

**Preliminary Bedrock Map of the Stratton  
Mountain Quadrangle, Vermont**

by

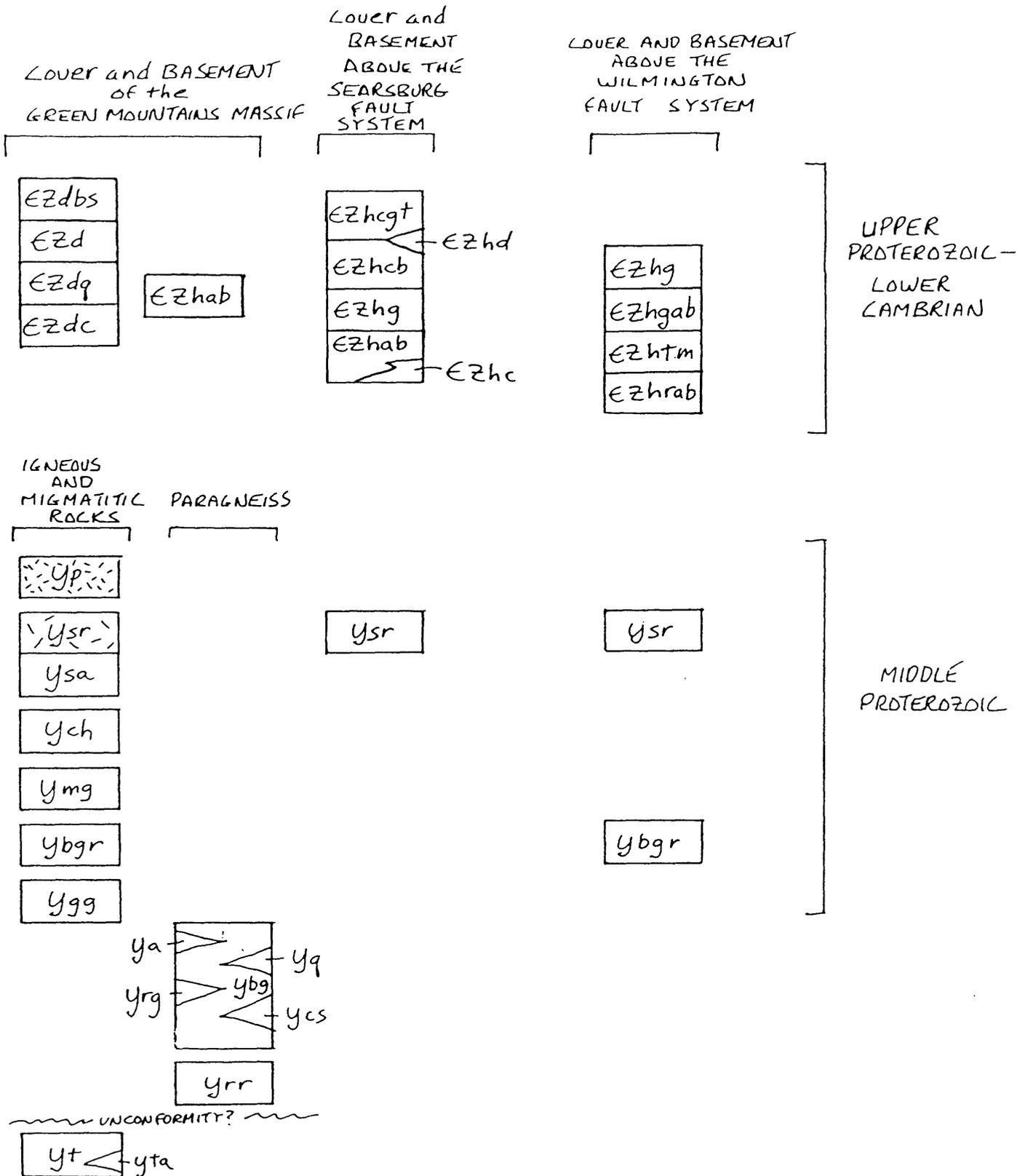
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**U.S. Geological Survey**

