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STRATIGRAPHY, STRUCTURAL GEOLOGY AND THERMOCHRONOLOGY OF THE NORTHERN BERKSHIRE MASSIF AND SOUTHERN GREEN MOUNTAINS

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ROAD LOG FOR TRIP B-1

(This road log is a continuation of field trip A-1, see text of that trip and figures contained for explanatory material)

Assembly point: Parking lot of Grand Union 1/2 mi. east of Wilmington, VT, on south side of Rt. 30.

Assembly time: 8:30 am, Saturday, October 15, 1988

Mileage (cumulative)

0.0 Turn west (left) on Rt. 9 and drive through Wilmington

2.4 Large roadcut of Wilmington Gneiss of Skehan (1972), consisting of strongly retrograded biotite-quartz-plagioclase gneiss having a strongly developed gently north-east dipping Paleozoic foliation. This is typical of one of the gneiss units (Ybg) exposed in the basement-cored strongly-westward overturned F1 antiforms in the Wilmington and Sadagwa Pond areas. An Acadian, biotite, Ar/Ar cooling age has been obtained from this outcrop (GM29 in figure 11). This rock is unconformably overlain on the slopes to the north by albitic cover sequence rocks, quartzite, and dolomite, to be seen at Stops 1 and 2.

3.2 Turn left onto bridge over river and turn right (west) on New England Power Rd.

3.5 Turn left behind large barn, consolidate into 4-wheel drive vehicles for drive 0.5 miles up hill to small cabin and park (log resumes on return).

STOP 1. Medburyville occurrence of marble described by Skehan (1961) and basal cover sequence of the western fland of the Wilmington antiform.

Walk from cabin east to powerline to exposures of dolomitic marble and albitic granofels of the Hoosac Formation. Just east of the powerline are aseries of low outcrops of typical albitic Hoosac conglomerate, having a ghost-like gneissic inclusions in an albitic matrix.

4.2 From barns retrace route to Rt. 9 and turn east (right).

7.8 Intersection of Rt. 100, Wilmington, turn left and continue north through West Dover. The route follows the core rocks of the antiform and a major thrust fault in the gneiss. To the west are Haystack Mountain and Mount Snow which consist of cover rocks of the western flank of the Wilmington antiform.

19.7 Entrance to Mt. Snow Ski Area, turn left from Rt. 100.

20.0 Stop sign turn right then left and part at maintenance shed.

20.5 STOP 2. Mount Snow traverse - Hoosac cover rocks

The upper Proterozoic and Lower Cambrian cover sequence rocks on the westside of the Middle Proterozoic Wilmington Gneiss belt of Skehan (1972) consist of a fairly regular succession that has been mapped from Mount Snow south to Hoosac Mountain (see fig. 6). Basal albitic conglomerate (like at Stop 1), feldspathic quartz pebble conglomerate like the Dalton Formation, or albitic granofels unconformably overlie the basement rocks. In the Mount Snow area, a succession of conglomerate and albitic granofels, having discontinuous lens of biotite-actinolite greenstone and beige or salmon-pink weathering dolostone form the basal section. Above this a discontinuous large-garnet-muscovite-biotite-plagioclase quartz schist or chlorite-garnet-chloritoid-muscovite quartz schist is found (CZhgt). Immediately above the garnet schist or locally directly above the albitic granofels and dolomite marble, is a thick succession of dark-gray to

