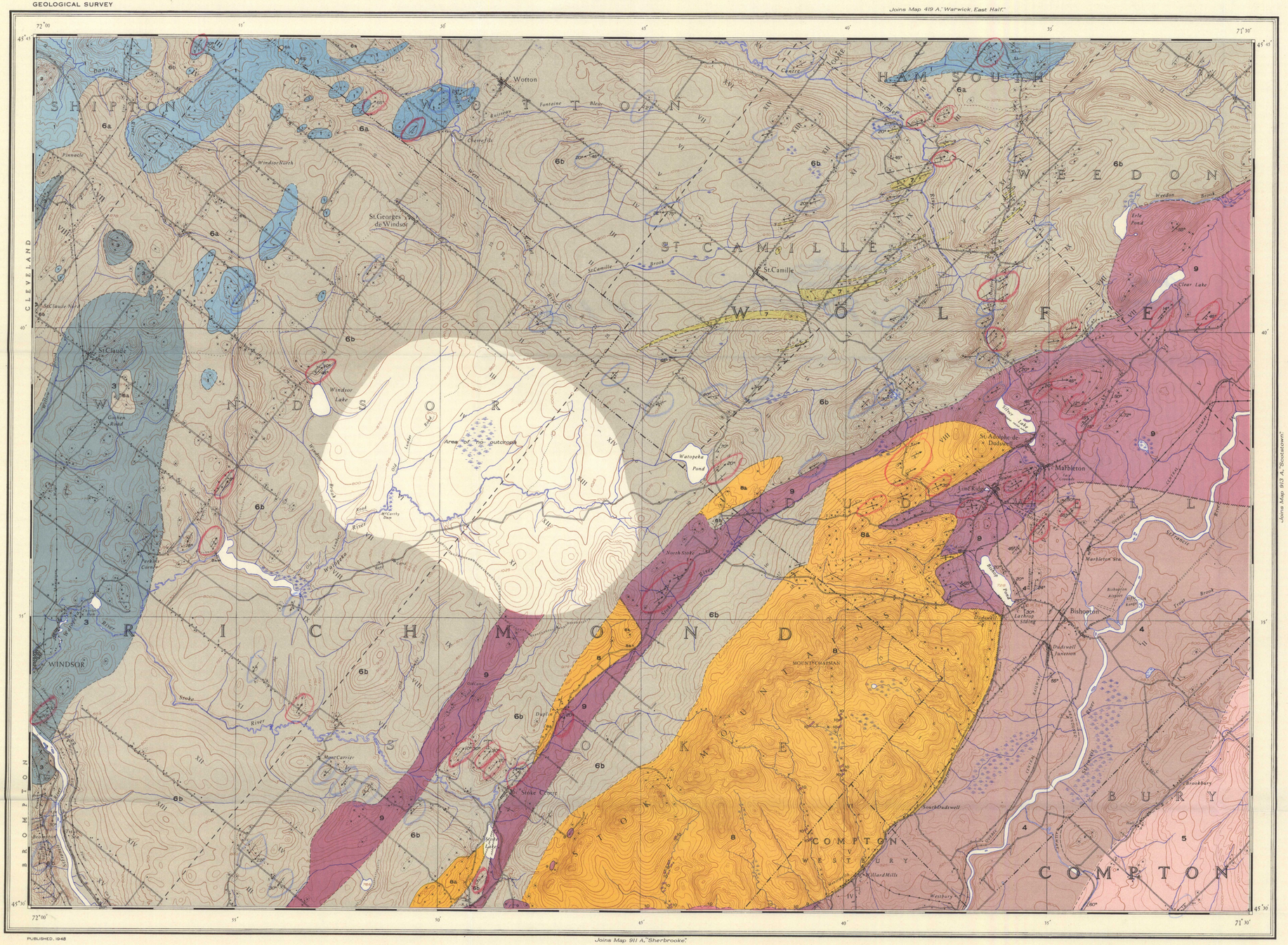
CANADA

DEPARTMENT OF MINES AND RESOURCES

MINES AND GEOLOGY BRANCH

BUREAU OF GEOLOGY AND TOPOGRAPHY

GEOLOGICAL SURVEY



PUBLISHED, 1948

MAP 908 A

DUDSWELL

QUEBEC

Scale, 63360 or 1 Inch to 1 Mile

Miles 0 1 2 3

Approximate magnetic declination, 17°42' West.

LEGEND

PALÆOZOIC

DEVONIAN (?)

10 — *Granite*

DEVONIAN

LOWER DEVONIAN

LAKE AYLMER GROUP

9 — *Conglomerate, slate, limestone*

ORDOVICIAN

BEAUCEVILLE GROUP

8 — *Rhyolites, with minor basic lavas;*
8a. *rhyolite agglomerates and gritty tuffs*

7 — *Massive quartzites; some conglomerate*

6a, 6b — **6a.** *conglomerate with black slate matrix*
6b. *thin-bedded black slates, grey siltstone, greywacke, quartzite; some thick-bedded slates associated with rhyolite tuffs*

ST. FRANCIS GROUP

5 — *Quartzite, slate*

4 — *Limy slates, limy quartzites; some impure dark limestones*

CAMBRIAN (?)