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**This report is preliminary and has not be reviewed for conformity with  
U.S. Geological Survey editorial standards and stratigraphic nomenclature.**

# CORRELATION OF MAP UNITS



DESCRIPTION OF ROCK UNITS,  
STRATTON MOUNTAIN QUADRANGLE

Hoosac Formation (Lower Cambrian-upper Proterozoic)

EZhct

Lustrous green chlorite-chloritoid-garnet-muscovite (±paragonite)-quartz schist

EZhd

White dolomitic marble and pink calcitic dolomitic marble

EZhcb

Coaley black, lustrous phyllite and albite-biotite-quartz schist

EZhg

Lustrous green, gray, large-garnet, muscovite-chlorite-quartz schist, locally containing chloritoid

EZhgab

Light green to gray-green, albitic chlorite-muscovite-quartz schist, locally studded with garnet

EZhtm

Dark-green to black, calcite-epidote-chlorite-actinolite greenstone, either massive or internally laminated, having thin cm-size laminae of silty graywacke and volcanoclastic rock

EZhrab

Predominantly pale rusty-weathered muscovite-biotite-quartz schist, and dark gray albitic granofels; similar to EZhab but more micaceous and darker colored

EZhab

Light-gray, white albite-spotted, biotite-albite-quartz granofels

EZhc

Yellowish to gray weathering pebbly feldspathic quartzite and metaconglomerate, with interlayers of biotite-muscovite quartz schist

Dalton Formation (Lower Cambrian and upper Proterozoic)

EZdb

Dark gray to sooty-black carbonaceous phyllite and quartz-muscovite-biotite schist with minor interlayered feldspathic quartzite

EZd

Tan to rusty weathering flaggy feldspathic quartzite, white vitreous quartzite, and minor interlayered phyllite and muscovitic schist, well exposed on Stratton Mountain

EZdq

Tan weathering, massive to flaggy, gray vitreous quartzite; contains minor pebbly layers

EZdc

Orange to gray weathering quartz-pebble metaconglomerate with minor interlayers of biotite-muscovite-quartz schist

Basement rocks (Middle Proterozoic)

Yp

Pegmatite-white to pinkish white biotite-granite pegmatite, garnetiferous pegmatite and less commonly white hornblende-diopside-plagioclase-rich pegmatite developed near calc-silicate rocks. Most abundant in rusty quartz-mica schist and gneiss (Yrg) and quartzite (Yq) and in migmatitic biotite granite gneiss (Ymg)

Ysr

Somerset Reservoir Granite (new name)<sup>†</sup>--light pinkish-gray, weathered, biotite-microcline-perthite porphyritic granite and pegmatitic granite. Contains large ovoidal to rectangular phenocrysts of microcline-perthite up to 4 cm in longest dimension that have rapikivi rims in less deformed rocks, but unit commonly is a highly deformed mylonite-augen gneiss because of intense Paleozoic deformation in and near low angle thrust faults. Unit is traceable to type exposures on the hills east of Somerset Reservoir in the Mt. Snow quadrangle

Ysa

Somerset Reservoir granite aplitic facies--white to pinkish white, medium-grained quartz oligoclase-microcline perthite leucogranite and pegmatitic granite transitional into and forming irregular border around Somerset Reservoir Granite (Ysr)

Ych

College Hill Granite Gneiss (new name)<sup>†</sup>--light-gray to medium-dark-gray biotite-microcline-perthite granodioritic porphyritic gneiss and pegmatite. Unit is strongly deformed and lineated and saturated with less deformed irregular pegmatite segregations; passes gradationally into an envelope of migmatitic biotite-granite gneiss (Ymg)

† These new names will be proposed for adoption by the U.S. Geological Survey in a short article to appear in the U.S.G.S. Bulletin Stratigraphic Notes, 1988-89.

