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PALAEOWORLD full-text (Volume 15 –) available at:
http://www.sciencedirect.com/science/journal/1871174X

*Palaeo*world No.13, pp. 307-309

STRATIGRAPHIC SIGNIFICANCE OF MIDDLE AND UPPER CAMBRIAN PROTOCONODONTS AND PARACONODONTS FROM HUNAN, SOUTH CHINA

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A collection of more than 20,000 protoconodonts, paraconodonts, and euconodonts was obtained from processing of more than 4,200 kg of limestone from the Middle Cambrian – Lower Ordovician stratigraphic interval in several key sections in Hunan (Dong and Bergström, 2001). Most of the more than 900 productive samples are from the Paibi and Wancun sections whose trilobites and trilobite biostratigraphy have been studied in detail by several investigators. This makes it possible to tie the conodont species succession directly to the trilobite biostratigraphy. More than 30 conodont species are recognized in the upper Middle Cambrian (Zhangxian Stage) and lower Upper Cambrian (Gushanian Stage) and among these, many paraconodonts have short vertical ranges in the studied sections and considerable biostratigraphic potential (Fig. 1), especially as several important species are also present, and show similar ranges, in coeval strata in northern Europe. Five conodont biozones are recognized based on the vertical ranges of key species and these biozones are correlated with the trilobite biozone succession recently proposed by Peng and Robison (2000) for the interval from the *Ptychagnostus atavus* Biozone to the *Glyptagnostus reticulatus* Biozone. The level of the Chinese Middle-Upper Cambrian boundary, defined as the base of the *Linguagnostus reconditus* Trilobite Biozone, is close to the base of the *Westergaardodina quadrata* Conodont Biozone and falls in an interval characterized by a conspicuous change in the conodont faunas that can also be recognized in the Swedish standard succession. In terms of conodont biostratigraphy, this level is far more easily recognized and correlated regionally than the base of the *Glyptagnostus reticulatus* Trilobite Biozone which does not appear to coincide with a marked change in the conodont succession that is useful for local and regional correlation. Hence, if the latter level is chosen as the base of the Upper Cambrian in the new global stage and series classification of the Cambrian, it may be difficult to define it in terms of conodont biostratigraphy, at least in the potential GSSP sections in Hunan.

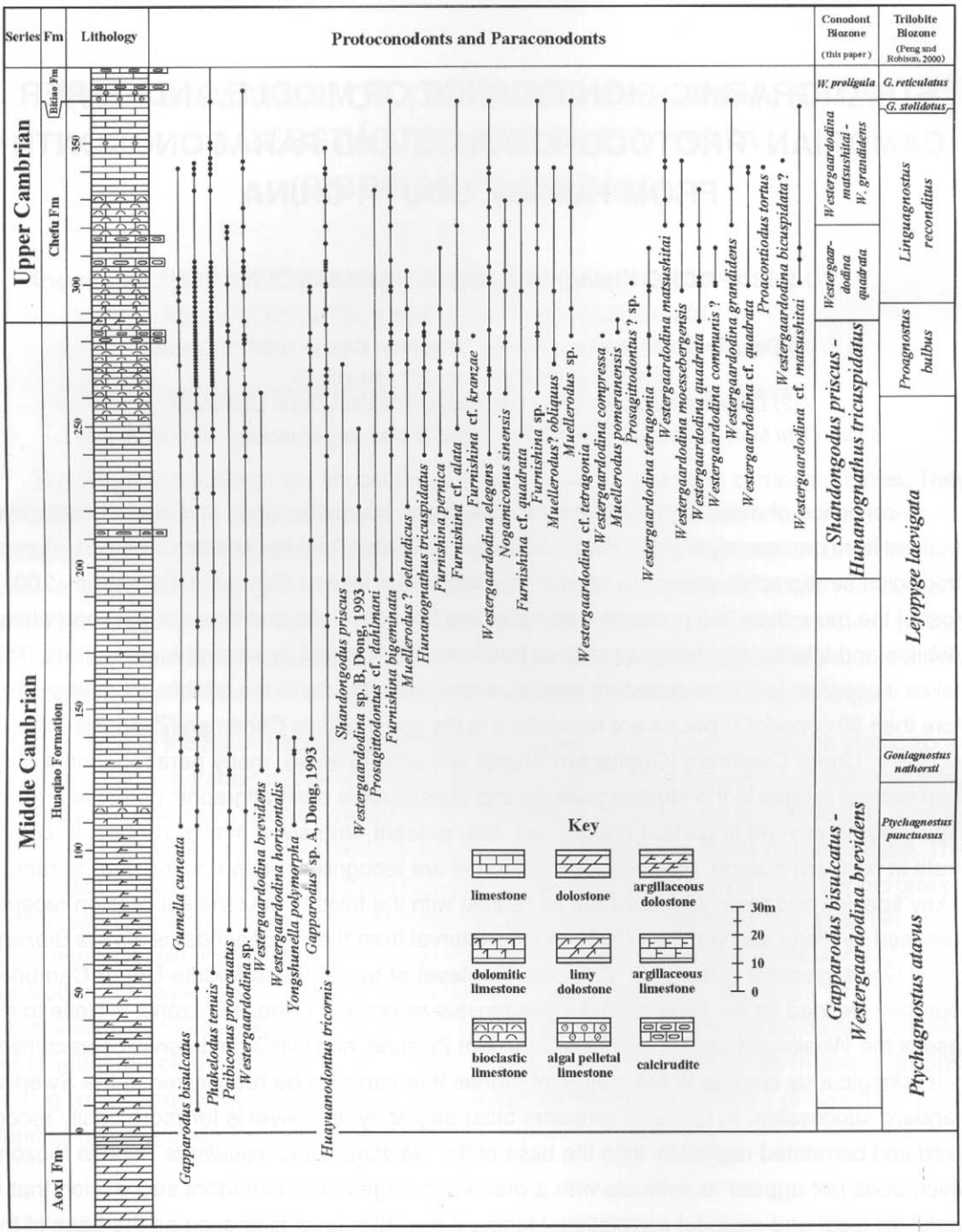

Fig. 1. Stratigraphic ranges of protoconodonts and paraconodonts in the upper Middle Cambrian and lower Upper Cambrian in the Paibi section, Hunan (from Dong and Bergström, 2001).

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