CANADA

DEPARTMENT OF MINES

AND

TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

PAPER 49-25

PRELIMINARY MAP

SOUTHEAST DASSERAT TEMISCAMINGUE COUNTY QUEBEC

By

C. H. Stockwell

OTTAWA

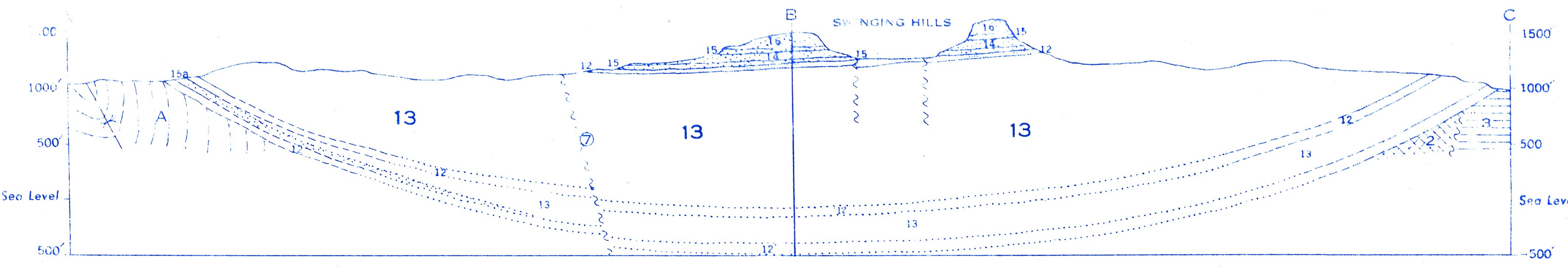
1949

CANADA

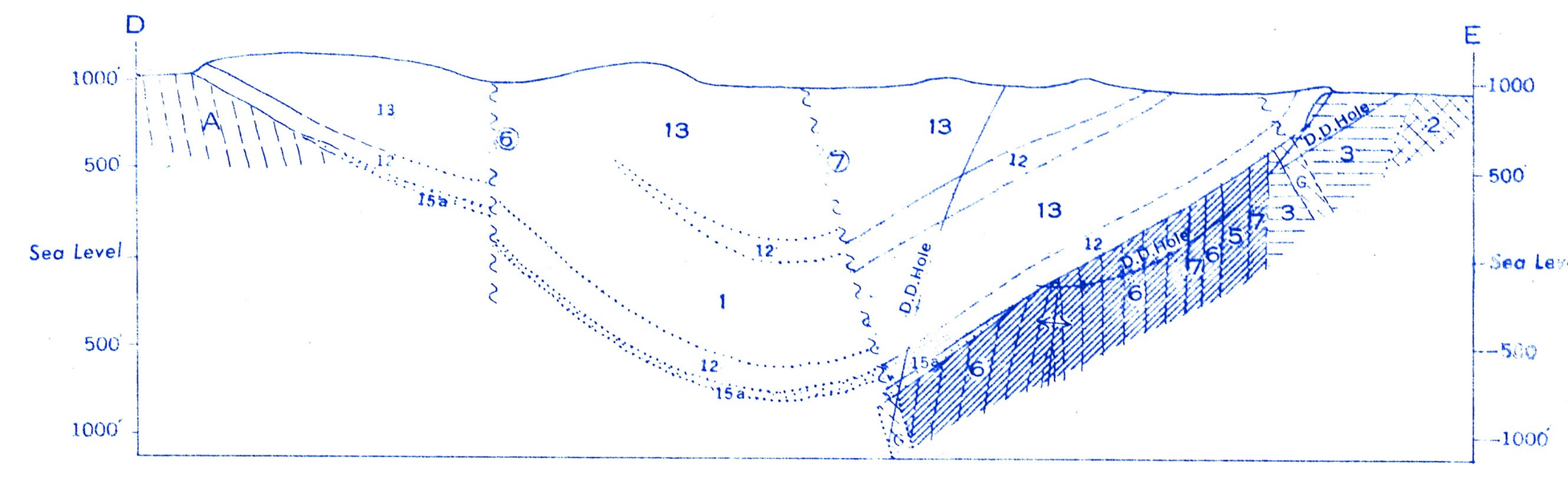
DEPARTMENT OF MINES AND RESOURCES

MINES, FORESTS AND SCIENTIFIC SERVICES BRANCH

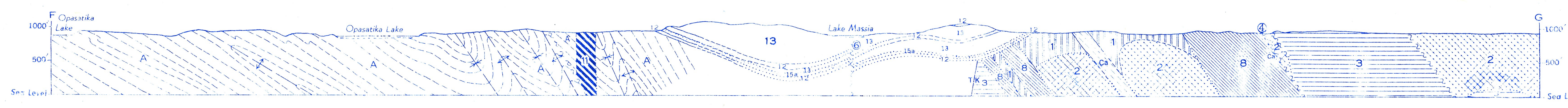
GEOLOGICAL SURVEY OF CANADA



STRUCTURE-SECTION ALONG LINE A-B-C



STRUCTURE-SECTION ALONG LINE D-E



STRUCTURE-SECTION ALONG LINE F-G

LEGEND

PROTEROZOIC

COBALT

- 16 — Arkose
- 15 — Argillite; 15a, with interbeds of arkose
- 14 — Grit
- 13 — Greywacke, pebbly greywacke; minor argillite and arkose
- 12 — Conglomerate

PRE-COBALT ?

- 11 — Quartz-diabase, diabase, gabbro

ARCHÆAN

POST-TIMISKAMING

- 10 — Syenite, quartz syenite, albite granite, porphyritic equivalents; 10a, syenite breccia (may include some agglomerate)
- 9 — Mafic-syenite
- 8 — Meta diorite, meta-quartz diorite (may be in part pre-Timiskaming); 8a, may include some andesite

TIMISKAMING

- 7 — Tuff, agglomerate
- 6 — Greywacke, slate
- 5 — Conglomerate

KEEWATIN

- 4 — Agglomerate, tuff
- 3 — Trachyte, rhyolite, acidic flow breccia; 3a, agglomerate, tuff
- 2 — Andesite, andesite flow breccia
- 1 — Porphyritic andesite, porphyritic andesite flow breccia

---

- D — Da, granite; Db, granite porphyry
- C — Mafic syenite

PONTIAC GROUP OR YOUNGER

- B — Talc-chlorite schist, amphibolite

PONTIAC GROUP

