

- LEGEND**
- CENOZOIC**
- PLEISTOCENE AND RECENT**
- 6 Glacial lake and/or estuarine clay and younger gravel, sand, silt
- CARBONIFEROUS PENNSYLVANIAN**
- 5 Grey to green and brown sandstone, grit and conglomerate (low in quartz and high in rock fragments); 5a, grey, green, and red shale; 5b, quartz-pebble conglomerate; 5c, very thin coal seams
- 4 White and grey quartz-pebble conglomerate, quartz-feldspar grit and sandstone; minor grey mudstone
- MISSISSIPPIAN AND/OR PENNSYLVANIAN**
- 3 Dark red and minor green calcareous conglomerate and breccia, grit, sandstone (low in quartz and high in rock fragments); 3a, red and green shale and siltstone; 3b, nodular argillaceous limestone
- DEVONIAN(?)**
- 2 Grey, pink, and minor red, coarse-grained, slightly porphyritic, biotite granite and quartz monzonite
- SILURIAN (Mainly) MIDDLE SILURIAN (Mainly)**
- 1 Grey fine-grained greywacke, grey and black slate; 1a, grit; 1b, red, green, and purple slate; 1c, dark brown and grey fine-grained hornfels
- Drift-covered area . . . . .
- Rock outcrop . . . . .
- Geological boundary (defined, approximate, assumed) . . . . .
- Bedding (horizontal, inclined, vertical) . . . . .
- Cleavage (inclined, vertical, dip unknown) . . . . .
- Fault (defined) . . . . .
- Glacial striae . . . . .
- Esker . . . . .
- Fossil locality . . . . .
- Mineral prospect . . . . .
- Gravel pit . . . . .

**DESCRIPTIVE NOTES**

The area is a smoothly undulating, upland surface which slopes gently from an elevation of about 1,100 feet in the northwest, near Grand John Lake, to about 500 feet in the south and southeast. This surface has been dissected by rivers and streams which generally occupy narrow and V-shaped valleys. Local relief averages about 300 feet and rarely exceeds 500 feet. The contact between unit 4 and the succession of red and minor green rocks (3) is commonly marked by a sharp declivity. A thin mantle of glacial till covers the tops of most hills, but as much as 50 feet was found in many valleys. Glacial striae and the distribution of erratics indicate a southeasterly direction of ice movement. The Keswick and Mactaquac River Valleys, below an elevation of about 125 feet, are underlain by clays of lacustrine or estuarine origin. These, in turn, are overlain by gravel, sand, and silt. A well drilled for water at Burts Corner penetrated about 200 feet of unconsolidated sediments and did not reach bedrock.

The oldest rocks in the area (1) are mainly of Middle Silurian age, but both older and younger strata may be present. These rocks are similar throughout the area. Greywacke is the predominant rock type and is slightly schistose. It contains minor calcareous cement and, not uncommonly, lenticular fragments and beds of slate. These rocks, for as much as 40 feet below the unconformity with Carboniferous beds, are coloured red and grey, resulting probably from weathering contemporaneous with erosion and deposition of the younger rocks (3, 4). Quartz-feldspar-grit (1a), interbedded with greywacke and slate, was seen only near North Tay and east of Stoneridge. The Silurian beds are altered to massive, biotitic hornfels (1c) near the granitic rocks (2). In places northwest of Zealand Station, the hornfels contain light grey and brown interbeds which probably represent relict bedding. Fragments of black, graphitic hornfels were found northwest of Grand John Lake. Graptolites were found in black and dark grey carbonaceous slate on Tay River at two localities.

Vertical and steeply dipping bedding and cleavage trend north to northeast. The distribution of grit (1a), and red, green and purple slate (1b) suggests that no transverse faults with large lateral movements are present. Although most of the beds are vertical or dip westerly, they are not definitely known to be overturned and the internal structure of the rocks is uncertain.

Granitic rocks (2) are uniform and massive, and their contacts with bordering hornfels (1c), where seen, are sharp. Pegmatite and aplite are rare, but, about 1 1/2 miles west of Zealand Station, molybdenite, beryl, and black tourmaline are associated with pegmatite and aplite in the only known mineral prospect in the area. One large rock fragment at this deposit contained about 25 per cent of light bluish green beryl.

Flat-lying to gently easterly dipping Carboniferous rocks (3, 4, 5) overlie, with sharp angular unconformity, the Silurian rocks (1). The oldest Carboniferous formation (3) is predominantly dark red, and imparts a distinctive colour to soils developed from it. The beds consist mainly of unsorted, coarse clastic rocks, presumably deposited in fresh water. Rock fragments are mostly greywacke, slate, and vein-quartz, chert and orthoquartzite, and, rarely, purplish and green volcanic rocks, limestone, and granitic rocks. The cement is mainly calcareous. On South Tay River near Tay Mills an irregular bed of nodular, argillaceous limestone was found, in what is probably the upper half of the formation. Near the top of the formation the rocks, in general, are more sandy and shaly. The uppermost 30 to 40 feet of the formation is green sandstone or conglomerate or both. Some of the younger sandstones are poorly consolidated and disintegrate readily upon weathering. The formation is only a few feet thick on the partly exhumed ridge of basement rocks (1) near Woodland, but elsewhere it is more than 100 feet thick and may be as much as 400 feet thick between Tay Mills and Tay Creek.

