CAMBRO-ORDOVICIAN STRATIGRAPHY AND STRUCTURE, WESTERN NEWFOUNDLAND AND SOUTHEAST LABRADOR

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Mapping of the Cambro-Ordovician carbonate platform sequence at 1:50,000 scale continued on the Lomond map area (12H/05) with some mapping on the Pasadena map sheet (12H/04). The area is underlain by the Goose Arm thrust stack, a complex, polydeformed, tectonic assemblage that lies in the footwall to the main elements of the Humber Arm Allochthon (HAA). The northwest-verging stack comprises several thrust slices, is deformed by an east-verging D2 deformation including folds, back thrusts and strongly developed, penetrative cleavage. Some of the thrusts and their co-structural slices are inverted.

Some important highlights are as follows:

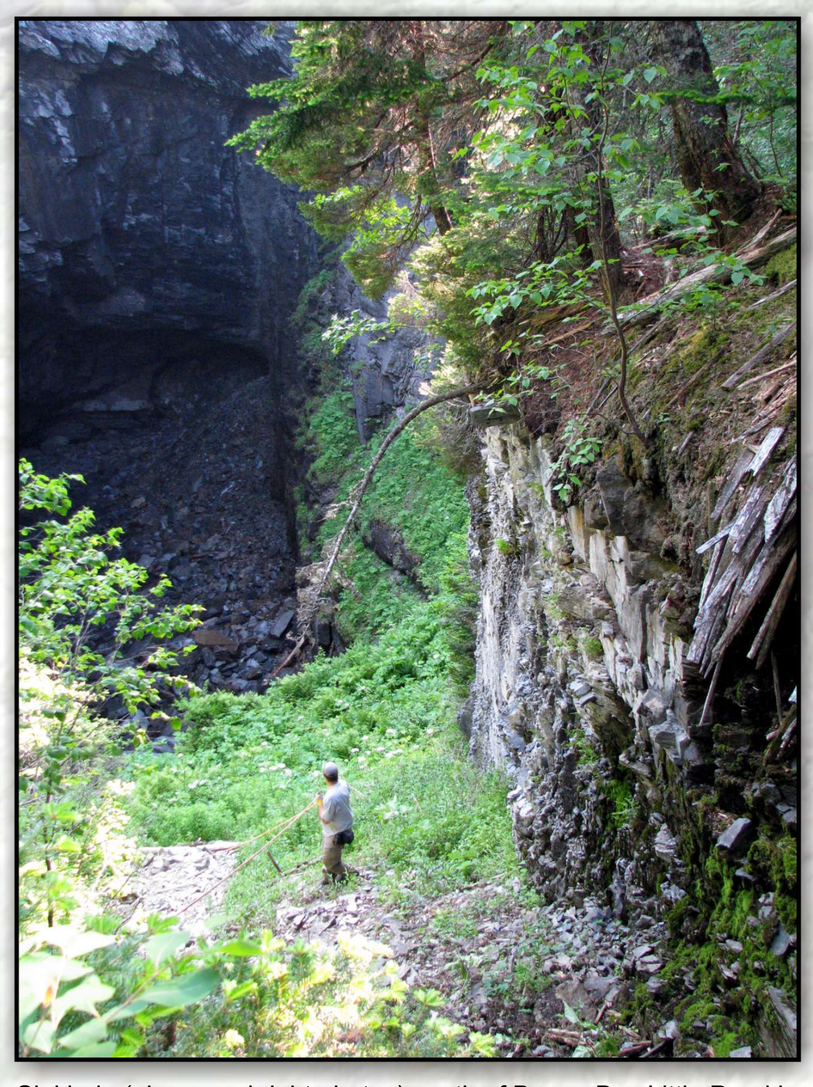
- The stack places the carbonates above Goose Tickle Group slates or a structurally wedge-shaped slice of Middle Cambrian to Lower Ordovician Weasel Group, itself overlying the slates. The Weasel Group lies structurally below locally dismembered rocks of the HAA;
- Near Goose Arm, the leading edge of the stack overlies mélange containing large olistoliths of ultramafic rocks and other sedimentary clasts; copper mineralization is associated with the ultramafic masses;
- A mafic dyke cuts the stack and the broken elements of the HAA near Weasel Ponds;
- Several centimeter-wide lamprophyre dykes cut the Mt. Musgrave Group above the Humber Valley, east of the stack;
- A compacted meta-quartz-arenite dyke cuts red laminated silty shale of the McKenzies formation, HAA (likely Summerside Formation equivalent) and hosts minor copper mineralization near Wigwam and Blue ponds;
- Locally, grey Goose Tickle slates have excellent dimension stone/roofing qualities;
- High angle faults cutting limestones of the Middle Ordovician Table Point Formation are associated with decimeter-wide, porous body of sucrosic and sparry dolomite (HTD). At least one of these fault-linked bodies is truncated by mélange of the HAA implying a pre-emplacement origin. Similar porous dolostones are commonly associated with major shear zones throughout the area.

Looking north across Goose Arm to Penguin Head, the leading edge of the Goose Arm Thrust Stack where folded Ordovician carbonates (headland) overlie Goose Tickle Group flysch at sea level.

A large olistolith of altered ultramafic rock, one of several in the area, lying in the immediate footwall of the GATS just south of Goose Arm. Copper mineralization is associated with some of these blocks.

Close up of a porphyritic diabase dyke that trends NNE and cuts both carbonate rocks of the GATS and broken formation of the Humber Arm Allochthon (HAA).

Red, thin bedded, heterolithic shale and sandstones of the McKenzie Formation of the HAA cut by a quartz arenite dyke which is compacted and in part dismembered. Malachite is widely distributed along the margin of the dyke.



Sinkhole (above and right photos) south of Bonne Bay Little Pond in limestones of the Table Point Formation. The fault to the right is flanked by HTD dolostones and is truncated by strongly cleaved Taconic mélange.