- A — Sedimentary mica schist, impure quartzite

Note: Each of the several subdivisions of the Cobalt, Timiskaming, and Keewatin may occur at more than one stratigraphic horizon

- Ca, G — Ca, broad zone of sheared and carbonatized rocks; (Ca_3, derived from rhyolite; Ca_8, derived from meta-diorite; Ca_{10}, derived from syenite); G, graphitic schist

Rock outcrop, area of outcrops

Geological boundary inferred from magnetometer survey

Geological boundary between Keewatin and Timiskaming (inferred position beneath the Cobalt)

Bedding (horizontal, inclined, vertical, overturned, dip unknown)

Bedding (direction of dip known, upper side of beds unknown)

Bedding (upper side of bed faces as indicated, direction of dip unknown)

Schistosity (inclined, vertical, dip unknown)

Lineation (angle of plunge as indicated) 40

Drag-fold (dip of limb as indicated)

Fault or shear zone

Anticlinal axis (approximate)

Synclinal axis (approximate)

Glacial striae

Prospect pit

Gravel pit G P

Shaft

Adit

Diamond drill-hole (vertical, inclined showing horizontal projection)

Abandoned beach

INDEX TO SHEAR ZONES AND FAULTS

1. Renault Bay shear and alteration zone
2. Snake River shear zone
3. Radisson shear zone
4. Arncoeur shear zone
5. Lake Fortune shear zone
6. Probable Horne Creek fault zone
7. Possible Larder Lake-Cadillac fault zone

Note: Geological contacts found in diamond drill holes are projected up the dip of the formation to the surface, except that those beneath the Cobalt Series are projected to the base of the Cobalt.

