DESCRIPTIVE NOTES
Map 40-1965: Tungsten 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 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. n 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. Small quantities of scheelite occur in some of the skarn zones in the thermal aureole of the Nicholas Dénys granitic stock.

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 tungsten by the dithiol method outlined by North (1956)[1]. 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 tungsten content of the stream sediments ranges from less than 4 to 120 ppm. The background for the district is less than 4 ppm.

Only a few streams have higher than normal amounts of tungsten in the stream sediments. These include Stephens and Rocky Brooks and a number of other streams draining the area underlain by the Nicholas Dénys granite and its contact aureole, the lower reaches of Grants and Haché Brooks, Lake Brook, and the east and west forks of the upper reaches of the Belledune River. A number of other slightly anomalous stretches of streams also occur throughout the district, but these are generally isolated and do not seem to fit any pattern.

There is a correlation of tungsten and molybdenum in the stream sediments of some areas but not in others. Tungsten and arsenic also exhibit a correlation in some streams. Highly manganiferous sediments frequently contain higher than normal amounts of tungsten, a feature that should be considered in assessing the anomalies on the map.

The tungsten 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 44-196: inclusive.

[1]North, A. A. : Geochemical field methods for the determination of tungsten and molybdenum in soils; Analyst, vol. 81, pp. 660-668 (1956).