DESCRIPTIVE NOTES
Map 12-1967: Minor and trace element distribution in magnetic heavy minerals in river and stream sediments

Geological

South of a line following the Millstream River and westward through Tetagouche Lakes, the area is underlain mainly by the Ordovician Tetagouche Group comprising a series of complexly folded and sheared metasediments, metavolcanics, and metabasic intrusives. These are intruded south of Bathurst by a granitic mass.

North of the Millstream River the rocks are mainly of Ordovician, Silurian, and Devonian age. The Elmtree Group, of probable Ordovician age, is composed of folded and contorted metasediments and some metavolcanics which are intruded by a granitic stock in the vicinity of Antinouri Lake. The Silurian and Devonian rocks comprise both sediments and volcanics that are faulted in places, gently folded, and on the whole are less metamorphosed than the older rocks in the district. In the Nicholas Dénys area the Silurian rocks are intruded by a granitic stock that has an associated metamorphic aureole in which the rocks are mainly hornfels and skarn. Another granitic stock intrudes Silurian volcanic rocks along South Benjamin River.

East of Nepisiguit River the area is underlain by the Pennsylvanian Bathurst Formation. These rocks are mainly siltstones, sandstones, grits, and conglomerates that dip gently eastward.

Flat-lying conglomerates and sandstones (Bonaventure Formation), possibly of Triassic age, underlie Heron Island and fringe the coast in the Jacquet River area.

Glacial till, sand, and gravel mantle the whole district, and Recent post-glacial sands and clays cover much of the area around Bathurst Harbour and occur in the shore section at Jacquet River.

The principal mineral deposits in the area are massive, vein, and disseminated deposits containing essentially iron, zinc, lead, and copper sulphides. Molybdenite occurrences are associated with the Bathurst, Nicholas Dénys, and Antinouri Lake granitic bodies. Manganite occurs in quartz veins at Tetagouche Falls on Tetagouche River, and wad or bog manganese has been reported on Little River.

For further details of the geology and economic geology of the area the reader should consult Boyle et al. (1966)[1].

Geochemical

The analyses recorded on this map were done on samples of magnetic minerals taken from the heavy mineral concentrates panned at the sites shown. Most of these heavy mineral concentrates came from the gravelly and sandy parts of the streams and rivers.

The magnetic minerals were ground to pass a minus 150 mesh screen and then analysed for the elements shown on the map by the spectrographic method outlined in the accompanying paper. The values are expressed in parts per million.

The details of the distribution of the elements in the magnetic fraction of the heavy mineral concentrates are discussed in the paper accompanying this map.

[1]Boyle, et al.: Geochemistry of Pb, Zn, Cu, As, Sb, Mo, Sn, W, Ag, Ni, Co, Cr, Ba, and Mn in the waters and stream sediments of the Bathurst-Jacquet River district, New Brunswick; Geol. Surv. Can., paper 65-42.