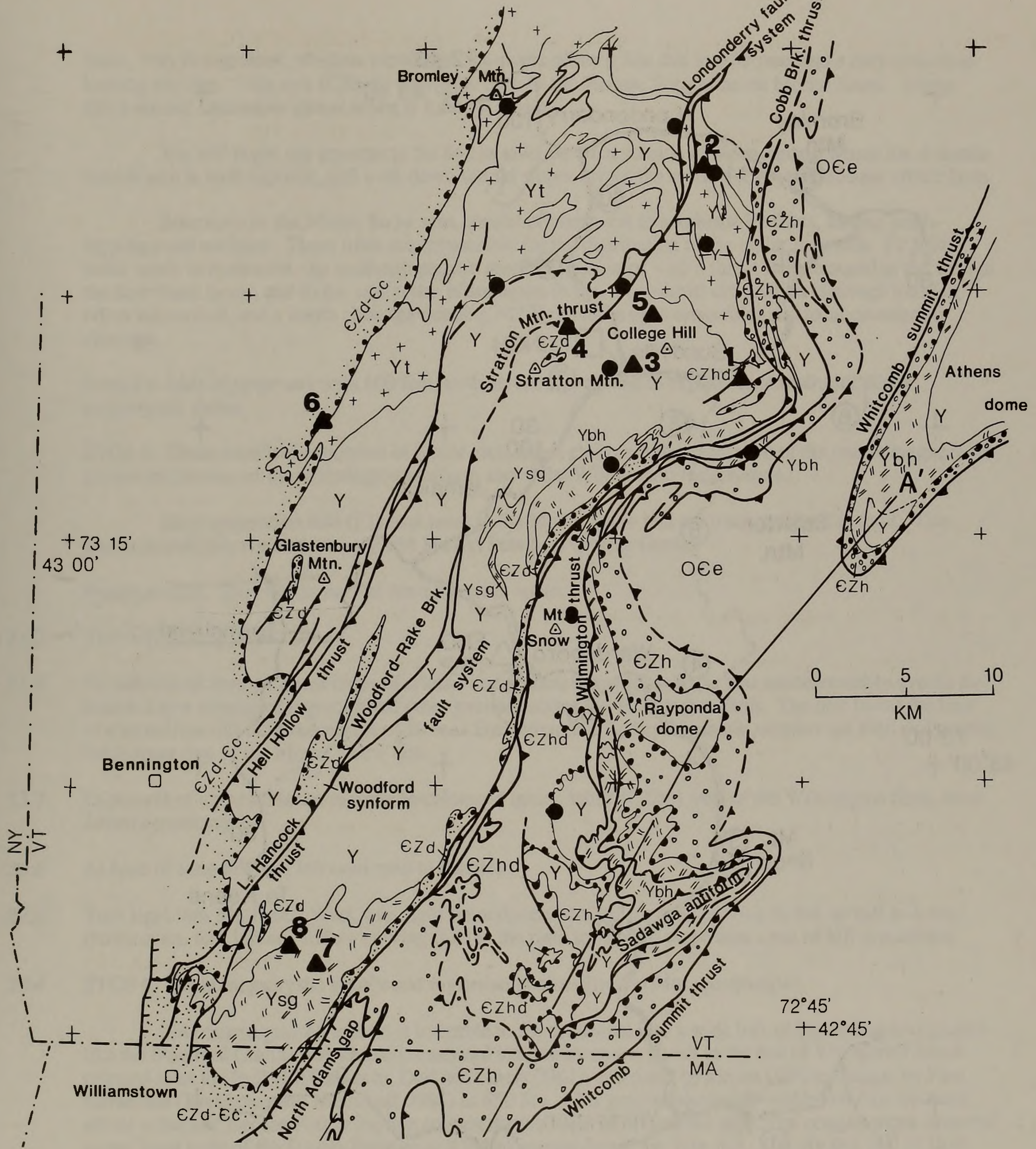

Figure 15. Generalized geologic map of the souhern part of Green Mountains massif and Sadawga-Rayponda domes area. Solid dots show field trip stops. Solid triangles show location of 40Ar/39Ar samples discussed, numbers refer to figure 18. For explanation of rock units see figure 1, Trip A-1.

