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State Key Laboratory of Palaeobiology and Stratigraphy

Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences

Beijingdonglu 39, 210008 Nanjing, PR China

e-mail: palaeoworld@nigpas.ac.cn

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CAMBRIAN INARTICULATE BRACHIOPODS FROM NEVADA AND TEXAS

Sarah RIEBOLDT

Museum of Paleontology, University of California, Berkeley, CA 94720, USA.
E-mail: rieboldt@socrates.Berkeley.EDU

Inarticulate brachiopods sampled across three Cambrian stage boundaries (Dyeran/Delamaran, Marjuman/Steptoan, Steptoan/Sunwaptan) in Nevada and two stage boundaries (Marjuman/Steptoan, Steptoan/Sunwaptan) in Texas provide evidence for additional faunal changes at biomere boundaries and offer strong potential for using the phosphatic brachiopod shells in geochemical studies, such as isotopic or rare earth element analyses. Within the Dyeran and up to the Delamaran boundary in Nevada, two species of *Eothele*, *Hadrotreta primaeea primaeea*, *Dictyonina pannula* and an indeterminate linnarsoniid were found. The Delamaran yielded a new species of *Dictyonina* and *Hadrotreta primaeea minor*, a subspecies designated by Rowell (1980). In both Nevada and Texas, an indeterminate lingulid, similar to linguloid type B of Palmer (1954), ranged through the Marjuman, Steptoan and Sunwaptan. The Marjuman of Nevada contained only this species, while the Steptoan produced *Angulotreta triangularis* as well. The Marjuman of Texas yielded a second linguloid, type A of Palmer (1954) and fragments of a species of *Dysoristus*. The basal Sunwaptan contained *Opisthotreta depressa* in Nevada and *Angulotreta postapicalis* in Texas in addition to the aforementioned linguloid. The preservational status of the valves was determined using scanning electron microscopy (SEM), cathodoluminescence (CL), and electron probe microanalysis (EPMA). SEM and EPMA backscattered images of cross-sections of several valves showed the original laminae of the secondary layer was preserved. Cathodoluminescence and EPMA analyses indicated the valves of these brachiopods to be composed of a form of apatite similar to francolite. A comparison of this mineral composition to modern brachiopods implied a range of preservation from pristine to slightly altered, depending on the locality. This study demonstrates the utility of EPMA for indicating preservational status of the brachiopod shells and the potential for using the brachiopods to interpret environmental and faunal changes during the Cambrian.