magmas, but these are not always easily visible through the geochemical and isotopic diversity connected to the contrasts in basement terranes along the belt. There is a dire need for other types of diagnostic data (*e.g.*, Pb isotopes, accessory mineral chemistry) that can better unravel the respective contributions of magma sources, contaminants and fractionation histories to regional prospectivity.

There are contrasts in the erosional levels revealed in individual complexes, from endocontact disseminated mineralization in high-level granites, to sheeted vein complexes and related hydrothermal lodes associated with hidden subsurface plutons. The Grey River - Moly Brook area provides the best example of the latter setting, and has all of the expected characteristics of a large zoned hydrothermal system. This area is of particular interest in the context of exploring such blind systems, because high-resolution geophysical data provide potential 3D information to augment the direct data from drilling. Exploring for targets associated with hidden intrusions is never going to be easy, so examples such as this, for which multiple data sets exist, are obvious priorities for expanded research. **(*SS3, Wed. 2:00*)**

Lawrence Head volcanics and Dunnage Mélange, Newfoundland Appalachians: Ordovician ridge subduction or back arc rift?

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We review the geological setting and report new geochemical trace element data from the Ordovician Lawrence Head Volcanics (LHV), the underlying gabbro sills of the Exploits Group, and mafic blocks and dikes in the Dunnage Mélange. In combination with existing published analyses and ages of these rocks, the volcanics and sills are indistinguishable in composition and age, and the data are consistent with the hypothesis that they represent the same (mostly E-MORB composition) magmatic event in the early-mid Darriwilian (~465 ± 2Ma). The LHV and their enclosing strata show regional evidence for: 1) decline of volume and grain size of arc-derived volcaniclastics over the uppermost turbidite sediments below the LHV; 2) change to shallow marine conditions locally by the end of LHV volcanism, followed immediately by significant subsidence and 3) no evidence of coarse-grained clastic input, nor of normal faulting, during or immediately after LHV volcanism. Ridge-trench interaction (ridge subduction) at a NW-dipping subduction system is consistent with all of these features, but a rift (back-arc) origin over a SE-dipping subduction zone can only accommodate the compositions, and is inconsistent with the geological evidence. The Dunnage Mélange (DM) has been interpreted either as olistostromal in a developing backarc rift basin, or as a subduction accretionary prism. Peraluminous intrusions in the Mélange (Coaker Porphyry - CP) are more readily explained by ridge subduction, and a previously reported zircon age (469±4) is reasonably consistent with the age of the LHV and gabbro sills. Blocks of volcanics and gabbro in the DM are lithologically similar to the LHV and related gabbro sills, but some blocks, mainly from the eastern half of the DM, do not resemble them geochemically. Localization of the CP in the eastern area of DM, and of most of the large LHV-derived volcanic blocks in the western DM, suggests a slightly younger age, and perhaps a different mechanism (olistostromal versus accretionary), for the origin of the western DM. **(*SY1, Poster*)**