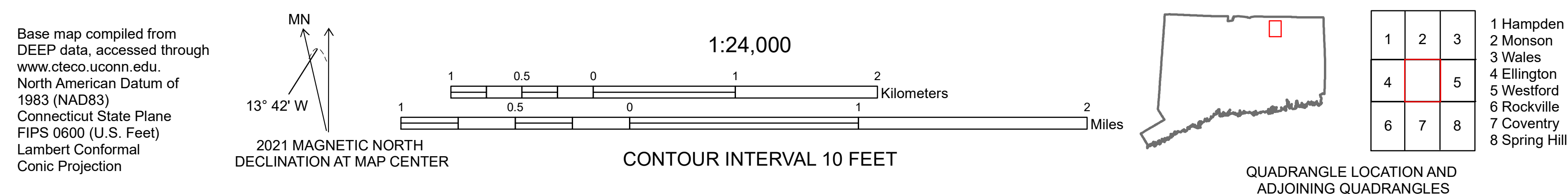


Preliminary Bedrock Geologic Map of the Stafford Springs Quadrangle, Tolland County, Connecticut  
Maurice H. Pease, 1975  
Plate 1



Pease, Maurice H. 1975, Preliminary Bedrock Geologic Map of the Stafford Springs Quadrangle, Tolland County, Connecticut. Open File Report #75-633, 1:24,000 scale, PDF; GIS geodatabase [GeMS format] [www.ct.gov/deep/geology](http://www.ct.gov/deep/geology)






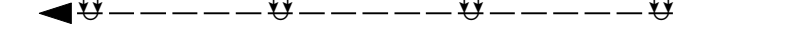











Work on the digital compilation of the Coventry and Stafford Springs 7.5 minute bedrock quadrangle maps has been supported by National Cooperative Geologic Mapping Program StateMap FY2020 Award #G20AC00396 and the Connecticut Geological Survey, Department of Energy and Environmental Protection, funds.

Digital cartography and geodatabase by David Vohra & Erick Bora, Connecticut Geological Survey, 2021.

