



Geology of the Black Island–Seymourville area, Manitoba (parts of NTS 62P1, 7 and 8)

LEGEND

ORDOVICIAN

- 20 Red River Formation (dolomite)
- 19 Winnipeg Formation (sandstone)

ARCHEAN

2.71 Ga¹ SEDIMENTARY ROCKS

Hole River sedimentary rocks

- 18 Arkose (<2707 Ma)
 - a) massive
 - b) local bedding and trough crossbedding

Guano Island sedimentary rocks

- 17 Boulder conglomerate and arkose (<2722 Ma)
 - a) massive, rare matrix-supported pebbles
 - b) boulder to pebble conglomerate (matrix-supported, heterolithic, fine-grained matrix)
 - c) thinly laminated sandstone
 - d) local isolated pebbles and cobbles

BLACK ISLAND ASSEMBLAGE

Intrusive rocks

- 16 Gabbro, quartz diorite (includes some syneclastic intrusions)
 - a) gabbro
 - b) quartz diorite (2715 ±10 Ma¹)
 - c) mafic tectonite derived from units 15a-b

Other volcanic rocks (relationship to units 10-14 unknown)

- 15 Rhyolite breccia (2732 ±10 Ma¹)
 - a) tuff, lapilli tuff
 - b) bedded heterolithic felsic breccia

Drumming Point sequence

- 14 Feldspathic wacke and related volcanoclastic rocks
 - a) felsipathic wacke
 - b) massive, medium-grained, feldspar-rich volcanoclastic rocks
 - c) includes chert, siltstone and mafic mudstone
 - d) mafic mudstone
- 13 Pillowed basaltic andesite and andesite
 - a) pillowed aphyric flows
 - b) includes plagioclase-phyric flows
 - c) massive aphyric flows
 - d) mafic tectonite derived from units 12a-c
- 13d

Gray Point sequence

- 12 Intermediate to felsic volcanoclastic rocks, minor basalt
 - a) intermediate volcanoclastic rocks
 - b) includes felsic pebble beds
 - c) includes chert beds
- 11 Porphyritic basalt and basaltic andesite (2723 ±6 Ma¹)
 - a) pyroxene-phyric, pyroxene-plagioclase-phyric massive flows
 - b) pyroxene-phyric massive flows with plagioclase megacrysts
 - c) gabbro textured massive flows
 - d) pyroxene-glomerophyric massive flows
 - e) includes interflow chert beds
 - f) foliated
- 10a Aphyric basalt and basaltic andesite
 - a) pillowed flows, minor massive flows, local mafic tectonite
- 10b Mafic tectonite derived from unit 9a, minor pillowed basalt

NORTH CARIBOU TERRANE

- 9.9a Biotite granodiorite to granite (2715 Ma ±10 Ma²), medium to coarse grained, includes K-feldspar porphyritic phases, may include some unit 8
 - a) gneissic
 - b) massive leucocratic granite
- 9b
- 8 Biotite granodiorite (2941 ±2 Ma¹), homogenous, medium to coarse grained, variably foliated sheets and plutons, may include some unit 5

Lewis-Storey assemblage

- 7 Diabase (fine grained)
 - a) dike
 - b) sill
- 6 Iron formation
 - a) thinly laminated magnetite and chert
 - b) carbonate, siliceous sediments and muscovite-rich laminae
- 5 Komatiite flows
 - a) fine-grained to coarse spinifex-textured ultramafic rocks
 - b) altered equivalents (alc rock, serpentinite)
- 4 Quartz arenite (<2980 Ma¹), thinly laminated with chrome green colour (fuchsite) and minor muscovite schist
- 3 Medium to coarse grained arkosic gnt. composed of poorly sorted angular plagioclase and quartz granules set in a fine-grained chloritic matrix, typically massive with rare sand lenses and local thick beds; local pebbles and cobbles of unit 1a tonalite (cut by 2978 Ma¹ porphyry sill)

