GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF MINES AND TECHNICAL SURVEYS

PRELIMINARY SERIES

SHEET 85 O/13

LEGEND

LOWER PROTEROZOIC

8 — Foliated granodiorite, in part porphyritic or porphyroblastic

SNARE GROUP (4-7)

7 — Andesitic or dacitic flows in part amygdaloidal, may be partly intrusive

6 — Dolomite

5 — Dark grey shales locally finely laminated and colour banded

4 — Thin to coarse bedded quartzites, with feldspathic quartzite near base of succession; includes thin beds of shale and limy quartzite

ARCHEAN

3 — Porphyritic massive granodiorite and quartz monzonite with local even, fine-grained phases; 3a, pegmatite

2 — Meta-gabbro dykes

YELLOWKNIFE GROUP

1 — Graded units of greywacke and subgreywacke, and shale metamorphosed to knotted quartz mica schists; includes thin beds and lenses of calc-silicates

Drift-covered area

Geological boundary (defined, approximate and assumed)

Bedding, tops known (horizontal, inclined, vertical, overturned)

Schistosity, gneissosity (inclined, vertical)

Axial-plane cleavage (inclined, vertical)

Lineation (inclined)

Fault (approximate)

Trace of axial-plane of anticlinal fold

Trace of axial-plane of synclinal fold

Geology by J. C. McGlynn and J. V. Ross, 1961

Cartography by the Geological Survey of Canada, 1962

Winter road

Trail or portage

Esker

Lake and stream (indefinite)

Falls; Rapids

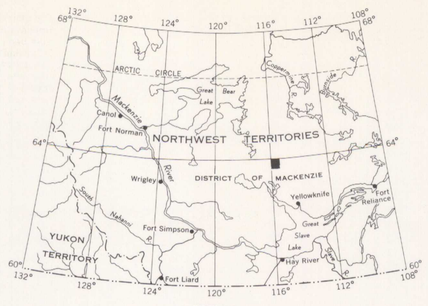
Marsh

Rock, reef or small island

Height in feet above mean sea-level

Base-map by the Surveys and Mapping Branch, 1949

Approximate magnetic declination, 35° 58' East, decreasing 7.0' annually



INDEX MAP

PUBLISHED, 1962
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MAP 18-1962
GEOLOGY
BASLER LAKE
DISTRICT OF MACKENZIE

Scale: One Inch to One Mile = 1/63,360

Miles: 1 ½ 0 1 2 3

AUG - 2 1962

DESCRIPTIVE NOTES

The average elevation in the area is about 1,000 feet above sea-level and the maximum relief about 600 feet. Topographically high areas are underlain by granitic rocks (3), quartzites (4), or locally by meta-greywackes (1). Rock exposures are numerous and reasonably well distributed. The area is sparsely timbered with rather small trees; black spruce and jack pine are the common varieties.

The oldest rocks are those of the Yellowknife Group (1). They consist of a monotonous succession of graded units of dark grey, buff, or rusty-weathering greywacke or subgreywacke and shale. The relative amounts of greywacke and shale and the thickness of beds vary throughout the sequence. Thin discontinuous beds or lenses of calc-silicates occur, generally in the greywackes, throughout the series. Rocks of the Yellowknife Group have been converted by metamorphism, described below, to knotted schists.

Rocks of unit 1 have been cut by a few dykes and possibly sills of rusty-weathering, dark green, fine- to medium-grained, crudely foliated meta-gabbro (2).

Large masses of granodiorite or quartz monzonite (3) intrude the sediments of the Yellowknife Group. The body in the south-central part of the area consists, for the most part, of buff- or grey-weathering, coarse-grained, massive, porphyritic quartz monzonite and granodiorite. Randomly oriented phenocrysts of feldspar, probably mostly microcline, range in length from 1/2 inch to 2 inches. The rock consists of about 20% quartz, 7% mica, and feldspar. The plagioclase-microcline ratio varies but plagioclase predominates. Muscovite and biotite occur in about equal amounts. Another common phase consists of a fine- to medium-grained, even-grained rock of about the above composition. Pink, medium-grained, massive quartz monzonite with very little mafic mineral is also found. Small bodies of granodiorite east of Basler Lake are even, fine grained, and contain minor amounts of amphibole. In all these rocks the plagioclase is partly altered to white mica and the biotite is somewhat altered to chlorite. The granodiorite on the southeast shore of Snare River is part of a large mass of granitic rock[1] that extends far to the south but is included with the above rocks as it is thought to be roughly the same age. Pegmatites (3a) occur in tabular and irregularly shaped masses locally within the granodiorite, and in certain areas they are abundant in the sediments of the Yellowknife Group near the granitic masses. The pegmatites are commonly tourmaline-bearing and tourmaline is developed in the nearby sediments around at least some pegmatites.