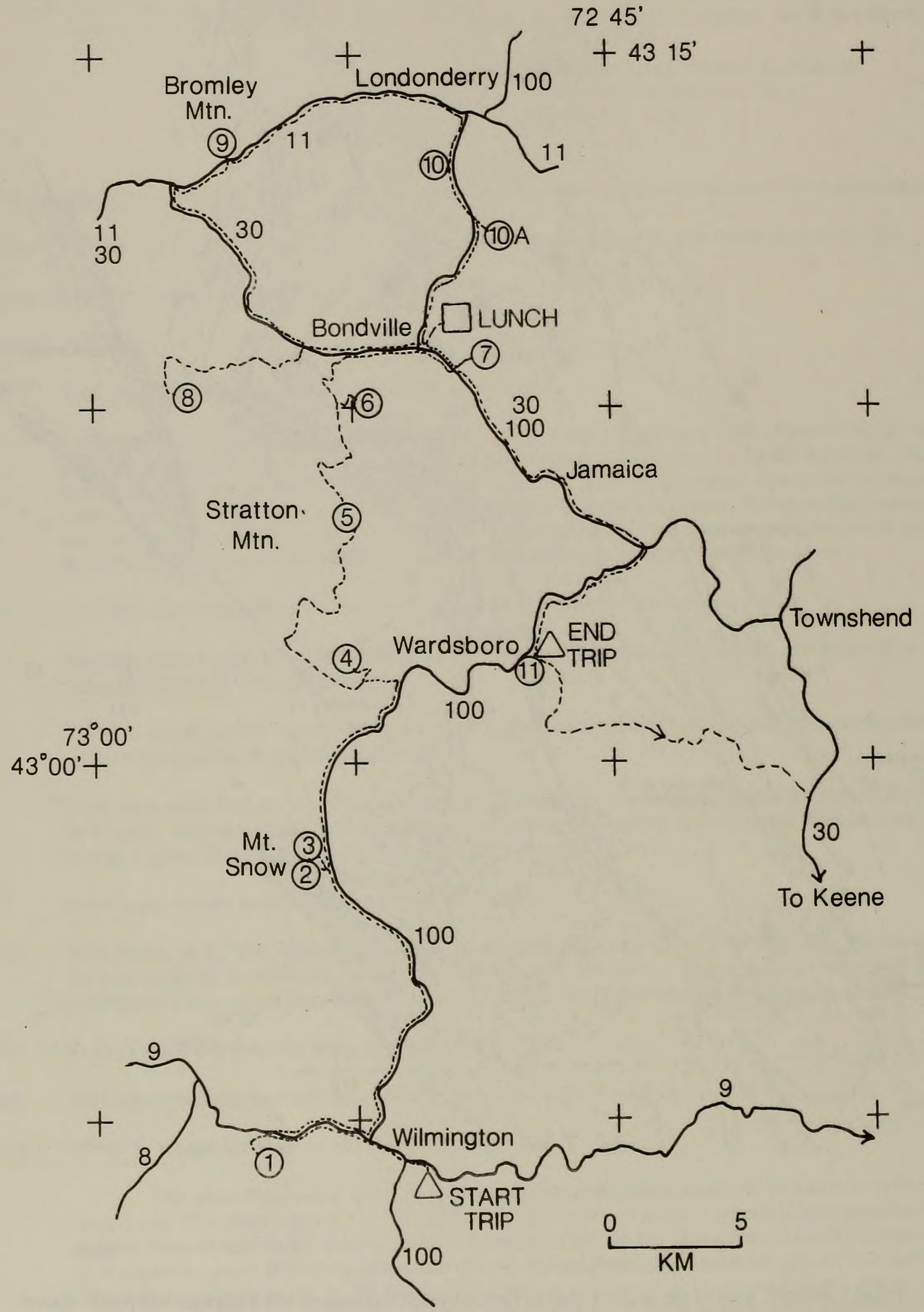

Figure 16. Route of field trip stops and stop locations for trip B-1.

black, very fine-grained, phyllitic biotite±garnet-quartz-albite schist that locally pass into a dark chloritoid-bearing phyllite. This unit (CZhgb) forms the bulk of the Hoosac Formation on Mount Snow. Above this a second aluminous garnet schist is found (CZhgt).

We will begin our traverse at the 840 m level on the northside of the mountain where the dolomite marble unit is well exposed, and walk down the ski slopes across the section down to the lower albitic beds.

Structures in the Mount Snow area consist of northwest to southeast F1 folds, having north-dipping axial surfaces. These folds are responsible for the distribution of the major map unit. F2 folds strike north to northwest, dip southeast and are spatially associated with a thrust fault exposed to the west at the Searsburg thrust, and to the east at the Wilmington thrust. Post-thrust crenulation cleavage trending NE is subvertical, and a fourth cleavage trending NNW produces open cross folds and local crenulation cleavage.

Return to base of slope and walk 600 feet north across access road to exposures of mylonitic Kspar megacrystic gneiss

STOP 3. These excellent exposures of biotite-rich augen gneiss are representative of the coarse megacrystic granite in the core of the Wilmington antiform above the Wilmington fault system.

Early-generation fold (F1) structures in the Mount Snow belt are truncated by this fault. This gneiss is probably equated with the 958 Ma old Stamford Granite Gneiss.

Return to cars. Exit Mt. Snow Ski Area via same route.

21.2 Turn left (north) on Rt. 100

21.8 On left side of road excellent crops of arkosic conglomerate and gritty rocks that unconformably overlie the coarse Kspar megacrystic granite and other gneisses above the Wilmington fault. The unit forms the base of a somewhat different succession of Hoosac Formation and Turkey Mountain member (of Doll and others, 1961) from that in the Mount Snow belt.

23.7 Exposures of garnet-chlorite-muscovite-chloritoid quartz schist (CZhg) west of the Wilmington fault, enter Jamaica quadrangle.

26.6 At base of long hill turn left onto road to Stratton.

27.6 Turn right into Mt. Farms West, turn right immediately and follow road curving to left up hill to 4-way intersection, turn left and follow curving road to the right up the hill slope near crest of hill at roadcuts.

29.4 STOP 4. Kspar megacrystic granite and mylonitic gneiss (Stratton Mtn. quadrangle)

This coarse-grained granite is traceable to the southwest into a wide belt of biotite rapakivi granite like the Stamford Granite and traceable eastward into biotite augen gneiss in the bed of Wardsboro Brook referred to as the Bull Hill Gneiss by Doll and others (1961), and dated by zircon U/Pb technique by Paul Karabinos (Karabinos and Aleinikoff, 1988) as 950 Ma. This granite is unconformably overlain by rusty albitic schists of Hoosac Formation that contain distinct beds of feldspathic quartzose conglomerate identical to the basal beds of the Dalton Formation (CZdsc) seen at Stop 1 on Trip A-1. Clearly this belt of Bull Hill-like gneiss is a part of the Green Mountain massif basement rocks.

Follow loop of road down to base of hill and exit right.

30.7 Onto paved road to Stratton

33.1 Turn right on West Jamaica Rd.

35.4 Turn left on Mountain Road headed toward Stratton Ski area

36.2 Begin outcrops of well-layered biotite-quartz-plagioclase gneiss and rusty schistose gneiss. Continue north past Forrester Road and stop near crest of hill at large freshly blasted outcrops.

38.1 STOP 5. Migmatitic gneiss and pegmatite (Ymg) on Stratton Mountain

These excellent roadcuts of migmatitic 2-feldspar-biotite granite gneiss (Ybm) are typical of one type of syntectonic granitoid rocks present in the Green Mountains. In the Jamaica-Stratton Mountain area several belts of these rocks have been mapped. One belt forms a mantle or wreath around a coarse Kspar megacrystic granite exposed at College Hill (Stop 6). These gneisses are high SiO2, K2O rich rocks having low CaO (table 4). In figure 4 they are grouped with the Kspar-rich granitic rocks (Ygg) that lack the abundant relict structures and short-like gneissic lens in these rocks.

