

Preliminary paleomagnetic assessment of the Cambrian Port au Port Group, Port au Port Peninsula, Newfoundland, Canada

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The Cambrian Port au Port Group is a 500 m-thick unit of carbonate and clastic rocks exposed in the Port au Port Peninsula, NL. The group is associated with the passive margin phase of the Laurentian margin following breakup of the supercontinent Rodinia. Paleomagnetic assessment of natural magnetic remanence in carbonate and red siltstone specimens aimed to reveal ancient directions, allowing a paleoposition of this region during deposition to be calculated. Several previous paleomagnetic studies from the Port au Port Peninsula reported results for the overlying Early Ordovician St George and Table Head Groups, finding that the ancient magnetic directions were likely overprints acquired during the Alleghenian and Taconic orogenies, although two primary Ordovician paleomagnetic results are still used in syntheses of Laurentia paleogeography.

Preliminary paleomagnetic results of the Port au Port Group have revealed similar findings as previous studies on the peninsula. The group was sampled in 20 sites, with an additional site for the underlying Hawke Bay Formation. The 21 sites produced 198 specimens, with 15 of those sites producing interpretable results. Demagnetization of the specimens revealed very weak magnetizations that were nevertheless resolvable as three recognizable magnetic components: *V*, *I*, and *M*. The *V* component is interpreted to be a Viscous Remanent Magnetization typically removed by 20 mT, showing a steep down, northerly direction that is similar to the present-day field direction. Leftover magnetization was coercively hard and was removed by thermal demagnetization. The *I* component unblocked over an intermediate temperature range up to 450°C, with a shallow down or up and southeasterly direction. The *M* component was defined over a higher temperature range up to 580°C, in which magnetite unblocked and a shallow down, southeastern direction was also removed.

The data were analyzed *in situ* and bedding tilt corrections were applied, allowing a fold test to be conducted. The fold test was inconclusive and it cannot be concluded whether the remanence was acquired before or after deformation. A preliminary paleopole was calculated (40° N; 151 E) and, when compared to the known apparent polar wander path of Laurentia, the paleopole falls approximately 30° east longitude off of the ~310 Ma portion of the path, implying that the study area may have experienced minor counterclockwise rotation since remanence was acquired. The specimens have not yet been fully demagnetized and require further thermal demagnetization steps at higher temperatures to unblock hematite, providing additional directional information.