GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF MINES AND TECHNICAL SURVEYS

PRELIMINARY SERIES

SHEET 52M (East Half)

DESCRIPTIVE NOTES

Volcanic rocks (1) weather a typical buff colour but are green on a fresh surface. Though commonly well foliated, pillow structures, flow banding and other original features may be identified. Interbedded with the flow rocks are thin beds of cherty iron-formation, tuff and breccia.

Sedimentary rocks (2) are present in two east-trending belts in the southeast corner. The northern belt, extending east from Pipestone Bay, is composed largely of dense, thickly banded gneiss characterized by a sub-conchoidal fracture. The southern belt along the shore of Red Lake consists mainly of a blue-grey phyllitic slate and a rusty weathering boulder conglomerate.

The sedimentary rocks (2) are intruded by a dark grey, light-weathering quartz porphyry (3) that is commonly strongly sheared. The texture of rocks included in this unit (3) varies from fine to coarse grained; their composition is from granodiorite to diorite. Rounded quartz phenocrysts up to one quarter of an inch in diameter, and minor phenocrysts of feldspar are present in a fine-grained groundmass of quartz feldspar and biotite.

Feldspar-quartz-biotite gneiss (4) occurs as relatively narrow lenses surrounded by granodiorite and quartz diorite. The lenses are most abundant toward the south and southwest, less in the extreme north, and are not found in the main central part of the area. These gneissic rocks are characterized by alternating light and dark bands, the dark colour being due to small amounts of hornblende. Brecciated gneiss (4a) constitutes a mappable sub-unit. It is composed of angular-to-rounded fragments of gneiss, varying in size from a few inches to several feet in the longest dimension, enclosed in a matrix of massive or gneissic grey granodiorite.

The most abundant rocks (5), are granodiorite and quartz diorite, with minor variations to diorite and granite. They are coarse grained and weather grey to pink. In composition, these rocks are about 15 per cent quartz, 15 to 30 per cent orthoclase, 45 to 60 per cent plagioclase and some 5 to 10 per cent biotite. Locally hornblende is present. These rocks have a well developed rectangular joint pattern and in some localities, particularly in the south, a bedded appearance through sheeted horizontal jointing.

Porphyritic granodiorite (5a), and gneissic granodiorite (5b), occur among the above-described rocks; and also locally in such great concentrations that they were mapped separately. The porphyritic granodiorite is composed of phenocrysts of orthoclase, one quarter of an inch to one and a half inches long, in a groundmass of coarse-grained gneissic granodiorite. The phenocrysts commonly constitute 50 per cent of the rock volume. The gneissic granodiorite has more biotite than the massive variety. Its foliation results from the alignment of plagioclase gneiss and biotite flakes. Some of the biotite is wrapped around the larger grains of feldspar.

Numerous dykes, ranging in width from a few inches to a few hundred feet, contain pink aplite granite and pegmatite. They cut rocks of units 4 and 5. There is no preferred orientation. Several dykelets of fine-grained diorite cut granites and aplites.

The area is relatively free from glacial deposits. Glacial striae are present over the whole area, striking S60°W.

A foliation common to the area as a whole strikes south to S45°E and is vertical to steeply dipping. The Red Lake belt of volcanic and sedimentary rocks trends easterly. The only major fault located is in the southwest corner in an area of brecciated gneiss (4b). Minor dislocations of small dykes and xenoliths are common.

Mineral deposits have been restricted to minor gold quartz veins in the southeast corner, known as the West Lake area. Several development and prospecting shafts have been sunk on quartz veins in this area but no production has as yet resulted.

LEGEND

PRECAMBRIAN

5	Granodiorite, quartz diorite in part porphyritic and gneissic; minor granite and diorite; 5a, porphyritic granodiorite; 5b, gneissic granodiorite
4	Feldspar - quartz - biotite gneiss, feldspar-biotite - hornblende gneiss, derived from 1 and 2; 4a, brecciated gneiss
3	Quartz porphyry, quartz-feldspar porphyry
2	Slate, argillite, greywacke, quartzite, conglomerate; paragneisses
1	Intermediate and basic lavas with thin interbeds of tuff, breccia and iron formation

Note: Many small dykes of granite aplite and pegmatite cut rock units 4 and 5

Drift-covered area
Rock outcrop ×
Geological boundary (approximate)
Limit of geological mapping
Foliation (inclined, vertical)
Drag-fold (arrow indicates plunge)
Fault (approximate)
Joints (inclined, vertical)
Glacial striae

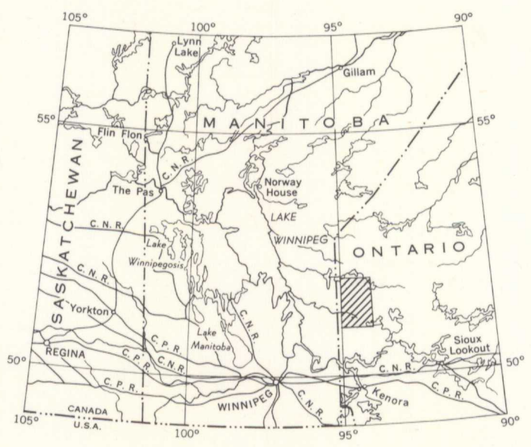
Geology by E.H. Chown, 1958. Compilation of Ball, Todd, Fairlie and Graves Townships from Map 49a, Department of Mines, Ontario; H.C. Horwood, 1945

