CANADA

DEPARTMENT
OF
MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

PRELIMINARY SERIES

SHEET 63 K/11 (West Half)

LEGEND

PALAEOZOIC

ORDOVICIAN

9 — Limestone and dolomitic limestone

ARCHAEAN OR PROTEROZOIC

8 — Complex of closely spaced, randomly oriented spessartite dykes

7 — 7a, syenodiorite, porphyritic syenodiorite, and syenite (may be in part older than 6a); 7b, coarse gneissic feldspar porphyry and porphyritic gabbro; 7c, swarms of syenite and syenodiorite dykes

6 — 6a, biotite granite; 6b, alaskite

5 — 5a, hornblende-biotite quartz diorite and biotite granodiorite; minor porphyritic granodiorite, quartz diorite, and syenite; 5b, porphyritic quartz diorite

4 — 4a, hornblende-biotite granodiorite and diorite; 4b, gabbro and norite

ARCHAEAN

3 — 3a, quartz-eye granite, quartz porphyry and feldspar porphyry; minor hornblende granodiorite; 3b, quartz diorite, quartz gabbro, and gabbro gneiss

AMISK GROUP (1-2)

2 — 2a, meta-diorite and meta-gabbro (may be in part extrusive); minor amphibolite; 2b, altered gabbro and pseudo gabbro; minor pyroxenite and hornblendite

1 — 1a, greenstone derived from andesite and basalt; minor amphibolite, tuff, agglomerate, meta-diorite, and meta-gabbro; 1b, tuff and agglomerate; 1c, conglomerate; 1d, feldspar porphyry, quartz porphyry, and garnetiferous biotite gneiss; minor dacitic and rhyolitic lavas and agglomerate

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A — Aa, hornfels and mixed greenstone-granite gneiss; Ab, recrystallized gabbro or amphibolite with large eyes of lavender and blue quartz

Drift-covered area

Geological boundary (defined, approximate, assumed)

Limit of geological mapping

Bedding (inclined, vertical, overturned, dip unknown)

Bedding (dip known, top of bed unknown)

Bedding (top of bed known, dip unknown)

Schistosity (inclined, vertical, dip unknown)

Gneissosity (inclined, vertical, dip unknown)

Lineation (inclined, plunge known)

Drag fold in gneissosity

Fault (defined, approximate)

Shear zone

Glacial striae

Mineral prospect

Shaft

Geology by T. Podolsky, 1951

Main highway

Other roads

Trail, portage or winter road

Township boundary (surveyed)

Township boundary (unsurveyed)

Section line and number (surveyed) — 31

Stream (position approximate)

Ditch

Fall and rapid — F, R

Marsh

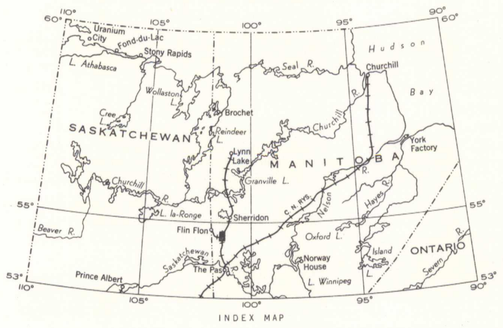
Height in feet above mean sea-level — 922