The Pennsylvanian quartz-pebble conglomerate formation (4) rests unconformably and disconformably on the lower formations (1, 3). The contact with the lowermost Carboniferous formation (3) is knife-sharp where exposed by digging near Tay Mills. The formation is very distinctive and forms an excellent marker bed. It supplies abundant fragments to the overlying soil, in contrast to map-unit 3. The conglomerate pebbles range generally from 1/4 inch to 2 inches in diameter and poorly sorted and subangular to subrounded. The matrix is mostly vein-quartz, less commonly chert, orthoquartzite, and greywacke, and rarely jasper and porphyritic rhyolite. The matrix of the conglomerate is quartz-feldspar grit and sandstone. The degree of consolidation varies. The finer clastic rocks of the formation contain blebs of white chalk which are probably weathered feldspar. The formation increases in thickness from a few feet in the northeast corner of the area, to 15 feet at Tay Mills, to slightly more than 49 feet southwest of the road to Dorn Ridge, and to probably more than the measured 118 feet east of Pugh's Crossing.

The youngest Carboniferous formation (5) overlies map-unit 4 gradationally, their contact being placed at the top of the highest quartzose grit, which is interbedded with, and overlain by sandstone. From 5 to 10 feet of shale, with minor yellow shale interbeds, lies from 5 to 20 feet above the contact. Conglomerate contains many types of pebbles but few of quartz. Some of the rocks of map-unit 5 are dark brown or black because of coatings and cement of manganese oxides, which is also true of map-unit 4. Sandstones with bedding parting planes from 1 inch to 2 inches apart are characteristic of the formation. The top of the formation is not exposed in the area, but possibly 300 to 500 feet of strata are present. Scattered coalified plant material is common in the grits and conglomerates. Plant spores from a grab sample of coal and leaf imprints in a grey shale, collected at a caved open-cut 1 1/2 miles northeast of Woodland, were correlated with that from the Pictou group in Nova Scotia (Westphalian C).

The Carboniferous formations (3, 4, 5) apparently have not been deformed. Folds and faults are lacking, and well developed joint systems are rare.

Several discontinuous coal seams, each not more than 3/8 inch thick, were found intercalated in 4 feet of dark grey silty shale in the creek about 1/2 mile northwest of Birdton. Springs that precipitate a brown iron oxide slime are scattered throughout the area. Some have a sulphurous odour and taste.

Geology by W. H. Poole, 1957

Main highway . . . . .

Other roads . . . . .

Trail . . . . .

Township boundary . . . . .

Power transmission line . . . . .

Intermittent stream . . . . .

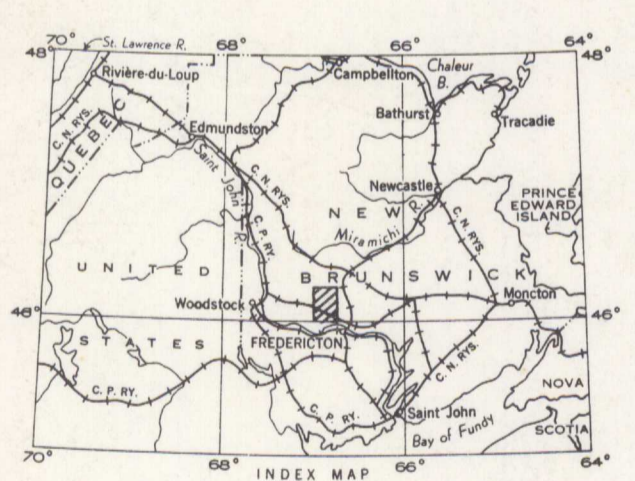
Marsh . . . . .

Approximate magnetic declination, 22° 15' West

Cartography by Geological Cartography Unit, 1957

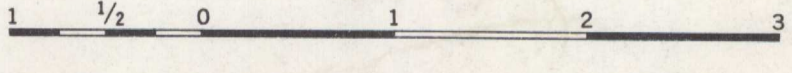
In response to public demand for earlier publication, Preliminary Series maps are now being issued in this simplified form, thereby effecting a substantial saving in time. There is no loss of information, but the maps will be clearer to read if all or some of the map-units are hand-coloured.

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



MAP 7-1957  
**BURTTS CORNER**  
(WEST HALF)  
YORK COUNTY  
NEW BRUNSWICK

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



MAP 7-1957  
**BURTTS CORNER**  
NEW BRUNSWICK  
SHEET 21 1/2 (West Half)

5.1.4 Burtts Corner (W/2) N.B.  
A1 Geol.  
Map 7-1957 (Prelim)