Ymg

Migmatitic biotite granite gneiss--light gray to pinkish gray, medium-grained, massive to weakly foliated, magnetite-biotite-plagioclase-microcline granitic gneiss having indistinct layering and numerous pods and segregations of granite and micropegmatite; unit grades into Ych through development and enrichment in microcline perthite megacrysts. Interpreted as a migmatitic granite gneiss formed during intrusion of the College Hill Granite

Ybgr

Gray, biotite granite gneiss--light gray to white, medium-grained, massive to well-layered and migmatitic biotite-plagioclase-microcline granite gneiss. Commonly contains biotite and/or hornblende-rich cm-scale mafic layers as well as larger traceable amphibolitic units (Ya). Considered to be intrusive into biotite gneiss (Ybg) and other layered gneisses and closely related to granitic unit Ymg and possibly units Ych and Ygg

Ygg

Granite gneiss--pink, medium-grained, massive to weakly foliated biotite-microcline plagioclase-quartz gneiss; generally more felsic than other granitic gneiss units. Traceable into Woodford quadrangle where it underlies Glastenbury Mountain; considered to be intrusive into layered gneiss units (Ybg, Yq, etc.) and possibly correlative with granitic units Ybgr, Ymg, and Ych

Ybg

Biotite-quartz-plagioclase gneiss--medium-dark-gray, well-layered biotite-quartz-plagioclase gneiss, commonly containing more mafic hornblende-biotite-rich layers as well as thin amphibolites and rusty-weathering quartz-mica schist

Yrg

Rusty weathering quartz schist and gneiss--dark tan to rusty tan weathering, muscovite-biotite-quartz-plagioclase gneiss, locally having discontinuous ribs of dull-gray, deeply pitted garnetiferous quartzite 1-4 cm thick, and beds of biotite-muscovite-garnet-quartz-plagioclase gneiss up to 8 m thick. Unit is commonly extensively retrograded to muscovite-chlorite-quartz±chloritoid phyllite that contains heavily chloritized relicts of garnet and red-brown biotite, and abundant pods of coarse pegmatite as on east side of Stratton Mountain

Yq

Quartzite--light bluish gray, vitreous, commonly pitted garnetiferous quartzite in layers up to 5 m thick, and more rusty weathered, tan to yellowish gray, muscovite-biotite-magnetite-garnet-bearing quartzite

Ycs

Calc-silicate gneiss--consists of one or more of the following rock types: dark-green to black, coarse-grained, hornblende-diopside rock, grass-green diopside-quartz gneiss or granofels, or well-layered hornblende-diopside and plagioclase-microcline-epidote-quartz gneiss; all varieties interlayered with rusty to dark gray weathered sulfidic biotite schist or gneiss

Ya

Amphibolite--dark-green to black, massive to well-foliated, fine-grained biotite-hornblende-plagioclase amphibolite, locally with pods of coarse-grained garnet-hornblende-diopside amphibolite as much as 0.5 m in thickness which have rusty-weathering sulfide-rich zones

Yrr

Rusty-ribbed gneiss--rusty weathering quartz-plagioclase-biotite-muscovite gneiss and schist with thin quartz-rich laminae and rusty micaceous interlayers, plus thicker, blue vitreous quartzite beds. Locally contains garnet or diopside-green amphibole-sulfide-bearing layers

Yt

Trondjemite gneiss--light gray to white, chalky-white weathering, massive to weakly foliated biotite-spotted, biotite-microcline-quartz-plagioclase gneiss or coarse-grained granofels having indistinct layering or more conspicuous hornblende-biotite-bearing dioritic layers as much as 1 m thick. Locally distinct pinstripe foliation and extensive alteration of plagioclase to albite-epidote and sericite due to later deformation and retrograde metamorphism. Interpreted as a metatrondjemite and metadacite

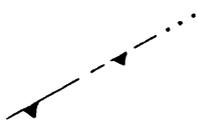
Yta

Dark-green to black, massive to faintly foliated, fine-grained hornblende-plagioclase amphibolite. Occurs as 1-5 m thick layers in metatrondjemite (Yt)

