



fiddle and Lower Ordovician) —Light-gray, fine- erous, and platy bluish-gray limestone. Contains ockian conodonts at the type locality near Sciota on quadrangle (J.E. Repetski, USGS, written	
ver Ordovician) —Light-tan to gray, thinly bedded nd dolomitic siltstone and quartzite in beds similar nd Quartzite Member (Ofcrp)	,
r Ordovician) (Shown only in New York and mottled, medium- to thick-bedded dolomitic olostone	
ower Ordovician)—Light-gray, medium-grained, tone, locally cherty; contains lens of light-gray- le (Ogml)	
n-weathering, gray, well-bedded and crossbedded stone; sandy beds weather to a woody-grained	
rdovician and Upper Cambrian)—Predominantly barse-grained dolostone and cherty dolostone, ne (OcwI)	
r Cambrian) —Light-gray, yellowish-gray- to buff- e, pebbly dolomitic quartzite, and interbedded	
C ambrian) —Light-gray, tan, and dark-gray, well- dded vitreous quartzite, and local conglomerate	
unconformity	
soproterozoic rocks of the Adiron- n the Whitehall, N.Y., area	
c)—Dark-gray to greenish-gray, very fine grained, ed augite-plagioclase diabasic dikes, occurring as a scontinuous zone in the center of Bald Mountain	

	Light-greenish-gray to pinkish-gray, well-foliated and well-layered quartz-rich gneiss and more mafic biotite-hornblende-pyroxene-quartz-plagioclase gneiss irregularly distributed within unit. Unit may be in part older than the tonalitic gneiss (Y ² bt)
Y ² bmg	Mafic gneiss (Middle to Early Mesoproterozoic) —Dark-gray to black, fine-grained, magnetite-garnet-hornblende-biotite-diopside-plagioclase gneiss, commonly containing beds of dark-gray vitreous magnetite-garnet quartzite, 2 to 5 cm thick, tremolite-pyroxene gneiss, and biotite-rich, rusty-weathering garnet-quartz schist and gray sulfidic sillimanite quartzite. Occurs as screens within tonalitic gneiss and the Pharaoh Mountain Gneiss and is interpreted as paragneisses older than the tonalitic gneiss (Y ² bt)
	Vermont Valley sequence and Middlebury synclinorium (above the Orwell and Champlain thrusts)
Oh	Hortonville Formation (Upper Ordovician)—Dark-gray siliceous shale and phyllite containing thin beds of bluish-gray argillaceous limestone and minor beds

€Zfco	weathering quartz-pebble dolostone and dolomitic crossbedded feldspathic metasandstone; lower part of $\mathcal{C}Zfd$ largely cream- to beige-weathering massive dolostone; $\mathcal{C}Zfco$ is boulder and cobble dolostone conglomerate
€Zfq	Quartzite member —Grayish-tan to light-gray vitreous quartzite and white feldspathic gritty quartzite
€Zfb	Phyllite and dolostone breccia member —Dark-gray to sooty-black carbona- ceous phyllite, interbedded dolostone boulder conglomerate to breccia, and blue- and gray-mottled sulfidic dolostone
	Pinnacle Formation (Cambrian and Neoproterozoic)
€Zpu	Pinnacle Formation, undivided —Gray, foliated muscovite-chlorite-biotite-feldspar-quartz schist, phyllite, and metagraywacke. Quartz is commonly blue, and local thin conglomeratic horizons are present. Feldspathic biotite phyllitic metawacke is interlayered with lenses of quartz, feldspar, and gneiss-pebble to -cobble conglomerate (ε Zpc)
€Zpc	Light-gray phyllitic conglomerate member —Feldspathic biotite phyllitic metawacke interlayered with lenses of quartz, feldspar, and gneiss-pebble to -cobble conglomerate
€Zpw €Zpwd	Metawacke member —Gray- to light-brownish-gray-weathering, massive to bedded muscovite-biotite-chlorite metawacke, conglomerate, and blue-quartz pebbly phyllite, wacke and feldspathic quartzite; heterogeneous unit consists of coarse- to medium-grained clastic wacke, beige-weathering dolostone, and quartz-rich dolostone (CZpwd)
€Zps	Metawacke and phyllite member —Light-gray, medium-grained, massive quartz-sericite-chlorite-albite metawacke, gray to grayish-green magnetite-chlorite-muscovite-quartz schist, and phyllite or pebbly phyllite, locally rich in magnetite
£Zpq	Quartzite and quartz-pebble conglomerate member—Light-gray quartz-feldspar conglomerate and quartzite
€Zpcg	Cobble and boulder conglomerate member —Poorly sorted, matrix- supported quartz- and gneiss-cobble to boulder conglomerate, locally contain- ing quartzite boulders as large as 3 m in diameter, in a matrix of gray-weathering magnetite-calcite-chlorite-muscovite-biotite-feldspar schist
€Zpv	Metabasalt and volcaniclastic rocks, undifferentiated —Largely carbonate-epidote-albite-chlorite (±actinolite) greenstones
£Zpva	Amphibolitic greenstone member— Calcite-biotite-sphene-albite-actinolite- epidote-chlorite greenstone with dark-green porphyroblasts of actinolitic hornblende
€Zрvc	Calcareous greenstone member —Rusty-weathering and pitted, dark-green greenstone with laminae and splotches of calcareous material; locally interbed- ded with calcareous metagraywacke
£Zpvf	Feldspathic greenstone member —Olive-drab-weathering, dark-green, fine-grained greenstone with remnant plagioclase feldspar phenocrysts up to 1.5 cm in diameter
€Zth	Tibbit Hill Formation (Cambrian and Neoproterozoic) —Largely metabasalt and minor metasedimentary rocks consisting of massive, fine-grained, dark-green metabasalt flows, pillow basalt, vesicular basalt composed of albite, epidote, chlorite (±actinolite); and interbedded phyllitic grits, feldspathic quartzite, chloritic metawacke, and basaltic tuffaceous metasedimentary rocks, all similar to rocks of the Pinnacle Formation. Volcanics are alkalic to transitional metabasalts
	Cambrian to Middle Ordovician rocks of the St. Albans area
Oml	Morses Line Slate (Ordovician)—Medium-gray to black calcareous slate
Ohg	Highgate Formation (Lower Ordovician)—Banded limestone and calcareous slate with local lenses of conglomerate composed of limestone, sandstone, and dolostone clasts in a sandy limestone matrix
O£g	Gorge Formation (Lower Ordovician and Cambrian) —Dolomite, and dolomite breccia composed of angular clasts of dolostone, sandstone, and chert in a buff to gray quartzose dolostone
O€sw	Sweetsburg Formation (Lower Ordovician and Cambrian?) —Black to gray, graphitic, quartzose phyllite and schist, with tan-weathering layers and pods of gray dolostone and black quartzite
O€sk	Skeels Corners Slate (Lower Ordovician and Cambrian) —Laminated black slate with thin orange dolostone beds; includes massive dolostones mapped as Saxe Brook Formation by others in the Highgate area
O€skl	Limestone matrix conglomerate member —Limestone and sandstone clasts in a limestone matrix, interbedded with sandstone
O€sks	Sandy matrix conglomerate member—Limestone and sandstone clasts in a quartz sand matrix

BEDROCK GEOLOGIC MAP OF VERMONT

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Prepared in cooperation with the

