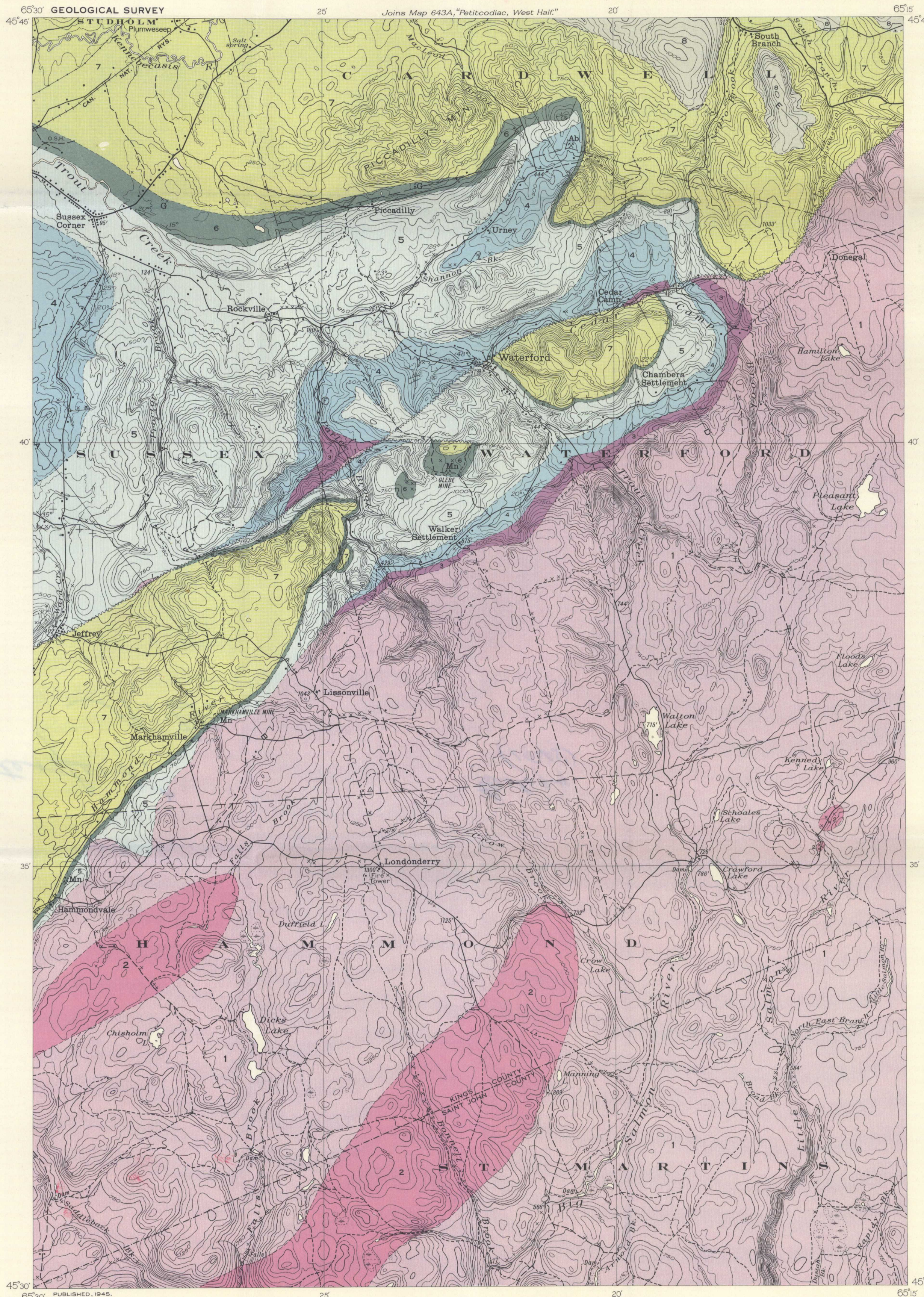


Structure sections along lines A-B, C-D, and E-F



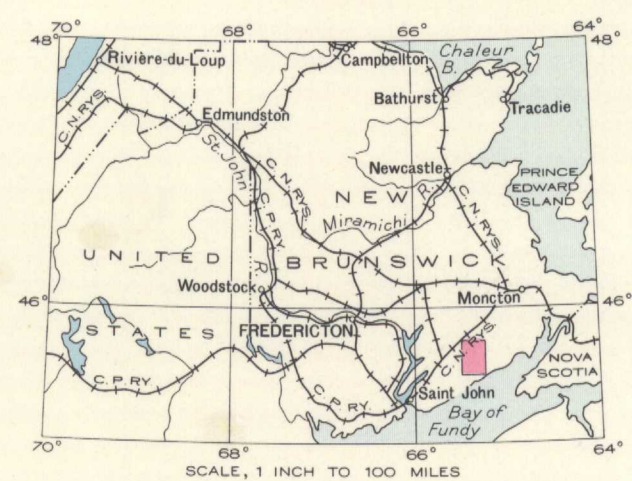
LEGEND

- |                          |   |  |   |
|--------------------------|---|--|---|
| PALAEZOIC                | <b>CARBONIFEROUS</b>  |  | PETITCODIAC GROUP<br>HOPEWELL GROUP<br>WINDSOR GROUP<br>MONCTON GROUP |
|                          | 8   | Grey sandstone, shale, and conglomerate                            |   |
|                          | 7   | Red conglomerate, sandstone, and shale                             |   |
|                          | 6   | Mainly limestone and gypsum  |   |
|                          | 5   | Grey to red conglomerate, sandstone, shale                         |   |
| 4                        | ALBERT FORMATION: grey shale, sandstone, limestone, and conglomerate    |  |   |
| 3                        | MEMRAMCOOK FORMATION: mainly red to grey conglomerate; sandstone, shale |  |   |
| PRECAMBRIAN<br>PALAEZOIC | <b>PRE-CARBONIFEROUS</b>  |  |   |
|                          | 2   | Mainly granite, minor volcanic rocks                               |   |
|                          | 1   | Mainly volcanic rocks; minor, undifferentiated granitic intrusions |   |

