

GEOLOGICAL RECONNAISSANCE

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OF

KELLER LAKE AREA,

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By

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Imperial Oil Limited

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## TABLE OF CONTENTS

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	<u>Page</u>
INTRODUCTION	1
STRATIGRAPHY	1
GENERAL	1
PRE-DEVONIAN	2
DEVONIAN	2
CRETACEOUS	2
STRUCTURE	3

## MAPS IN POCKET

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SURFACE GEOLOGICAL MAP                            8 Miles to 1 Inch

STRATIGRAPHIC CROSS-SECTION

## INTRODUCTION

The area of investigation was restricted to the Plains region east of the Franklin Mountains, between the Great Bear River and Latitude 62°30' and is known as the Keller Lake area.

The field season commenced on July 26, 1959 and terminated August 20, 1959.

The geological party consisted of one geologist and a student assistant. Transportation in the field was supplied by a de Havilland Otter float-plane. In areas where float-plane landings were not feasible a canoe was utilized.

The degree of outcrop was found to be extremely poor due to thick glacial deposits and muskeg covered terrain.

Outcrops of Silurian were examined along the south shore of Great Bear Lake. Questionable Cretaceous outcrops were observed in the Kier Hills and the high ground in the vicinity of Blackwater Lake. Using all the available data, a surface geological map was prepared.

### Sedimentology

#### General

The rocks exposed within the area of investigation range from Ordovician to Cretaceous. Between these two age groups, however, only Devonian and Silurian are believed to be represented.

Pre-Devonian

Pre-Devonian beds believed to be equivalent to Silurian Mount Ronning Group were observed on Manitou Island, Great Bear Lake. Here the Ronning consists of fine, silty dolomites interbedded with dolomite breccia. Only about 50 feet of beds are exposed. No fossils were obtained for any definite age determinations. Similar beds are reported to outcrop along the shores of Grizzly Bear Peninsula, Great Bear Lake.

On Big Island, Lac La Martre, a dolomite outcrop was examined. Although no fossils were obtained, it has been dated pre-Devonian and probably Ordovician. Here the dolomite is friable and porous with bitumen. These dolomites are underlain by red beds and evaporites which outcrop further to the east.

Devonian

No Devonian sediments were observed in the Keller Lake area. It is interpreted that Devonian sediments form the bedrock over most of the Keller Lake area. Although highly interpretative, the eastern limits of this formation is shown on the geological map. (In pocket).

Cretaceous

Following in the geological section is a great gap. The middle Devonian sediments are believed to be overlain by Cretaceous.

Cretaceous (Cont'd)

Cretaceous sediments are thought present in three areas; Kier Hills, the hills around Blackwater Lake, and on Grizzly Bear Peninsula.

Although Cretaceous sediments were nowhere definitely observed, these areas cited above are all topographic highs. Since it is the habit in adjacent areas that the Cretaceous occurs as erosional remnants capping the hills, it would not seem unreasonable to have Cretaceous sediments occurring in these areas.

Structure

The only attitudes observed were on Manitou Island, Great Bear Lake. Here Silurian sediments strike northeast and dip 80° to 85° to the southeast. Elsewhere, all outcrops observed have horizontal bedding.



