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BUREAU OF ECONOMIC GEOLOGY

GEOLOGICAL SURVEY

PRELIMINARY REPORT

A GEOLOGICAL EXPLORATION OF SEAL RIVER, NORTHERN MANITOBA

BY

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PRELIMINARY REPORT ON A GEOLOGICAL EXPLORATION OF SEAL RIVER, NORTHERN MANITOBA

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During the past summer a geological exploration was made of Seal river and tributary streams in northern Manitoba. Seal river rises east of the north end of Reindeer lake and flows northeast for approximately 200 miles to enter Hudson bay about 30 miles north of Churchill.

The most important part of the region with regard to mineral possibilities is the eastern section of Seal river. This area is shown on the accompanying map and is the only part of the region referred to in the present report.

The nearest commercial air base from which airplanes can enter the area is at Ilford on the Hudson Bay railway. Canoe routes from Sherridon, Wabowden and Thicket Portage lead into it. The eastern section may be reached by canoe from Churchill, but travel upstream on Seal river is difficult as the rise from the coast in 110 miles upstream is 820 feet, and rapids are therefore numerous. Most of the rapids may be run in downstream travel.

Topography Much of the region is covered by a mantle of glacial drift. West of Great Island the surface is rolling but has little relief; in places, drift ridges and irregular hills rise to 200 feet above the general level. Rock outcrops are fairly numerous along the streams. In the vicinity of Great Island the topography is more rugged and is characterized by irregular rock ridges and intervening muskegs. In this section outcrops are numerous. East of Great Island the surface is nearly level or gently

sloping and many small, undrained lakes occur. Rock outcrops are fairly numerous.

General Geology. All of the area is underlain by Precambrian rocks. Around and west of Shethanei lake quartzite, mica schist, and conglomerate occur. These rocks are highly folded. They strike in various directions from east to northeast, and dip steeply. The sediments are cut by large, irregular masses, dykes, and sills of granitic rocks. Irregular masses and dykes of pegmatite are numerous.

East of Shethanei lake almost to Great Island the bedrocks are granites and gneisses. They are succeeded on the east by a series of highly folded and metamorphosed volcanic rocks consisting of rhyolite, andesite, and basalt, together with tuffs and agglomerates. These are overlain unconformably by sedimentary rocks, chiefly slates and quartzites. The sediments are folded along axes which strike slightly north of east and plunge east, usually at low angles. In some places the folds are broad and open, at others close. The volcanics are cut by granitic rocks and by dykes of quartz and feldspar porphyry. Diorite and gabbro dykes intrude both the volcanic and sedimentary rocks. The relations of the sediments to the granitic rocks were not definitely established.

East of Great Island the bedrocks are granitic in character except for one area where volcanics similar to those found on Great Island occur.

Economic Geology. In the area west of Shethanei lake no quartz veins more than a few inches in width were noted. Pegmatite dykes containing quartz, feldspar, biotite, muscovite, black tourmaline, and occasionally apatite occur at many places.

In Great Island area there are many quartz veins, up to 2 feet in width, in the volcanics and sediments. Veins were noted along both the north and south channels of the river. Some of the veins are mineralized with pyrite. Chip samples were taken from three veins and each showed a trace of gold on assay. A shear zone, 30 feet wide, occurs on the north channel of Seal river about 3 miles downstream from the west end of Great Island. The zone is mineralized with pyrite and contains quartz stringers. A grab sample taken from this zone showed a trace of gold on assay. Near the western end of the north channel around Great Island a body of dense, hard, iron oxides occurs in the volcanics close to the contact between the volcanics and sediments. The body is at least 100 feet long, but the width was not determined because of the drift covering. At the surface the rock is highly altered. Specimens taken from a shallow test pit are limonite with small amounts of specular hematite. Claims covering the deposit were staked in 1930.

In the area of volcanics close to the coast of Hudson Bay no dykes were observed and no quartz veins more than a few inches in width.

Conclusions. The volcanic and sedimentary rocks underlying Great Island and vicinity are more favourable for prospecting than are the rocks in other parts of the area. The volcanics appear to be the most favourable because most of the dykes and the one large shear zone found occur in these rocks. Some prospecting has been done in the area, but so far as known no intensive search for mineral deposits has been made.

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