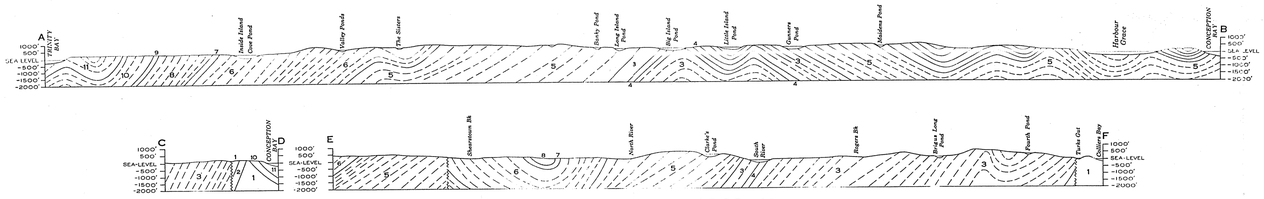
CANADA
DEPARTMENT
OF
MINES AND TECHNICAL SURVEYS
GEOLOGICAL SURVEY OF CANADA



Diagrammatic cross-sections along lines A-B, C-D, and E-F

LEGEND

PALAEOZOIC

ORDOVICIAN
LOWER ORDOVICIAN
BELL ISLAND GROUP
12 — *Sandstone and shale*

CAMBRIAN
MIDDLE AND UPPER (?) CAMBRIAN
11 — *Red, green, grey, and black slate; minor limestone*

LOWER CAMBRIAN
10 — *Red and green slate, red limestone; minor red sandstone and conglomerate*

PROTEROZOIC

9 — *RANDOM FORMATION: white to green and red quartzite*

HODGEWATER GROUP (5-8)
8 — *SNOWS POND FORMATION: green to grey siltstone and silty slate; minor red siltstone*
7 — *WHITEWAY FORMATION: red sandstone, siltstone, and silty slate*
6 — *HALLS TOWN FORMATION: green sandstone and siltstone; minor slate*
5 — *CARBONEAR FORMATION: grey slate and siltstone*

CONCEPTION GROUP (3, 4)
3 — *3. Green chert and late minor siltstone*
4 — *4. HIBBS HOLE FORMATION: red silty slate and siltstone; minor green slate*

ARCHEAN OR PROTEROZOIC

HARBOUR MAIN GROUP
1 — *1. Acidic to basic lava flows and pyroclastic rocks*
2. Red to green conglomerate, sandstone, and slate

Diorite (Post-Conception)

Rock outcrop, area of outcrop
Bedding (horizontal, inclined, vertical, overturned)
Fault (defined, approximate, concealed)
Fault (inclined, vertical)
Anticlinal axis (defined, approximate, concealed)
Synclinal axis (defined, approximate, concealed)
Glacial striae
Fossil locality
Quarry
Mineral prospect or occurrence (manganese Mn; iron, Fe) — Mn

Geology by R.D. Hutchinson, 1950, 1951, 1952. Geology of Bell and Kellys Islands from Map 1018A, by E.R. Rose (1952)

Cartography by the Geological Cartography Division, 1954

Main highway
Road and buildings
Road not well travelled
Tractor route
Trail
Abandoned railway
Cutting and embankment
Power transmission line
Bridge
Church
School
Post Office
Cemetery
Lighthouse, wharf
Triangulation station
Bench mark — BM
Indian boundary
Intermittent stream
Marsh
Sand or gravel
Bluff, cliff, or escarpment
Reef, rock or small island
Contours (interval 50 feet)
Height in feet above mean sea-level — 638

