BEDROCK GEOLOGY OF THE SANDY BAY, PENOBSCOT LAKE, and SEBOOMOOK LAKE QUADRANGLES MAINE

by
Robert G. Marvinney

Maine Geological Survey
DEPARTMENT OF CONSERVATION
Walter A. Anderson, State Geologist

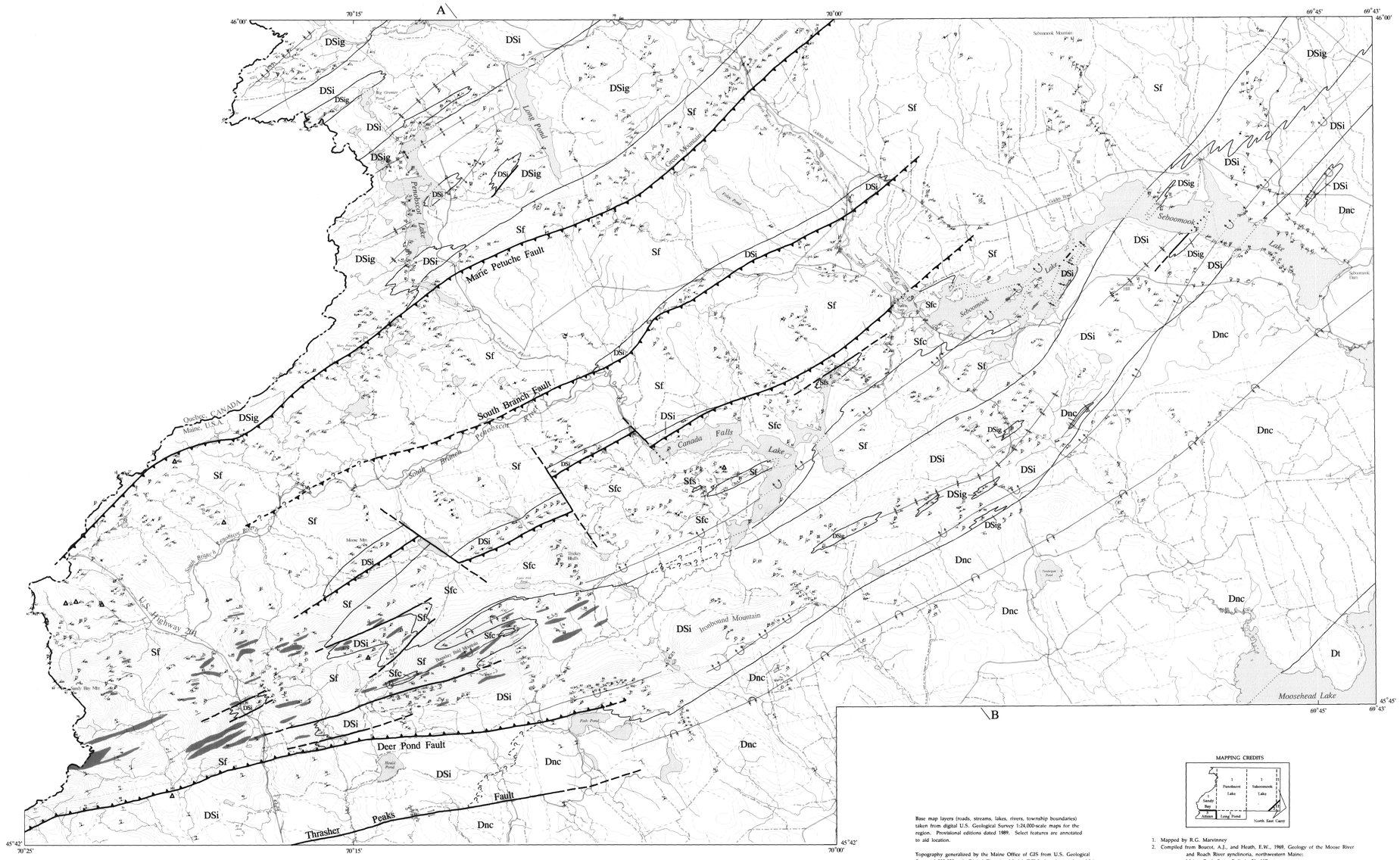
OPEN-FILE NO. 94-3

1994

Quadrangle Location

SCALE 1:62,500

4 MILES
21000 FEET
5 KILOMETERS



Base map layers (roads, streams, lakes, rivers, township boundaries) taken from digital U.S. Geological Survey 1:24,000-scale maps for the region. Provisional editions dated 1989. Select features are annotated to aid location.

Topography generalized by the Maine Office of GIS from U.S. Geological Survey 1:250,000-scale Digital Elevation Model (DEM) data for northern Maine.

