Niantic Rodgers Bedrock Compilation Sheet (paper)

Map

NOTICE !

Bedrock quadrangle 1:24,000 scale compilation sheets for the Bedrock Geological Map of Connecticut, John Rodgers, 1985, Connecticut Geological and Natural History Survey, Department of Environmental Protection, Hartford, Connecticut, in Cooperation with the U.S. Geological Survey, 1:125,000 scale, 2 sheets. [minimum 116 paper quad compilations with mylar overlays constituting the master file set for geologic lines and units compiled to the State map, some quads have multiple sheets depicting iterations of mapping]. Compilations drafted by Nancy Davis, Craig Dietsch, and Nat Gibbons under the direction of John Rodgers.

Geologic unit designation table translates earlier map unit nomenclature to the units ultimately used in the State publication.

This map set contains unpublished maps, cross- sections, and related information archived by the State Geological and Natural History Survey of Connecticut as part of the Survey Library Collection.

These materials have not been reviewed for accuracy, consistency, or completeness. For many geographic areas, more current information exists, either in published or unpublished form.

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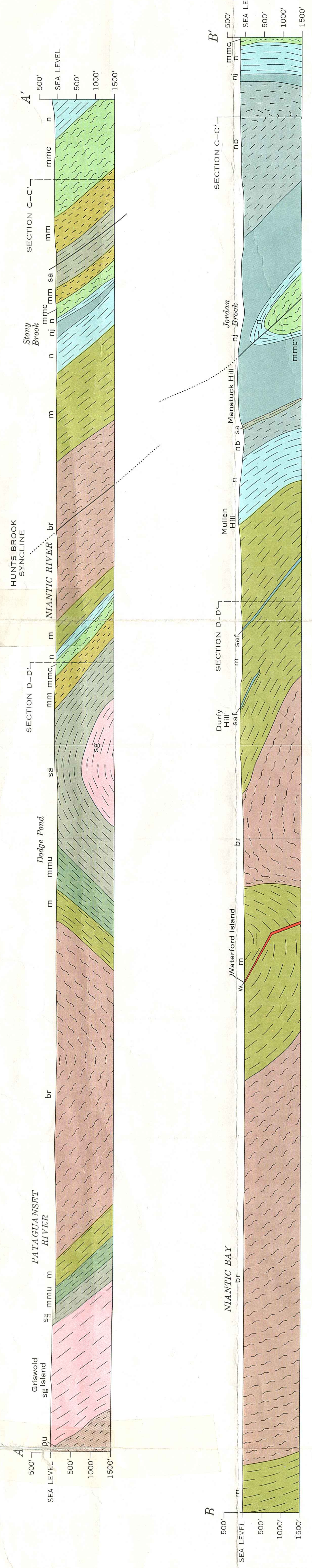
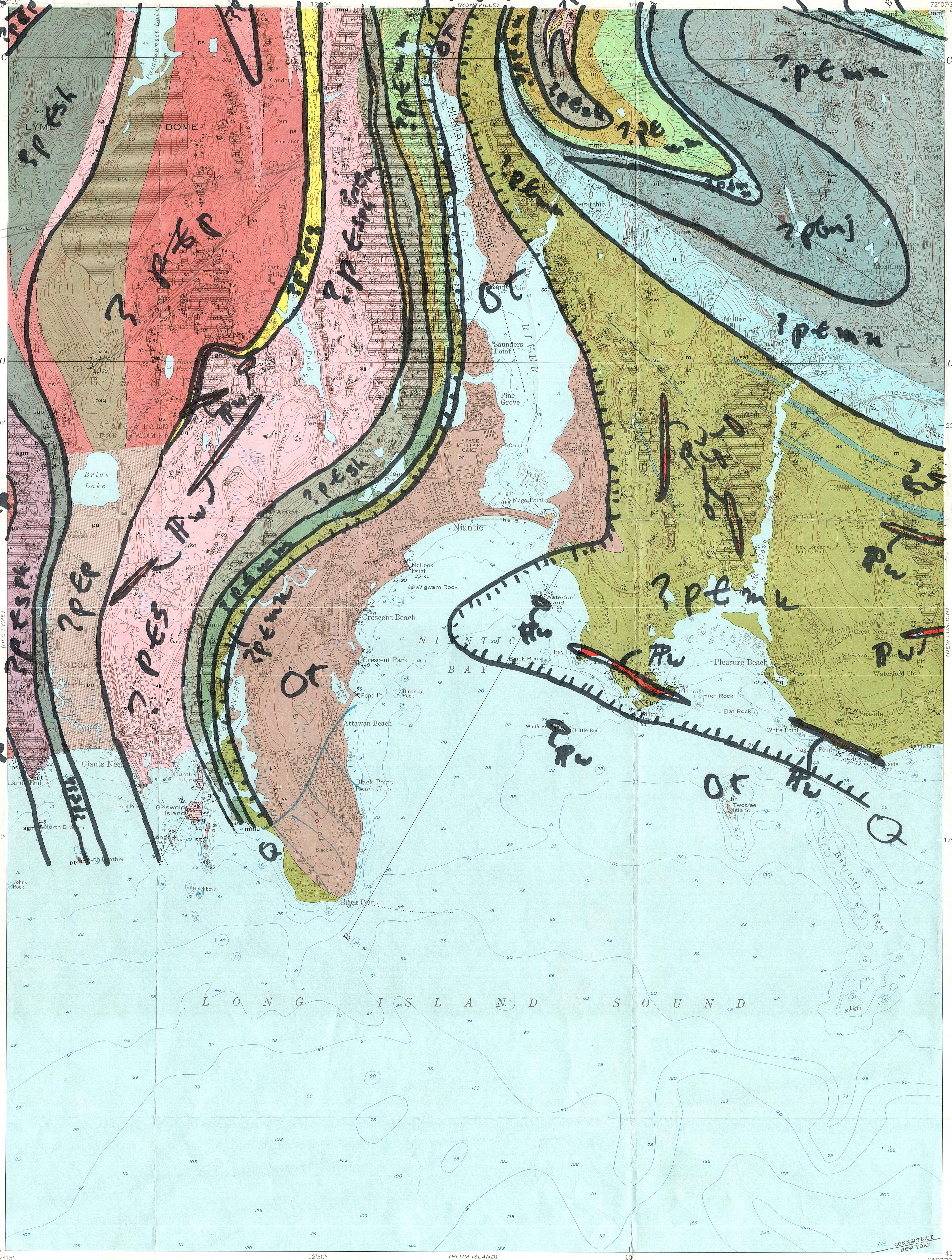
JM Interpretation geology 13-17 July 1978