EXPLANATION OF SYMBOLS,  
 STRATTON MOUNTAIN QUADRANGLE

 Contact -- solid where accurately located, dashed approximate, dotted under water

Planar and linear features, may be combined

 Thrust fault -- teeth on upper plate; solid where accurately located, dashed approximate, dotted under water

 Vein quartz in brittle fractures

Strike and dip of bedding -- where shown, ball indicates facing direction known from sedimentary structures

 inclined

 vertical

 overturned

Strike and dip of compositional layering or gneissosity of probable Middle Proterozoic age

 inclined



vertical

Strike and dip of gneissosity or coarse foliation of probable Middle Proterozoic age in Middle Proterozoic granitic rocks



inclined



vertical

Strike and dip of foliation or schistosity of Paleozoic age formed in early generations of Taconian(?) deformation in cover sequence rocks, or foliation of uncertain age in Middle Proterozoic rocks



inclined



vertical

Strike and dip of foliation or schistosity of Paleozoic age and parallel bedding composite fabric formed in early generation of Paleozoic deformation (Taconian)



inclined



vertical

Strike and dip of mylonitic foliation spatially associated with Taconian(?) thrust faults or ductile deformation zones (Paleozoic  $F_2$  structures); arrow, where present, shows bearing and plunge of associated prominent mullion structure, smear lineation, or quartz rodding



inclined



vertical

Approximate strike and dip of highly crenulated gneissosity in Proterozoic rocks or of schistosity in younger rocks; folding Paleozoic



Strike and dip of axial surface of fold in Middle Proterozoic rocks of probable Middle Proterozoic age (or of early generation Paleozoic fold in cover sequence rocks); arrow when present shows direction and amount of plunge of fold axis



inclined



vertical

Strike and dip of axial surface of fold of second-generation Paleozoic age, commonly associated with thrust faults and mylonite zones; arrow shows direction and amount of plunge of fold axis; small arced rotation arrow shows sense of rotation of minor asymmetric fold as viewed down-plunge



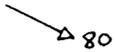
Strike and dip of axial plane of late-generation crenulation-cleavage fold (or associated late slip cleavage) (Paleozoic (Acadian?) F<sub>3</sub> or F<sub>4</sub> structure), arrow when present shows direction and amount of plunge of fold axis