- |  |     |
|--|-----|
| Bedding (inclined, horizontal).....      | +   |
| Observed rock outcrop.....               | x   |
| Outcrop gypsum.....                      | G   |
| Sink hole.....                           | SH  |
| Manganese prospect.....                  | Mn  |
| Albertite deposit.....                   | Ab  |
| Fossil locality.....                     | F   |
| Fault.....                               | --- |
| Glacial striae.....                      | --- |
| Provincial highway..... NO. 14           |     |
| Road well travelled.....                 | --- |
| Road not well travelled.....             | --- |
| Bush road or trail.....                  | --- |
| Railway.....                             | --- |
| Power line.....                          | --- |
| Buildings.....                           | --- |
| Church.....                              | --- |
| School.....                              | --- |
| Post Office.....                         | --- |
| Cemetery.....                            | --- |
| Triangulation station.....               | --- |
| County boundary (approximate).....       | --- |
| Parish boundary (approximate).....       | --- |
| Stream (position approximate).....       | --- |
| Dam.....                                 | --- |
| Sand bar.....                            | --- |
| Salt spring.....                         | --- |
| Marsh.....                               | --- |
| Contours (interval 50 feet).....         | --- |
| Height in feet above mean sea-level..... | --- |

Geology by C.S. Evans, 1937, and F.J. Alcock, 1943.

Base map compiled by the Topographical Survey, 1937, from aerial photographs. Cartography by the Drafting and Reproducing Division, 1944.



DESCRIPTIVE NOTES

The oldest rocks of the map-area (1) are a volcanic assemblage made up of types varying in composition from light-coloured rhyolites to dark basalts. Apparently most of these are flows, but tuffs and volcanic breccias are also common. Some of the rocks are massive; others are schistose. The acidic varieties have given rise to sericite schists, and the basic types to chlorite schists. The prevailing direction of schistosity is northeast. These rocks underlie unconformably the Carboniferous formations, and as they are on the line of strike of the lithologically similar Coldbrook volcanic rocks of the Saint John region, to the southwest, and as the Coldbrook underlies fossiliferous Lower Cambrian strata, it is probable that the pre-Carboniferous rocks of this map-area are also of Precambrian age. They are intruded by grey to reddish granite (2) that may be of Devonian age. Other, undifferentiated bodies of granitic rocks may be older.

The Mississippian rocks consist of three conformable clastic formations and an overlying band of Windsor limestone and gypsum. The lowest formation, the Memramcook (3), consists chiefly of reddish conglomerate with minor amounts of shale and sandstone. The succeeding Albert formation (4) is composed characteristically of grey shale and sandstone, with minor amounts of limestone and, locally, bands of conglomerate. In places the beds contain plant and fish remains, and also seams of albertite. The formation is succeeded by Moncton strata (5) consisting of grey to buff and red sandstone, conglomerate, and shale. All these formations vary in composition and appearance, both laterally and vertically, to such an extent that in places it is difficult to differentiate them or to draw precise boundaries between them. The grey Albert beds serve as the best zonal marker.

The Windsor beds (6) rest for the most part with apparent conformity on the underlying Moncton strata, but in places they overlap onto older rocks, and there is local evidence that some erosion preceded their deposition. The strata consist chiefly of grey limestone, which is locally fossiliferous, and minor amounts of overlying gypsum. The limestone shows numerous outcrops and serves as an excellent horizon marker. The manganese showings of the old Markhamville and Glebe mines are in this limestone.

The Windsor beds are succeeded by reddish clastic strata of the Hopewell group (7). The latter comprise conglomerate, sandstone, and shale; locally the conglomerate contains boulders of the underlying Windsor limestone. An interval of erosion, therefore, separated the deposition of these two groups of rocks, but the fact that they are conformable nearly everywhere in this area indicates that it was accompanied here by little or no deformation.

The Hopewell and older rocks are folded and faulted. A major fault crosses the entire area in a northeast direction. Movement along it was irregular. For most of the distance the downthrow is on the southeast side, but at the northeast border of the area the downthrow is on the northwest side.

The youngest strata of the area (8) are flat-lying or nearly flat-lying beds of the Petitcodiac group of Pennsylvanian age. They consist of grey sandstones and pebbly conglomerate, and rest unconformably on Hopewell beds. Outcrops are few, but numerous, scattered loose blocks of the material indicate in a general way the area underlain by these strata.

The map-area contains showings of manganese, gypsum, and albertite. The Markhamville mine was operated from 1868 to 1894 and produced 23,024 tons of manganese ore. During part of this period a considerable amount of development was carried out at the Glebe mine, but only about 40 tons of ore was produced. The deposits are replacements in Windsor limestone and occur chiefly along bedding and joint planes. The amount of gypsum exposed in the area is small. Near Urney some development was carried out on a narrow vein of albertite.

MAP 829A  
**WATERFORD**  
KINGS AND SAINT JOHN COUNTIES  
NEW BRUNSWICK  
Scale, 63,360 or 1 Inch to 1 Mile  
Miles  
Approximate magnetic declination, 22° West.

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