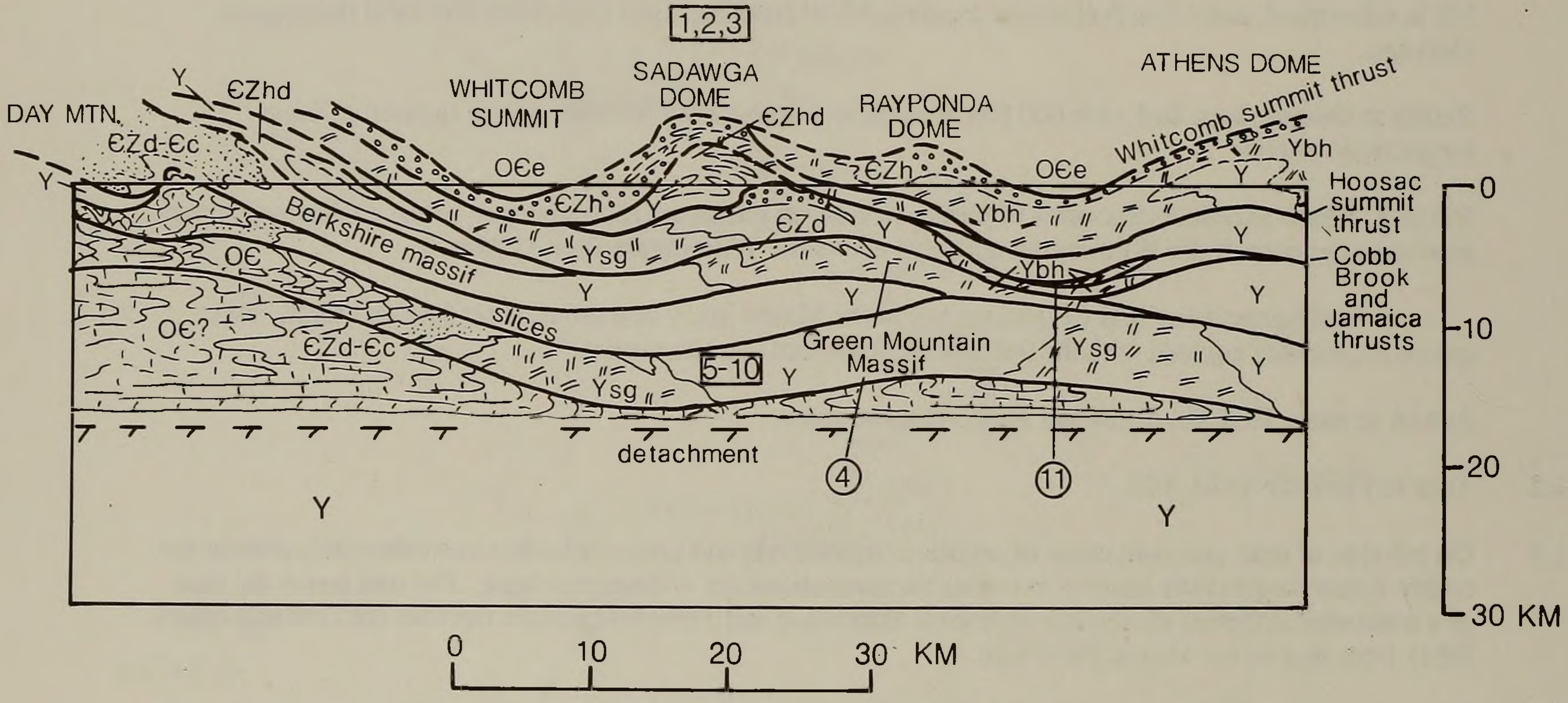

Figure 17. Schematic cross section from start of trip A-1 at Day Mountain, Massachusetts northeast to the Athens dome showing correlation of major faults and lithotectonic units. Numbers refer to projected location of selected field trip stops, Trip B-1.

Paleozoic foliation trends N 40° E and dips SE parallel to axial surfaces of late folds. Hornblende from Stratton Mountain (1178A) produced a disturbed Ar/Ar release spectra characteristic of Proterozoic Y hornblendes in zones of biotite-grade Paleozoic remetamorphism (fig. 18).

Continue N on road to T

40.6 Intersection and turn right on Work Rd.

41.4 Turn left at base of hill onto Pikes Falls Rd., continue north over Ball Mtn. Brook to....

42.7 The third right turn, and turn onto Benson Fuller Road. Bear right at Y onto Pearl Buck Drive

43.4 Stop near crest of hill

STOP 6. Biotite megacrystic granite of College Hill (Londonderry quadrangle).

Abundant exposures of Kspar megacrystic biotite granite gneiss having Proterozoic Y deformational structure older than coarse biotite granite pegmatite. Granite like this forms a prominent unit, bordered by migmatitic gneiss. This rock resembles closely in chemistry and overall appearance the Tyringham Gneiss of the Berkshire massif (table 4 and fig. 4). This very distinctive megacrystic gneiss can be traced (fig. 5) from College Hill westward across the north slopes of Stratton Mountain into the Sunderland quadrangle thus ruling out a major fault in this area despite strong mylonitic fabrics.

