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This map set contains unpublished maps, cross- sections, and related information archived by the State Geological and Natural History Survey of Connecticut as part of the Survey Library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

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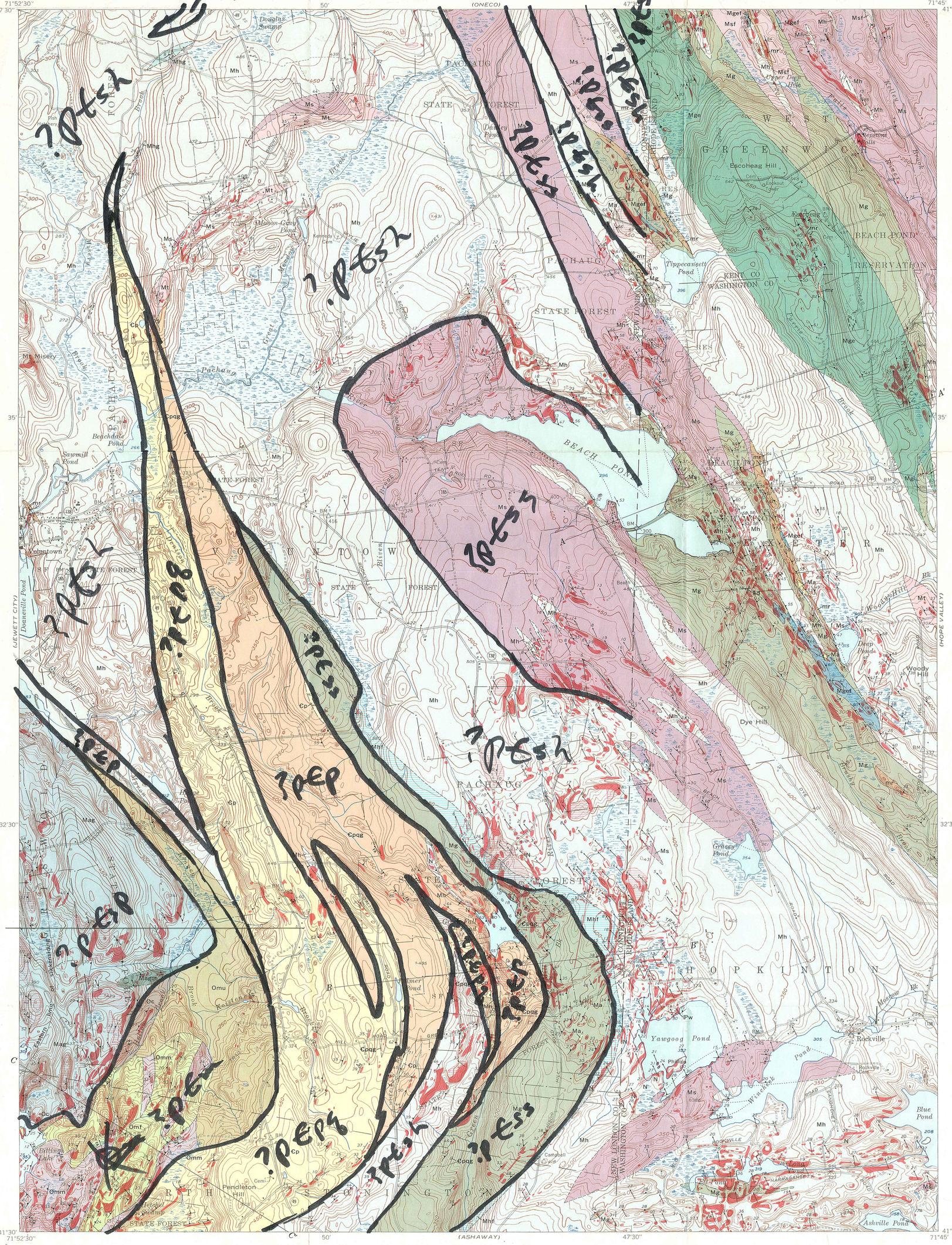
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH
THE STATE OF CONNECTICUT
GEOLOGICAL AND NATURAL HISTORY SURVEY
AND
THE STATE OF RHODE ISLAND
DEVELOPMENT COUNCIL

