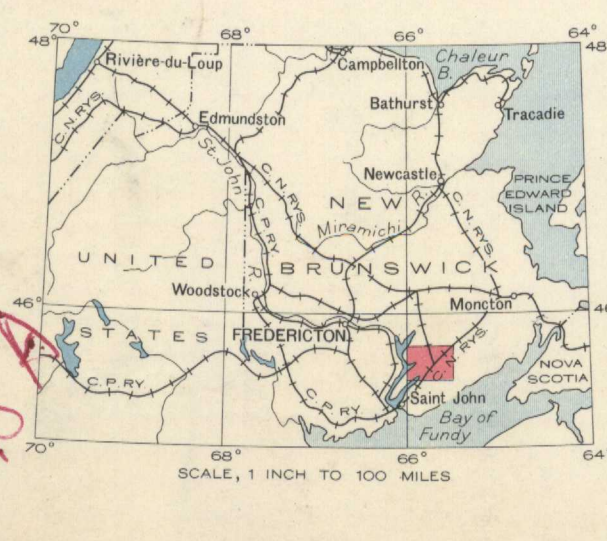


- LEGEND**
- CARBONIFEROUS**
- PENNSYLVANIAN**
- PETITODIAC GROUP**
- 14 Grey sandstone, shale, and conglomerate
- MISSISSIPPIAN AND PENNSYLVANIAN**
- HOPEWELL GROUP**
- 13 Red conglomerate, sandstone, and shale
- MISSISSIPPIAN**
- WINDSOR GROUP**
- 12 Mainly limestone and gypsum
- MONCTON GROUP**
- 10 Grey to red conglomerate, sandstone, shale, and nodular limestone
- ALBERT FORMATION: grey shale, sandstone, conglomerate, and limestone**
- 9
- ORDOVICIAN AND/OR SILURIAN**
- 6 Red and grey shale, volcanic rocks
- CAMBRIAN**
- ST. JOHN GROUP**
- 5 Red and grey breccia, sandstone, and shale
- COLDBROOK GROUP**
- 4 Acid to basic volcanic rocks
- GREEN HEAD GROUP**
- 3 Graphitic schist, dense dark quartzite, limestone
- ARCHAEO PROTEROZOIC**
- 2 Gabbro, probably Devonian
- 1 Granite, probably Precambrian; 1D, probably Devonian
- PRE-CARBONIFEROUS**
- KENNEBECASIS GROUP**
- 11 Grey to red conglomerate, sandstone, and shale
- KINGSTON GROUP**
- 8 Slaty sedimentary rocks; minor volcanic and intrusive rocks
- 7 Volcanic rocks

- Heavily drift-covered area
- Sink hole
- Observed rock outcrop
- Bedding (horizontal, inclined, vertical)
- Fault
- Glacial striae
- Fossil locality
- Provincial highway
- Road and buildings
- Road not well travelled
- Trail
- Church
- School
- Post Office
- Cemetery
- Triangulation station
- Lighthouse
- Power transmission line
- County boundary (approximate)
- Parish boundary (approximate)
- Intermittent stream
- Marsh
- Contours (interval 100 feet)
- Height in feet above Mean sea-level

Geology by F.J. Alcock, 1941, 1943; G.S. MacKenzie, 1942
Descriptive notes by F.J. Alcock
Base map compiled by the Topographical Survey 1944,
from Sussex map published in 1925, and reprinted in
1939 by the Hydrographic and Map Service. Cartography
by the Drafting and Reproducing Division, 1945.



DESCRIPTIVE NOTES

The Archean rocks are lithologically similar to the Green Head group of the Saint John map-area to the southwest. They are intruded by grey granite (P) also probably of Precambrian age.

The volcanic rocks shown in the southeast corner of the map are continuous with the Coldbrook group of the adjoining Loch Lomond map-area, where they underlie fossiliferous Lower Cambrian strata. Red and grey breccia, sandstone, and shale, similar to rocks of the St. John group of Cambrian age to the south, occupy a small area at the western border of the map-area.

Northwest of Belleisle Bay is a large area underlain by shales, slates, and volcanic and intrusive rocks. The sedimentary beds have yielded no fossils, but some of the red and grey shales resemble strata to the southwest that are known to be of Silurian age, and that also have associated with them great amounts of volcanic rocks. The rest of the assemblage can be identified no more closely than pre-Carboniferous. It may be Silurian, but on the other hand, it may include rocks of various ages ranging from Proterozoic to Devonian.

