

LEGEND
 SEDIMENTARY, IGNEOUS, AND
 METAMORPHIC ROCKS

- Quartz syenite
 (Medium-grained, massive, green, quartz syenite, composed of quartzite, quartz, perthite, oligoclase, and biotite; small amounts of hornblende and pyrite; weathered to a coarse, residual soil.)
- Volcanic breccia
 (Filling a volcanic neck; composed of trachytic tuff; locally contains angular fragments, up to a foot in diameter, of quartz syenite, Ammonoosuc volcanic, and Smarts Mountain type of quartzite.)
- Bethlehem gneiss
 (Medium- to coarse-grained, gray orthogneiss, composed of andesine, quartz, biotite, microcline, and a little muscovite; locally granodioritic; locally quartz monzonite or granite; bg, areas where pegmatites cutting Bethlehem gneiss are abundant.)
- Mascoma group
 (Fine- to medium-grained, white, gray, and pink, weakly foliated, granitoid rocks, composed of oligoclase, quartz, microcline, and biotite; mqd, quartz diorite; mgr, granodiorite; mam, quartz monzonite; mg, granite.)
- Smarts Mountain group
 (Fine-grained, white to gray, weakly foliated quartz diorite and granodiorite; composed of oligoclase, quartz, biotite, hornblende, and microcline.)
- Crofton group
 (Fine-grained, white to gray, weakly foliated quartz diorite and granodiorite; composed of oligoclase, quartz, biotite, and microcline.)
- Lebanon group
 (lg, Lebanon granite, a medium- to coarse-grained, pink, subophyritic, somewhat granulated granite and gneiss; some granitoid, composed of microcline, quartz, oligoclase, biotite, epidote, and muscovite; lb, border gneiss, a fine- to medium-grained, dark-gray, granulated gneiss; composed of oligoclase, quartz, biotite, epidote, microcline, hornblende, and muscovite.)
- Litchton formation
 (Zone m: quartzite, micro-quartz schist, mica schist, and staurolite schist, with medium-grained biotite-gneiss of volcanic origin; Zone s: mica schist, mica-quartz schist, and sillimanite schist; Dip, areas where pegmatites cutting Litchton formation are abundant.)
- Fitch formation
 (Zone m: thin-bedded, fine- to medium-grained diopside-epidote-muscovite granitoid and microcline-hornblende-epidote-dioptase granitoid.)
- Clough formation
 (Zone m: chiefly quartz conglomerate and quartzite, with some mica-quartz schist and mica schist.)
- UNCONFORMITY**
- Ammonoosuc volcanics
 (Zone m: chiefly amphibolite, with some fine-grained biotite granite.)
- Lower part of Ammonoosuc volcanics, all of Albee formation, and upper part of Orfordville formation, which are present elsewhere, are missing in this quadrangle due to the Northey Hill thrust.**
- Orfordville formation
 (Zone m: Black to dark-gray mica-quartz schist, mica schist, garnet schist, and quartzite; Herby Hill quartz member; Oo, consists of gray to white quartzite and quartz conglomerate, with some quartz-mica schist and mica schist; where Herby Hill quartzite is very thin or absent, its horizon is shown by a dash-dot line; Foot of volcanic member; Oo, consists of fine-grained quartzite, schist, and amphibolite; of volcanic origin, and quartzite, mica-quartz schist, mica schist, and garnet schist, of sedimentary origin. Small volcanic lenses, Coy, other than the Foot Pond member, consist of fine-grained quartzite, schist, and amphibolite.)