GEOLOGIC QUADRANGLE MAP
BEDROCK GEOLOGY
VOLUNTOWN QUADRANGLE, CONN.—R. I.
GQ–436



EXPLANATION

Major minerals in rock units are listed in order of decreasing abundance, accessory minerals are listed alphabetically. Retrograde minerals are generally absent. Grain sizes are: fine, less than 1 mm; medium, 1 mm to 1 cm; coarse, greater than 1 cm

TRIASSIC(?)

Td — Mafic dike

A single 5 cm-thick black very fine-grained to aphanitic chocolate-weathering dike southeast of Beach Pond. Sparse small phenocrysts of plagioclase are alined down dip. Composed of labradorite (An_{62}), and zoned pseudomorphs of antigorite-talc-carbonate-magnetite probably after pyroxene set in a very fine-grained, granular, birefringent matrix. Rock is a somewhat altered, extremely fine-grained basalt. Magmatic origin

PENNSYLVANIAN OR YOUNGER

Pw — Westerly Granite

A single thin dike on the north shore of Yawgoog Pond. Fine-grained, tan, massive, equigranular quartz monzonite composed of subequal amounts of oligoclase, microcline, and quartz. Magmatic origin

Ma — Aplite

Fine-grained, pink to tan, massive to foliated aplite. Composed of subequal amounts of microcline, albite or sodic oligoclase, and quartz. Magmatic origin

mu / Mh / Mhg / Mhf — Hope Valley Alaskite Gneiss

Mh, *medium- to coarse-grained, light pink, equigranular to locally porphyritic alaskite gneiss. Strongly lineated rods of smoky quartz grains 3 to 4 cm long and less than 0.5 cm in diameter. Biotite, where present, is alined and produces a weak foliation. Locally platy owing to parallelism of (010) feldspar faces. Composed of microcline, quartz, albite or sodic oligoclase, and minor biotite, muscovite, and magnetite. Sparse accessory minerals are allanite, apatite, garnet, sillimanite, sphene, and zircon. Gradational with* Ms, Mt, Mhf, *and probably* Mhg. *Locally contains quartz-sillimanite nodules.* mu, *muscovite-rich gneiss. Magmatic origin*

Mhf, *fine- to medium-grained border facies of* Mh *in an arc around Green Fall Pond. Like* Mh *in all respects except finer grain size and greater elongation of quartz rods which are commonly 10 to 15 cm long and 0.1 to 0.3 cm in diameter. Outcrops of fine- to medium-grained alaskite within* Mh *are not mapped separately. Locally contains quartz-sillimanite nodules. Magmatic origin*

Mhg, *two small bodies of fine- to very fine-grained, nearly massive, pale tan, subsaccharoidal leucogranite in the northwest corner of the quadrangle. Mineral composition similar to* Mh. *Magmatic origin*

Ms / Msf — Scituate Granite Gneiss

Ms, *medium- to coarse-grained, pink to light-gray, subporphyritic to porphyritic granite gneiss. Phenocrysts, generally less than 3 cm long, are pink microcline and range from fractured single subhedra to lenslike granular aggregates. Gneiss is strongly lineated and locally foliated. Lineation is produced by prominent, alined, spear-shaped blotches of biotite generally 0.1 by 1.5 by 4.5 cm, and to a lesser extent by quartz rods similar to those in* Mh. *Composed of microcline, quartz, albite or oligoclase, biotite, hornblende, and minor magnetite. Accessory minerals are allanite, apatite, sphene, and zircon. Allanite is locally abundant. Magmatic origin*

Msf, *fine-grained facies of* Ms *in the northeast corner of the quadrangle. Similar in all respects to* Ms *except in grain size. Magmatic origin*

