

Revised stratigraphy of Early Paleozoic rocks in the Piskahegan Stream-Mount Pleasant area of southwestern New Brunswick

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Recent mapping in the Piskahegan Stream-Mount Pleasant area of southwestern New Brunswick has resulted in significant revisions to the Early Paleozoic stratigraphy in the area. A thick-bedded feldspathic wacke sequence in the eastern part of the area, previously included in the Waweig Formation, is now assigned to the Digdeguash Formation. A sequence of calc-silicate beds, intervening between the Digdeguash Formation and overlying calcareous rocks of the Flume Ridge Formation, is included in the newly established Sand Brook Formation.

The Digdeguash Formation is comprised largely of medium grey, medium- to thick-bedded feldspathic wacke interstratified with dark grey slate. Thicker bedded sections (70 cm to 1 m thick) appear to possess a higher feldspar-to-quartz ratio (3:2 compared to 4:1) and a lower proportion (less than 20%) of interbedded slate than thinner bedded sections (10 to 50 cm thick). Thicker beds locally grade downward to a coarse grit containing abundant rock fragments, whereas thinner beds grade upward into a dark grey siltstone. Sole marks are locally observed on the base of thick wacke beds. In order of abundance, the wackes contain angular quartz grains, feldspar, volcanic and granophyric fragments, and muscovite flakes set in a silty matrix compris-

ing approximately 50% of the rock. Thick-bedded, light grey quartz wackes, which occur locally in the southern part of the area, contain single and polycrystalline grains of quartz set in a 15% silty matrix. The Digdeguash Formation is unfossiliferous but is assigned a Late Ordovician/Early Silurian age on the basis that it underlies the probable Silurian Flume Ridge and Sand Brook formations and overlies the Early to mid-Ordovician Cookson Group.

The Sand Brook Formation comprises 2 cm- to 1 m-thick beds that grade upward from light green feldspathic wacke to a laminated green and maroon siltstone top about 5 cm thick. Although commonly present as laminations, maroon siltstone locally attains bed thicknesses from 2 to 20 cm. Slump folds indicate a downslope direction toward the northwest. Wackes of the Sand Brook Formation contain a higher feldspar-to-quartz ratio (about 1:1) and less matrix (typically 15% compared to 50%) than wackes of the Digdeguash Formation. The abundance of epidote and actinolite, indicative of a calc-silicate composition, is responsible for the light green colour of the Sand Brook Formation in contrast to the grey colour of the Digdeguash Formation. Dark grey slate becomes a significant component of the Sand Brook Formation on strike to the west along the Magaguadavic River. Still farther west,

light green beds typical of the Sand Brook Formation are absent and the Flume Ridge Formation lies directly on dark grey wackes of the Digdeguash Formation. It thus appears that the Sand Brook Formation thins by interfingering westward with the upper part of the Digdeguash Formation, whereas it thickens eastward toward Mount Pleasant and the Sand Brook area. The lower contact between the Sand Brook and Digdeguash formations on Piskahegan Stream appears to be conformable and rather abrupt, although one thin calcisilicate bed was observed within the Digdeguash Formation just below where the contact has been placed along the Magaguadavic River. The Sand Brook Formation is considered to be Early Silurian in age since it grades conformably upward into the Flume Ridge Formation.

The Flume Ridge Formation typically comprises light grey, thin- to medium-bedded (5-15 cm in thickness), fine-

grained, micaceous, calcareous wacke and siltstone interstratified with light to medium grey, non-calcareous slate. The calcareous wacke beds contain approximately 40% calcite, 30% quartz, 5% feldspar plus muscovite, and 25% silty matrix. Local sequences of well-graded, non-calcareous, lithic wacke in beds up to 25 cm thick, separated by 5 cm-thick beds of non-calcareous siltstone, contain abundant volcanic fragments. Within a few metres of its contact with the underlying Sand Brook Formation, the Flume Ridge Formation contains alternating thin beds of calcareous and non-calcareous wacke; the contact with the Sand Brook Formation is placed at the base of the lowest calcareous bed. The Flume Ridge Formation is considered to be Silurian in age because of the gradational nature of its contact with graptolite-bearing wackes of the Silurian Burts Corner wackes farther to the northwest.