

- LEGEND**
- DEVONIAN**
- UPPER DEVONIAN**
- 19 Granodiorite, granite
- 18 Brown conglomerate, lenses of slate and sandstone containing Upper Devonian plant fossils (Great Bay de l'Eau Formation, Terrenceville Formation¹)
- LOWER AND MIDDLE DEVONIAN**
- 17 Granite, granodiorite, alaskite (Ackley batholith²; Cross Hills batholith³; Northern Bight granite⁴; St. Lawrence granite⁵)
- 16 Diorite, diabase, gabbro; includes minor ultrabasic rocks in Cinq Islands Bay
- SILURIAN (?)**
- 15 Foliated hornblende-biotite granite (Cape Roger Mountain batholith⁶)
- 14 Red and purple volcanic conglomerate, red sandstone, slate, siltstone, shale (Rencontre Formation⁷)
- ORDOVICIAN (?)**
- 13 Greywacke conglomerate; green 'varved' tuffaceous slate; minor basalt (Anderson Cove Formation⁸)
- 12 Felsite, andesite, basalt flows, and associated pyroclastic rocks; red, green, and purple siltstone (Belle Bay Formation⁹)
- 11 Grey to brown conglomerate grading upward into pebbly arkose
- 10 Red arkosic sandstone, minor conglomerate, siltstone, limestone
- 9 Brown crystal lithic tuff, minor felsite, greywacke, chert, basalt (Grand le Pierre Formation¹⁰)
- 8 Granite gneiss (includes metamorphosed unit 7) (Garrison Hills granite¹¹)
- MIDDLE ORDOVICIAN**
- 7 Grey slate, phyllite, siltstone; minor quartzite, greywacke, argillite (Bale d'Espoir Series¹²)
- CAMBRIAN**
- 6 Slate, siltstone, sandstone, minor limestone; containing Lower to Upper Cambrian fossils¹³
- CAMBRIAN AND EARLIER**
- 5 White, greenish grey, and pink quartzite, sandstone; grey shale and silty shale (Random Formation¹⁴; Blue Point Formation¹⁵)
- 4 Acid and basic volcanic rocks and associated pyroclastic rocks; green, grey, and red sandstone, conglomerate, siltstone (Mugravtown Group¹⁶; Burin Series¹⁷)
- 3 Schistose, porphyritic, red, yellow, and green felsite and tuff, minor interbedded greywacke and greywacke conglomerate, basalt; 3a, intrusive porphyritic rocks (Deer Park Pond Formation¹⁸; Southern Hills Formation¹⁹; may include some Harbour Main Group²⁰)
- 2 Grey to green greywacke, cherty slate, minor sandstone and conglomerate (Connecting Point Group²¹); 2a, includes some 1
- 1 Chlorite and sericite schists; metamorphosed basalt to acidic volcanic rocks, sandstone and conglomerate (Love Cove Group²²)

- Geological boundary (defined or approximate, assumed)
- Bedding, tops known (horizontal, inclined, vertical, overturned)
- Bedding, tops unknown (inclined, vertical)
- Schistosity (inclined, vertical, dip unknown)
- Fault (defined, approximate, assumed)
- Fault (inclined, vertical; arrows indicate relative movement)
- Eskers
- Fossil locality
- Mineral occurrence

MINERALS

Bismuth	Bi	Lead	Pb
Copper	Cu	Limestone	ls
Fluorite	fl	Molybdenum	Mo
Iron	Fe	Zinc	Zn