Mt — Ten Rod Granite Gneiss

Medium-grained, pink to light-pinkish-gray, porphyritic gneiss. Phenocrysts, which constitute 5 to 30 percent of the rock, are like those in Ms. *Gneiss is weakly foliated; that east of Deep Pond is lineated by quartz rods similar to those in adjacent* Mh. *Composed of quartz, oligoclase, microcline, biotite, and minor magnetite. Accessory minerals are apatite, sphene, and zircon. Magmatic origin*

Mg — Porphyritic granite gneiss

Medium-grained, light-grayish-pink to pink, streaky, foliated, porphyritic granite gneiss. Textural layering generally prominent; layers differ principally in phenocryst content which ranges from nil to 20 percent, grain size, and to a lesser extent, biotite content. Locally contains abundant sills of Mh. *Phenocrysts are pink microcline, and range from Carlsbad-twinned euhedra as much as 3 cm long to lenslike granular aggregates from 2 to 4 cm in diameter. Composed of microcline, quartz, oligoclase, biotite, and minor muscovite and magnetite. Accessory minerals are allanite, apatite, calcite, garnet, sphene, and zircon. Bears quartz-sillimanite nodules east of Green Fall Pond. Magmatic origin*

Mge / Mgef — Gneiss at Escoheag Hill

Mge, *coarse-grained, strongly porphyritic, and foliated dark-gray gnarly gneiss. Locally massive. Microcline phenocrysts, which constitute 10 to 15 percent of the gneiss, are mostly beige, blocky, Carlsbad-twinned euhedra, from 0.5 by 1.0 cm to as much as 3.0 by 8.0 cm on outcrop surfaces. Long axes are commonly set at angles to foliation. Magnetite octahedra as much as 0.6 cm in diameter are generally conspicuous, and locally very abundant. Composed of oligoclase to andesine, quartz, microcline (almost exclusively as phenocrysts), biotite, and minor hornblende and magnetite. Accessory minerals are allanite, apatite, epidote, sphene, and zircon. Garnet and muscovite are sparingly present in some hornblende-free samples. Magmatic origin*

Mgef, *fine-grained, equigranular, medium- to dark-gray, strongly foliated gneiss of similar composition to* Mge. *Moderately well-developed cataclastic texture in much of the gneiss. Magmatic origin*

Mag / Magm — Augen gneiss

Mag, *mostly medium- to coarse-grained, strongly foliated gray gneiss. Contains abundant partially granulated crystals of pink microcline as much as 5 cm long. Gneiss has a ubiquitous cataclastic texture that is increasingly developed westward. Gneiss with slickensided foliation planes along the quadrangle border is delineated from non-slickensided gneiss farther east. Composed of oligoclase, quartz, microcline, biotite, and minor muscovite and magnetite. Accessory minerals are allanite, apatite, sphene, and zircon. Magmatic origin*

Magm, *fine- to medium-grained, equigranular to porphyritic, light gray, well-foliated quartz-microcline-oligoclase-muscovite gneiss. Gradational with, and probably metasomatically derived from* Mag

MISSISSIPPIAN(?) OR OLDER

Oc — Calc-silicate quartzite

Fine- to medium-grained, layered, light-gray quartzite with cataclastic texture. Generally contains conspicuous pea-green epidote mostly in pods 2.5 by 0.8 cm. Minor minerals are andesine, microcline, hornblende, and pale biotite. Apatite, calcite, magnetite, and sphene are ubiquitous accessories

Omf / Omm / Omu — Metavolcanic rocks

Omf, *predominantly very fine- to rarely medium-grained felsic metavolcanic rocks. Light-pink to light-gray layered, foliated felsic gneiss composed of microcline, oligoclase, and quartz, with very sparse apatite, biotite, calcite, epidote, magnetite, muscovite, and pyrite. Ubiquitous prominent cataclastic texture. Interbedded with* Omm *at contacts*

