

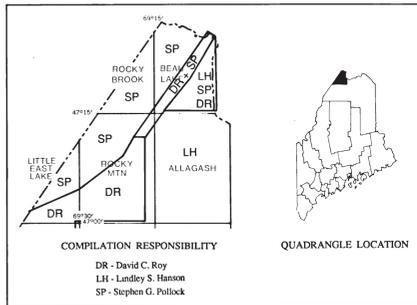
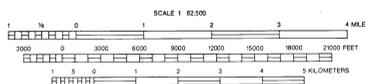
Plate 1  
**Bedrock Geology of the Upper St. John River Area,  
 Northwestern Maine**

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**ROCK UNITS**  
 EARLY DEVONIAN

**SEBOOMOOK GROUP**

**Saint John River Formation**  
 Dsjp: Medium to dark gray, thin to thick-bedded, variably interbedded mudstone/siltstone and quartz-rich sandstone. Medium (15-45 cm) to thick-bedded (2-45 cm) wacke is commonly interbedded. Bedding within the slate is commonly disrupted; wackes are commonly massive and contain relict detrital muscovite.  
 Dsjb: Sandstone-rich sequence. Medium to thick-bedded feldspathic sandstone and mud-rich wacke, with subordinate (40%) medium-bedded gray slate. Sandstone and slate are locally calcareous. Generally massive, but beds may be poorly graded from very fine- to fine-grained sandstone. Represents base of formation with lenses at higher stratigraphic levels.  
 Dsjc: Pelite-rich sequence. Thick sequences of mudstone/siltstone slate containing locally thick (50m) lenses of very fine- to fine-grained wacke. Slates are either massive or contain laminae and thin beds of locally calcareous siltstone or sandstone. Bedding in slate is ubiquitously chaotically folded due to syndepositional gravity flow.

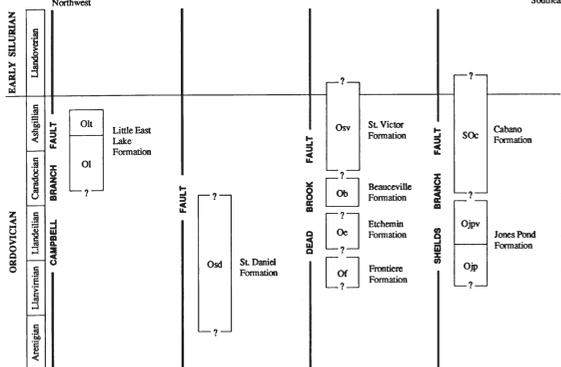
**Hafey Pond Formation**  
 Dhpm: Calcareous and non-calcareous, thin-bedded slate interbedded with very fine- to fine-grained quartz-rich sandstone and orthoconglomerate. Generally massive. Diagnostic units are medium to medium-dark gray slate and siltstone thinly interbedded with fine- to coarse-grained quartzose-feldspathic, limonitic arenite which is locally calcareous.  
 Dhpm: Hafey Mountain Member: Thin to thick-bedded (several cm to several m), light-brownish gray quartzite interbedded with slate and quartz-rich sandstone. The thickness of this massive member varies laterally.

**LATE SILURIAN**

**Rocky Mountain Quartz Latite**  
 Sr: Light-reddish brown weathering quartz latite, minor rhyolite and basalt. Primarily fragmental with local crystal tufts, eudaxitic and spherulitic textures, and laminations.  
 Sbr: Light-greenish brown, aphanitic quartz latite. Hypabyssal intrusion (?).

**Fivemile Brook Formation**  
 Sfb: Light-green calcareous slate and interbedded alkali basalt.  
 Sfbt: Light-greenish gray, thin-bedded, calcareous slate interbedded with lenses of dark gray, coarse-grained, crinoidal-coraline biomicrite and foliated argillaceous limestone.  
 Sfbv: Light green, fine-grained to aphanitic alkali basalt. Lenses felsic tuff. Flows and dikes are from 2 to 31 m thick and some flows have 2-4 m-thick red oxidation zones at top. Local pillow structure.

