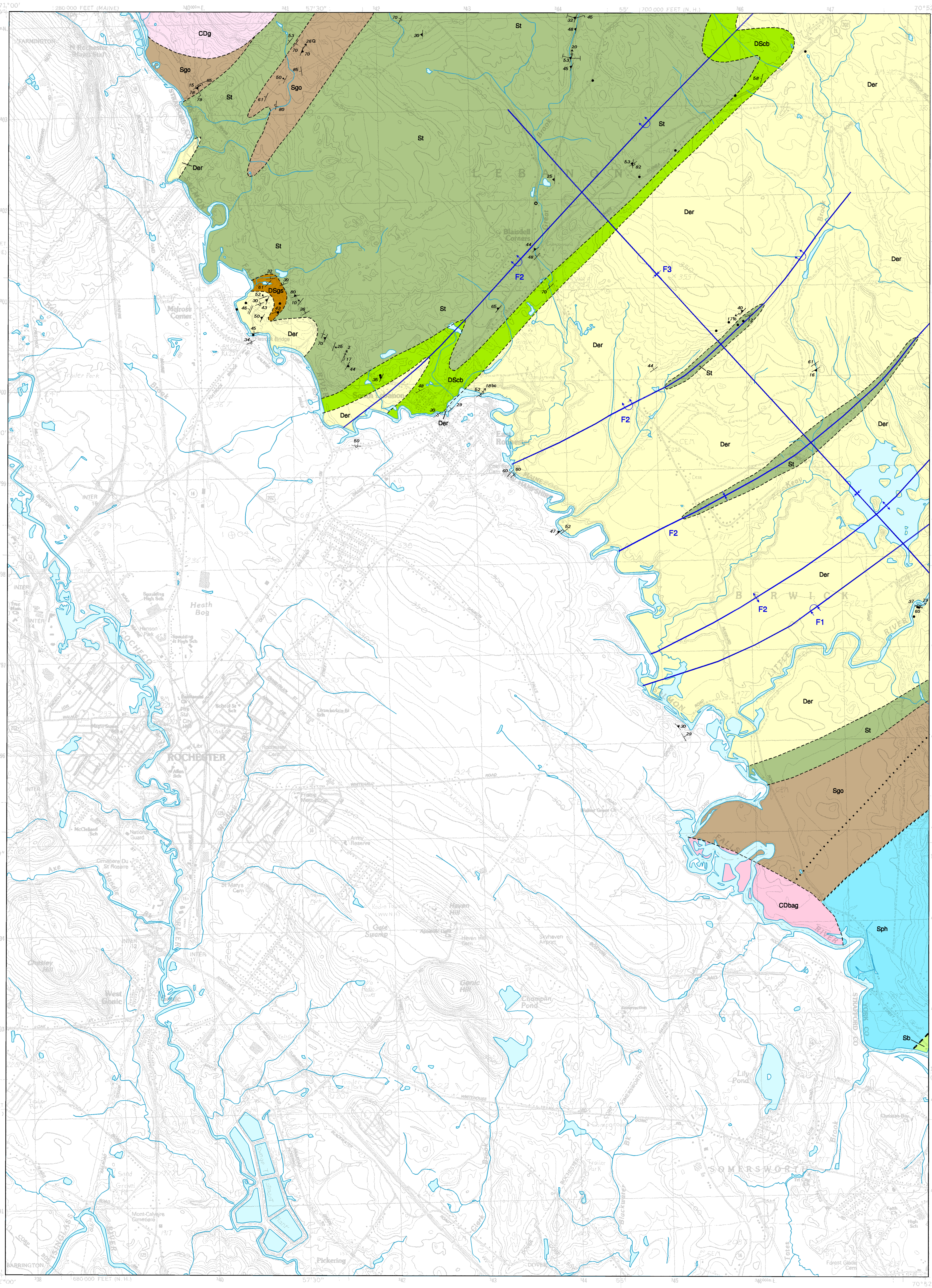

Bedrock Geology of the Rochester Quadrangle, Maine

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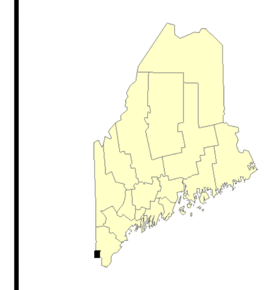
Progress Map 12-30
2012



Quadrangle Location

TRUE NORTH

SCALE 1 : 24,000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET

SOURCES OF INFORMATION

Field work by A. M. Hussey II (1970-2003), W. A. Bothner (1990-2004), and P. J. Thompson (2003-2005). M.S. thesis by Eusden (1984).

Topographic base from U.S. Geological Survey Rochester, N.H.-Maine, quadrangle, scale 1:24,000, using standard U.S. Geological Survey topographic map symbols.

The use of industry, firm, or local government names on this map is for location purposes only and does not impute responsibility for any present or potential effects on the natural resources.

EXPLANATION OF UNITS

INTRUSIVE ROCKS

Carboniferous - Devonian

CDbag — **Barrington Pluton.** Biotite-muscovite granite and pegmatite.

Carboniferous - Devonian (?)

CDg — **Granite and pegmatite.** Biotite-muscovite granite and pegmatite.

