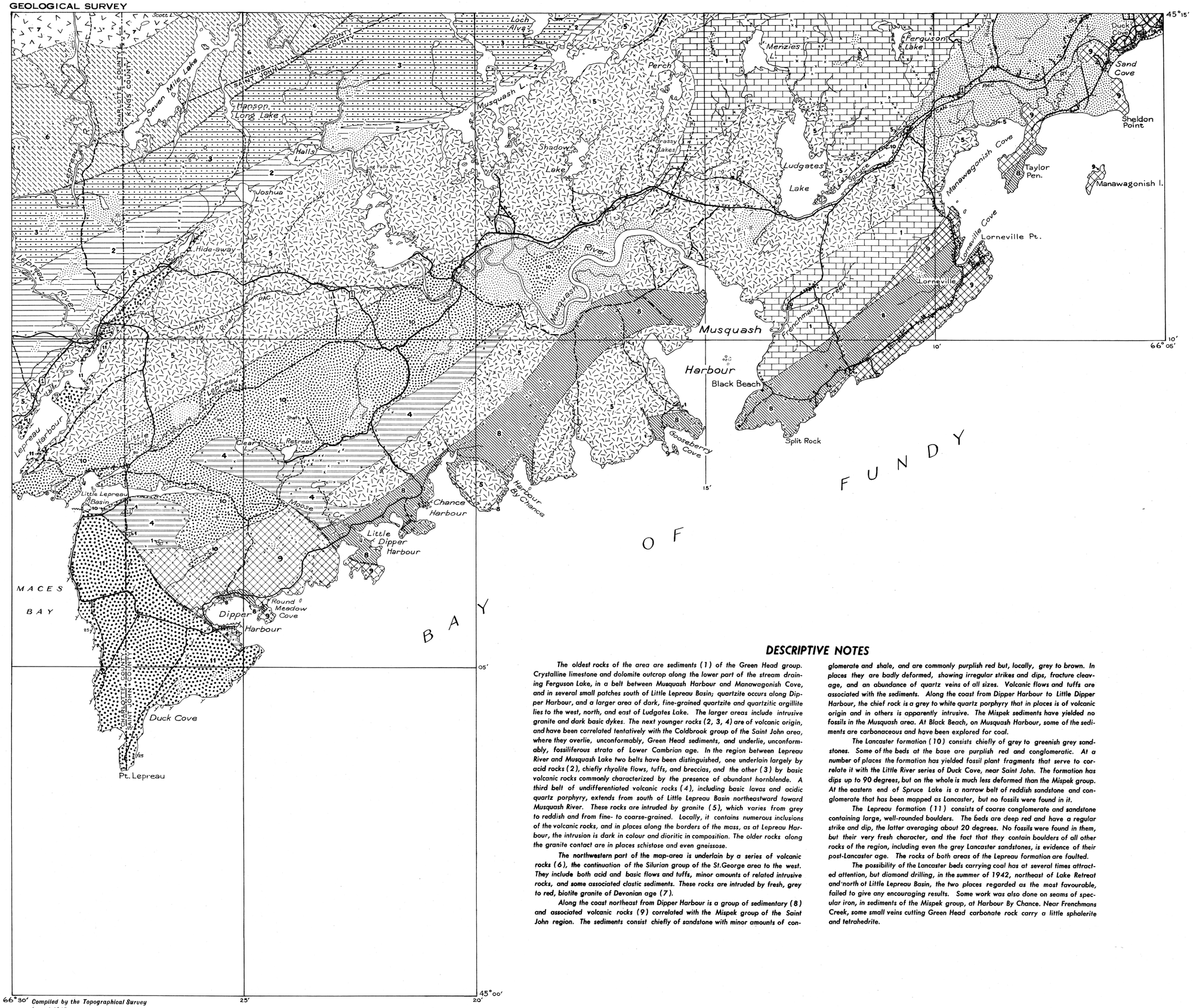
CANADA
DEPARTMENT OF MINES AND RESOURCES
MINES AND GEOLOGY BRANCH
BUREAU OF GEOLOGY AND TOPOGRAPHY

GEOLOGICAL SURVEY



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LEGEND

MESOZOIC

TRIASSIC

11 — *LEPREAU FORMATION: conglomerate, sandstone*

PALAEOZOIC

CARBONIFEROUS

PENNSYLVANIAN

10 — *LANCASTER FORMATION: sandstone, conglomerate, shale*

MISSISSIPPIAN OR PENNSYLVANIAN

MISPEK GROUP

9 — *Chiefly volcanic and intrusive rocks; minor sandstone, conglomerate, and shale*

8 — *Chiefly sandstone, conglomerate, and shale; minor volcanic and intrusive rocks*

DEVONIAN

ST. GEORGE INTRUSIONS

7 — *Granite*

SILURIAN

6 — *Volcanic flows and tuffs; related intrusive rocks; minor, clastic sedimentary rocks*

5 — *Granite, diorite, and allied rocks*

PROTEROZOIC OR EARLIER

COLDBROOK GROUP (?)

