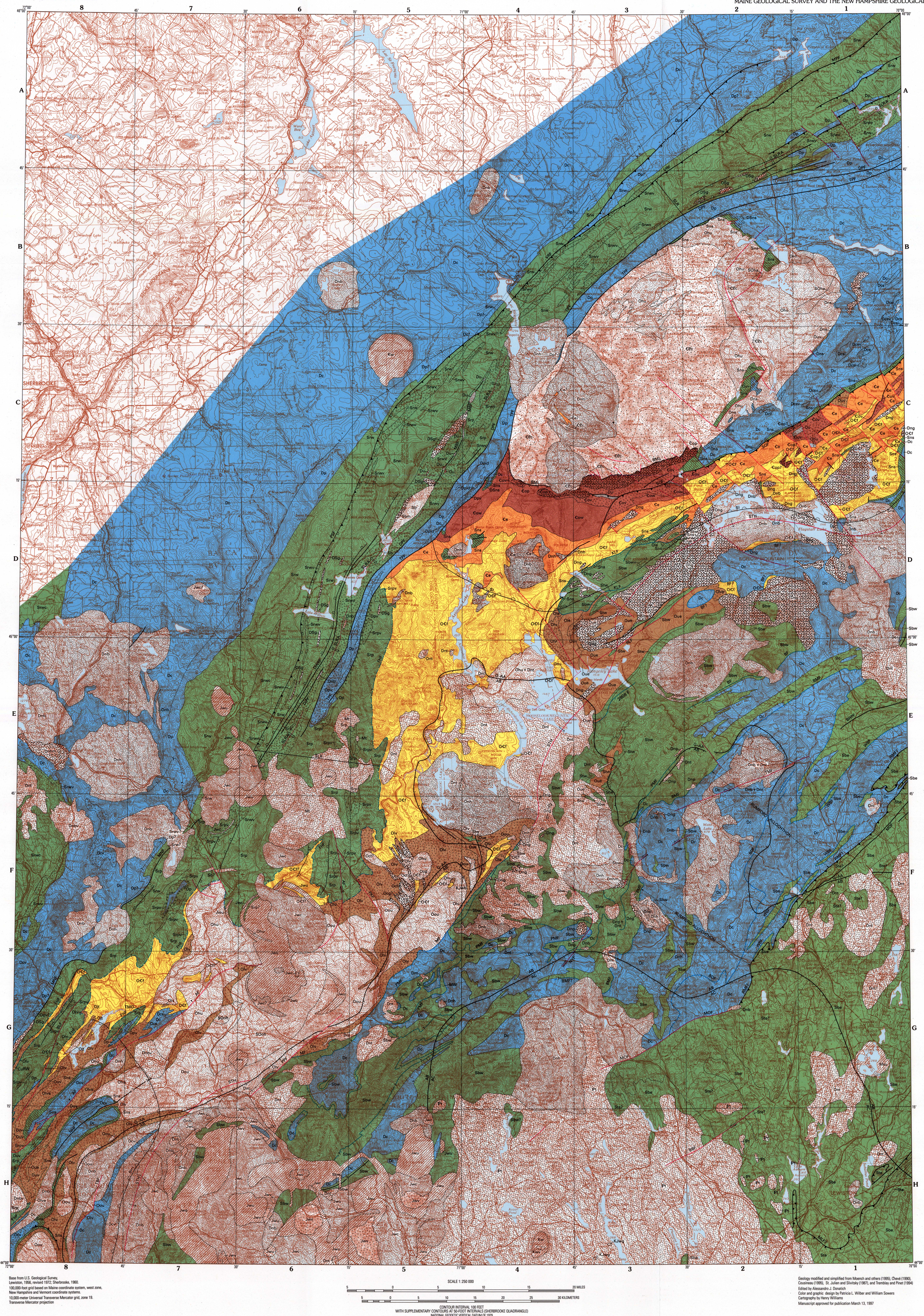


Base from U.S. Geological Survey,
Lewiston, 1956, revised 1972; Sherbrooke, 1960.
100,000-foot grid based on Maine coordinate system, west zone,
New Hampshire and Vermont coordinate systems.
10,000-meter Universal Transverse Mercator grid, zone 19.
Transverse Mercator projection

SCALE 1:250 000

CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50-FOOT INTERVALS (SHERBROOKE QUADRANGLE)
NATIONAL GEODETIC VERTICAL DATUM OF 1929

1997 MAGNETIC DECLINATION FROM TRUE NORTH VARIES FROM 16° (280 MILS) WESTERLY FOR THE CENTER OF THE WEST EDGE TO 18° (320 MILS) WESTERLY FOR THE CENTER OF THE EAST EDGE

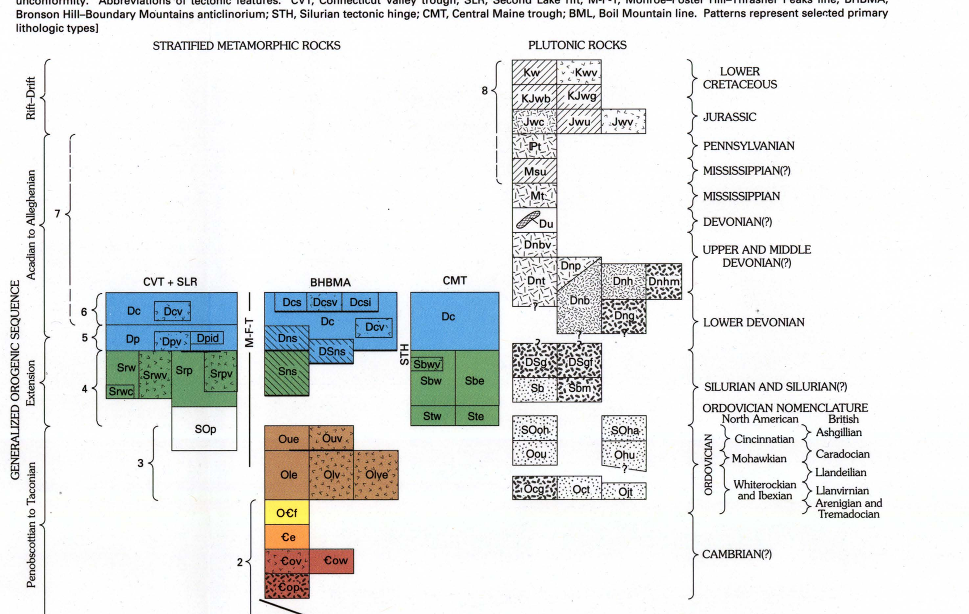
Geology modified and simplified from Moench and others (1995), Chevé (1990), Cousineau (1995), St. Julien and Slivitsky (1987), and Tremblay and Pinet (1994)
Edited by Alessandro J. Donatich
Color and graphic design by Patricia L. Wilber and William Sowers
Cartography by Henry Williams
Manuscript approved for publication March 13, 1997

