

## **Redefining Contact Relationships Between McLennan Group and Surrounding Lithotectonic Elements in the Southern La Ronge Domain, Trans-Hudson Orogen, Saskatchewan**

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### **ABSTRACT**

*The McLennan Group, a lithotectonic element of the La Ronge Domain, has traditionally been viewed as a molasse deposit lying unconformably upon rocks of the Central Metavolcanic Belt (CMB) and the MacLean Lake Belt (MLB). Structurally, it lies between these two northwest dipping belts, and is overthrust along much of its length by the CMB along the McLennan Lake Tectonic Zone. At the south end of the domain, the exposed relationship between the McLennan Group and the CMB is clearly interpreted to be an unconformity.*

*Based on recent remapping of parts of the region, two typically distinct supracrustal assemblages are recognized. Assemblage A (> ca. 1855 Ma), a predominantly volcano-plutonic assemblage that is exclusively made up of CMB rocks, comprises mafic to intermediate and minor felsic volcanics which are intruded by simple to multiphase plutons. Assemblage B ( $\leq$  1855 Ma) is formed by polymictic volcanogenic conglomerate, psammite, calcareous psammite, psammopelite, trachytic-textured intermediate volcanics, amphibolite, and arkosic rocks including those of the McLennan Group. It is intruded by quartz-phyric granite porphyry, mafic to felsic dykes and sills, and multiphase granites. The basal parts of Assemblage B are characterized by a heterogeneous volcano-sedimentary succession that is gradational into and intercalated with overlying McLennan arkoses and arkosic conglomerates. Local unconformity exists between quartz-phyric granite porphyry, which intrudes polymictic volcanogenic conglomerate and overlying McLennan arkose, and arkosic conglomerate. However, major regional unconformity exists between Assemblage A and Assemblage B.*

*The basal, heterogeneous part of Assemblage B is of economic interest because it contains a diversity of gold occurrences which differ markedly from the shear zone-hosted deposits of the CMB. Examples of such occurrences are provided by showings at Greywacke Lake, Ramsland Lakes, and North Lake. The extended package of ca. 1840 to 1855 Ma supracrustals, overlying the CMB, and the similarly aged 'auriferous' volcano-sedimentary package now identified throughout the Glennie Domain, clearly represent a metallotect that has been underexploited because of a lack of deposit models.*