METAMORPHIC ZONES

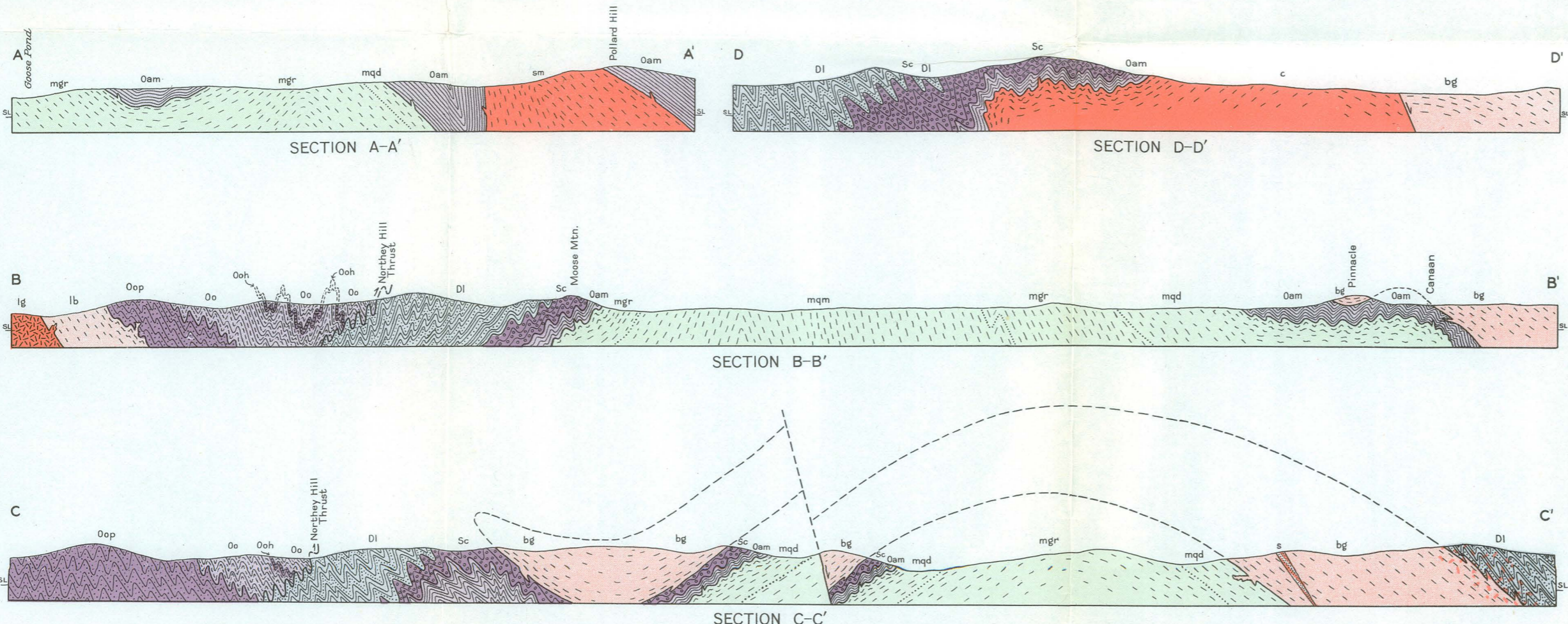
- Shown below formation symbol thus:
 - m-middle grade
 - h-high grade

CONTACTS

- Accurate
- Approximate and diagrammatic due to poor exposures
- Indefinite as sharp contact is lacking

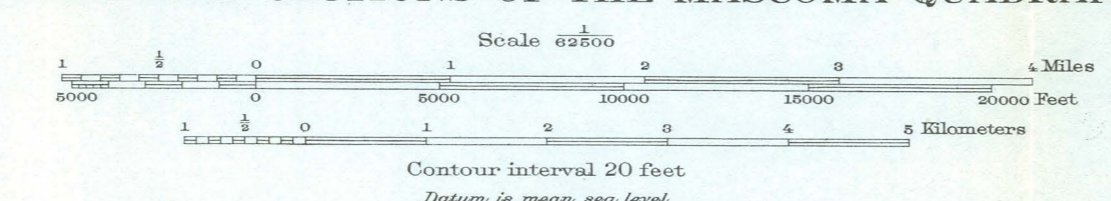
SPECIAL SYMBOLS

- (Dip and strike symbols representing only a small percentage of the field observations)
- Strike and dip of bedding, including inverted and normal strata
- Strike of vertical beds
- Strike and dip of foliation and schistosity
- Strike of vertical foliation and schistosity
- Horizontal foliation and schistosity
- Overthrust side of thrust faults
- D, Downthrown side of normal faults
- Silicified fault zone
- Mines, prospects, and quarries mostly abandoned



GEOLOGIC MAP AND STRUCTURE SECTIONS OF THE MASCOMA QUADRANGLE, NEW HAMPSHIRE

Topographic base by U. S. Geological Survey, surveyed in cooperation with the State of New Hampshire.



Geology by Carleton A. Chapman, assisted by Bernard Chapman, Richard Vosburgh, and Edgar Breed, Jr. Directed by Marland Billings. Geology surveyed in 1935 and 1936, under the auspices of the Division of Geological Sciences, Harvard University, with the aid of grants from the Holden Fund. Published 1938.