Omm, *predominantly fine- to very fine-grained mafic and intermediate metavolcanic rocks. Ranges from black or deep-gray-green hornblende-rich amphibolite to gray amphibolite relatively richer in andesine and containing quartz, microcline, and biotite. Other rock types are quartzite, feldspar-quartz-biotite schist, feldspathic gneiss, and one lens of sillimanitic schist. Compositional layering is prominent in all outcrops, and most rock is finely laminated. Small folds with north- to northeast-plunging axes are common. Cataclastic texture widespread*

Omu, *metavolcanic rocks, undifferentiated owing to sparse outcrop*

ORDOVICIAN(?)

Cp / Cpag — Plainfield Formation

Cp, *predominantly fine- to medium-grained, pale tan to gray, massive to lenticularly bedded clean quartzite. Impure varieties are medium to dark gray and schistose, composed of quartz, feldspar, biotite, and accessories. Calc-silicate varieties are medium- to coarse-grained, pale green, and are composed of quartz, diopside, and tremolite, or quartz, andesine, and epidote. Sedimentary origin*

Cpag, *predominantly medium-grained, light- to medium-gray, gnarly quartz-biotite gneiss with myriads of lenslike pods of gray vitreous quartz from 1 to 10 cm or more in diameter. Composed of quartz, biotite, oligoclase or andesine, and microcline. Includes layers of clean quartzite and quartz-mica-sillimanite schist. Rock generally much crumpled. Sedimentary origin*

CAMBRIAN(?)

mr — Mafic metamorphic rock

Isolated, elongate bodies in granitic rocks. Fine- to coarse-grained, dark-gray to black, well-foliated amphibolite to dark plagioclase-biotite schist

AGE UNKNOWN

Bedrock outcrops

Areas of continous outcrop shown solid. Ruled areas represent individual outcrops or groups of closely spaced outcrops

Contact, showing dip

Dashed where approximately located; short dashed where gradational ; dotted where concealed

Strike and dip of beds

Observation at nearest outcrop

Vertical — Inclined — Horizontal

Foliation

Observation at nearest outcrop

Vertical — Inclined

Foliation and parallel bedding

Observation at nearest outcrop

Inclined — Horizontal

Lineation

Alinement of individual mineral grains or groups of grains unless designated otherwise. FA, *minor fold axis;* S, *slickensides. Observation at base of arrow or center of double arrow*

Ilmenite plate in glacial boulder of Mh and associated pegmatite north of Blue Pond

Nodule layer, showing dip

Quartz-sillimanite and quartz-sillimanite-muscovite nodule layers in Mh, Mhf, *and* Mg. *Lines denote probable extent of layers;* N, *exposure of nodules*

P — Pegmatite

Topographic lineament

Large — Small

Abandoned quarry

Base by U.S. Geological Survey, 1953

Geology mapped in 1962–63

SCALE 1:24 000

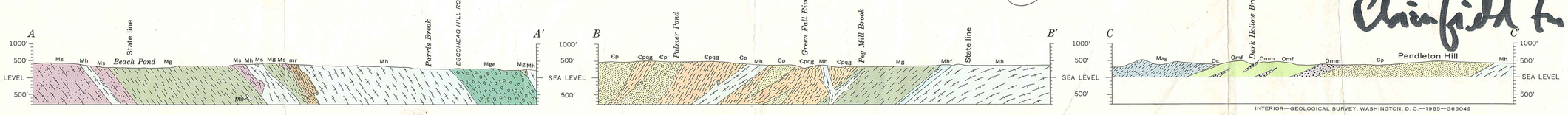
1 MILE

1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

APPROXIMATE MEAN DECLINATION, 1965

QUADRANGLE LOCATION



BEDROCK GEOLOGIC MAP OF THE VOLUNTOWN QUADRANGLE, NEW LONDON COUNTY, CONNECTICUT AND KENT AND WASHINGTON COUNTIES, RHODE ISLAND

By
Tomas Feininger

1965

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1965—G65049

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