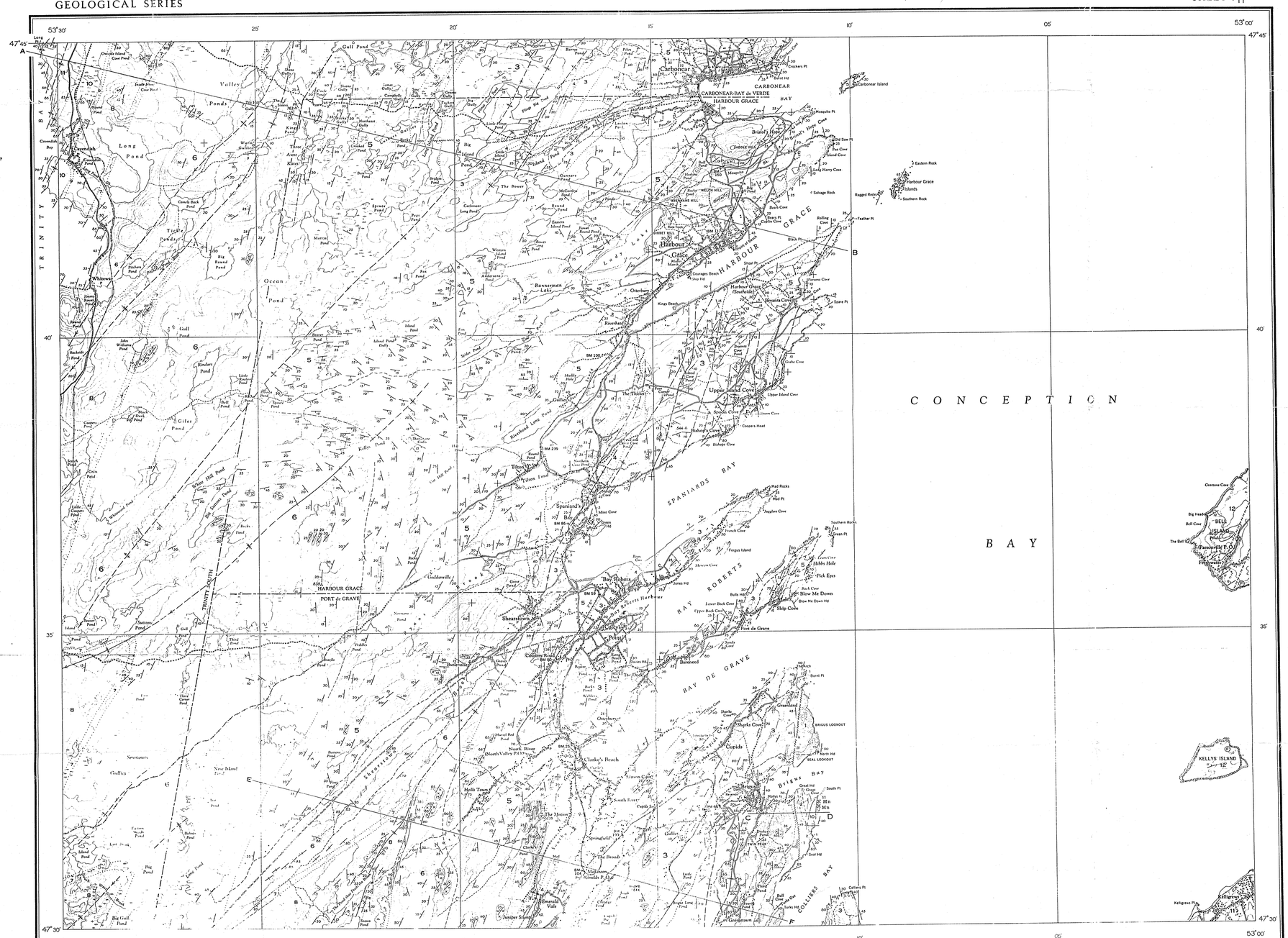
Base-map prepared and drawn by the Surveys and Mapping Branch

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

Approximate magnetic declination, 28°W West

GEOLOGICAL SERIES

SHEET 1 N/11



PUBLISHED, 1954

MAP OF
HARBOUR GRACE
NEWFOUNDLAND

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

Miles 1 ¾ ½ ¼ 0 1 2 3

DESCRIPTIVE NOTES

Harbour Grace map-area forms part of Bay de Verde Peninsula, between Conception and Trinity Bays. Eastern and central parts are rugged, with numerous bedrock ridges projecting through the thin cover of glacial drift. The land rises to an elevation of more than 800 feet in the central part of the area, from where it slopes westward into a series of lower, rolling hills, composed of glacial drift. Bedrock is obscured in the western part of the area, except along the shore of Trinity Bay and on some of the larger streams, where erosion has removed the glacial drift.

