

Silurian cover, Late Precambrian - Early Ordovician basement and the chronology of Silurian orogenesis in the Hermitage Flexure: implications for gold metallogeny in southwest Newfoundland

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Redefining the La Poile Group as an Early - Late Silurian (429 ± 2 Ma to 422 ± 2 Ma) terrestrial volcano-sedimentary succession and establishing its external relationships has led to its recognition as a cover sequence developed upon a basement complex. Basal La Poile Group conglomerate rests nonconformably on Late Precambrian basement granite (578 ± 10 Ma), which crosscuts undated high-grade amphibolitic gneiss and low-grade sedimentary and volcanic rocks. This composite sub-La Poile Group basement also contains early Paleozoic plutonic constituents, the youngest of which is Early Ordovician (495 ± 2

Ma) in age, that delimit discrete pre-Silurian tectonothermal events within the complex. Early Silurian granites (429 ± 2 Ma; 430 ± 2 Ma), which are in part synchronous with the accumulation of subaerial cover deposits, are restricted to the sub-La Poile basement and have been affected, in places, by mesozonal synplutonic shear zones. Later Silurian plutons were emplaced syntectonically during regional deformation and dynamothermal metamorphism of the Silurian cover and contemporaneous remobilization of its basement. Thrust imbrication of cover and basement, which was preferentially sited along the fault zones

that bound the La Poile Group, occurred shortly after deposition, prior to the emplacement of Late Silurian granite porphyry ($418 \pm 2/-1.5$ Ma). The older Silurian granites and the thrust-imbriated assemblage of basement and cover are crosscut by Late Silurian granite plutons (419 ± 2 Ma); all have been affected by further inhomogeneous ductile deformation that predates the post-tectonic intrusion of Early Devonian granite (390 ± 3 Ma).

The Silurian La Poile Group and its underlying Late Precambrian - Early Ordovician basement delimit the southern extent of the medial Ordovician Dunnage Zone in the southwest Hermit-

age Flexure region of the Newfoundland Appalachians. The sub-La Poile basement and its cover, both of which overthrust Dunnage Zone rocks, were variably deformed and metamorphosed during a climactic Silurian orogeny sited along the southeastern crystalline margin of the Newfoundland Central Mobile Belt. The protracted and episodic nature of basement-cover interaction and crustal remobilization near this major tectonostratigraphic boundary has important implications for the control and localization of gold mineralization.