The Exploits Group in the context of the Exploits Subzone

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The Early-Middle Ordovician volcanosedimentary rocks of the Exploits Group were tectonically linked to other variably-aged arc and back-arc supracrustal sequences and deformed arc-root and ophiolitic complexes in the western Exploits Subzone prior to the Late Ordovician deposition of the Badger Group. All these rocks are interpreted to have formed in the extended oceanic crust of a marginal basin which was bounded on both sides by early and mid Ordovician subduction zones. During episodic crustal stretching events, Ordovician depocentres migrated with time across and along the marginal oceanic basin. Most were situated seaward of the compressional forearc sliver and the main Penobscot ocean-continent collision zone, which lay to the south of the Dunnage Mélange.

It is postulated that the volcanic edifice of the western Exploits Subzone arc complex was split to form Early Ordovician rift basins which were filled with pyroclastic and epiclastic debris. Using present coordinates, these originally northwest-elongated depocentres developed northeast-trending subbasin margins in the Middle Ordovician, when small promontories may have formed on the northwest-trending segments of the Early Ordovician island arcs. These remnant Iapetan basins were partially or completely closed as a consequence of Silurian transpressional deformation. During the early stages of the oblique Silurian collision between composite Gondwana and composite Laurentia, an orogen-parallel convergence vector was dominant. At this time, the Exploits Subzone arc complexes were translated alternatively southwestward and northeastward within bivergent oblique-slip thrust systems, which were strongly influenced by the Ordovician configuration of the intra-arc rift asins.