

DESCRIPTIVE NOTES
(SURFACE DEPOSITS)

During Pleistocene time the Carp Lake map-area was probably overridden by two or more ice-sheets, the last of which destroyed most of the evidence of earlier advances. Two till sheets, commonly separated by stratified gravel and sand, have been found to the east and south of the area, and although they have not been recognized within the area itself, other glacial features are strongly suggestive of repeated glaciation.

The distribution of erratics and till, the elongation of drumlin-like till ridges, and the observed glacial striae indicate that the last ice-movement in the Carp Lake area was from southwest to northeast, varying from north 70 degrees east in the south, to north 40 degrees east in the north.

The drumlinized till plain (1) consists essentially of parallel ridges of till and of gravel derived from the till. The till contains variable amounts of well-rounded pebbles and boulders ranging to as much as 4 inches in diameter, embedded in grey to reddish brown clay and sandy clay. Much of the gravel associated with the till occurs at the tops of ridges, grades downward into till, and is evidently till from which the clay and sandy clay have been removed by post-glacial run-off. This gravel is rarely stratified, but may exhibit a rough sorting. Poorly stratified gravels observed elsewhere in the till plain consist of lenticular bodies of sand, gravel, and a little clay.

The surface of the till plain exposes nearly parallel, drumlin-like ridges elongated in the direction of ice movement. In plan these ridges vary from nearly circular to 5 to 10 times as long as they are wide. The length commonly varies from one quarter-mile to one and a half-miles, although a few more than two-miles long were observed. Most of them are one-quarter mile wide or less and a few reach widths of one-half mile or more. The ridges are 50 to 75 feet high, rarely more than 100 feet. Their stoss or upstream ends are generally much steeper, higher, and wider than those facing downstream. The sides slope at varying angles from gentle to steep, and the surfaces of the individual ridges commonly show shallow, well-defined, lengthwise grooves.

The drumlin-like ridges are, for the most part, aligned in groups 5 to 6 miles long, separated by trough-like valleys 50 to 100 feet deep and as much as 600 feet wide. Less commonly the ridges are closely spaced, and in some places arranged in echelon and linked together laterally by relatively inconspicuous valleys. In air photographs, the trough-like valleys and the shallow lengthwise depressions along the crests and sides of the ridges stand out as well-defined grooves aligned with the direction of ice movement.

The MacKinnon esker (2) rests on, and cuts into, the drumlinized till plain (1). It is well exposed on both sides of Salmon River. West of this stream, the esker is represented by a series of reticulate, sub-parallel, ridges each about one-quarter mile long and 75 to 100 feet high, with steep sides enclosing undrained or poorly drained depressions. These ridges lie above the level of the till plain. Just east of Salmon River they join to form a single ridge 150 feet high, the top of which is level with the surface of the till plain. This ridge lies in a trough about one-half mile wide that has been cut into the till. About 5 miles east of the river, the esker emerges from this trough-like valley to rest once more on the surface of the till plain.

The Stuart River esker (3) is mainly a vein-like maze of steep-sided ridges with deep, elongated or circular depressions between. At its northwest end, east of Shamrock Lake, the ridges are 200 feet below the level of the till plain, near Tag-inchil Lake they are at the same level; and near Nukko Lake they stand 150 feet above the silt basins that apparently overlie the till plain in this vicinity.

The Bednesti esker (4) consists of a network of ridges 100 to 150 feet high separated by kettles and resting on top of the till plain but in part buried beneath silt and clay of the Bednesti basin.

The glacial river beds (5) probably were formed by late-glacial streams that had been diverted from their natural courses by ice barriers. In places small terraces were formed along their banks. Some of these old river channels are now the sites of much smaller streams, as well as meadows, swamps, and sand flats.

The Carp Lake basin (6) is occupied by deltaic beds deposited by large glacial streams in the vicinity of Carp and McLeod Lakes. The main part of the basin is represented by a terraced, fan-shaped deposit near McLeod Lake.