Sediments of the Snare Group (4-7) overlie those of the Yellowknife Group and the granitic rocks (3) unconformably. The unconformity was observed at seven or eight places. The Snare rocks dip gently away from the older rocks at angles between 10 and 40°. The older meta-greywackes strike north to northeast and dip steeply between 45 and 80°, both northwest and northeast. The older granitic rocks (3) beneath the unconformity are massive. In places a thin layer of granitic rubble occurs between the quartzites and granodiorites.

Quartzites (4) occur at the base of the Snare succession. These rocks are fine grained except near the base, and are light grey and thin to coarse bedded. Individual beds range in thickness from a few inches to 5 or 6 feet, but most are less than a foot thick. Crossbedding and ripple-marks are evident in many beds. Towards the base of the unit the rocks are feldspathic quartzites and at or within a few feet of the unconformity are beds of quartz-pebble (oligomictic) conglomerate up to 3 feet thick. The conglomerates have an arkosic matrix. Thin beds of shale and limy quartzite occur throughout the quartzites but are especially common near the top of the formation.

Shales (5) overlie the basal quartzites in the southern part of the area on Kwejinne Lake. On the central part of Basler Lake, shales occur at or near the top of the quartzites and below the dolomites (6). The shales are dark grey, thinly bedded and commonly laminated, and colour-banded.

At the north end of Basler Lake in the map-area, quartzite is directly overlain by dolomite (6). A narrow zone of limy quartzite and interbedded quartzite and dolomite occurs in the contact zone. The dolomite is a buff to light grey, finely crystalline rock. Locally, thin bedding is visible and sandy beds occur in the sequence. Commonly, seams or veinlets of quartz and carbonate, often contorted, project above the weathered surface.

On Kwejinne Lake, andesitic or dacitic lavas (7), and possibly intrusions, occur on the Snare sediments. They are dense, very fine grained, dark grey rocks that are commonly amygdaloidal. The few thin sections examined suggest that the rock consists of plagioclase laths, quartz, biotite, chlorite, and iron ore. Quartz and some chlorite make up the amygdules examined in thin section.

Foliated granodiorite (8) occurs in the northwest corner of the area. The granodiorite is clearly later than rocks of the Yellowknife Group and is thought to be later than the Snare sediments. It is buff weathering, well foliated, fine to medium grained and locally porphyritic or porphyroblastic, with rectangular phenocrysts of feldspar up to 3/4 inch long. It contains both biotite and muscovite in addition to quartz and pink to flesh-coloured feldspar, some of which is microcline.

A few narrow unmetamorphosed diabase dykes were observed in the rocks of the Yellowknife Group and in the older granite (3).

The Snare sediments have been slightly metamorphosed. The quartzites and dolomites have been recrystallized and minor amounts of biotite have developed in the quartzites. The shales have been converted to slates and phyllites. The rocks of the Yellowknife Group have had a more complex metamorphic history. The greywacke and shales have been converted to knotted schists containing biotite and muscovite, quartz and feldspar, and metacrysts of andalusite, locally cordierite, and rarely small garnets. Textural evidence suggests that the formation of these minerals was partly synkinematic and partly mimetic. At a later time, possibly during the deformation and metamorphism of Snare rocks, the above minerals were altered—andalusite and cordierite to white micas, and garnet and biotite to chlorite. Alteration of some minerals in the old granitic rocks (3) probably occurred at the same time.

Folds within the Yellowknife Group consist of simple anticlines and synclines that strike north to northeast and plunge gently to the north. These structures have been modified by the deformation that affected rocks of the Snare Group. The Snare sediments are thrown into northerly trending open folds that plunge very gently, generally to the north but locally to the south.

Steeply dipping faults with a northerly strike cut rocks of the Yellowknife Group and the granodiorites (3). These faults are marked by zones of brecciation and fracturing, quartz veins, and locally small quartz stockworks. Several steeply dipping faults, which strike slightly south of east and appear to have right-hand displacement, occur in the quartzites (4) west of the north end of Kwejinne Lake.

No mineral occurrence of economic interest was discovered.

[1]Lord, C.S., 1942: Snare River and Ingray Lake Map-areas, Northwest Territories; Geol. Surv., Canada, Mem. 235.

MAP 18-1962
BASLER LAKE
DISTRICT OF MACKENZIE