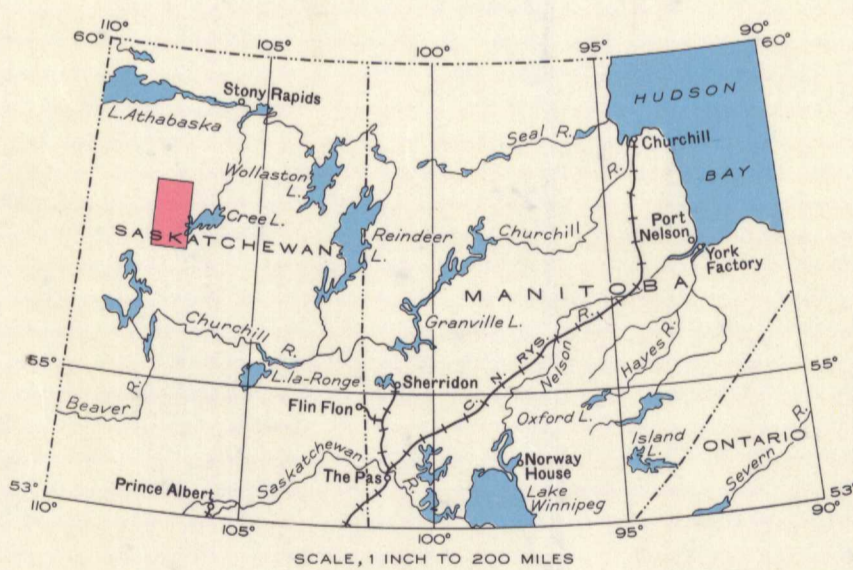


LEGEND

- PROTEROZOIC (?) (LATE PRECAMBRIAN)**
- 5 ATHABASKA FORMATION: sandstone
- ARCHEAN (EARLY PRECAMBRIAN)**
- 3 Mainly granite and granite-gneiss
 - 2 Andesite and some rhyolite, hornblende and chlorite schist, granitic intrusives
 - 1 Biotite and biotite-garnet gneiss and schist; quartzite
 - 4 4a. Highly granitized biotite and biotite-garnet gneiss and schist; quartzite; interbedded volcanic rocks; basic sills; 4b. similar to 4a but including much diorite-gneiss; 4c. hornblende gneiss and schist; diorite, gabbro and pyroxenite; some interbedded sediments and granitic intrusives

- Area of outcrop and small outcrop, in part examined, and in part sketched from aerial photographs
- Geological boundary
- Glacial striae
- Building
- Trail or portage
- Lake and stream (position approximate)
- Fall and rapid
- Marsh
- Sand bar
- Height in feet above Mean sea-level

Geology by J.C. Sproule, 1937, and by D.L. Downie, 1938.
Base-map prepared by the Topographical Survey, 1938, from Federal Government map since published in 1939. Cartography by the Drafting and Reproducing Division, 1940.



DESCRIPTIVE NOTES

The area may be entered by aeroplane or by either of two well-known canoe routes. One of these leads from Fort McMurray, Alberta, into the western part of the area, via Clearwater and Virgin rivers. The other leaves the railhead at either Big River or Meadow Lake and follows down Beaver river to Ile a la Crosse lake and Churchill river. Thence it follows up Mudjatik and Gwillim rivers and over the height of land to Cree lake.

The northern portion of the area, underlain by flat-lying Athabaska sandstone, has a gently undulating surface broken only by groups of elongate drumlins and by esker ridges. All drumlins have a southwesterly elongation parallel to the direction of ice movement. Individually they may be as much as 250 feet high and 1.5 miles long. The eskers also trend southwest and are up to 150 feet high. Between the eskers and drumlins the drift mantle is thin. Glacial material is in all cases chiefly of sand and sandstone. South of the area occupied by Athabaska sandstone the surface is marked by many low, rocky hills, depressions between which are partly filled by sandy glacial debris. The maximum relief for the entire area is about 350 feet.

The vegetation reflects the predominantly sandy character of the soil in that much of the area is parkland covered with Banksian pine. Spruce occurs mainly on low, wet ground, or on rocky ridges in the southern part of the area.

The oldest rocks (1) are, presumably, mainly of sedimentary origin. They occur also in association with small amounts of interbedded volcanic rocks and intrusive, basic sills, the latter now almost entirely altered to hornblende schists. All these rocks are, for the most part, steeply inclined and much altered. They have been extensively granitized by bodies of acid intrusives, thus forming mixed assemblages (4a, 4b). The greenstone volcanic rocks (2) observed along Virgin river are chiefly massive, pillow, amygdular, and vesicular andesitic lavas but include some rhyolite porphyry and trachyte. They are partly metamorphosed to hornblende, chlorite, and other schists and are invaded by granitic intrusives (3). West of the greenstone belt is an assemblage of mixed rocks (4c) composed, mainly, of hornblende gneiss and schist, diorite and gabbro. In part at least these are altered volcanic rocks. Interbedded with them are subordinate amounts of gneissic and schistose sediments and granitic intrusives. This assemblage is bordered, a few miles west of the area, by a band of basic intrusive and associated volcanic rocks which may be the equivalent of the greenstones of Virgin river. West of this basic belt, again, is an assemblage of highly granitized, siliceous rocks similar to those of 4a in the present map-area. This structural arrangement is suggestive of a broad fold, possibly synclinal, the axis of which is occupied by the rocks of 4c. Included with the granites and gneissic granites (3) are minor amounts of diorite and pegmatite, and small remnants of older rocks.

The Athabaska sandstones (5) lie unconformably and nearly horizontally on all the above mentioned formations. They are massive, cross-bedded, and thinly-banded rocks. They may be of Palaeozoic age.

Little prospecting has been done in the area and no ore deposits have yet been discovered. The bodies of gabbro and diorite, particularly those in assemblage 4c associated with quartz and pegmatite, carry pyrite, pyrrhotite, chalcopyrite and magnetite, disseminated along and adjacent to fractures, joints and shear planes. No important concentrations of these minerals have been found.

MAP 577A
BRUSTAD RIVER
NORTHERN SASKATCHEWAN

Scale, 253440 or 1 inch to 4 Miles

Approximate magnetic declination, 23° to 26° East.

5.1.10 Brustad River, Sask.
A, Geol.
Map 577A.

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577A