land and the foreland, initially separated by several hundred km, converged and were exhumed. This model is consistent with the results of numerical modelling of large, hot, long-duration orogens, and supports other independent evidence that the hinterland of the Grenville Orogen was the site of an orogenic plateau.

Recognition of the fundamental spatial and temporal asymmetry of the Allochthon Boundary Thrust and its pivotal role in focusing exhumation provides the basis for the first unified tectonic model to link the Ottawan and Rigolet orogenic phases in a single long-lived convergent orogen.

Two high-pressure belts in the Grenville Province? Tectonic setting of the Ottawan and Rigolet orogenic phases of the Grenvillian Orogeny and the role of the Allochthon Boundary Thrust

Toby Rivers
Department of Earth Sciences, Memorial University, St. John's, NL, Canada A1B 3X5.

Recent recognition of high pressure (ca. 1400–1500 MPa) metamorphism at ca. 1000 Ma in the Parautochthonous Belt, together with earlier reports of ca. 1700–1800 MPa metamorphism at ca. 1090–1060 Ma in allochthonous terranes structurally above the Parautochthonous Belt, implies that there are two high pressure belts in the Grenville Province. These belts occur back-to-back across the Allochthon Boundary Thrust, a major ductile shear zone that separates parautochthonous terranes in the northwestern Grenville Province from structurally overlying allochthonous terranes to the southeast. A tectonic model for the evolution of these two high pressure belts in the Grenville Orogen during the 110 My of convergence comprising the ca. 1090–980 Ma Grenvillian Orogeny is described. Early tectonic burial during the Ottawan orogenic phase (ca. 1090–1020 Ma) involved formation of eclogite in lower crustal rocks in the orogenic hinterland. The eclogite was exhumed to mid-crustal depths and transported as large nappes towards the erosion front on the Allochthon Boundary Thrust. Subsequent formation of eclogite during the Rigolet orogenic phase (ca. 1005–970 Ma) involved deep burial of rocks derived from the former orogenic foreland and their exhumation beneath the Allochthon Boundary Thrust, which thus acted as a material focal plane across which high-pressure rocks from the hinter-

Atlantic Geology, 2007, Volume 43, Number 1