44.3 Proceed to end of turn-around and return to Pikes Falls Road.

45.1 Turn right (north) and go to intersection with Stratton Village Road, turn right and follow to intersection with

46.6 Rt. 30.

49.3 Road, turn left

50.0 STOP 7. Biotite tonalite gneiss at Cole Pond (Londonderry quadrangle).

Distinctive, biotite-quartz-plagioclase metatonalite, biotite-poor-plagioclase-quartz (metadacite), biotite-spotted granodiorite, and white, fine-grained plagioclase-rich aplite rocks form a distinctive group of rocks in the Peru, Londonderry, Stratton Mountain, and Jamaica quadrangles. Coarse-grained rocks are massive, nonlayered to weakly foliated rocks suggestive of metaigneous rocks. Exposures here are typical of the mafic, biotite-rich members of this group of rocks. Together with locally devloped plagioclase hornblende gneiss and amphibolite these rocks may constitute a suite of metaintrusive and volcanic calcic to calc-alkaline rocks not recognized in such abundance elsewhere in the Berkshire massif or southern Green Mountains. Collectively these rocks appear to underlie or to intrude the well-layered biotite-quartz-plagioclase paragneiss, quartzite, and calc-silicate rocks that form the bulk of the core rocks to the south. Chemically these rocks resemble rocks of the Losee Metamorphic Suite of the Reading Prong, the biotite-quartz-plagioclase leucogneiss of the Hudson Highlands of New York and certain diorite to trondhjemite rocks associated with these rocks (see table 6 and fig. 7). Their presence in the Green Mountains has just recently been recognized. They may correlate with certain tonalitic gneisses in the eastern Adirondacks recently recognized by McLelland to have U-Pb zircon ages possibly as old as 1.3 Ga.

50.9 Return to Rt. 30 turn right (west)

51.9 Turn right on Goodalville Rd., in 0.6 mi bear right just before bridge over Winhall River and park at slight bend in road.

Lunch stop. Mylonitic white aplitic gneiss, and trondhjemite exposures in brook, located along the trace of the Londonderry-Stratton Mountain fault system.

53.5 Return to Rt. 30, turn right and proceed.

56.6 Turn left on Kendall Farm Rd., leaving Winhall Memorial Library to port (left), follow dirt road to point just past large meadow.

58.6 Turn left onto unmarked road and drive 0.3 mi to gated entrance to U. S. Forest Service road. (This gate is normally locked and closed to vehicular traffic). Follow dirt road uphill over low outcrops of medium to coarse-grained biotite trondhjemite or tonalitic gneiss.

60.7 Several large boulders of typical biotite trondhjemite gneiss

62.2 STOP 8. Paragneiss and amphibolite structurally above the metatrondhjemite-metatonalite unit.

Rusty weathering, biotite-garnet schists, biotite-magnetite gneiss, hornblende-garnet amphibolite. Pavement exposures of well-layered gneiss constituting the southwestern border of the trondhjemite-tonalite-aplite gneiss belt in the Peru quadrangle. Coarse garnet-biotite-plagioclase quartz gneisses and rusty garnet-quartz-sillimanite(?) gneisses. Walk to exposure of hornblende gneiss, diopside-hornblende sulfidic rocks 100 feet to the south. A succession very similar to this marks the border of the white gneiss belt throughout this area. Where intruded by white pegmatite and retrograded in the Paleozoic, lustrous, pale-green chlorite-muscovite quartz±chloritoid phyllites are developed from these rocks. Excellent exposures on the Pinnacle in the Londonderry and Jamaica quadrangles, and the Peak of Stratton

