

to the Exploits subzone of the Dunnage Terrane in the Newfoundland Appalachians, from which preliminary detrital zircon data were previously reported. Between Laurentian rocks of the Scottish Highlands, and Ganderian and Avalonian rocks of England and Wales, the terrane is interpreted as representing deposition in the closing Iapetus Ocean. Suggested depositional settings include an accretionary fore-arc, and a back-arc environment attached to Laurentia. Deformation in the terrane records convergence, with significant sinistral transpression. Zircons were extracted from quartzose wackes from three tracts in the northern part of the terrane, deposited in the late Ordovician. Zircons from a sample deposited early in the depositional history display a range of U-Pb ages from Paleoarchean to late Ordovician, including the oldest such grain yet recorded from the British Isles. Neoarchean, Paleoproterozoic, and Mesoproterozoic age populations suggest sources in Laurentia, including the Grenville and Trans-Hudson orogens. The overall age distribution is comparable to that in metasedimentary rocks in the Taconian orogen of W. Newfoundland. Several analyses from a younger sample plot on a discordia line suggesting overprinting of Archean zircon in the Early Paleozoic, consistent with Cambrian tectonothermal reworking of Laurentian detritus in the Grampian orogen, which then acted as the proximal source for detritus.

The Meguma Terrane of Nova Scotia lies on the opposite margin of Iapetus, and has been interpreted to represent a fragment rifted from Gondwana. The terrane is dominated by a thick package of turbidites assigned to the Meguma Group (or Supergroup). Two samples were investigated. A sample from the stratigraphically lowest part of the succession in SW Nova Scotia yielded a remarkably uniform population of grains with ages in a single broad cluster in the late Neoproterozoic, plus rare older Proterozoic grains. A sample with a Middle Cambrian depositional age, collected from a rare shelly fossil locality higher in the succession at Tancook Island, yielded a much more diverse population of zircons with peaks in the late Neoproterozoic (~600 Ma), and mid Paleoproterozoic (~2 Ga).

Sand in the Iapetus and Rheic Oceans: new detrital zircon data from terranes in the Appalachian/Caledonide Orogen

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Detrital zircon U-Pb geochronologic studies can potentially provide important new information on the links between terranes in orogens; we report on new data from two terranes in the Appalachian-Caledonide system. The Southern Uplands terrane is a belt dominated by Ordovician-Silurian metasedimentary rocks in the British Caledonides, and is equivalent