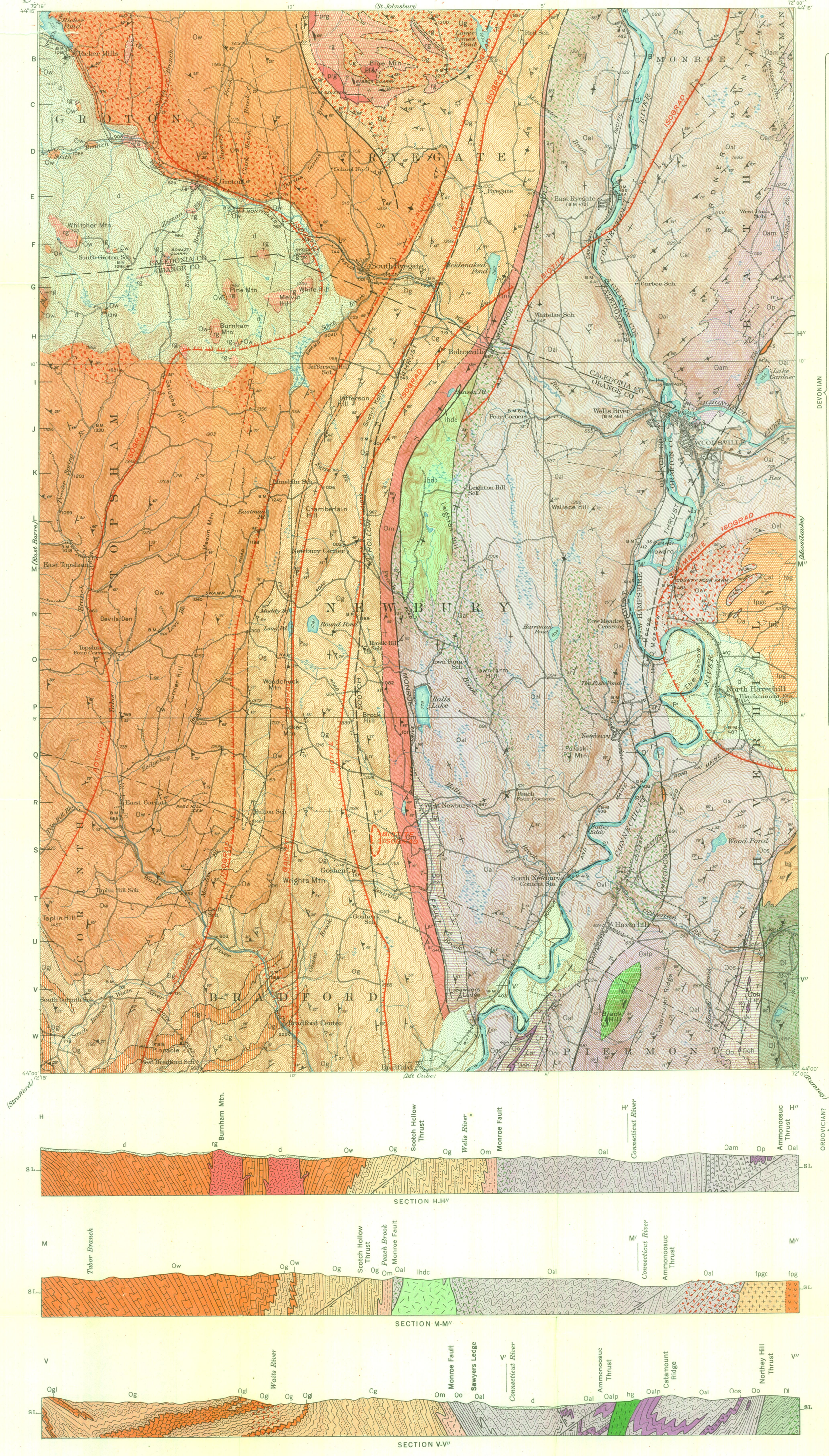

SECTION H-H″

SECTION M-M″

SECTION V-V″

GEOLOGIC MAP AND STRUCTURE SECTIONS OF THE WOODSVILLE QUADRANGLE, VERMONT AND NEW HAMPSHIRE

Topographic base by U. S. Geological Survey. Surveyed in 1931 and 1933-35

APPROXIMATE MEAN DECLINATION, 1935

Scale 1/62500

1 0 1 2 3 4 Miles

5000 0 5000 10000 15000 20000 Feet

1 0 1 2 3 4 5 Kilometers

Contour interval 20 feet

Datum is mean sea level

Geology west of Connecticut River by Walter S. White, assisted by E. R. Breed, J. H. Eric, R. Hornblower, Jr., and R.E. Story. Surveyed 1937-39, under direction of M. P. Billings. Geology east of Connecticut River surveyed by Marland P. Billings assisted by S. Bowditch, A. Waldo, and C. W. Wolfe. Surveyed 1934-35. Survey financed in part by the aid of grants from Harvard University

Published in 1951.