MAP A. TECTONIC LITHOFACIES MAP

By
Robert H. Moench, Eugene L. Boudette, and Wallace A. Bothner

CORRELATION AND INTERPRETATION OF MAP UNITS

[Numbered brackets keyed to "Summary of tectonic history" in pamphlet; dashed where conjectural. Heavy line at lower contact of unit indicates disconformity or unconformity. Abbreviations of tectonic features: CVT, Connecticut Valley trough; SLR, Second Lake rift; M-F-T, Monroe–Foster Hill–Thrasher Peaks line; BHBMA, Bronson Hill–Boundary Mountains anticlinorium; STH, Silurian tectonic hinge; CMT, Central Maine trough; BML, Boil Mountain line. Patterns represent selected primary lithologic types]



LIST OF MAP UNITS

[See Appendix I (this report) for more complete descriptions of the map units. The locations of named plutons are shown on figure 2 and are referenced in text by index numbers (for example, index 63 is Jefferson batholith). The locations of unnamed small plutons or small bodies of stratified metamorphic rocks are referenced by map grid coordinates (for example, grid 4F-5F is at the boundary between the Old Speck Mountain and Milan 15-minute quadrangles). Where two map units are combined within one pluton (for example, Ohu+Dnt), the first unit is dominant and the pluton carries the color and pattern of that unit]

PLUTONIC ROCKS

White Mountain Plutonic-Volcanic Suite (Early Cretaceous and Jurassic)

Early Cretaceous rocks

- Kw — **Granite, syenite, and gabbro-diorite**—Megantic Mountain plutons (index 102) and Pleasant Mountain pluton (index 80)
- Kwv — **Trachyte**—Trachytic tuff and pyritic volcanic breccia overlying syenite of Pleasant Mountain pluton (index 80)

Early Cretaceous or Jurassic rocks

- KJwb — **Basalt plug and volcanic breccia**—At Red Ridge, straddles boundary between grids 4F and 5F
- KJwg — **Gabbro or diorite**—Two small bodies exposed near Bridgton (grid 3H), either as two plugs or one northeast-trending dike

Jurassic rocks

- Jwc — **Conway Granite and Conway-type granite**—Type locality near Redstone in White Mountain batholith (index 81), and similar granite in same batholith and other plutons; includes intrusive rhyolite of Gay Brook ring dike(?) (index 43A) and, tentatively, Hereford Mountain pluton (index 101)
- Jwu — **Undivided felsic to mafic alkalic rocks**—Mount Osceola Granite of White Mountain batholith (index 81) and other named and unnamed units
- Jwv — **Moat Volcanics**—Exposed in White Mountain batholith (index 81)
- Pt — **Two-mica granite (Pennsylvanian)**—Sebago batholith (index 78) and related bodies
- Msu — **Syenite, quartz syenite, alkali gabbro, and ultramafic rocks (Mississippian?)**—Androscoggin Lake plutons (index 74)
- Mt — **Two-mica granite (Mississippian)**—Long Mountain pluton (index 40)
- Du — **Diapiric ultramafic talc-carbonate rock and serpentinite (Devonian?)**—Small bodies exposed in grids 3C, 3D, 4C, 5C, and 9I (fig. 6)

New Hampshire Plutonic Suite (Devonian)

- Dnbv — **Variably textured biotite granite (Late Devonian)**—French Pond (index 91) pluton, and, tentatively, Alderbrook and Newark plutons (indexes 60, 49)
- Dnt — **Two-mica granite (Late to Early Devonian)**—Many bodies in Maine and New Hampshire, and leucocratic two-mica granite of Willoughby pluton (index 47) in Vermont
- Dnp — **Pegmatitic granite and pegmatite (Late and Middle Devonian)**—Most of Whitecap Mountain pluton (index 30) and smaller unmapped pegmatite bodies related to two-mica granite (Dnt)
- Dnh — **Hornblende-biotite granodiorite to diorite (Late to Early Devonian)**—Many bodies in Maine, New Hampshire, and Vermont
- Dnhm — **Hornblende-quartz monzodiorite to gabbro (Late? to Early? Devonian)**—Facies of unit Dnh in Mooselookmeguntic batholith (index 34C), and facies of unit Dnb in Echo Pond plutons (index 46B)
- Dnb — **Biotite granite, granodiorite, tonalite, and sparse trondhjemite (Middle to Early Devonian)**—Kinsman Granodiorite, gneissic Bethlehem Granodiorite, and unnamed rocks of many plutons
- Dng — **Gabbroic and hybrid rocks (Early Devonian)**—Gabbro, local diorite, and sparse ultramafic rocks of several plutons in Maine (indexes 19A, 20, 24, 33, and others), and hybrid, pentlandite-bearing tonalite of West Mountain plutons (index 27)

Mafic and bimodal dikes (Early Devonian? and Silurian)

- DSg — **Diabase and gabbro dikes, sills, and small plutons**—Small body near Magalloway Mountain (grid 5D), several greenstone dikes in grids 1A to 6D, and sheeted dikes in Waterford and at Leighton Hill and Peaked Mountain (indexes 93, 99, 100)
- DSgf — **Sheeted diabase, gabbro, and intrusive felsite**—Sheeted dikes at Marble Mountain (index 11)
- Sb — **Epizonal biotite granite (Silurian)**—East Inlet pluton (index 12); tentatively includes Morse Mountain sheet (index 53A)
- Sbm — **Mafic to intermediate border facies of East Inlet pluton**

Oliverian Plutonic Suite (Silurian? and Ordovician)

- SOoh — **Hornblende-biotite syenite, quartz syenite, quartz monzonite, and granite (Silurian or Ordovician Cincinnatian)**—Lobate body in core of Jefferson batholith (index 63)
- Oou — **Undivided biotite granite, biotite granodiorite to quartz diorite and trondhjemite, and hastingsite granodiorite (Ordovician—Cincinnatian and Mohawkian)**

Highlandcroft Plutonic Suite (Silurian? and Ordovician—Cincinnatian, Mohawkian, and Whiterockian?)