MAPPING CREDITS

1. Mapped by R.G. Marvinney
2. Compiled from Boucot, A.J., and Heath, E.W., 1969, Geology of the Moose River and Roach River synclinoria, northwestern Maine: Maine Geol. Surv. Bulletin 21, 117p.
3. Compiled and modified from Albee, A.L. and Boudette, E.L., 1972, Geology of the Attean quadrangle, Somerset County, Maine: U.S. Geol. Surv. Bulletin 1297, 110p.

EXPLANATION

DEVONIAN

Dt — Dt- Tarratine Formation. Blue-gray, massive arenite. Medium-thick bedded, common sedimentary structures. Abundant fossils.

Dnc — Dnc- Northeast Carry Formation. Well-graded, fine-grained arenite and gray slate arranged in laterally continous beds of 2 cm to 2 m in thickness. Buff-colored arenite predominates in any single bed and grades upward to dark gray or greenish gray siltstone/mudstone slate. Sharp bed bases. Abundant bedding-parallel, cross-bedded, and convolute laminae. Local carbonate lenses. Typically displays well-developed clevage which refracts through arenite to slate in each bed.

DSi / DSig — DSi- Ironbound Mountain Formation. Thinly bedded, medium- to dark-gray mudstone and siltstone slate. Some sections dark olive-green-gray. Bedding ranges from 1 to 30 cm and is uniform over great thicknesses. Frequently well graded beds with sharp bases. Some sections are massive; rare sections are chaotic. All are exceptionally well cleaved. Rare matrix supported conglomerate.

DSig- Grenier Ponds lithology of the Ironbound Mountain. Lenses of lithic wacke in interfingering contact with the main part of the Formation. Light-gray, weathering, medium-gray fresh. Poorly sorted and generally non-graded beds range from 20 cm to 2 m in thickness. Thicker beds may be amalgamated. Rare bedding-parallel and cross laminae. Bed bases are sharp as are often their tops. Some beds contain large (to 10 cm) dark gray slate rip-rap clasts. Composed of 25 percent quartz, a few percent feldspar, 30-35 percent rock fragments (slate and volcanic rocks), the remainder being matrix and accessory minerals. Feldspar and rock fragments impart a distinctive salt-and-pepper texture to wacke beds.

SILURIAN

Sf / Sfc / Sfs — Sf- Frontenac Formation. Lower portion consists of thickly bedded, light bluish-gray to greenish-gray, fine- to medium-bedded, quartzofeldspathic wacke of variable carbonate content. Wacke beds interbedded with thinly bedded dark gray to greenish-gray mudstone slate. Bedding ranges from 20 cm to 2 m and is variable and laterally discontinuous. Bedding-parallel laminae in ~30 percent of beds. Other sedimentary structure rare. Non- to crudely graded beds. Well cleaved. Upper portion of formation in identical but is generally non-calcareous.

Sfc- Volcanic rocks of the Frontenac Formation at Canada Falls Lake. Lenses of pillow basalt and related pyroclastic rocks. Dark green pillows are well-developed and range in size from 10 cm to 2 m. Propylitized rims and interstitial material, which weather yellowish-green and maroon, give way to medium-grained pillow cores. Small knots of quartz and others of epidote are common. Some pillows are vesicular and contain spherrulites of calcite. Some sections are well cleaved; others are not. Primary mineralogy completely altered. High-Ti basalt.

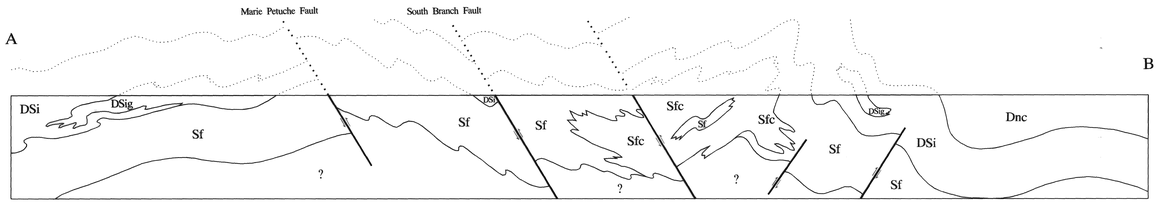
Sfs- Slate interbedded with volcanic rocks of Frontenac Formation. Green to grayish-green mudstone slate. Well cleaved. Known from a few small lenses.

Seboomook Group

Felsic dike.

Mafic sills. Coarse grained, highly altered.

CROSS SECTION



Line features are solid where approximate, dashed where inferred, dotted where concealed, and queried where uncertain.

- Stratigraphic contact
- High-angle fault
- Reverse fault
- Anticline
- Syncline
- Overturned anticline
- Overturned syncline

- Bedding - inclined, vertical
- Bedding with known topping direction - inclined, vertical
- Overturned bedding, horizontal bedding
- Acadian cleavage - inclined, vertical
- Late cleavage - inclined, vertical
- Joint - inclined, vertical
- Shear fabric - inclined, vertical
- Minor fold with vergence indicated
- Lineation

Symbols representing inclined planar fabrics are annotated with dip angles.