The Great Beaver Lake and Upper Stuart River basins (7, 8) are eastern extremities of a large area of glacial-lake deposits that were laid down in the valleys of Stuart, Pinchi, and Tezzeron Lakes to the west of the map-area. In the Upper Stuart River basin, deposits 100 feet or more thick of white silt, with some interbedded sand, lie in a valley eroded from the drumlinized till plain, and the surface of the deposit is 200 feet below that of the plain. In the Great Beaver Lake basin, the deposits are a heterogeneous assortment of sediments that evidently accumulated in water at varying depths, and under changing conditions. They occupy a shallow basin in the till plain, through which drumlin-like ridges project as islands.

The Lower Salmon River basin (9) occupies an old drainage channel from the Great Beaver Lake basin. Its exposed deposits consist in most places of at least 15 feet of compact, bluish grey clay, overlain near the mouth of Docs Creek by as much as 45 feet of till and poorly sorted gravel. Overlying the gravel is a little bedded sand and gravel, and this is succeeded by 5 to 30 feet of silt. The till and gravel decrease in thickness upstream to where, at a point on Salmon River south of Mossvale Lake, the silt immediately overlies the bluish grey clay. This material occupies a valley below the level of the till plain.

The Nukko Lake basin (10) forms a southern arm of the Lower Salmon River basin and was probably connected with the Reid Lake and Bednesti basins (11, 12). All three are probably the western parts of a much more extensive lake centring around Prince George and Fraser River. The silt, clay, and sand of the basin deposits are in part finely interbedded, but include thick sections of silt and clay. Varving is a prominent feature of the clay along Nechako River. The basins probably all rest on top of the till plain, and have derived much of their material from glacial streams draining Great Beaver Lake, Upper Stuart River, and Vanderhoof basins to the west.

The Vanderhoof basin (13) extends west of the map-area to the vicinity of Fort Fraser. The silt and sand of this basin are intimately interbedded, are cross-bedded on a minute scale; and appear to lie on top of the clay. Numerous pebbles are included in the clay and silt near the margins of the basin, and may be the result of ice-rafting in the glacial lake.

All productive farms are concentrated within the glacial-lake basins of the area. Only a few scattered, abandoned farms are known in the drumlinized till plain.

The Recent river deposits (14) vary in composition depending upon that of the glacial material from which they were derived. In many places the areas they occupy are the bottoms of valleys eroded to depths of as much as 400 feet in glacial till.

LEGEND

Surface Deposits
(For bedrock geology, See Map 47-13A)

QUATERNARY
RECENT

RIVER DEPOSITS

14 Sand, gravel, and silt

PLEISTOCENE

GLACIAL-LAKE DEPOSITS

6. CARP LAKE BASIN: mainly sand, clay and gravel
7. GREAT BEAVER LAKE BASIN: mainly sand, silt, and clay, gravel
8. UPPER STUART RIVER BASIN: mainly silt, sand
9. LOWER SALMON RIVER BASIN: mainly clay and silt, sand and gravel
10. NUKKO LAKE BASIN: mainly silt and clay, sand
11. REID LAKE BASIN: mainly clay, silt
12. BEDNESTI BASIN: mainly clay, silt and sand
13. VANDERHOOF BASIN: mainly clay, silt, and sand

GLACIAL-RIVER BEDS

5 Sand

COMPOUND "ESKERS"

2. MACKINNON ESKEER: mainly gravel, sand and clay
3. STUART RIVER ESKEER: mainly gravel, sand and silt, clay
4. BEDNESTI ESKEER: mainly gravel; sand