- SOha — **Altered aplitic granite, granodiorite, and quartz porphyry (Silurian or Ordovician—Cincinnatian)**—Catheart Mountain pluton (index 3) and Sally Mountain pluton (index 4)
- Ohu — **Undivided biotite or hornblende granite to quartz diorite and local gabbro (Ordovician—Cincinnatian to Whiterockian?)**

Chickwolnepy intrusions (Ordovician—Whiterockian)—Index 39

- Ocg — **Massive to foliated gabbro and sheeted diabase dikes**
- Oct — **Hornblende-biotite tonalite**
- Ojt — **Tonalite of Joslin Turn pluton (Ordovician—Whiterockian)**—Lenticular pluton at Moore Reservoir (index 57), and many offshoots

STRATIFIED METAMORPHIC ROCKS

[Selected metamorphic boundaries are shown on map]

Connecticut Valley trough (CVT)

Tectonic belt lying mainly northwest of Foster Hill and Thrasher Peaks faults (FHF, TPF), and southeast of Guadeloupe fault (GF) (fig. 2)

- Dc — **Autochthonous metashale and metasandstone of cover sequence (Lower Devonian—Emsian to Gedinnian?)**—Unnamed metashale and metasandstone of Seboomook Group, Compton Formation, and Gile Mountain Formation (possibly except Meetinghouse Slate Member of Gile Mountain Formation, tentatively assigned to Dp)
- Dcv — **Metavolcanic-bearing facies**—Mixed metasedimentary and bimodal metavolcanic rocks of Gile Mountain Formation (grids 8F, 8G)
- Dp — **Parallochthonous metashale and local volcaniclastic metawacke (Lower Devonian—Gedinnian?)**—Ironbound Mountain Formation of Seboomook Group; queried where tentatively includes Meetinghouse Slate Member of Gile Mountain Formation
- Dpv — **Metavolcanic facies**—Narrow belts between Deer Pond and Thrasher Peaks faults (DPF, TPF) in grids 4D to 6E; at boundary of grids 7G and 8G (in TMO of the P-F allochthon); and queried body in grid 8G (in Meetinghouse Slate Member of Gile Mountain Formation)
- Dpid — **Metamorphosed microgranite intrusions and domes**—Thrasher Peaks plutons (index 10)

Metasedimentary and metavolcanic rocks within and tentatively within the Second Lake rift (Silurian, Silurian?, and Ordovician—Cincinnatian)—Sequences of the P-F allochthon, and related parautochthonous to autochthonous rocks of the CVT. Includes western rift and Piermont sequences

Western rift sequence (Silurian and Silurian?)—Frontenac Formation (Silurian) and, tentatively, Waits River Formation (Silurian) and Ayers Cliff Formation (Silurian?)

- Srw — **Predominantly siliciclastic turbidites (Silurian)**—Metasedimentary facies of Frontenac Formation
- Srwc — **Predominantly calcareous metasedimentary rocks (Silurian and Silurian?)**—Calcareous member of Frontenac Formation and, tentatively, Waits River and Ayers Cliff Formations
- Srwv — **Metavolcanic and mixed metasedimentary and metavolcanic facies (Silurian)**—Volcanic-bearing part of Frontenac Formation of the SLR and SLRA, and volcanic-bearing part of Waits River Formation, tentatively of the SLR

Piermont sequence (Silurian, Silurian?, and Ordovician—Cincinnatian)—Six formations whose type localities are near Rangeley, Maine (grid 3E); divided into an upper sequence of four formations, and a lower sequence of two formations

- Srp — **Upper formations (Silurian and Silurian?)**—Rangeley Formation (Llandoverian), Perry Mountain Formation (Ludlovian? and Wenlockian?), Smalls Falls Formation (Ludlovian), and Madrid Formation (Pridolian? and Ludlovian?)
- Srpv — **Metavolcanic and mixed metasedimentary and metavolcanic facies**—Interbedded metavolcanic and metasedimentary rocks of Rangeley, Perry Mountain, Smalls Falls, and Madrid Formations
- SOp — **Lower formations (Silurian? (Llandoverian?) and Ordovician (Cincinnatian))**—Quimby Formation (Cincinnatian) and Greenvale Cove Formation (Llandoverian?), exposed southwest of map area (see fig. 6)

Bronson Hill–Boundary Mountains anticlinorium (BHBMA)

Tectonic belt lying mainly southeast of Foster Hill and Thrasher Peaks faults (FHF, TPF), and mainly northwest of the STH

- Dcs — **Shoal-facies metasandstone, metaconglomerate, and subaerial metavolcanic rocks of cover sequence (Lower Devonian—Emsian)**—Tomhegan Formation (grids 1B, 1C), and metasandstone and metaconglomerate at Dalton Mountain (grid 7G)
- Dcsv — **Subaerial metavolcanic member**—Kineo Volcanic Member of Tomhegan Formation
- Dcsi — **Intrusive garnet metarhyolite**—Small plutons related to Kineo Volcanic Member
- Dc — **Metashale and metasandstone of cover sequence (Lower Devonian)**—Unnamed metashale and metasandstone of Seboomook Group (Emsian to upper Gedinnian?), Littleton Formation (Emsian to Gedinnian?), and Tarratine Formation (upper Siegenian)
- Dcv — **Metavolcanic members**—Parts of Littleton Formation in grids 8G and 8H, and greenstone of Seboomook Group at Camera Hill in grid 2C

Near-shore deposits (Lower Devonian and Silurian)

