

LEGEND

- Concentration of heavy metal, 10 or greater ppm in stream sediments 10
- Concentration of heavy metal, 5 to 9 ppm in stream sediments 5
- Concentration of heavy metal, 0 to 4 ppm in stream sediments 0
- Location of known veins Au (P) x
- Mineral occurrence Au (P) x

Mineral Symbols

- Gold (placer) . . . Au (P) Silver Ag
- Lead Pb Tungsten (lode) . . W

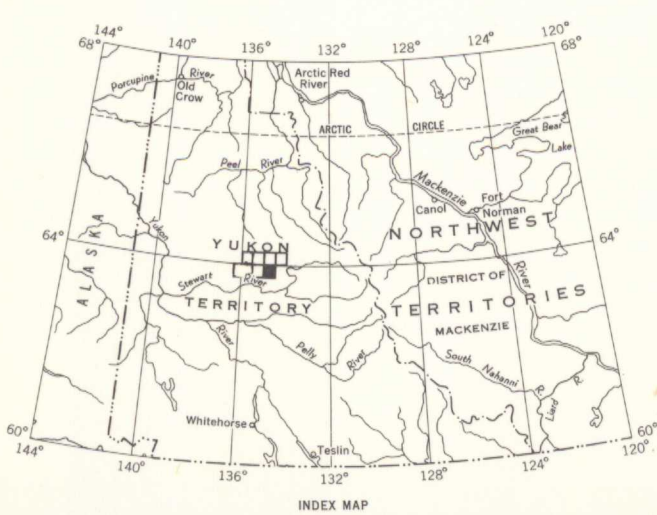
Field work by C. F. Gleeson, W. M. Tupper, A. Suparman, K. Domai, M. Shafiqullah, J. A. Colwell, J. R. Deighton, C. H. Yurchak, J. K. Worth, H. R. James, A. G. Troup, G. Wind, L. Hogg, and F. R. Campbell

Geological cartography by the Geological Survey of Canada, 1965

- Intermittent lake and stream
- Marsh
- Horizontal control point
- Elevation in feet above mean sea-level

Base-map produced by the Army Survey Establishment, R. C. E. 1951

Approximate magnetic declination, 33°25' East, decreasing 4.0' annually



DESCRIPTIVE NOTES

Geological

The Mayo Lake area is underlain by a series of metamorphosed sedimentary rocks, mainly quartzites, phyllites, chlorite, sericite, and graphite schists, and minor limestone. Basic igneous sills and lenses now altered to greenstone occur within these rocks. A granitic stock intrudes the metasedimentary rocks in the central portion of the map-area and a smaller one is present in the southeast corner of the area. A few thin quartz-feldspar porphyry dykes and sills are present in the altered sediments.

The area has undergone several stages of glaciation and thick glacial deposits occupy the major valleys and hill slopes below an elevation of 3,000 feet. Permafrost is present throughout the area.

Most of the ore deposits in the Keno Hill - Galena Hill area, adjacent to this map-area, occur along northeasterly striking vein faults in thick bedded quartzites and occasionally in greenstone. Early vein fillings contain mainly pyrite and/or arsenopyrite with or without silver and lead minerals. Later mineralization resulted in the deposition of siderite, sphalerite, galena and argentiferous tetrahedrite.

In the Mayo Lake area there is only one known silver-lead deposit and it occurs near the summit of Cobalt Hill where a vein of galena, 3 to 10 inches wide, occurs as a fracture filling in thinly-bedded quartzite. The vein strikes northwesterly and dips about 80 degrees to the southwest. The outcrop of the vein has been oxidized with the formation of limonite, manganese oxides, cerussite and anglesite. The only other known mineral occurrence in the area is a scheelite showing along the contact of the granitic stock northeast of Wilsons Cabin (Green, 1957).

Further details on the geology and mineralization of the area can be obtained from reports by Bostock (1947), Green (1957), McTaggart (1960), Green and McTaggart (1960), Kindle (1962), Aho (1964), Boyle (1965), and Poole (1965).

