

LEGEND

PRELIMINARY SERIES

- 10/ DIABASIC AND GABBROIC DYKES: small (less than 2' thick) black weathering, diorites variously containing serpentinized olivine and orthopyroxene, clinopyroxene, labradorite and rare quartz veins; 10a, coarse-grained and layered gabbroic dykes (6-250 feet thick) containing serpentinized orthopyroxene, labradorite, clinopyroxene and interstitial granophyre.
- 9 QUARTZ MONZONITE: pink, leucocratic, medium-grained, generally massive rocks; perthitic microcline, calcic oligoclase biotite and trace quantities of sphene, chlorite and magnetite; the body north of Costes Lake is variously porphyritic with perthitic microcline and oligoclase.
- 8/ METADIABASE DYKES: foliated, granoblastic fine- to medium-grained amphibolites (epidote + biotite + hornblende + oligoclase), 20 to 300 feet long and 2.5 to 6 feet thick.
- 7 GRANODIORITE AND UNDIVIDED QUARTZ DIORITE: white to light grey, medium- to coarse-grained, leucocratic (less than 15 per cent mafic minerals), massive to foliated rocks; massive portions may belong to quartz monzonite (9) episode; highly foliated portions may belong to earlier Archean; includes local areas of leucocratic oligoclase quartz diorites; 7a, dominantly biotite-bearing; 7b, dominantly hornblende-bearing; 7c, granitized (10 to 25 per cent perthitic microcline porphyroblasts) rocks of 7b.
- 6 LEUCOCRATIC METAMORPHOSED QUARTZ DIORITE: greenish, coarsely-grained, foliated rocks with variable colour index (5 to 55 per cent epidote and relict biotite and hornblende); epidotized oligoclase/andesine; this unit may belong to the granodiorite augen-gneiss (2).
- 5 MAFIC METADIORITE-QUARTZ DIORITE: mesocratic, medium- to coarse-grained, massive to layered, lensoid and diapiric bodies; 5a, mainly dioritic, 20 to 45 per cent biotite and hornblende, andesine; includes fine-grained gabbro and amphibolite and inclusions of rocks of unit 3; 5b, minor quartz diorite, 15 to 35 per cent biotite and hornblende, andesine grades to granodiorite bearing 10 per cent perthitic microcline; 5c, mainly quartz diorite, 20 per cent biotite and hornblende, oligoclase/andesine.
- 4 ULTRAMAFIC BODIES, GABBRO AND PEGMATITE: x = position, within metavolcanic rocks (3), of amphibolitized, coarse-grained pyroxenites and serpentinites. Coarse-grained, amphibolitized gabbro occurring as dykes or small plugs associated with equal portions of granite; 4a, fresh, 2 pyroxene-bearing, medium-grained gabbro; 4b, Ponask Lake pegmatite; muscovite-tourmaline-bearing granitoid.
- 3 METAVOLCANIC-SEDIMENTARY ROCKS: volcanic and layered sedimentary rocks, confined to a belt extending from Stevenson to beyond Ponask Lakes, metamorphosed (M₂) to sillimanite-almandine-muscovite zone and retrograded (M₃) to greenschist; 3a, andesite, dacite and minor basalt; includes fine-grained and aphanitic amphibolites of unknown origin; 3b, mafic to quartzofeldspathic greywackes and tuffs (gneiss); medium- to fine-grained and laminated; 3c, quartzofeldspathic and pelitic sediments (gneiss), and 'cherts'; fine-grained, grey and laminated.
- 2 FOLIATED AUGEN-GNEISS: white to buff-coloured, medium- to coarse-grained granodiorite and leucocratic quartz diorite; mafic schlieren and segregations of biotite and quartz strings are characteristic.
- 1 LAYERED GNEISSES: fine- to coarse-grained, commonly granoblastic hornblende-biotite-quartz-feldspar gneiss interlayered with coarse-grained granitic material; 1a, leucocratic, perthitic microcline gneiss; less than 20 per cent mafic layers; abundantly granitized; 1b, mesocratic, oligoclase gneiss; 20 per cent mafic layers, locally granitized; 1c, mesocratic, antiperthitic oligoclase gneiss; greater than 20 per cent mafic layers; 1d, andesine-quartz diorite and diorite gneiss, inter-layered with fine-grained metagabbro, apfite, oligoclase quartz diorite and amphibolite; includes metamorphosed diorite-amphibolite gneiss.

Geological boundary (defined, approximate, assumed)

Gneissosity, foliation (horizontal, vertical, dip unknown)

Stratiform foliation (inclined, vertical, dip unknown)

Lamination (horizontal, inclined; may be combined with foliation)

Axis of small fold (inclined)

Fold (anticline, syncline, plunge indicated)

Fault (defined, assumed)

Shear or schist zone (width indicated)

Glacial striae and chatter marks (direction of ice movement indicated)

Locality where K/Ar age on biotite has been determined in millions of years

Geology by W. A. Johnston (1936) and L. F. Ermanovics 1971

Compilation and interpretation by L. F. Ermanovics 1971

To accompany Paper 72-29 by L. F. Ermanovics

This preliminary edition may be subject to revision and corrections

Geological cartography by the Geological Survey of Canada

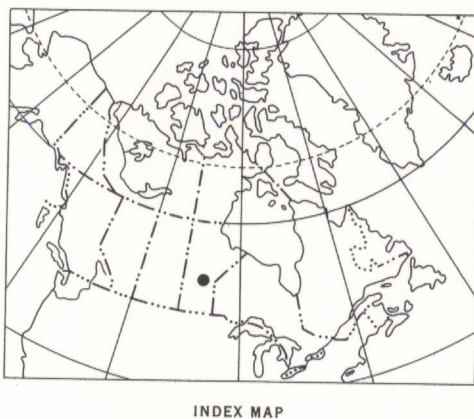
Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Base-map assembled by the Geological Survey of Canada from maps published at the same scale 1/50,000 by the Surveys and Mapping Branch in 1964

Copies of the topographical edition of this map may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa

Magnetic declination 1972 varies from 10°41' easterly at centre of west edge to 7°57' easterly at centre of east edge. Mean annual change 0.8' easterly

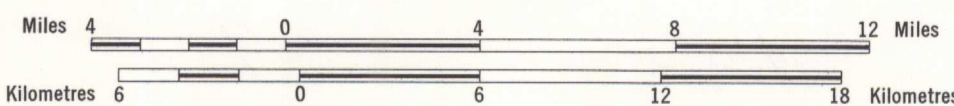
Elevations in feet above mean sea-level



MAP 5-1972
PAPER 72-29
GEOLOGY

NORWAY HOUSE AND GRAND RAPIDS
MANITOBA

Scale 1:250,000



63J	63I	53 L
32-1961	21-1961	
63G	63H	53E
	5-1972	26-1960
63B	63A	53D
	11-1970	26-1958

NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND
INDEX TO GEOLOGICAL SURVEY OF CANADA MAPS

MAP 5-1972
NORWAY HOUSE
MANITOBA