- Dns — **Lower Devonian (upper Gedinnian and upper Siegenian) deposits**—Parker Bog Formation and Beck Pond Limestone (both upper Gedinnian) and Hobbstown Formation and McKenney Ponds Limestone Member of Tarratine Formation (both upper Siegenian) in grids 1C and 2C
- DSns — **Lower Devonian (Gedinnian?) or Silurian (Pridolian?) deposits**—Red slate and felsic metatuff near Arnold River (grids 4C, 4D), and conglomeratic metasandstone near Crocker Pond (grid 2B)
- Sns — **Silurian (Pridolian to upper Llandoverian) deposits**—Clough Quartzite (mainly grids 8G, 8H; upper Llandoverian), impure metalimestone at Flagstaff Mountain (grids 2C, 2D; lower Wenlockian? and upper Llandoverian), Hardwood Mountain Formation (grid 2C; Ludlovian? and Wenlockian), metaconglomerate at Wood Pond (grid 2B; Pridolian or Ludlovian), metalimestone and slate at Little Big Wood Pond (grid 2B; Pridolian and Ludlovian?), Fitch Formation (mainly grids 8G, 8H; Pridolian and upper Ludlovian), The Forks Formation (grids 1C, 1D; Pridolian? and Ludlovian?), and unnamed argillite, quartzite, and tuff near Parmachenee Lake (grids 4D, 5D)

Euxinic metasedimentary and metavolcanic rocks of Bronson Hill arc (Ordovician—Cincinnatian to Whiterockian)

Upper sequence (Ordovician—Cincinnatian)—Quimby Formation and Lobster Mountain Volcanics(?)

- Oue — **Euxinic metashale and metagraywacke**—Metagraywacke and interbedded metashale and metagraywacke members of Quimby Formation exposed near Rangeley, Maine (grid 3E), south of Umbagog pluton (index 36), and southwest of Littleton, N.H. (grids 8G, 8H)
- Ouv — **Felsic and mafic metavolcanic rocks**—Small bodies in Quimby Formation near Rangeley, Maine (grids 3E, 4D), and extensive layers in lower part of Quimby Formation southwest of Littleton, N.H. (grids 8G, 8H); tentatively includes Lobster Mountain Volcanics(?) exposed at Johns Pond and Grace Pond (grid 1C) and north of Baker Pond (grid 2C)

Lower sequence (Ordovician—Mohawkian and Whiterockian)—Ammonoosuc Volcanics and Partridge Formation

- Ole — **Euxinic metasedimentary rocks**—Partridge Formation, exposed near Oquossoc, Maine (grids 3D, 4D, 3E, 4E), in small area west of Baldpate Mountain, Maine (grid 4F), and extensively southwest of Littleton, N.H. (grids 8G, GH), where combined with Ammonoosuc Volcanics (Olve)
- Olv — **Bimodal metavolcanic and related metasedimentary rocks**—Ammonoosuc Volcanics, exposed principally near Oquossoc, Maine (grids 3D, 4D, 3E, 4E), and in several belts along and northwest of the BMA (grids 4-F to 9-I) southwest of the Umbagog pluton (index 36); combined with Partridge Formation (Olve) in parts of grids 8-G to 9-I (see fig. 2)
- Olve — **Bimodal metavolcanic and euxinic metasedimentary rocks, undivided**—Ammonoosuc Volcanics and conformably overlying Partridge Formation south of Moore Reservoir (grids 8G, 8H)
- O€f — **Flysch sequence (Ordovician (lower Whiterockian) to Upper Cambrian?)**—Aziscohos and Dead River Formations
- €e — **Euxinic melange (Cambrian?)**—Hurricane Mountain Formation

Ophiolite (Cambrian?)—Structurally above Chain Lakes massif

- €ov — **Bimodal metavolcanic rocks**—Jim Pond Formation
- €ow — **Volcaniclastic metawacke member**—Magalloway Member of Jim Pond Formation.
- €op — **Stratiform plutonic ophiolite**—Boil Mountain Complex (index 17)
- €Pc — **Clastic and plutonic rocks of Chain Lakes massif (Cambrian or Proterozoic)**—Centered in grid 3C

Central Maine trough (CMT)

Tectonic belt lying mainly southeast of the Silurian tectonic hinge (STH)

- Dc — **Metashale, metasandstone, and associated deposits of cover sequence (Lower Devonian)**—Carrabassett, Hildreths, Mount Blue, Temple Stream, and Day Mountain Formations of Seboomook Group, northeast of Songo pluton (index 69); metashale and metasandstone of Seboomook Group, northeast of Sugarloaf pluton (index 24); Littleton Formation, northwest of Songo pluton and west of Sebago batholith (index 78)

Sequences of extensional basin (Silurian and Silurian?)

- Sbw — **Western siliciclastic sequence**—Rangeley Formation (Llandoverian), Perry Mountain Formation (Ludlovian? and Wenlockian?), Smalls Falls Formation (Ludlovian), and Madrid Formation (Pridolian? and Ludlovian?)
- Sbwv — **Felsic metavolcanic facies**—Exposed in Perry Mountain Formation near top of East Kennebago Mountain (grid 3D)
- Sbe — **Eastern siliciclastic and carbonate sequence**—Sangerville Formation (Wenlockian and Llandoverian?), Perry Mountain Formation (Ludlovian? and Wenlockian?), eastern facies of Smalls Falls Formation (Ludlovian), and eastern facies of Madrid Formation (Pridolian? and Ludlovian?)

Deposits of transition to underlying arc sequences (Silurian and Silurian?)

