



- LEGEND**
- MESOZOIC**
- 10 ANNAPOLIS FORMATION: conglomerate, sandstone, red shale; 10a, basalt
 - CARBONIFEROUS OR LATER
 - 9 Fine-grained granitic rock; may be older than 6, 7, or 8
 - CARBONIFEROUS PENNSYLVANIAN (?)
 - 8 Conglomerate
 - MISSISSIPPIAN
 - 7 CANO GROUP: Sandstone, shale
 - 6 WINDSOR GROUP: Limestone, shale
 - HORTON GROUP
 - 5 Conglomerate, sandstone, shale; 5a, may be Canoe group in part
 - DEVONIAN (?)
 - 4a Granite; 4b, granite with inclusions of 2 and/or 3; 4c, granitoid and injected bedded rocks
 - ORDOVICIAN (?)
 - MEGUMA GROUP (2, 3)
 - 3 HALIFAX FORMATION: black slate, andalusite and vermicite schist; minor quartzite
 - 2 GOLDENVILLE FORMATION: quartzite; minor slate
 - PROTEROZOIC
 - 1 FOURCHU GROUP: Volcanic breccia, tuff, lava, sandstone, chloritic schist; 1a, felsitic dyke
- Geological boundary (defined, approximate, assumed):** ————
- Limit of geological mapping:** ————
- Bedding (inclined, vertical, overturned, dip unknown):** ————
- Schistosity (inclined, vertical, dip unknown):** ————
- Gneissosity (inclined, vertical, dip unknown):** ————
- Drag fold (arrow indicates direction of plunge):** ————
- Lineament (from air photographs):** ————
- Fault (defined, approximate, assumed):** ————
- Joints (horizontal, inclined, vertical):** ————
- Anticline (defined, approximate, arrow indicates direction of plunge):** ————
- Syncline (approximate, arrow indicates direction of plunge):** ————
- Glacial striae:** ————
- Fossil locality:** ————
- Quarry:** ————
- Mineral prospect or abandoned mine (andalusite, and; copper, Cu; gold, Au; iron, Fe; tungsten, W):** ————

