

## Accepted Manuscript

Negligible microbial matground influence on pre-vegetation river functioning:  
evidence from the Ediacaran-Lower Cambrian Series Rouge, France

William J. McMahon, Neil S. Davies, David J. Went

PII: S0301-9268(16)30332-1  
DOI: <http://dx.doi.org/10.1016/j.precamres.2017.01.020>  
Reference: PRECAM 4653

To appear in: *Precambrian Research*

Received Date: 19 August 2016  
Revised Date: 17 January 2017  
Accepted Date: 22 January 2017



Please cite this article as: W.J. McMahon, N.S. Davies, D.J. Went, Negligible microbial matground influence on pre-vegetation river functioning: evidence from the Ediacaran-Lower Cambrian Series Rouge, France, *Precambrian Research* (2017), doi: <http://dx.doi.org/10.1016/j.precamres.2017.01.020>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**Negligible microbial matground influence on pre-vegetation river functioning: evidence from the Ediacaran-Lower Cambrian Series Rouge, France**

William J. McMahon<sup>1\*</sup>, Neil S. Davies<sup>1</sup>, David J. Went<sup>2</sup>

<sup>1</sup> *Department of Earth Sciences, University of Cambridge, Downing Street, Cambridge CB2 3EQ.*

<sup>2</sup> *Arunside Limited, Silver Birches, Fox Hill Village, Haywards Heath, RH16 4QZ*

\*corresponding author: [wjm39@cam.ac.uk](mailto:wjm39@cam.ac.uk)

**Abstract**

The pre-Silurian alluvial rock record is dominated by accumulations of laterally-extensive, sheet-like sandstone strata with minimal mudrock; a depositional style frequently explained as representing fluvial processes particular to “pre-vegetation” Earth. While the sedimentological and geomorphological influence of Palaeozoic embryophytes and other higher vegetation has been commonly inferred, the influence of the non-marine microbial matgrounds that preceded them has been less well studied. The ?Ediacaran-Cambrian Series Rouge of northern France and the Channel Islands is a rare example of a predominantly alluvial succession which exhibits both pre-vegetation sedimentary motifs and evidence for the existence of terrestrial microbial mats. The latter include likely microbial sedimentary surface textures, the enigmatic matground “pseudofossils” *Aristophycus* and *Arumberia*, and probable mat fragments and mat-related microtextures preserved in argillaceous sediment. The sedimentological characteristics of the Series Rouge are described and analysed in order to assess the role of microbial influences on pre-vegetation alluvial systems. Near ubiquitously trough-cross bedded sheet-braided facies, with rarely preserved channel-forms, indicate that alluvial sedimentation was dominated by in-channel dune migration, and depositional-strike exposures reveal the periodic downstream migration of complex bar-forms. Lateral accretion elements and minor discontinuous lenses of more argillaceous material are locally present. Thus, despite the evidence for matgrounds, sedimentary architecture was essentially ‘abiotic’. Using this evidence from the Series Rouge, we argue that the surficial cohesion provided by matgrounds did not exceed thresholds for

Download English Version:

<https://daneshyari.com/en/article/5784754>

Download Persian Version:

<https://daneshyari.com/article/5784754>

[Daneshyari.com](https://daneshyari.com)