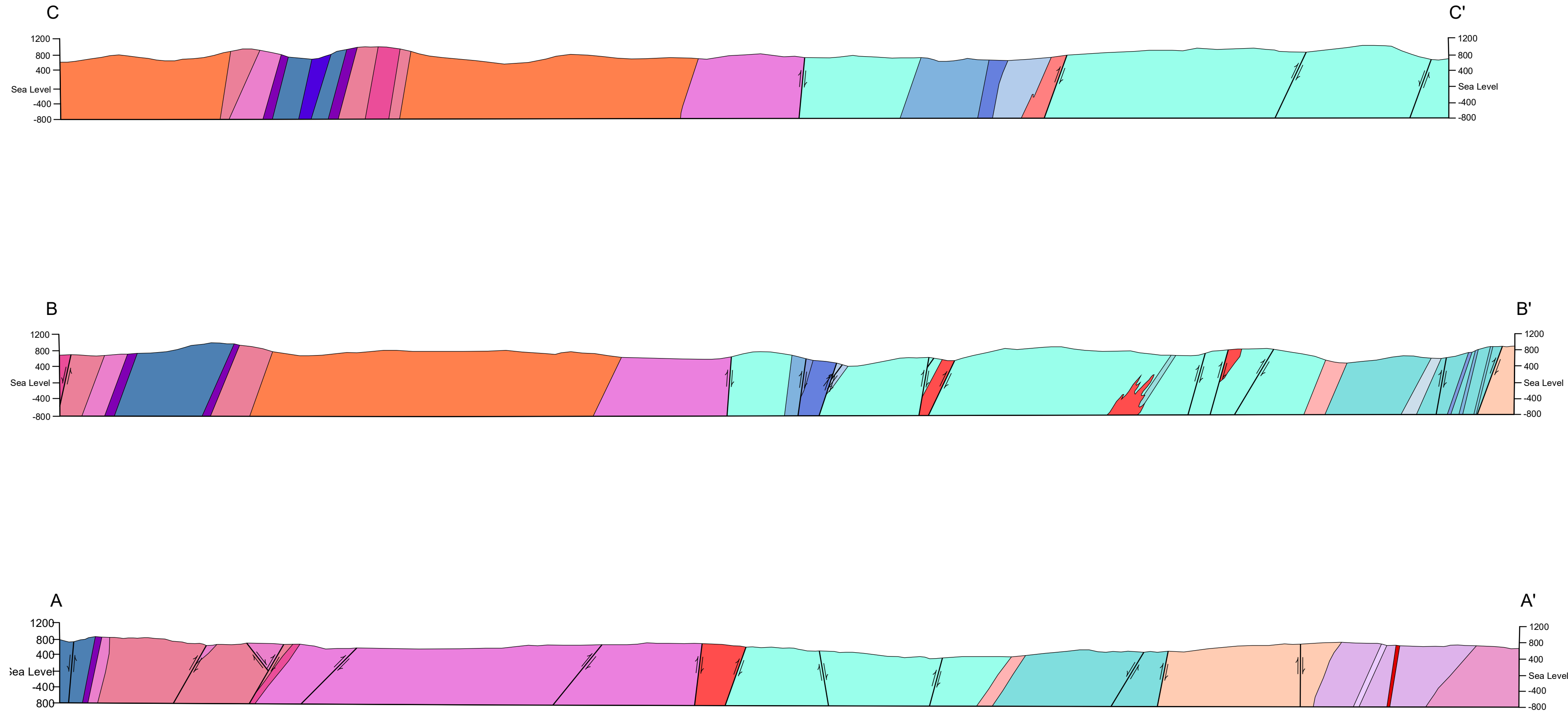
## STRATIGRAPHIC UNITS

Bronson Hill Anticlinorium Sequence			Merrimac Synclinorium Sequence			
Silurian - Devonian	Dls	Littleton Formation (Dl). Gray-weathering garnet-staurolite-muscovite schist exposed in the trough of the Atari syncline. Conspicuous interlamination of very fine psammite common.	Dpp	Dp	Mt. Pisgah Formation (Dp). Light- to medium-gray weathering medium- to coarse-grained garnet-sillimanite-potassium feldspar gneiss and schist. Rock is conspicuously layered. Porphyroblastic Unit (Dpp). Narrow wedge of layered brown-weathering biotite schist crowded with conspicuous houndtooth orthoclase crystals 1-5 cm long and aligned subparallel to foliation and bedding.	
	DI	Sandy Member (DIs). Similar to DI, except for predomination of fine-grained psammitic beds over pelitic beds in this section at top of formation. Maximum thickness of ~50 m.			Upper Schist Member (SDhus). More than 75 percent of these strata are an alternation of rusty weathering dark- to light-gray felsic gneiss and brownish pelitic schist on scale of 1 cm to 3 m.	
	Sc	Clough Quartzite (Sc). Mostly fine-grained well bedded, evenly bedded 1-15 m thick muscovite-garnet quartzite and muscovite-quartz schist exposed in two narrow bands.			SDhusr	Rusty submember (SDhusr). Sulfide-graphite bearing biotite-sillimanite pelitic schist and fine-grained sandy schist.
Unconformity						
Ordovician	Op	Partridge Formation (Op). Interlayered gray sulfide-graphite bearing granular schist and thinly layered tine grained dark-gray sulfide-bearing quartz feldspar.	SDhusv3/	SDhusv3a	Upper Volcanics Submember (SDhusv3). Medium-gray weathering thickly layered to massive medium- to fine-grained feldspar-quartz-black biotite gneiss with hornblende.	
	Oa	Ammonoosuc Formation (Oa). Light-to-medium-gray felsic meta-volcanic rock. Chiefly layered fine-grained granular felsic gneiss exposed along the Bolton Syncline.	SDhusa2	SDhusa1	Amphibolite Unit (SDhusv3a). Amphibolite lens in upper metavolcanic and metavolcanoclastic unit in the upper schist member of the Hamilton Reservoir Fm.	
	Oaa	Volcanics Member (Oaa).Mafic metavolcanic and volcanoclastic rock. Thinly layered dark-green amphibolite locally mapped at or near the base of the formation.	SDhusg	SDhusb	Upper Schist Amphibolite 2 (SDhusa2). Massive amphibolite exposed in large outcrop east side Highway 32 at hill 665.	
	Oma	Monson Gneiss (Om). Light-to medium-gray to medium-grained granitic gneiss. The principal mafic mineral is biotite, with minor hornblende; it occurs in thin laminae which gives the rock a persistent compositional banding.	SDhus	SDhusv2	Upper Schist Amphibolite 1 (SDhusa1). Lens of massive amphibolite less than 10 m thick about 300 m stratigraphically below SDhusa2.	
	Om	Amphibolite Member (Oma). Amphibolite unit less than 20 m thick exposed east of Tolland Turnpike and south of Charter Brook.	SDhusv1	SDhuss	Upper Schist Gneiss Submember (SDhusg). Does not crop out but extends into the extreme northeast corner of quadrangle from the Wales quadrangle.	
INTRUSIVE ROCKS						
Triassic	Tr d	Diabase Dike. Dark-gray, fine-grained, massive basalt with diabasic texture. Composed of labradorite, augite, orthopyroxene, and magnetite.	Hamilton Reservoir Formation	SDhusv2	Upper Schist Breccia Submember (SDhusb). Massive foliated gray-weathering gneiss containing distinctly more-mafic elongate brown hornblende gneiss fragments.	