CALDWELL GROUP

3 — *Trachytes*

2 — *Basalt, basalt breccia*

1 — *Massive quartzite; some grey slate*

Rock outcrop, area of outcrop

Bedding (strike and top of bed; arrow, where present, indicates direction of plunge)

Fault

Anticlinal axis

Synclinal axis

Geology by H.C. Cooke, 1944, 1946.
Cartography by the Drafting and Reproducing Division, 1947.

Main highway

Road and buildings

Road not well travelled

Trail

Power line

Church

School

Post Office

Cemetery

Bench-mark

County boundary

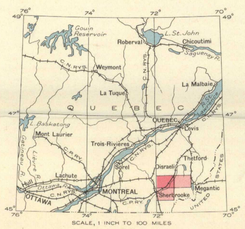
Township boundary

Marsh

Contours (interval 25 feet)

Height in feet above mean sea-level

Base-map surveyed and drawn by the Geographical Section, General Staff, Department of National Defence. 1910, revised 1937.



DESCRIPTIVE NOTES

In Ordovician time the Eastern Townships area of Quebec extended much farther to the southeast than at present. Its relief was low, and the surface close to sea-level. At times gentle downwarping of the surface allowed the sea to invade parts of it; at other times, reverse movements uplifted and drained these basins while creating others. It is probable that the basins were long narrow gulfs with northeast trends. Sedimentation in these troughs gave rise to distinctive groups of strata of no great difference in age.

In fairly late Ordovician time the rocks were closely folded and intensely faulted. Great northeast-trending overthrusts cut the region into fault slices; and the mountain-building forces, pushing from the southeast, drove these segments over one another for distances, probably, of many miles.

A long period of erosion followed, lasting through the remainder of the Ordovician and practically all of Silurian time. The Ordovician mountains were worn down to sea-level, and new troughs formed in which Lower Devonian, and possibly some late Silurian, sediments were deposited. About Middle Devonian time folding was renewed, more movement took place on the old faults, and new faults were formed. The great bends that now characterize some of the old faults may have been formed during the period of Devonian deformation.

The net result of these processes was to telescope the former area of Ordovician sedimentation into the present much narrower area, which now consists of a succession of long, narrow fault slices, each comprising a fairly definite succession of strata that bear little resemblance to those in the adjoining slices.

In Dudswell area only one of the great through-going faults appears, though smaller faults are very numerous. The great fault forms the eastern boundary of the Stoke Mountains, and then must swing west to join the corresponding fault in Scotstown area. The position of the fault as mapped, however, is hypothetical, as outcrops in this section of the map-area are almost lacking, and the correlation of those that do occur is based on resemblances of the beds to others in Sherbrooke area to the south.

Southeast of the fault the few outcrops, across a width of about 4 miles, are of the basal impure limestones and limy slates of the St. Francis group (4). Northwest of Dudswell some of the limy beds are quite siliceous and thin, and have been quarried for flagstones. In the extreme southeastern corner of the area the limy beds are overlain by slate and quartzite of the St. Francis group (5).

The part of the map-area northwest of this fault displays the full width of the adjoining fault slice, as the next through-going fault touches the northwest corner of the area. In this corner are many isolated masses of the Caldwell group, supposedly Cambrian in age. Some of them are massive quartzites with a little grey slate (1); the others are of hard, light grey trachyte (3). Beauceville rocks overlie them unconformably and outcrop between the masses, so that the latter appear to have been hills on the underlying Beauceville surface. Near these contacts, the Beauceville consists of conglomerate (6a) with numerous pebbles of the underlying slates and quartzites, and in most places has been so deformed that the slate pebbles have been mashed into a slaty matrix surrounding the harder fragments of quartzite. Throughout most of the remainder of the Beauceville band, the rocks are a thin-bedded alternation of black slates and greywackes (6b), with a few thick lenses of quartzite or conglomerate (7).

The southeastern side of the Beauceville band is a mass of rhyolite lavas and agglomerates (8) about 5 miles wide. It constitutes the Stoke Mountains, the highest point of which, Mount Chapman, is 2,212 feet above sea-level. These rocks were formerly considered to be Precambrian, but studies on the southwestern end of the mountains, in Sherbrooke area, have proved that they are interbedded conformably with Beauceville strata.

Unconformably overlying the Beauceville, a group of Lower Devonian beds (9) extends as a long band from Scotstown area on the west into Sherbrooke area on the south. The lower beds are coarse conglomerates with some slate; but the bulk of the series consists of limestones and limy slates. Some of the limestones are very pure, and are quarried at the village of Lime Ridge to make quicklime and other products.

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