CANADA
DEPARTMENT OF MINES AND RESOURCES
HON. T. A. CRERAR, MINISTER; CHARLES CAMSELL, DEPUTY MINISTER
MINES AND GEOLOGY BRANCH
JOHN McLEISH, DIRECTOR
BUREAU OF GEOLOGY AND TOPOGRAPHY
F. C. C. LYNCH, CHIEF
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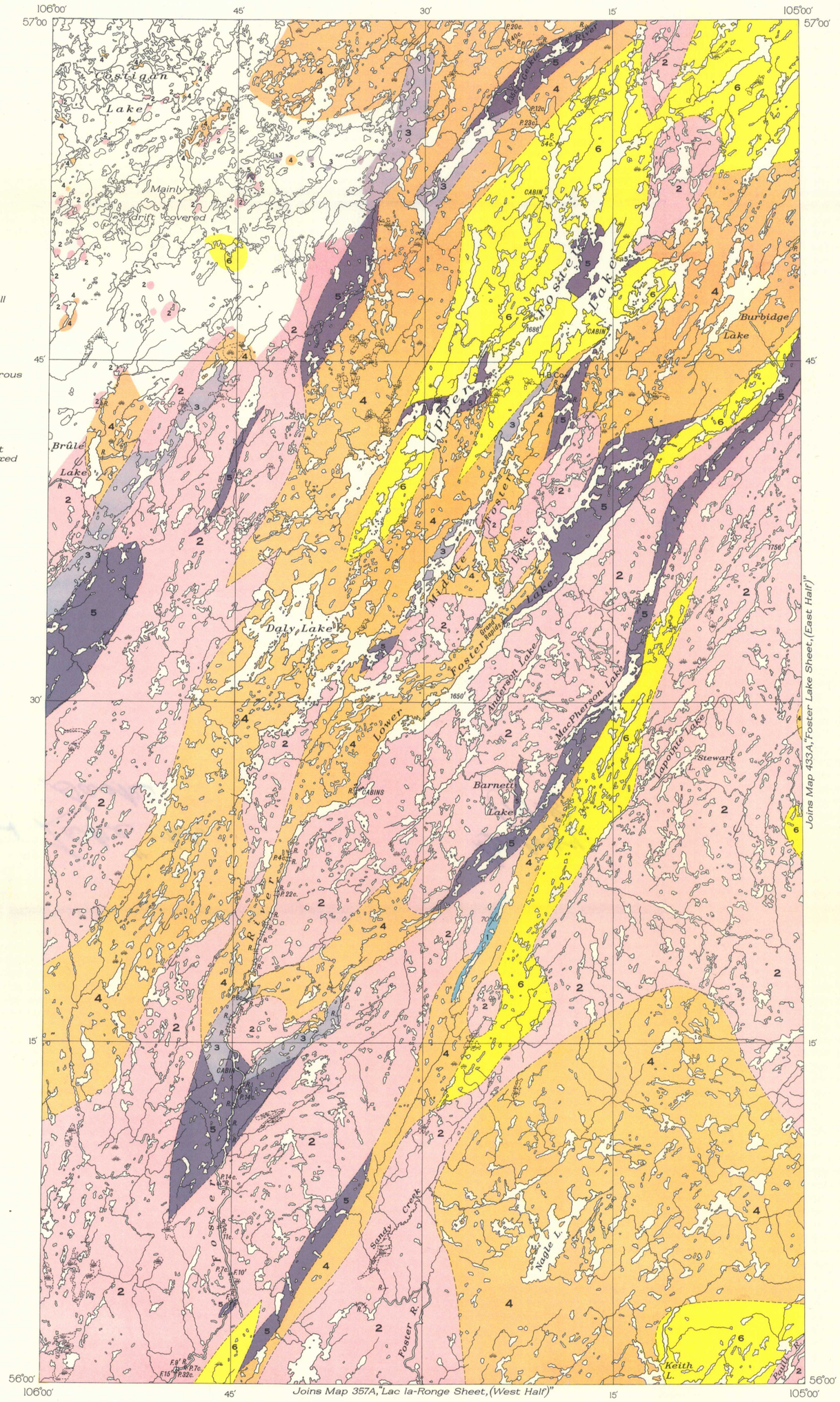

