

LEGEND

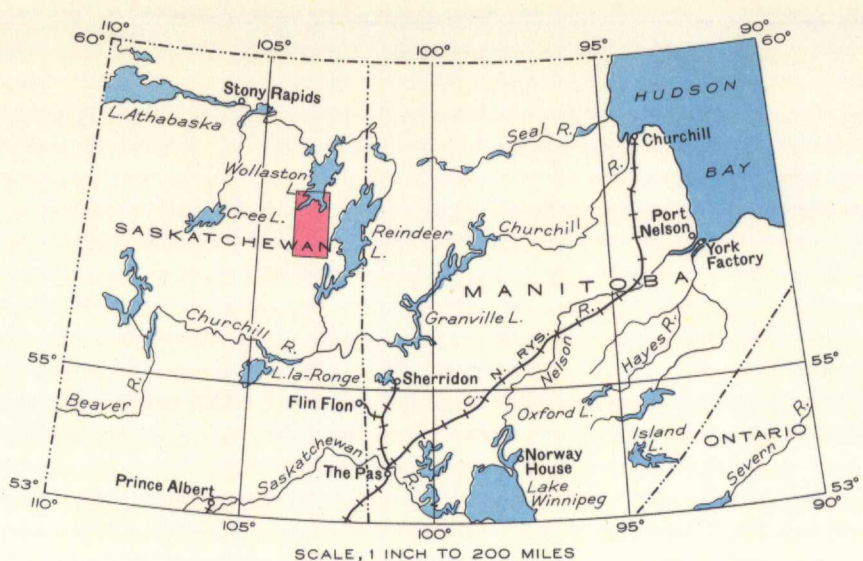
NOTE. Uncoloured areas are drift-covered areas in which the bedrock is unknown. Coloured areas are largely drift-covered.

- ARCHEAN (EARLY PRECAMBRIAN)
- 3 Granite, granite-gneiss, porphyritic granite and gneiss, granodiorite, quartz diorite, pegmatite
 - 2 Gneissic complex of granitic rocks and sediments
 - 1 Sedimentary gneiss and schist, quartzite, minor volcanic rocks, pegmatite

- Geological boundary
- Bedding (inclined, dip unknown)
- Building
- Portage
- Lake and stream (position approximate)
- Rapid
- Marsh
- Height in feet above Mean sea-level 1300'

Geology by L. J. Weeks, 1938.

Base-map prepared by the Topographical Survey, 1939, from Federal Government map published in 1938 Cartography by the Drafting and Reproducing Division, 1940.



DESCRIPTIVE NOTES

The area is most conveniently reached from Flin Flon, the northern terminus of the Flin Flon branch of the Canadian National Railways. The water route begins at Beaver lake, 12 miles southwest of Flin Flon, and follows Sturgeon-weir river and Pelican lake to Frog portage, then Churchill and Reindeer rivers to Southend at the outlet of Reindeer lake. From Reindeer lake, Swan river may be followed to Wollaston lake and the northern part of the area, and Wathaman river and its tributaries to the southern part. Wollaston lake may also be reached via Cochrane river from Brochet, at the northeast corner of Reindeer lake. By air, the distance from Flin Flon to Compulsion bay, Wollaston lake, is about 210 miles.

Most of the southern part of the area is characterized by gravel ridges and rolling glaciated hills of bedrock, between which the depressions are filled with drift or occupied by swamps or lakes. The northern part is largely drift covered. Wollaston lake lies at 1,300 feet above sea-level, the highest hills standing about 200 feet above it.

The oldest formations in this region, consisting of sediments and volcanic rocks, were first intruded by minor basic sills, dykes and stocks. These rock groups were then invaded, highly metamorphosed, and partly assimilated by widespread granitic intrusions which show their effects in all parts of the map-area and may be of different ages. The youngest rocks in the region are dykes and sills of gabbro but none occur in the map-area.

