Cnidarians turn evolutionary theory into jelly

The article "Cnidarians turn evolutionary theory into jelly", on p. 74 of issue 29(3), contains helpful and relevant information, especially about jellyfish genes. However, I'd like to offer a clarification about what author Jean O'Micks wrote regarding jellyfish fossils. He argued that preservation of original jellyfish tissue defies the fossils' deep time age assignments.

O'Micks wrote, "Tentacles and muscles have been shown to be preserved among these specimens." I read the paper he referenced (Cartwright *et al.*, *PLoS ONE* [1]) in order to better understand the nature of this preservation. Cartwright *et al.* did not specify whether the plainly visible jellyfish body parts were preserved as mineralized (i.e. body tissues replaced by minerals) or original, but really old, body chemicals, like proteins. Not having access to the fossils or any means to chemically test the preserved portions, I'm left to speculate about the nature of their preservation.

They occur in Cambrian System strata, and original tissue fossils from the Cambrian seem to be extremely rare. I know of only one with unambiguous biomolecular preservation, and it comes from Canada's Burgess Shale.[2] According to my limited understanding, Burgess-type fossils typically show body part preservation as mineralized—often by pyritization or keratinization—and flattened residues.[3] Sometimes, differential mineralization will produce various colours for different fossil body tissues. Cartwright *et al.*'s *PLoS ONE* images show various colours within jellyfish specimens, so these may well be mineralized. Once they are in place, of course, minerals can last much longer than original biomolecules, so they form no basis for a creationary argument that they defy evolutionary age assignments.

Thus, Jean O'Micks seems not to have distinguished between endogenous molecular preservation in fossils, for example the endogenous collagen in dinosaur bone that his Bertazzo *et al.* reference demonstrated, with *mineralized preservation* that appears most often in Cambrian fossils. But there's a big difference. Cartwright *et al.* give no evidence for (or against) molecular preservation in the Cambrian jellyfish described in *PLoS ONE*. Unfortunately, this typifies

the literature, where researchers show much more interest in trying to trace evolutionary relatedness of new body forms than in analyzing fossil chemistry (or biochemistry). Thus, Jean O'Micks' concluding statement on p. 78, "Preservation of jellyfish tissue over such supposed long periods of time is thus highly improbable" is irrelevant since no such evidence has been demonstrated for these Cambrian Jellyfish. I found most everything else about his paper very insightful.

Brian Thomas
Dallas, TX
UNITED SATES of AMERICA

References

1. Cartwright, P. *et al.*, Exceptionally preserved jellyfishes from the Middle Cambrian, *PLoS ONE* **2**(10):e1121, 2007.
2. Ehrlich, H. *et al.*, Discovery of 505-million-year-old chitin in the basal demosponge *Vauxia gracilenta*, *Scientific Reports* **3**:3497, 2013, DOI: 10.1038/srep03497.
3. Thomas, B., Original Biomaterials in Fossils, *Creation Research Society Quarterly* **51**:234–247, 2015.

» Jean O'Micks replies:

I thank Brian Thomas for his question regarding my paper about jellyfish fossils. It is certainly important to distinguish between soft body tissue and mineralized fossils.

In response, I would like to state that the original paper that was cited (Cartwright *et al.*) mentions that all fossils are from the Marjum Formation, Middle Cambrian, Utah, the Sponge Gully Locality, and that this locality also yields soft-bodied biota and trilobites. Thus, other soft-bodied specimens exist besides the one Mr Thomas mentions from the Canadian Burgess Shale, so there is a possibility that this specimen is also soft-bodied.

Regardless, I think that since jellyfish have extremely soft tissues it would be quite remarkable that anything would remain of them long enough to become mineralized. To me, it seems that even if the jellyfish have indeed been mineralized, it would have to have been due to rapid burial, which is something we would expect to have occurred during Noah's Flood.

Jean O'Micks
Omaha, NE
UNITED STATES of AMERICA