CANADA
DEPARTMENT
OF
MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

SHEET 31 D/7

LEGEND

QUATERNARY

RECENT

NON-GLACIAL

9 — **Swamp deposits:** *muck*

PLEISTOCENE

GLACIO-LACUSTRINE

8a-8c — **Schomberg Pond deposits:** 8a, *sand;* 8b, *silt;* 8c, *clay*

GLACIO-FLUVIAL

7 — **Outwash plain:** *sand and minor gravel*

6 — **Undifferentiated esker-kame complex** *(composed of one or more main esker channel deposits, hummocks of ice-contact deposits, and flanking deposits):* *sand and gravel*

5 — **Esker:** *gravel and sand*

4 — **Kame:** *gravel and sand*

3 — **Ice-block ridges:** *poorly sorted gravel; till*

GLACIAL

2 — **Drumlin:** *till; till and stratified sand and gravel;* **2RD,** *rock drumlin*

1 — **Ground moraine:** *stony till; minor stratified sand and gravel*

CENOZOIC

PALAEOZOIC

Mainly limestone

PRECAMBRIAN

Mainly granite

Gravel pit . . . . . GP

Glacial striae . . . . .

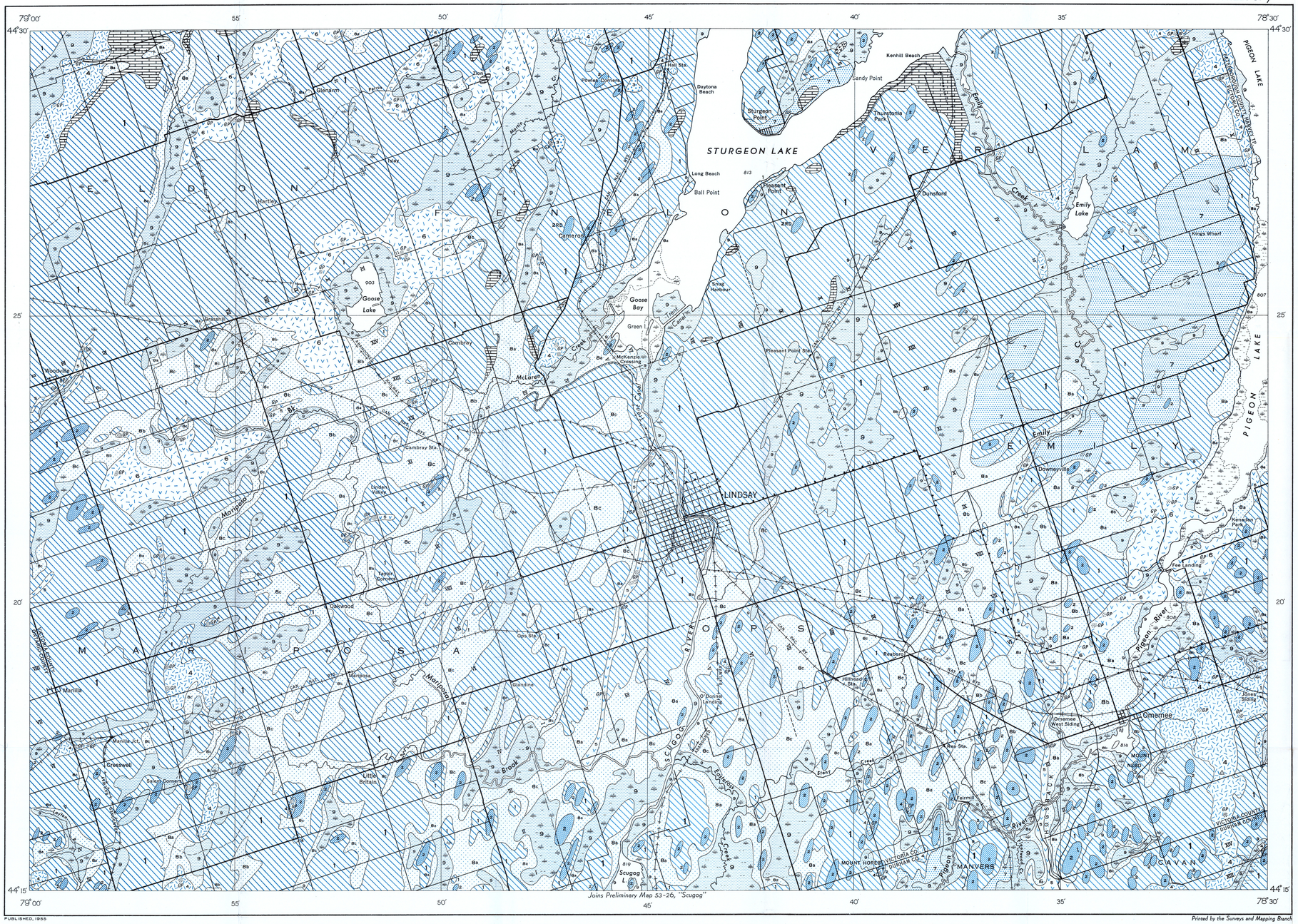
Escarpment . . . . .

