

LEGEND

- TERTIARY PALEOCENE**
Pa TURTLE MOUNTAIN FORMATION: shale, sand, sandstone, coal
- CRETACEOUS OR TERTIARY**
K7 BOISSEVAIN FORMATION: sand, sandstone, clay
- CRETACEOUS UPPER**
Kua RIDING MOUNTAIN FORMATION: shale, Includes ODANAH and MILLWOOD MEMBERS
Ku3 VERMILION RIVER FORMATION: shale, bentonite, Includes PEMBINA, BOYNE, and MORDEN MEMBERS
Ku2 FAVEL FORMATION: shale, limestone, bentonite, Includes ASSINIBOINE and KELD MEMBERS
- MESOZOIC LOWER (?) AND UPPER CRETACEOUS**
Kui ASHVILLE FORMATION: shale, silt, sand, limestone, bentonite
- JURASSIC AND CRETACEOUS LOWER CRETACEOUS AND EARLIER**
JKI Sand, sandstone, glauconitic sand, shale, clay, Includes SWAN RIVER FORMATION of Lower Cretaceous age
- JURASSIC OR EARLIER**
J AMARANTH FORMATION: shale, calcareous sandstone, siltstone, argillaceous limestone, dolomite, anhydrite, gypsum
- DEVONIAN MIDDLE AND UPPER DEVONIAN MANITOBA GROUP**
Dmu Dolomite, limestone, shale, Includes SOURIS RIVER and DAWSON BAY FORMATIONS
- MIDDLE DEVONIAN**
Dm3 WINNIPEGOSIS FORMATION: dolomite
- ELM POINT FORMATION: limestone**
Dm2
- ASHERN FORMATION: argillaceous dolomite**
Dm1
- SILURIAN MIDDLE SILURIAN INTERLAKE GROUP (Sm-Sm5)**
Sm5 CEDAR LAKE FORMATION: dolomite
- PALEOZOIC**
Sm4 ATKAMEG FORMATION: dolomite
Sm3 MOOSE LAKE FORMATION: dolomite
Sm2 INWOOD FORMATION: dolomite
Sm1 FISHER BRANCH FORMATION: dolomite
- ORDOVICIAN UPPER ORDOVICIAN**
Ou4 STONEWELL FORMATION: dolomite, dolomite conglomerate
Ou3 STONY MOUNTAIN FORMATION: calcareous shale, dolomite, limestone, Includes GUNTON, PENITENTIARY, and GUNN MEMBERS
Ou2 RED RIVER FORMATION: dolomitic limestone and dolomite, Includes CAT HEAD and DOG HEAD MEMBERS
Ou1 WINNIPEG FORMATION: sandstone, shale
- ARCHAEOAN**
A4-7 A4, Granodiorite, quartz diorite
A5, Mainly granite
A6, Granite, granodiorite, quartz diorite, gneiss, schist, undivided, Includes small bodies of basic and ultrabasic rocks
A7, Areas mapped as dominantly gneiss and schist
A2 RICE LAKE GROUP
Quartzite, arkose, slate, tuff
A1 Rhyolite, andesite, basalt, gabbro, and derived greenstone and gneisses
- CRETACEOUS AND TERTIARY**
KT RAVENSCRAG FORMATION: clay, sand, sandstone, coal
- CRETACEOUS UPPER CRETACEOUS**
Ku Sand, silt, shale, clay, May include Whitemud and Estevan equivalents
- Evaporites of uncertain age: gypsum, anhydrite**
S7
- INTERLAKE GROUP**
Sm Undivided
- Geological boundary (defined or approximate)**
Geological boundary (inferred or gradational)
Oil field
Coal mine
Industrial mineral or stone operation
- ORDOVICIAN UPPER ORDOVICIAN**
Ou Undivided
- Volcanic and sedimentary strata and derived gneisses and schists undivided**
A3

NOTES

NOTE 1. East of Manitoba it was possible to map three divisions of the Rice Lake Group: one composed mainly of lavas, one of tuffs with thin layers of quartzite, and one of tuffs and other sediments including tuff. Because the dominantly tuffaceous division is relatively small and includes quartzite, it is combined with the other sedimentary divisions to form unit A2 of the present map. In some parts of the map the divisions of the Rice Lake Group have not yet been separated; these are indicated by the combined unit A3. A belt of gneisses and schists extending along the shore of Lake Winnipeg northward from Rice River appears to be a metamorphosed equivalent of the Rice Lake Group. Gneisses south of Rice River that have been grouped with unit A6 may be related to this belt.

Most of the Precambrian part of the area is underlain by acidic intrusive rocks and gneisses that probably represent various stages of granitization. There may be granitic rocks of several distinct ages, but mapping has not yet been sufficiently detailed to permit accurate separations. In the northern part of the area bodies ranging from granodiorite to quartz diorite were separated on the basis of reconnaissance surveys, and considered older than granite, but their boundaries and age relations are indefinite.

In the southeastern part of the map area rock exposures are too scarce to permit good delineation of the Precambrian rocks.

NOTE 2. The Palaeozoic formations are well exposed in a few places, particularly at certain locations along the shores of the larger lakes, in quarries, and by wells. These exposures afford fairly satisfactory evidence of the lithology, thickness, and ages of the entire formations but in only a few places can the geological boundaries be drawn exactly.

