

## **Review of volcanic and sedimentary terrane correlation between the Canadian Appalachians and British Caledonides**

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Correlation of metavolcanic and associated sedimentary assemblages from Newfoundland into New Brunswick and Maine based on lithology, tectonic setting, faunal provinciality and paleomagnetic data has led to a reappraisal of the tectonic evolution of the Appalachian orogen. Both the Laurentian and Avalonian margins experienced an Early to Middle Ordovician arc-continent collision when faunal separation between them was greatest. Following accretion of these two arcs (Notre Dame and Gander arcs respectively), a subduction polarity change along the Gander margin of Avalonia led to the formation of the Exploits arc and the opening of the Middle Ordovician Tetagouche/Exploits back-

arc basin. British and Irish Ordovician volcano-sedimentary assemblages show similar relationships, although their lateral continuity is disrupted by major sinistral faults. Early Ordovician calc-alkaline volcanic rocks from south Wales are correlated with the Gander arc, while Llanvirnian-Caradocian bimodal basalt-rhyolite volcanism of Wales and Leinster equate with the Tetagouche-Exploits back-arc basin. Llandeilian-Caradocian calc-alkaline extrusives from Slieve Aughty, the southwestern Longford-Down inlier and Grangegeeth in Ireland, and the English Lake District are extensions of the Exploits arc, which formed by trenchward migration of the rifted Gander arc during opening of the

Tetagouche/Exploits back-arc basin. The early Ordovician Notre Dame arc equates with the South Mayo volcanics, Ireland, and the Ballantrae Complex in Scotland. In this reconstruction, Exploits arc equivalent rocks occur north of the so-called

“Iapetus Suture” in Ireland, but south of it in England. Our work suggests that the true suture in the British Isles extends east-west, north of the mid-Ordovician arc volcanics, and is displaced by northeast-trending strike-slip faults.