Geology by I. M. Stevenson, 1957, 1958

Main highway: ————

Other roads: ————

Cart track: ————

Trail: ————

Intermittent stream: ————

Marsh: ————

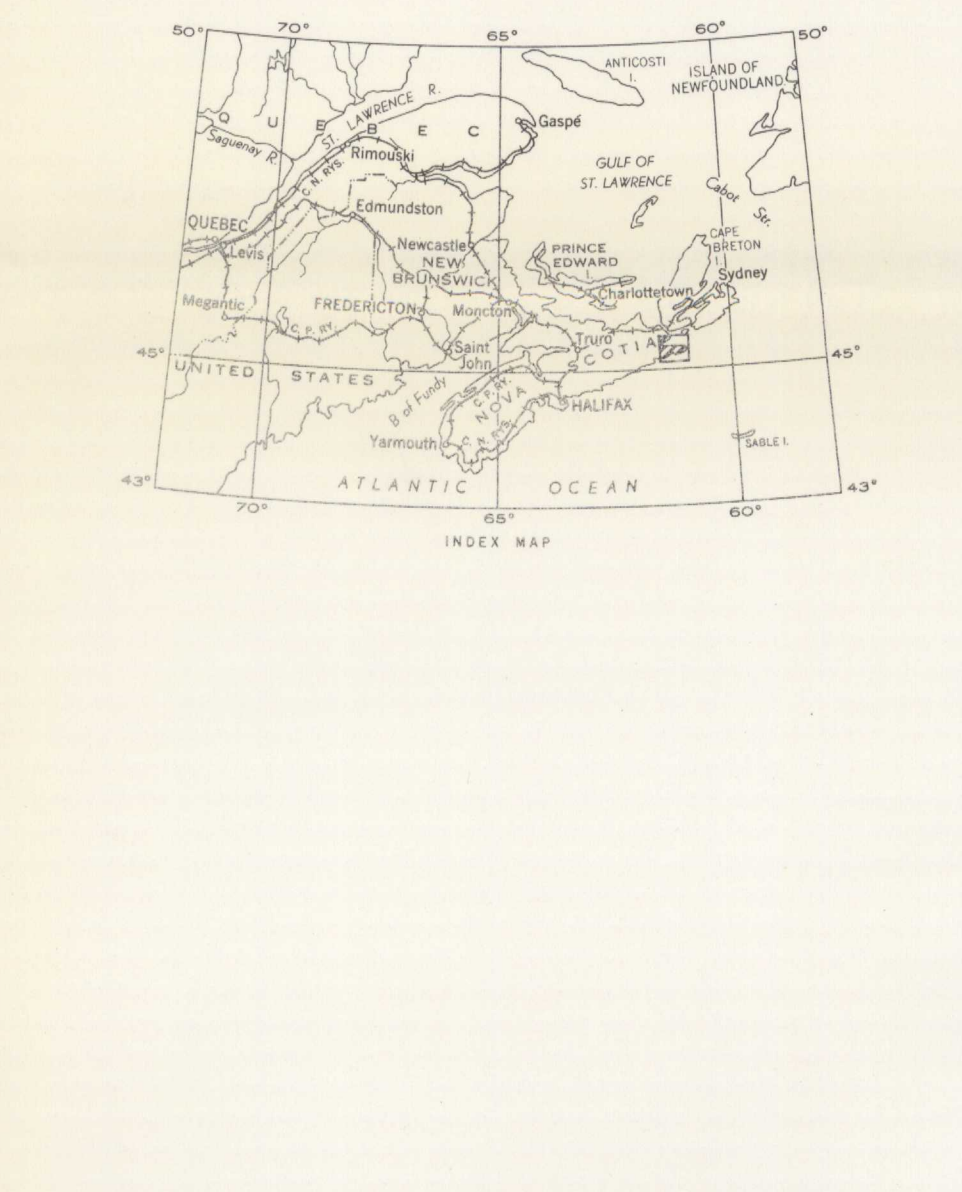
Sand: ————

Approximate magnetic declination, 25° 04' West

Cartography by the Geological Survey of Canada, 1959

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

In response to public demand for earlier publication, Preliminary Series maps are now being issued in this simplified form, thereby effecting a substantial saving in time. There is no loss of information, but the maps will be clearer to read if all or some of the map-units are hand-coloured.



C H E D A B U C T O

B A Y

T O R B A Y

D O V E R B A Y

A T L A N T I C

O C E A N

DESCRIPTIVE NOTES

The oldest rocks in the area occur on Madame Island, and form part of the Fourchu group (1) of Proterozoic age. They consist of an assemblage of volcanic breccia, lava, tuff, sandstone, and chloritic schist, cut by a felsitic dyke (1a) several tens of feet wide.

South of Chedabucto Bay, quartzites and slates of the Meguma group (2, 3) of probable Ordovician age have been deformed into a series of tight folds with east-striking axes and steeply dipping axial planes. The Goldenville formation (2) consists of alternate bands of quartzite and slate, with the former predominant. The quartzite varies in composition from orthoquartzite to subgreywacke. It is grey to greenish grey in colour, breaks with a conchoidal fracture, and commonly passes gradually into narrow bands of siliceous, micaceous slate. The Goldenville formation is normally overlain conformably by black, graphitic, alumina-rich slates of the Halifax formation (3), which contains narrow layers of schistose, greyish green quartzite similar in appearance to that of the Goldenville formation. The quartzites and slates of both formations commonly contain cubes of pyrite along the bedding planes.

Rocks of the Meguma group have been intruded by granites (4) of probable Devonian age. As a result, the sediments bordering the granite masses have been metamorphosed into garnetiferous andalusite-staurolite-kyanite schists for variable distances from the contact. The granite (4) varies considerably in composition and texture, depending on the proximity of the sedimentary rocks. These granites remote from the contact are composed of white to flesh-colored feldspar, biotite, and clear to smoky quartz. The texture may be coarse grained to porphyritic. Near the sedimentary contact, the granites grade abruptly into a schistose, gneissic rock, which in turn passes into the metamorphosed, sedimentary rock. Over much of the area, the granite contains inclusions of Meguma sediments (4a), particularly along the borders of the granite masses. Such inclusions are particularly abundant in the area north and east of Whitehaven Harbour.

Dykes of granite (4) cut the Meguma strata at many places in the vicinity of the granite masses. Most of the dykes consist of coarse-grained feldspar, quartz, and biotite grading rarely into fine-grained, sugary, aplitic material. Both the granites and sedimentary rocks are cut by numerous veins of clear and milky quartz.

