The Liscomb Complex, Meguma terrane, Nova Scotia: basement or urban legend?

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In 2008, a detailed (1:10 000 scale) bedrock mapping and sampling project was initiated in the Liscomb area in the central Meguma terrane to better constrain the metamorphic and structural history of the area. The oldest units exposed in the area are the Late Neoproterozoic to Early Ordovician Goldenville Group and overlying Halifax Group. The lower part of the Goldenville Group is the metasandstone-dominated Taylors Head Formation, whereas the upper part consists of the distinctive manganiferous coticule-bearing metasiltstone of the Beaverbank Formation. Units in the overlying slate-rich Halifax Group are the Cunard Formation and overlying Glen Brook Formation. These units are similar to those established elsewhere in the Meguma terrane. The metasedimentary units

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are deformed into regional, east- to northeast-trending F_1 folds with well-developed axial planar cleavage (S_1), produced during the Devonian Neoacadian Orogeny. Intersection lineations (L_1) plunge gently to the northeast and southwest. Deformation was accompanied by greenschist-facies (biotite-grade) metamorphism.

A suite of ca. 375–370 Ma igneous units intruded the Goldenville and Halifax groups in the Liscomb area. They include: (1) tonalite to quartz diorite with magma-mingling textures, and minor gabbro; large garnet crystals are locally abundant; (2) granodiorite with magma-mingling textures and tonalitic enclaves; (3) coarse-grained to megacrystic biotite-muscovite monzogranite; (4) medium- to coarse-grained muscovite monzogranite; and (5) fine- to medium-grained muscovite monzogranite to syenogranite. These plutons produced a narrow contact metamorphic zone, 200–400 m in width, consisting of spotted hornfels to granofels containing sillimanite, andalusite, cordierite, ± garnet, and ± staurolite superimposed on biotite-zone regional metamorphic assemblages.

The results of this project do not support previous interpretations of the presence in the Liscomb area of basement gneissic units with upper amphibolite- to granulite-facies metamorphic assemblages. Units previously identified as gneiss appear to be igneous units with magma-mingling textures or superimposed protomylonitic fabric. No extensional structures were observed to support the previously proposed core-complex scenario. Therefore we propose that the term 'Liscomb Complex' should be abandoned.