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH
THE STATE OF CONNECTICUT
GEOLOGICAL AND NATURAL HISTORY SURVEY

GEOLOGIC QUADRANGLE MAP
BEDROCK GEOLOGY
NIANTIC QUADRANGLE, CONNECTICUT
GQ-575





Base by U.S. Geological Survey, 1958

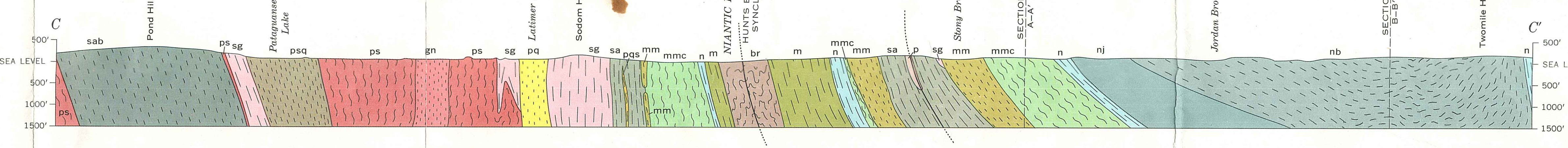
SCALE 1:24 000

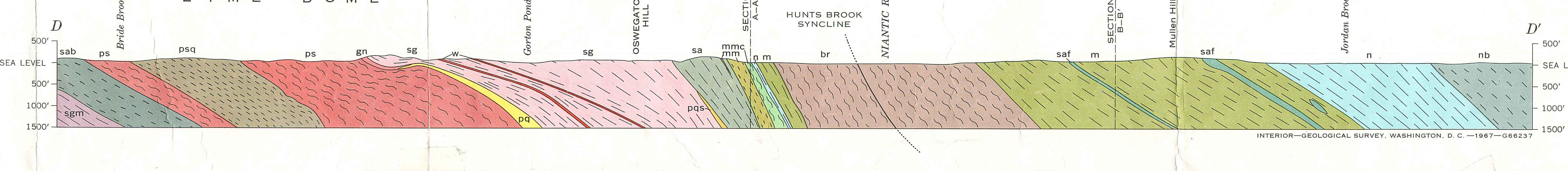
CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER

APPROXIMATE MEAN DECLINATION, 1967

QUADRANGLE LOCATION

Geology mapped in 1958–62
Assisted by Robert Luce, 1962





INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1967—G66237

BEDROCK GEOLOGIC MAP OF THE NIANTIC QUADRANGLE, NEW LONDON COUNTY, CONNECTICUT

By

Richard Goldsmith

1967

EXPLANATION

Mineral modifiers in rock names are given in order of increasing abundance. Rock types within units are listed in order of decreasing abundance where possible.

The entire quadrangle is within the sillimanite-potassium feldspar metamorphic zone. However, some of the granite gneisses contain late muscovite and muscovite after sillimanite is locally present in other units. Some cross-cutting pegmatites associated with the Westerly Granite contain muscovite.

The term granite is used below in a broad sense to include plutonic rocks with a color index less than 20 and containing between 10 and 40 percent quartz and a potassium feldspar to plagioclase ratio greater than 0.6. Less specifically the term granite as used here would include rocks customarily classified as granite and quartz monzonite, but not granodiorite

PENNSYLVANIAN OR YOUNGER

CARBONIFEROUS

pt — Pegmatite

Orange-pink to white, non-foliated pegmatite and aplite dikes. May include some pegmatite older than the Westerly Granite

w — Westerly Granite

Dikes of gray, fine- to medium-grained, equigranular granite composed of calcic oligoclase > microcline ≥ quartz, about 3 percent biotite, and 1 percent muscovite and accessory minerals. Attitude of contact indicated where known. Indicated by dot where not large enough to be shown on map

gn — Nodular granite

White to light-gray, locally pink, microcline-rich, mafic-poor granite containing sillimanite or similarly oriented nodules of quartz and sillimanite

PRE-PENNSYLVANIAN

Sterling Plutonic Group

sa, saf, sab — Alaskite gneiss

sa, orange-pink to light-gray fine- to medium-grained equigranular gneissic granite composed of approximately equal amounts of quartz, microcline, and albite to sodic oligoclase, and about 1 percent magnetite or as much as 2 percent magnetite and biotite. Foliation typically marked by parallelism of alternate flat lenses of quartz and feldspars, and parallelism of biotite flakes where present

saf, orange-pink, light-tan, to white, locally iron-stained, mostly fine-grained, indistinctly foliated granite. Proportions of microcline and plagioclase differ between different masses. Some apparently concordant masses may represent metamorphosed felsic volcanic rocks; others of similar composition, however, are discordant and intrusive

sab, light-gray to white, friable and somewhat rusty weathering, medium-grained indistinctly foliated granite gneiss composed of quartz = microcline ≥ oligoclase with 1-2 percent biotite, magnetite, and hematite. Gneiss on south side of Pond Hill less typical than on northwest side. Alaskite west of Bride Lake is white, light gray, and orange pink, medium- to coarse-grained, irregularly textured, distinctly to indistinctly foliated and composed of microcline > quartz > oligoclase and about 1-2 percent biotite, magnetite, and hematite

