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**Relationships between concentration of phosphorus and evolutionary of small shelly faunas from the Cambrian Maidiping Formation, China**



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Based on the research results of phosphorite in Precambrian-Cambrian and the small shelly faunas in Cambrian[1-4],this thesis used the principles of petrology, palaeontology ,stratigraphy and geochemistry and analysed phosphorus concentration, sedimentary environment, evolution of small shelly faunas and the relationships between phosphorus and small shelly faunas evolution from the Cambrian Maidiping Formation in Emei, Sichuan Province.

Maidiping Formation in Gaoqiao is one of the most important stratotype profiles of the Precambrian-Cambrian boundary. The small shelly fossils appeared and evolved in Maidiping Formation. The study area located in the west margin of Yangtze platform in early Cambrian. The upwelling seawater brought phosphorus to shallow water and formed the cellophane and supplied the blooming of skeleton faunas.

There are only few species of *Hyalitha* in layer 34,However,there are 11 genus including 9 genus of *Hyalitha*,1 genus of *Sachites Meshkova* and 1 genus of *Chancelloria Walcott* in layer 36.The genus of *Zhijinities* appeared first in layer 37.

The contents of phosphorus and organic carbon present positive correlation with small shelly fossils. The carbon isotope of layer which includes small shelly fossils shows positive shift and possibly was caused by consumption the primary production in the sea. Studying on biomarkers and carbon isotope compositions of individual n-alkanes shows that the small shelly faunas has contribution to the

composition of organic in the sediments, but the dominantly derives of organic matter in rocks is the low aquatic biota.

Comprehensive analyzing on the biomass distribution, characteristics of enrichment phosphorus and the geochemical features, the thesis shows that the element phosphorus made the sea nutritious, caused the small shelly faunas appeared and evolved. At the same time, the faunas had promoted the concentration of phosphorus.

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