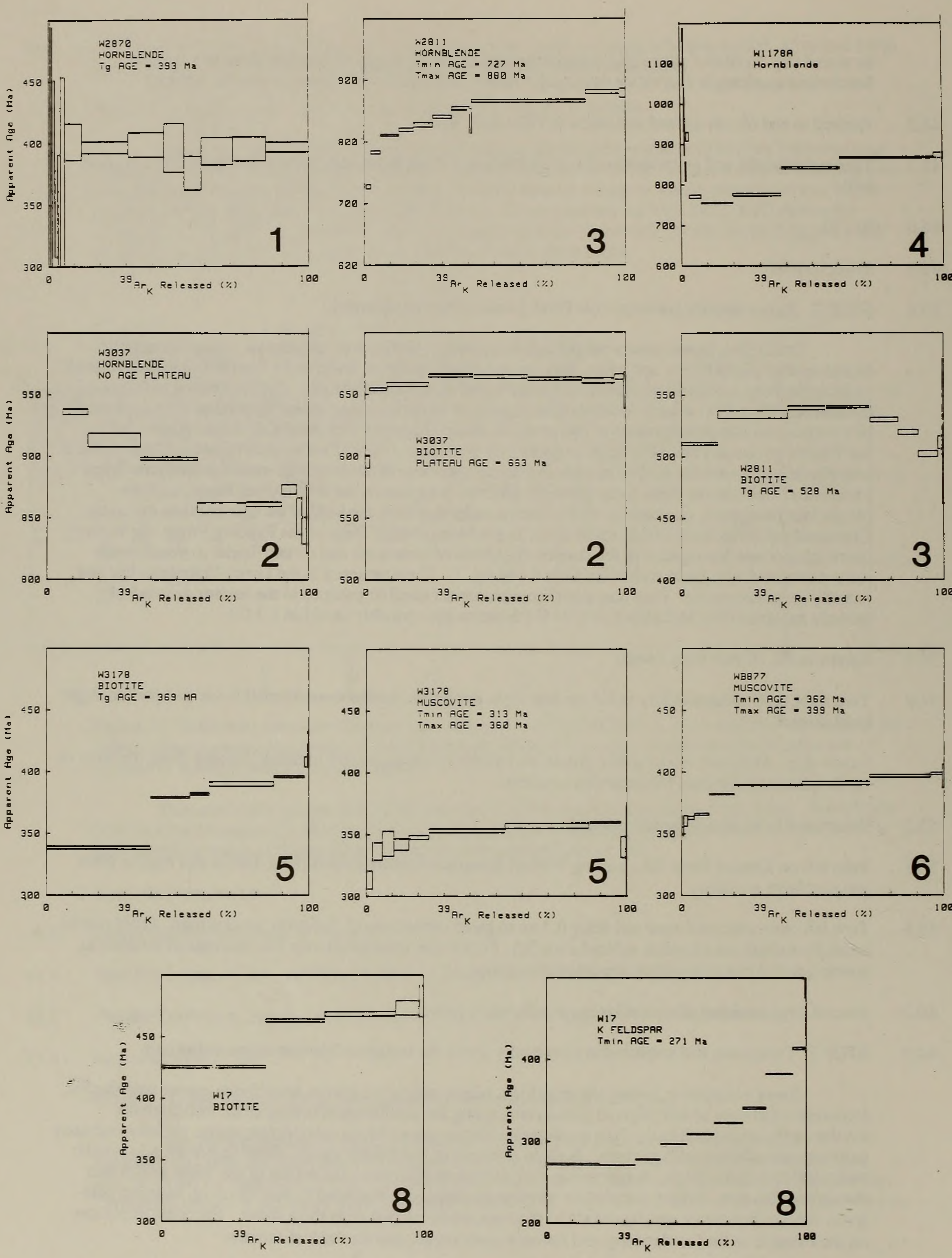

Figure 18. Selected $^{40}Ar/^{39}Ar$ age spectra from the southern and central Green Mountains, Vermont. Numbers refer to locations indicated on figure 15 (location 7 data not shown). See text for discussion.

^{40}Ar/^{39}Ar THERMOCHRONOLOGY

The area of trip B-1 is entirely north of the Green Mountains traverse of Mukasa discussed in trip A-1. As noted before, the central Green Mountain massif in the vicinity of this trip is at least in part in the biotite zone of Paleozoic (presumably Taconian) regional metamorphism. At a point near Jamaica, VT, coarse-grained garnet-muscovite-chlorite-quartz schists are infolded with basement gneisses, for example, in the easternmost cover rock synform shown in figure 15. Karabinos (1984) has identified the staurolite isograd 2.5 km southeast of Jamaica, just outside the region of figure 15. Crystalloblastic textures and biotite and hornblende 40Ar/39Ar closure ages indicate the eastern, higher-grade rocks enjoyed Acadian metamorphism at about 380 Ma (Karabinos, 1984; Sutter and others, 1985). The area west of the staurolite isograd undoubtedly contains effects of both Taconian and Acadian metamorphism.

In an attempt to delineate these zones, a collection of hornblende, muscovite, biotite, and microcline-bearing assemblages was made for 40Ar/39Ar thermochronology from basement and cover rocks west of the inferred Paleozoic garnet isograd. The preliminary results (age spectra) are shown in figure 18.

Hornblende-bearing samples from Middle Proterozoic gneiss listed by increasing Paleozoic grade are: W1178A (no. 4 in figs. 15 and 18; near stop 5), W3037 (no. 2; stop 10A), W2811 (no. 3; near stop 6), and W2870 (no. 1). The first three of these hornblendes yield discordant age spectra characteristic of variably disturbed Middle Proterozoic amphiboles from other areas in the Green Mountain massif (Sutter and others, 1985). None of these hornblende age spectra forms an age plateau but using these and other published spectra we can make a case for initial cooling to argon closure in hornblende about 900 million years ago, followed by a thermal disturbance, probably Paleozoic metamorphism. Biotite from two fo these samples, W3037 and W2811 (no. 2 and 3 respectively in figs. 15 and 18) yield variable discordant age spectra, with W2811 biotite yielding a "total gas" age of 528 Ma and W3037 biotite defining an "age plateau" at 663 Ma. Despite the age plateau of W3037, we are hesitant to assign any geologic meaning to these apparent ages because they are similar in character to ages and age spectra for incompletely retrograded Proterozoic gneisses in the eastern Reading Prong (Dallmeyer and Sutter, 1976). These data do suggest that neither Taconian or Acadian thermal effects were sufficient in this area to totally reset even the K-Ar system in biotite (about 300°C). However, the amphibole from sample 2870, collected from a typical by minor thrust fault near the eastern margin of the massif at Paleozoic garnet grade, yields an only slightly discordant age spectrum in which nearly 81% of the total argon defines an age of 396 Ma. Unlike the other hornblende-bearing samples, textures in W2870 indicate recrystallization in a mylonitic fabric associated with Paleozoic ductile fold-thrust structures. This apparent age could be interpreted either as the result of very slow Taconian cooling (2-4°C/million years; Sutter and others, 1985) or as the time of formation during Acadian recrystallization. The interpretation rests heavily on the temperature maximum during the mylonitic fabric development (in this case garnet grade) and the subsequent cooling rate.

