

Metamorphism Within the Fournier Group Oceanic Fragment

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The Fournier Group is a variably metamorphosed basic inlier with minor intermediate and ultrabasic rock associations. The complex outcrops along the southwest margin of the Baie des Chaleurs, 25 km north of Bathurst in northern New Brunswick. The complex comprises a lower gabbroic unit which is intruded and, in places, overlain by diabase and minor trondhjemitic dykes and sills (together referred to as the Devereaux Formation). These lithologies are unconformably overlain by a greywacke and slate olistostrome, containing pillow lava olistoliths, which are in turn overlain by a basal pillow lava sequence followed by greywacke, slate and minor limestone (referred to as the Pointe-Verte Formation). The Fournier Group as a whole is surrounded by Silurian sediments. Graptolites and conodonts extracted from the Pointe-Verte Formation yield an Ordovician Llandeilo age which indicates a minimum primary age for the igneous complex.

The association of gabbros, sheeted diabase dykes, pillow

lavas and sediments suggests that the Fournier Group represents the remains of a fragment of oceanic crust. No mantle tectonite or ultrabasic cumulate units have been found. Metamorphic effects within the complex are varied. They range from a pervasive sea-floor type hydrothermal alteration, realized under essentially static conditions (zeolite through prehnite-pumpellyite to greenschist facies), where igneous textures and mineralogies can still be discerned, to complete metamorphic overprinting in the amphibolite facies under dynamic conditions. The latter effect is restricted to discrete east-west trending shear zones which show the development of pronounced mylonitic, schistose and gneissose textures within what are otherwise statically metamorphosed, greenschist facies metagabbros. The shear zones are interpreted to represent fossil oceanic transforms or ridge-related fractures.