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GEOLOGICAL SURVEY
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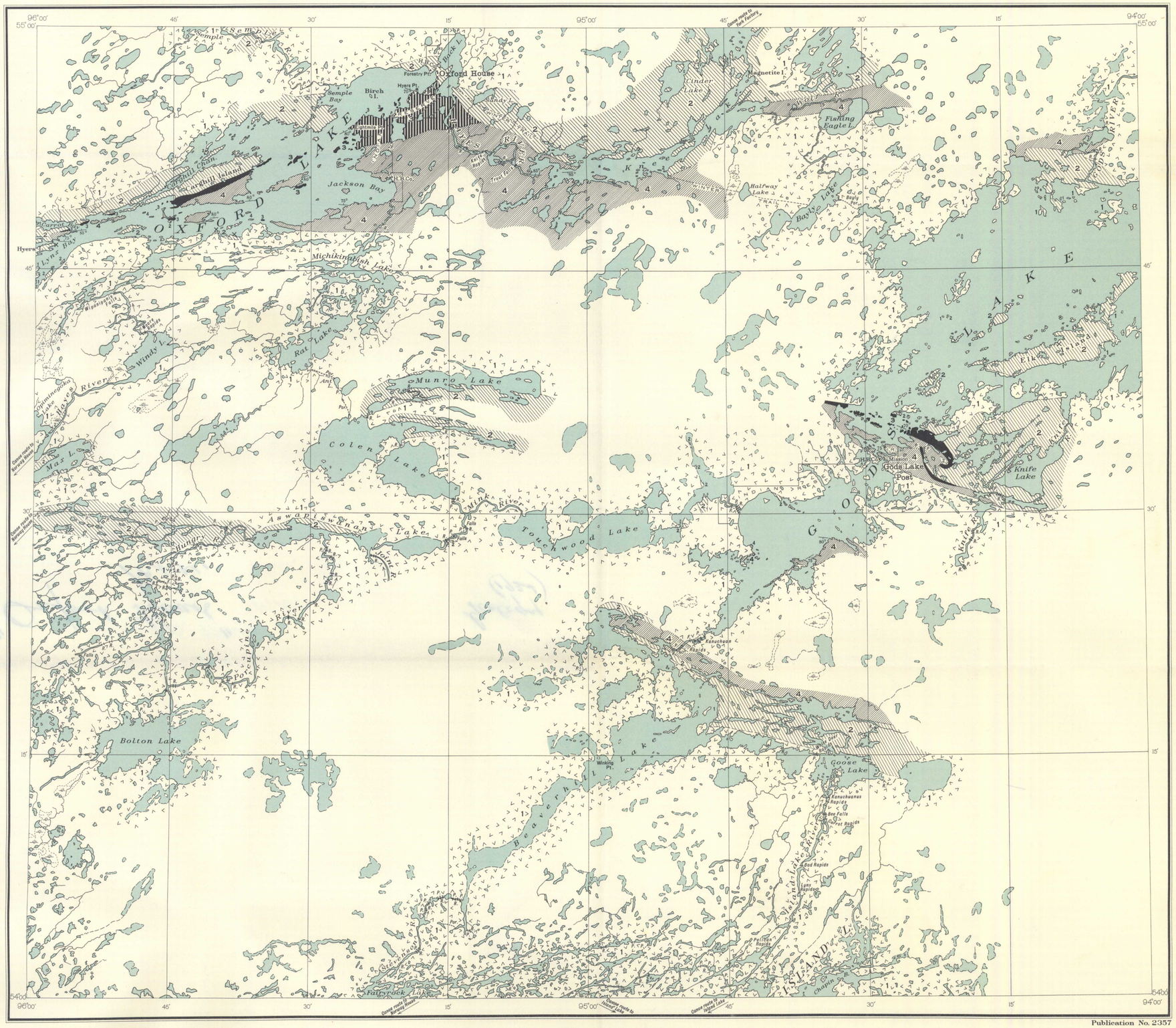

LEGEND

Sedimentary and Volcanic Rocks

PRECAMBRIAN

OXFORD SERIES

4 — *Slate, greywacke, quartzite, sericite schist, micaceous schist*

3 — *Conglomerate, arkose*

HAYES RIVER GROUP

2 — *Basalt, andesite, dacite, tuff, iron formation, chert, hornblende schist, chlorite schist*

Intrusive Rocks

1 — *Granite, granite-gneiss, granodiorite (all younger than Hayes River group; some, at least, younger than Oxford series)*

Geological boundary (approximate)
Geological boundary (assumed)
Bedding (strike and dip)
Mineral prospect
Rapid or fall
Portage

Geology by J.F. Wright, *1931.*

Topography by **Topographical** *and* **Air Surveys Bureau, Department of the Interior,** *from information supplied by* **Geological Survey of Canada** *and from aerial photographs by the* **Royal Canadian Air Force.**

ACCESS

The canoe route to the prospecting fields about Gods, Oxford, and Knee lakes leaves Norway House, and the trip takes from three to six days. During the early winter of 1933-34 a road was cut from Ilford on the Hudson Bay Railway south and east about 135 miles to Knee and Gods lakes. All heavy equipment is taken to the area over this winter road by tractor. Aircraft service is available to the area from Winnipeg, The Pas, or Ilford except for a few weeks during the freeze-up and break-up intervals in the autumn and spring. Small trading posts have been established for years at Oxford House and Gods Narrows where some items of food and clothing are available.