LEGEND

METAMORPHIC AND IGNEOUS ROCKS

Areas in which felsic dikes are abundant
(In Vermont the dikes are medium-grained to fine-grained Ryegate granodiorite, composed of oligoclase, quartz, biotite, microcline, and muscovite. Around the French Pond granite the dikes are pink biotite granite composed of potash feldspar, oligoclase, quartz, and biotite.)

rg prg
Ryegate granodiorite
(Medium-grained to coarse-grained, light-gray quartz monzonite, granodiorite, and quartz diorite composed of oligoclase, quartz, microcline, biotite, and muscovite; porphyritic granodiorite, prg, near Blue Mountain.)

hg
Haverhill granodiorite
(Medium-grained white or gray granodiorite, locally weakly foliated, composed of oligoclase-andesine, quartz, microcline, biotite, and muscovite.)

fpgc fpg
French Pond granite
(Heterogeneous body of granite. The most extensive phase, fpgc, is a porphyritic to coarse-grained, pink biotite, granite composed of potash feldspar, oligoclase, quartz, and biotite. A less common phase, fpg, is a pink to gray, medium-grained to fine-grained biotite granite composed of potash feldspar, quartz, oligoclase or albite, biotite, and muscovite.)

bg
Bethlehem gneiss
(Gray foliated granular quartz monzonite or granodiorite composed of quartz, oligoclase-andesine, potash feldspar, biotite, and muscovite.)

Areas in which metamorphosed mafic dikes are abundant
(Pattern indicates areas where mafic dikes are abundant, but they are present throughout the quadrangle. East of the Ammonoosuc thrust the mafic dikes are amphibolite. West of the Ammonoosuc thrust near Haverhill they are metadiabase and green schist. Elsewhere between the Ammonoosuc thrust and the biotite isograd they are green schist. Around the biotite isograd they are albite-epidote amphibolite. West of the garnet isograd they are amphibolite.)

lhdc
Leighton Hill dike complex
(Numerous dikes of green schist and albite-epidote amphibolite constitute the only outcrops.)

Dl
Littleton formation
(Mica schist, mica-quartz schist, and micaceous quartzite; biotite and garnet porphyroblasts locally common although in many instances they have been chloritized.)

The lower part of the Littleton formation, all of the Clough formation, all of the Fitch formation, and the upper part of the Partridge formation are missing in this quadrangle because of the Northey Hill thrust.

Op
Partridge formation
(Black slate with local thin beds of fine-grained, light-colored quartzite.)

Oam
Ammonoosuc volcanics
(Schistose soda-rhyolite with bluish quartz grains, soda-rhyolite volcanic conglomerate, and chlorite schist; slate is locally abundant especially near the base of the formation one mile north of Woodsville.)

Oal Oalp
Albee formation
(West of the Ammonoosuc thrust is chiefly quartzite, quartzose phyllite, and phyllite. East of the Ammonoosuc thrust the formation consists of white to gray quartzite, micaceous quartzite, mica-quartz schist, and mica schist; the mica schist has porphyroblasts of biotite, garnet and/or staurolite; in a narrow belt north of the French Pond granite the mica schists are coarser grained than the corresponding rocks elsewhere and contain small amounts of sillimanite. The Piermont member, Oalp, consists of rocks similar to those in the main part of the formation but the dark-gray schists with biotite, garnet, and staurolite porphyroblasts are distinctly dominant over the light-colored quartzites and micaceous quartzites.)

Oos Oo Ooh
Orfordville formation
(West of the Ammonoosuc thrust the Orfordville formation consists chiefly of black slate, quartzite, and soda-rhyolite tuff; at the top of the formation the Sunday Mountain volcanics, Oos, consist chiefly of slaty soda-rhyolite tuff; the Hardy Hill quartzite, Ooh, is a thin but distinctive quartzite and quartz conglomerate. East of the Ammonoosuc thrust the Orfordville formation consists chiefly of dark-gray mica schist, with porphyroblasts of biotite and garnet, quartz-mica schist, and thin quartzite; at the top of the formation are the Sunday Mountain volcanics, Oos, consisting of fine-grained amphibolite; the Hardy Hill quartzite, Ooh, is a thin but distinctive quartzite and quartz conglomerate.)

The lower part of the Orfordville formation, present elsewhere, is missing in this quadrangle because of the Monroe fault.

Om
Meetinghouse slate
(Dark mica schist or phyllite, with occasional thin beds of quartzite.)

Og Ogl
Gile Mountain formation
East of the garnet isograd the rocks are phyllite, quartzose phyllite, and micaceous quartzite; west of the garnet isograd the rocks are mica schist, quartz-mica schist, and micaceous quartzite; west of the biotite isograd these rocks contain biotite porphyroblasts, west of the garnet isograd they contain biotite and/or garnet porphyroblasts, and west of the staurolite isograd they contain biotite, garnet and/or staurolite porphyroblasts. Locally calcareous beds are present Ogl.)

Ow
Waits River formation
(Mica schist, quartz-mica schist, calcareous mica schist, and quartzose marble. Many of these rocks contain intermediate to calcic plagioclase, biotite, muscovite, actinolite, clinozoisite, diopside, and garnet.)

METAMORPHIC ZONES

Metamorphic zones shown by isograds, hachured on high-intensity side. Rocks on east side of Ammonoosuc thrust are in staurolite zone, rocks on west side are in chlorite zone.

CONTACTS

Accurate

Approximate and diagrammatic due to poor exposures

Indefinite as sharp contact is lacking

SPECIAL SYMBOLS

(Strike and dip symbols represent only a small percentage of the field observations)

Strike and dip of bedding

Strike of vertical bedding

Strike and dip of schistosity

Strike of vertical schistosity

Strike and dip of slip cleavage

Strike and dip of schlieren or foliation in plutonic rocks

Fault
T denotes overthrust side of thrust faults where known.

Silicified fault zone

BED ROCK NOT EXPOSED

d
Glacial drift and alluvium
(Shown only where exceptionally thick and extensive. No attempt has been made on this map to show Quaternary deposits systematically.)