Geology and contours by C. H. Stockwell 1947-48.

Building

Contour 1000

Road

Trail

Railway

Transmission line

Bench mark (elevation indicated) 936

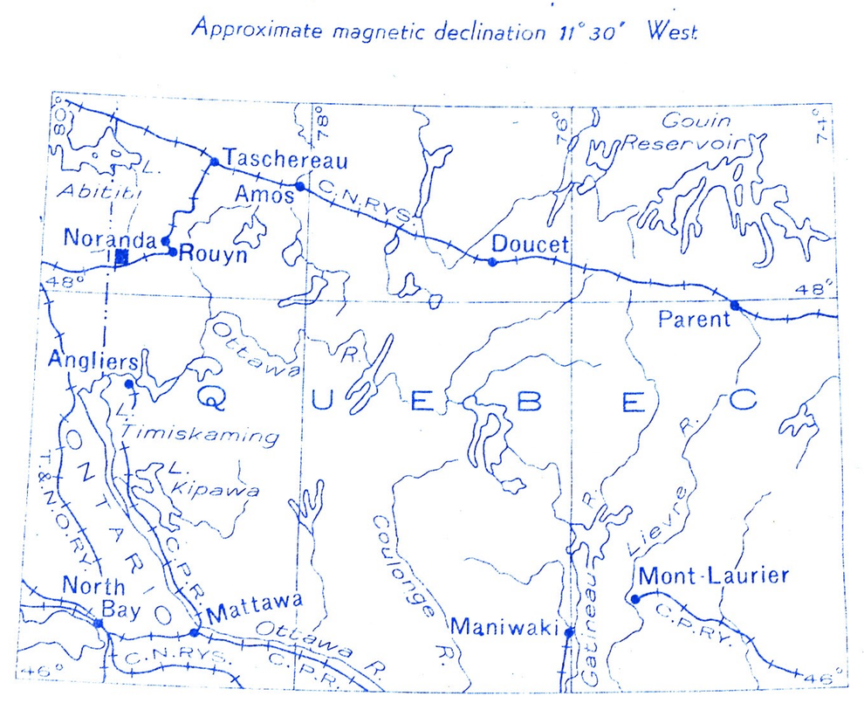
Triangulation Station (elevation indicated) 1639