- Stw — **Western transition**—Greenvale Cove Formation
- Ste — **Eastern transition**—Waterville Formation; where queried, tentatively includes rocks previously mapped as Anasagunticook Member of Sangerville Formation

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Contact—Dotted across water; queried where conjectural

Faults—Dotted across water; queried where conjectural

- AF — **Postmetamorphic brittle faults**—Bar and ball on downthrown side of known normal fault; opposed arrows indicate direction of displacement along known strike-slip fault. Named faults: AF, Ammonoosuc; BBF, Ben Barrows; BLF, Bill Little; MOF, Moll Ockett; NYF, Newry; PPF, Pine Peak; PKF, Pontook; RLF, Rangeley Lake; TMF, Tantrattle Mountain; TBF, Tunnel Brook
- MDF — **Late premetamorphic to locally postmetamorphic ductile to brittle faults**—Opposed arrows indicate direction of displacement along known strike-slip faults; sawteeth point toward hanging wall of known thrust faults. Named faults: BHPF, Black Hill Pond; DWRF, Dead Water Ridge; DPF, Deer Pond; DiPF, Diamond Pond; MDF, Madison; MPF, Marie Petoche; MLF?, possible Mesalonskee Lake; MNF, Monroe; MBF, Moose Bog; NHF, Northey Hill; PSF, Perry Stream; RMF?, possible Rowell Mountain; SQF, Squirtgun; TPF, Thrasher Peaks; VRF, Victoria River (?)
- FHF — **Premetamorphic Foster Hill fault (FHF)**—Ticks point toward the P-F allochthon. Marks east boundary and sole of allochthon, and bounds Coppermine Road window (CuRW) and Towns Mountain outlier (TMO)
- BDF — **Premetamorphic extensional faults of the Central Maine trough (CMT)**—Ticks point toward structurally higher sequences. Named faults: BDF, Bald Mountain; BF, Barnjum; BMF, Blueberry Mountain; KLF, Kennebago Lake; MF, Mahoosuc; PMF, Plumbago Mountain; WBF, Winter Brook; 2808F, hill 2808. MW, Mahoosuc window, bounded by the PMF
- BML — **Boil Mountain line**—Sawteeth point in direction of inferred original dip. Sharp, welded lower contact of the ophiolitic Boil Mountain Complex (€op) and Jim Pond Formation (€ov, €ow) at southeast boundary of Boundary Mountains terrane of Boone and Boudette (1989)
- STH — **Silurian tectonic hinge**—Arrow points toward thicker Silurian deposits of the CMT
- SLR — **Second Lake rift**—Frontenac Formation and Piermont sequence southeast of Monroe fault (MNF) and its named extensions; tentatively includes Silurian rocks of the CVT exposed northwest of MNF
- SLRA — **Magmatic axis**—Queried where conjectural
- SI — **Approximate shore of inferred Silurian island**—Half circles on landward side; dashed across Devonian plutons. Based on distribution of Silurian near-shore deposits (Sns) having basal unconformity. SI, Somerset Island (modified from Boucot, 1968, fig. 6-3); BHI, Bronson Hill Island
- AB / AC — **Selected metamorphic zone boundaries**—Approximately located. Ticks point toward area of higher metamorphic grade. G–AA, Devonian greenschist to lower amphibolite facies (includes sub-greenschist facies in northern Maine); AB, Devonian middle amphibolite facies; AC, Carboniferous upper amphibolite facies
- **Approximate boundary of metamorphosed mafic and bimodal dike swarm**—Squares on side of more abundant dikes. Abundantly intrude Silurian rocks of the SLR; locally intrude the Meetinghouse Slate Member of Gile Mountain Formation (of Dp?), and autochthonous rocks of the BHBMA
- **Premetamorphic schist-matrix breccia**—Shown where most extensively developed in Smalls Falls and Perry Mountain Formations (of Srp, Srpv), below lower contact of Ironbound Mountain Formation (of Dp, Dpv)

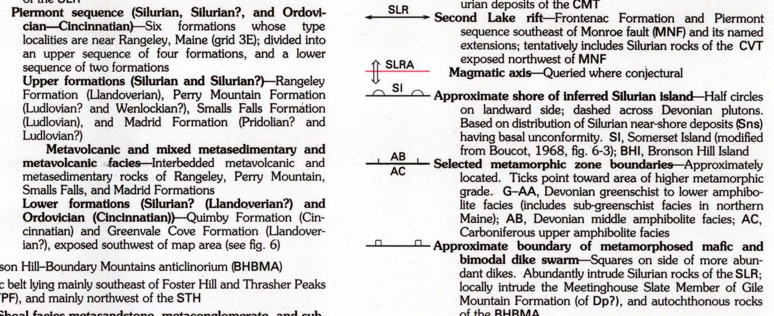
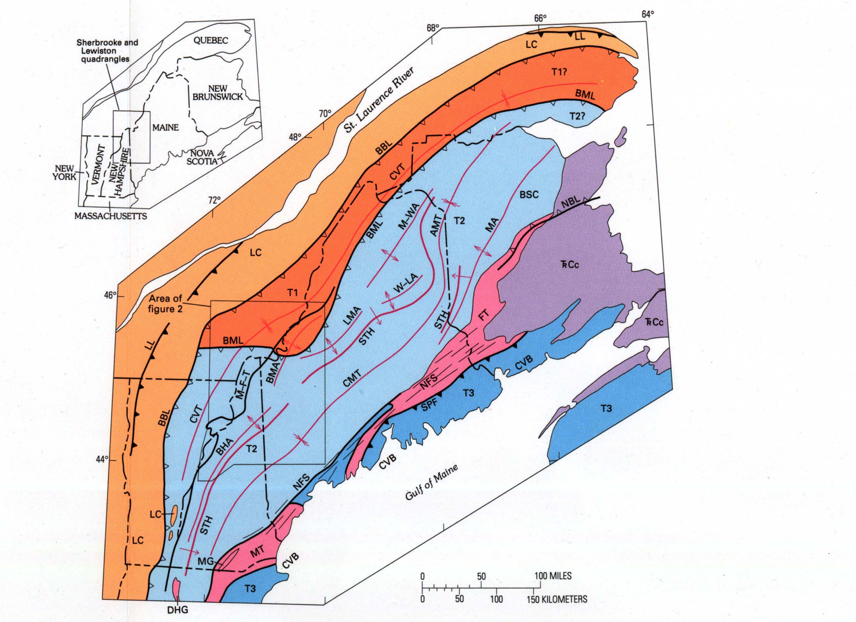