Approximate magnetic declination, 14° 39' East

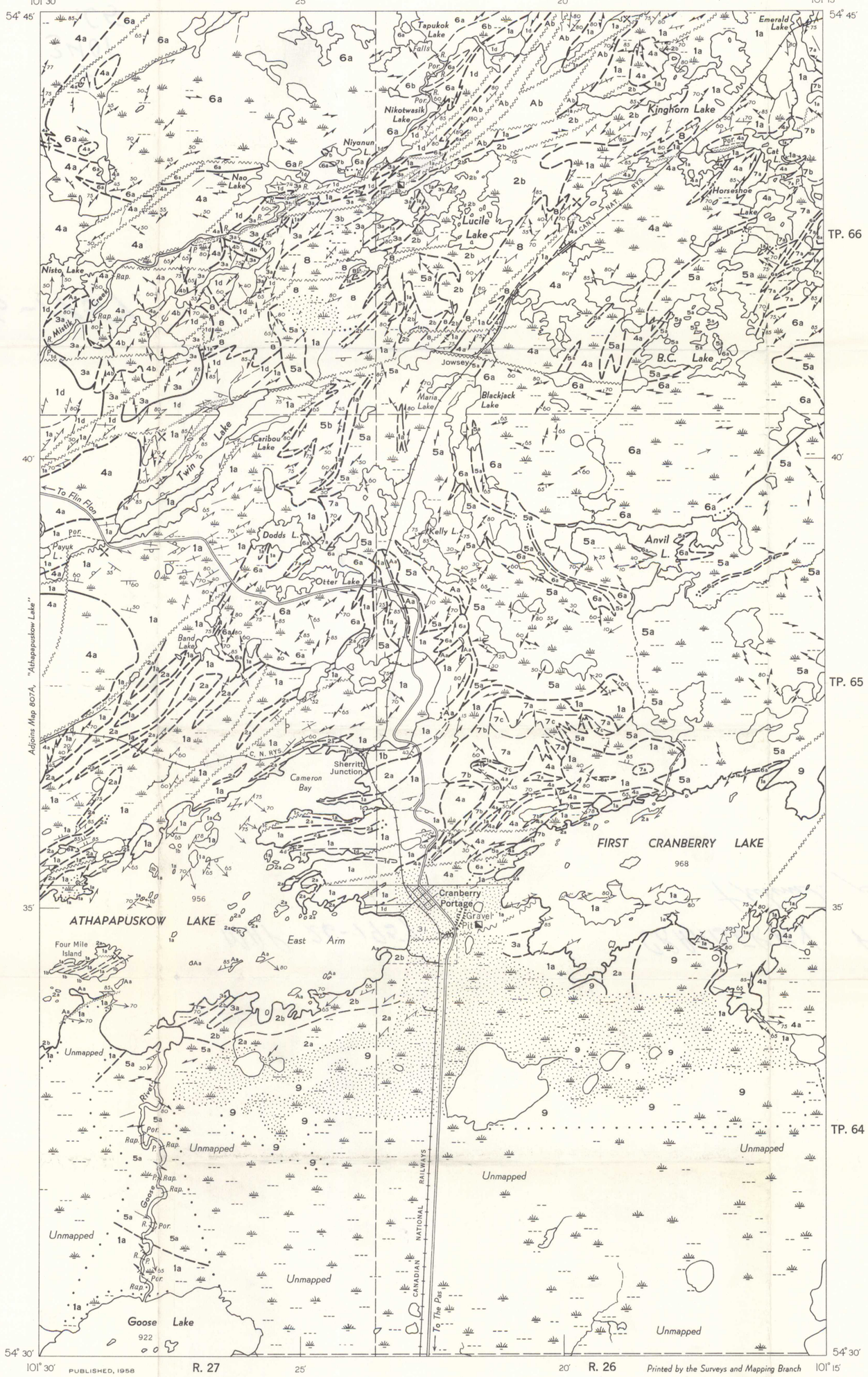
Cartography by the Geological Cartography Unit, 1958

Air photographs covering this area may be obtained through the National Air Photographic Library, Topographical Survey, Ottawa, Ontario

In response to public demand for earlier publication, Preliminary Series maps are now being issued in this simplified form, thereby effecting a substantial saving in time. There is no loss of information, but the maps will be clearer to read if all or some of the map-units are hand-coloured.



INDEX MAP



PUBLISHED, 1958

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26-1957

MAP 26-1957

CRANBERRY PORTAGE

(WEST HALF)

WEST OF PRINCIPAL MERIDIAN

MANITOBA

Scale: One Inch to One Mile = 1/63,360

Miles

1 1/2 0 1 2 3

DESCRIPTIVE NOTES

The Amisk lavas (1a) are fine-grained greenstones, rich in chlorite and epidote. Pillow structure, flow breccia, and amygdules are found in the belt from Athapapuskow Lake to Twin Lakes, but are rare elsewhere. For distances up to 2,000 feet from masses of granitic rocks the lavas are recrystallized to fine- and medium-grained amphibolite, and primary structures are destroyed. Metamorphism increases northward in a narrow belt between two batholithic masses until at Kinghorn Lake the greenstone is completely amphibolitized. Narrow zones of tuff and agglomerate, too small to show on the map, are associated with the flows; south of the highway near Twin Lakes, they are associated with fine-grained, thin-bedded sediments. Similar pyroclastic and sedimentary rocks (1b) are well exposed on the north shore of Cameron Bay on Athapapuskow Lake. Small masses of volcanic conglomerate (1c) appear to be interbedded with the lavas, contain rounded boulders of porphyry and lava, and are similar to rocks described by Buckham[1] between Pineroot River and the north arm of Athapapuskow Lake. The rocks of unit 1d include some acid lava and agglomerate of the Amisk group and some quartz and feldspar porphyries that are in part much younger. Large masses of fine-grained, grey to black porphyries north of Twin Lakes are massive, lack volcanic structures, and may be intrusive. The bulk of the unit south of Nisto Lake is thought to be older than the quartz-eye granite (3a). Elsewhere some of the porphyries are likewise older but others cut the granite. West and south of Cranberry Portage the porphyry occurs as long, narrow, easterly trending dykes. Although the porphyries are mapped as part of the Amisk group their close association with the quartz-eye granite may mean that they are genetically related to it.

The meta-diorite (2a) is commonly medium grained, dark green, and massive, and weathers to a smooth, brown surface. It is composed of chloritized amphibole, altered plagioclase, and minor quartz. Locally it contains coarse pegmatite of the same composition. The meta-diorite is closely associated with the basic Amisk flows and some of it may be extrusive, but most of the larger masses are intrusive. The meta-gabbro (2b) is a medium- to coarse-grained, pale green rock composed of chlorite, secondary amphibole, and altered plagioclase. Tabular masses of coarse tremolitic rocks southeast of Lucile Lake are thought to be metamorphosed pyroxenite or peridotite. Their age relation to the meta-gabbro is unknown.