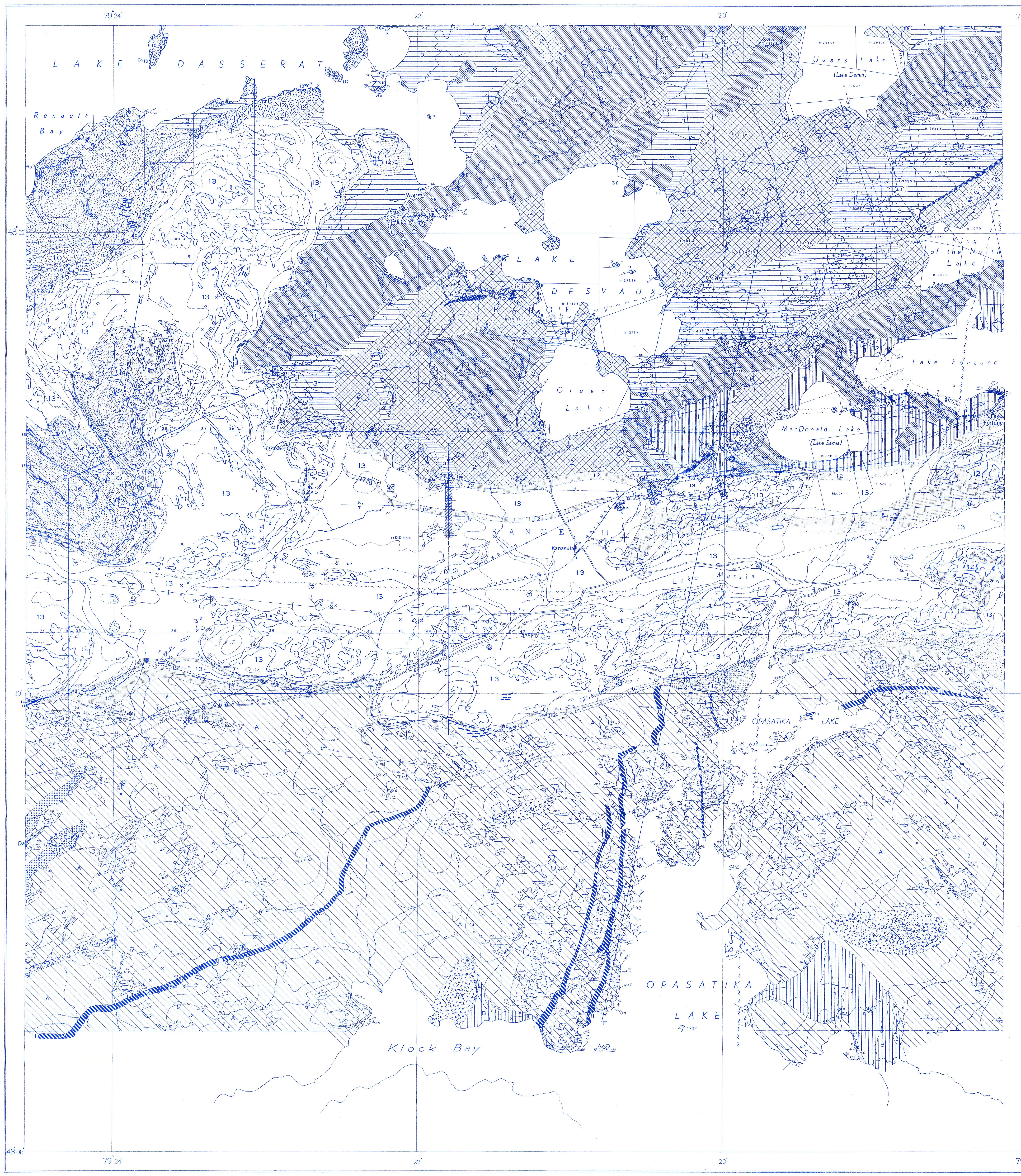
Reef or small island

Base map by Topographical Survey

Cartography by the Geological Mapping Division 1949

Approximate magnetic declination 11° 30′ West





DESCRIPTIVE NOTES

The Keewatin lavas (1-4) generally have been bent into broad, open folds with ill-defined, easterly trending axes and a westerly pitch. The south limb of the McDonald Lake anticline, however, appears to be overturned.

Rocks of the Timiskaming series (5-7) are nowhere exposed at the surface but have been found at a few places by means of diamond drilling beneath the Cobalt series. The information available, although meagre, is sufficient to indicate that they have been deposited with marked angular unconformity upon the Keewatin rocks.

In the south part of the map sheet a large area of metamorphosed sedimentary rocks (A) is correlated with the Pontiac group, which, in Rouyn township, has been found to underlie the Timiskaming. The relationship to the Keewatin is unknown. In contrast with the generally broad folds of the Keewatin, the Pontiac sedimentary rocks are complexly folded. Plunges vary widely in direction from place to place, and overturning is prevalent with axial planes dipping north. As a general rule, fold axes trend easterly about parallel with the regional schistosity. At some localities, however, especially in the region east of Opasatika Lake the axes trend northerly. These cross folds appear to have formed at a later date, for the regional schistosity is bent in conformity with them.

A very great unconformity separates all of these rocks from those of the Cobalt series (12-16). The Cobalt rocks mostly have gentle dips or lie horizontally, although in places they stand almost vertically. To explain the great depths to which these sedimentary rocks extend, it has been suggested that the series was deposited in a deep valley in the older formations. However, the inward dipping attitude of its several members, particularly of its argillaceous horizons, indicates that the rocks, more probably, were synclinally folded.