inclined



vertical



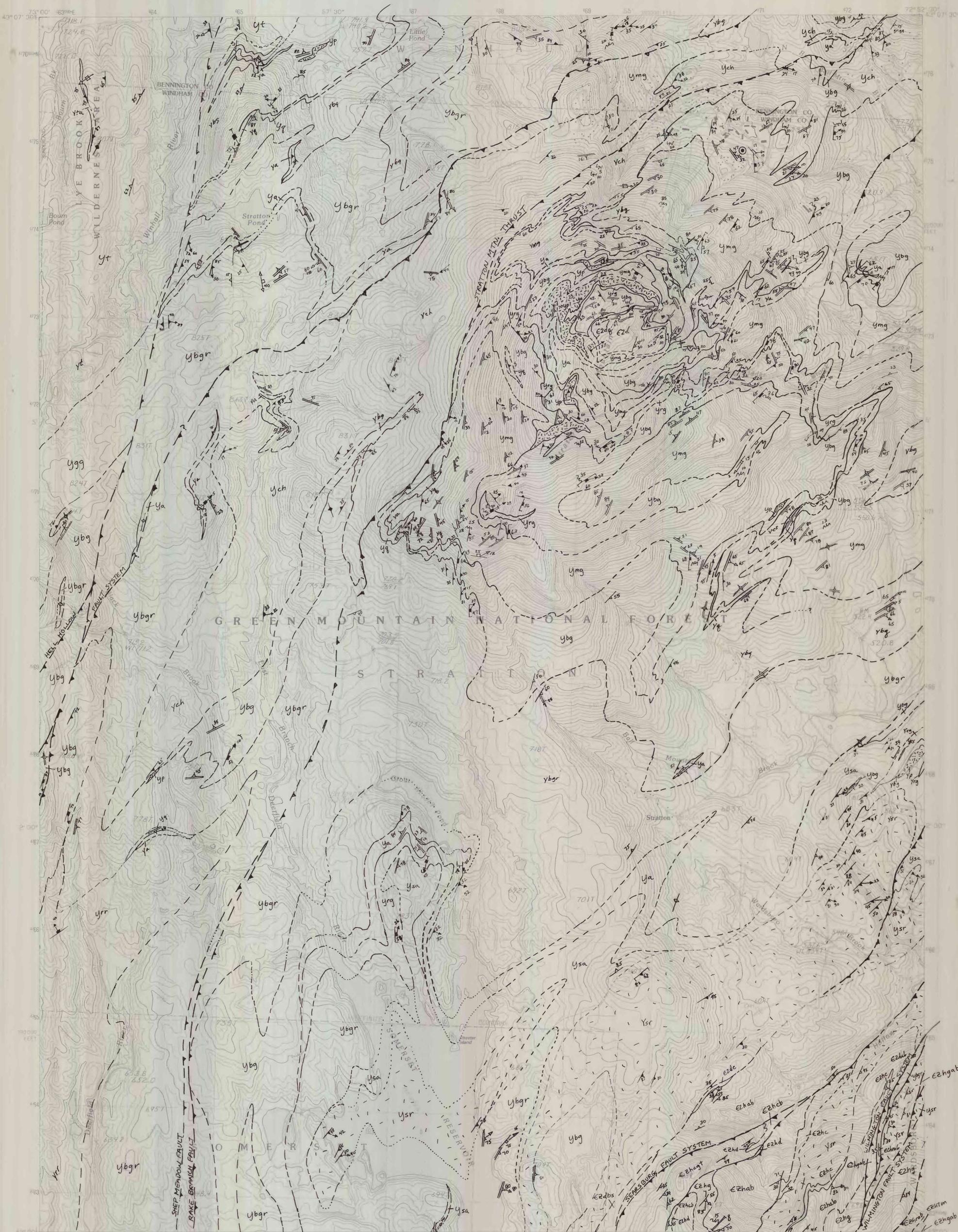
Bearing and plunge of axis of minor Middle Proterozoic fold in Middle Proterozoic rocks expressed by orientation of high-grade minerals, or minor early-generation Paleozoic fold in cover sequence rocks, or of lineation caused by intersection of Middle Proterozoic foliation with Paleozoic mylonitic foliation

Location of sample used for <sup>40</sup>Ar/<sup>39</sup>Ar dating of hornblende,



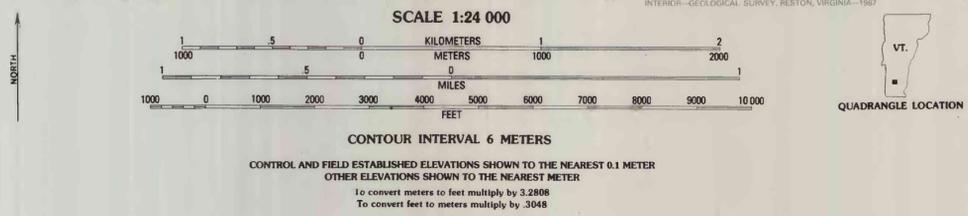
yielding a discordant release spectrum and approximate age of 850 Ma<sup>†</sup>

† Sample W1178 in Ratcliffe, N.M., Burton, W.C., Sutter, J.F., and Mukasa, S.B., 1988, Stratigraphy, structural geology, and thermochronology of the northern Berkshire massif and southern Green Mountains, in Bothner, W.A., ed., Guidebook for field trips in southwestern New Hampshire, south-eastern Vermont, and north-central Massachusetts: New England Intercollegiate Geological Conference, 80th Annual Meeting, p. 1-23, 126-135.



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Geology mapped in 1986, 1987, and 1988  
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PRELIMINARY BEDROCK MAP OF THE STRATTON MOUNTAIN QUADRANGLE, VERMONT

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