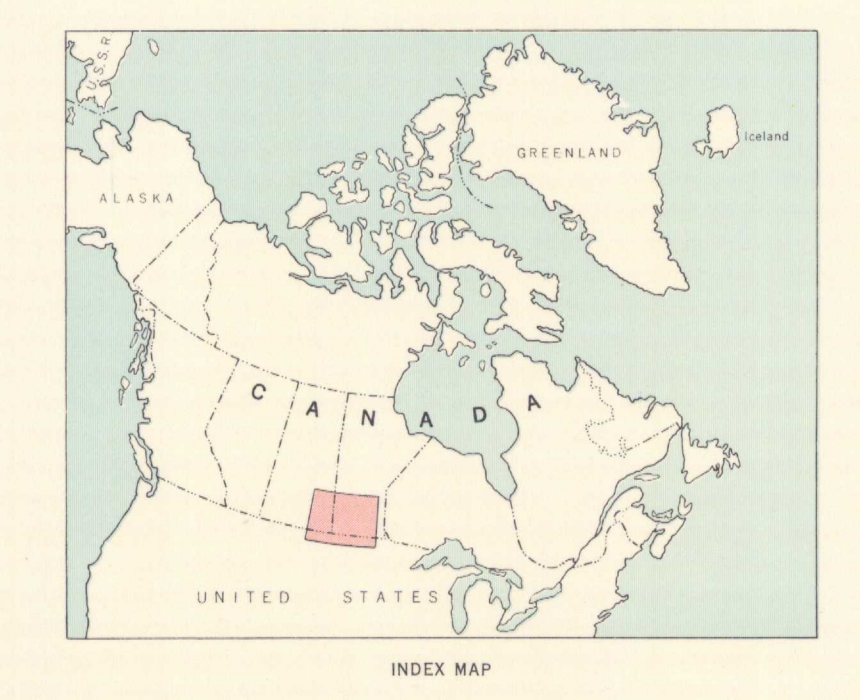
NOTE 3. The Mesozoic formations are fairly well exposed along the Manitoba Escarpment between the northern boundary of the map-area and Neepawa. Elsewhere they are, in general, poorly exposed, in most parts of the area their presence can be estimated with fair certainty but their boundaries can be drawn only approximately. In the section between Neepawa and Assiniboine River exposures are so lacking that the distribution of the formations can only be inferred.

NOTE 4. At and near Turtle Mountain the succession of strata named the Boissevain and Turtle Mountain Formations is fairly evident. In the southwestern part of the area poorly exposed beds have been correlated with the Ravenscrag and, possibly, Frenchman Formations which occur typically west of the map-area. The relationship between the Ravenscrag and the Turtle Mountain is not clear.

- PRINCIPAL COAL MINES, OIL FIELDS, AND INDUSTRIAL MINERAL OPERATIONS**
- Gypsumville Gypsum
 - Sleep Rock Limestone
 - Sawhill high-calcium lime
 - Black Island Silica sand
 - Estevan Pyrites
 - Amaranth Sulphur
 - Inwood Dolomitic lime
 - Rocanville Oil
 - Wapella Oil
 - Neepawa Sodium chloride
 - Stony Mountain Crushed rock
 - Gardens Tyndall area Building stone
 - Lac du Bonnet area Granite
 - Jules bog Peat
 - Moose Valley Oil
 - North Virden Scallion Oil
 - Kenosee Oil
 - Parkman Oil
 - West Butler Oil
 - Ebor Oil
 - Daly Oil
 - Meadow Oil
 - Virden-Roselea Oil
 - West Routledge and Routledge Oil
 - Woodworth Oil
 - Manor Oil
 - Weyburn Oil
 - Middle Oil
 - Benson Oil
 - Winnar Oil
 - Queensdale Oil
 - Alton Oil
 - Tribun Oil
 - West Hill Oil
 - West Kningsford Oil
 - Nottingham Oil
 - Daerig Oil
 - Estevan area Coal
 - Alameda Oil
 - Stan Egan Oil
 - Carnduff Oil
 - Workman Oil
 - Gambrook Oil
 - Person Oil
 - Whitewater Oil
 - Thornhill Miami area Bentonite

Geology compiled by A. H. Lang, 1961, from maps and reports published by the Geological Survey of Canada and the Manitoba Department of Mines and Natural Resources

Base-map from Map 2218, "Assiniboine River" by the Surveys and Mapping Branch, 1952, with minor revisions, 1964



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1162A CLEARWATER RIVER	74	COCHRANE RIVER	64	CHURCHILL RIVER	54
1163A NORTH SASKATCHEWAN RIVER	73	1164A CARROT RIVER	63	SACHIGO RIVER	53
1164A SOUTH SASKATCHEWAN RIVER	72	1165A ASSINIBOINE RIVER	62	OGOKI RIVER	52

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MAP 1166A
GEOLOGY
ASSINIBOINE RIVER
MANITOBA-SASKATCHEWAN

Scale 1:1,000,000
1 inch to 15.78 miles

Miles 20 0 20 40 60
Kilometres 25 0 25 50 75 100

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