

ABSTRACT

Cloudina? was initially documented in the Taylor Formation in Antarctica by Yochelson and Stump in 1977. In their publication, they presented views of specimens in thin-section derived from an oolitic limestone breccia. Notably, one thin section contained a presumed trilobite fragment, leading the authors to attribute the materials to the early Cambrian. The remaining fossil materials were characterized as tubes exhibiting varying quality of preservation, likely influenced by recrystallization. The thin sections revealed a fossil structure consisting of a thicker outer layer adjacent to a thinner, darker layer, followed by the inner cavity of the tube. While one specimen was reported to have two layers, it lacked other identifying features, such as the characteristic nested structure typical of *Cloudina*. The authors acknowledged the dissimilarity of their specimens to those reported from Namibia by Germs but noted similarities to *Cloudina borrelloii* from the San Juan Province, Argentina described by Yochelson and Herrera in 1974. This led the authors to tentatively identify their Antarctic specimens as *Cloudina?*, though subsequent reports expressed skepticism about placing the Argentinian materials within the *Cloudina* genus, suggesting a more plausible association with *Salterella* or *Acuticloudina*.

Since the initial discovery and report by Yochelson and Stump, however, Ediacaran paleontologists have included Antarctica in the geographic distribution of *Cloudina*. Because these late Ediacaran tubicolus organisms, including all plausible designations of *Cloudina*, are currently being considered by the International Commission on Stratigraphy as an index fossil for delineating the terminal Ediacaran stage, this long-overdue reexamination of these materials now becomes both timely and important for gaining a clearer picture of the cosmopolitan nature of this genus. This presentation marks the first comprehensive reassessment of the Antarctic *Cloudina?* since its initial evaluation. We aim to reevaluate these materials using modern microanalysis and high-resolution photography to shed light on their taxonomy and evaluate their role in the broader context of late Ediacaran to early Cambrian tubular fossils.