DRUMLINIZED TILL PLAIN

1 Mainly till and gravel, sand and clay, probably more than one ice advance represented

Bedrock (outcrop, area of outcrop) x

Glacial striae →

Direction of ice movement as indicated by drumlin-like ridges →

Geology by J. E. Armstrong and H. W. Tipper

Main highway ————

Secondary Roads ————

Other Roads ————

Trail ————

Railways ————

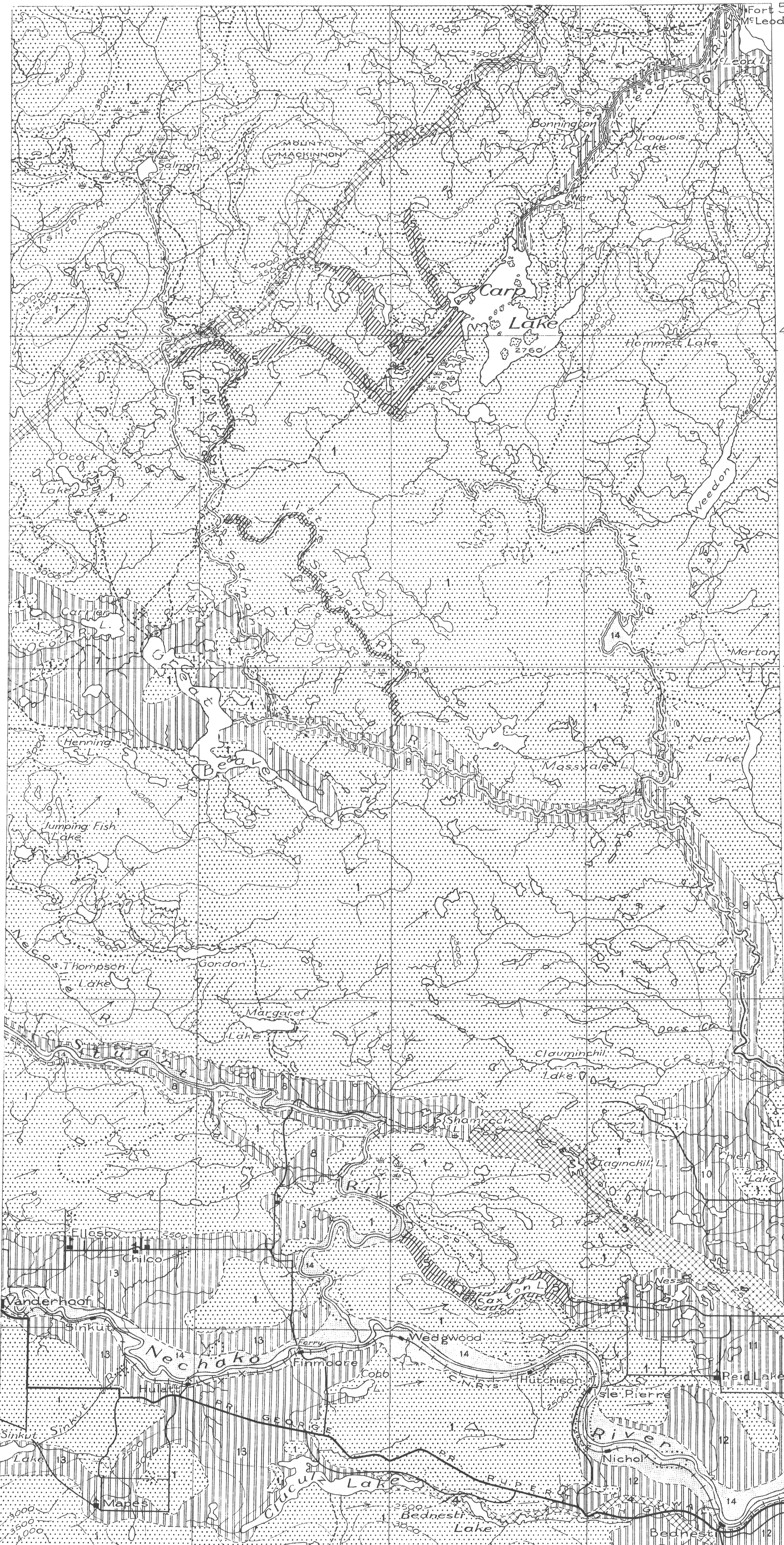
Marsh ————

Church ————

Post Office ————

Contours ————
" (approx.) ————

Base-map from surveys by the Topographical Survey,
additions by Geological Survey



PRELIMINARY MAP 47-13B
SURFACE DEPOSITS
CARP LAKE
BRITISH COLUMBIA

Scale: 1 inch to 4 miles

4 2 0 4 6 12

Cartography by the
Drafting and Reproducing Division, 1947.