sg, sgm — Biotite granite gneiss

sg, gray, medium-grained granite gneiss composed of quartz = oligoclase > microcline and 2-7 percent biotite. Locally contains sillimanite (s), garnet, and muscovite. Particularly variable in Roxbury Road area. Foliation marked by parallelism of flat lenses of quartz and feldspars and by parallelism of biotite flakes. Biotite tends to be concentrated in distinct planes

sgm, gray, medium- to coarse-grained biotite-quartz monzonite gneiss, irregular in texture with patches and streaks of pink coarse-grained to aplitic microcline-rich granite in gray somewhat slabby weathering biotite-quartz-feldspar gneiss. At Rocky Neck, inequigranular gneiss with lenses and megacrysts of orange-pink microcline, and lenses of microcline and plagioclase

PRE-SILURIAN

br — Brimfield Schist

Gray to dark-gray, sillimanite- and garnet-bearing schist and gneiss, in which layers differ in proportions of biotite, quartz, and feldspar; rusty weathering sulfide-bearing garnet-sillimanite gneiss with abundant streaks and lenses of pegmatite; thin layers of calc-silicate gneiss; thin lenses of amphibolite. Thin quartzite locally near contact with Monson Gneiss

m — Monson Gneiss

Gray to dark-gray, medium- to coarse-grained, distinctly to indistinctly layered, locally massive, biotite- and hornblende-biotite-quartz-plagioclase gneiss with subordinate layers containing as much as 20 percent microcline. Mafic minerals tend to be in subrounded clusters and in streaks. Small lenses and layers of amphibolite; thin layers of alaskite. Near contact with Brimfield Schist on east side of Niantic River, thinly layered with light feldspathic and dark biotitic and hornblendic layers. Thinly layered gneiss at Bay Point, Millstone Point, and White Point suggests proximity of Brimfield Schist

n, nb, nj — New London Gneiss

n, interlayered light-gray granodioritic gneiss and amphibolite layers mostly 2-8 inches thick. Also subordinate hornblende-plagioclase gneiss and thick layers and small masses of alaskite and biotite granite gneiss. West of Niantic River a light-gray, fine-grained gneiss; near Gilead Church largely massive amphibolite

nb, light-gray, medium- to fine-grained massive gneissic granodiorite, locally quartz monzonite, peppered with brilliant black biotite and containing scattered prominent magnetite. Main constituents are oligoclase and quartz with subordinate microcline. Tabular inclusions of amphibolite most abundant near contact with the layered gneiss, n. Foliation produced by parallelism of biotite flakes and streaks of slightly different proportions of minerals

nj, Joshua Rock Gneiss Member, gray, medium-grained, equigranular gneissic granite, weathers with small cherry-red spots, rare veins of smoky quartz. Composed of microperthite > quartz > albite with as much as 3 percent aegerine-augite, 1-2 percent magnetite, hematite, and ilmenite, and accessory rare-earth-bearing sphene. Foliation marked by parallelism of mafic minerals and grains of quartz

mmcq, mmc, mm, mmu — Mamacoke Formation

mmc, inequigranular amphibolite, biotite-quartz-andesine gneiss, garnet-rich quartz-sillimanite-biotite-andesine gneiss, calc-silicate gneiss, and white to light-gray, biotite-quartz-orthoclase gneiss with ellipsoidal quartz-sillimanite nodules, rare thin quartzite near top. Relative abundance of rocks differs in different areas

mmcq, quartzite

mm, distinctly to indistinctly layered, light- to dark-gray, fine- to medium-grained mostly equigranular biotite-quartz-plagioclase gneiss with subordinate but varying amounts of microcline; subordinate streaked and splotchy hornblende-bearing gneiss, and minor amphibolite; rare thin quartzite and quartz-biotite-plagioclase schist, thin alaskite layers. Typical gneiss is characterized by evenly distributed biotite. Locally inhomogeneous and migmatic with irregular streaks and patches of granite

