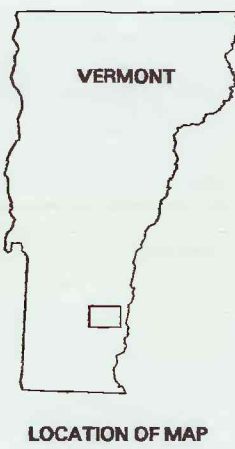


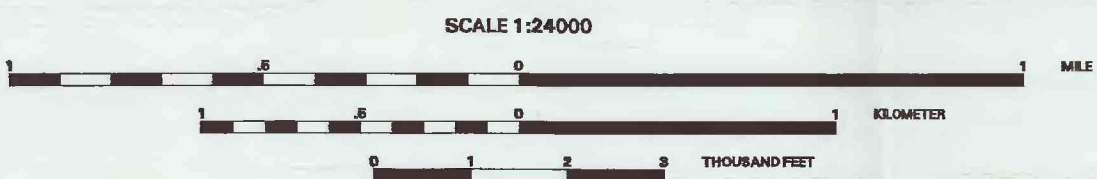
Description of Map Units

(Not necessarily in stratigraphic order; minerals listed in order of increasing abundance)

- Cretaceous Intrusive Rocks**
- Kfd Blocky-fractured, fine-grained felsic dike, associated with zone of highly fractured rocks
  - Dg Devonian Intrusive Rocks
  - Dp Medium-grained biotite-muscovite granite dike
  - Dp Granite pegmatite
- Silurian to Devonian Wells River Formation**
- D5w Fine grained, well foliated carbonaceous, black schist and limy schist
  - D5wF Felsic volcaniclastic member- interbedded, light-gray gneiss, gpf and carbonaceous schist
  - D5wG Abundant light-gray quartzite in beds 0.5 to 3 m thick in carbonaceous schist
  - D5wG Gabbro-schist member-Very coarse-grained hornblende-garnet-plagioclase schist, garnets up to 10 cm in diameter
  - D5wC Rusty felsic volcanic member
  - D5wv Mafic volcaniclastic member-Interlayered light-gray to black-gray, plagioclase-quartz granofels and hornblende-plagioclase schist with sprays of hornblende
  - D5wvF Felsic volcanic member
  - D5wv Dark green, hornblende amphibolite
  - D5wvG Mafic gneiss member-Interlocking, coarse-hornblende and plagioclase gneiss
- Silurian to Devonian Northfield Formation**
- D5n Fine-grained, silvery gray, carbonaceous, muscovite-quartz schist and small garnet schist
  - D5nq Light-gray quartzite and quartz-pebble conglomerate
  - D5nq Felsoparitic quartzite, pebbly schist, and quartz-pebble conglomerate at base of unit
- COVER SEQUENCE OF THE CHESTER AND ATHENS DOMES**
- Ordovician Cran Hill Formation**  
(Two sections are described: one east of the domes, and one west of the domes in the Spring Hill syncline)
- Cran Hill Formation east of domes:**
- Ochv Volcanic and volcaniclastic member-Well-layered quartz-plagioclase granofels and hornblende-plagioclase amphibolite
  - Ochv Rusty and tan, pyritiferous, biotite-muscovite schist
  - Ochv Dark-gray to black, very fine grained splintery fractured siliceous phyllite and magnetite-rich siliceous ironstone and cotecule
  - Ochv Well foliated, medium- to dark-green, fragmental amphibolite possibly tuff breccia
  - Ochv Pinkish-weathered ankeritic greenstone, with associated dolomitic marble and quartzite
  - Ochv Quartzite and pinkish gray fine-grained well laminated garnet-quartz or garnet-magnetite quartzite (cotecule)
  - Ochv Medium- to coarse-grained, white-plagioclase quartz granofels with coarse-grained chunky hornblende crystals as much as 3 cm long
  - Ochv Biotite-quartz-plagioclase granofels, amphibolite and feldsparic hornblende schist
  - Ochv Tan to gray, fine-grained, papery textured, muscovite-garnet-chlorite schist and carbonaceous small-garnet schist
  - Ochv Quartzite
  - Ochv Rusty-brown weathering, biotite-plagioclase granofels with coarse sprays of hornblende
  - Ochv Felsic and mafic volcaniclastic member-Very well layered, gray hornblende, biotite-plagioclase-quartz granofels and hornblende-biotite-plagioclase gneiss, and interlayered plagioclase-quartz granofels, schist and cotecule
- Cran Hill Formation in the Spring Hill syncline:**
- Ochv Heterogeneous unit of coarse-grained muscovite-splintery feldsparic schist and granofels and silty-gray carbonaceous schist
  - Ochv Pinkish-gray, very fine grained, laminated chlorite-hornblende-magnetite-garnet-quartz cotecule
  - Ochv Dark-green medium- to coarse-grained, hornblende-plagioclase amphibolite, and layered hornblende-plagioclase granofels, perhaps in part intrusive
  - Ochv Pinkish-weathered, ankerite-pitted, hornblende amphibolite and minor pods of dolomite and calcite
  - Ochv Yellow-gray to tan garnetiferous quartzite, cotecule and minor quartzite
  - Ochv Light-gray to dark-gray, papery textured, very fine-grained garnet phyllite schist
  - Ochv Dark-gray, rusty weathering, fine-grained, biotite-splotted schist, sparsely garnetiferous
  - Ochv Yellow-tan to gray, muscovite quartz-pebble conglomerate and quartzite
  - Ochv Dark-gray to rusty-brown, hornblende amphibolite interlayered with splintery biotite schist and granofels
