

Paper No. 36-1**Presentation Time:** 8:00 AM-8:20 AM**NEW DATA ON THE OPENING OF THE TACONIC SEAWAY IN NEWFOUNDLAND**

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Investigations in the Baie Verte oceanic tract (BVOT) and adjacent continental margin rocks of the Fleur de Lys belt in northern Newfoundland support earlier contentions that the latest Neoproterozoic (565-550 Ma) magmatism on Laurentia's Appalachian margin is related to the opening of the Taconic seaway and isolation of a continental ribbon (Dashwoods in Newfoundland). Based on paleomagnetic evidence, Iapetus' main oceanic tract had opened at 580 Ma or earlier. The Birchy Complex (BC), which is situated along the boundary of the BVOT and the Fleur de Lys belt, represents a structural unit of strongly deformed tholeiitic mafic rocks locally structurally interleaved with minor metaclastic- and serpentinised ultramafic rocks. Part of the BC was previously referred to as *mélange* because of the presence of isolated lenses of mafic and ultramafic rocks (mantle?) interleaved with clastic sediments and its position beneath the allochthonous Lower Ordovician (c. 489 Ma) BVOT. A large BC meta-gabbroic body yielded a U-Pb zircon age of 558 ± 1 Ma, which suggests that the mafic and ultramafic bodies are remnants of transitional oceanic crust and mantle formed during the early stages of opening of the Taconic seaway. The structurally interleaved and strongly transposed sediments may represent their original stratigraphic cover.

Rifting that led to opening of the Taconic seaway may have been symmetric or asymmetric, either process could have exhumed mantle onto the sea floor, particularly in magma-poor margins. The pre-dominance of rift-related clastic rocks in Dashwoods suggests the latter formed the lower plate if rifting was asymmetric. The discovery of inherited zircons in some of the oceanic elements of the BVOT also supports earlier inferences that the Taconic seaway was narrow and sediment-rich. The zircons were probably inherited when suprasubduction zone spreading associated with subduction initiation and the seaway's closure, took place in oceanic lithosphere overlain by an extensive blanket of Laurentian-derived sediment.

The age of the BC also supports earlier proposed links with rocks along the Fair Head-Clew Bay line in Ireland, opposite the displaced Connemara microcontinent, and mafic magmatism associated with rifting and formation of the Precordillera ribbon continent in the Ouachita embayment.

[Northeastern Section - 43rd Annual Meeting \(27-29 March 2008\)](#)

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Session No. 36

[NEtectonics: Paleozoic Accretion of Arcs and Microcontinents in the Appalachians: In Honor of Douglas W. Rankin](#)

Hyatt Regency Buffalo: Regency Ballroom

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