The age spectra of muscovite from sample WB877 (no. 6 in figs. 15 and 18) and of biotite and microcline from W17 (no. 8) are all compatible with cooling from the Taconian metamorphic maximum. Sample WB877, collected near the western margin of the massif from the Dalton Formation, yields a plateau age of about 390 Ma. This is the first 40Ar/39Ar age from muscovite in the cover rocks of the massif and is very significant since it suggests that temperatures associated with Taconian metamorphism of the T-2 zone (fig. 10, trip A-1) reached closure temperature for muscovite about 390-400 million years ago. Biotite from W17, mylonitic Stamford Granite Gneiss, yields a total-gas age of about 450 Ma consistent with previous results from the area as discussed on trip A-1. Microcline from this sample, W17, shows a steady increase in age with temperature from about 270 Ma to well over 400 Ma. We interpret this age gradient as a result of slow cooling in the temperature range of 150-250°C or even lower. Because there is no evidence in the age spectrum for "extraneous" 40Ar, the results can be used to say it is unlikely that this part of the Green Mountain massif ever saw temperatures greater than 200-250°C after about 415 million years ago. Hence this area must have been structurally high during Acadian metamorphism, in marked contrast to areas just to the east.

Finally, a muscovite-biotite mineral pair (W3178) was collected from a 3-meter thick, vertical strike-slip or contractional ultramylonite zone cutting the granite at College Hill (no. 5 on figs. 15 and 18). The biotite yields a very discordant age spectrum and a total-gas age of about 370 Ma. The muscovite is much better behaved and yields a near-plateau of about 360 Ma. The location of this sample west of the garnet isograd, and in an area where neither biotite nor hornblende are reset to Paleozoic ages, suggests the muscovite age from this mylonite is a good estimation of the time of faulting. Several N50°E trending vertical, apparently strike-slip faults cut the basement gneisses between College Hill and Jamaica, VT. These faults offset the regular Paleozoic overprint fabrics in the gneisses and are demonstrably late features. Our data suggest these are Acadian faults and therefore indicate Acadian shortening in an E-W or NW-SE direction.

Mountain and north of Bromley in the Peru quadrangle closely resemble cover sequence rocks of the Pinney Hollow or the aluminous schist facies of the Hoosac Formation. These pseudo-cover sequence rocks are abundant within the basement rocks, and special care is needed to distinguish them from *bona fide* cover rocks.

Return to Rt. 30 via the same route used to enter

69.0 Turn left of Rt. 30

76.2 Turn right on Rt. 11

76.7 Turn left into Bromley Ski area and park at lodge

STOP 9. Metatrondhjemite gneiss and paragneiss: Bromley Mountain traverse.

The traverse begins at the summit of Bromley Mountain in medium-grained trondhjemite gneiss containing inclusions of hornblende diorite gneiss. Relationships suggest that the trondhjemite intrudes a more mafic host. Exposures to the south contain calc-silicate rocks and quartzite similar to the rocks seen at Stop 8. Contact relationships between the trondhjemite and the paragneiss have not been determined.

Excellent views to the south show the steep west facing scarp composed of west dipping Cheshire Quartzite and Dalton Formation. Detailed mapping from Bennington north to Manchester, by Burton, shows that both foliation and bedding dip west and are strongly folded by F2 generation north-south folds. Locally, early, more east-west trending folds are present in the cover rocks resulting in areas of complexly refolded folds. The west dipping foliation and bedding gives a deceptively simple impression of the geology. At present significant thrust faults between Cheshire-Dalton and Vermont Valley carbonate rocks are a distinct possibility in several areas but much more work is required.

From the top we will walk down the northern ski slope starting in white weathering east-west trending metatrondhjemite gneiss. Coarse gneissosity folded into subvertical isoclinal Middle Proterozoic folds is abundant. Locally spodumene pegmatite cross cuts the folds. At a marked bench in the ski slope about 600 feet from the crest a strong zone of Paleozoic retrogression and transposition can be seen. In a distance of about 10 meters, coarse metatrondhjemite and diorite layers are transposed into a northeast striking, northwest dipping Paleozoic fabric and the rock transformed into a fine-grained well-foliated flaser gneiss.

This section illustrates beautifully the severe nature of Paleozoic retrogression in the basement rocks. Within zones like this chlorite-sericite-actinolite-epidote are common minerals. Paleozoic folds have been mapped from this point down the mountain. It is no wonder, having seen these relations, that identification of original rock types let alone protoliths is difficult in the Green Mountains. Follow the ski slope down to the end of the chair lift.

Return to cars, turn left on Rt. 11, and continue to intersection of Rt. 100 at Londonderry.