The diabasic and gabbroic dykes (11) that cut the Pontiac group strike towards the Cobalt formations but were not found cutting them. This is considered to favour, but not to prove, their earlier age. These dykes were mapped, in considerable part, by magnetometer surveys, by which means they were traced with confidence beneath drift covered areas.

The area lies between the Rouyn-Val d'Or gold belt on the east and the Kirkland Lake-Larder Lake gold belt on the west. A major structural feature of the former area is the westerly trending Cadillac-Bouzan Lake fault zone and of the latter, the Larder Lake fault zone of like trend. Both pass beneath the Cobalt series which obscures their relationship for an intervening distance of some 15 miles. However, they lie on strike with one another and it has been suggested that they may join beneath the Cobalt rocks to form a single major zone of shearing, the Larder Lake-Cadillac fault zone. Some support for this hypothesis is found in the present map-area, particularly in the area west of Kanasuta where a deep drill hole, after passing through 1,700 feet of the covering Cobalt rocks, penetrated a wide zone of graphitic and talcose schists, not unlike the strongly sheared rock of certain parts of the major shear zone. Moreover, the zone of strong shearing encountered in the drill hole coincides, assuming a northerly dip, with a westerly trending fault of small displacement within the Cobalt rocks themselves. It therefore appears that, although the main displacement was pre-Cobalt in age some movement occurred along the same zone in post-Cobalt time. The location of the presumed Larder Lake-Cadillac fault (7) on the map is tentative as other possibilities readily suggest themselves.

The probable extension of the Horne Creek fault (6) is mapped with a somewhat greater degree of assurance for minor post-Cobalt movement is known to have occurred along it, and, moreover, it has been reasonably well traced through Beauchastel township up to the east boundary of the present map-area. This fault is shown, tentatively, as displacing the Larder Lake-Cadillac fault. The amount of displacement, if such really exists, may be quite large for, in Beauchastel township, the Horne Creek fault offsets the Arntfield-Lake Wasa shear zone a horizontal distance of some 8,500 feet.

Prospecting for the extensions of the Larder Lake or Cadillac shear zones beneath the Cobalt series is difficult because of the generally great thickness of these overlying rocks. However, the area to the north of the Cobalt rocks is also favourable prospecting ground, for many mines in the townships both east and west occur in faults or other structures not far north of the main shear zones. Some of these faults appear to be branches leading off from the main shear, others are parallel with it.

In the present map-area, several faults or shear zones north of the main 'break' are in this category. They generally carry small amounts of gold throughout and significant amounts in spots, but no body of sufficient size and grade to be mined economically has been found as yet. One shear of this type is the Lake Fortune shear zone (5) which has been extensively tested by diamond drilling and surface work. The Radisson shear zone (3) is the western extension of the Arntfield-Francoeur shear zone of Beauchastel township. The Arncoeur shear (4) is a possible further extension of the same zone. It has been rather thoroughly tested by drilling. The zone has not been traced beyond this point but there is some geological evidence which suggests that it may continue along the south shore of Green Lake and beyond to the Cobalt contact where a similar shear zone was cut in a drill hole.

Another probable fault is shown on the map along the north boundary to the Arncoeur band of acidic lava flows. Evidence for this fault is found in the apparent truncation of the andesitic flows on the north side and in an exposure of sheared and pyritized rock 1,000 feet east of Lake Desvaux. The westward extension of this shear as shown on the map beyond Lake Desvaux is problematical, as is also the interpretation of the geology in its vicinity.

The Snake River shear zone (2) is exposed for only a short distance along its strike but may continue much farther east toward the carbonatized zone exposed 1,500 feet southeast of Uwass Lake. The Renault Bay sheared and altered zone (1) is a very broad zone of generally schistose rhyolitic rock and syenite which has been extensively altered to carbonate and cut by a few veins of quartz. It has been prospected by surface work and a few drill holes.

PRELIMINARY MAP 49-25

SOUTHEAST DASSERAT

QUEBEC

Scale 1 Inch to 1,000 Feet

1,000 0 1,000 2,000 3,000 4,000