Hampden 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This map set contains unpublished maps, cross- sections, and related information archived by the State Geological and Natural History Survey of Connecticut as part of the Survey Library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 COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS
and
THE STATE OF CONNECTICUT
GEOLOGICAL AND NATURAL HISTORY SURVEY

GEOLOGIC QUADRANGLE MAP
HAMPDEN QUADRANGLE, MASS.—CONN.
BEDROCK GEOLOGY GQ—1368

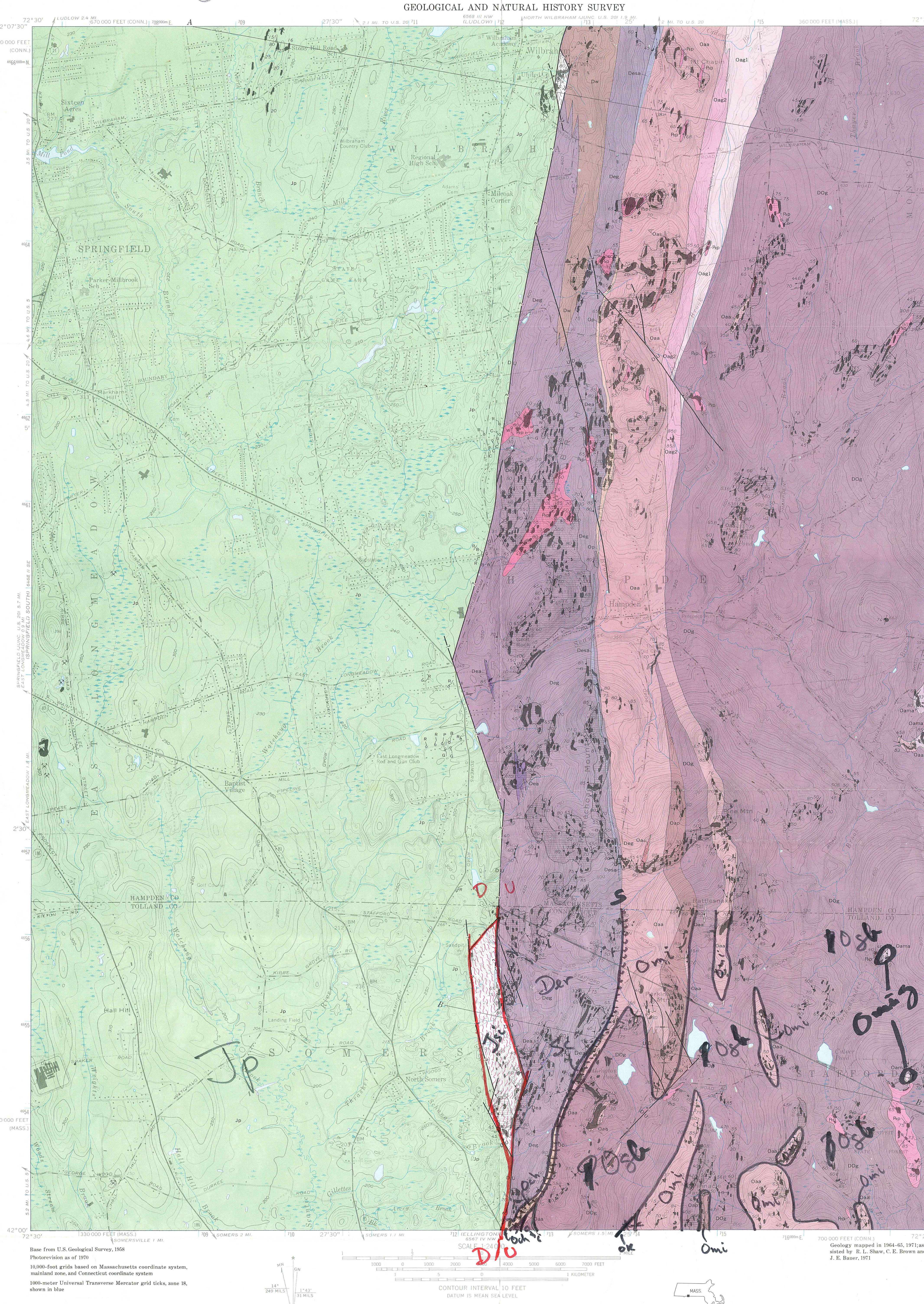
INTRODUCTION

The Hampden quadrangle covers an area of approximately 143 km² in south-central Massachusetts and adjacent Connecticut. The western half of the quadrangle is part of the Connecticut Valley, an area of relatively low topographic relief (20–30 m) and thick surficial cover, underlain by sparsely exposed sedimentary rocks of Jurassic age. The eastern half of the quadrangle is part of an upland, an area of greater local relief (200 m), underlain by metamorphosed lower and middle Paleozoic sedimentary and volcanic rocks and lower(?) to middle Paleozoic igneous rocks. The layered crystalline rocks are well exposed in a 3 km-wide belt of numerous north-trending hogbacks that include Minnechaug Mountain and the Wilbraham Mountains. Surficial cover is thin to absent in this belt. General features of the bedrock geology were shown on small scale maps by Emerson (1917). Modern detailed mapping and geologic studies (Robinson, 1967, Peper, 1966, Herz, 1955, Aitken, 1955, Snyder, 1970, and Collins, 1954) have enhanced geologic understanding of the quadrangle and adjoining areas.

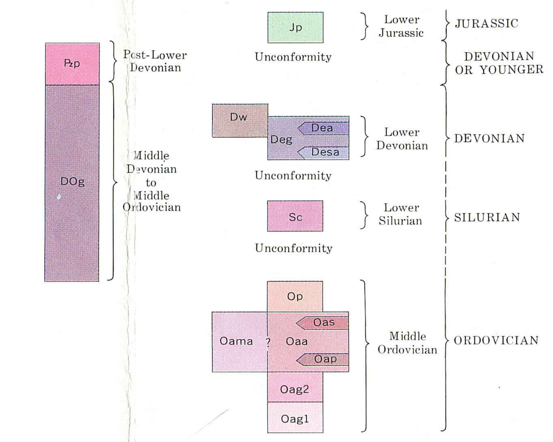
BEDROCK UNITS

STRUCTURAL GEOLOGY

ECONOMIC GEOLOGY



CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Jp — PORTLAND FORMATION (JURASSIC)—Chiefly moderate-reddish-brown-weathering, thin-bedded, medium- to coarse-grained arkose sandstone; minor siltstone and shale. ...