3 — *Chiefly basic volcanic rocks*

4 — *Undivided volcanic rocks*

2 — *Chiefly acid volcanic rocks*

ARCHAEAN

GREEN HEAD GROUP

1 — *Limestone, dolomite, quartzite, argillite, schist*

Drift-covered area (chiefly tidal flats and swamps) .....

Observed rock outcrop .....

Bedding (inclined, vertical, horizontal) .....

Fault .....

Fossil locality .....

Glacial striae .....

Geology by F. J. Alcock, 1940, 1944

DESCRIPTIVE NOTES

The oldest rocks of the area are sediments (1) of the Green Head group. Crystalline limestone and dolomite outcrop along the lower part of the stream draining Ferguson Lake, in a belt between Musquash Harbour and Manawagonish Cove, and in several small patches south of Little Lepreau Basin; quartzite occurs along Dipper Harbour, and a larger area of dark, fine-grained quartzite and quartzitic argillite lies to the west, north, and east of Ludgates Lake. The larger areas include intrusive granite and dark basic dykes. The next younger rocks (2, 3, 4) are of volcanic origin, and have been correlated tentatively with the Coldbrook group of the Saint John area, where they overlie, unconformably, Green Head sediments, and underlie, unconformably, fossiliferous strata of Lower Cambrian age. In the region between Lepreau River and Musquash Lake two belts have been distinguished, one underlain largely by acid rocks (2), chiefly rhyolite flows, tuffs, and breccias, and the other (3) by basic volcanic rocks commonly characterized by the presence of abundant hornblende. A third belt of undifferentiated volcanic rocks (4), including basic lavas and acidic quartz porphyry, extends from south of Little Lepreau Basin northeastward toward Musquash River. These rocks are intruded by granite (5), which varies from grey to reddish and from fine- to coarse-grained. Locally, it contains numerous inclusions of the volcanic rocks, and in places along the borders of the mass, as at Lepreau Harbour, the intrusion is dark in colour and dioritic in composition. The older rocks along the granite contact are in places schistose and even gneissose.

The northwestern part of the map-area is underlain by a series of volcanic rocks (6), the continuation of the Silurian group of the St.George area to the west. They include both acid and basic flows and tuffs, minor amounts of related intrusive rocks, and some associated clastic sediments. These rocks are intruded by fresh, grey to red, biotite granite of Devonian age (7).

Along the coast northeast from Dipper Harbour is a group of sedimentary (8) and associated volcanic rocks (9) correlated with the Mispek group of the Saint John region. The sediments consist chiefly of sandstone with minor amounts of conglomerate and shale, and are commonly purplish red but, locally, grey to brown. In places they are badly deformed, showing irregular strikes and dips, fracture cleavage, and an abundance of quartz veins of all sizes. Volcanic flows and tuffs are associated with the sediments. Along the coast from Dipper Harbour to Little Dipper Harbour, the chief rock is a grey to white quartz porphyry that in places is of volcanic origin and in others is apparently intrusive. The Mispek sediments have yielded no fossils in the Musquash area. At Black Beach, on Musquash Harbour, some of the sediments are carbonaceous and have been explored for coal.

The Lancaster formation (10) consists chiefly of grey to greenish grey sandstones. Some of the beds at the base are purplish red and conglomeratic. At a number of places the formation has yielded fossil plant fragments that serve to correlate it with the Little River series of Duck Cove, near Saint John. The formation has dips up to 90 degrees, but on the whole is much less deformed than the Mispek group. At the eastern end of Spruce Lake is a narrow belt of reddish sandstone and conglomerate that has been mapped as Lancaster, but no fossils were found in it.

The Lepreau formation (11) consists of coarse conglomerate and sandstone containing large, well-rounded boulders. The beds are deep red and have a regular strike and dip, the latter averaging about 20 degrees. No fossils were found in them, but their very fresh character, and the fact that they contain boulders of all other rocks of the region, including even the grey Lancaster sandstones, is evidence of their post-Lancaster age. The rocks of both areas of the Lepreau formation are faulted.

The possibility of the Lancaster beds carrying coal has at several times attracted attention, but diamond drilling, in the summer of 1942, northeast of Lake Retreat and north of Little Lepreau Basin, the two places regarded as the most favourable, failed to give any encouraging results. Some work was also done on seams of specular iron, in sediments of the Mispek group, at Harbour By Chance. Near Frenchmans Creek, some small veins cutting Green Head carbonate rock carry a little sphalerite and tetrahedrite.

PRELIMINARY MAP 45-2

MUSQUASH

CHARLOTTE, KINGS AND SAINT JOHN COUNTIES

NEW BRUNSWICK

Scale: 1 inch to 1 mile

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