

The cesspool preservation hypothesis as a key to preservation of exceptionally well preserved orsten-type fossils

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Recently, an ostracod (Crustacea, Arthropoda) specimen with exceptionally well preserved soft parts was discovered from fecal pellets rich layer at a borehole core recovered from Oppama Park, Kanagawa Prefecture, central Japan (Tanaka et al., 2012). Similar soft part-preserved arthropods have been found in the Late Cambrian Orsten limestone (Maeda et al., 2011). Such "cesspools" were exceptionally phosphatized during early diagenesis owing to the high local phosphorus levels produced by the accumulated fecal pellets. The "cesspool preservation hypothesis" provides an explanation for this kind of exceptional fossilization, found in the marine sediment record from the Late Cambrian onward.

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