Geochemical

The data on the map are based on samples of sediment collected from the channels of the streams and on the sediments and precipitates in the vicinity of springs. Where possible the active channel was sampled. However, as the field work progressed it was found that moss on the creek banks below the water line had trapped considerable amounts of fine sediment. This kind of sample proved to be adequate and in many instances this was the type of stream sediment sample analyzed. The wet sediment was analyzed at the sample site for cold citrate-soluble heavy metals (principally zinc, copper, and lead) using the method described by Smith (1964).

The values are expressed as total heavy metal in parts per million. The quantitative laboratory work done to date indicates that most of the heavy metal detected by the field test is zinc.

Most of the creeks draining into Mayo Lake were accessible by boat, the creeks in the rest of the map-area were reached by helicopter. Traverses down the creeks were made on foot. An attempt was made to maintain a sample interval of 1,500 feet along all creeks.

The heavy metal analyses show that few anomalies are associated with the granitic rocks. Most of the anomalous areas are underlain by quartzite, phyllite, and greenstone. The anomalous trains vary in length from about 1/2 mile to over 6 miles.

The distribution of the anomalies in the Cobalt Hill area suggests the presence of mineralization other than the lead-silver lode which occurs near the summit of the hill. This area should, therefore, be investigated in more detail. Other creeks in the map-area that require further investigation are: the anomalous creeks draining the Patterson Range north of Keno - Ladue River, the right fork of upper McKim Creek, the anomalous tributaries on the upper parts of Granite Creek (see also Map 21-1964), the anomalous creeks entering Mayo Lake, especially Edmonton Creek, the anomalous tributaries of Roop Creek, and those draining the northern slope of the ridge north of Roop Creek. All these creeks drain areas underlain in part by massive quartzite and/or greenstone. The sources of some of these anomalies are metal-rich springs. Such springs occur on the left limit of the creek draining the southeastern slope of Cobalt Hill, on upper McKim Creek and at the head of the two creeks draining the Patterson Range.

The heavy metal content of the stream and spring sediments and precipitates shown on this map should be compared with the heavy metal content of the stream and spring waters shown on Map 18-1964.

Aho, A. E.: Mineral potential of the Mayo district; Western Miner, vol. 37, No. 10, pp. 80-88 (1964).

Bostock, H. S.: Mayo, Yukon Territory; Geol. Surv. Can., Map 890A (1947).

Boyle, R. W.: Geology, geochemistry, and origin of the lead-zinc-silver deposits of the Keno Hill - Galena Hill area, Yukon Territory; Geol. Surv. Can., Bull. 111 (1965).

Green, L. H.: Mayo Lake, Yukon Territory; Geol. Surv. Can., Prelim. Map 5-1956 (1957).

Green, L. H., and McTaggart, K. C.: Structural studies in Mayo district, Yukon Territory; Proc. Geol. Assoc. of Canada, vol. 12, pp. 119-134 (1960).

Kindle, E. D.: Keno Hill, Yukon Territory; Geol. Surv. Can., Map 1105A (1962).

McTaggart, K. C.: The geology of Keno and Galena Hills, Yukon Territory; Geol. Surv. Can., Bull. 58 (1960).

Poole, W. H.: Reports of activities: field, 1964; Geol. Surv. Can., Paper 65-1 (1965).

Smith, A. Y.: Cold extractable "heavy metal" in soil and alluvium; Geol. Surv. Can., Paper 63-49 (1964).

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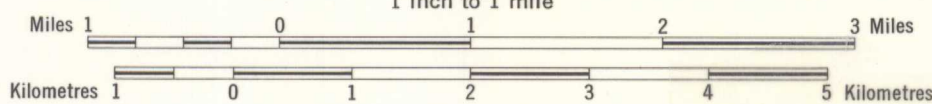
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MAP 19-1964
HEAVY METAL CONTENT OF STREAM AND SPRING SEDIMENTS

MAYO LAKE
YUKON TERRITORY

Scale 1:63,360

1 inch to 1 mile



105 M/15
MAYO LAKE
YUKON TERRITORY
MAP 19-1964