Quartzite member —White muscovite quartzite locally ri	schist member—Gray to medium-dark-gray, ous albite-chlorite-quartz-muscovite schist, contain- albite. Unit resembles gray albitic granofels and tion (CZhab)	Y ² lg
Formation (€Ztq) Schist member—Silvery-g sericite (±garnet±chloritoid	e quartzite and tan to light-gray, medium-grained ch in magnetite. Resembles quartzite of the Tyson green to rusty-tan, fine-grained chlorite-quartz- ±allanite) schist and phyllite. Resembles green	Y ² ph Y ² l
phyllites of the Pinney Hollc tion (CZa) and chloritic phyll Pinney Hollow Formation (Ca	w Formation (CZph) and Mount Abraham Forma- lite (CZtg) of the Tyson Formation ambrian and Neoproterozoic)	χ^2 c
(CZphc) appear gritty owing locally albitic and contains m	d±garnet±magnetite) phyllite. Chloritoid-rich rocks to distributed porphyroblasts of chloritoid. Unit is ninor beds of quartzite	Y ² b
Feldspathic quartz schist i gritty feldspathic chlorite-mu Metawacke member—Silve blue-quartz-pebble chlorite	member—Light-gray to grayish-green, laminated, iscovite-plagioclase-quartz schist ery-gray, "pinstriped," coarse- to medium-grained, e-biotite-plagioclase-quartz metawacke; locally	× ¹ n
Black phyllite member—D schist, commonly interbedde member (€Zpha); locally is a	pudote Dark-gray to black, sulfidic biotite-plagioclase-quartz ed with or adjacent to amphibolite and greenstone a silvery-gray sulfidic biotite phyllite	Y ¹ t
Amphibolite and greensted biotite-hornblende (±quartz) chlorite-magnetite-plagioclas massive but well-foliated me	one member—Dark-green to black plagioclase- amphibolite, epidote amphibolite, and ankeritic- se (albite) greenstone. Shows all gradations from etabasalt to well-bedded basaltic volcaniclastic rock) Yld
Metafelsite member—Whi calcite-muscovite-quartz-albit volcaniclastic rock. U-Pb z Aleinikoff, 1999). Contains	ite to pale-green, laminated to massive epidote- te metarhyolitic gneiss or schist; is a volcanic or zircon age of 571±5 Ma, no. 21 (Walsh and s purplish-gray feldspathic quartzite	Y ¹ bi
Monastery Formation (Camb consisting of coarse-grained, muscovite-quartz schist, beds o biotite-quartz granofes, well-bed	prian and Neoproterozoic)—Heterogeneous unit gray- to rusty-brown-weathering garnet-biotite- of gritty feldspathic quartzite (CZmtg), gray albitic Ided light-gray to steel-gray biotite, minor epidote-	∀ ¹ bn
laminated chlorite-muscovite-al Hancock and Ripton in part as south and the Underhill Format	lbite granofels and phyllite. Unit mapped in s lateral equivalent of the Tyson Formation to the ion to the north	Y ¹ fd
Eastern flank of the Green Plymouth Formation (Cambri Dolostone member—Light	n Mountain massif and eastern domes an)	
bluish-gray-weathering mott upward into more thinly dark-gray phyllitic dolostone with boulder and conglomer and with similar beds in the Feldspathic quartzite mer gray- and brownish-gray- to quartzite and phyllitic quartz Formation (€Zdfq) and simil	Ided dolostone breccia and conglomerate, passing bedded bluish-gray and buff dolostone breccia; e and limestone in upper part. Correlative in part rate beds of the Dunham Dolostone near Rutland upper part of the Forestdale Formation mber —Thinly laminated but massive-appearing, tan-weathering flaggy biotite-muscovite feldspathic cite. Resembles feldspathic quartzite of the Dalton lar quartzite of the Moosalamoo Formation (CZmf)	Y ¹ f₁
Tyson Formation (Lower Carr (shown on the eastern and west	n brian and Neoproterozoic) tern flanks of the Green Mountain massif)	
Tyson Formation, undivide Albitic magnetite granofel chlorite-(biotite)-muscovite-al green albitic granofels of the Chlorite-muscovite phyllite lowish-greenish-gray, chlori contains beds of pebbly meta grained than the metawacke	d—Phyllite and metawacke. Shown east of Rutland Is member —Gray and greenish-gray, magnetite- lbite-quartz granofels and schist. Similar to gray or e Hoosac Formation (CZhab and CZhgab) e and schist member—Pale-greenish-gray to yel- ite-muscovite-quartz phyllite and schist; locally awacke and magnetite phyllite. Similar to but finer e and phyllite member of the Pinnacle Formation	Y ² cn
(€2ps) Quartz phyllite member— muscovite-quartz phyllite and Quartz-pebble phyllite and chlorite-quartz-pebble phylli member of the Pinnacle Foi metawacke. Albitic biotite-(c Quartzite member—Gray t	Rusty-weathering, gray to grayish-green, chlorite- d minor beds of pebbly-quartz metawacke d wacke member —Gray to grayish-green, biotite- ite; albitic metawacke is similar to metawacke rmation but more thinly bedded and contains less hlorite)-quartz granofels and wacke locally present o very light gray, vitreous and nonvitreous, massive	Y ² m
 Character memoer—Gray to thin-bedded quartzite, mag ite, locally interbedded with Formation (CZfq) Dolostone member—Larg weathering dolostone, beds tan-weathering dolostone as and whitish-argue site 	gely massive, gray-, beige-, and pinkish-gray- of pebbly quartz dolostone, and pink- to orange- s lenses in phyllite. Contains beds of bluish-gray uartzite. Similar to dolostone of the D	
Formation (€Zfd) Albite schist member– rusty-brown-weathering biot	—Dark-gray to black, locally carbonaceous, ite-rich quartz schist and dark biotite-albite schist	Y [?] dı
Conglomerate member (±albite)-quartz-pebble, -col conglomeratic metawacke, a pebble conglomerate. Occur Hoosac Formation (Lower Ca	Massive to well-bedded chlorite-biotite bble, and -boulder conglomerate, feldspathic and locally a dolomite-cemented feldspathic quartz- rs at base and in lower part of the Tyson Formation ambrian and Neoproterozoic)	۷ ² c
Hoosac Formation, undivid dark-gray to medium-light-gray- slabby quartz-rich muscovite (±g ite and metawacke	led—Heterogeneous unit consisting mainly of weathering, white-plagioclase-studded schist, gray arnet) schist, and layers of dark-gray biotitic quartz-	
Garnet schist member—Lu muscovite-quartz (±paragoni lacks amphibolite. Aluminou Cavendish Formation may b	ustrous, green, ilmenite-chlorite-chloritoid-garnet- ite) schist; resembles Pinney Hollow Formation but as schists at Devils Den and aluminous rocks of the be correlative	
Biotite phyllite member weathering, biotite-muscovit lenses of white laminated qu Turkey Mountain Metabas	r—Coal-black, lustrous, rusty- to non-rusty- te-plagioclase-quartz schist and phyllite, containing lartzite as beds and discoidal boudins salt Member—Dark-green to black, hornblende-	
plagioclase (±garnet±epid plagioclase ankeritic gree volcaniclastic wacke. Occur layers are transitional and all ridge basalt (MORB)-type mo	ote) amphibolite and grayish-green epidote- enstone; grades into epidote-quartz-plagioclase rs as lenses at multiple stratigraphic levels. Lower kalic metabasalts; higher units are typical midocean etabasalts	
Dolomite marble member medium- to fine-grained pl beds in gray albitic granofels to bluish-gray laminated qua	-Light-gray-, cream- or pinkish-gray-weathering, hlogopite-quartz-dolomite marble. Occurs as thin member (CZhab); locally contains beds of vitreous rtzite	
Albite schist and grand dark-gray, black albite-bioti spangles of muscovite and w	ofels member—Rusty-weathering, medium- to ite-quartz schist and granofels, marked by large veathered-out pits of dolomite or ankerite	Y ¹ c
Quartzite member—Light-g biotite or muscovite quartzite ite, commonly occuring as ba Schist member—Lustrous, biotite-quartz schist and stee	gray-, yellowish-gray- to dark-dull-gray-weathering, , feldspathic quartzite, and pebbly muscovitic quartz- asal member or as layers in schist member (CZhs) , dark-gray to silvery-gray tourmaline-muscovite- el-gray muscovitic quartzite	_
Garnet biotite schist mer garnet-biotite-muscovite-plag associated with CZhs memb	mber—Medium-dark-gray to lustrous silvery-gray gioclase-quartz schist and feldspathic garnet schist; her which it laterally replaces	Y ¹ c
Chlorite albite schist and g gray, chlorite-magnetite-whi Albite-quartz granofels n massive to thickly bedded m	granofels member—Pale-green to light-greenish- te-albite-spotted-quartz granofels and schist nember—Light-gray- to whitish-gray-weathering, edium-grained biotite-white albite-quartz granofels;	Y ^{1?} c
locally is a medium-gray, fin- gneissic aspect Albite granofels and gnei massive, coarse-grained bic	er grained, more biotite-rich albitic quartz schist of iss-boulder conglomerate member —Light-gray, otite-white albite-quartz granofels like CZhab but	Y'c
containing boulders of pegm of albitic granofels as pseudo Conglomerate and qu biotite-muscovite-quartz cor dark-medium-gray blue-guar	natite and of granitic gneiss, and disarticulated beds oconglomerate nartzite member—Light-grayish-tan-weathering, nglomerate and pebbly muscovite quartzite, and tz biotite quartzite and schist	
	unconformity	Y ^{3A} b
Neoproterozoic and Meso and Lincoln Mountain ma ardinal Brook Intrusive Suite (65±4 Ma to 945±7 Ma)	proterozoic rocks of the Green Mountain ssifs and eastern domes (Neoproterozoic)	
Neoproterozoic and Meso and Lincoln Mountain mat ardinal Brook Intrusive Suite (65±4 Ma to 945±7 Ma) Mafic dikes—Medium- to co epidote retrograded metadiabas Stamford Granite—Light-grav	proterozoic rocks of the Green Mountain ssifs and eastern domes (Neoproterozoic) parse-grained, foliated, actinolite-chlorite-calcite- sic dikes; commonly have relict diabasic texture y to medium-gray, very coarse grained biotite-	Yu
Neoproterozoic and Meso and Lincoln Mountain mat ardinal Brook Intrusive Suite (65±4 Ma to 945±7 Ma) Mafic dikes—Medium- to co epidote retrograded metadiabas Stamford Granite—Light-gray plagioclase-microcline rapakivi perthite having rims of plagioc Unit includes lesser irregular dik rite and ferromonzonite. A fi muscovite-biotite-microcline-pla	proterozoic rocks of the Green Mountain ssifs and eastern domes (Neoproterozoic) barse-grained, foliated, actinolite-chlorite-calcite- sic dikes; commonly have relict diabasic texture y to medium-gray, very coarse grained biotite- granite; contains large megacrysts of microcline elase that contain inclusions of biotite and garnet. tes and segregations of hornblende-biotite ferrodio- ne-grained facies consisting of white-weathering, gioclase aplitic granite (Y ^{ac} cbsa) locally forms a	Yu Y ² w
Neoproterozoic and Meso and Lincoln Mountain ma- ardinal Brook Intrusive Suite (65±4 Ma to 945±7 Ma) Mafic dikes—Medium- to co epidote retrograded metadiabas Stamford Granite—Light-gray plagioclase-microcline rapakivi perthite having rims of plagioc Unit includes lesser irregular dik rite and ferromonzonite. A fi muscovite-biotite-microcline-pla border facies or thin internal dik no. 20 (revised from Karabinos Somerset Reservoir Granite— perthite or porphyritic rapakivi	proterozoic rocks of the Green Mountain ssifs and eastern domes (Neoproterozoic) barse-grained, foliated, actinolite-chlorite-calcite- cic dikes; commonly have relict diabasic texture y to medium-gray, very coarse grained biotite- granite; contains large megacrysts of microcline clase that contain inclusions of biotite and garnet. tes and segregations of hornblende-biotite ferrodio- ne-grained facies consisting of white-weathering, gioclase aplitic granite (Y ^{3C} cbsa) locally forms a e.s. U-Pb zircon upper-intercept age of 962±1 Ma, and Aleinikoff, 1990) -Light-pinkish-gray-weathering, biotite-microcline- granite and peqmatitic granite; where deformed is	Yu Y ² w
Neoproterozoic and Meso and Lincoln Mountain matardinal Brook Intrusive Suite (65±4 Ma to 945±7 Ma) Mafic dikes—Medium- to co epidote retrograded metadiabas Stamford Granite—Light-gray plagioclase-microcline rapakivi perthite having rims of plagioc Unit includes lesser irregular dik rite and ferromonzonite. A fi muscovite-biotite-microcline-pla border facies or thin internal dik no. 20 (revised from Karabinos Somerset Reservoir Granite— perthite or porphyritic rapakivi a mylonitic augen gneiss. Whi microcline-perthite aplitic to per rocks and irregular border facies no. 19 (Karabinos and Aleiniko	proterozoic rocks of the Green Mountain ssifs and eastern domes (Neoproterozoic) barse-grained, foliated, actinolite-chlorite-calcite- ic dikes; commonly have relict diabasic texture y to medium-gray, very coarse grained biotite- granite; contains large megacrysts of microcline lase that contain inclusions of biotite and garnet. tes and segregations of hornblende-biotite ferrodio- ne-grained facies consisting of white-weathering, gioclase aplitic granite (Y ^{3C} cbsa) locally forms a es. U-Pb zircon upper-intercept age of 962±1 Ma, and Aleinikoff, 1990) -Light-pinkish-gray-weathering, biotite-microcline- granite and pegmatitic granite; where deformed is ite to pinkish-gray, medium-grained plagioclase- egmatitic granite (Y ^{3C} bsa) forms dikes in country s. U-Pb zircon upper-intercept age of 965±4 Ma, ff, 1990)	Yu Y ² w
Neoproterozoic and Meso and Lincoln Mountain ma- ardinal Brook Intrusive Suite (65±4 Ma to 945±7 Ma) Mafic dikes—Medium- to co epidote retrograded metadiabas Stamford Granite—Light-gray plagioclase-microcline rapakivi perthite having rims of plagioc Unit includes lesser irregular dik rite and ferromonzonite. A fi muscovite-biotite-microcline-pla border facies or thin internal dik no. 20 (revised from Karabinos Somerset Reservoir Granite— perthite or porphyritic rapakivi microcline-perthite aplitic to per rocks and irregular border facies no. 19 (Karabinos and Aleiniko Harriman Reservoir Granite microcline megacrystic granite preserved. Unit occurs in the Ra	 proterozoic rocks of the Green Mountain ssifs and eastern domes (Neoproterozoic) barse-grained, foliated, actinolite-chlorite-calcite-sic dikes; commonly have relict diabasic texture y to medium-gray, very coarse grained biotite-granite; contain inclusions of biotite and garnet. tes and segregations of hornblende-biotite ferrodio-ne-grained facies consisting of white-weathering, gioclase aplitic granite (Y^{3c}cbsa) locally forms a e.s. U-Pb zircon upper-intercept age of 962±1 Ma, and Aleinikoff, 1990) -Light-pinkish-gray-weathering, biotite-microcline-granite and pegmatitic granite; where deformed is ite to pinkish-gray, medium-grained plagioclase-egmatitic granite (Y^{3c}bsa) forms dikes in country s. U-Pb zircon upper-intercept age of 965±4 Ma, ff, 1990) —Light-gray to pinkish-gray, biotite-plagioclase-te and augen gneiss; rapakivi texture locally ayponda and Sadawga domes n (1931)—Light-pinkish-gray to gray, very coarse 	Yu Y ² w Y ² rs Y ² rs
Neoproterozoic and Meso and Lincoln Mountain ma- ardinal Brook Intrusive Suite (65±4 Ma to 945±7 Ma) Mafic dikes—Medium- to co epidote retrograded metadiabas Stamford Granite—Light-gray plagioclase-microcline rapakivi perthite having rims of plagioc Unit includes lesser irregular dik rite and ferromonzonite. A fi muscovite-biotite-microcline-pla border facies or thin internal dik no. 20 (revised from Karabinos Somerset Reservoir Granite— perthite or porphyritic rapakivi a mylonitic augen gneiss. Whi microcline-perthite aplitic to per rocks and irregular border facies no. 19 (Karabinos and Aleiniko Harriman Reservoir Granite microcline megacrystic graniti preserved. Unit occurs in the Ra Bull Hill Gneiss of Richardson grained to medium-grained a augen gneiss; locally has large intrusive breccia containing x Complex. Restricted to the Ch	 proterozoic rocks of the Green Mountain ssifs and eastern domes (Neoproterozoic) barse-grained, foliated, actinolite-chlorite-calcitesic dikes; commonly have relict diabasic texture y to medium-gray, very coarse grained biotitegranite; contains large megacrysts of microcline clase that contain inclusions of biotite and garnet. tes and segregations of hornblende-biotite ferrodione-grained facies consisting of white-weathering, gioclase aplitic granite (Y^{3C}cbsa) locally forms a ess. U-Pb zircon upper-intercept age of 962±1 Ma, and Aleinikoff, 1990) -Light-pinkish-gray-weathering, biotite-microcline-granite and pegmatitic granite; where deformed is ite to pinkish-gray, medium-grained plagioclase-egmatitic granite (Y^{3C}bsa) forms dikes in country s. U-Pb zircon upper-intercept age of 965±4 Ma, ff, 1990) —Light-gray to pinkish-gray, biotite-plagioclase-te and augen gneiss; rapakivi texture locally ayponda and Sadawga domes n (1931)—Light-pinkish-gray to gray, very coarse nd mylonitic biotite-plagioclase-quartz-microcline e ovoidal relict microcline with rapakivi rims and tenoliths of gneissic units of the Mount Holly complex and the U-u-V 	Yu Y ² w Y ² rs Y ² rs
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Neoproterozoic and Meso and Lincoln Mountain ma ardinal Brook Intrusive Suite (65±4 Ma to 945±7 Ma) Mafic dikes—Medium- to cc epidote retrograded metadiabas Stamford Granite—Light-gray plagioclase-microcline rapakivi perthite having rims of plagioc Unit includes lesser irregular dik rite and ferromonzonite. A fi muscovite-biotite-microcline-pla border facies or thin internal dik no. 20 (revised from Karabinos Somerset Reservoir Granite— perthite or porphyritic rapakivi a mylonitic augen gneiss. Whi microcline-perthite aplitic to p procks and irregular border face no. 19 (Karabinos and Aleiniko Harriman Reservoir Granite microcline megacrystic granit preserved. Unit occurs in the Rd Bull Hill Gneiss of Richardso Granito medium-grained a augen gneiss; locally has large intrusive brecia containing x Complex. Restricted to the Ch well as in fault slivers along th intercalated with rocks of the N U-Pb zircon upper-intercept ag (Karabinos and Aleinikoff, 1990 at Holly Complex intrusive in parts of the Green Mountain m ighly interpretive based on c character Albitic biotite granite and pp Pinkish-gray garnet-biotite-ablite bodies. Albitic gneiss (Mess lineated, light-tannish-gray to gr magnetite-biotite (choire)-muss spots of ankerite and clos of ch are common. Highly altered root 1,120-Ma period of granitic intri biotite-quartz-plagioclase gneiss albitic micropegmatite, to nonl central Green Mountain massif and along the eastern margin of thittenden Intrusive Suite (Late 1,149-28 Ma to 1,119±3 Ma) Hornblende gabbro-diorte xene) gabbro and diorite at Rob contact that crosscuts paragnetie to nord parses locally into more equi extensive areas of biotitte purg- gearing. Enclaves of metasedi gneisses are locally albitized aluminous altered rocks now cc uith numory ropos and my Mountain Intrusive Suite (Inter Microcline-augen granite an passe locally into micre equi extensive areas of biotitte paragnetic mi di nord and splute interpretice mori agen of 1,149±3 Ma) Granitic gneiss of Littender migmatitic onle appretinte gra	<pre>proterozoic rocks of the Green Mountain sifs and eastern domes Neoproterozoic) arresegrained, foliated, actinolite-chlorite-calctie- ic dikes; commonly have relict diabasic texture if and modum-gray, very coarse grained biotti- se and sagregations of homblemde-biottie ferrotion- negrained facies constitution of biottie and garantic sea disergrapations of homblemde-biottie ferrotion- negrained facies constitution of white-weathering, colcase apilite grainite ("Peab) locally forms a sea U-Pb aricon upper-intercept age of 965.44 Ma, if 1990) —Light-philds-gray, weathering, biottie-plagioclase- generating and the "Phasi forms dikes in county s. UPD aircon upper-intercept age of 965.44 Ma, if 1990) —Light-philds-gray, biottie-plagioclase generating and badway domes and augen gnesis; rapakivi texture locally supporta and 264.44 Ma, and 2014 and alogen gnesis; rapakivi texture local apportance and badway domes are availed augen gnesis, rapakivi texture local apportance and badway domes are availed texture local apportantion and religitor philosib-gray, biottie-muscoties are availed western margins, and tectorically fourt Holly Complex and the Hocase Formation es of 945.71 Ma, no. 17, and 955.55 Ma, no. 18 and apple apportantie accorsecuting in the corelis of the granite generaties across cating and the appendix assocrating of gneissocity and weakly deformed assocrating of gneissocity and weakly deformed assocratic and gnatic agen provessoc, or gneric tristop and and applicity, enclosity for gnanities gneissocity and and anticity and stristop of gnanities gneissocity and and anticity and stristop of gnanities and the appendix in the dominations of muscina and anti- appendix and and applicity and applicity and aspecial by proving and ap</pre>	Yu Y²w Y²

medium- to fine-grained garnet-biotite-microcline-perthite granodiorite,

magnetite-studded white aplite, and kyanite-tourmaline permite granted in 0.5-cm clots of muscovite possibly after beryl. Intrudes quartzite, lustrous schist: (Y¹rs), and calc-silicate rocks on Ludlow Mountain. U-Pb zircon SHRIMP age o

1,309±6 Ma, no. 9 (Aleinikoff and others, 2011)

