STATE OF NEW HAMPSHIRE, HIGHWAY DEPARTMENT
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NEW HAMPSHIRE
WINNIPESAUKEE QUADRANGLE

LEGEND

METAMORPHIC AND IGNEOUS ROCKS

CARBONIFEROUS OR TRIASSIC

Trap (t)
(Fine-grained, dark trap, composed of andesine, pyroxene, and ilmenite.)

LATE DEVONIAN OR CARBONIFEROUS — *Magma series uncertain*

Hornblende gabbro (hg)
(Coarse-grained, gray to dark-gray gabbro, consisting of variable proportions of labradorite and hornblende. Relationship to other rocks not well revealed.)

YOUNGER THAN LOWER DEVONIAN, PROBABLY LATE DEVONIAN — *New Hampshire Magma Series*

Fine-grained quartz syenite (fqs)
(Fine-grained, gray quartz syenite, composed of microperthite, hastingsite, quartz, and biotite. The hastingsite occurs as needles nearly one-eighth of an inch long.)

Concord granite (co)
(Fine- to medium-grained, foliated, light-gray to light-brown granite, composed of orthoclase, quartz, oligoclase, muscovite, and biotite.)

Medium-grained syenite (ms)
(Medium-grained, gray to pink syenite, composed of microperthite and hastingsite.)

Winnipesaukee quartz diorite (wm, wqd)
(Medium-grained, slightly foliated, gray quartz diorite, including some granite, granodiorite, and diorite. The principal minerals are oligoclase or andesine, quartz, orthoclase, biotite, and locally hornblende. wm : area in which blocks of Meredith porphyritic granite are included in the fine-grained phase of Winnipesaukee quartz diorite.)

Nepheline-sodalite syenite (nss)
(Medium- to coarse-grained, light-gray syenite, composed of the following minerals in varying proportions: microperthite, nepheline, sodalite, and black stubby crystals of hastingsite.)

Meredith prophyritic granite (mpg)
(Coarse-grained light-gray, porphyritic granite, composed of potash feldspar in phenocrysts up to two inches long, quartz, oligoclase, and biotite. Muscovite, garnet, and sillimanite are present at many places. Inclusions of schist common. The Meredith porphyritic granite is essentially the same rock as the Kinsman quartz monzonite; the Meredith is richer in phenocrysts of potash feldspar.)

Coarse-grained syenite (cs)
(Coarse-grained, gray to yellowish syenite, composed of microperthite (crystals average one-half inch in length and reach as much as two and one-half inches), hastingsite, and locally small amounts of quartz and biotite.)

DEVONIAN ? — *Lower ?*

Littleton (?) formation (Dl)
(Fine- to coarse-grained, contorted, gray to rusty-brown metamorphic rocks of the following types; muscovite schist, biotite schist, muscovite-biotite schist, garnet-mica schist, quartz-mica schist, and mica-sillimanite schist.)

Trap-syenite breccia (tsb)
(At Poorfarm Brook a dike-like mass of fine-grained, black trap with numerous inclusions of syenite.)

Vent-agglomerate (va)
(Fragments of Meredith porphyritic granite, pink quartz syenite, syenite, and Conway granite in a matrix of explosive material, the matrix consisting of microperthite, oligoclase, and quartz.)

Conway granite (cg)
(Medium- to coarse-grained, pink biotite granite, composed of microperthite, quartz, oligoclase, and biotite.)

Albany porphyritic quartz syenite (aqs)
(Medium-grained, pink to gray quartz syenite; phenocrysts chiefly alkali feldspar, three-eighths of an inch long, with some rounded grains of quartz; groundmass composed of alkali feldspar, quartz, and hastingsite. Small dark inclusions common.)

Subporphyritic quartz syenite (sqs)
(Medium-grained, subporphyritic, pink to gray quartz syenite; phenocrysts chiefly alkali feldspar; groundmass composed of microperthite, hornblende, quartz, and biotite. Dark inclusions common.)

Pink quartz syenite (pqs)
(Medium-grained, pink quartz syenite, composed of microperthite, hornblende, and quartz.)

Syenite (sy)
(Coarse-grained, light-gray syenite; composed of microperthite and hornblende.)

