CANADA

DEPARTMENT OF MINES AND RESOURCES

MINES AND GEOLOGY BRANCH

BUREAU OF GEOLOGY AND TOPOGRAPHY

GEOLOGICAL SURVEY

LEGEND

PALAEOZOIC

DEVONIAN

LOWER OR MIDDLE DEVONIAN (?)

Granite

LOWER DEVONIAN

LAKE AYLMER GROUP

Rhyolite

Calcareous shale, impure limestone, limestone

Conglomerate

ORDOVICIAN OR DEVONIAN

Rhyolite, trachyte, dacite, minor andesite; related tuffs and breccias

ORDOVICIAN

ST. FRANCIS GROUP

Quartzite, greywacke, slate, impure limestone. In places highly metamorphosed (M)

Basic lavas, related tuffs and breccias

BEAUCEVILLE GROUP

Slate, impure quartzites, conglomerate

Bedding (strike and top of bed; arrow indicates direction of plunge) .....

Fault .....

Anticline .....

Syncline .....

Geology by H. C. Cooke, 1943.

DESCRIPTIVE NOTES

Lower or Middle Devonian (?). The only rock thus classified is a light grey mica-hornblende granite, which forms three large and two small batholithic masses. Its age is assumed to be Devonian, mainly because elsewhere in eastern Quebec and New Brunswick acid intrusions of this age are present. Actually all that is known of the masses in this area is that they intrude the St Francis group, of Ordovician age, and in places metamorphose it highly to such minerals as andalusite, staurolite, and sillimanite.

Lower Devonian. The base of the Lake Aylmer group is a conglomerate made up largely of pebbles and boulders of rhyolite. The pebbles are identical with the rhyolites of the flows interbedded with the upper beds of the group. The conglomerate varies greatly in thickness from place to place along the strike; and this fact, together with its lithologic character, suggests that volcanoes were active at the beginning of the period and supplied large quantities of loose debris locally.

The remainder of the group consists of beds of calcareous shale, with a few beds of purer limestone. West of Fontainebleau village two bands of rhyolite outcrop in the Devonian strata, but the structure indicates that these are parts of one folded flow.

On the northwest the Lake Aylmer beds lie with erosional unconformity upon the Beauceville group. On the southeast they are faulted into contact with the lavas of the Ordovician St. Francis group along the great Weedon thrust.

Ordovician or Devonian. The rocks thus classified are a succession of acidic breccias and tuffs, with some lavas, found between the Weedon mine on the northwest and Red River on the southeast. The mass is bounded by faults on three sides, and on the fourth is in contact with and, presumably, intruded by the granite south of Lake Elgin. The contacts were nowhere found exposed.

The age relations of these rocks are not known. On the one hand, the rhyolite is indistinguishable petrographically from the rhyolites found in the Devonian; on the other, the rhyolites near the Weedon mine are interbanded with basic lavas like those found in the St. Francis group. It is known, however, that similar rhyolites occur in the adjacent Dudswell map-area, so that the problem may be cleared up when that area is studied in detail.

Ordovician. The St. Francis group is found only southeast of the Devonian formations. At its base is a band of basic lavas, bounded on the northwest by the Weedon thrust. These lavas face towards the southeast. They are overlain by the sedimentary rocks of the group, which near the lavas contain a large proportion of impure limestone beds. These gradually become smaller in proportion, and are succeeded by slates and quartzites. The slates in turn decrease in proportion to the amount of quartzite present. Some of the quartzite beds attain a thickness of 30 feet. Above these, again, appears a succession of blackish slates and siliceous silts, in thick beds.

The Beauceville group outcrops only in the extreme northwest corner of the map-area. At the base it consists of black slates in beds about an inch thick, interbanded with grey silts. Stratigraphically upward, the silts gradually become more siliceous and the beds somewhat thicker, until, at the contact with the Lake Aylmer group, black slates alternate with quartzite and greywacke in beds up to 3 inches thick, and the latter constitute about 45 per cent of the whole. One bed of conglomerate was observed, but its contacts were hidden by drift.

Economic Geology. Considerable mineralization, chiefly by iron carbonate, occurs in and close to the Weedon thrust, and the old Weedon copper mine is close to this fault, in highly sheared rocks. The fault is, of course, everywhere concealed by drift, but geophysical prospecting in its vicinity may result in the discovery of deposits now hidden. Within the map-area the Weedon thrust divides in a complex manner. Though the main fault lies at the contact of the Devonian rocks and the St. Francis lavas, one branch follows the southeast side of the lava band. This branch dips southeast at a low angle. About a mile west of Salmon River it splits: one part swings southeast for about 1¼ miles and then turns sharply northeast to follow the valley of Red River; another part follows Salmon River Valley a couple of miles and then runs northward to join the main fault.

County Boundary .....

Township Boundary .....

Road, well travelled .....

Road, not well travelled .....

Marsh .....

PRELIMINARY MAP 43-11

SCOTSTOWN

WOLFE, COMPTON AND FRONTENAC COUNTIES

QUEBEC

Scale:- 1 inch to 1 mile

1 0 1 2 3 4

Compiled by the Topographical Survey, 1943.