The age of the Kingston volcanic rocks is not known with certainty. To the southwest of the map-area, volcanic rocks on the same strike outcropping on the southeast side of Long Reach opposite Catons Island are interbedded with fossiliferous Silurian sediments. It is not certain, however, that all of the volcanic rocks of Kingston Peninsula are of this age, or whether some should be correlated with lithologically similar rocks of the Coldbrook group.

The Coldbrook volcanic rocks are intruded by fresh pink to red granite (1D) of probably Devonian age. In the northern part of the area the pre-Carboniferous sedimentary and volcanic rocks are cut by dark massive gabbro. The latter is intersected by aplite and granite, and is probably an early differentate of the Devonian plutonic intrusions that spread so widely in central New Brunswick.

The eastern half of the map-area is covered largely by sedimentary rocks of Carboniferous, mostly Mississippian age. On the adjoining Waterford map-area, the oldest Mississippian formation is the Memramcook, composed of conglomerate and sandstone. It is succeeded conformably by the Albert formation and this, in turn, by the Moncton group, both of which are represented in the Sussex area. The contact between the Albert and Moncton is, in places, an arbitrary one, but wherever grey shales are present, the beds are classed as Albert. To the southwest, the Albert beds become coarser and evidently represent a shore phase in which the Kennebecasis beds of the adjoining Loch Lomond map-area are stratigraphically equivalent to the combined Albert and Moncton beds to the northeast. The Kennebecasis may, in fact, be equivalent to the Moncton, Albert, and Memramcook as well, since it is possible that the belt of sandstone and conglomerate (10) northwest of the Clover Hill belt of Precambrian rocks may actually be Memramcook instead of Moncton. An unusual feature of the Moncton group is that on a brook 2 miles east of Gillis Corner, the beds contain nodular limestone.

The Moncton beds are overlain by marine limestone and gypsum of the Windsor group, which serves as an excellent horizon marker and can be traced partly by outcrops and partly by sink-holes. The beds rest conformably on Moncton strata, but, in places, overlap pre-Carboniferous rocks.

The Hopewell group succeeds the Windsor strata with apparent conformity, but is separated from them by an interval of erosion, as shown by the fact that the basal Hopewell beds in places contain well-rounded boulders of Windsor limestone. Following the deposition of the Hopewell beds, the Mississippian rocks were folded, faulted, and partly eroded. In Pennsylvanian time they were overlain by the Pettitodiad group, whose beds lie horizontally on the tilted older formations.

The region was overrun by Pleistocene ice moving in a direction a little east of south. Glacial deposits, chiefly in the form of ground moraine, cover much of the region.

Folds and faults within the map-area trend northeast and have resulted from deformation in Precambrian, Devonian, and mid-Carboniferous times. Two major faults cross the area and minor ones were observed. The major fault that extends from the Loch Lomond map-area, to the southwest, and that crosses the Sussex, Waterford, and Point Wolf areas, affects all formations up to and including the Hopewell beds. It disappears beneath Pettitodiad sandstones in the eastern half of the Pettitodiad map-area. A second large fault passes west of Hampton. It brings Moncton strata alongside rocks of the pre-Carboniferous complex, and can be traced readily to the northeast as far as Peekaboo Corner. From there it extends across an area underlain by red Hopewell beds where it cannot be identified with certainty. A major break on Jordan Mountain, in the west half of Pettitodiad map-area, lines up with this fault and is probably continuous with it.

A little development work has been carried out on the graphitic schist at Clover Hill, but the deposit is small and of low grade. The grey shales of the Albert formation are locally slightly bituminous. They are, however, folded and faulted and contain a great deal of coarse clastic material. Consequently, they do not appear to be as favourable for oil as the shales of the same formation farther to the northeast in the Moncton and Hillsborough areas. Gypsum occurs in considerable quantities in the Windsor group at Fox Hill, near Apohaqui.

NOTE: 1. Area within which Albert and Moncton beds merge into those of the Kennebecasis group.

MAP 845A
SUSSEX
KINGS AND QUEENS COUNTIES
NEW BRUNSWICK
Scale, 63,360 or 1 Inch to 1 Mile
Approximate magnetic declination, 23° West

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