



Status of Early Paleozoic biostratigraphy of the Tethyan Himalayan successions

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The early Paleozoic successions of the Tethys Himalaya is exposed in the Spiti- Zanskar, Kashmir, Kumaun and in Garhwal regions. The most complete sequence described from the Tethys Himalayan region is exposed in the Spiti- Zanskar basin. The sedimentary succession of Spiti-Zanskar basin has a thick sequence of early Paleozoic age. The early Paleozoic rocks of these basins rest over the crystalline rock. The contact between underlying crystallines with the Paleozoic rocks has been interpreted unconformable/conformable and gradual/faulted by various workers. There is no definite record of faunal elements from the Neoproterozoic metasedimentary rocks of both the basins. Above the metasedimentary rocks of Neoproterozoic the fossiliferous Cambrian rock rests. The fossiliferous Cambrian sequence of Spiti- Zanskar basins are corresponding to one another as far as the distribution of fauna is concerned. The early Cambrian successions in both the basins have more or less identical ichnogenera. Whereas, the Middle Cambrian of Zanskar Basin is dominated by agnostid trilobites along with polymerid trilobites on the other hand in the Spiti Basin Pagetides along with polymerid trilobites dominates during this period with few agnostid. In the Kashmir Basin the early Cambrian is equally dominated by Ichnofossils and the Middle Cambrian is controlled similarly by trilobite fauna like that of Spiti- Zanskar basins. In the Kumaun-Garhwal region so far no detailed studies have been carried out however earlier studies and in recent years ichnofossils of early Cambrian age has been reported along with some fragmentary report of trilobites. But from the Ordovician and Silurian successions of Garhwal basin brachiopods have been reported. The Ordovician succession of Spiti basin indicates shallow water depositional cycle, whereas the Zanskar basin indicates the sub aerial fluvial and deltaic depositional environment. A gradational contact has been observed between the Ordovician and Silurian succession in both the region. An abrupt drop in bryozoans diversity have been reported between the Ordovician and Silurian boundary by some workers in the Spiti basin. The succession contains bryozoans along with a wide variety of marine calcareous algae, corals and few trilobites and brachiopods. On the other hand from the Zanskar region so far very poorly preserved body fossils have been reported during this period. The Overlying Devonian succession is one of the most characteristic marker horizon traced throughout the north-western Himalaya which mainly comprises of snow-white friable sandstone and compact orthoquartzite. In the Spiti region, ichnofossils has been reported from Devonian along with some meniscate burrows, but there is no report of faunal elements from Zanskar or Kashmir basin from this unit.