Augite monzodiorite (am)
(Variable but mainly medium-grained, light-gray to gray monzodiorite, composed of oligoclase, microperthite, hornblende, biotite, augite, and locally quartz.)

Monzodiorite (m)
(Medium-grained, gray monzodiorite, composed of andesine, microperthite, hornblende, biotite, and quartz.)

Breccia of diorite in Conway granite (bd)
(Fine- to coarse-grained, gray to dark-gray diorite, composed of oligoclase, hornblende, biotite, and pyroxene. Present only as inclusions, a few inches to several hundred feet long, in a matrix of syenite or Conway granite.)

Gabbro (g)
(Coarse-grained, blotchy, dark gabbro, composed of labradorite, hornblende, and pyroxene.)

Moat volcanics (mv)
(Interbedded flows, tuffs, and breccias of rhyolitic, andesitic, and basaltic composition.)

Red Hill — YOUNGER THAN LOWER DEVONIAN, PROBABLY CARBONIFEROUS — *White Mountain Magma Series — age of rocks at Red Hill relative to those of Belknap and Ossipee Mountains is uncertain* — *Belknap Mountains and Ossipee Mountains*

METAMORPHIC ZONES
(All the schists show high-grade metamorphism.)

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

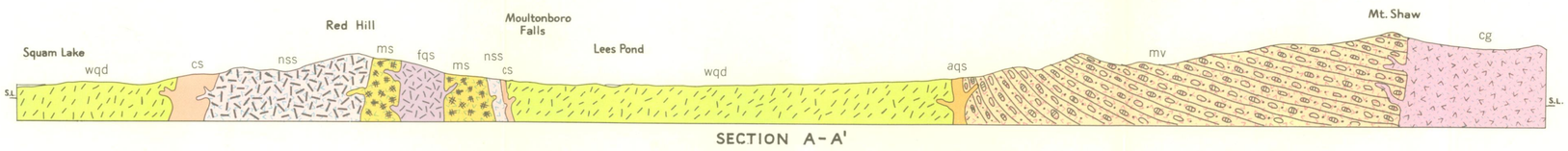
SPECIAL SYMBOLS
(In the Littleton formation the bedding is generally parallel to the schistosity.)

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

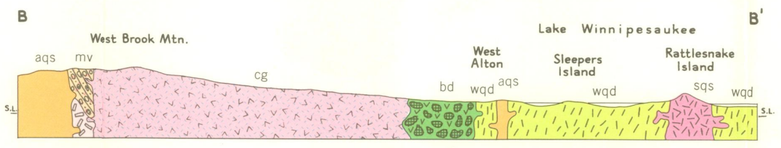
Silicified zones (S): LK, AQ, DM

Ossipee Mountains — Mt. Shaw — Lake Winnipesaukee — Belknap Mountains — Gilford — Alton — Gilmanton — Belmont — Meredith — Center Harbor — Moultonborough — Tuftonboro — Wolfeboro

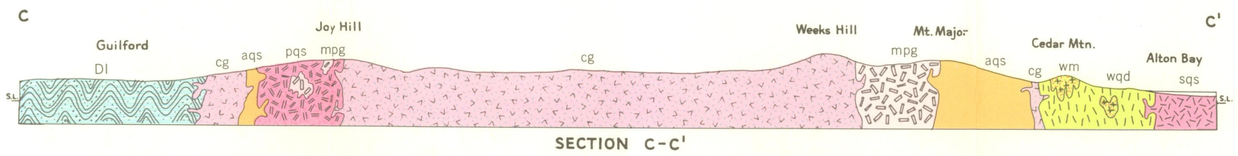
SECTION A-A'



SECTION B-B'



SECTION C-C'



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

Topographic base by U.S. Geological Survey, 1956

APPROXIMATE MEAN DECLINATION, 1940

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 by Alonzo Quinn, David Modell, and Louise Kingsley. Directed by Marland Billings. Geology surveyed 1929-1938, with the aid of grants from the Holden Fund and the Associates in Science of Harvard University. Published 1940.
Reprinted 1966

Williams & Heintz Map Corporation, Wash., D.C. 20027