Geology by C. P. Gravenor, 1953

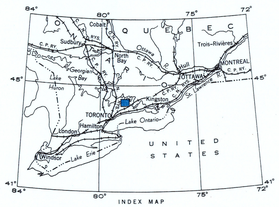
Approximate magnetic declination, 9° 05' West

Cartography by the Geological Cartography Unit, 1955

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



PUBLISHED, 1955



PRELIMINARY MAP 54-21

SURFICIAL GEOLOGY

LINDSAY

VICTORIA, DURHAM, ONTARIO AND PETERBOROUGH COUNTIES

ONTARIO

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

Miles

1 1/2 0 1 2 3

LEGEND

Main highway . . . . .
Other roads . . . . .
Trail . . . . .
County boundary . . . . .
Township boundary . . . . .
Concession and lot number . . . . . III, 5
Electric power line (along road) . . . . .
Triangulation station . . . . . △
Stream (intermittent) . . . . .
Marsh . . . . .
Height in feet above mean sea-level 807

DESCRIPTIVE NOTES

The Precambrian is represented by a single inlier of pink granite about 2 miles northeast of the village of Sturgeon Point. Glacial erosion has removed the softer Palaeozoic rocks from around this inlier and shaped it into a rude drumlin form. Impure Trenton limestones outcrop in the northern part of the map-area and the beds have a dip to the southwest of about 25 feet to the mile. In preglacial times the consequent drainage in this area was towards the southwest. Subsequent stream tributaries carved minor escarpments on the Trenton limestones paralleling the strike of the beds. Obsequent and consequent drainage made breaks in these escarpments that provided openings for the southwest moving glacial ice. The glacier deepened and broadened these channels and imparted rough "U" shapes to the escarpment edge between them; the apex of each "U" points in the direction from which the ice moved. About three-quarters of a mile northwest of the town of Cameron, it appears that one of these 'U'-shaped escarpments lying north of the main escarpment has been modified into a rock drumlin. It is believed that many of the rock drumlins of this area were formed by this process. Drumlins east of the town of Lindsay show an ice movement direction of 20 to 25 degrees west of south. West of Lindsay the drumlins have a more westerly orientation, which indicates that the ice fanned out to the west.

The ground moraine (1) is composed of a blue-grey sandy till derived from limestones and igneous rocks. Lenses of sand and gravel are not uncommon in the till and in certain areas serve as a local source of ground water. In the northern part of the area the ground moraine exists as a thin veneer over the bedrock. Drumlins are not common in this northern area, but rather glacial flutings which are readily apparent on aerial photographs, occur on the thin till. In general the ground moraine thickens toward the southern part of the Lindsay district.

Drumlins (2) are of two major types, those having a bedrock core, and those apparently formed entirely from glacial materials. The former are known as rock drumlins (2RD) and are confined to the northern region where the bedrock is close to the surface. Drumlins formed from glacial materials include those composed of till and those made up of a mixture of till and stratified materials. These drumlins are best developed on the thicker glacial deposits in the southeast corner of the map-area. Drumlins range in height from about 25 to 50 feet in the northern part of the map-area, and from about 75 to 125 feet in the southeast corner of the area. They vary from ¼ mile to 1 mile in length and from 1/16 mile to ½ mile in width.

Two small areas of ice-block ridges (3) occur north of the village of Cameron. These irregular ridges of till and poorly sorted gravels were probably deposited by melt-water and slumping action from the edges of stagnant ice-blocks.

As the ice stagnated over the Lindsay district glacio-fluvial materials were deposited as kames (4) around and on the tops of drumlins and other local areas of high ground as they became exposed. Where the glacio-fluvial materials were deposited along channels within or at the base of the ice they gave rise to eskers (5). In some places the eskers grade into outwash. The kames and the eskers are composed of moderately sorted sands and gravels. In the northwest and southeast parts of the area, kame-like accumulations of poorly-sorted gravels occur along the sides of eskers and groups of eskers. The association of these eskers with the flanking kame accumulations is so intimate that they have been mapped as an undifferentiated esker-kame complex (6). A good example of this type of deposit occurs surrounding the north end of Goose Lake. A third variety of kame deposit is found on the west side of Pigeon Lake in the extreme northeast corner of the map area. There, when the ice had melted from the high ground to the west of Pigeon Lake but still filled the lake basin, melt-waters deposited gravels between the ice and the high ground and formed a kame terrace. Kames and eskers form the major source of gravels for construction purposes in this area.

The most extensive deposits of outwash (7) occur in the northeastern part of the map-area. This outwash is made up predominantly of sand that shows some evidence of wind action after deposition. As the ice melted from this region an area of high ground was exposed to the west of Pigeon Lake, and this high land formed a large re-entrant in the stagnating ice-front. It is believed that the sandy outwash of this region was deposited by melt-water action in this large re-entrant. The materials shown as outwash near the village of Sturgeon Point were probably deposited by river action and mark part of the glacial Trent River system.

Upon the retreat of the ice in the Lindsay district lacustrine sands, silts, and clays (8a-8c) were deposited in lakes in shallow depressions, which formed a part of the Schomberg Ponds. The lacustrine deposits average only 2 to 3 feet in thickness and rarely show good stratification. Varves, where present, are ½ to 1 inch in thickness and are light brown in colour. These clays have been used for brick making, but for the most part the deposits are too shallow and too calcareous for extensive operations.

Recent deposits (9) consist mainly of organic materials and washed-in muds. Recent fossiliferous sands and massive blue clays underlie the muck at some localities.

Printed by the Surveys and Mapping Branch

PRELIMINARY MAP 54-21
SURFICIAL GEOLOGY
LINDSAY
ONTARIO

SHEET 31 D/7