

Tubey or not tubey: Death beds of Ediacaran macrofossils or microbially induced sedimentary structures?

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Although we appreciate the interest McMenamin (2019) takes in the specimens documented in Nelson and Smith (2019), we stand by our original conclusion: these structures are not Ediacaran body fossils, but unusual variants of microbially induced sedimentary structures. McMenamin discusses some of the attributes of these structures that are reminiscent of contemporary Nama assemblage Ediacaran fossils; however, he does not address the evidence that we present for our contrasting interpretation. Like McMenamin, we initially thought these specimens were a new assemblage of Ediacaran biota and agree on their superficial resemblance to frondose erniettomorphs. In our figure 2, we highlighted examples that most resemble fossils precisely to demonstrate that they could easily be mistaken as such, particularly if taken out of context. McMenamin acknowledges that, in our figure 4A, we show an example of ‘microbial mat-stabilized ripples’—a class of microbially induced sedimentary structures; however, if this slab were broken into pieces, the resulting fragments would exhibit comparable attributes to the specimens displayed in our figure 2 (e.g., Fig. 1). After finding hundreds of examples of these structures with the same general morphologies and characteristics in the same narrow stratigraphic interval, we found it difficult to attribute different formational mechanisms to different specimens. We hope that this publication will help encourage other paleontologists working in the Proterozoic to avoid mis- or over- interpreting results, as our community works toward a robust understanding of the early evolution of macroscopic life and metazoans.



Figure 1. Photograph of part of the specimen shown in figure 4A of Nelson and Smith (2019). Note the morphological similarity to specimens documented in figure 2 of Nelson and Smith (2019), including apparent convexity, pneu structures, and zig-zag sutures. Scale bar = 3 cm.

REFERENCES CITED

- McMenamin, M.A.S., 2019, Tubey or not tubey: Death beds of Ediacaran macrofossils or microbially induced sedimentary structures?: *Comment: Geology*, v. 48, p. e497, <https://doi.org/10.1130/G46897C.1>.
- Nelson, L.L., and Smith, E.F., 2019, Tubey or not tubey: Death beds of Ediacaran macrofossils or microbially induced sedimentary structures?: *Geology*, v. 47, <https://doi.org/10.1130/G46473.1>.