  - Ochv Felsic and mafic volcaniclastic member-Heterogeneous unit, well-layered thin-bedded amphibolite, gneiss, and quartz-rich plagioclase granofels
- Ordovician Intrusive Rocks of the North River Igneous Suite**
- Ont White-weathering massive, medium-grained biotite-quartz-plagioclase tonalitic gneiss, interpreted as intrusive
  - Ont Gray to gray-green, medium-grained, hornblende-biotite tonalitic gneiss and white-plagioclase-spotted amphibolitic gneiss
  - Omg Rager Hill tonalite gneiss member-Very heterogeneous and complexly interfingering or intrusive biotite-hornblende amphibolites, and light-gray, biotite-quartz-plagioclase tonalitic gneiss. Interpreted as hybridized intrusive and possible extrusive mafic rocks
- Late Proterozoic to Ordovician Ultramafic Rocks**
- Ozu Massive, orange to brown to yellowish green weathered serpentinite
  - Ozt Talc schist, talc-carbonate schist, and serpentinite
- Ordovician Moretown Formation**
- Omgf Light-gray-green garnetiferous quartz schist and granofels
  - Omfq Felsoparitic quartzite
  - Omd Dioritic separating, hornblende-plagioclase amphibolite
  - Omhq Gray-green chlorite-muscovite-quartz schist with layers of hornblende-garnet amphibolite and biotite-hornblende-garnet-plagioclase granofels
  - Oma Dark-green to white-plagioclase spotted amphibolite
  - Oml Light-gray, pinstriped, or laminated, biotite-plagioclase-quartz schist granofels and feldsparic quartzite
  - Omq Thinly bedded zones of vitreous quartzite as much as 10 m thick in Oml
  - Omfq Well layered biotite-plagioclase-quartz granofels and schist with hornblende amphibolite and quartz schist
  - Omhq Gray to gray-green, chlorite-muscovite-biotite-plagioclase-quartz schist with feldsparic hornblende
  - Omhq Green-gray chlorite-muscovite-biotite-quartz plagioclase granofels with magnetite and actinolite replacement of chunky hornblende
  - Omhq Coarse-grained garnet hornblende-biotite-muscovite-quartz schist
  - Omba Heterogeneous unit of sooty black sufficit schist, lustrous gray-green garnetiferous schist, and cotecule ("c" on map)
  - Ombq Quartzite
  - Omba Well layered biotite schist, amphibolite, granofels, and ankeritic greenstone
- Cambrian to Ordovician Rowe Schist**
- Crgt Yellowish gray, slightly rusty, garnet-biotite-muscovite-plagioclase-quartz schist having garnets up to 3 cm in diameter
  - Cra Largely dark-green hornblende-rich, fine-grained epidote amphibolite
  - Crs Pale-green, well-foliated, chlorite-muscovite-quartz schist with or without magnetite and minor 2 to 3 mm biotite porphyroblasts
  - Crbf Light-gray, granular-textured, biotite-quartz-plagioclase granofels and schist with white-plagioclase porphyroblasts
  - Crf Slightly rusty, gray-weathering, muscovite-biotite-quartz-plagioclase schist with white-plagioclase porphyroblasts
  - Cch Cooper Hill member-Medium-gray to dark-gray, finely foliated, biotite-chlorite-muscovite-quartz schist
  - Cv Dark-gray, sufficit, biotite carbonaceous schist associated with rusty-weathering amphibolite and granofels
- Cambrian to Ordovician Stowe Formation**  
(mapped west of the Chester and Athens domes only; may be equivalent to the upper part of the Rowe Schist that rests on the domes)
- OCigt Light-gray to yellowish-gray-green, muscovite-biotite-garnet-plagioclase-quartz schist and granofels containing feldsparic laminae 0.5 to 1 cm thick and distinctive plates of biotite
  - OCig Pale-green fine-grained, chlorite-muscovite-quartz schist, containing scattered larger plates of coarse-foliated biotite porphyroblasts
  - OCas Dark-green hornblende-epidote amphibolite or ankeritic greenstone
- Cambrian Ottasque Formation**
- Cc Dark-gray to black, granitic, fine-grained, sooty-black biotite-muscovite-pyritiferous quartz schist
  - Cc Dark-green to rusty-gray brown sufficit amphibolites
- Cambrian Piney Hollow Formation**
- Cph Light-greenish gray, lustrous, well-foliated, chlorite-muscovite-quartz schist with or without magnetite
- Late Proterozoic to Cambrian Hoosac Formation**