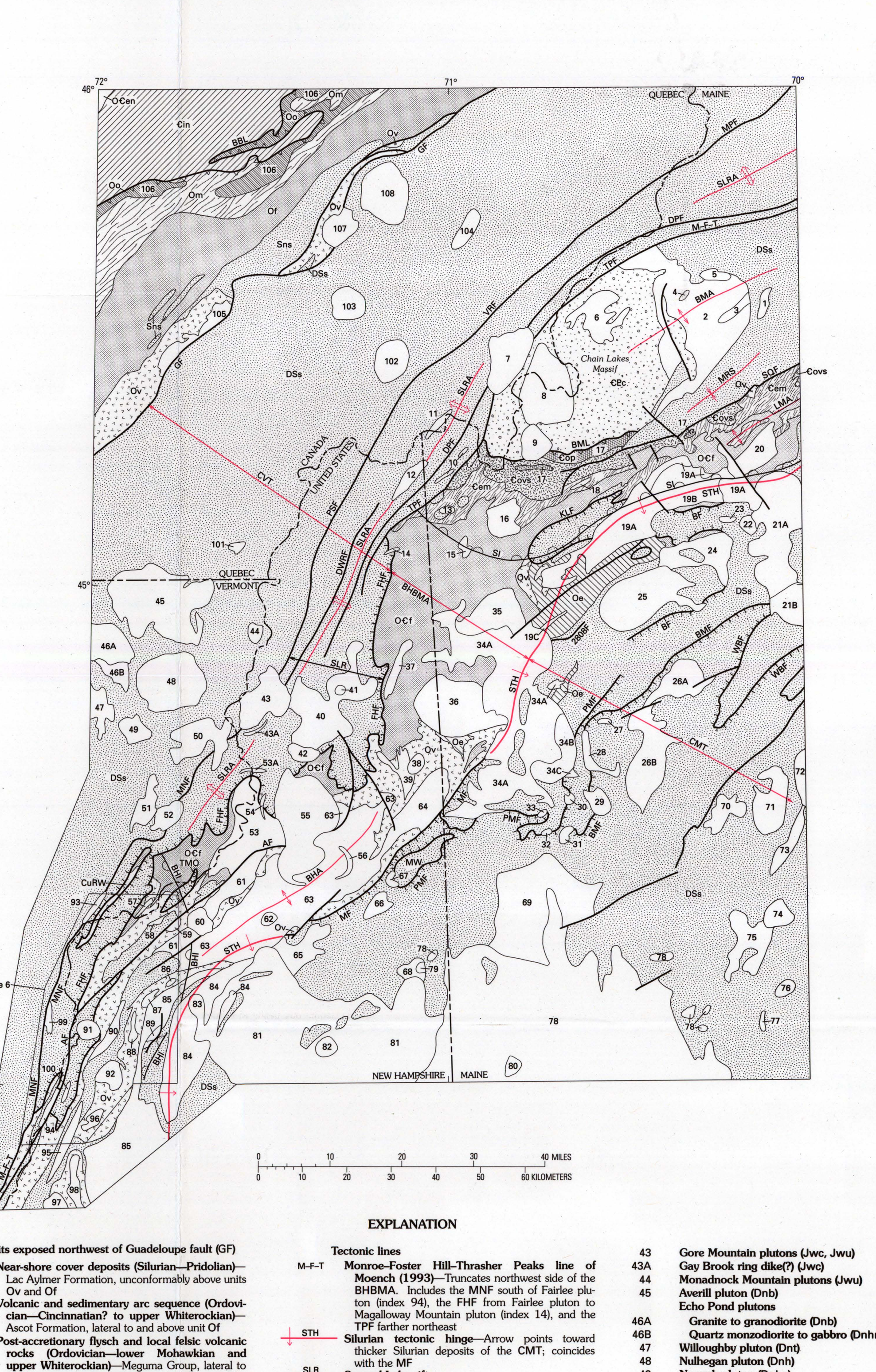
Figure 3. Schematic diagram showing stratigraphic and facies relationships of stratified metamorphic rocks in the Sherbrooke-Lewiston area. Not to scale. Thick line at lower contact of a unit indicates a disconformity or an unconformity. Tectonic lines and belts: CVT: Connecticut Valley trough; BHBMA, Bronson Hill–Boundary Mountains anticlinorium; STH, Silurian tectonic hinge; CMT, Central Maine trough; SLR, Second Lake rift, and SLRA, magmatic axis of rift; TPF, Thrasher Peaks fault; BML, Boil Mountain line—arrow indicates direction of tectonic ramping. See "List of map units" for explanation of map-unit symbols.



EXPLANATION

- LC — **Laurentian craton**—Grenvillian crystalline basement and late Proterozoic to early Paleozoic rift-drift and Atlantic-type continental margin sequences. Includes external and internal nappes (fig. 2, O€en, €in) of St Julien and Hubert (1975). Bounded on southeast by Baie Verte–Brompton line (BBL)
- LL — **Logan's Line**—Sawteeth on side of upper plate of thrust fault at northwest margin of Appalachian orogen
- BBL — **Baie Verte–Brompton line**—Open sawteeth on side of upper plate. Taconian suture of terrane 1 (T1) plus terrane 2 (T2) over Laurentian craton (LC)
- T1 — **Terrane 1**—Contains ophiolite (fig. 2, Oo), melange (Om), rocks of Chain Lakes massif (€Pc), and fragments of unit €Pc in unit Om. Boundary Mountains terrane of Boone and Boudette (1989), or northern part of Brompton-Cameron composite terrane of Stewart and others (1993)
- BML — **Boil Mountain line**—Open sawteeth on side of upper plate. Penobscottian suture of terrane 2 (T2) over terrane 1 (T1)
- T2 — **Terrane 2**—Contains ophiolite (fig. 2, €ovs), and basement of indeterminate character, possibly Upper Proterozoic Dry Hill Gneiss (DHG). Gander terrane of Boone and Boudette (1989); Central Maine composite terrane and southern part of Brompton-Cameron composite terrane of Stewart and others (1993)
- DHG — **Upper Proterozoic Dry Hill Gneiss**
- MT FT — **Merrimack-Fredericton trough**—Ordovician and Silurian sedimentary basin of uncertain tectonic setting. Basement possibly partly represented by Upper Proterozoic Massabesic Gneiss Complex (MG)
- MG — **Upper Proterozoic Massabesic Gneiss Complex**
- NBL — **New Brunswick line**—Open sawteeth on side of upper plate; conjectural. Suggested by model of van Staal (1994). Here named for possible covered trace of Acadian suture of terrane 2 (T2) over terrane 3 (T3)
- SPF — **Sennebec Pond thrust fault**—Closed sawteeth on side of upper plate; dashed where conjectural. Acadian thrust of terrane 3 (T3) over terrane 2 (T2)
- T3 — **Terrane 3**—Rock assemblages of coastal lithotectonic belt and Nova Scotia. Atlantica composite terrane and Meguma terrane of Stewart and others (1993; and references therein), commonly termed peri-Gondwanan or Avalonian
- BSC — **Approximate center of Brunswick subduction complex (van Staal, 1994)**—Zone of inferred late Ordovician and Silurian northwestward subduction
- STH — **Silurian tectonic hinge**—Arrow points to thicker Silurian and Ordovician (Cincinnatian) deposits of Central Maine and Aroostook-Matapedia troughs (CMT, AMT)
- CVT — **Approximate centerline of Silurian rift basin**—CVT, Connecticut Valley (Gaspé) trough; CMT, Central Maine trough; AMT, Aroostook-Matapedia trough
- BHA — **Approximate centerline of anticlinorium**—BHA, Bronson Hill; BMA, Boundary Mountains; LMA, Lobster Mountain; M-WA, Munsungen-Winterville; W-LA, Weeksboro-Lunksoos; MA, Miramichi
- NFS — **Norumbega fault system**—Middle and Late Paleozoic right-slip shear
- CVB — **Coastal volcanic belt**
- ŦCc — **Triassic to Carboniferous cover sequence**

