CANADA
DEPARTMENT
OF
MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

SHEET 21 O/9

LEGEND

PALÆOZOIC

PENNSYLVANIAN

8 — *BATHURST FORMATION: red conglomerate, sandstone, shale*

DEVONIAN (?)

7 — *Diabasic gabbro*

SILURIAN

UPPER SILURIAN (?)

CHALEUR BAY GROUP (5,6)

6 — *Limy slate, subgreywacke, limestone, basalt*

5 — *Red trachyte, red volcanic conglomerate, rhyolite, agglomerate, basalt, slate;* **5a**, *basalt, trachyte, conglomerate, slate;* **5b**, *green and red conglomerate, greywacke, slate;* **5c**, *limy shale and slate, greywacke, basalt*

ORDOVICIAN

MIDDLE ORDOVICIAN

4 — *Quartz-feldspar porphyry (includes some 1-3)*

TETAGOUCHE GROUP (1-3)

1 2 3 — **1.** *Metabasalt, metabasaltic tuff, slate, jasper;* **1a**, *trachyte*
2. *Rhyolite tuff, rhyolite, quartz-sericite schist, metabasalt*
3. *Grey slate, subgreywacke, metabasalt*

Rock exposures are indicated by a bedding or schistosity symbol, by S *(sedimentary rock), by* Ls *(limestone), by* C *(conglomerate), by* T *(trachyte), by* V *(basalt and metabasalt), by* A *(agglomerate), by* T *(metabasaltic tuff), by* P *(quartz-feldspar porphyry), by* X *(diabasic gabbro)*

Geological boundary (approximate, assumed)
Bedding (horizontal, inclined, vertical)
Bedding (upper side of bed faces as indicated, direction of dip unknown)
Schistosity cleavage (inclined, vertical)
Lineation (plunge known)
Lineament from air photographs
Fault (defined, assumed)
Anticlinal axis (defined, approximate)
Synclinal axis (defined, approximate)
Glacial striæ
Fossil locality — P
Mineral prospect or occurrence (lead, Pb; zinc, Zn) — X Pb

Geology by R. Skinner 1953, 1954

Road
Trail
County boundary
Parish boundary
Stream (intermittent)
Marsh

Approximate magnetic declination, 24° 00' West

Cartography by the Geological Cartography Unit, 1956

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

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PRELIMINARY MAP 55-32

TETAGOUCHE LAKES

RESTIGOUCHE, GLOUCESTER, AND NORTHUMBERLAND COUNTIES

NEW BRUNSWICK

Scale: One Inch to One Mile = $\frac{1}{63,360}$

Miles

1 ½ 0 1 2 3

DESCRIPTIVE NOTES

The map-area is a rolling upland deeply incised by youthful V-shaped valleys and covered by drift and thick forest. Outcrops are found mostly along stream valleys, on slopes and tops of hills, and along road cuts.

The oldest rocks in the area are those of the Tetagouche group [1,2,3] which is divided lithologically into three major units: 1, mainly metabasalts, 2, mainly rhyolite tuffs, and 3, mainly grey slates and subgreywackes. None of these subdivisions has any stratigraphic significance.

Unit 1 is largely composed of basalts and basic tuffs that have undergone low grade metamorphism. These rocks are generally fine grained, and slightly schistose and are commonly a light greenish grey hue. No pillow or flow structures were found in them and amygdules were seen only in the vicinity of Camel Back Mountain. Along Middle River, Armstrong Brook, and lower and upper Tetagouche River they vary from banded to schistose. Their average composition is about 30 per cent epidote, 25 per cent actinolite, 20 per cent albite, 15 per cent chlorite, and 10 per cent sphene. The least metamorphosed metabasalts contain up to 30 per cent pigeonite, and the most schistose ones contain up to 25 per cent glaucophane or riebeckite, 25 per cent calcite, and 15 per cent magnetite. Many magnetic anomalies found in the Ordovician rocks are caused by the presence of magnetite in the schistose metabasaltic tuffs. Massive metabasalts on Camel Back Mountain are also magnetic[4].

Minor bands of grey, red, and green slates, and jasper are intercalated with the metabasalts and metabasaltic tuffs (1).

Trachyte (1a) was found only in the vicinity of Camel Back Mountain. It is a fine-grained, reddish grey, massive rock that contains pink phenocrysts of perthite.

Rhyolite tuff (2) is commonly a fine-grained, light grey to light green schistose rock. Essentially it is a quartz-sericite-biotite-albite schist containing quartz, albite, and orthoclase phenocrysts in variable amounts. Here and there the tuff is well banded and grades to a massive grey to buff coloured rock.

Unit 3 is of limited extent within the map-area. The slate is dark grey to greenish grey, lustrous, and commonly has crenulated cleavage surfaces that are parallel to bedding. It is generally rust-stained from the weathering of contained pyrite. Thin beds (2-6 inches thick) of grey, fine-grained subgreywacke and sandstone are intimately associated with the slates. Areas of unit 3 along the east border of the map-area are composed of graphitic slates and interbedded metabasalts.