2	either Y ² Igg or Y ² phg. Exposed on Ludlow Mountain	Owbl	Graptoliferous slate (Upper Ordovician) —Black slate of <i>Climacograptus bicornis</i> Biozone on and west of Whipstock Hill, otherwise typical of slates of the
Y ² pha	Proctor Hill granodiorite gneiss (Middle Mesoproterozoic)—Gray to pinkish- gray, gneissoid magnetite-biotite-microcline-perthite granodiorite, and locally microcline megacrystic gneissic granite, well-foliated and highly variable in compo-		Walloomsac Formation shown as Ow
	with calc-silicate rocks. Crosscuts all paragneiss units; is a thoroughly gneissic rock. Correlated with the Ludlow Mountain granodiorite gneiss	Opaw	Rocks of the Giddings Brook, Sunset Lake, and Bird Mountain slices Pawlet Formation (Upper Ordovician)—Light-gray, tan-weathering,
Y ² cp	Cole Pond tonalite gneiss (Middle Mesoproterozoic) —Gray to medium-dark- gray, biotite-rich metatonalite gneiss, having irregular screens, and xenoliths of	Oag	mica-speckled, massive to thin-bedded quartz-plagioclase wacke interbedded with dark-gray carbonaceous slate. Contains distinctive autoclastic chips of gray slate, fragments of dacitic to andesitic volcanics, and subangular clasts of dark-gray
V ² hv	of 1,321±9 Ma, no. 7 (Ratcliffe and others, 1991; Aleinikoff and others, 2011)		quartz and oligoclase. Interbedded black slates contain graptolites of the <i>C. bicornis</i> Biozone (see Webby and others, 2004, fig. 2.1) (lower to middle Mohawkian). Interpreted as uncomformable on rocks as old as the Hatch Hill
TUV	Light-gray to whitish-gray, fine-grained biotite trondhjemitic gneiss, locally contain- ing abundant magnetite. U-Pb zircon SHRIMP age of 1,342 Ma, no. 6B (Ratcliffe		Formation and possibly the West Castleton Formation of the allochthon. Unit is indistinguishable from beds in the Austin Glen Graywacke (after Potter, 1972) (Oag) interpreted as synorogenic autochthonous rocks
Y ¹ rta Y ¹ rt	and others, 1991; Aleinikoff and others, 2011) Rawsonville trondhjemite gneiss (Early Mesoproterozoic)—Chalky-white to	Omm	Mount Merino Formation (Upper Ordovician)—Light-gray, powdery-weather- ing, and red, green, and dark-gray, thinly bedded siliceous argillite and mudstone
	aplite (Y ¹ rta). Dated sample with U-Pb zircon SHRIMP age of 1,367±16 Ma, no. 3 (Ratcliffe and others, 1991; Aleinikoff and others, 2011) from crest of Bromley	Oir	distinguished from the Indian River Slate by abundance of cherty siliceous layers Indian River Slate (Upper Ordovician)—Deep-maroon and bluish-green-
Y ¹ tg	Mountain; U-Pb zircon age of 1,348±3 Ma, no. 6 (Ratcliffe and others, 1991) Tonalite gneiss (Early Mesoproterozoic) —Medium-gray- to light-gray-		weathering, well-bedded and variegated slate; contains minor centimeter-thick, white-weathering, red and bluish-black cherty layers characteristic of the Mount Merino Formation. Contains graptolites of the <i>C. bicornis</i> Biozone (Berry, 1961)
	weathering, biotite (\pm hornblende) tonalite gneiss exposed on Torment Hill in Weston; probably correlative with the Baileys Mills tonalitic gneiss or the Felchville trondhjemite facies (Y ¹ fg) of the Chester dome, but undated	Оро	Poultney Formation (Middle and Lower Ordovician) —Dull-white and whitish- gray-weathering, and pale-green and gray, thinly bedded to laminated slate and
Y ¹ dg	Hornblende diorite gneiss (Early Mesoproterozoic)—Coarse-grained hornblende-plagioclase (±quartz) dioritic gneiss and gabbroic gneiss mapped in the		phyllite. Has distinctive beds, 1 cm to several centimeters thick, of siliceous argillite and metasiltstone and locally abundant thin beds of micritic black limestone near the base, interbedded with dark slate. Contains graptolites ranging from Ibexian to
	Londonderry area, where it is interpreted as metagabbro and has a U-Pb zircon SHRIMP age of 1,393±9 Ma, no. 1 (Aleinikoff and others, 2011)		Whiterockian (Berry, 1961)
Y'bm	Baileys Mills tonalitic gneiss (Early Mesoproterozoic) —Light-gray to whitish- gray-weathering, medium-grained biotite-quartz-plagioclase gneiss flecked with coarse biotite. Contains numerous lenses of fine-grained amphibolite similar to	€wcu	West Castleton and Hatch Hill(?) Formations, undifferentiated (Cambrian)—Black slate and gray phyllite exposed on Woodlawn and Tinmouth Mountains in Pawlet and Tinmouth Townships, after usage of Shumaker and
	amphibolites associated with calc-silicate rocks of the type Mount Holly Complex in Mount Holly, rather than coarser grained dioritic gneiss associated with the Cole Pond and Rawsonville gneisses. U-Pb zircon SHRIMP age of 1,383±13 Ma, no. 2	£hh	Thompson (1967) Hatch Hill Formation (Upper Cambrian)—Dark-gray to black sooty- to
Y ¹ bmp	(Ratcliffe and others, 1991; Aleinikoff and others, 2011) Plagioclase-phenocrystic tonalite gneiss —Coarse-grained facies of the Baileys		rusty-weathering, splintery-fractured pyritic slate and phyllite and interbedded bluish-gray dolomitic quartzite
а внир	Mills tonalitic gneiss exposed on the northeast flank of the Chester dome	€wc €ls	West Castleton Formation (Middle and Lower Cambrian)—Dark-gray to black, fine-grained slate and phyllite, interbedded with thinly laminated bluish-black
· ·1•	Felchville Gneiss (Early Mesoproterozoic)		fine-grained limestone, limestone conglomerate, and boudins (€Is) of whitish- gray-weathering, bluish-gray quartzite. Unit is interbedded near the base with green phyllite and sooty-punky-weathering calcitic quartz wacke and limestone of
Y'fga	Felchville aplitic facies —Light-gray to whitish-gray, fine-grained, magnetite trondhjemitic gneiss and aplitic trondhjemite, intricately intrusive into layered paragneisses of the Chester dome; contains xenoliths of more mafic gneiss.	€eb	the Browns Pond Formation, which is shown separately where mapped Eagle Bridge Quartzite (Lower Cambrian) —Dull-gray, pitted, and bluish-gray
	U-Pb zircon SHRIMP age of 1,372±11 Ma, no. 4 (Aleinikoff and others, 2011). Similar fine-grained magnetite aplitic gneisses exposed in the Green Mountain massif are associated with tonalitic gneisses on Torment Hill Weston		dolomitic quartz wacke and quartzite distinguished by small pebbles and grains of dark-blue to black quartz, dacitic rock fragments, and abundant plagioclase. Beds
Y ¹ fg	Felchville trondhjemite facies—Light-gray to whitish-gray-weathering,		within the black slate and gray phyllite of the West Castleton and Hatch Hill(?) Formations, undifferentiated (ε wcu), and near the base of the Poultney Formations
	ritic gneiss; intrudes paragneiss units of the Chester dome. U-Pb zircon SHRIMP age of 1,370±11 Ma, no. 5 (Aleinikoff and others, 2011)	ls d	Carbonate (Cambrian and Neoproterozoic?)—Pods, lenses, or zones of thinly
Мо	unt Holly Complex paragneiss (Middle to Early Mesoproterozoic)	€wcnb	bedded limestone (Is), dolostone (d), and limestone conglomerate in the Mettawee slate facies in the Bull Formation, West Castleton Formation, and Hatch Hill Formation. These rocks locally contain Lower Cambrian fossils, but may range in
(incli unce	Ides possible felsic metavolcanic rocks and volcaniclastic rocks; relative age rtain; abundant interfingering of units and stratigraphic duplication likely)	€wcbb €co	age from Neoproterozoic to Late Cambrian. Includes named units shown locally as the North Brittain Conglomerate member of the West Castleton Formation (ε wcnb), the Bebe Limestone Member of the West Castleton Formation (ε wcbb),
	Problematic rocks at Devils Den in Weston and Danby areas (Mesoproterozoic?)—Near Devils Den and Moses Pond includes albitic biotite- muscovite schist, chloritoid-chlorite-muscovite (±garnet) schist, dolomite marble		and the Castleton Conglomerate (of Shumaker and Thompson, 1967) (€co)
	and minor quartzite which resemble rocks of the Tyson Formation, and retrograde varieties of the paragneisses of the Mount Holly Complex. Because these rocks are structurally compatible with Grenvillian or older folds in the Mount Holly	€Zbp	Browns Pond Formation of Rowley and others (1979) (Lower Cambrian)—Gray to black slate, punky-weathering calcitic wacke and mudstone, and thin limestone breccia in part equivalent to the West Castleton Formation.
	Complex and are transitional into rocks of the Mount Holly Complex, a Mesopro- terozoic age is favored. Nevertheless the resemblance to rocks of the Tyson Formation is striking		Shown only in the Granville, N.Y., area. Locally purple and green slate above black slate of the Browns Pond is interpreted as a lens of the Mettawee slate facies in the Bull Formation
Y [?] cms	Muscovite-chlorite-garnet schist—Light-silvery-green to gravish-green,		Bull Formation (Louise Combridge and Neoprotorozoia)
	biotite-albite-muscovite-quartz schist. Unit is highly variable both in texture and in composition (from ultrafine-grained phyllonitic schist to medium-grained	€Zmpq	Mud Pond Quartzite Member (Lower Cambrian)—Buff- to gray-weathering
	muscovite-garnet schist). Albitic varieties tend to contain more biotite and less muscovite. Rock is highly retrograded and contains abundant chlorite derived from the breakdown of garnet that contained large anhedral quartz and grains of	0754	vitreous quartzite as much as 6 m thick, containing deeply weathered ovoidal areas of carbonate-cemented quartzite
	coarse muscovite and biotite. Robust grains of rutile are abundant. Chloritoid commonly occurs in the fine-grained sericitic matrix but locally is found within large subhedral garnets. The contact with adjacent Y [?] mfs is gradational and	€Zbb (€Znb)	Bomoseen Graywacke Member (Neoproterozoic)—Pale-reddish-brown to light-gray-weathering, medium- and fine-grained, massive to thickly bedded, olive-green to gray micaceous guartz-feldspar graywacke and siltstone, locally
	determined by a higher abundance of biotite (commonly chloritized) and albite in Y ² mfs near Y ² cms. The contact with Y ² rs of the Mount Holly Complex is gradational		containing coarse detrital muscovite, biotite, and autoclastic slate chips. Resembles finer grained parts of the Rensselaer Graywacke Member of the Nassau Formation (of Potter, 1972), and the Bird Mountain Grit (of Dale.
Y [?] mfs	- Biotite-muscovite-plagioclase-quartz schist—A highly heterogeneous unit, distinguished from Y ² cms by its generally rusty-weathering, nonlustrous appear-		1900). Unit interfingers with and grades laterally into the Mettawee slate facies. In the Mt. Anthony area is shown as ϵ Znb (Bomoseen Member of the Nassau Formation of Potter 1972)
	ance and by the abundance of large albite crystals, conspicuous large plates of muscovite and biotite, and abundant clinozoisite. Locally contains fresh garnet	€Zbm (€Znm)	Mettawee slate facies (Neoproterozoic)—Predominantly greenish-gray to
	original highly poikiloblastic garnet. Near the contacts with Y ¹ fga, abundant sills of granitic gneiss, plagioclase-tournaline veins and highly albitic, very coarse		bedded and mottled phyllite. Locally contains boudins and thin beds of limestone and pods of pinkish-gray to cream-white dolostone, and minor
	grained schist occur. Unit is interbedded near its base with either garnet- muscovite-quartz-plagioclase quartzite (Y ² q) or a fine-grained, black hornblende- garnet amphibolite (Y ² a) or calc-silicate rock (Y ² cs), all of the Mount Holly		quartzite. Unit interfingers with the West Castleton Formation above and laterally grades into the Bomoseen Graywacke Member. Also shown as €Znm (Mettawee Member of the Nassau Formation of Potter, 1972)
Y [?] dm	Complex and containing pegmatite (Y ^{3C} p) Dolomite marble —Beige to pinkish-gray-weathering, pyrite-bearing, medium-	€Zzh	Zion Hill Quartzite Member (Lower Cambrian and Neoproterozoic)— Light-greenish-gray to whitish-gray-weathering, massive vitreous quartzite;
	and fine-grained phlogopite-chlorite-dolomite marble exposed in cliffs east of the road at Devils Den. Grades into chlorite-biotite (\pm actinolite)-carbonate schist at structural base and has sharp contact with structurally overlying quartzite (Y^2 q)		locally contains quartz-pebble conglomerate and wacke near the base. Unit commonly 5 to 10 m thick but is as much as 65 m thick; occurs as many lenticular quartzites within the Mettawee slate facies in the Bull Formation not
Y [?] q	Quartzite—Light-gray to pinkish-gray, magnetite-muscovite-plagioclase quartz- ita at Davils Dan. Grades into structurally quarking biotite-muscovite foldenathic	£7hma	Rind Mauntain Crit of Dala (1900) (Lower Combridge and Neoprotorogaia)
	schist and garnet-bearing feldspathic gneiss that contains pegmatite	¢Zbmg	Dark-gray to greenish-gray and whitish-gray, massive chlorite-quartz wacke, pebble conglomerate, and purplish-gray hematitic lithic wacke. Unit is rich in
	The term "Cavendish Formation" is restricted to two belts of rocks within the		ragmental plagloclase, phosphatic nodules, fragments of gray quartzite, and purple and green slate chips. Interpreted as a coarse-grained variant of part of the Zion Hill Quartzite Member, well exposed in and around Bird Mountain. Unit
	Criester dome; the larger belt occurs at Cavendish and on Hawks Mountain, and a less extensive belt, containing similar rocks, occurs near Star Hill. An Early Mesoproterozoic age is here favored for the Cavendish Formation on the basis of		resembles in stratigraphic position and lithology the Rensselaer Graywacke Member of the Nassau Formation (of Potter, 1972) in the Bennington area (€Znr)
	(1) the presence of deformed pegmatite $(Y^{3C}p)$ and areas of Felchville Gneiss $(Y^{1}fg)$ and $Y^{1}fga$) within the Cavendish and (2) the marked resemblance of members of the Cavendish to aluminous and feldspathic schists, calc-silicate rocks and quartraites	€Zbk	Biddie Knob Formation (Lower Cambrian and Neoproterozoic) —Predomi- nantly green, purple and purplish-red, chloritic hematitic slate and phyllite, massive to thinly bedded. Has rare thin beds of white vitreous quartzite and contained
	within the Mount Holly Complex. Similarities to rocks of the Hoosac Formation are also striking and cannot be altogether dismissed; however, the Hoosac Formation lacks pegmatite and contains distinctive and well-bedded albitic granofels, mafic		abundant chloritoid. Underlies the Bird Mountain Grit (of Dale, 1900) and grades into the green slate of the Mettawee slate facies in the Bull Formation, probably in part correlative with the green phyllite member of the Netop Formation (CZngs) of
	volcanics, and coarse pebble-to-cobble conglomerate, all absent from the Caven- dish. Zircons from a quartzite lens in dolomite marble at locality 4 have Pb-Pb ages between 1.290 and 934 Ma and suggest some of the marble of the Cavendish may	£Znr	the Dorset Mountain slice Rensselaer Granwacke Member of the Nassau Formation of Potter (1972)
	be younger than the Felchville Gneiss (Karabinos and others, 1999). Retrograded muscovite-rich, chlorite-spotted, chloritoid-bearing quartz phyllites and garnet grapped at arrow of the Wilcov Formation (X ² ₂ wz) closely resemble those	C Zbv×	(Lower Cambrian and Neoproterozoic)—Includes basaltic volcanics (€Zbv)
	of the Cavendish Formation, as do chloritic-muscovitic retrograded Y ² rs members of the Mount Holly Complex in the Green Mountain massif. Dolomite marble,		Rocks of the Dorset Mountain slice (includes Dorset Mountain proper and Mount Equinox, southward to West
	spotted, chlorite-muscovite-rich retrograded garnet gneiss, and lastrous chlorite- Holly Complex contain abundant pegmatite (Y ^{3C} p) on Blue Ridge Mountain in Chittandan abundant pegmatite (Y ^{3C} p) on Blue Ridge Mountain in	€Zbms €Zbq	Carbonaceous phyllite and siltstone (Lower Cambrian and
	tion. The coarse garnet-staurolite- and kyanite-bearing Gasetts Schist Member is interpreted to be an Acadian remetamorphosed product of the retrograde		Neoproterozoic)—Medium- to dark-gray carbonaceous phyllite, gray slate, and metasiltstone, locally containing light-gray, medium- to thick-bedded quartzite and dolomitic quartzite (CZbq). Unit resembles rocks of the Netop Formation but lacks
1	aluminous rocks now seen throughout the Mount Holly Complex of the Green Mountain massif and in the Pine Hill area		the distinctive lenses and pods of bluish-gray dolostone of the Netop on Dorset Mountain, although lenses of whitish quartzite are present
Y'cg	Gassetts Schist Member —Lustrous, yellowish-grayish-green, ilmenite- staurolite (±kyanite)-garnet (large)-plagioclase-biotite-muscovite-quartz schist and warty-textured, dark-gray, biotite-rich garnet (large)-plagioclase-quartz	€Zn €Znab	Netop Formation (Cambrian and Neoproterozoic) —Predominantly light- to medium-gray and grayish-green phyllite and metasiltstone. Includes the following mappable informal members: greenish-gray laminated albite-metasiltstone
	schist. Passes locally into greenish, chlorite-spotted, magnetite-garnet (small)- plagioclase granofels in which large chlorite clots appear to replace earlier large garnet crystals. Unit closely resembles retrograded chlorite-spotted, biotite-	€Znq	(CZnab), and dark-gray phyllite containing bluish-gray dolostone and tan-weathering to locally mappable gray-weathering dolomitic quartzite (CZnq). The Netop Formation may be in part equivalent in age and facies to parts of the
	garnet-plagioclase-quartz granofels and garnet-quartz-feldspar schist or gneiss of the Wilcox Formation of the Mount Holly Complex (Y ² wsx)		West Castleton and Hatch Hill Formations, but may extend lower and into the Neoproterozoic
Y ¹ cfs	Feldspathic schist and granofels member—Light-gray to medium-dark-gray, rusty-weathering, white-plagioclase-spotted biotite-quartz-plagioclase granofels, massive gravish-green chlorite-spotted magnetite-studded biotite-plagioclase-	€Zngs €Zngq	Chlorite phyllite member —Light-green to gray, lustrous, chlorite±chloritoid-muscovite-quartz phyllite and greenish-gray metasiltstone.
	quartz granofels and gneiss, and porphyroclastic plagioclase- mylonite gneiss. Unit less well-bedded than granofels of the Hoosac Formation		conglomerate, and thin beds of chloritic wacke, all shown as CZngq (unit is in part equivalent to rocks of the Mettawee slate facies and Zion Hill Quartzite
¥ ¹ ? a m	Athens domes	€Znw	Member of the Bull Formation) Wacke member—Bluish-gray, fine-grained metawacke and metasiltstone,
Y ¹ cs	Marble and calc-silicate member—Highly variable unit. Includes white, coarse-grained calcite marble; beige to gray, medium- to coarse-grained phlogopite-tremolite-dolomite-quartz-(±talc) marble; greenish actinolite-		perhaps equivalent to the Bomoseen Graywacke Member of the Bull Formation
	dolomite-calcite marble; phlogopite-diopside-scapolite-calcite-dolomite marble; coarse-grained dark-green diopside (±hornblende±zoisite)-calc-silicate rocks; white talc-tremolite (±dolomite)-calc-silicate schist; and minor quartzite,		ROCKS OF THE ROWE-HAWLEY ZONE Ordovician, Cambrian, and Neoproterozoic allochthonous cover sequence
	diopside quartzite, and schistose bluish-gray marble. Contains pods, stringers, and larger masses of granite pegmatite and interlayered aplitic gneiss. Marble and calc-silicate rocks are identical to units (Y ² cs) within the biotite-quartz-		east of the Green Mountains—Rift and drift stage metasedimentary and metavolcanic rocks and tectonic inclusions of ultramafic rocks described in west-to-east tectonic stacking sequence
	plagioclase paragneiss member (Y ^{1,2} bg) of the Mount Holly Complex of the Green Mountain massif and eastern domes		
			Ottoucucehoe Formation (Combrian)
	Altered rocks adjacent to the Chittenden Intrusive Suite	£o	Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black,
Y ^{3A} bga	Altered rocks adjacent to the Chittenden Intrusive Suite Albite-magnetite-studded gneiss (Late Mesoproterozoic)—Gray or greenish- gray, albite- and magnetite-studded granulose biotite-quartz-plagioclase gneiss, containing chloritized biotite and garnet. Occurs as altered varieties of Y ^{1,2} bg near	€o	Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately
Y ^{3A} bga	Altered rocks adjacent to the Chittenden Intrusive Suite Albite-magnetite-studded gneiss (Late Mesoproterozoic)—Gray or greenish- gray, albite- and magnetite-studded granulose biotite-quartz-plagioclase gneiss, containing chloritized biotite and garnet. Occurs as altered varieties of Y ^{1,2} bg near 1,150-Ma intrusive augen gneisses of the Chittenden Intrusive Suite (Y ^{3A} ma); in the Lincoln Mountain massif a dark-gray biotite-microcline-chlorite-spotted gneiss contains magnetite grains as much as 1 cm in diameter	€o	Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartz-muscovite (±garnet) schist characterized by coarse muscovite porphyroblasts
Y ^{3A} bga	Altered rocks adjacent to the Chittenden Intrusive Suite Albite-magnetite-studded gneiss (Late Mesoproterozoic)—Gray or greenish- gray, albite- and magnetite-studded granulose biotite-quartz-plagioclase gneiss, containing chloritized biotite and garnet. Occurs as altered varieties of Y ^{1,2} bg near 1,150-Ma intrusive augen gneisses of the Chittenden Intrusive Suite (Y ^{3A} ma); in the Lincoln Mountain massif a dark-gray biotite-microcline-chlorite-spotted gneiss contains magnetite grains as much as 1 cm in diameter	€o €om €obq	Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartz-muscovite (±garnet) schist characterized by coarse muscovite porphyroblasts Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbedded with black phyllite
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Y ^{3A} bga Yur	Altered rocks adjacent to the Chittenden Intrusive Suite Albite-magnetite-studded gneiss (Late Mesoproterozoic)—Gray or greenish- gray, albite- and magnetite-studded granulose biotite-quartz-plagioclase gneiss, containing chloritized biotite and garnet. Occurs as altered varieties of Y ^{1,2} bg near 1,150-Ma intrusive augen gneisses of the Chittenden Intrusive Suite (Y ^{3A} ma); in the Lincoln Mountain massif a dark-gray biotite-microcline-chlorite-spotted gneiss contains magnetite grains as much as 1 cm in diameter Aluminous schists and gneisses of the Washington Gneiss and Wilcox Formation and related rocks Retrograde gneiss (Mesoproterozoic)—Mylonitic chlorite-biotite-microcline- quartz gneiss, occurring as a sliver in the Shelburne Marble, South Wallingford Washington Gneiss (Middle Mesoproterozoic)—Dark-rustu-gravish-brown-	€o €obq €of	Ottauquechee Formation (Cambrian)Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separatelyCoarse-muscovite schist member—Silvery-green albite-chlorite-quartz- muscovite (±garnet) schist characterized by coarse muscovite porphyroblastsBlack quartzite member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbedded with black phylliteFeldspathic schist and granofels member—Gray and grayish-green, biotite- chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains coticule, locally richly garnetiferousCarbonaceous albite schist member—Tan- to dark-gray-weathering,
Y ^{3A} bga Yur Y ² wg	Altered rocks adjacent to the Chittenden Intrusive Suite Albite-magnetite-studded gneiss (Late Mesoproterozoic)—Gray or greenish- gray, albite- and magnetite-studded granulose biotite-quartz-plagioclase gneiss, containing chloritized biotite and garnet. Occurs as altered varieties of Y ^{1,2} bg near 1,150-Ma intrusive augen gneisses of the Chittenden Intrusive Suite (Y ^{3A} ma); in the Lincoln Mountain massif a dark-gray biotite-microcline-chlorite-spotted gneiss contains magnetite grains as much as 1 cm in diameter Aluminous schists and gneisses of the Washington Gneiss and Wilcox Formation and related rocks Retrograde gneiss (Mesoproterozoic)—Mylonitic chlorite-biotite-microcline- quartz gneiss, occurring as a sliver in the Shelburne Marble, South Wallingford Washington Gneiss (Middle Mesoproterozoic)—Dark-rusty-grayish-brown- weathering, graphitic garnet-plagioclase-biotite-quartz (±sillimanite) schist; rusty-weathering blue-quartz-ribbed quartz schist; and garnet quartzite and rusty-weathering blue-guartz-ribbed quartz schist; and garnet quartzite and rusty-weathering blue-guartz-ribbed quartz schist; and garnet quartzite and	€o €obq €of	 Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartz-muscovite (±garnet) schist characterized by coarse muscovite porphyroblasts Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbedded with black phyllite Feldspathic schist and granofels member—Gray and grayish-green, biotite-chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains coticule, locally richly garnetiferous Carbonaceous albite schist member—Tan- to dark-gray-weathering, carbonaceous, medium- to coarse-grained chlorite-plagioclase-muscovite-quartz schist and bluish-gray quartzite
Y ^{3A} bga Yur Y ² wg	Altered rocks adjacent to the Chittenden Intrusive Suite Albite-magnetite-studded gneiss (Late Mesoproterozoic)—Gray or greenish- gray, albite- and magnetite-studded granulose biotite-quartz-plagioclase gneiss, containing chloritized biotite and garnet. Occurs as altered varieties of Y ^{1,2} bg near 1,150-Ma intrusive augen gneisses of the Chittenden Intrusive Suite (Y ^{3A} ma); in the Lincoln Mountain massif a dark-gray biotite-microcline-chlorite-spotted gneiss contains magnetite grains as much as 1 cm in diameter Aluminous schists and gneisses of the Washington Gneiss and Wilcox Formation and related rocks Retrograde gneiss (Mesoproterozoic)—Mylonitic chlorite-biotite-microcline- quartz gneiss, occurring as a sliver in the Shelburne Marble, South Wallingford Washington Gneiss (Middle Mesoproterozoic)—Dark-rusty-grayish-brown- weathering, graphitic garnet-plagioclase-biotite-quartz (±sillimanite) schist; rusty-weathering blue-quartz-ribbed quartz schist; and garnet quartzite and rusty-weathering layers of sulfidic calc-silicate rock. Exposed in southernmost part of Green Mountain massif. Distinctive quartz ribbing decreases northward where more aluminous, less quartzofeldspathic rocks are mapped as Y ² rs	€o €obq €of €ocf	 Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartz-muscovite (±garnet) schist characterized by coarse muscovite porphyroblasts Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbedded with black phyllite Feldspathic schist and granofels member—Gray and grayish-green, biotite-chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains coticule, locally richly garnetiferous Carbonaceous albite schist member—Tan- to dark-gray-weathering, carbonaceous, medium- to coarse-grained chlorite-plagioclase-muscovite-quartz schist and interbedded tan, gray, and bluish-gray quartzite. Schist and quartzite member—Light-gray to tan, rusty-weathering, laminated sandy muscovite-plagioclase-quartz schist and tan quartzite.
Y ^{3A} bga Yur Y ² wg	 Altered rocks adjacent to the Chittenden Intrusive Suite Albite-magnetite-studded gneiss (Late Mesoproterozoic)—Gray or greenish- gray, albite- and magnetite-studded granulose biotite-quartz-plagioclase gneiss, containing chloritized biotite and garnet. Occurs as altered varieties of Y^{1,2}bg near 1,150-Ma intrusive augen gneisses of the Chittenden Intrusive Suite (Y^{3A}ma); in the Lincoln Mountain massif a dark-gray biotite-microcline-chlorite-spotted gneiss contains magnetite grains as much as 1 cm in diameter Aluminous schists and gneisses of the Washington Gneiss and Wilcox Formation and related rocks Retrograde gneiss (Mesoproterozoic)—Mylonitic chlorite-biotite-microcline-quartz gneiss, occurring as a sliver in the Shelburne Marble, South Wallingford Washington Gneiss (Middle Mesoproterozoic)—Dark-rusty-grayish-brownweathering, graphitic garnet-plagioclase-biotite-quartz (±sillimanite) schist; rusty-weathering blue-quartz-ribbed quartz schist; and garnet quartzite and rusty-weathering layers of sulfidic calc-silicate rock. Exposed in southernmost part of Green Mountain massif. Distinctive quartz ribbing decreases northward where more aluminous, less quartzofeldspathic rocks are mapped as Y²rs Quartz schist and gneiss (Middle Mesoproterozoic)—Dark-tan- to rusty-tan-weathering, granet-muscovite-biotite-quartz-plagioclase gneiss are mapped as y²rs 	€o €obq €of €ocf €oq	 Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartz-muscovite (±garnet) schist characterized by coarse muscovite porphyroblasts Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbedded with black phyllite Feldspathic schist and granofels member—Gray and grayish-green, biotite-chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains coticule, locally richly garnetiferous Carbonaceous albite schist member—Tan- to dark-gray-weathering, carbonaceous, medium- to coarse-grained chlorite-plagioclase-muscovite-quartz schist and interbedded tan, gray, and bluish-gray quartzite Schist and quartzite member—Light-gray to tan, rusty-weathering, laminated sandy muscovite-plagioclase-quartz schist and tan quartzite Amphibolite and greenstone member—Dark-green plagioclase-hornblende (±quartz) amphibolite and rusty-pale-green, punky-weathering ankeritic-chloritic greenstone
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Y ^{3A} bga Yur Y ² wg	 Altered rocks adjacent to the Chittenden Intrusive Suite Albite-magnetite-studded gneiss (Late Mesoproterozoic)—Gray or greenish- gray, albite- and magnetite-studded granulose biotite-quartz-plagioclase gneiss, containing chloritized biotite and garnet. Occurs as altered varieties of Y^{1,2}bg near 1,150-Ma intrusive augen gneisses of the Chittenden Intrusive Suite (Y^{aA}ma); in the Lincoln Mountain massif a dark-gray biotite-microcline-chlorite-spotted gneiss contains magnetite grains as much as 1 cm in diameter Aluminous schists and gneisses of the Washington Gneiss and Wilcox Formation and related rocks Retrograde gneiss (Mesoproterozoic)—Mylonitic chlorite-biotite-microcline- quartz gneiss, occurring as a sliver in the Shelburne Marble, South Wallingford Washington Gneiss (Middle Mesoproterozoic)—Dark-rusty-grayish-brown- weathering, graphitic garnet-plagioclase-biotite-quartz (±sillimanite) schist; rusty-weathering blue-quartz-ribbed quartz schist; and garnet quartzite and rusty-weathering layers of sulfidic calc-silicate rock. Exposed in southernmost part of Green Mountain massif. Distinctive quartz ribbing decreases northward where more aluminous, less quartzofeldspathic rocks are mapped as Y²rs Quartz schist and gneiss (Middle Mesoproterozoic)—Dark-tan- to rusty-tan- weathering, garnet-muscovite-biotite-quartz-ribbing decreases northward where more aluminous, less quartzofeldspathic rocks are mapped as Y²rs Quartz schist and gneiss (Middle Mesoproterozoic)—Dark-tan- to rusty-tan- weathering, garnet-muscovite-biotite-quartz-plagioclase gneiss and rusty schist, locally containing abundant chloritized garnet; lustrous yellowish-grayish-green phyllonitic retrograde varieties contain chloritoid-chlorite and relict garnet (red dot overprint). Unit locally includes steel-gray-weathering, garnet (small)-quartz-biotite gneiss and quartzite (Y²bgt) Carbonaceous sulfidic schist (Middle Mesoproterozoic)—Dark	€o €obq €of €ocf €oa €oa €oa	 Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartz-muscovite (±garnet) schist characterized by coarse muscovite porphyroblasts Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbedded with black phyllite Feldspathic schist and granofels member—Gray and grayish-green, biotite-chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains coticule, locally richly garnetiferous Carbonaceous albite schist member—Tan- to dark-gray-weathering, carbonaceous, medium- to coarse-grained chlorite-plagioclase-muscovite-quartz schist and tan quartzite Schist and quartzite member—Light-gray to tan, rusty-weathering, laminated sandy muscovite-plagioclase-quartz schist and tan quartzite. Amphibolite and greenstone member—Dark-green plagioclase-hornblende (±quartz) amphibolite and rusty-pale-green, punky-weathering ankeritic-chloritic greenstone. Carbonate-bearing quartzite member—Heterogeneous unit consisting of ankeritic greenstone, ankeritic or dolomitic muscovite quartzite, bluish-gray calcareous quartzite, and pods of brecciated dolostone. Exposed at Plymouth Five Corners Metawacke member—Tan to gray phyllitic metawacke composed of rounded
Y ^{3A} bga Yur Y ² wg Y ⁷ rs Y ² bgt	 Atered rocks adjacent to the Chittenden Intrusive Suite Atered rocks adjacent to the Chittenden Intrusive Suite Abite-magnetite-studded gneiss (Late Mesoproterozoic)—Gray or greenish- gray, albite- and magnetite-studded granulose biotite-quartz-plagioclase gneiss, containing chloritized biotite and garnet. Occurs as altered varieties of Y^{1,2}bg near 1,150-Ma intrusive augen gneisses of the Chittenden Intrusive Suite (Y^{3A}ma); in the Lincoln Mountain massif a dark-gray biotite-microcline-chlorite-spotted gneiss contains magnetite grains as much as 1 cm in diameter Auminous schists and gneisses of the Washington Gneiss and Wilcox Cormation and related rocks Retrograde gneiss (Mesoproterozoic)—Mylonitic chlorite-biotite-microcline- quartz gneiss, occurring as a sliver in the Shelburne Marble, South Wallingford Washington Gneiss (Middle Mesoproterozoic)—Dark-rusty-grayish-brown- weathering, graphitic garnet-plagioclase-biotite-quartz (±sillimanite) schist; rusty-weathering blue-quartz-ribbed quartz schist; and garnet quartzite and rusty-weathering layers of sulficic calc-silicate rock. Exposed in southernmost part of Green Mountain massif. Distinctive quartz ribbing decreases northward where more aluminous, less quartzofeldspathic rocks are mapped as Y²rs Curtz schist and gneiss (Middle Mesoproterozoic)—Dark-tan- to rusty-tan- weathering, garnet-muscovite-biotite-quartz-plagioclase gneiss and rusty schist, hoaly containing abundant chloritized garnet; lustrous yellowish-grayish-green phyllonitic retrograde varieties contain chloritoid-chlorite and relict garnet (red do verprint). Unit locally includes steel-gray-weathering, garnet (small)-quartz-biotite gneiss and quartzite (Y²bg); Carbonaceous sulfidic schist (Middle Mesoproterozoic)—Dark-gray, rusty-weathering carbonaceous to graphitic schist associated with quartzite and alc-silicate rock near Killington 	€om €obq €of €ocf €oa €oa €oa	 Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartz-muscovite (±garnet) schist characterized by coarse muscovite porphyroblasts Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbedded with black phyllite Feldspathic schist and granofels member—Gray and grayish-green, biotite-chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains coticule, locally richly garnetiferous Carbonaceous albite schist member—Tan- to dark-gray-weathering, carbonaceous, medium- to coarse-grained chlorite-plagioclase-muscovite-quartz schist and interbedded tan, gray, and bluish-gray quartzite Schist and quartzite member—Light-gray to tan, rusty-weathering, laminated sandy muscovite-plagioclase-quartz schist and tan quartzite Amphibolite and greenstone member—Dark-green plagioclase-hornblende (±quartz) amphibolite and rusty-pale-green, punky-weathering ankeritic-chloritic greenstone Carbonace-bearing quartzite member—Heterogeneous unit consisting of ankeritic greenstone, ankeritic or dolomitic muscovite quartzie, bluish-gray calcareous quartzite, and pods of brecciated dolostone. Exposed at Plymouth Five Corners Metawacke member—Tan to gray phyllitic metawacke composed of rounded to angular grains of quartz, shite, and traces of detriat rock fragments in a fine-grained matrix of quartz, sericite, and chlorite. Feldspathic metawacke is common; quartz grains range in size from 0.5 mm to 0.5 cm.
Y ^{3A} bga Yur Y ² wg Y ⁷ rs Y ² bgt Y ² rss	 Altered rocks adjacent to the Chittenden Intrusive Suite Albite-magnetite-studded gneiss (Late Mesoproterozoic)—Gray or greenish- gray, albite- and magnetite-studded granulose biotite-quartz-plagioclase gneiss, containing chloritized biotite and garnet. Occurs as altered varieties of Y^{1,2}bg near 1,150-Ma intrusive augen gneisses of the Chittenden Intrusive Suite (Y^{3A}ma); in the Lincoln Mountain massif a dark-gray biotite-microcline-chlorite-spotted gneiss contains magnetite grains as much as 1 cm in diameter Aluminous schists and gneisses of the Washington Gneiss and Wilcox Formation and related rocks Retrograde gneiss (Mesoproterozoic)—Mylonitic chlorite-biotite-microcline- quartz gneiss, occurring as a sliver in the Shelburne Marble, South Wallingford Washington Gneiss (Middle Mesoproterozoic)—Dark-rusty-grayish-brown- weathering, graphitic garnet-plagioclase-biotite-quartz (±sillimanite) schist; rusty-weathering blue-quartz-ribbed quartz schist; and garnet quartzite and rusty-weathering blue-guartz-ribbed quartz schist; and garnet quartzite and rusty-weathering layers of sulfidic calc-silicate rock. Exposed in southernmost part of Green Mountain massif. Distinctive quartz ribbing decreases northward where more aluminous, less quartzofeldspathic rocks are mapped as Y²rs Quartz schist and gneiss (Middle Mesoproterozoic)—Dark-tan- to rusty-tan- weathering, garnet-muscovite-biotite-quartz-plagioclase gneiss and rusty schist, locally containing abundant chloritized garnet; lustrous yellowish-grayish-green phyllonitic retrograde varieties contain chloritoid-chlorite and relict garnet (red dot overprint). Unit locally includes steel-gray-weathering, garnet (small)-quartz-biotite gneiss and quartzite (Y²bgt) Carbonaceous sulfidic schist (Middle Mesoproterozoic)—Dark-tan- gnets and quartzite (Y²bgt) Wilcox Formation (Middle Mesoproterozoic)—Lustrous to rusty-weathering garbanaceous to graphitic schist ass	€o €obq €of €ocf €oa €oa €oa	 Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartz-muscovite (±garnet) schist characterized by coarse muscovite porphyroblasts Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbedded with black phyllite Feldspathic schist and granofels member—Gray and grayish-green, biotite-chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains coticule, locally richly garnetiferous Carbonaceous albite schist member—Tan- to dark-gray-weathering, carbonaceous, medium- to coarse-grained chlorite-plagioclase-muscovite-quartz schist and guartzite schist and granofels remoter—Dark-green plagioclase-muscovite-quartz schist and tran quartzite Schist and quartzite member—Light-gray to tan, rusty-weathering, laminated sandy muscovite-plagioclase-quartz schist and tan quartzite Amphibolite and greenstone member—Dark-green plagioclase-hornblende (quartz) amphibolite and rusty-pale-green, punky-weathering ankeritic-chloritic greenstone Carbonaceous quartzite member—Heterogeneous unit consisting of ankeritic greenstone, ankeritic or dolomitic muscovite quartzie, bluish-gray calcares ous quartzite, and pods of brecciated dolostone. Exposed at Plymouth Five Corners Metawacke member—Tan to gray phyllitic metawacke composed of rounded to angular grains of quartz, blue quartz, albite, and traces of detrital rock fragments in a fine-grained matrix of quartz, albite, and traces of detriat rock or degraments in a fine-grained matrix of quartz, albite, and traces of detriat rock or metawacke is common; quartz grains range in size from 0.5 mm to 0.5 cm. Conglomerate and breccia occur locally