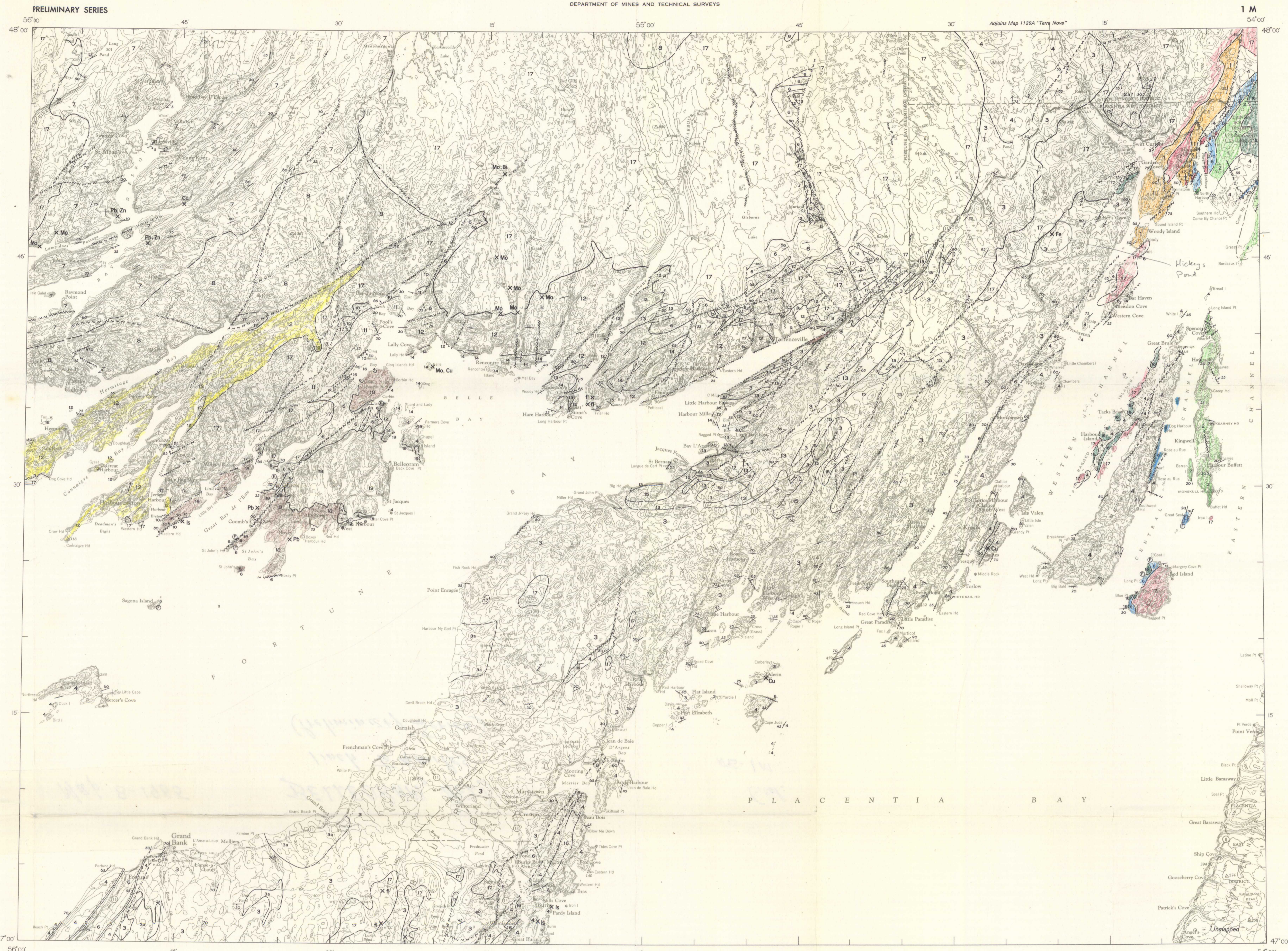
Geology by F. D. Anderson, 1960-1963; in part compiled from published reports by D. A. Bradley 1963, R. E. Van Alstine 1948, and E. R. Rose 1948; unpublished manuscripts by B. L. Smith, K. Widmer, D. E. White, and T. N. Walther

Geological cartography by the Geological Survey of Canada, 1965

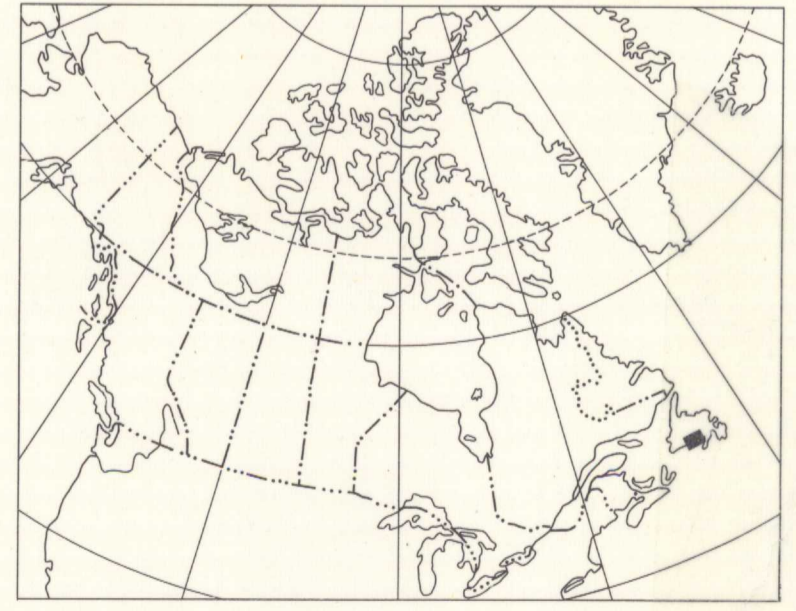
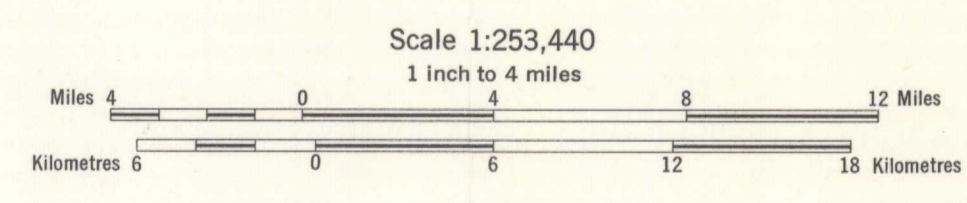
- Roads, all weather
- Other roads
- Cart track
- Trail or portage
- Church
- School
- Post Office
- Lighthouse
- Horizontal control point
- Intermittent stream
- Falls and rapids
- Marsh
- Contour (interval 100 feet)
- Height in feet above mean sea-level

