

## **Crustal Growth and Continental Collisions in the 1.9-1.8 Ga Trans-Hudson Orogen**

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The Paleoproterozoic Trans-Hudson Orogen extends from South Dakota, through the exposed shield in Saskatchewan-Manitoba and across Hudson Bay to northern Quebec, and is linked with Paleoproterozoic orogenic belts Labrador, Greenland and Scandinavia. The orogen is part of a greater "Pan-American" Paleo- to Mesoproterozoic system whose evolution involved assembly of dispersed Archean minicontinents and accreted juvenile Early Proterozoic terranes during a major episode of North American continental assembly. The 1.9–1.7 Ga Trans-Hudson Orogen in Manitoba and Saskatchewan preserves extensive juvenile crust as well as three Archean cratons (Superior, Hearne and Sask), and was not severely modified by post-orogenic extension or magmatism. During the 1990's, LITHOPROBE seismic reflection, refraction and magnetotelluric data, coupled with new geological, geochronological, geochemical and paleomagnetic information, generated a new 4D understanding of the orogen. Seismic reflection images of the Trans-Hudson indicate that the detached and imbricated crustal elements of the accreted juvenile terranes have 100's of km overlap on the lower plate along low-angle décollements. Delamination or flaking of colliding terranes and overthrusting of their crustal elements onto lower plate lithosphere may be a fundamental crustal growth process.