Y ^{3A} bga Yur Y ² wg Y ² rs Y ² rss	 Altered rocks adjacent to the Chittenden Intrusive Suite Altered rocks adjacent to the Chittenden Intrusive Suite Albite-magnetite-studded gneiss (Late Mesoproterozoic)—Gray or greenish- gray, albite- and magnetite-studded granulose biotite-quartz-plagioclase gneiss, containing chloritized biotite and garnet. Occurs as altered varieties of Y1-2bg near 1,150-Ma intrusive augen gneisses of the Chittenden Intrusive Suite (Y⁴/ma); in the Lincoln Mountain massif a dark-gray biotite-microcline-chlorite-spotted gneiss contains magnetite grains as much as 1 cm in diameter Aluminous schists and gneisses of the Washington Gneiss and Wilcox Formation and related rocks Retrograde gneiss (Mesoproterozoic)—Mylonitic chlorite-biotite-microcline- quartz gneiss, occurring as a sliver in the Shelburne Marble, South Wallingford Washington Gneiss (Middle Mesoproterozoic)—Dark-rusty-grayish-brown- weathering, graphitic garnet-plagioclase-biotite-quartz (±sillimanite) schist; rusty-weathering blue-quartz-ribbed quartz schist; and garnet quartzite and rusty-weathering blue-quartz-ribbed quartz schist; and garnet quartzite and of Green Mountain massif. Distinctive quartz ribbing decreases northward where more aluminous, less quartzofeldspathic rocks are mapped as Y²rs Quartz schist and gneiss (Middle Mesoproterozoic)—Dark-tan- to rusty-tan- weathering, garnet-muscovite-biotite-quartz-plagioclase gneiss and rusty schist, ocally containing abundant chloritized garnet; lustrous yellowish-grayish-green phyllonitic retrograde varieties contain chloritoid-chlorite and relict garnet (red dot overprint). Unit locally includes steel-gray-weathering, garnet (small)-quartz-biotite gneiss and quartzite (Y²bgt) Carbonaceous sulfidic schist (Middle Mesoproterozoic)—Dark-tgray, rusty-weathering carbonaceous to graphitic schist associated with quartzite and cla-silicate rock near Killington Wilcox Formation (Middle Mesoproterozoi	€o €obq €of €ocf €oa €oa €oa	<section-header><section-header><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></section-header></section-header>
Y ^{3A} bga Yur Y ² wg Y ² rss Y ² wxs	 Altered rocks adjacent to the Chittenden Intrusive Suite Altered rocks adjacent to the Chittenden Intrusive Suite Altered rocks adjacent to the Chittenden Intrusive Suite Alphite-magnetite-studded gneiss (Late Mesoproterozoic) — Gray or greenish; ontaining chloritized biotite and granet. Occurs as altered varieties of V1²bg near 1,50-Ma intrusive augen gneisses of the Chittenden Intrusive Suite (Y^{3A}ma); in the Lincoln Mountain massif a dark-gray biotite-microcline-chlorite-spotted gneiss contains magnetite grains as much as 1 cm in diameter Auminous schists and gneisses of the Washington Gneiss and Wilcox Gromation and related rocks Retrograde gneiss (Mesoproterozoic) — Mylonitic chlorite-biotite-microcline-chlorite, south Wallingford Greins (Middle Mesoproterozoic) — Dark-rusty-grayish-brown; wathering, graphitic garnet-plagioclase-biotite-quartz (±sillimanite) schist; nusty-weathering layers of sulfidic calc-silicate rock. Exposed in southernmost part of Green Mountain massif. Distinctive quartz ribbing decreases northward where no aluminous, less quartzofeldspathic rocks are mapped as Y²rs Marts schist and gneiss (Middle Mesoproterozoic) — Dark-tan- to rusty-tan-sthethering layers of sulfidic calc-silicate rock. Exposed in southernmost part of green Mountain massif. Distinctive quartz ribbing decreases northward where no aluminous, less quartzofeldspathic rocks are mapped as Y²rs Choraceous sulfidic schist (Middle Mesoproterozoic) — Dark-tan- to rusty-tan-sthethering inducates steel-gray-weathering, garnet (mod do corporate), unto locally includes steel-gray-weathering, garnet (red do corporation), unto locally includes steel-gray-weathering, garnet (red do corporate), unto locally includes steel-gray-weathering, garnet (small)-quartz-biotite garnet (r² do do corporate), garnet schist, grophitic schist associated with quarztite and localiticate rock near Killington Motos	€o €obq €of €ocf €oa €oa €oa €oa	 Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartzmuscovite (±garnet) schist characterized by coarse muscovite porphyroblasts Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbedded with black phyllite Feldspathic schist and granofels member—Gray and grayish-green, biotite-chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains coticule, locally richly garnetiferous Carbonaceous albite schist member—Tan- to dark-gray-weathering, carbonaceous, medium- to coarse-grained chlorite-plagioclase-muscovite-quartz schist and quartzite member—Light-gray to tan, rusty-weathering, laminated sandy muscovite-plagioclase-quartz schist and quartzite. Schist and quartzite member—Light-gray to tan, rusty-weathering, laminated sindy muscovite-plagioclase-quartz schist and rusty-pale-green, punky-weathering ankeritic-chloritic greenstone Carbonaceous albite and rusty-pale-green, punky-weathering ankeritic-chloritic greenstone, ankeritic or dolomitic muscovite quartzite, bluish-gray calcareous quartzite, and pods of brecciated dolostone. Exposed at Plymouth Five Cormers Metawacke member—Tan to gray phyllitic metawacke composed of rounded to angular grains of quartz, blue quartz, sericite, and chlorite. Feldspath. Canglomerate and breccia occur locally at The Knob (northwest of Lake Eden) and just north of the Lowell-Westfield town line Stowe Formation (Cambrian and Neoproterozoic?) Schist and phyllite member—Predominantly fine-grained, lustrous, well-foliated, silvery-green, grayish-green, and bright-green, quartz-fibbaed
Y ^{3A} bga Yur Y ² wg Y ² rss Y ² wxs Y ² wxg	<section-header> Altered rocks adjacent to the Chittenden Intrusive Suite Altered rocks adjacent to the Chittenden Intrusive Suite Altered rocks adjacent to the Chittenden Intrusive Suite Support to the Support of Support of Support of Support Support of Support Support of Support</section-header>	€o €obq €of €ocf €oa €oa €oa €oa	 Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartz-muscovite (±garnet) schist characterized by coarse muscovite porphyroblasts Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbedded with black phyllite Feldspathic schist and granofels member—Gray and grayish-green, biotite-chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains coticule, locally richly garnetiferous Carbonaceous albite schist member—Tan- to dark-gray-weathering, carbonaceous, medium- to coarse-grained chlorite-plagioclase-muscovite-quartz schist and interbedded tan, gray, and bluish-gray quartzite Schist and quartzite member—Light-gray to tan, rusty-weathering, laminated sandy muscovite-plagioclase-quartz schist and tan quartzite Amphibolite and greenstone member—Dark-green plagioclase-hornblende (±quartz) amphibolite and rusty-pale-green, punky-weathering ankeritic-hloritic greenstone Carbonate-bearing quartzite member—Heterogeneous unit consisting of ankeritic greenstone, ankeritic or dolomitic muscovite quartz, bluish-gray calcareous quartzite, and pods of brecciated dolostone. Exposed at Plymouth Five Corners Metawacke member—Tan to gray phyllitic metawacke composed of rounded to angular grains of quartz, blue quartz, albite, and traces of detrital rock fragments in a fine-grained matrix of quartz, albite, and traces of detrite rock (conglomerate and breccia occur locally at The Knob (northwest of Lake Eden) and just north of the Lowell-Westfield town line Stowe Formation (Cambrian and Neopretorzoic?) Schist and phyl
Y ^{3A} bga Yur Y ² wg Y ² rss Y ² rss Y ² wxs Y ² wxg	<section-header></section-header>	€o €obq €obq €ocf €ocf €oa €oa €oa €oaw	 Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartz-muscovite (±garnet) schist characterized by coarse muscovite porphyroblasts Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbedded with black phyllite Feldspathic schist and granofels member—Gray and grayish-green, biotife-chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains octicule, locally richly garnetiferous Carbonaceous, albite schist member—Tan- to dark-gray-weathering, carbonaceous, medium- to coarse-grained chlorite-plagioclase-muscovite-quartz schist and quartzite member—Light-gray to tan, rusty-weathering, laminated sandy muscovite-plagioclase-quartz schist and quartzite of an unity-pale-green, punky-weathering ankinetic chloritic greenstone Grabonaceous, and greenstone member—Dark-green plagioclase-hornblende trainvite greenstone. Amphibolite and greenstone member—Dark-green plagioclase-hornblende trainvite greenstone. Maravacke member—Tan to gray phyllitic metawacke composed of rounded to aquartzite, and pods of brecciated dolostone. Exposed at Plymouth Five Corner on gauguar grains of quartz, blue quartz, sericite, and chlorite. Feldspathic metawacke is common; quartz grains range in size from 0.5 mm to 0.5 mm t
Y ^{3A} bga Yur Y ² wg Y ² rss Y ² rss Y ² wxs Y ² wxq Y ² wxq	<section-header> Contraction number of the Chittenden Intrusive Suite Altered rocks adjacent to the Chittenden Intrusive Suite Altered rocks adjacent to the Chittenden Intrusive Suite And the magnetite-studded granulose biotite-quartz-plagioclase gneiss, ontaining chloritized biotite and garnet. Occurs as altered varieties of Y¹³bg near in the Lincoln Mountain massif a dark-gray biotite-microcline-chlorite-spotted gneiss contains magnetite grains as much as 1 cm in diameter Alterograde gneiss (Mesoproterozoic)—Mylonitic chlorite-biotite-microcline- flore and related rocks Maington Gneiss (Middle Mesoproterozoic)—Dark-rusty-grayish-brown weathering gluer, oguart schist; and garnet guartz is biotite- quartz gneiss, occurring as a sliver in the Shelburne Marble, South Wallingford Maington Gneiss (Middle Mesoproterozoic)—Dark-rusty-grayish-brown weathering gluer, oguartz schist; and garnet quartzite and insty-weathering blue-quartz-ribbed quartz schist; and garnet quartzite and for aluminous, less quartzofeldspathic rocks are mapped as Y²rs Approxements Arboracous sulfidic schist (Middle Mesoproterozoic)—Dark-tan- to rusty-tan- forsultering layers of sulfidic cale-silicate rock. Exposed in southermmost pare on aluminous, less quartzofeldspathic rocks are mapped as Y²rs Arboracous sulfidic schist (Middle Mesoproterozoic)—Dark-tan- to rusty-tan- forsultering garnet-muscovite-biotite-quartz/plagioclase gneiss and rusty schist, rusty-tenting daratzite (Y²bg) Motor Formation (Middle Mesoproterozoic)—Dark-tan to rusty-tan- fusty-eathering carbonaceous to graphitic schist associated with quartzite and playlonitic retrograde varieties contain chloritoid-chlorite and relict garnet (rust) durates autazite (Y²bg) Motor Formation (Middle Mesoproterozoic)—Lustrous to rusty-weathering the castern Adironadock. Locally contains mappable quartzite, garnet quariztite, autazite rock near Killington Gnetiferomuscovite</section-header>	€o €obq €of €ocf €oa €oa €oa €oaw €oaw	 Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartz-muscovite (±garmet) schist characterized by coarse muscovite porphyroblasts Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbedded with black phyllite Feldspathic schist and granofels member—Gray and grayish-green, biotite-chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains coticule, locally richly garnetiferous Carbonaceous albite schist member—Tan- to dark-gray-weathering, anonaceous, madium- to coarse-grained chlorite-plagioclase-muscovite-quartz schist and interbedded tan, gray, and bluish-gray quartzite Schist and quartzite member—Light-gray to tan, rusty-weathering, laminated sandy muscovite-plagioclase-quartz schist and tan quartzite. Schist and greenstone member—Dark-green plagioclase-hornblende (±quartz) amphibolite and rusty-pale-green, punky-weathering ankeritic chloritic greenstone. Carbonate-bearing quartzite member—Heterogeneous unit consisting of ankeritic greenstone. Metawacke member—Tan to gray phyllitic metawacke composed of rounded to angular grains of quartz, blue quartz, albite, and thore, Feldspathic metawacke is common; quartz grains range in size from 0.5 mm to 0.5 cm. Conglomerate and breccia occur locally at The Knob (northwest of Lake Eden) and just north of the Lowell-Westfield town line Schist and phyllite member—Predominantly fine-grained, histros, well-foliated, silvery-green, grayish-green, and bight-green, quartz-ribed and -hrotted, magnetite-chlorite (biotite)-albite (plagioclase)-seriet (muscovite) and yusto (52
Y ^{3A} bga Yur Y ² wg Y ² rss Y ² rss Y ² wxs Y ² wxs Y ² wxcs	<section-header><section-header><section-header><text><text><text><text><text><text><text></text></text></text></text></text></text></text></section-header></section-header></section-header>	€o€om€obq€obq€of€of€ocf€oq€oq€oq€oa <td> Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartz-muscovite (±garnet) schist characterized by coarse muscovite porphyroblasts Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous phyllite. Feldspathic schist and granofels member—Gray and grayish-green, biotite-chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains coticule, locally richly garnetiferous. Carbonaceous, medium- to coarse-grained chlorite-plagioclase-muscovite-quartz schist and interbedded tan, gray, and bluish-gray quartzite. Schist and quartzite member—Light-gray to tan, rusty-weathering, laminated sandy muscovite-plagioclase-quartz schist and tan quartzite. Amphibolite and greenstone member—Dark-green plagioclase-hornblende (chorite greenstone). Carbonace-baaring quartzite member—Heterogeneous unit consisting of ankeritic greenstone, ankeritic or dolomitic muscovite quartzie, bluish-gray calcareo us quartzite, and pods of breeciated dolostone. Exposed at Plymouth Five Corners Metawacke member—Tan to gray phyllitic metawacke composed of roundet o agular grains of quartz, bluic quart, sericite, and chlorite. Feldspathic metawacke is common; quartz grains range in size from 0.5 mm to 0.5 cm. Conglomerate and breecia occur locally at The Knob (northwest of Lake Eden) and just north of the Lowell-Westfield town line. Schist and phyllite member—Predominnantly fine-grained, lustrous, conglomerate and breecia occur locally at The Knob (northwest of Lake Eden) (and symbol (CZsd) Schist and phyllite member—Interlayered grayish-green and sinuted, magnetite-chlorite (biotite)-albite (plagiocla</td>	 Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately Coarse-muscovite schist member—Silvery-green albite-chlorite-quartz-muscovite (±garnet) schist characterized by coarse muscovite porphyroblasts Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous phyllite. Feldspathic schist and granofels member—Gray and grayish-green, biotite-chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains coticule, locally richly garnetiferous. Carbonaceous, medium- to coarse-grained chlorite-plagioclase-muscovite-quartz schist and interbedded tan, gray, and bluish-gray quartzite. Schist and quartzite member—Light-gray to tan, rusty-weathering, laminated sandy muscovite-plagioclase-quartz schist and tan quartzite. Amphibolite and greenstone member—Dark-green plagioclase-hornblende (chorite greenstone). Carbonace-baaring quartzite member—Heterogeneous unit consisting of ankeritic greenstone, ankeritic or dolomitic muscovite quartzie, bluish-gray calcareo us quartzite, and pods of breeciated dolostone. Exposed at Plymouth Five Corners Metawacke member—Tan to gray phyllitic metawacke composed of roundet o agular grains of quartz, bluic quart, sericite, and chlorite. Feldspathic metawacke is common; quartz grains range in size from 0.5 mm to 0.5 cm. Conglomerate and breecia occur locally at The Knob (northwest of Lake Eden) and just north of the Lowell-Westfield town line. Schist and phyllite member—Predominnantly fine-grained, lustrous, conglomerate and breecia occur locally at The Knob (northwest of Lake Eden) (and symbol (CZsd) Schist and phyllite member—Interlayered grayish-green and sinuted, magnetite-chlorite (biotite)-albite (plagiocla
Y ^{3A} bga Yur Y ² wg Y ² wxg Y ² wxs Y ² wxs Y ² wxcs Y ² wxcs	<section-header><section-header><section-header><text><text><text><text><text><text><text></text></text></text></text></text></text></text></section-header></section-header></section-header>	€o€om€obq€obq€of€oq€oq€oa€oa€opw€opw€zs€Zsd€Zsd€Zsbg€Zsgt	 Ottauquechee Formation (Cambrian) Carbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidic biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartzites not mapped separately. Coarse-muscovite schist member—Divery-green albite-chlorite-quartz member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbedied with black phyllite. Feldspathic schist and granofels member—Gray and grayish-green, biotte-chlorite-muscovite-albite-quartz schist or phyllite and granofels; contains octicule, locally richly garnetiferous Carbonaceous albite schist member—Tan- to dark-gray-weathering, carbonaceous, medium to coarse-grained chlorite-plagioclase-muscovite-quartz schist and quartzite member—Light-gray to tan, rusty-weathering, laminated muscovite-plagioclase-quartz schist and quartzite member—Dark-green plagioclase-hornblende (garant2) amphibolite and rusty-pale-green, punky-weathering ankritic darbitic greenstone. Carbonaceous member—Tan to gray phyllitic metawacke composed of rounded to angular grains of quartz, blue quartz, albite, and traces of detrial rock maguar grains of quartz, blue quartz, albite, and traces of detrial rock maguar grains of quartz, blue quartz, albite, and traces of detrial rock maguar grains of quartz, blue quartz, albite, and traces of detrial rock maguar grains of quartz, blue quartz, albite, and traces of detrial rock maguar grains of quartz, blue quartz, albite, and traces of detrial rock maguar grains of quartz, blue quartz, albite, darbree, effected, and chlorite. Feldspather, magnet in a fine-grained matrix of quartz, selfer, and chlorite. Feldspather, magnet is no tho druce. Feroseal at Pymouth File Coronic, Cody and the grained darbree, and grained garante, and garantegrained matrix of quartz, abite, and traces of detrital rock magnets in a fine-grained matrix of quartz, selfer
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Y ^{3A} bga Yur Y ² wg Y ² rss Y ² wxs Y ² wxs Y ² wxcs Y ² wxcs	<section-header> Advanced process of the Chittenden Intrusive Suite (*********************************</section-header>	€o €obq €of €ocf €oq €oa €oa €oa €oaw €ca €ca €zsy €Zsy €Zsy €Zsy €Zsy €Zsy	 Ottauqueche Formation (Cambrian) Garbonaceous phyllite member—Predominantly dark-gray to black, carbonaceous to highly graphitic, fine-grained sulfidle biotite-muscovite-quartz phyllite having silicic laminae. Includes black quartities not mapped separately. Coarse-muscovite schist member—Silveny-green albite-chorite-quartz muscovite (garmet) schist characterized by coarse muscovite porphyroblasis Black quartzite member—Dark-bluish-gray to black, fine-grained vitreous quartzite. Beds are as thick as 30 m or are thin and interbededd with black phyllite Feldspathic schist and granofels member—Gray and grayish-green, biotife-thorite-nuscovite-albite-quartz schist or phyllite and granofels; contains octicule, locally richly garnetiferous. Garbonaceous albite schist member—Tan- to dark-gray-weathering, cambraceous, member—Light-gray to tan, rusty-weathering, laminated sindy muscovite-plagicolase-quartz schist and tan quartzite. Amphibolite and greenstone member—Dark-green plagicolase-horoburde choritic greenstone. Amphibolite and post of brecciated dolostone. Exposed at Plymouth Fve Corners on granine of hiotig-fray old and martitic or dolomitic muscovite, platic-fray any phyllitic member—Heterogeneous unit consisting of arritic greenstone, quartzite, and post of brecciated dolostone. Exposed at Plymouth Fve Corners on granine of the dolomitic muscovite, platic-freedspathir most with and granofes court locally at The Knob (northwest of Lake Eden) and just north of the Lowell-Westfield town line. Stote Formation (Cambrian and Neporteorosci?) Mist and phyllite member—Predominanthy fine-granied, histors, wielfoliated, silveny-green, gravish-green, quartz-ribed gravish-green, and suyubol (Ezg.) Mist and phyllite member—Predominanthy fine-granied, martis, martis and in sust-predominanty fine-granied marts of quartz, sericite, and biotite-flexed schist degranet (Caplitate) ablite (Caplitate) ablite platical schist. Locally r
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Coarsely porphyritic, greenish-gray, light-bluish-gray, or medium-bluish-gray