East Shore Plutonic Complex

- 2.2a Diorite and quartz diorite (medium to coarse grained, includes metre-scale layers of gabbro and rare pyroxenite and hornblende)
 - a) high strain zones with faser foliation
- 2b
- 1.1a,c,d,e Tonalite with characteristic blue quartz (2999 ±10 Ma², medium to coarse grained)
 - a) least altered variety, contains hornblende, biotite, and rare clinopyroxene
 - b) gabbro as enclaves
 - c) diorite as enclaves
 - d) hornblende as enclaves
 - e) hornblende as enclaves
- 1b b) overprinted by greenschist-facies shear zones; typically chlorite rich
- 1f f) serpentinite as enclaves (■ small isolated outcrop)

SYMBOLS

Geological contact (defined, approximate, inferred, underwater, gradational, compiled)

D₀ - D₁ shear zone (hornblende grade)

D₁ shear zone (chlorite grade)

D₂ shear zone boundary

D₃ shear zone boundary

Fault

Unconformity (tick on cover side)

Limit of mapping

U-Pb zircon dating site (location known, location approximate)

Diamond-drill hole

Bedding (top: unknown, known, overturned)

Pillow (top: unknown, known, overturned)

Igneous layering (top: unknown, known, overturned)

Flow contact (top: unknown, known, overturned)

Foliation (generation: unknown, 1st, 2nd, 3rd)

Cataclastic foliation

Fault (sense: unknown, dextral, sinistral, normal, reverse)

Shear zone (sense: unknown, dextral, sinistral, normal, reverse)

Shear zone (generation: unknown, 1st, 2nd, 3rd)

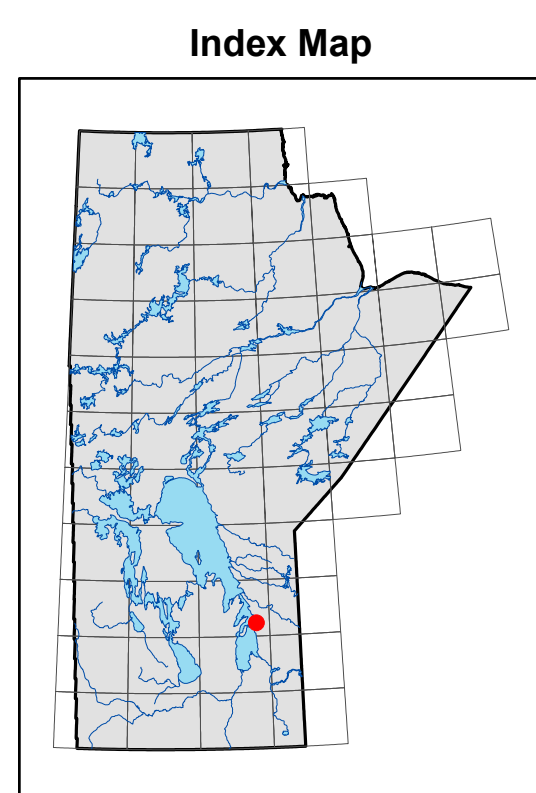
L-fabric (generation: unknown, 1st, 2nd, 3rd)

Intersection lineation (generation: unknown, 1st, 2nd, 3rd)

Fold axis (generation: unknown, 1st, 2nd, 3rd)

Fold symmetry (symmetrical, s-shaped, z-shaped)

Fold-axial surface (generation: unknown, 1st, 2nd, 3rd)



Geology by A.H. Bailes and J.A. Percival* (2000)

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Cartography by M.E. McFarlane

Footnotes:

¹McNicoll, V. and Percival, J. A., unpublished Geological Survey of Canada data, 2000.

²Krogh, T.E., Ermanovics, I.F. and Davis, G.L., 1974. Two episodes of metamorphism and deformation in the Archean rocks of the Canadian Shield; Carnegie Institution of Washington, Geophysical Laboratory Yearbook, p. 573–574.

³Ermanovics, I.F. and Wanless, R.K. 1983. Isotopic studies and tectonic interpretation of Superior Province in Manitoba, Geological Survey of Canada, Paper 82-12, 17p.