Pzp — PEGMATITE (POST-LOWER DEVONIAN)—White to light-gray, weakly foliated to unfoliated sills, dikes, and irregularly shaped bodies consisting of quartz and feldspars with accessory muscovite, black tourmaline, sulfides, garnet, apatite, and rare beryl. ...

DOg — GLASTONBURY GNEISS (MIDDLE DEVONIAN TO MIDDLE ORDOVICIAN)—Medium- to coarse-grained, weakly to strongly foliated, homogeneous plagioclase-quartz-biotite-(epidote) gneiss with accessory muscovite, potassium feldspar, hornblende, and garnet. ...

Dw — WAITS RIVER FORMATION (LOWER DEVONIAN IN THIS AREA)—Generally rusty, dark-yellowish-orange-weathering, fine- to coarse-grained quartz-plagioclase-muscovite-biotite schist with accessory garnet, potassium feldspar, kyanite, chlorite, graphite, and sulfide. ...

ERVING FORMATION (LOWER DEVONIAN)

Deg — Generally gray-weathering biotite granofels interlayered locally with more abundant gray- and brownish-gray-weathering muscovite-biotite schist. ...

Dea — Thinly to thickly parted, medium- to coarse-grained hornblende-plagioclase amphibolite. ...

Desa — Generally hornblende-plagioclase amphibolite. ...

Sc — CLOUGH QUARTZITE (LOWER SILURIAN)—White to light-tan, thinly layered quartzite and quartz-muscovite gneiss. ...

Op — PARTRIDGE FORMATION (UPPER MIDDLE ORDOVICIAN)—Rusty-weathering quartz-plagioclase-muscovite-biotite-(kyanite)-(garnet) schist interlayered with subordinate but appreciable quartz-feldspar-biotite-hornblende-(garnet) gneiss. ...

AMMONOOSUC VOLCANICS (MIDDLE ORDOVICIAN)

Oaa — Generally thinly layered, fine- to medium-grained hornblende-plagioclase amphibolite. ...

Oap — Thinly layered, medium-grained, slabby hornblende-plagioclase-epidote amphibolite. ...

Oag2 — Light- to medium-gray plagioclase-quartz-hornblende-garnet-(biotite) gneiss. ...