STRATIFIED ROCKS

Shapleigh Group

Devonian (?)

Der — **East Rochester Formation** (of Hussey and others, 2008). Well-bedded medium to dark gray muscovite-biotite-garnet-staurolite schist and micaceous quartzite. The schist commonly contains pseudomorphs after andalusite, and locally contains andalusite or sillimanite. Rhythmic bedding is common, with graded beds indicating stratigraphic tops in some places. Probably equivalent to the Carrabassett Formation (Eusden and others, 1987).

Devonian - Silurian (?)

DScb — **Unnamed granofels.** Medium gray to slightly lavender-gray, medium-grained quartz-feldspar-biotite granofels, commonly with interbeds or pods of light greenish-gray, fine-grained calc-silicate granofels. Probably equivalent to the Madrid Formation.

DSgs — **Unnamed quartz granule grit.** Moderately rusty-weathering, fine-grained quartz-biotite-white mica rock with angular to subrounded clasts of clear to blue quartz grains and gray lithic fragments up to 5mm across. Probably equivalent to the Wild Goose Grits, Strafford, New Hampshire (Eusden and others, 1987).

Silurian (?)

St — **Towow Formation.** Rusty-weathering to very rusty-weathering medium to dark silvery gray, fine-grained pyrrhotitic quartz-mica schist and phyllite with minor quartzite. Some dark gray phyllite is graphitic. Thin bedding is present locally. The high concentration of iron sulfides causes the rock and overlying soil to weather readily, producing distinctive bright orange to orange-brown colors. Probably equivalent to the Smalls Falls Formation.

Sgo — **Gully Oven Formation** (of Thompson, 2004). Well-bedded muscovite-biotite-staurolite-andalusite-garnet schist and micaceous quartzite with rare pink quartz-garnet granofels (coticule). Probably equivalent to the Perry Mountain Formation (Eusden and others, 1987; Thompson and others, 2004).

------------------------------ fault ------------------------------

Silurian(?)

Sph — **Unnamed phyllonite.** Silvery-gray muscovite-biotite-garnet-staurolite phyllonite with abundant deformed quartz veins. Formerly mapped as Gonic Formation (Hussey, 1962), reinterpreted as phyllonite by Hussey and others (2008).

------------------------------ fault ------------------------------

Silurian

Sb — **Berwick Formation.** Medium-bedded, medium brownish gray, feldspathic quartz-biotite granofels, greenish calc-silicate granofels, and subordinate quartz-biotite schist.

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GEOLOGIC TIME SCALE

Geologic Age		Absolute Age*
Cenozoic Era		0-65
Mesozoic Era	Cretaceous Period	65-142
	Jurassic Period	142-200
	Triassic Period	200-253
Paleozoic Era	Permian Period	253-300
	Carboniferous Period	300-360
	Devonian Period	360-418
	Silurian Period	418-443
	Ordovician Period	443-489
	Cambrian Period	489-542
Precambrian time		Older than 542

* In millions of years before present. (Okulitch, A. V., 2004, Geological time chart, 2004: Geological Survey of Canada, Open File 3040 (National Earth Science Series, Geological Atlas) - REVISION.)

EXPLANATION OF SYMBOLS

Note: Structural symbols are drawn parallel to strike or trend of measured structural feature. Barb or tick indicates direction of dip, if known. Annotation gives dip or plunge angle. For most planar features, symbol is centered at observation point; for joints, observation point is at end of strike line opposite dip tick. For linear features, tail of symbol is at observation point. Multiple measurements at a site are represented by combined symbols.

- Outcrop of mapped unit
- Large or abundant float blocks presumed to represent underlying bedrock
- 20 20 20 Bedding (upright, overturned, tops unknown)
- 20 Pervasive schistosity or phyllitic foliation defined by micas (inclined, vertical)
- 20Q Mineral lineation caused by quartz streaks
- 20 Crenulation cleavage
- 20 Spaced cleavage
- 20 Axial plane of fold deforming foliation
- 20 Axis of fold deforming foliation
- 20 Fold axial plane parallel to later cleavage
- 20bc Intersection lineation: bc = bedding-cleavage intersection; fc = foliation-cleavage intersection
- 20 Kink axis
- 20 Joint (inclined, vertical)

EXPLANATION OF LINES

Contact between mapped units. Interpreted to be of stratigraphic or intrusive origin. Location is constrained by bedrock outcrops indicated by symbols on the map, or inferred by projecting rock units from adjacent areas. (See regional map by Hussey and others, 2008.) Additional information may have been used. The location of some contacts is not well constrained.

Inferred fault.

Projection of inferred fault into area of poor bedrock exposure (see Hussey and others, 2008). (schematic)

Fault boundary between intensely sheared and less sheared rocks.

Inferred axial trace of upright fold (antiform, synform).

Inferred axial trace of overturned fold. Fold limbs dip in direction of arrows (antiform, synform).

F1 F2 F3 A label on each fold gives its relative age, with F1 being oldest, according to the regional interpretation of Hussey and others (2008).

Fold shape and location are interpreted from the pattern of mapped units, together with observed minor folds, bedding and cleavage orientations, and stratigraphic facing directions as determined from relict tops indicators in bedding. Most of the large scale folding is probably of Acadian (Devonian) age (Hussey and others, 2008).