On Darvell Island, north of Canoe town, the strata of the Goldenville formation have been extensively granitized and injected to form migmatites (4b) in which the original structures are preserved.

The Horton group (5) of early Mississippian age is separated from Meguma strata by a fault that follows Salmon River. The Horton group consists of coarse-grained clastic rocks of continental origin. Horton strata in this map-area are in general more highly metamorphosed than elsewhere in Nova Scotia, and over much of the region are schistose meta-quartzites with well-developed cleavage, commonly more or less inclined to the schistosity. These rocks are well-exposed on the upper reaches of Clam Harbour River.

The Horton group is overlain, probably disconformably, by a few scattered remnants of red limestone of the marine Windsor group (6). Fossils indicate this limestone to be of early Windsor age. A narrow band of limestone on St. Francis River is similar in appearance to that of the Windsor limestone, but basal Windsor limestone found elsewhere in Nova Scotia.

Due to the lithological similarity of rocks of the Canoe group (7) to those of the Horton group, the areal extent of the former is in doubt. Fossil evidence has indicated the presence of Canoe strata in an area near the mouths of Meadow Brook and Moose Point, and also on the shore 1 1/2 miles southeast of Moose Point. Additional areas of Canoe rocks are undoubtedly present elsewhere in the area north of Chedabucto Bay.

On the shore southwest of Moose Point, a peculiar coarse, brownish coloured, friable conglomerate (8) is exposed which unconformably overlies Canoe sediments. The age of the conglomerate is in doubt, but it is markedly similar in texture and appearance to conglomerate of Pennsylvanian age found elsewhere in Nova Scotia.

Northeast of Guysborough town, Horton (?) rocks have been intruded by two small plutons of fine-grained granitic rocks (9) with associated veins of clear quartz. The granitic rocks carry much specular hematite and magnetite.

Salmon-red conglomerate, sandstone, and shale of probable Triassic age (10) outcrop at three localities in the head of Chedabucto Bay. These rocks are identical in appearance and composition to those of the Annapolis formation found along the shores of Minas Basin, some 80 miles to the west. The Triassic rocks of Bigby Head are apparently cut by a dyke of purplish, amygdaloidal basalt (10a) of probable Triassic age.

All rocks in the area, with the exception of the granites (4) have undergone considerable faulting, but surface expression of most of the faults has been obscured by glacial drift.

The region has been subjected to at least two major periods of folding. During the first, strata of the Meguma group (2, 3) were flexed into a series of tight, east-trending folds. The post-orogenic Devonian (?) granites were relatively undisturbed. During the second, a post-Mississippian and pre-Triassic period of folding of sediments of Mississippian age were flexed into a series of folds with a general northerly trend. The Devonian granites apparently acted as resistant buttresses during this second period of folding. Triassic rocks are only gently folded.

The entire region has been extensively glaciated. Glacial striae indicate a general southerly movement of the ice. Drilling and surface trenching has recently been carried out on a tangent deposit on the coast southeast of Fox Island. The ore consists mainly of schistose slates formed as a coating on fracture surfaces and as tiny veinlets in the Goldenville quartzite. A steeply dipping band of andalusite-rich slate, about 1,000 feet wide and 3 miles long, has been prospected and sampled near Doughby Point. A showing of andalusite was also recently sampled at Black Point.

Iron was mined many years ago from a shaft near South Manchester. The ore consisted of massive specular hematite veins cutting Horton quartzites. Prospecting has been carried out for gold and copper which occur in small amounts in pegmatite dykes and quartz veins at several localities. A deposit of chalcopryrite in Tickle Channel was recently investigated by drilling.

Granite has been quarried at several localities, but the largest, near Queensport, is still prospectively unexplored.

Aeromagnetic anomalies in the vicinity of Larrys River and southwest of Double Lake were apparently caused by higher than normal concentration of magnetite in Halifax slates. Aeromagnetic maps were found to be extremely useful in determining the granite-Meguma contact in drift-covered areas.

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MAP 3-1959
GEOLOGY
CHEDABUCTO BAY
GUYSBOROUGH AND RICHMOND COUNTIES
NOVA SCOTIA

Scale: One Inch to One Mile = 1/23,360 Miles

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MAP 3-1959
CHEDABUCTO BAY
NOVA SCOTIA
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