Figure 1. Tectonic index map showing proposed accreted basement terranes and other tectonic features.



EXPLANATION

Units exposed northwest of Guadeloupe fault (GF)

- Sns — **Near-shore cover deposits (Silurian—Pridolian)**—Lac Aylmer Formation, unconformably above units Ov and Of
- Ov — **Volcanic and sedimentary arc sequence (Ordovician—Cincinnatian? to upper Whiterockian)**—Ascot Formation, lateral to and above unit Of
- Of — **Post-accretionary flysch and local felsic volcanic rocks (Ordovician—lower Mohawkian and upper Whiterockian)**—Magog Group, lateral to and above unit Om (Cousineau and St. Julien, 1992)
- Om — **Melange (Ordovician—lower Mohawkian? and Whiterockian?)**—St. Daniel Formation, lateral to and above unit Oo, and above the BBL
- Oo — **Ophiolite (Ordovician—lower Whiterockian? to Upper Cambrian?)**—Thetford Mines and related ophiolite complexes (index 106) above the BBL
- O€en — **Formations of allochthonous external nappes (Ordovician—lower Mohawkian to Cambrian)**—Slope-rise deposits of Laurentian margin
- €in — **Formations of parautochonous internal nappes (Cambrian)**—Slope-rise deposits of Laurentian margin

Units exposed southeast of Guadeloupe fault (GF)

- DSs — **Deep-water to near-shore marine sedimentary and volcanic formations of successor rift basins and pre-Acadian cover (Lower Devonian and Silurian)**—Silurian sedimentary and volcanic rocks mainly derived from the west, and Lower Devonian sedimentary and volcanic rocks mainly derived from the east. Unconformably above Ordovician and older rocks along the BHBMA, but conformably above Ordovician rocks southeast of the STH
- Oe — **Euxinic sedimentary rocks of Bronson Hill arc system (Ordovician—Cincinnatian to upper Whiterockian)**—Lateral to unit Ov, and conformably above unit O€f
- Ov — **Volcanic and related rocks of Bronson Hill arc system (Ordovician—Cincinnatian to upper Whiterockian)**—Conformably above unit O€f
- O€f — **Post-accretionary flysch (Ordovician (Whiterockian) to Upper Cambrian)**—Dead River and Aziscohos Formations. Deposited over unit €em when melange became inactive
- €em — **Euxinic melange (Cambrian?)**—Hurricane Mountain Formation, above and lateral to unit €ovs
- €ovs — **Volcanic and sedimentary members of ophiolite (Cambrian?)**—Jim Pond Formation, conformably above unit €op
- €op — **Plutonic member of ophiolite (Cambrian?)**—Boil Mountain Complex, structurally above unit €Pc
- €Pc — **Clastic and plutonic rocks of Chain Lakes massif (Cambrian or Proterozoic)**—Age and origin uncertain
- GF — **Ductile or brittle fault**—GF, Guadeloupe fault; see map A for names of other faults
- FHF — **Premetamorphic extensional fault**—Ticks on side of hanging wall. FHF, Foster Hill fault; see map A for names of other faults. CuRW and TMO, Coppermine Road window and Towns Mountain outlier, bounded by the FHF. MW, Mahoosuc window, bounded by the PMF

Tectonic belts

- CVT — **Connecticut Valley trough**—From the GF to the M-F-T
- BHBMA — **Bronson Hill–Boundary Mountains anticlinorium**—From the M-F-T approximately to the STH. Combines the following four structures
  - BHA — **Bronson Hill anticlinorium**
  - BMA — **Boundary Mountains anticlinorium**
  - LMA — **Lobster Mountain anticlinorium**
  - MRS — **Moose River synclinorium**
- CMT — **Central Maine trough**—Mainly southeast of the STH

Tectonic lines

- M-F-T — **Monroe–Foster Hill–Thrasher Peaks line of Moench (1993)**—Truncates northwest side of the BHBMA. Includes the MNF south of Fairlee pluton (index 94), the FHF from Fairlee pluton to Magalloway Mountain pluton (index 14), and the TPF farther northeast
- STH — **Silurian tectonic hinge**—Arrow points toward thicker Silurian deposits of the CMT; coincides with the MF
- SLR — **Second Lake rift**
- SLRA — **Magmatic axis**
- SI — **Approximate shore of inferred Silurian island**—Half circles on side of known Silurian near-shore deposits (Sns). SI, Somerset Island (modified from Boucot, 1968, fig. 6-3); BHI, Bronson Hill Island
- BML — **Plate suture**—Sawteeth point in direction of inferred original dip. BBL, Baie Verte–Brompton line; BML, Boil Mountain line
- (82) — **Named Cretaceous to Ordovician plutons**—Map-unit symbols from map A are shown in parentheses