Base-map compiled and drawn by the Surveys and Mapping Branch, 1960

Mean magnetic declination, 27° 46' West, decreasing 2.7' annually. Readings vary from 27° 14' in the SW corner to 28° 12' in the NE corner of the map-area



MAP B-1965
GEOLOGY
BELLEORAM
NEWFOUNDLAND



MARGINAL NOTES

The northeastern part of the map-area and the Burin Peninsula are accessible by road from St. John's. The larger villages on islands in Placentia Bay and on the east coast of the Burin Peninsula are served by Canadian National steamships that operate twice-weekly from Argentia. The north shore of Fortune Bay and other coastal points to the west and north may be reached by Canadian National steamship, which operates weekly from Port-aux-Basques and Argentia. The best transportation inland is by float aircraft based at Gander. The streams and rivers are generally unsuitable for canoe travel, and most lakes are shallow and boulder-strewn.

The interior part of the map-area is a gently rolling upland, dotted with a myriad of small ponds and lakes, and part of the Atlantic Uplands of Newfoundland. Vegetation is sparse, and heavily wooded areas are found only in places with good drainage, notably in the valleys of major streams and on gravel slopes. The map-area has been glaciated; the last ice-movement was from the interior outward to the coast. North and west of Fortune Bay fiord-like bays, U-shaped valleys, and hanging valleys are common.

Many parts of the map-area have been studied in considerable detail by graduate students, largely from American universities. Some of their results have been incorporated on the accompanying map. Because of the scale of publication and recent regional studies a large amount of detail is omitted and reinterpretation and simplification of earlier work has been necessary, notably in the Belleoram, Fortune, and Terrenceville regions. The map-area contains rocks of two structural provinces, separated by the Terrenceville fault¹ along and northeast from the head of Fortune Bay. To the southeast of this fault lie mainly Precambrian rocks, comprising chiefly volcanic and sedimentary rocks, with here and there isolated or isolated remnants of Cambrian shales and limestones. These rocks are similar to those found on the Avalon Peninsula² to the east, and on the Bonavista Peninsula to the northeast. West of the Terrenceville fault most of the rocks are Cambrian to Devonian in age and consist of clastic sediments and acidic to basic volcanic rocks. Both the granitic rocks and the Middle Ordovician slates, greywackes, and siltstones in the Bay d'Espoir region extend northwards to the northeastern coast of Newfoundland. Other formations are restricted to the peninsula between Hermitage Bay and Connors Bay and the south shore of Fortune Bay. Fossils in Cambrian strata on both sides of the fault are of European types found only in a few places in Nova Scotia, New Brunswick, and New England and differ totally from Cambrian faunas found in western Newfoundland and elsewhere in North America.

Volcanic and clastic sedimentary rocks immediately north of Fortune Bay have been assigned to the Ordovician and Silurian Systems by early workers³ because of a possible unconformity with known Cambrian sediments. The lithology of these rocks contrasts sharply with that of Middle Ordovician rocks around and north from Bay d'Espoir. The two types represent vastly different modes of origin. The Fortune Bay rocks are generally acidic to basic volcanic flows and associated pyroclastic rocks, and terrestrial sediments, whereas Bay d'Espoir rocks are a fairly typical geological facies. The dominantly volcanic rocks of the peninsula between Hermitage Bay and Connors Bay are of unknown age; on the basis of similar lithology they are included in the same map-unit as the volcanic rocks north of Fortune Bay.