crysts commonly as large as 5 mm

metarhyolite tuff, lapilli tuff, and tuff breccia. Quartz and plagioclase pheno-



Owwu

uncertain correlation

Ludlow Mountain aplitic gneiss (Middle Mesoproterozoic)—Light-gray to

vhite, very fine grained microcline-plagioclase-quartz (±magnetite) aplitic gnei

contains sparing amounts of biotite, and secondary muscovite. Unit interpreted to

chlorite, sphene, sericite, biotite, and calcite CZbf Fine-grained amphibolite—Bluish-gray, fine- to medium-grained albite-horn-blanda aridate actinglite (transat) amphibolite and guarte bearing amphibolite plende-epidote-actinolite (±garnet) amphibolite and quartz-bearing amphibolite Mafic schist—Green, fine-grained schist composed of chlorite, actinolite, albite, and epidote with biotite, calcite, sericite, quartz, sphene, pyrite, and magnetite; includes homogeneous schistose greenstone, albitic greenstone, and massive banded greenstone CZbs Spangly schist—Silvery-blue, medium-grained tectonic mélange composed of scovite schist with minor amounts of chlorite, epidote, albite, and tourmaline contains fragments and discontinuous lenses of greenstone, coarse-grained amphibolite, and talc phyllite €Zbagn Albite gneiss—White, light-gray- and green-banded, fine- to medium-grained, well-layered epidote-white mica-quartz-albite (±garnet±magnetite) gneiss; contains plagioclase and polycrystalline quartz porphyroblasts. The 0.5- to 2-cm-thick layers are defined by variations in the amount of quartz, albite, white mica, and chlorite. Gneiss is similar to gneiss at the base of the Tillotson Peak Structural Complex Ultramafic rocks (Cambrian and Neoproterozoic) (occur as tectonic slivers and olistoliths in blocks within the Hazens Notch, Ottauquechee, Stowe, Rowe, and Moretown Formations; fault symbol locally omitted) CZu Meta-ultramafic rocks, undifferentiated—Brown to white-weathering, green. e, moderately to fully serpentinized dunite and peridotite and schistose

Belvidere Mountain Structural Complex (Cambrian and Neoproterozoic)

CZbu Ultramafic rocks—Brown to white-weathering, green, massive, moderately to

(magnesite) rock

fully serpentinized dunite and peridotite and schistose serpentinite;

Coarse-grained amphibolite—Dark-gray, coarse-grained amphibolite and

ayered amphibolite composed of barroisite, epidote, garnet, actinolite, albite,

rusty-weathering, medium-grained talc-carbonate rock and quartz-carbonate

serpentinite; rusty-weathering, medium-grained talc-carbonate rock and quartzcarbonate (magnesite) rock €Zutc Talc-carbonate schist—Cream-colored to light-bluish-gray, brown-weathering, talc-carbonate schist and talc-cabonate-rich rocks CZsp Serpentinite—Brown-weathering, dark-green serpentinite Volcanic-arc intrusive and volcanic rocks of the North River Igneous Suite of the Rowe-Hawley zone

471.4±3.7 Ma)—Collection of metatonalite, metatrondhjemite, and meta occurring as intrusive dikes, sills, and small stocks, and possibly meta-andesit etadacitic tuffs. Correlative with extrusive dacitic metavolcanic and meta-andesitic rocks of the Moretown and Cram Hill Formations. Coextensive in part with igneous rocks of the Hawley Formation of Massachusetts West Halifax Trondhjemite—Cream-colored, light-gray- to whitish-gray-weatherng, coarse-grained chlorite-biotite-muscovite-quartz-plagioclase (±garnet ±hornblende) metatrondhjemite and metatonalite; southern lens near Massachusetts State line is coextensive with trondhjemite in the Hawley Formation Branch Brook dike and sill complex

Whitneyville facies—Light-green to medium-green, massive, epidote-

DSwgs

North River Igneous Suite (Ordovician and Late Cambrian) (502±4 Ma to

nenite-sphene-chlorite-hornblende-plagioclase amphibolite, marked by coarse hornblende and abundant phenocrysts of plagioclase Williamsville facies—Dark-gray to black, poorly layered, porphyritic and onporphyritic ilmenite-epidote-chlorite-plagioclase-hornblende amphibolite South Pond facies—Light- to dark-gray and steel-blue to apple-green, finened hornblende-chlorite-plagioclase amphibolite, locally containing significant calcite and pyrite and interlayered felsic layers of metatrondhjemite or metadacite. Similar in part to the mixed gneiss facies (Onbm) Barnard Gneiss proper (of Richardson, 1924)—Predominantly light-gray to whitish-weathering, massive to gneissic hornblende-biotite tonalite and biotite muscovite-quartz-plagioclase trondhjemite; includes rare hornblendite, metadiabase, and metapyroxenite as small stocks, inclusions, and dikes. U-Pb zircon HRIMP age of 496±8 Ma north of Proctorsville, no. 23 (Aleinikoff and other 2011); U-Pb zircon age of 471.4±3.7 Ma south of Bethel, no. 26 (Karabinos and Ont Tonalite gneiss—Medium-grayish-green, medium-grained hornblende-biotite tonalite gneiss, with minor amphibolite. U-Pb zircon TIMS age of 486±3 Ma, no. 24 (Aleinikoff and others, 2011), from 4 km northwest of Brockways Mills, near Mixed felsic and mafic rocks—Heterogeneous composite intrusive well-layered ende metatrondhjemite, garnet-hornb

gioclase amphibolite, and metadiabase dikes; locally called Ruger Hill fa Onr) in the Spring Hill syncline (Ratcliffe and Armstrong, 2001). Layering thickness ranges from 5 cm to 1 m. Unit may be in part metavolcanic as well as intrusive. Resembles well-layered undated felsic and mafic volcanics intercalated with metasediments of the Cram Hill Formation (Ochv) Metatrondhjemite and metatonalite—Light-gray to whitish-gray, coarse-grained nuscovite-biotite-quartz-plagioclase metatrondhjemite on the east flank of the Chester dome; similar to Onb, Onnt, and Ontw Onnt Newfane tonalite—Light-gray to cream-weathering, massive to gneise hornblende-biotite and muscovite-biotite metatrondhjemite and metatonalite. Forms a thick, sill-like intrusive extending northward from South Newfane, where it intrudes metavolcanics (Ochv) of the Cram Hill Formation. U-Pb zircon SHRIM age of 502±4 Ma, no. 22 (Aleinikoff and others, 2011) Metasedimentary host rocks of the North River Igneous Suite Cram Hill Formation (Middle? and Early Ordovician) (western part of the Cram Hill Formation is in part correlative with Whetstone Hill Member of the Moretown Formation)