83.5 Turn right on Rt. 100. Outcrops in West River of biotite trondhjemite gneiss, dioritic gneiss, and minor amphibolite trend east-west and are subvertical. The slopes to the east and above the West River are strongly foliated and retrograded gneisses in an east-dipping shear zone and possible fault.

84.9 STOP 10. Fault zone and transposition structure

Thrust fabric in retrograde gneiss West River crossing of Rt. 100 Londonderry quadrangle. Excellent chloritic shear zone fabric in this outcrop dips east at about ten degrees. A belt of similarly sheared rocks can be traced northward to Londonderry and south through the lunch stop to the Winhall River south of Route 30 at Bondville. This zone may constitute a regionally important fault zone that runs diagonally from northeast to southwest across the massif from Londonderry to the exposures at the Dome visited on Trip A-1; however, the metatrondhjemite-metatonalite belt is essentially continuous across this zone. Continue south to South Londonderry bridge over West River.

86.4 Turn left for optional Stop 10 or turn right headed south.

86.9 STOP 10 (Optional).

Dirve 0.5 mi to outcrops along road cuts in amphibolite, and coarse-grained Cole Pond-like tonalite. Ar/Ar hornblende and biotite samples were taken from excellent exposures in the creek. Coarse hornblende and well-twinned oligoclase in the amphibolites define an excellent gneissosity that is overgrown by coarse irregular pods of quartz-plagioclase trondhjemite with only sparingly small amounts of K-feldspar. Petrographically and field observation suggest that the fabric and most folds in the rocks area Proterozoic.

87.4 Return to Rt. 100, turn left and continue on 100 to intersection with Rt. 30 at Rawsonville.

91.3 Turn left on 100. Along this route outcrops on both sides of road for next 5 miles and large cliffs above road at Rawsonville consist of white weathering, coarse to fine-grained, biotite-poor (5-10%), tonalitic gneiss and white, fine-grained biotite-quartz-plagioclase leucogneiss.

95.8 Low crops on left approaching Jamaica of white fine-grained quartz-plagioclase leucogneiss sampled for zircon by Paul Karabinos and John Aleinikoff. Preliminary results suggest that this rock may be 1.3 Ga or older (see Karabinos and Laird, this volume). Continue east through Jamaica over West River and turn right on Rt. 100 S. Rt. 30 continues straight.

99.5 Right on Rt. 100. This route, parallel to the Wardsboro Brook, follows a complex belt of highly faulted K-feldspar megacrystic granite (Bull Hill Gneiss of Doll and others, 1961), intercalated Hoosac Formation, and belts of coarse-grained, large garnet-chlorite-chloritoid-muscovite quartz schist. Our mapping indicates that the northernmost belt of granite is traceable into the granite seen at Stop 4 and is physically within the Green Mountain basement. The southeastern belt of granite and other gneisses passes through Wardsboro and is bounded on its southeast side by a complex fault zone that connects with the Wilmington fault system to the south.

102.3 Low exposures in bank of Wardsboro Brook of K-feldspar megacrystic granite dated by Paul Karabinos (Karabinos and Aleinikoff, 1988) approximately 950 Ma by U-Pb zircon technique. This granite and that of the southern Wardsboro belt are Bull Hill Gneiss according to Doll and others (1961). The recent U-Pb data suggest that all of these megacrystic granites including the Stamford Granite of Hoosac Mountain, at Stamford, VT, near Stratton, in the core of the Wilmington antiform, in the Wardsboro belt and in the Chester and Athens domes are all post-Grenville plutonic rocks about 960 Ma old. The close association of these rocks with cover rocks, in the Chester dome and along the east side of the Green Mountains massif is attributable to thrust faulting and/or tight infolding of cover rocks.

103.9 Town of Wardsboro, stop sign, turn left over Wardsboro Brook.
STOP 11. Mylonitic gneiss along Wilmington fault zone.

Mylonitic K-feldspar megacrystic granite of the Wardsboro belt. Excellent mylonitic granite and augen gneiss is exposed under the bridge. THe orignal texture of this rock may have been similar to the coarse-grained ovoidal or rapakivi granite seen at Stamford, VT (Stop 6, on A-1) or the coarse-grained granite seen at Stop 4 today. The fabric in this 960 Ma old granite is entirely Paleozoic and is associated with the Wilmington thrust fault. At this point well-layered rusty, biotite-quartz-plagioclase paragneiss, quartzite, and amphibolite occur under the thrust fault. The eastern albitic Hoosac, containing numerous, and very abundant, greenstones unconformably overlies this gneiss belt. Mapping in the southeast corner of the Jamaica quadrangle suggests that numerous thrust faults are likely within the eastern cover sequence, as a regular coherent stratigraphic succession is not present. Although this work is not completed, the northern extension of the Whitcomb summit thrust passes between this locality and the town of South Wardsboro, 0.5 mi to the south.

End of trip. Instructions to Keene - Continue up dirt road to South Wardsboro, turn left at T intersection, continue 1 mile, take Y at branch in road and follow this dirt road 8 miles down to the town of Newfane where you will rejoin Rt. 30. Take Rt. 30 to Brattleboro, Rt. 5 N and cross the Connecticut River on Rt. 9 (right turn). Follow Rt. 9 to Keene.