LEGEND

ARCHEAN (EARLY PRECAMBRIAN)

- 2 — Granite; pegmatite, aplite
- 6 — Small bodies of granite (2) and equally numerous small bodies of intimately mixed schist, gneiss and granitic intrusives (4)
- 5 — Small bodies of schist and gneiss (3) and equally numerous small bodies of intimately mixed schist gneiss and granitic intrusives (4)
- 4 — Granitic intrusives (2), schist and gneiss (3) intimately mixed in varying proportions
- 3 — Schist and gneiss derived from sedimentary and volcanic rocks
- 1 — Conglomerate

Geological boundary (defined approximate)
Bedding (inclined)
Glacial striæ
Trail or portage
Fall or rapid
Marsh
Height in feet — 1650'

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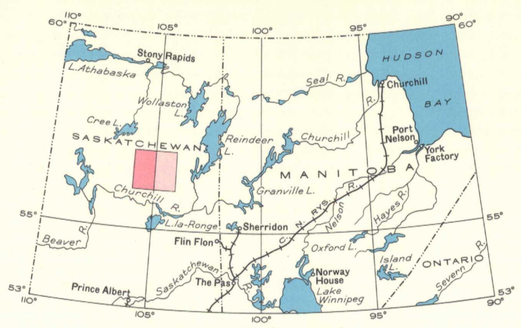

SCALE, 1 INCH TO 200 MILES

MAP 434A

FOSTER LAKE SHEET

(WEST HALF)

NORTHERN SASKATCHEWAN

Scale, 1/253,440 or 1 Inch to 4 Miles

Miles 4 0 4 8 12

Kilometres 5 0 5 10 15

Approximate magnetic declination, 18° to 23° East.

LOCATION AND ACCESS

The south side of this area is about 60 miles north of Lac la-Ronge. This lake is approximately 140 miles north of the city of Prince Albert. In summer it may be reached from Prince Albert, travelling by road to Montreal lake and from there by water crossing Montreal lake and descending Montreal river to Lac la-Ronge. From Lac la-Ronge the route is via Nemeiben lake to Churchill river, up this stream to where Foster river joins it, and then up Foster river to Foster lakes in the central and northern part of the area. An alternative but much longer canoe route begins at Amisk lake near Flin Flon, ascends Sturgeon-weir river to Pelican narrows and Wood lake. From Wood lake a portage connects with Churchill river and the route continues thence up Churchill river to Foster river. The nearest settlements, Stanley on Churchill river and La-Ronge on Lac la-Ronge, are connected with Prince Albert by a winter road over which most heavy supplies are taken by sleigh. During the summer practically all freighting and passenger work is done by airplane.

PHYSICAL FEATURES

With the exception of the northwest corner of the area rock outcrops are numerous and in many cases the shore-line of lakes is almost continuous exposure. The relief is usually less than 200 feet, but west of Foster river and near Keith lake it approaches 400 feet. The elevation of a small lake at about the centre of the east side is 1,756 feet and is the highest recorded lake elevation in this part of Saskatchewan. Paull river in the southeast part of the area has an elevation of 1,330 feet. Foster lakes are drained to the northeast by Wathaman river and to the south by Foster river, both streams having many rapids and falls. The general drainage pattern of the Foster and nearby lakes is north 33 degrees east conforming roughly to the strike and the bands of the different types of rocks. Other parts of the area have a less uniform pattern, the northwest corner being undoubtedly affected by the heavier mantle of drift. Glacial striæ vary in direction from 22 degrees to 45 degrees.