mmu, undivided

LYME DOME

pqs, pq, psq, ps, pu; p, pq — Plainfield Formation

pq, interlayered white to tan quartzite and feldspathic quartzite with sillimanitic partings, and garnet-sillimanite-bearing schist and gneiss

pqs, garnet- and sillimanite-bearing biotite-quartz-feldspar gneiss and schist

ps, quartz-sillimanite-biotite-, garnet-biotite-, and minor biotite-bearing gneiss and schist locally migmatitic and granitoid; thin quartzite; micaceous-feldspathic quartzite; subordinate thin layers of dark quartzite; calc-silicate-bearing schist and gneiss; rare small lenses of marble associated with granofels with large brown-black garnets

psq, white and light-gray, locally pink quartzite and feldspathic quartzite, thin seams and layers of sillimanite-bearing schist, locally granitoid with abundant microcline

pu, undivided

p, dark biotite-quartz-feldspar gneiss, some layers with garnet, and sillimanite; light-gray sillimanite-biotite-feldspar-quartz gneiss; thin quartzite; thin calc-silicate schist and gneiss

pq, gray to tan quartzite

Bedrock exposures
Individual outcrops and areas of abundant outcrops

Contact
Long dashed where approximately located; short dashed where inferred; dotted where concealed by water

Syncline — Anticline
Trace of axial plane of overturned fold
Dashed where approximately located; dotted where concealed by water

PLANAR FEATURES

Inclined — Vertical
Strike and dip of bedding
Tops not known

Inclined — Vertical — Undulatory
Strike and dip of mineral foliation, streaking, and compositional layering not clearly bedding. May be combined with bedding symbol

Bedding and foliation *Concordant* — Bedding and foliation *Discordant*

Inclined — Vertical
Strike and dip of prominent joints

Strike and dip of inclined axial plane of minor folds involving foliation

Strike of granite-filled shears
Sense of shear indicated by arrows

Inclined — Vertical
Faults of small displacement
Some characterized by gouge and others by presence of quartz, and clay and zeolite minerals, and minor alteration of wall rocks

LINEAR FEATURES

May be combined with Planar Features

Inclined — Horizontal
Bearing and plunge of lineation
Tail of arrow at point of observation. Letter symbols indicate nature of lineation where not combined with fold symbol: FA, fold axis; s, sillimanite; q, quartz rods; b, biotite streaks; fl, feldspar rods; M, muscovite streaks; h, hornblende
Note: Attitude of lineation does not necessarily coincide with actual plunge of rock masses, particularly the plutonic rocks, because of superposition of deformations

Bearing and plunge of slickensides

~~MINOR FOLDS~~

One fold or group of folds; map sense of fold shown where determinable. May be combined with axial plane data and lineation symbol

Representative folds showing bearing and plunge of axes. Folds involve foliation as well as bedding where present

Quarry — Active — Inactive or abandoned

Outcrops of granite gneiss containing sillimanite

af — Artificial fill

Pw - Westerly granite

Ot - Tatnic Hill formation

Q

(?pЄs - Sterling plutonic group)

?pЄsh - Hope Valley alaskite gneiss

?pЄsph - Potter Hill granite gneiss

?pЄmu - upper member of Monson gneiss

?pЄmn - New London member of Monson gneiss

?pЄmj - Joshua Rock member of Monson gneiss

?pЄmm - Mamacoke member of Monson gneiss

?pЄp - Plainfield fm.

?pЄpq - quartzite in Plainfield formation

Bedrock unknown

TABLE SHOWING ECONOMIC USES OF CERTAIN ROCKS

Formation	Westerly Granite	Alaskite gneiss	New London Gneiss (granodiorite gneiss)	Biotite granite gneiss	Joshua Rock Gneiss Member
Symbol	w	sa	nb	sg	nj
Crushed stone	U	P*			
Rip-rap	U	P	P	P	P
Building stone:					
rough construction		P	U	U	U
cut stone	U				
rubble	U				
Monumental stone	U				
Paving blocks					U
Curbing					U

*where fine grained
U-used or has been used
P-potential use

(101)

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