

Origin of the Odd-Twins: A magnetic unit in the Ordovician foreland basin of the western Newfoundland Appalachians

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A conspicuous pair of magnetic anomalies, known as the 'Odd-Twins,' is present off the coast of Western Newfoundland (Ruffman and Woodside 1970). Recent swath bathymetry and magnetic mapping north of Port au Port Peninsula allow this anomaly to be traced near the coast, within 7 km along strike from outcrop of the Late Ordovician Long Point Group.

A magnetic survey was carried out on land using a portable proton magnetometer. Six hundred and eleven readings were taken on 22 traverses. Fifteen traverses intersected a conspicuous, NE-SW trending linear feature that projects towards the eastern offshore anomaly. A second anomaly, approximately 1 km to the northwest, was intersected by five traverses. Projected, it is aligned with the western offshore anomaly.

The eastern anomaly occurs close to the base of the Misty Point Formation of the Late Ordovician Long Point Group.

The western anomaly occurs within the Misty Point Formation. Both anomalies strike NE, and are asymmetric, with steep gradients on the SE side. This is consistent with an origin in NW-dipping, stratigraphically controlled magnetite-bearing units in the Long Point Group observed in outcrop. Toward the southwest, the asymmetry reverses. This effect probably results from overturning of the Long Point Group in the footwall of the Acadian Round Head Thrust.

The Odd-Twins anomaly provides an essential stratigraphic tie between the on-land succession and an extensive offshore seismic data-set resulting from petroleum exploration.

RUFFMAN, A. AND WOODSIDE, J. 1970. The Odd-Twins magnetic anomaly and its possible relationship to the Humber Arm Klippe of Western Newfoundland, Canada. *Canadian Journal of Earth Sciences*, 7, pp. 326-337.