GENERAL GEOLOGY

The oldest known rocks of the area are sediments and volcanics, for the most part altered to schists and gneisses (3). Only one band of conglomerate (1) was of sufficient extent to warrant it being separately mapped. Most of the pebbles of the conglomerate are of acid volcanics, but some of red, aplitic-looking material were observed. Throughout the area and included with the schists and gneisses (3) and the mixed rocks (4, 5, and 6) are many exposures of rock of sedimentary or volcanic origin. These outcrops and the occurrence of schists and gneisses believed to be derived in part from rocks of these types indicate that a large part of the area was once underlain by sedimentary and volcanic rocks. Of other types of sedimentary rocks, limestone, arkose, and quartzite are the most abundant; there is also some argillite, greywacke, and chert. The limestone is usually completely recrystallized, pink, and coarse in texture. Some of the limestone is grey or green and some shows differential weathering, a feature caused by the presence of argillaceous bands in the limestone.

Schists and gneisses (3), which are probably metamorphosed equivalents of the sediments and volcanic rocks, occur in several small belts. Included in this group are some very small areas of sedimentary and volcanic rocks. The original nature of the schists and gneisses can be determined in only a few places. Bedding planes in some of the schists show that some of the original rock was sedimentary. What appeared to be ellipsoidal and amygdaloidal structures were observed in a few outcrops. The large amount of quartz and the abundance of garnets in some of the schists and gneisses are taken as evidence of sedimentary nature. Some of the quartzose rocks contain biotite and garnets and evidently were impure quartzites. Other garnetiferous rocks have many, small, purplish garnets and a large amount of other ferromagnesian minerals; these were probably derived from greywacke. Greenstones are probably represented by those rocks containing an abundance of chlorite or hornblende or both. Some heavy schists with garnets and pyroxene may be altered basic intrusives.

The granitic intrusives (2) include various kinds of granite with its differentiates, pegmatite, aplite, and syenite. These rocks are younger than the sediments and volcanics and their metamorphosed equivalents the schists and gneisses. This is shown by the intrusive contacts, dykes of the granitic intrusives cutting the others, and inclusions of the sediments, etc., in the granitic rocks. Many of the granites are massive, and are as a rule pink or red, but some are white or grey. Small bodies of red syenite also occur. Aplite, which is usually pink and with a fine, sugary texture, is abundant in parts of the area. Some of this rock has intruded laminated rocks and has produced a new type which is with difficulty distinguished from arkose. Much of the granite is gneissic. The foliation is mainly a primary structure, but also is due in part to the structure of the intruded rock which has been completely granitized. Pegmatite is abundant as dykes and small masses. Porphyritic granite is common, especially in the narrow bands of lit-par-lit injection structures. These bands in many places swell and thin, and large feldspar phenocrysts are found in the wider parts. The curving bands of schist or mixed rock around small masses of granite suggests that the granite is later than that in the mixed rock areas. Granite may be of more than one age, but no definite evidence of two granites widely separated in age was found.

The rocks mapped as forming a complex (4) are various kinds of intimate mixtures of granitic instrusives (2) with the schists and gneisses (3) and minor amounts of sedimentary and volcanic rocks. Some basic rocks intrusive into the sediments and volcanic rocks, and identified as amphibolites and gabbros are present. Some amphibolite probably had a sedimentary origin. The proportion of intrusive to intruded rock and the nature of the mixture vary from place to place. Lit-par-lit injection, on coarse to fine scale and occasionally with swellings of injected material that give a beaded effect, granitization in all stages and by pegmatitic and aplitic as well as granitic material, inclusions of schist and gneiss in the granites with boundaries sharp or gradational, are all common.

Large areas (6) consist of small areas of complex (4) and small areas of granite (2).

Division (5) consists of small areas of schist (3) and small areas of complex (4) in approximately equal amounts. In addition there are small areas of granitic rocks free from inclusions and some very small areas of sedimentary and volcanic rocks.

ECONOMIC GEOLOGY

Very little prospecting has been done and no mineral occurrences of consequence are known in this area. Some small quartz stringers and sulphide zones in schist were observed in a number of places and a few of these rusty sulphide zones have had a little attention by prospectors. These, however, are small and being located in small bodies of schist in the areas of mixed rock (4, 5, or 6) are unlikely to have large dimensions. The schist, where of sufficient extent to be mapped separately, is probably the best prospecting ground.

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