Oag1 — Light-colored, medium- to coarse-grained quartz-plagioclase-biotite-(hornblende) gneiss. ...

Oama — Dark-gray, coarse-grained hornblende-plagioclase-epidote-quartz amphibolite. ...

Bedrock outcrops—Areas of thin surficial cover and abundant outcrops indicated by ruled pattern. Solid area shows outcrop visited in field. Many small outcrops shown only by structure symbol

*Considered Upper Silurian also elsewhere

Note: Commonly used geologic symbols are printed on the map jacket; a separately printed list is available on request from the U.S. Geological Survey.

Contact—Approximately located; queried where probable

Fault—Approximately located, queried where probable; dotted in water. U, probable upthrown block; D, probable downthrown block. Crosshatched were silicified

Syncline—Showing axial trace and plunge

Minor folds

Open anticline, showing plunge

Open syncline, showing plunge

Fold with axial-plane schistosity, showing bearing, map sense, and plunge of axis

Fold that folds schistosity, showing bearing, map sense, and plunge of axis

Kink fold, showing bearing, map sense, and plunge

Kink fold, showing bearing, map sense, and plunge of fold, and strike and dip of axial-plane cleavage

PLANAR AND LINEAR FEATURES

Where two symbols joined, observation is at point of intersection

Bedding in sedimentary rocks

Inclined—Showing strike and dip

Horizontal

Schistosity in metamorphosed rocks

Inclined—Showing strike and dip

Vertical

Cataclastic schistosity

Schistosity parallel to relict bedding in metamorphosed rocks

Top of beds not observed

Top of beds observed

Overturned beds

Mineral lineation—Symbol shows direction and plunge; observation at base of arrow. Letter symbol shows elongate mineral: B, biotite; H, hornblende; Q, quartz

Joints

Inclined—Showing strike and dip

Vertical

Horizontal

Water well—Circle locates well; letter shows bedrock type logged: R, red rock; G, gray rock; W, white rock; B, black rock; C, soft caving rock. ...

Protomylonite—Chiefly pink-weathering, minor olive-gray-weathering, crushed rock composed of quartz, feldspar, and feldspar-quartz fragments ...

Mylonite—Brown- to dark-gray-weathering, dark-gray rock consisting of altered rock fragments ...

Angular blocks of conglomerate—Cross shows location

Abandoned rock quarry

REFERENCES CITED

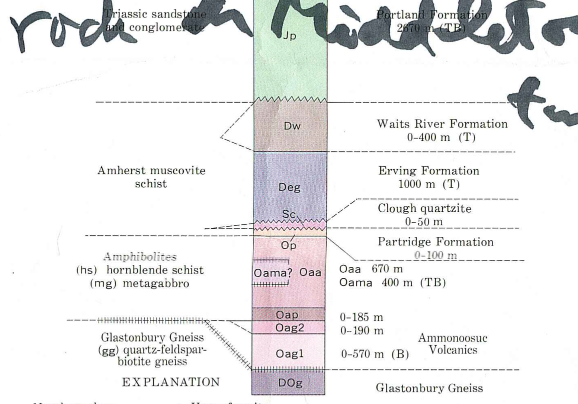
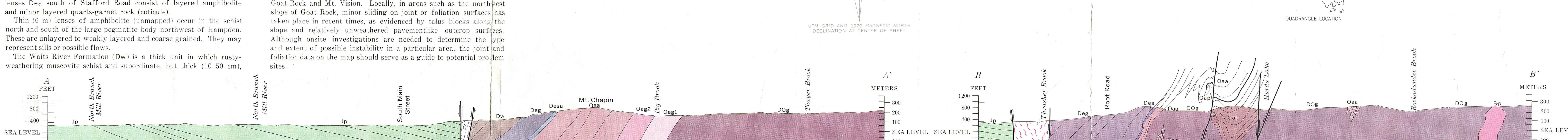


FIGURE 1.—Composite column of layered rock units in Hampden quadrangle showing exposed thicknesses and names used for similar rocks in the adjacent Ellington quadrangle, Connecticut.



Surficial deposits not shown. Dashed lines in metamorphosed layered rocks show surface of relict bedding and schistosity

BEDROCK GEOLOGIC MAP OF THE HAMPDEN QUADRANGLE, MASSACHUSETTS AND CONNECTICUT

By

John D. Peper

1977

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