The rocks of dominantly sedimentary origin (1) have been highly metamorphosed but original bedding structures are generally preserved as bands differing in colour and mineral composition. Variations in the appearance and composition of these rocks are due both to inherent diversities in the sediments from which they were derived, and to the degree with which they have been permeated, injected and assimilated by granitic intrusions. Where granitization has been least pronounced, the rocks are usually dark grey, distinctly banded and composed essentially of quartz, mica, and feldspar. The grain size is usually less, and often much less than 1 mm. Pegmatitic stringers, composed of intergrowths of quartz and feldspar and usually less than a quarter-inch in width, are common even where the sediments are least altered. Local quartzitic beds with small amounts of muscovite, are almost white on fresh surfaces. Garnets are common accessory minerals in all types of sedimentary schists.

Rocks of volcanic origin occur interbedded with sedimentary schists at a number of localities in the northern part of the map-area. They form relatively long but very narrow bodies and have not been mapped separately. The rocks are mostly fine-grained, dark grey-green chlorite schists, and have been observed grading into black hornblende schist. A breccia composed of dense, light grey to medium grey fragments, up to three inches long, in a fine-grained buff-grey matrix, occurs about six miles northwest of Morwick lake.

Minor amounts of hornblende schist and hornblende gneiss are present and in part are believed to be highly altered volcanic rocks. Other, coarser-grained bodies may intrude the sediments and, in places, are indistinguishable from massive, dark-grey hornblende-bearing rocks of undoubted intrusive origin that are mapped with the granitic rocks of the area.

Mixtures of granitic rocks and sediments (2) are extremely common throughout the area. In places both classes of rocks may be readily distinguished though they may be too intimately associated to be mapped separately. Elsewhere all gradations may be recognized from altered sediments, with little or no granitic material, to pure granite, and, in such places, it has been found necessary to adopt a quantitative system for their classification and mapping. Where the estimated percentage of granitic material in a locality is less than 40, the rocks are mapped as sediments; where the percentage is between 40 and 90, the term 'gneissic complex' is used; and where it exceeds 90, the rocks are classed as granite.

Probably the most common type of mixed rock in this complex is formed by lit-par-lit injection with partial to complete granitic assimilation of the adjoining sedimentary material. Bands of coarse granite several inches wide, often pinkish, and in places pegmatitic, commonly separate grey, micaceous sedimentary layers, and grade into them. Where granitization of the injected rocks has been more complete, the entire rock takes on a granitic appearance, with, however, the original banding of the sediments still discernible on the weathered surface. In places where the mixtures of granitic and sedimentary materials are more distinct, numerous masses of granite, often pegmatitic and only a few feet across, invade the sediments and, in part, follow the bedding planes. In such places the relative proportions of granite to sediments may be such that the latter are represented only by isolated, small inclusions in the granitic mass.

Granitic rocks (3) underlie about 75 per cent of the area. They vary from pink and red, to grey and dark grey, from fine-grained to coarsely porphyritic and pegmatitic, and from massive to quite gneissoid. In composition they range from normal granite, consisting essentially of quartz and orthoclase, to granodiorite and quartz diorite, in which dark minerals, chiefly hornblende, predominate slightly over feldspars and quartz. In the larger areas of granitic rocks, normal granite and granite gneiss, either equigranular or porphyritic, are most common. In a north-easterly-trending belt lying between Reilly and Spalding lakes, the rocks are chiefly coarse porphyritic hornblende granite-gneiss. About 40 per cent of this rock is hornblende, the remainder being chiefly pink orthoclase with smaller amounts of plagioclase and quartz. The orthoclase forms phenocrysts up to an inch or more long. Small bodies of quartz diorite occur in a number of localities. The rock is usually rather fine-grained and, in places is distinctly foliated.

MAP 596 A
SPALDING LAKE
NORTHERN SASKATCHEWAN

Scale, 250,000 or 1 inch to 4 Miles

Approximate magnetic declination, 18°30' to 22°30' East.

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