- C2hgb Light-greenish-gray, magnetite-biotite-chlorite albite-studded granofels and schist
  - C2hnb Rusty-weathered, muscovite-biotite-quartz schist and gray albite muscovite granofels
  - C2hnb Turkey Mountain Member-Dark-green to black epidote amphibolite
  - C2h Heterogeneous mixture of rock types typical of the Hoosac Formation such as C2hnb, C2hnb, and C2hnb, too finely layered to be differentiated
  - C2hnb Light-gray, biotite-plagioclase schist and granofels with plagioclase porphyroblasts
  - C2hnb Quartz-pebble conglomerate and pebbly quartzite
  - C2hnb Gray to lustrous green-gray, rusty, chlorite-garnet-muscovite plagioclase-quartz schist with or without biotite, contains garnets up to 2 cm in diameter
  - C2hnb Hoosac Formation(?) Light-gray to medium-gray, very well foliated biotite-muscovite-plagioclase-quartz schist near margin of Chester and Athens dome, possibly in part derived by mylonitization from Middle Proterozoic rocks
- Middle Proterozoic Core Rocks of the Chester-Athens dome**
- Ysb Bull Hill Gneiss Member of the Cardinal Brook Intrusive Suite-Muscovite-biotite-microcline megacrystic granite gneiss and mylonitic gneiss
  - Ysb Intrusive breccia at wall of Bull Hill Gneiss
- Middle Proterozoic Mount Holly Complex**
- Yp Granite pegmatite
  - Yp Light-gray to pinkish gray, medium-grained biotite-plagioclase-quartz-microcline granitic and migmatitic gneiss
  - Yp Chalky-white-weathering, biotite-hornblende-quartz-plagioclase metatuff/jerite, exposed in the Green Mountain massif
  - Yp Layered paragneiss and metavolcanic rocks(?) of the Mount Holly Complex
  - Yp Well-layered dark- to medium-gray, biotite-quartz-plagioclase gneiss containing thin layers of amphibolite, schist, quartzite, and calcite
  - Yp Amphibolite and amphibolite gneiss
  - Yp Rusty, silvery to greenish gray, biotite- and/or chlorite-dotted muscovite-chlorite-quartz phyllitic schist, locally garnetiferous
  - Yp Heterogeneous, rusty muscovite-biotite-plagioclase-quartz gneiss containing layers of rusty-weathering amphibolite, quartz-rich schist, biotite-garnet-quartzite and schists like Yp
  - Yp Calc-silicate gneiss including coarse hornblende-plagioclase-dioctide rock with or without actinolite, amphibolite, rusty-weathered tremolitic quartzite, and marble
  - Yp Coarse-grained, white, calcite-plagioclase marble, or dolomite-calcite marble
  - Yp Light-gray to tan, vitreous to more feldsparic dull-weathering quartzite, beds as much as 5 m thick
  - Yp Soapstone-Talc-chlorite-magnetite-serpentine-tremolite rock, interpreted as retrogressively altered high-grade magnesian calc-silicate rock, quarried near Grafton
  - Yp Light-gray, fine-grained, muscovite-magnetite-plagioclase-quartz gneiss with or without microcline
  - Ymu Undifferentiated Mount Holly Complex-Largely felsic and/or granite gneiss exposed in the core of the Butternut Hill fold, correlation uncertain



Topography from the Saxtons River, VT quadrangle (1984 edition)  
Contour Interval 8 meters  
Map projection is polyconic  
Digital map units in State Plane Coordinate System  
National Geodetic Horizontal Datum of 1927  
Roads from the Vermont Center for Geographic Information, Inc.



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Digital Bedrock Geologic Map of the  
Saxtons River 7.5 x 15 Minute Quadrangle, Vermont  
by  
N.M. Ratcliffe<sup>1</sup> and T.R. Armstrong<sup>1</sup>  
1996

MN N  
Approximate Mean Declination  
15° West, 1984

Geology mapped by Ratcliffe 1990-94 and  
Armstrong 1993-94; assisted by Gregory Walsh<sup>1</sup> 1993-94.  
Digitized by Walsh and Thomas Merrifield<sup>1</sup>

Explanation of Map Symbols

- Contacts
- Outcrops (areas of exposed bedrock examined in this study)
- Thrust fault, teeth on upper plate

This report is preliminary and has not been reviewed for geographic accuracy. It is designated as an advance geologic map and is for descriptive purposes only and does not imply endorsement by the U.S. Government.  
This report is available from the Vermont Geological Survey, Waterbury, Vermont. Telephone (802) 241-3466.