# $^{40}Ar/^{39}Ar$ ages from the Lewis Hills ophilotic massif, west Newfoundland (poster)

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Three different ophiolitic assemblages occur in the Bay of Islands area of West Newfoundland: (1) the normal ophiolitic sequence of the Bay of Islands Complex (zircon age 486 Ma); (2) the Little Port Complex, dated at 505 Ma and variously interpreted as formed in an island arc or oceanic transform environment; and (3) amphibolite gneisses and ultramafic to trondjemitic intrusives in the western Lewis Hills Massif (Mount Barren gneisses). These have in the past been correlated with the Little Port Complex and related either to transform or arc activity, but recently even this correlation has been questioned.

The western Lewis Hills assemblage is in contact to the east with an unusually thick sequence of dunitic to gabbroic cumulates thought to be part of the Bay of Islands Complex proper. The relative age of these two assemblages is of critical importance to the interpretation of ophiolite formation and emplacement in western Newfoundland. We have reexamined the contact between them and agree with Karson and Dewey (1978) that the dunites clearly intrude previously deformed amphibolites. We have also performed six new $^{40}Ar/^{39}Ar$ determinations on amphibole separates from the western Lewis Hills, collected at various distances from the contact with the Bay of Islands Complex dunites. An amphibolite 2.0 km from the contact has a plateau age of 493 ± 5 Ma, and a pegmatite 0.5 km from the contact has a plateau age of 489 ± 6 Ma. A cross-cutting microgabbro dyke which postdates the deformation has an apparent age of 500 ± 5 Ma but can be shown to contain excess argon using "isochron" plots. These other samples collected further from the contact have very low K contents and give disturbed spectra with large errors in all heatsteps. Two of these show significantly older ages, up to 1000 Ma, and most likely contain excess argon (although the presence of much older rocks cannot be ruled out).

Our data are consistent with the western Lewis Hills assemblage predating the Bay of Islands Complex, and correlation with the Little Port Complex seems likely.