

## MICROFACIES OF THE HONGGULELENG FORMATION (LATE DEVONIAN, NW XINJIANG, CHINA)

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The type section of the Hongguleleng Formation, at the Boulongour Reservoir close to the small village of Samontoma, is one of six Late Devonian sections (Boulongour, Genaren, Oiligao, Emuha, Aoroa and Hebukehe River) in the northernmost Uygur Autonomous Region of Xinjiang, chosen for evaluation of the impact of the Upper Kellwasser Event at the Frasnian–Famennian boundary.

At the Boulongour Reservoir, the uppermost part of the subjacent Zhulumute Formation consists of volcanoclastic sediments with some beds bearing plant remains. The grain size of the tuffaceous beds at the formation boundary decreases from sand/silt to shale with the first bed of the Hongguleleng Formation forming the base of a bioclast-dominated calcareous depositional environment (Xia, 1997).

The formation is divided into two units on the basis of sedimentary characteristics. Unit 1 (approx. 64 m) consists of limestone beds (wacke- to packstone) yielding brachiopod-rich layers with subordinate bryozoans, ostracods and crinoid debris at the base. The fossil diversity increases a few metres above the base of the formation with crinoids and bryozoans becoming the major components; clasts of spiculite occur in some beds. Limestone beds (wacke- to grainstone), generally 1–15 cm thick, alternate with fine grained mudstones from a few cms (middle part of Unit 1) to a maximum of 200 cm (lower and upper third). The upper part of the unit is characterized by layers of carbonate nodules (composed mainly of spiculite mudstones or pelmicritic wackestones) rather than continuity of limestone beds. Cephalons of phacopid trilobites are prominent in some limestone nodules.

The first laterally continuous limestone bed above the latter horizon marks the base of Unit 2 (total thickness:

32 m). As in Unit 1, it consists of limestone beds alternating with shale intervals, though with alteration more constant. Beds usually do not reach a thickness greater than 3–5 cm. Inter-bedded mudstone horizons have an average thickness c. 20 cm. The microfacies is dominated by fine-grained peloidal limestones with thin layers of crinoidal debris and sparsely distributed brachiopod and trilobite shells, as well as crinoidal wacke- to packstones (with skeletal grains of non-crinoidal invertebrates subordinate). As the top of the unit is approached, the micritic fraction of the matrix increases.

The sequence is continued above the Hongguleleng Formation by an approximately 100 m sequence of green siliceous and purple silty/sandy mudstones to be discriminated as the Samontoma Formation, named after Samontoma village. This interval has intercalations up to a few metres in thickness of thick-bedded crinoidal grainstones; prominent among these is the low, crinoid- and blastoid-rich ridge referred to as Blastoid Hill by Waters et al. (2003).

Waters, J.A., Maples, C.G., Lane, N.G., Marcus, S., Liao, Z.T., Liu, L., Hou, H.F. & Wang, J.X. (2003): A quadrupling of Famennian pelmatozoan diversity: New Late Devonian blastoids and crinoids from northwest China. – *Journal of Paleontology*, 77(5): 922–948.

Xia, F.S. (1997): Marine microfaunas (bryozoans, conodonts and microvertebrate remains) from the Frasnian–Famennian interval in northwestern Junggar Basin of Xinjiang in China. – *Beiträge zur Paläontologie*, 22: 91–207.