Cram Hill Formation, undivided—Predominantly dark-gray to grayish-green uartz-chlorite-(biotite)-muscovite phyllite; contains 1- to 2-cm-thick beds of ark-grav metasiltstone and guartzite, and thicker beds of dark-bluish-grav vitr uartzite, grayish-green to light-yellowish-green sericite phyllite (felsic tuffs) and obble to boulder conglomerate, and greenstone. Mapped north of the Braintree Intrusive Complex and near Brattleboro Granofels member—Dark-medium-gray biotite-plagioclase-quartz granofels and grayish-green chlorite-plagioclase-quartz granofels; contains thin layers of ankerite-epidote greenstone, ankerite-spotted feldspathic granofels, and coticule. Locally hornblende rich at higher metamorphic grade Feldspathic schist and granofels member—Medium-dark-gray to dark-gra y-weathering garnet-biotite-muscovite-quartz-plagioclase schist granotels; has coarse spangles of muscovite and locally is kyanite rich. Mapped in core of Spring Hill syncline Ironstone, quartzite, and coticule member—Dark-gray- to sooty-blackveathering siliceous ironstone, magnetite quartzite, garnet quartzite, rusty-weathering amphibolite, coticule, and pods of orangey-gray to pinkishgray-weathering dolostone Felsic and intermediate metavolcanic member-Occurs at different tigraphic levels. Includes dark-gray and white layered metadacite ar meta-andesite, gray- to tan-weathering blue-quartz phenocrystic metadacit agglomerate, and grayish-green fragmental metadacitic and meta-andesi breccia. Similar to the volcanic agglomerate (Omwhv) within the Whetstone Hill Member of the Moretown Formation. A similar felsic layer interlayered within the Cram Hill Formation has a U-Pb zircon SHRIMP age of 483±3 Ma, no. 25 (Aleinikoff and others, 2011) Felsic volcanic member—Light-gray to whitish-gray, fine-grained se z-phenocrystic phyllitic metatuff and whitish pyritiferous soda-rhyoli tatuff. Abundant screens and layers occur within mafic rocks of the North River Igneous Suite and at scattered localities north of the Braintree intrusive complex and in the Coburn Hill area Amphibolite and greenstone member—Light-greenish-gray, feldspathic hlorite-actinolite greenstone and bedded andesitic to basaltic tuff and amphibolite, associated with ironstone, coticule, and minor pods of dolostone Quartzite and quartz-pebble conglomerate member—Tanray-weathering, quartz-pebble and -cobble conglomerate, feldspathic quartzite and associated slabby, rusty-weathering amphibolite and coticule Gray quartz schist member—Rusty-grayish-brown-weathering, locally plintery-fractured, dark-gray to steel-gray biotite-quartz-feldspathic schist and quartzite and interbedded carbonaceous, small-garnet papery muscovite phyllite and schist similar to Ochs Carbonaceous schist member-Light-grayish-brown- to tan-weathering, hist. Similar to phyllite facies (Omwh) in the Whetstone Hill Member of the Moretown Formation

Cram Hill Formation of the Newport Center area (in part correlative with the St. Daniel Group of Québec) Phyllite-chip conglomerate and slate conglomerate member—Dark-gray onaceous garnet-pyrite-sericite-chlorite-quartz phyllite with clasts iltstone, phyllite, quartzite, and dark-gray slate breccia interbedded wi Coburn Hill Metabasalt Member (Ochcv). Unit correlative with the St. Daniel Group of Québec

Coburn Hill Metabasalt Member-Light-green, fine- to medium-grained, nassive carbonate-biotite-guartz-sphene-chlorite-actinolite-epidote greenstone with deformed pillows; interfingers with the Umbrella Hill Conglomerate Member (Ochuc) and with phyllite-chip conglomerate (Ochsb) Phyllite member—Gray to silvery-green, sericite-chlorite-quartz phyllite with hin beds of rusty-weathering, pearly-white, fine-grained granofels. Interlayered with Ochuc and Ochsb at the contacts. Mapped locally in the Albany area Umbrella Hill Conglomerate Member—Quartz-pebble and phyllitic-fragment onglomerate, and tan to gray phyllite. Occurs as lenses, locally unconformable with the underlying Stowe Formation at Umbrella Hill; occurs at different tratigraphic levels in the Cram Hill Formation north of Albany. Interbedded with Coburn Hill Metabasalt Member (Ochcv) and phyllite-chip conglomerate and slate conglomerate member (Ochsb) north of Albany Phyllite and quartzite member-Light-gray to tan, rusty-weathering, finegrained quartz-sericite-chlorite-albite phyllite, quartzite, and flinty sulfidic granofels; thin layers of felsite, conglomerate, and breccia occur in the vicinity of Coburn Hill. Paper schist fabric occurs locally on the west side of Coburn Hill Moretown Formation (Lower Ordovician to Cambrian?)

Granofels and phyllite member-Light-gray to tan, fine-grained albi hlorite-sericite-quartz phyllitic quartzite interlayered with light-greenish-gray quartzofeldspathic granofels and dark-gray phyllite. Contains numerous boudinaged, massive to foliated, dark-green metamorphosed mafic dikes and Interbedded quartzite and phyllite member—Light-gray laminated quartzite and vitreous quartzite interbedded with gray phyllite and schist Harlow Bridge quartzite member-Buff-weathering, tan to gree fine-grained massive to thinly bedded quartzite intercalated with green phyllite Quartz schist member—Bluish-black, rusty-weathering, fine-grained albitesericite-chlorite-quartz schist with pyrite "Pinstriped" granofels member—Light-gray to pale-green, whitish-grayveathering, chlorite-biotite-plagioclase-quartz granofels and tectonically "pinstriped" granofels and feldspathic biotite quartzite Carbonaceous and sulfidic schist member-Rusty-weathering, dark-gray biotite-muscovite-quartz (±garnet) schist, carbonaceous schist, and gray, splintery-fractured, biotitic sulfidic quartz schist. Contains layers of rusty-weathering amphibolite, coticule, and vitreous quartzite (Ombg). A pro nent zone that extends from the north end of the Chester dome and near Proctorsville southward to near Townshend contains abundant ultramafic rocks Quartzite member—Dark-gray to steel-bluish-gray vitreous quartzite in beds a uch as 10 m thick but commonly less than 1 m thick. Resembles quartzites of the Ottauquechee Formation (€obq) Feldspathic quartzite member—Light-grayish-brown- to tan-weathering biotite-muscovite feldspathic quartzite and muscovitic quartz schist Granofels and coticule member—Gravish-green, chlorite-biotite-plagioclase z granofels and schist containing abundant fine layers of pinkish-gray mall-garnet quartzite and coticule Chlorite schist member—Pale-greenish-gray, lustrous and nonlustrous chlorite-muscovite feldspathic schist and schistose granofels. Local richly garnetiferous variant (Omgt) Garnet schist member—Greenish-gray feldspathic garnet schist; grades into Hornblende fascicule schist and granofels member—Light-gray to grayishn chlorite-muscovite-biotite-plagioclase-quartz schist, conspicuous sprays of hornblende, and biotite-hornblende-plagioclase granofels Carbonaceous schist member-Dark-gray, fine-grained carbonaceous biotite-muscovite-quartz (±garnet) phyllite and schist. Occurs west of Montpelier Amphibolite and greenstone member—Includes light-pale-green chloritic ankeritic greenstone; black, fine-grained hornblende-plagioclase ±garnet±epidote) amphibolite; and hornblende-spotted "dioritic" amphibolite Mariposite-bearing metarodingite member-Bright-green and white, fineto medium-grained, variably foliated calcite-quartz-albite-mariposite-actinolitetremolite-epidote-zoisite granofels to gneiss. Associated with greenstone and ultramafic rocks in Roxbury Omfv Felsic metavolcanic member—Gray, purplish-gray, and light-gray dacitic to andesitic metavolcanic and metavolcaniclastic rocks, similar to Omwhv

Omhfs

Dgmc

Whetstone Hill Member of the Moretown Formation Phyllite facies—Predominantly medium-dark-gray to lustrous-tan, fine-grained garnet-biotite-muscovite phyllite and carbonaceous phyllite; contains layers of dark-gray quartzite, coticule, and ironstone, locally mapped separately Omwhb Black sulfidic carbonaceous schist facies—Dark-gray, sooty- and rusty-weathering, sulfidic biotite-muscovite-plagioclase-quartz schist and granofels; is a lateral variant of Omwh. Contains layers of rusty-weathering amphibolite and dark-gray quartzite Omwhy Coticule and quartzite facies—Dark-gray to light-gray, vitreous magnetite quartzite, and coticule Omwhy Metavolcanic facies—Pale-tannish-gray- to purplish-gray-weathering, phyllitic metadacitic volcanic breccia, agglomerate, and grayish-green fragmental meta-andesitic breccia; may occur at several levels Metasiltstone facies—Pale-greenish-gray, finely laminated, magnetitelorite-biotite feldspathic metasiltstone and pale-greenish-yellow-weathering muscovite-chlorite-quartz phyllite

CONNECTICUT VALLEY TROUGH Gile Mountain Formation (Lower Devonian)

Gile Mountain Formation, undivided—Shown in cross section only Quartzite and metapelite member—Gray to light-gray, fine-grained micaceous quartzite a few centimeters to tens of centimeters thick, interbedded with dark-gray graphitic slate, phyllite, or schist Meetinghouse Slate Member—Dark-gray slate and phyllite containing sparse to moderately abundant beds of light-gray, fine-grained metasandstone and metasiltstone, 1 mm to 1 cm thick Dgmr Felsic metavolcanic member—Very light gray, fine-grained porphyritic metafelsite schist or granofels near Maidstone Lake. Groundmass recrystallized to an aggregate of quartz, microcline, plagioclase, biotite, muscovite, and apatite; grain size about 0.05 mm. Relict phenocrysts of embayed quartz, microcline (some in granophyric intergrowths with quartz), and saussuritized plagioclase. U-Pb zircon age of 407.0±3.3 Ma, no. 45 (Rankin and Tucker, Grit—Lenticular masses of metamorphosed quartzose volcaniclastic grit and nglomerate, commonly having abundant dark-gray pelitic matrix interlayered with sandstone, pelite, and porphyritic rhyolite (Dgmr). Conglomerate contains rounded clasts of rhyolite, fine-grained granitoid, and angular clasts of dark-gray slate. Correlative with Halls Stream Grit Member of the Ironbound Mountain Formation (of Myers, 1964) to the north Quartz-pebble metaconglomerate member—Thin lens of metadiamictite

abundant dark-gray, pyritic, and calcareous metapelite matrix at the base of the Meetinghouse Slate Member (Dgm), south of Bradford Rhythmically graded member—Light- to medium-gray, fine-grained micaceous quartzite to dark-gray muscovite-quartz-biotite carbonaceous phyllite or schist in beds 10 to 25 cm thick; and dark-gray micaceous phyllite or schist containing beds of micaceous guartzite; locally thickly bedded. Detrital volcanic zircons yield a U-Pb age of 409±5 Ma, no. 51 (McWilliams and others, 2010) Dgq Thick-bedded micaceous feldspathic quartzite member-Brown to gray. oncarbonaceous guartz-mica schist and feldspathic guartzite in beds 50 cm n thick; gradational to Dgqs through interbedding of phyllite beds and decrease in thickness of quartzite beds Amphibolite member—Hornblende amphibolite and hornblende-plagioclasequartz granofels; interpreted as metabasaltic and volcaniclastic rocks

Metasandstone member-Light-gray to tan, micaceous, locally calcareous metasandstone and slate or metamudstone in beds a few centimeters to tens of centimeters thick. Graded bedding common. Interpreted to be correlative with the Gile Mountain Formation Amphibolite member—Garnetiferous hornblende schist and minor hornblende amphibolite Ironbound Mountain Formation (Lower Devonian)-Medium-dark-gray to prayish-black lustrous slate, phyllite, and schist containing sparse to moderately abundant 1-mm to- 5-cm-thick beds of light-gray, fine-grained metasandstone and metasiltstone, commonly pyritiferous and calcareous. Some graded beds. Gradational contact with Dco above and Dir below. Interpreted to be correlative with the Meetinghouse Slate Member of the Gile Mountain Formation Halls Stream Grit Member (of Myers, 1964)-Lenticular masses of coarseartzose volcaniclastic grit and cobble metaconglomerate common h abundant dark-gray metapelitic matrix (diamictite) interlayered w netasandstone, metapelite, and porphyritic metarhyolite. Grit contains subangular clasts of plagioclase and potassic feldspar as large as 2.5 cm across and larger clasts of dark-gray slate. Conglomerate contains rounded clasts of metarhyolite, fine-grained granitoid, and rare marble, and angular clasts of dark-gray Amphibolite member—Hornblende amphibolite and hornblende-plagioclasequartz granofels; interpreted as metabasalt and mafic volcaniclastic rock Rhythmically graded member-Light- to medium-gray, fine-grained caceous metasandstones that grade upward into subordinate dark-gray slate or phyllite; some rocks are calcareous. Graded sets range in thickness from few centimeters to about a meter; typically they are 10 to 30 cm thick. Contact with Di gradational Frontenac Formation (Devonian and Silurian)—Thick-bedded, ankeritic, nicaceous, and feldspathic metasandstones interlayered with subordinate dark-gray metapelite. Metasandstone beds commonly are rusty weathering and up o 4 m thick; calc-silicate lenses locally present Amphibolite member—Garnetiferous hornblende schist and minor hornblende amphibolite Waits River Formation (Lower Devonian and Upper Silurian) Muscovite porphyroblastic carbonaceous schist member—Dark-gray to ne-grained plagioclase-muscovite-quartz schist and metawack southeast of Springfield; in part correlative with staurolite-grade rock happed as Littleton Formation (DI) flanking the Vernon dome (shown as Slate and phyllite member-Predominantly dark- to light-gray, lustrous, carbonaceous chlorite-biotite-muscovite-quartz slate, phyllite, or schist; contains thin beds of guartzite and only sparse layers of punky-weathering limeston Shown south of the Pomfret dome where rocks typical of the Gile Mountain Formation are absent, and near Randolph Volcanic and volcaniclastic rocks—Mapped with Standing Pond Amphibolite ber of Memphremagog Formation (of Doll, [1945]) and Putney Volcanics (of Trask, 1980). Shown only diagrammatically in Correlation of Map Units; not shown on the map. In the Correlation, units DSwf, DSwgs, DSwa, and DSwv are locally shown as Sv; on the map they are shown individually Felsic volcanic member-Light-gray to grayish-green, chlorite-biotiteiscovite-plagioclase-quartz schist and fragmental quartz-plagioclase granofels netatuff. In Springfield, contains a dated metafelsite layer interpr of 423±4 Ma, no. 32 (Aleinikoff and Karabinos, 1990; Hueber and others, Garbenschiefer member-Rusty-brown to silvery-gray, coarse-grained, garne (large)-muscovite-biotite-hornblende schist and hornblende-fascicule schist Mafic member-Massive, coarse-grained hornblende-plagioclase gneiss and ranofels; finely foliated hornblende-plagioclase amphibolite; actinoliteepidote-chlorite greenstone Volcaniclastic rock member—Silvery-grayish-green to light-gray, muscovitebiotite (chlorite)-plagioclase-quartz schist and granofels Crow Hill Member of Hall (1959)—Gray guartzite and feldspathic guartzite, a part volcaniclastic and locally interbedded with amphibolite