The oldest rocks comprise the Harbour Main volcanic and sedimentary group (1,2), which outcrops in the southeast part of the area. They are predominantly volcanic in origin, and include both lava flows and pyroclastic rocks. The lavas range in composition from basaltic and andesitic to rhyolitic. Coarse agglomerate beds are numerous, and with them are intercalated some finer, siliceous, tuffaceous shales (2).

Rocks of the Conception group (3) underlie most of the southeastern part of the map-area, and outcrop in the core of a dome west of Carbonear. At Marysvale harbour, the lowest bed is a coarse conglomerate, resting unconformably on Harbour Main rocks. It consists entirely of boulders of volcanic rocks up to 3 feet in diameter in a sandy matrix. Most of the Conception group is composed of greenish, vitreous looking slate and siltstone. A succession of red siltstone and slate, near the top of the group, forms a useful horizon marker, and is mapped separately as the Hibbs Hole formation (4).

A thick, conformable series of post-Conception sedimentary formations, the Hodgewater group (5-8), underlies most of the central and western parts of the map-area. The Carbonear formation (5) of gray to black, well-bedded slate and siltstone, at the base of the group, rests conformably on Conception rocks. It is overlain by the Halls Town formation (6), consisting of at least 2,800 feet of green sandstone, siltstone, and minor slate. The massive sandstone beds outcrop as sharp rocky ridges, which are prominent in the central part of the map-area. The succeeding Whiteway formation (7), about 300 feet thick, is composed of red sandstone, and siltstone, with minor slate and fine conglomerate. Overlying it is the uppermost formation of the Hodgewater group, the Snows Pond formation (8), consisting of green to grey, wavy-bedded siltstone and silty shale, with some red beds.

The late Proterozoic Random formation (9) of white to green quartzite does not outcrop within the map-area, but is probably concealed beneath glacial drift in the northwest corner, along Trinity Bay. It is exposed north and west of the map-area, where it is believed to overlie the Hodgewater rocks with angular discordance.

Cambrian rocks occupy two small areas near Brigus, on Conception Bay, and outcrop along the shore of Trinity Bay from Cavendish to the northern boundary of the area. Near Brigus, they rest unconformably upon the Harbour Main rocks, and include both Lower (10) and Middle Cambrian (11) formations. The Lower Cambrian strata comprise red and green shales and limestone, whereas the Middle Cambrian beds are black, manganiferous shales. On Trinity Bay, the Cambrian rocks rest with no angular discordance, but probably disconformably, upon Random beds.

Lower Cambrian strata (10) consist of red and green slate and limestone, whereas the Middle Cambrian (11) is represented by red to green and black slate, with grey limestone stringers and nodules. Some Upper Cambrian beds may be included with this map-unit.

Structurally, the region is characterized by large-scale, fairly open folds, high-angle faults, and low-grade regional metamorphism. Two periods of folding and faulting occurred, one in late Proterozoic and the other in post-Cambrian time.

Gold is reported to occur in quartz veins cutting rocks of the Conception group near Brigus, but none was seen by the writer. On Brigus South Point, a 5-foot bed of manganiferous shale in Middle Cambrian rocks was investigated in the early 1940s as a possible source of manganese, but no development was undertaken. An iron deposit occurs in a shear zone cutting Halls Town rocks near Snows Pond, but it is too small to be of economic interest.

Cambrian limestone deposits along the east shore of Trinity Bay have a composition suitable for the manufacture of Portland cement, but the available tonnage is small. Rocks of the Hibbs Hole formation are quarried and crushed for road metal north of Clarke's Beach, and numerous pits in the surficial deposits provide gravel for road construction and other uses. Extensive peat bogs represent a possible future fuel resource.