



LEGEND

- MESOZOIC**
- 10 TRIASSIC
LEPREAU FORMATION: conglomerate, sandstone
 - 9 CARBONIFEROUS
LANCASTER FORMATION: sandstone, conglomerate, shale
- DEVONIAN**
- 8 UPPER DEVONIAN
PERRY FORMATION: conglomerate, sandstone, shale; minor lava flows and dykes
- MIDDLE DEVONIAN**
- 7 ST. GEORGE INTRUSIONS (6,7)
Granite
 - 6 GABRO, DIORITE, GRANITE
- SILURIAN AND (?) EARLIER**
- 4, 5 Chiefly acidic to basic flows and tuffs; related intrusive rocks;
5. Limestone
 - 3 Granite, diorite, and allied types
 - 2 COLDBROOK GROUP (1,2)
Chiefly basic volcanic rocks
 - 1 Chiefly acidic volcanic rocks

- Drift-covered areas
- Observed rock outcrop
- Bedding (inclined, vertical, horizontal, dip unknown)
- Fault
- Fossil locality
- Glacial striae
- Mineral occurrence (magnetite)
- Quarry

Geology by S. C. Perry, 1935, 1936; F. J. Alcock, 1944, using base-map without contours. Descriptive notes by F. J. Alcock

Base-map compiled 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, 210° 15' West

DESCRIPTIVE NOTES

The oldest rocks of the area are of volcanic origin and consist of both flow and fragmental types. Two belts, one consisting dominantly of acidic types (1) and the other largely of basic varieties (2), have been distinguished. The former includes rhyolite and rhyolite tuffs, in places altered to sericitic schist, and the latter is made up mainly of dark, hornblende-bearing varieties. These volcanic rocks are cut by many felsitic and granitic dykes. On both the east and west sides of Beaver Harbour the abrupt change from comparatively fresh, dark, volcanic rocks of Silurian age on the northwest to more altered volcanic rocks cut by an abundance of dykes on the southeast is very striking. This contact can be traced as a uniform line crossing the St. George and Musquash map-areas in a northeast direction, and is believed to be a fault zone. The rocks to the southeast are clearly the older, and have been correlated tentatively with the Coldbrook group of the Saint John region, whose age is known to be Precambrian from the fact that it underlies, unconformably, fossiliferous strata of Lower Cambrian age. These rocks are intruded by granite (3) forming a belt along the coast from Negro Harbour to Macess Bay. The granite varies from grey to reddish, is broken and sheared, contains volcanic inclusions, and is locally gneissified.

The major part of the map-area is underlain by a complex of volcanic, sedimentary, and intrusive rocks most of which at least are of Silurian age (4). The igneous members greatly predominate, and include acidic flows and tuffs, basic flows and tuffs, and related intrusive rocks. One prominent belt of rhyolite containing round phenocrysts of quartz and, locally, some of orthoclase and albite, crosses the northern part of Frye Island and Letang Peninsula and extends to the east of Letang Harbour. In places the rock is sheared into sericitic schist, and in others it passes into a fine-grained granite, apparently the interior parts of thick flows. Other rhyolites are dense and vary from grey to reddish. Many of the tuffs are porphyritic. The more basic volcanic varieties include dark andesitic types and diabase sills and dykes. The sediments associated with the volcanic rocks comprise shale, sandstone, conglomerate, and limestone. The shales are commonly black, and the sandstones grey, greenish, and brown to reddish. Many of the sandy beds appear to consist largely of volcanic ash, and some show ripple-marks and mud-cracks. The interbedded relations of the sediments with the volcanic rocks can be seen at many places, as, for example, on the west side of Beaver Harbour, on Deer Island, around Mascarene peninsula, and elsewhere. Local conglomeratic bands contain pebbles of volcanic rocks, quartz, quartzite, and granite. Fossils were found at a number of localities, the best at Green Point, near Back Bay, where over thirty species were collected. Locally the beds are much deformed, showing irregular dips and strikes, faults, and drag-folds. On Frye Island and Letang peninsula a band of limestone and limy shale (5) has been mapped separately. Much of this rock is recrystallized to marble, and the beds are highly contorted and dragged. Locally the less altered parts contain Silurian corals.

The Silurian rocks are intruded on the north by the St. George intrusions, plutonic rocks consisting of dark gabbro and diorite (6) and light-colored, grey to red, biotite granite (7). The basic varieties are apparently the older, for nearly everywhere they are cut by light-colored granite dykes.

The Perry formation (8) consists of red conglomerate and sandstone. It rests unconformably on the Silurian rocks and contains boulders of many varieties of volcanic rocks, fossiliferous Silurian sediments, limestone, quartzite, quartz, and granite of the St. George type. A few fossil plant fragments were found in beds along the north side of Blacks Harbour. On McCann Island two basic lava flows, each about 20 feet thick and separated by a foot of red conglomerate, are interbedded with the sediments. Both flows are coarsely amygdaloidal, and the upper surface of the lower flow shows ellipsoidal structure. On Flea Island, to the west, similar lava occurs interbedded with red sediments. The formation locally has dips up to 60 degrees, but on the whole the folds are open and the dips are low. On Pendleton and McMaster Islands and on the west side of Mascarene peninsula the strata are in faulted contact with the Silurian rocks.

Ragged Head at the eastern edge of the area is composed of Pennsylvanian sandstones of the Lancaster formation (9) carrying plant remains. Folger Hill Island in Macess Bay, is underlain by gently dipping beds of deep red conglomerate belonging to the Lepreau formation (10) of probable Triassic age.

The region has been heavily glaciated. Along the coast the rocks are polished, striated, and grooved, and numerous rock mounds with well-marked stoss and lee slopes show the direction of glacial movement. Numerous bearings on glacial striae and, locally, double sets of striae show that there was more than one advance of the ice. An older set trends south 35 degrees east, and a younger averages about south 70 degrees east. Most of the region is covered by a heavy overburden of till and glacial gravels.

The chief mineral product of the area is monumental stone. Of numerous quarries the only one being operated is near the west side of Digdegash Lake, where the rock is a dark gabbro. On Adam and Simpson Islands are showings of copper sulfides, chiefly bornite, but efforts to explore these deposits have failed to develop sufficient ore to be mined profitably. At the eastern edge of the map-area, north of the old New River road, are showings of magnetite which have been explored at the surface and by diamond drilling. At the main locality several parallel bands of solid magnetite occur in a banded rhyolitic rock, but the greatest observed width of any band is only 4 inches.



MAP 1094A
GEOLOGY
ST. GEORGE
CHARLOTTE COUNTY
NEW BRUNSWICK

Scale: One Inch to One Mile = 63,360 Miles

COPIES OF THIS MAP MAY BE OBTAINED FROM THE DIRECTOR, GEOLOGICAL SURVEY OF CANADA, OTTAWA

- REFERENCE
- Main highway
 - Road and buildings
 - Road not well travelled
 - Cart track, trail
 - Bridge
 - Power transmission line
 - Telephone line
 - Church
 - School
 - Post Office
 - Cemetery
 - Mill or factory
 - Quarry
 - Lighthouse
 - Wharf or pier
 - Bench mark
 - Horizontal control point
 - Parish boundary
 - Marsh
 - Intermittent stream
 - Falls and rapids
 - Sand or gravel
 - Contours (Interval 50 feet)
 - Height in feet above mean sea-level

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1094A

5.14 New Brunswick, St. George
A, Guel 1 inch to 1 mile
Map 1094A
1960

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