DESCRIPTIVE NOTES
Map 44-1965: Manganese content of stream and spring 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. Manganese occurs in only small amounts in the various sulphide deposits. Manganite occurs in quartz veins at Tetagouche Falls on Tetagouche River, and wad or bog manganese has been reported on Little River.

The text of the paper accompanying this map should be consulted for further details on the geology and economic geology of the district.

Geochemical

The analyses recorded on this map were done on samples of sediment collected from the channels of rivers and streams and from rivulets flowing from springs. Where possible the active channels were sampled, but in a few cases the residual sediment of dried-up streams was used. In muskeg areas and in streams where beaver workings are present the sediment contained abundant decomposed organic matter.

The sediment was dried, sieved to -80 mesh, ground to -150 mesh and analyzed for manganese by the spectrographic method outlined in the paper accompanying this map. The values are expressed in parts per million. The subdivisions used on the map are arbitrary and based on experience in the district. The lowest subdivision can be taken to represent the background.

All streams and rivers were traversed on foot, and the stream sediments were collected, where possible, at intervals of 1,500 feet.

The manganese content of the sediments ranges from 20 ppm to greater than 10,000 ppm. The average background is variable over the district but is probably about 1,000 ppm for most areas. The dispersion trains are generally not uniform, and there are numerous examples of isolated samples that are greatly enriched in manganese. Many of these occur in the boggy parts of streams, in streams with a low gradient, or in parts of streams that are strongly aerated.

Manganese hydroxides and oxides tend to adsorb and/or coprecipitate most heavy metals. This is the reason for the enrichment of Ba, Cu, Pb, Zn, Ag, Ni, Co, etc., in a number of streams where the manganese contents are high in the stream sediments. This feature should be carefully considered in the evaluation of heavy metal anomalies in the district.

The manganese contents of the stream and spring sediments shown on this map should be compared with those for heavy metals in water on Map 32-1965 and also with the contents of individual elements in stream sediments on Maps 34-1965 to 43-1965 inclusive.