the Neoproterozoic and a drastic change in the chemistry of the sediment-water interface.

Disturbance is well known as a controlling factor in structuring modern communities. By combining detailed petrographic analysis with data on sedimentology, burrow densities, and ichnodiversity of the basal Cambrian stratotype we are able to place the evolution of animal behaviour recorded in these successions into an improved palaeoenvironmental context. Additionally, Ediacaran-Cambrian ichnofabrics are found to be comparable to experimentally produced ones created by simple ecdysozoans and lophotrochozoans collected from the dysoxic sediments of the Bonne Bay fjords of western Newfoundland. Using multivariate statistical analyses, it is possible to identify and quantify any correlation between palaeoenvironmental, ichnological and matground characteristics. This will create improved understanding of the interplay between biological and abiological processes during the evolution of complex animal behaviour in a palaeoenvironmental context.