Quartz-feldspar porphyry (4) is commonly schistose but in places is massive. It is generally light green grey, but may be dark to light grey, light green, or pink. The phenocrysts are dark grey glassy quartz and commonly cream to pink perthite and albite that average ⅛ to ¼ inch in length and range up to ½ inch. The groundmass is very fine grained and consists of quartz, feldspar, and sericite. Some varieties contain a large amount of sericite and have the appearance of a porphyroblastic schist. The porphyry occurs as sills mainly in rhyolite tuffs. Commonly the sills are hundreds of feet thick, but in places they are 20 to 30 feet thick.

Trachyte (5) ranges from dark red through orange to greyish hues, and in texture from cryptocrystalline varieties that have ¼ to 1 inch layers separated by quartz veinlets, to medium-grained porphyritic varieties with orange-coloured albite laths up to ½ inch in length. Some pink and cream hued rhyolites associated with the trachytes are commonly more massive.

Basalts (5a) are characteristically dark red or greenish grey, fine-grained, massive rocks with some amygdaloidal layers. Some are porphyritic with plate-shaped feldspar phenocrysts up to ½ inch in length.

Green-coloured conglomerate (5b) forms the best horizon marker in the map-area. The pebbles are rounded to sub-rounded and are generally about 1 inch long but range up to 8 inches long. They are composed of metabasalt, felsite, red, green, and grey cherts and slates, and vein quartz. Coarse-grained green greywacke forms the matrix and is also intercalated as graded beds.

Limy slates (6) are characteristically silty and coloured greenish grey, and in many places are intercalated with fine-grained greenish grey subgreywacke. The bedding is difficult to determine in both rock types and graded bedding is rarely seen. In places the lime content is high enough to call the rock a slaty or shaly limestone. Most of the fossils found in the map-area are fragmentary and poorly preserved, but trilobites and brachiopods from Campbell Brook have been identified as being Silurian and probably of Upper Silurian age.

Diabasic gabbro (7) is a medium to dark green ophitic-textured rock composed of grey albite laths about 5 mm. long in a matrix of light green pyroxene, dark green chlorite, and minor magnetite. It occurs as sills and dykes in all pre-Pennsylvanian rocks. Three outcrops of coarse-grained gabbro, composed of greenish grey diallage crystals up to ½ inch long in a matrix of greenish to cream-coloured basaltic and light green chlorite occur in the rocks of unit 1 west of Middle Tetagouche Lake.

Pennsylvanian conglomerates (8) are commonly light to dark red and are composed of rounded pebbles (up to 2 inches long) of red, and some green, volcanic rocks, red, grey, and green cherts and slates, and vein quartz. Calcite forms the cement in the light, and hematite in the dark-coloured beds. Red sandstones and shales are interbedded with conglomerate.

The Middle Ordovician rocks are commonly schistose and show cataclastic structures. Schistosity is generally parallel to bedding. This relationship, the steep dips, the apparent great thicknesses of the strata, and the steep plunge of drag folds and crenulations suggest isoclinal folding. Apparently these rocks were subsequently flexed into a large northeasterly trending anticline that plunges steeply to the northeast. The axial plane of this major fold coincides roughly with the northeasterly course of South Tetagouche River.

The Chaleur Bay group (5,6) rests unconformably on Middle Ordovician rocks (1-4) and occupies a complicated split syncline, whose main axis trends northeasterly, with a branch syncline trending east-northeast into the northern part of Bathurst map-area. The relationship between the two branches is not clear because of the discordant northerly strike of formation 6 on Arbeau Brook, and because of the lack of outcrops northeast of this brook.

Trenching and diamond drilling have proven the presence of continuous mineralization along a 6,000 foot easterly striking zone on Orvan Brook. It has been reported that on surface this zone has an average grade of 7 per cent zinc, 3.5 per cent lead, 0.33 per cent copper, and 2.7 ounces of silver a ton over an average width of 3 feet. The deposit is associated with quartz-feldspar porphyry (4) just as are the Brunswick and Anacon Leadridge lead-zinc deposits in the Nepisiguit Falls map-area[5]. Gossan float was seen on the Bathurst Power and Paper Company motor road 0.4 miles south of Gambol Brook.

[1] Alcock, F. J.: Jacquet River and Tetagouche River Map-areas, New Brunswick; Geol. Surv., Canada, Mem. 227, 1941.

[2] Skinner, R.: Preliminary Map, Bathurst, New Brunswick; Geol. Surv., Canada, Paper 53-29.

[3] Skinner, R. and McAlary, J. D.: Preliminary Map, Nepisiguit Falls, New Brunswick; Geol. Surv., Canada, Paper 52-23.

[4] Geol. Surv., Canada: Tetagouche Lakes, New Brunswick, Geol. Surv., Canada, Map 990, Aeromagnetic Series, 1954.

PRELIMINARY MAP 55-32
TETAGOUCHE LAKES
NEW BRUNSWICK

SHEET 21 O/9