There were several periods of granitic intrusion in the map-area. The larger granitic bodies (unit 17) are contiguous with granitic masses in the Bonavista map-area to the north, which are considered to be Middle Devonian in age⁴. Small stocks of granite similar to unit 17 are found cutting gneissic granite (unit 8). Along Little Passage, Middle Ordovician sedimentary rocks in various stages of metamorphism from unaltered sediments to granite gneiss are readily visible. The age of unit 8 on the basis of field relationships is post-Middle Ordovician and pre-Lower Devonian. Foliated granite (unit 15) is near large bodies of unfoliated granite (unit 17) and may have been emplaced during the Silurian period⁵. The granitic bodies on the southern Burin Peninsula are unfoliated and are considered Devonian in age. The granite stock near Belleoram (unit 19) intruded and partly assimilated a conglomerate with sandstone and slate lenses that contain Upper Devonian plant fossils. This granite is the youngest in the region.

Most of the rock units in the area have a pronounced northeasterly trend. Along the north shore of Fortune Bay and west of the south end of Paradise Sound, however, the trend is easterly. Faults are a major factor in the distribution of the various rock units. In the eastern part of the map-area northeasterly faults extend over several tens of miles, and slices of Cambrian sediments occur here and there along their lengths. In a few places shear zones, slickensided surfaces, and crenulations indicate that the faults are of a near vertical and oblique-slip type. Near Terrenceville a fault has thrust Precambrian rocks over Upper Devonian strata. This thrust dips to the southeast. In the northwestern part of the area, northeasterly faults such as those extending from the head of Hermitage Bay, are the more common type; but northwesterly faults are also prominent.

Folds are important locally, as in the Terrenceville district⁶. Most fold axes have a northeasterly trend. Overturned strata have been recognized in a few places.

The map-area contains several mineral deposits, all known for several years. Molybdenite occurs as nodules, disseminations, and in veins along the margins of Lower and Middle Devonian granite north of Fortune Bay, Great Bay de l'Est, and Lampidoes Passage in Bay d'Espoir. Fluorite is found in veins and fracture fillings in St. Lawrence granite rocks⁷ near the southern edge of the map-area, and in volcanic rocks at the mouth of Long Harbour. Copper, lead, and zinc sulphides are commonly found in small veins with quartz in the Bay d'Espoir region and on the north side of Fortune Bay. A replacement deposit of sphalerite, galena, chalcocite, and pyrite occurs in Bay d'Espoir rocks east of Bois Island. Native copper has been found as amygdaloid and sheets, and disseminated in volcanic rocks on Olerin Island and the north side of the entrance to Presque Harbour.

¹Bradley, D. A.: Gisborne Lake and Terrenceville map-areas, Newfoundland, Geol. Surv. Can., Mem. 321 (1959).
²Dale, N. C.: Pre-Cambrian and Paleozoic geology of Fortune Bay, Newfoundland; Bull. Geol. Soc. Amer., vol. 38, pp. 411-430 (1927).
³Hutchinson, R. D.: The Cambrian stratigraphy and trilobite faunas of southeastern Newfoundland; Geol. Surv. Can., Bull. 88 (1929).
⁴Senneker, S. E.: Terra Nova and Bonavista map-areas, Newfoundland; Geol. Surv. Can., Mem. 327 (1963).
⁵Jewell, W. B.: Geology and mineral deposits of the Bale d'Espoir area; Geol. Surv., Newfoundland, Bull. 17 (1939).
⁶McCartney, W. D.: Geology of the Whitbourne area, Newfoundland; Geol. Surv. Can., Mem. 341 (in press).
⁷Van Alstine, R. E.: Geology and mineral deposits of the St. Lawrence area, Burin Peninsula; Geol. Surv., Newfoundland, Bull. 23 (1948).
⁸Wheeler, L. J.: The Appalachian region; in Geology and economic minerals of Canada (4th edition); Geol. Surv. Can., Econ. Geol. Ser. No. 1 (1955).
⁹White, D. E.: The molybdenite deposits of the Rencontre East area, Newfoundland; Econ. Geol., vol. 35, pp. 967-995 (1940).

MAP B-1965
BELLEORAM
NEWFOUNDLAND
1 M

5.4 Newfoundland, Belleoram (Prelim. series)
A. Guel
1 inch to 4 miles
Map - B - 1965