PHYSICAL FEATURES

The area is from 600 to 750 feet above sea-level and the surface slopes northeast. The hills rise from 20 to 150 feet above the level of the nearby lakes and muskeg. Parts of the area as east of Gods Narrows, west of Aswapiswanan lake, south of Munro lake, and on Carghill island, are rugged and rocky and here the timber and moss have been burned, other parts as about the east end of Gods lake, along Gods Lake river, along the canoe route from Gods to Knee lakes and at the northeast end of Knee lake, are flat and swampy, and rock ridges are widely spaced. The last ice-sheet moved from the northeast across the area and in retreating left widespread deposits of boulders, boulder clay, gravel and sand. About Oxford lake and to the east, the glacial deposits are covered by thick and extensive bodies of stratified clay and sand. Large areas back from the large lakes are poorly drained and the canoe routes, apart from the main rivers, are poor. The larger rivers are swift with numerous rapids and falls or are wide and shallow. Some of the falls in the river from Gods to Island lakes are high enough to be important water-power sites.

GEOLOGY

The oldest formations are members of the Hayes River group (2), and consist of lavas with interlayered sediments, are closely folded, and in part are altered to schists. Some flows, 100 feet or more thick, extend for miles along their strike and form prominent ridges. Flows of black and greenish grey basalt and of black dense andesite are widespread. The minerals of large bodies of the andesite and of the basalt are largely altered to chloritic and zoisitic products. Flows of grey quartz-bearing lava locally are present with andesite. Beds of waterassorted materials, chiefly volcanic debris, or bodies of chert, iron formation, or medium-grained clastics, locally are present between flows of basalt and andesite. Parts of lava flows and also some bodies of interbedded sediments are highly jointed and altered to schist, which at some localities carries gold-bearing quartz and sulphides.

The lavas are overlain unconformably by the Oxford sediments. The basal conglomerate (3) carries many boulders and pebbles of granite and others of lava probably derived from members of the Hayes River group. Grey, thick-bedded arkose is interbedded with the conglomerate and the whole forms thick, massive bodies extending for miles. The conglomerate and arkose are overlain by (4) slate, fine- grained clastics (4), chiefly quartzite, greywacke, and slate.

On Gods lake, the Oxford strata form a part of a compressed syncline south of an anticline whose axis passes through or just south of Elk island. On Oxford and Knee lakes the sediments lie in a syncline within the lavas and this fold widens eastward. The beds dip from 55 degrees to vertical and at some localities are overturned. On Gods lake, dykes of quartz-feldspar porphyry are abundant in the lavas along and near the anticlinal axis. No dykes of porphyry were seen in the Oxford series sediments. The gold ores are in or near the dykes of porphyry. The large bodies of granites (1) surrounding and probably underlying the areas of lavas and sediments are of variable texture and mineral content. Massive grey and pinkish grey granite is widespread. So far as is known all the granite is younger than the Hayes River group and some bodies cut the Oxford series. Granites of several ages most likely are present. The dykes of quartz-feldspar porphyry cutting the Hayes River group probably are related in origin to the large bodies of granite nearby. In addition to granite and closely related intrusives, sills and dykes of gabbro, diorite, diabase and lamprophyre cut the lavas and sediments. Some of the basic sediments are older and others younger than the granite.

MINERAL OCCURRENCES

Previous to 1932 only a small part of the district had been prospected in a very general way. Occurrences of gold, copper, zinc, lead and antimony were known about the west end of Oxford lake and of gold in Knee and Gods lakes. A gold-copper deposit near the west end of Oxford lake was diamond drilled in 1929. In 1932 gold was discovered on Elk island, Gods lake, and this area was prospected carefully in 1932 and 1933. The original discovery was explored by surface trenches and closely spaced, shallow diamond drill holes, and, following this work, extensive underground explorations were undertaken. Other deposits in the area are also being explored underground. The ore is reported to be both in the intrusive porphyry and the volcanics, and associated tuff beds. All areas where thick lava flows alternate with beds of tuff or chert, or thin flows, should be examined in great detail and especially if dykes of grey porphyry carrying eyes of quartz and crystals of white feldspar are present. Some of the gold-bearing quartz-sulphide bodies are in schist and breccia formed in the contact zone between rocks of different character, as thick basalt flows and thin tuff beds. Gold is known at a number of localities in the Oxford and Knee Lakes area of Hayes River strata, and the parts of this field wherein the rocks are well exposed should be re-examined by prospectors in some detail.

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MAP 305A.
(PROVISIONAL EDITION)

OXFORD HOUSE SHEET

MANITOBA

Scale, $\frac{1}{253,440}$ or 1 Inch to 4 Miles

Miles 4 0 4 8 12 16