The quartz-eye 'granite' (3a) is a medium-grained, pink to grey, massive to weakly gneissic rock characterized by eyes of blue quartz up to 1/4 inch in diameter. It varies from granite to quartz diorite and commonly is composed of quartz, plagioclase, granophyre, chlorite, biotite, and epidote. The more granitic phases may contain as much as 50 per cent granophyre. Some contacts with greenstone are sharp but more commonly the granite is separated from greenstone by a hybrid zone in which blue quartz may be abundant. The gabbroic phase (3b) is composed of coarse spherical aggregates of quartz in a groundmass of shreddy amphibole and recrystallized plagioclase. It is thought to be a hybrid rock formed by partial granitization of greenstone or meta-gabbro.

The intrusive rocks (4-7) form two complex batholithic masses and several small stocks. The several phases are believed to have been introduced during one orogenic period and their contact relations indicate emplacement under initially deep seated, syntectonic conditions and finally under shallow post-tectonic conditions. Many of the map-units comprising the batholiths are separated by thin screens of greenstone. Hornblende-biotite granodiorite (4a) is the oldest of this group of rocks. It is a medium-grained, pink weathering rock consisting of greenish, blocky, altered plagioclase, amphibole, biotite, quartz, and epidote. A gneissic phase of the granodiorite is exposed along the east shore of First Cranberry Lake where lavas at the contact show tight and intricate drag-folding. South of Nisto Lake the southern end of a crescent-shaped body of the granodiorite grades into medium- to coarse-grained, equigranular rock ranging from hornblende gabbro to norite (4b).

The quartz diorite (5a) is a fine- to medium-grained, pale greyish brown weathering aggregate of subhedral calcic plagioclase, hornblende, minor pyroxene, poikilitic biotite, and minor interstitial quartz. Abrupt changes in composition and grain size can be seen on almost any outcrop, inclusions of greenstone are abundant, and most contacts with greenstone are marked by breccia zones. Porphyritic phases (5b) are best developed at the extremities of large masses. Dykes of the quartz diorite cut the hornblende-biotite granodiorite (4a).

The biotite granite (6a) is characterized by a pink to red colour, rounded clusters of colourless to pink quartz, and lack of dark minerals. It contains orthoclase and is the only granitic rock in the area with granoblastic texture. Contacts are sharp and generally irregular.

The porphyritic syenodiorite (7a) is medium grained and is composed of well alined plates and laths of calcic plagioclase, hornblende with pyroxene cores, minor microcline, and traces of quartz. In places it grades into coarse, pink, crumbly syenite or syenodiorite. Small stocks of syenodiorite in biotite granite and quartz diorite are surrounded by fracture zones filled with dykes of syenodiorite, so numerous that they may exceed the volume of the host rock. A large irregular hybrid zone (7c) consists of swarms of randomly oriented, anastomosing dykes of pink syenodiorite separated by angular blocks of host rock. Porphyritic gabbro (7b) at the southwest end of the syenodiorite east of Emerald Lake consists of coarse, parallel, platy phenocrysts of zoned plagioclase set in a minor amount of fine-grained groundmass.

Map unit 8 consists of bewildering swarms of spessartite dykes containing coarse phenocrysts of orthoclase, plagioclase, hornblende, pyroxene, or biotite in fine-grained matrices ranging in composition from trachyte to basalt. The dyke swarms intrude volcanic rocks, meta-gabbro, and quartz-eye granite, and single dykes cut quartz diorite (5a) and biotite granite (6a). Thus, these dykes are probably the youngest intrusive rocks in the area. Some are similar to the Boundary intrusions mapped by Stockwell[2] in the Flin Flon area.

The Ordovician limestones (9) are flat lying and poorly exposed.

The Amisk lavas are tightly and in places isoclinally folded but insufficient top determinations and lack of good horizon markers make it difficult to work out details of the structure. Most faults in the area are younger than the quartz-eye granite and belong to two sets, one striking about east and the other northeast.

Mineral occurrences consist of gold-bearing quartz veins, pyrite-chalcopyrite-carbonate-quartz veins, and replacement sulphide bodies. At the Gold Hill property southeast of Cranberry Portage a shallow, inclined shaft has been sunk on a shear zone that cuts quartz porphyry, greenstone, and meta-diorite. North of Kinghorn Lake free gold is present in narrow, northerly trending quartz veins in greenstone and amphibolite. Sulphide-bearing quartz veinlets have been explored by diamond drilling on the Corona property on the north shore of Athapapuskow Lake, and at the east end of Four Mile Island. Similar mineralized zones have been explored by trenches, an adit, and a shaft in amphibolite and basic hybrid gneiss between Nikotwasik and Lucile Lakes. Most sulphide replacement bodies known in the area consist of massive pyrrhotite.

[1] Buckham, A. F: Athapapuskow Lake, Manitoba; Geol. Surv., Canada, Map 807A, 1944.

[2] Stockwell, C. H.: Flin Flon-Mandy Area, Manitoba and Saskatchewan; Geol. Surv., Canada, Paper 46-14, 1946.

MAP 26-1957
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MANITOBA
SHEET 63 K/11 (West Half)