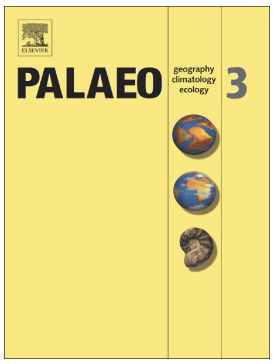

Microstructural evidence for stalk autotomy in Holocrinus – The oldest stem-group isocrinid

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Microstructural evidence for stalk autotomy in *Holocrinus* – the oldest stem-group isocrinid

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Holocrinid crinoids (*Holocrinus*) are among the oldest, if not the oldest, post-Paleozoic crinoids, which are widely considered the stem-group isocrinids for the post-Paleozoic monophyletic subclass Articulata. Owing to their phylogenetic and stratigraphic position, the morphology and paleobiology of these crinoids have received considerable attention. Although the holocrinid stalk is similar to that of fossil and living isocrinids, it lacks flat and rigid synostosial articulations, which are sites specialized for autotomy. Holocrinids were thus long considered sessile, without the ability to re-attach. However, taphonomic data, such as specific pattern of preferred disarticulation at the distal facet of nodals, indicated that *Holocrinus* was likely capable of stalk autotomy and relocation. This trait, that is considered an anti-predatory adaptation against benthic predation, has recently served as example of fundamental change in benthic marine communities, such as the Mesozoic marine revolution (MMR). Here I describe stereom microstructure of the stalk of Early-Middle Triassic *Holocrinus*. The holocrinid stalk is mainly constructed of straight stereom passageways passing through the columnals, that are diagnostic of long through-going ligaments. At the distal symplexial nodal facet, however, fine and dense stereom, in which pores are irregular in outline and show no alignment, is observed. The latter stereom type strongly resembles synostosial stereom in living isocrinids, that is associated with