

Big Bald Mountain project geology of Mountain Brook-Stony Brook area, NTS 21 O/1h

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The Mountain Brook-Stony Brook area is underlain by volcanic and sedimentary rocks of the Miramichi and Tetagouche groups. From oldest to youngest, the formations present are the Chain of Rocks and Knights Brook formations (Miramichi

Group), and the Patrick Brook, Stony Brook (new name), Nepisiguit Falls, Flat Landing Brook, and Boucher Brook formations (Tetagouche Group).

The Chain of Rocks Formation predominantly consists of medium- to thick-bedded, light green quartzite, and rare interbeds of dark grey phyllite. The Knights Brook Formation comprises thin- to medium-bedded, light to medium grey or green quartzite and quartz wacke, and dark grey to dark green phyllite and slate. Intercalated with the Knights Brook Formation are local felsic meta-igneous rocks that appear to occur as sills, although some thin units of tuffaceous-looking felsic rocks are also present.

The Patrick Brook Formation mainly consists of very dark grey, thin-bedded quartz wacke, slate, phyllite, and chert with local interbeds of light grey or green quartzite similar to those in the underlying Miramichi Group. Felsic tuffaceous rocks interbedded with these sedimentary rocks in the headwaters of Stony Brook record the onset of volcanic activity in the Tetagouche Group.

The Nepisiguit Falls Formation is present only to the north of the Mountain Brook Fault. Porphyritic felsic volcanic rocks in this area are predominantly quartz-feldspar crystal tuffs, although quartz-crystal and feldspar-crystal tuffs, and aphyric rhyolites are present as well. In the northwest corner of the survey area, Nepisiguit Falls Formation sedimentary rocks comprise green quartzose and feldspathic wacke, siltstone, metapelite, and minor slate and quartzite.

The Stony Brook Formation (new name) consists of feldspar-porphyritic felsic volcanic rocks that are exposed in the Northwest Miramichi River-Stony Brook area between the Fraser-Burchill Road and Mountain Brook Fault. These rocks constitute a relatively narrow belt that overlies the Patrick Brook Formation and underlies or is intercalated with aphyric rhyolites of the Flat Landing Brook Forma-

tion; it therefore appears to be coeval, at least in part, with the Nepisiguit Falls and Flat Landing Brook formations.

The Flat Landing Brook Formation consists of light green to grey, moderately to strongly foliated, typically aphyric rhyolite. It is spatially related to the Stony Brook Formation porphyritic felsic rocks in the northwest Miramichi-Stony Brook area, and also occurs near the northern boundary of the survey area, where it is intruded by abundant light to dark green gabbroic and diabasic sills(?).

The Boucher Brook Formation consists mainly of massive to pillowed basalt, with minor interbeds of aphyric and quartz-feldspar-phyric felsic volcanic rocks, and local thin beds of brick-red shaly or cherty iron formation.

The dominant foliation in the area is an east-southeast/west-southwest-trending composite S_2 transposition foliation. South of the Mountain Brook Fault, S_2 dips are shallow to moderate (flat belt) as a result of large-scale F_3 recumbent folding, whereas north of the fault S_2 is normally steep (steep belt). Earlier foliations are thrown into open to tight minor F_4 folds in the southwest part of the survey area, or in the northern half of the area into tight F_5 crenulations with penetrative axial planar S_5 cleavage. West-northwest/east-southeast-trending sinistral faults transect the survey area in the Mountain Brook region; east-northeast/west-southwest-trending dextral faults include the Tomogonops-Tozer Fault, a major shear zone with over 2 km of right-lateral displacement, and the Little River and Mowat faults.

Mineralization has been intersected in several drill holes in the Mountain Brook-Little River area, hosted by mafic volcanic rocks and associated iron formation and felsic volcanic rocks within the (lower?) Boucher Brook Formation. The best reported intersections are 4.5% Pb+Zn over 1.85 m and 3.75% Pb+Zn over 1.9 m.