BEDROCK GEOLOGY OF THE MACHIAS, COLUMBIA FALLS, AND GREAT WASS ISLAND QUADRANGLES, MAINE

BY

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1981

OPEN FILE NO. 81-11

Geology of the Machias quadrangle by Olcott Gates.
Geology of the Columbia Falls and Great Wass Island quadrangles by Olcott Gates and Richard A. Gilman with additions from maps by M.E. Bickford and J.G. Ward.

SCALE 1: 62,500

1 ½ 0 1 2 3 4 MILES

3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

1 .5 0 1 2 3 4 5 KILOMETERS

QUADRANGLE INDEX

EXPLANATION

PLUTONIC IGNEOUS ROCKS

DEVONIAN

- Dbgr — Pink two-feldspar biotite granite. Locally has mantled k-feldspar.
- Dhgr — Hornblende-bearing biotite granodiorite and quartz monzonite. Locally has granophyric texture.
- Dsy — Perthite, aegerine-augite, quartz syenite.
- qp — Pink quartz porphyry dikes.
- Dg — Gabbro and ferrogabbro. Locally layered. Cut by veins and dikes of diorite.
- Dcbx — Contact breccia along margins of large gabbro plutons. Blocks of schist, Silurian volcanic and sedimentary rocks, gabbro and diabase. Cut by gabbro and granite veins and dikes.

VOLCANIC, HYPABYSSAL, AND SEDIMENTARY ROCKS

SIL-DEV.

- d — Diabase and gabbro dikes, sills, and irregular small plutons. Silurian and Devonian. Emplaced during volcanism and also during and after Devonian plutonism.

L. DEVONIAN

De — EASTPORT FORMATION

- Devi — Rhyolitic flow banded devitrified vitrophyre and autobreccia. Intruded along a fault bordering the Machias Syncline and into the Pembroke and Eastport Formations within the syncline.
- Deb — Basalt and basaltic andesite flows and shallow intrusions into soft muds and tuffs.
- Debt — Basaltic tuff-breccia and coarse bedded tuffs.
- Det — Rhyolitic tuff-breccia and coarse bedded tuffs.
- Des — Shale, siltstone, and fine-grained bedded tuffs. Gray and maroon. Ostracodes, pelecypods, and linguloids.

Sh — KERSEY FORMATION

- Sh — Maroon, green, and gray shale and siltstone. Local limestone lenses and tuffs. Ostracodes, pelecypods, and gastropods.

Sl — LEIGHTON FORMATION

- Slb — Basalt flows.
- Slt — Basaltic and rhyolitic tuff-breccia and coarse-bedded tuffs.
- Sls — Gray shale, siltstone, and fine-grained bedded tuffs.

Se — EDMUNDS FORMATION

- Seb — Basalt flows.
- Set — Mixed basaltic and rhyolitic tuff-breccias and coarse bedded tuffs. Gray, green, and maroon. Locally contain beds of maroon siltstone and fine-grained tuff.
- Sev — Pink porphyritic intrusive vitrophyre.
- Ses — Gray shale, siltstone, and fine-grained bedded tuffs. Brachiopods, trilobites, and orthoceroids.

SILURIAN

Sd — DENNYS FORMATION

- Sdb — Basalt flows.
- Sdt — Basaltic and rhyolitic tuff-breccias and coarse-bedded tuffs. Local beds of siliceous shale.
- Sdv — Flow banded keratophyric and rhyolitic devitrified vitrophyre and autobreccia.
- Sds — Gray to dark gray shale, siltstone, and fine-grained tuffs.
- Sdu — Undifferentiated in areas of no outcrop.

Sq — QUODDY FORMATION

- Sqt — Keratophyric and rhyolitic tuff-breccias and coarse-bedded tuffs.
- Sqs — Dark gray to black siliceous argillite, shale, and siltstone.
- Sqv — Keratophyric to rhyolitic devitrified vitrophyre.

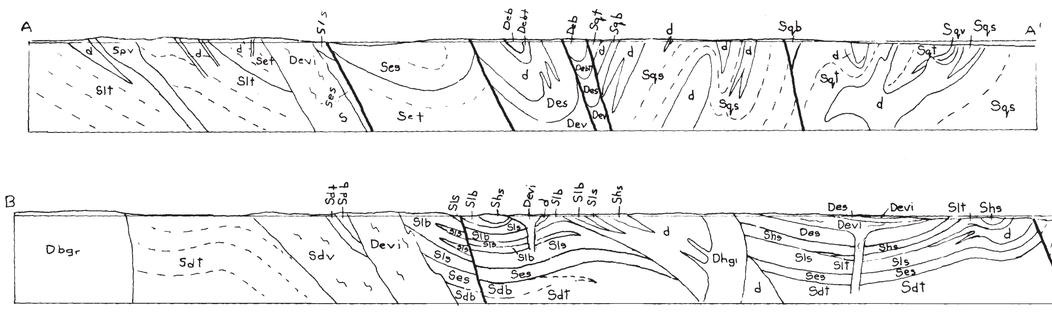
Su — UNDIFFERENTIATED SILURIAN

- Su — Silurian undifferentiated in areas of no outcrop.
- Sub — Outcrops of basalt.
- Suc — Outcrops of round pebble conglomerate.

---------- FAULT CONTACT ----------

CAMBRO-ORD.

eOcf — Columbia Falls Schist. Feldspathic chlorite schist with local amphibolite layers. Hornfelsed over wide areas to biotite-cordierite, and hypersthene-bearing schists. Metamorphically foliated and multiply deformed.

SYMBOLS

- Contact located
- Contact approximate
- Contact inferred
- F Fault located
- F Fault approximate
- Fault inferred
- 10 Strike and dip of bedding, of flow banding in vitrophyre, of contacts between basalt flows, and of layering in gabbro.
- 10 Strike and dip of metamorphic foliation in Columbia Falls Schist and of strong fracture cleavage in younger rocks.
- f Fossil locality