**ORDOVICIAN AND SILURIAN**



**Little East Lake Formation**  
 Olt: Primarily sandstone and slate. Sandstone colors range from olive gray to greenish olive to grayish red. Textures range from very fine-grained sandstone through medium- to coarse-grained sandstone. Sand-supported cobble conglomerate or granule conglomerate are locally observed. The sandstones range in composition from quartz arenite to feldspathic arenite and wacke to arkosic arenite and wacke. Slates are typically greenish gray to black or grayish red in color. They exhibit a single cleavage and are characteristically claystone slates although textural variations to silty claystone and clayey siltstone occur locally. Olt: T8 R13 member; quartzite, quartzite-pebble conglomerate, fossiliferous rusty-weathering calcareous quartz-rich fine- to medium-grained sandstone.

**St. Daniel Formation (mélange)**  
 Osd: Olistostrome that consists of a black to dark gray, phacoidally cleaved slate. Inclusions are commonly ripple-laminated quartz-rich sandstone, and less commonly calcareous sandstone, conglomeration, oolite, and micrite.

**St. Victor Formation**  
 Ov: Gray slate, lithic wacke with metasedimentary clasts, much less pebbly conglomerate, minor volcanoclastic sandstone.

**Bonaventure Formation**  
 Ob: Dark gray and black sulfidic slate, gray/black chert, volcanoclastic sandstone, water-laid felsic tuff.

**Etchemin Formation**  
 Oc: Green and green-gray siliceous and feldspathic slate; less felsic tuff.

**Frontiere Formation**  
 Of: Thin to medium-bedded, gray and green-gray, volcanoclastic wacke; gray slate.

**Jones Pond Formation**  
 Ojpv: Dark to medium-greenish gray feldspathic wacke and arenite. Beds range in thickness from 30 cm to 2 m and exhibit sedimentary structures which suggest deposition from turbidity currents. Locally, the unit contains olistostrome similar or identical to the St. Daniel Formation. Minor olive-gray to grayish black claystone slate.

**Ojpv: Green siliceous and feldspathic slate, water-laid tuff, volcanoclastic sandstone.**

**CAMBRIAN**

**ROSAIRE GROUP**  
 Cr: Principally a dark gray slate or phyllite together with (1) white-weathering, fine- to medium-grained quartz arenite in massive beds (30 cm to 1 m thick); (2) thin laminae and beds of siltstone and very fine-grained sandstone (some with ripple cross stratification); (3) laminae or thin beds of micrite commonly showing prismatic calcite crystals perpendicular to beds. Rocks are multiply deformed and outcrops show variations from well bedded sequences to broken formation or olistostrome or tectonic mélange. Locally contains cataclastic breccia zones and proomylonite or mylonite.

**SYMBOLS**

- Bedrock outcrop: no structural data
- 1/2 / Bedding attitude: inclined and vertical beds; dot indicates toppling direction if known
- / Bedding strike
- ∞ Overturned bedding
- 1/2 \* Slaty cleavage attitude: inclined and vertical
- 1/2 \* Attitudes of both bedding and cleavage with same strike: both inclined and both vertical.
- 1/2 Trend of lineation on cleavage surface
- 1/2 Trend of minor right folds
- 1/2 Trend and plunge of small synform
- 1/2 Trend and plunge of small synform
- 1/2 Axis of anticline
- 1/2 Axis of overturned anticline
- 1/2 Axis of syncline
- 1/2 Axis of overturned syncline
- - - - - Inferred stratigraphic contact
- - - - - Inferred fault
- - - - - Inferred thrust fault; teeth on upper plate
- ..... Southeastern limit of this study. Outcrop data southeast of this line are taken from Boudette, E. L., Hatch, N. L., and Harwood, D. S., 1976, USGS Bulletin 1406, and from unpublished data by the same authors, 1967.