Compton Formation (Lower Devonian)

Quartzite and feldspathic quartzite member-Light-gray to tan, thinly and south of Springfield; contains detrital zircon having Grenvillian provenance Quartz-cobble and schistose metaconglomerate member—Light-gray iscovite-quartz schist and quartz conglomerate and dark-gray carbonaceou polymict schistose quartz conglomerate, associated with DSwb, DSwb/DI, DSws, and DSwv southeast of Springfield Ayers Cliff Member-Gray- to bluish-gray, fine- to medium-grained, thinly edded calcareous metasandstone, quartzose metalimestone, and fissile, laminated calcareous metasandstone and phyllite Irasburg Conglomerate (member)—Gray- to bluish-gray polymict limestor netaconglomerate containing pebbles to cobbles of limestone, pelite, granite, and intermediate to felsic volcanic rocks; also locally occurs in the Northfield Calcareous granofels member—Carbonaceous phyllite containing meter nick beds of calcareous granofels. Unit occurs only in Massachusetts Carbonaceous phyllite and limestone member—Dark-gray to silvery-gr lustrous, carbonaceous muscovite-biotite-quartz (±garnet) phyllite containing abundant beds of punky-brown-weathering, dark-bluish-gray micaceous quartzrich limestone in beds ranging from $10~{
m cm}$ to $10~{
m m}$ thick Northfield Formation (Lower Devonian and Upper Silurian)-Dark-gray to silvery-gray, lustrous, fine-grained carbonaceous quartz-muscovite phyllite an silicic phyllite, and garnet-rich biotite-muscovite-quartz schist; contains millimete centimeter-thick beds of gray quartzite and metasiltstone, and thicker beds quartz-feldspar grit or quartzite near base. Contains only minor beds of quartzos limestone (DSnI); transition zone into Waits River Formation west of the Guilfor dome consists of as much as 5 percent beds of punky limestone Quartzite, grit, and conglomerate member—Dark-gray quartz-pebble metawacke and gray quartzite and conglomerate at base of the Northfield Formation, south of Springfield Shaw Mountain Formation (Upper to Lower Silurian)—White to yellowish-gra ebble conglomerate and conglomeratic quartzite, having clasts e quartz as much as $2.5~{
m cm}$ in diameter in a white to tan quartzite matrix

0.5 to 1 m thick; and yellowish-gray to light-gray phyllitic quartzite, quartz pebble to -granule phyllite, and steel-gray to tan vitreous quartzite in beds as much as 5 m thick Basal volcaniclastic and metasedimentary member—Heterogeneous, thin 0 m thick) unit of interbedded quartzite, amphibolite, felsic granofels, and phyllite, occurring at the base of the Waits River Formation on the north end of e Chester dome. Interpreted as recycled volcaniclastic rocks derived from th underlying volcanic and intrusive rocks in the Cram Hill Formation INTRUSIVE ROCKS (SILURIAN) Lake Memphremagog Intrusive Suite (Late Silurian) (425±3 Ma to 418.5±2 Ma)

Newport Intrusive Complex Sng Granodiorite—Tan to light-bluish-gray, brown-weathering, medium- to coarse grained, equigranular to porphyritic foliated granodiorite composed of quartz, plagioclase, perthite, microcline, biotite, and sericite Diorite and trondhjemite-Metamorphosed diorite, trondhjemite, and diabase, consisting of massive to foliated, light-gray to grayish-green, chalky-weathering diorite with xenoliths of green phyllite and trondhjemite; and ma tan-weathering, medium- to coarse-grained trondhjemite with xenoliths of dia Numerous crosscutting quartz-feldspar veinlets show in relief on the weath surface. Unit intrudes Cram Hill Formation. U-Pb zircon SHRIMP age of $425\pm$ Ma, no. 39 (Aleinikoff and others, 2011) Braintree Intrusive Complex

Biotite-bearing metagranodiorite, metagranite, and meta-aplite of the Mount Nevis pluton-Yellowish-gray to light-gray, medium- to coarse-grained mag biotite-mesoperthite granodiorite and granite having a U-Pb zircon SHRIMP age of 421±7 Ma, no. 38 (Aleinikoff and others, 2011). Has mutually intrusive contacts th associated metadiorites. Unmapped dike of Sbg in the layered, mixed tels and mafic rocks (Onbm) of the North River Igneous Suite at Bridgewater has a U-Pb zircon age of 418±1 Ma, no. 37 (Aleinikoff and Karabinos, 1990) Metadiorite to metamonzodiorite—Medium-gray-weathering, porphyritic dikes and sills of fine- to medium-grained hornblende-biotite diorite and quartz diorite, nd coarse-grained guartz monzodiorite. Has a U-Pb zircon TIMs age of 419±0.39 a. no. 36 (Black and others, 2004). Narrow zone of garnet-biotite-plagioclas cordierite hornfels in the Moretown Formation postdates dominant foliation (Taconian) in host rocks Comerford Intrusive Complex (a sheeted dike to pegmatitic diorite complex)

Abundant, foliated to weakly foliated, metatholeiitic mafic dikes; some sheeted. Shown as overprint Foliated to nonfoliated, fine-grained to pegmatitic metagabbro, metadiorite, ar netatonalite; aplitic metatonalite; and metadiabase. U-Pb zircon ages of pegma titic metadiorite from three bodies (Comerford quarry, Leighton Hill, and Peaked Mountain) are, respectively, 419.8±2.6 Ma, no. 33; 419.3±1.3 Ma, no. 34; and 418.5±2.0 Ma, no. 35 (Rankin and others, 2007) Nonfoliated to foliated pegmatitic metatonalite to metagabbro Piermont and other allochthons

Rangeley Formation (Lower Silurian)—Interlayered, commonly usty-weathering quartz-feldspar micaceous granofels and dark-gray mica schist containing porphyroblasts of garnet, staurolite, and kyanite. Calc-silicate lenses nmon in the granofels; granule and pebble metaconglomerate locally are present. Separate mappable units of quartz conglomerate (Src) and rusty sulfidio chist (Srr) occur in Fall Mountain nappe near Bellows Falls Greenvale Cove Formation (Lower Silurian)—Thin-bedded muscovite-biotitegarnet-staurolite-kyanite schist and micaceous quartz-feldspar granofels; some calc-silicate lenses and layers

BRONSON HILL ARCH INTRUSIVE ROCKS French Pond Granite (Late Devonian)—Pink to gray, nonfoliated, porphyritic to arse-grained biotite granite; phenocrysts of potassium feldspar are as large by 3 cm. U-Pb zircon age of 364±5 Ma, no. 50 (Moench and Aleinikoff, 2003) Dbgn Bethlehem Gneiss (Early Devonian)—Medium- to coarse-grained, equigra orphyritic, muscovite-biotite-microcline-plagioclase metaquartz contains garnet, sillimanite-andalusite and cordierite; intrudes rocks of the ley Formation in New Hampshire. U-Pb zircon age of 407±5 Ma, no. 43 (Kohn and others, 1992) at Bellows Falls Kinsman Quartz Monzonite of Billings (1955) (Early Devonian)-Medium- to parse-grained, potassium-feldspar-megacrystic, biotite granodiorite gneiss of th Ashuelot pluton. U-Pb zircon age of 403±2 Ma (R.D. Tucker, USGS, written Fairlee Quartz Monzonite (Early Devonian)—Greenish-gray, pink-tinged, veakly foliated, coarse-grained to porphyritic biotite granite of the Fairlee pluton. U-Pb zircon age of 410±5 Ma, no. 42 (Moench and Aleinikoff, 2003) Moulton Diorite (Early Devonian)—Dark-gray, medium-grained metadiorite composed mainly of secondary minerals such as saussuritized plagioclase, amphibole, epidote, chlorite, and calcite Dikes and sills of porphyritic and nonporphyritic metarhyolite of Hunt Moun tain intrusive into the Albee Formation (Early Devonian)-Some contain xenoliths of dikes of the Comerford Intrusive Complex (Scd). U-Pb zircon ages of $414{\pm}4$ Ma, no. 40, and $412{\pm}2$ Ma, no. 41 (Lyons and others, 1997; Moench and Biotite-quartz diorite gneiss of Vernon dome (Late Ordovician)-Light-gray, well-foliated subporphyritic biotite (±hornblende)-quartz diorite and trondhjemite gneiss; forms sills in overlying Ammonoosuc Volcanics Highlandcroft Plutonic Suite (Early Silurian to Middle Ordovician Epizonal to mesozonal, foliated and metamorphosed (greenschist facies)

Obqd

Oogt

Scc

plutons exposed northwest of the Ammonoosuc fault. Compositions range from granite to diorite to lesser amounts of gabbro Lost Nation granite—Foliated biotite and (or) hornblende granite; locally diorit and lesser amounts of gabbro. Where present, potassium feldspar is microline. Contact aureole is in the Albee Formation. U-Pb zircon ages of 442 ± 4 Ma, no. 30 (Moench and Aleinikoff, 2003), and 444.1 ± 2.1 Ma, no. 29 (Rankin and ucker, 2009); and U-Pb sphene age of 443±3 Ma, no. 31 (Moench and Aleinikoff, 2003) Highlandcroft Granodiorite of Billings (1935, 1937)—Medium-greenish-gray to dark-greenish-gray, medium-grained, foliated metamorphosed granite, granodiorite, and tonalite containing quartz, microcline, saussuritized plagioclase, ornblende biotite (chlorite alteration) and secondary calcite a Nonconformably overlain by the Clough Quartzite and Fitch Formation. U-Pb zircon age of 450±5 Ma, no. 28 (Lyons and others, 1986) Joslin Turn Tonalite-Greenish-gray to light-brownish-gray, medium-grained, veakly foliated metamorphosed tonalite. Primary minerals include quartz, plagic clase, biotite, magnetite, pyrite, and apatite; secondary minerals include chlorite, epidote, sericite, and calcite. Granophyric intergrowths of quartz and plagioclase. U-Pb zircon age of 469±1.5 Ma, no. 27 (Moench and Aleinikoff, 2003)

Oliverian Plutonic Suite (Late Ordovician) ohg Hornblende metagabbro—Dark-green, coarse-grained, well-foliated hornblende-andesine metagabbro Oobg Biotite granite—Pink, medium-grained muscovite-biotite-microcline-perthite granite and gneissic granite, and aplite of the Lebanon dome Granodioritic to quartz dioritic gneissic border phase of Oobg, perhaps in part metasomatic

Stratified rocks of the Bronson Hill arch and Sawyer Mountain belt DI Littleton Formation (Lower Devonian)—Medium-dark- to dark-gray slat interlayered with light-gray fine-grained micaceous guartzite; in southeaster interlayered with light-gray, fine-grained micaceous quartzite; in southeastern Vermont near the Vernon dome DI is equated with DSwb and may be older than in the Bradford area Metarhyolite-White-weathering, medium- to dark-gray, foliated and laminated, aphanitic to very fine grained granofels to schist or metatuff, welded tuff, and lithic tuff commonly with a few percent millimeter-size quartz and microcline phenocrysts. U-Pb zircon age of 407.5±3.9 Ma, no. 44 (Rankin and Tucker, 2000)

Metamorphosed mafic volcanic rocks Fitch Formation (Lower Devonian and Upper Silurian)-Metamorphosed nestone, calcareous sandstone, siltstone, and pelite. Some limestone conglome ate and polymict conglomerate with calcareous matrix. Locally equivalent to Madrid and Smalls Falls Formations in Chesterfield, N.H., area Sawyer Mountain Formation (Devonian and Silurian)—Greenish-gray gray, pyritic, locally calcareous phyllite and light-gray, locally pyritic a alcareous, fine- to medium-grained, feldspar-rich metasandstone; some beds punky weathering. Graded grit and conglomerate beds (having cobble-size clasts of quartz and felsite) toward base. Interpreted as transitional between Connecticut Valley and Bronson Hill sequences and correlative with Frontenac Formation Svf Felsic metavolcanic rocks-Includes volcanic debris flow, laminated tuff, and strongly foliated felsite Clough Quartzite (Lower Silurian)—Quartzite and quartz-cobble metaconglom n Skitchewaug Mountain, upper quartzite (Scq) and lower conglomerate granofels (Scc) are mapped. Locally contains quartz-cobble conglomerate abundant dark-gray phyllite matrix that resembles phyllite of the Littleton Formation Opa Partridge Formation (Upper Ordovician)—Dark-gray to grayish-black, rusty-weathering sulfidic slate and phyllite interlayered with felsic volcanic rocks and tuffs, and amphibolite (Opa)

> Metarhyolite—Greenish-gray, light-bluish-gray, or medium-bluish-gray meta rhyolite tuff, lapilli tuff, tuff breccia, and lava. Generally porphyritic with 5 to 20percent plagioclase and, in some places, quartz phenocrysts and minor Ammonoosuc Volcanics of Billings (1935) (Upper and Middle Ordovician) Ammonoosuc Volcanics, undivided—A heterogeneous unit of interlayered and interfingering metamorphosed volcanic, volcaniclastic, and sedimentary . Compositions range from basalt to sodic rhyolite. Fragmental dominate (tuff to tuff breccia), but include sparse mafic pillow lava and fels lava. Sedimentary protoliths include dark-gray sulfidic shale, ironstone, siltstone, graywacke, volcanic conglomerate, and rare limestone Greenish-gray, light-bluish-gray, or medium-bluish-gray metarhyolite tuff, lapilli tuff, tuff breccia, and lava. Generally porphyritic with 5 to 20 percent plagio-

clase and, in some places, guartz phenocrysts. Generally strongly foliated with waxy sheen on foliation surfaces Dark-greenish-gray to medium-bluish-gray metamorphosed andesitic and basaltic tuff, crystal tuff, and tuff breccia; minor pillow lava. Commonly contains plagioclase and (or) altered mafic phenocrysts

Metamorphosed aphyric rhyolite tuff Medium-light-bluish-gray, medium-bluish-gray, medium-dark-gray, to mediumark-greenish-gray metasiltstone and phyllite, and medium-gray feldspathic metawacke. Purple tinge common; coticule and magnetite locally abundant Siliceous and argillaceous dolomite and calcareous pelite Dark-gray to grayish-black, rusty-weathering sulfidic slate and phyllite inter ed with felsic tuffs and minor sandy rocks; locally forms the base of the Ammonoosuc Volcanics Washburn Brook Formation (Upper and Middle Ordovician) Metamorphosed gray siltstone, quartzite, volcanogenic chert, and ironstone, all ypically containing coticule and magnetite Metamorphosed sedimentary breccia interlayered with dark-gray slate and micaceous siltstone. Clasts include light-colored, fine-grained metasandstone and metasiltstone of the Albee Formation, dark-gray or greenish-gray slate, and coticule-bearing metasiltstone and chert as well as sparse quartz pebbles. Matrix consists of fine-grained metasandstone, metasiltstone, or dark-gray or greenish-gray slate Albee Formation (Ordovician and Cambrian)—Light-gray to greenish-gr ite-weathering, fine-grained feldspathic metasandstone and metasiltstone, a ight-gray to greenish-gray to dark-gray phyllite. Lesser amounts of quartzite. Rare calc-silicate nodules. Generally sharply bedded, but graded beds as well as slu structures are locally obvious. Tourmaline is a sporadic accessory mineral. May be sulfidic (either pyrite or pyrrhotite) and rusty weathering. "Pinstriping" is common. J-Pb zircon SHRIMP age of 492.5±7.8 Ma from a porphyritic tonalite sill about 2 km east of West Bath, N.H. (D.W. Rankin, USGS, unpub. data, 2011) Dark-gray slate and phyllite member—Commonly sulfidic and rusty weather g. Indistinguishable from the Scarritt Member, but crops out in small areas Iron-formation member—Ironstone, magnetite-rich rock and coticule Magnetite-rich areas—Shown as an overprint Scarritt Member-Dark-gray slate interlayered with thin beds of light-gray fine-grained micaceous and feldspathic metasandstone (typically ribby weather ng). Abruptly graded beds <1 cm to 30 cm thick are locally common as is anneling and, in places, soft-sediment deformation. Commonly sulfidic and

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