1 Bean Brook Mountain sill (Dng)
2 Attean pluton (Ohu)
3 Catheart Mountain pluton (SOha)
4 Sally Mountain pluton (SOha)
5 Hog Island pluton (Dnh)
6 Skinner pluton (Ohu)
7 Spider Lake (Lac aux Araignees) pluton (Dnh)
8 Chain of Ponds pluton (Dnh)
9 Seven Ponds pluton (Dnh)
10 Thrasher Peaks plutons (Dpid)
11 Marble Mountain sheeted dikes (DSgf)
12 East Inlet pluton (Sb, Sbm)
13 Parmachenee pluton (Dnh)
14 Magalloway Mountain pluton (Dnb)
15 Lincoln Pond pluton (Dnb)
16 Cupsuptic pluton (Dnb)
17 Boil Mountain Complex (€op)
18 Elephants Head pluton (Dng)
Flagstaff Lake plutons
19A Gabbroic facies (Dng)
19B Granitic facies (Dnb)
19C Doctors Island dike (Dng)
20 Pierce Pond pluton (Dng)
Lexington batholith
21A Main body (Dnb)
21B South lobe (Dnt)
22 Bog Brook pluton (Dng)
23 Huston Brook pluton (Dng)
24 Sugarloaf pluton (Dng)
25 Redington pluton (Dnb)
Phillips batholith
26A North lobe (Dnb+Dnt)
26B South lobe (Dnb)
27 West Mountain pluton (Dng)
28 Bunker Pond pluton (Dnb)
29 Rumford plutons (Dnh, Dnp)
30 Whitecap Mountain pluton (Dnp+Dnt)
31 Rumford Point pluton (Dnt)
32 Howard Pond pluton (Dnb)
33 Plumbago pluton (Dng)
Mooselookmeguntic batholith
34A Main body (Dnt)
34B Southeast pluton (Dnh)
34C Mafic facies (Dnhm)
35 Adamstown pluton (Ohu+Dnt)
36 Umbagog pluton (Dnh)
37 Greenough Pond pluton (Dnt)
38 Cambridge Black pluton (Ohu)
39 Chickwolnepy intrusions (Ocg, Oct)
40 Long Mountain pluton (Mt)
41 Owlhead Mountain pluton (Jwu)
42 Percy pluton (Jwc)
43 Gore Mountain plutons (Jwc, Jwu)
43A Gay Brook ring dike(?) (Jwc)
44 Monadnock Mountain plutons (Jwu)
45 Averill pluton (Dnb)
Echo Pond plutons
46A Granite to granodiorite (Dnb)
46B Quartz monzodiorite to gabbro (Dnhm)
47 Willoughby pluton (Dnt)
48 Nulhegan pluton (Dnh)
49 Newark pluton (Dnbv)
50 Maidstone pluton (Dnb)
51 Victory pluton, west lobe (Dnb)
52 Victory pluton, east lobe (Dnh)
53 Lost Nation pluton (Ohu)
53A Morse Mountain sheet (Sb?)
54 Cape Horn ring dike (Jwu)
55 Pilot-Pliny plutons (Jwc, Jwu)
56 Crescent Range ring dike (Jwu)
57 Joslin Turn pluton (Ojt)
58 Highlandcroft pluton (Ohu)
59 Remick pluton (Dnh)
60 Alderbrook pluton (Dnbv)
61 Whitefield pluton (Ohu)
62 Cherry Mountain pluton (Jwu)
63 Jefferson batholith (Oou, SOoh)
64 Success lobe of Jefferson batholith (Oou)
65 Bretton Woods pluton (Dnt)
66 Gorham pluton (Dnt)
67 Mount Hayes pluton (Dnt)
68 North Baldface pluton (Pt)
69 Songo pluton (Dnh)
70 North Jay pluton (Dnt)
71 Chesterfield pluton (Dnt)
72 New Sharon pluton (Dnt)
73 Bromley pluton (Dnt)
74 Androscoggin Lake plutons (Msu)
75 Leeds pluton (Dnt)
76 Wales pluton (Dnt)
77 Sabattus pluton (Dnb)
78 Sebago batholith (Pt)
79 South Baldface Mountain pluton (Jwc)
80 Pleasant Mountain pluton (Kw, Kwv)
81 White Mountain batholith (Jwc, Jwu, Jwv)
82 Hart Ledge plutons (Jwu)
83 Cannon Mountain lobe of White Mountain batholith (Jwc)
84 Lincoln pluton (Dnb)
85 Mount Clough pluton (Dnb)
86 Sugar Hill pluton (Oou)
87 Landaff pluton (Oou)
88 Moody Ledge pluton (Oou)
89 Slice of Moody Ledge pluton (Oou)
90 Haverhill pluton (Dnb)
91 French Pond pluton (Dnbv)
92 Owls Head pluton (Oou)
93 Sheeted dikes in Waterford (DSg)
94 Fairlee pluton (Dnb)
95 Indian Pond pluton (Dnb)
96 Baker Pond pluton (Oou)
97 Mascoma pluton (Oou)
98 Smarts Mountain pluton (Oou)
99 Sheeted dikes at Leighton Hill (DSg)
100 Sheeted dikes at Peaked Mountain (DSg)
101 Hereford Mountain pluton (Jwc?)
102 Megantic Mountain plutons (Kw)
103 Scotstown pluton (Dnb)
104 Mont Ste.-Cécile pluton (Dnb)
105 Undated granite of Mount Stoke (Ohu?)
106 Thetford Mines and related ophiolitic bodies (Oop)
107 Lac Aylmer pluton (Dnb)
108 Winslow pluton (Dnb)

Figure 2. Map of Sherbrooke and Lewiston 1° x 2° quadrangles and adjacent areas to the southwest showing lithotectonic units, tectonic belts, tectonic lines, and plutons [simplified from map A, St. Julien and Slivitsky (1987), and Tremblay and Pinet (1994)].

TECTONIC LITHOFACIES, GEOPHYSICAL, AND MINERAL-RESOURCE APPRAISAL MAPS OF THE SHERBROOKE-LEWISTON AREA, MAINE, NEW HAMPSHIRE, AND VERMONT, UNITED STATES, AND QUEBEC, CANADA

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