Trail or portage P
Stream (position approximate)
Marsh
Height in feet above mean sea-level 1237

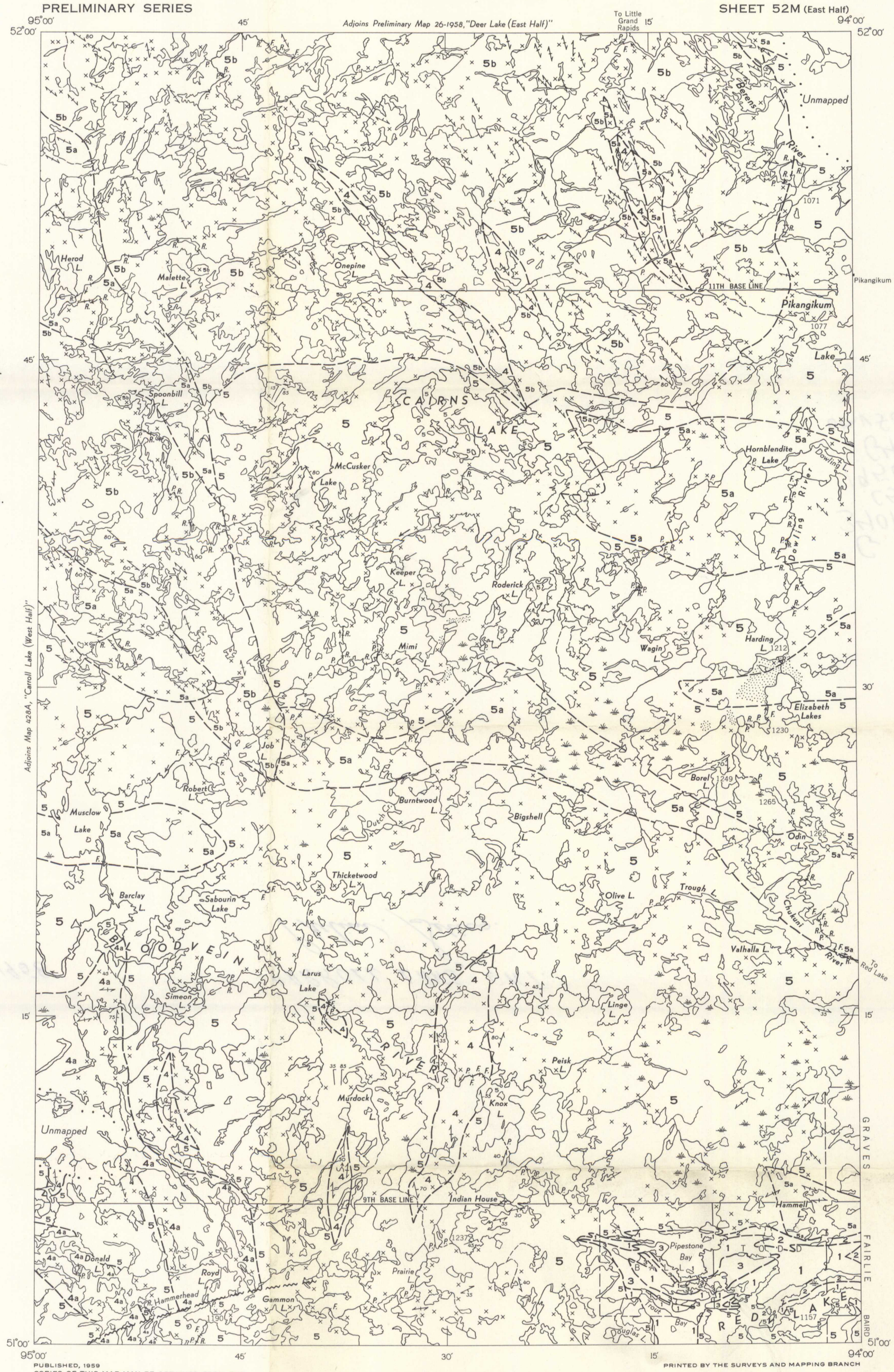
Cartography by the Geological Cartography Unit, 1959

Air photographs covering this area may be obtained through the National Air Photographic Library, Topographical Survey, Ottawa, Ontario

In response to public demand for earlier publication, Preliminary Series maps are now being issued in this simplified form, thereby effecting a substantial saving in time. There is no loss of information, but the maps will be clearer to read if all or some of the map-units are hand-coloured.



INDEX MAP



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MAP 25-1958

CARROLL LAKE

(EAST HALF)

KENORA DISTRICT

ONTARIO

25-1958

Scale: One Inch to Four Miles = 1 / 253,440

Miles

4 2 0 4 8 12

Approximate magnetic declination, 7° 06' East

MAP 25-1958
CARROLL LAKE
ONTARIO
SHEET 52M (East Half)