	Dfqdh	Foliated Quartz. Medium- to dark-gray brown weathered foliated medium- to coarse-grained biotite gneiss. Thick-layered to non-layered except near borders where locally strongly parted along compositional planes.			SDhusv1	Middle Volcanics Submember (SDhusv2). Medium-gray, brownish gray-weathering, compositionally homogeneous orthopyroxene-hornblende-biotite-labradorite gneiss.
	Dfgg	Foliated Granitic Gneiss. Several orthogneiss bodies within the Hamilton Reservoir Formation similar in composition and texture to Dfqdh. Sugary texture light-gray foliated weakly compositionally banded non-layered quartz-feldspar-biotite gneiss with garnet.			SDhuss	Lower Volcanics Submember (SDhusv1). Thinly layered gray- to brown-weathering granular biotite schist with conspicuous diopside.
Devonian	Dfmng	Mafic Gneiss. Rock is massive to weakly foliated near the intrusive in the Mount Pisgah Formation, and near the border. Principal mineral constituents: plagioclase, An70, brown biotite and green hornblende with minor epidote and trace of apatite and quartz.	Silurian - Devonian	SDhug	Sulfidic Schist Submember (SDhuss). Rusty weathering sulfidic graphitic fine-grained granular biotite-garnet-sillimanite schist.	
	Dfpg	Foliated Porphyritic Gneiss. Strongly foliated light-gray, grayish-orange-weathering, quartz monzonite porphyry. Phenocrysts 1-5 cm long of potassium feldspar compose 1-30 percent; groundmass is quartz, potassium feldspar, plagioclase, olive to brown biotite and muscovite.			SDhugs	Upper Gneiss Granular Member (SDhug). Chiefly light gray medium-grained felsic gneiss interlayered with gneiss and granular schist, containing brown biotite.
	Dfp	Foliated Pegmatite. Light gray foliated medium- to fine-grained pegmatite bodies mostly emplaced parallel to regional lineation in the plane of foliation. Composed of potassium feldspar (50 percent), oligoclase (25 percent) and quartz with accessory biotite, muscovite, garnet, sillimanite, and sulfides.			SDhuga	Upper Gneiss Sulfidic Schist Submember (SDhugs). Lenticular sulfidic graphitic sillimanitic schist and subordinate garnet gneiss. No outcrop in quadrangle.
	Dg	Glastonbury Gneiss. Medium- to coarse-grained, medium- to light-gray foliated orthogneiss that wider-lies much of the northwestern third of quadrangle. Compositionally homogenous rock of trondhjemitic composition; chiefly quartz, plagioclase, and biotite (olive to brown pleochroism) with only minor potassium feldspar.			SDhugc3	Upper Gneiss Amphibolitic Submember (SDhuga). Strongly color banded dark- and medium-gray gneiss and schist with interleaved black hornblende & biotite-rich layers.
					SDhugc2	Upper Gneiss Calc-Silicate 3 (SDhugc3). One of three mapped units containing conspicuous lenses of calc-silicate bearing fine-grained granular gneiss.
Fault						
Devonian			Silurian - Devonian	SDhlg	SDhugc1	Upper Gneiss Calc-Silicate 2 (SDhugc2). One of three mapped units containing conspicuous lenses of calc-silicate bearing fine-grained granular gneiss.
					SDhlg	Upper Gneiss Calc-Silicate 1 (SDhugc1). One of three mapped units containing conspicuous lenses of calc-silicate bearing fine-grained granular gneiss.
					SDhlg	Middle Schist Member (SDhms). Medium-gray, rusty grayish-orange weathering, grained pelitic biotite schist rich in sillimanite and garnet, poor in potassium feldspar.
					SDhlg	Middle Schist Biotite Submember. Medium gray, medium-layered fine-grained quartz-plagioclase-biotite granular gneiss with clinopyroxene and calc-silicate minerals common.
					SDhlg	Lower Gneiss Granular Member (SDhlg). Mostly medium-grained light gray felsic gneiss layered with thin-layered bonds of fine-grained brown-weathering biotite schist.
Devonian			Silurian - Devonian	SDhlg	SDhlg	Lower Gneiss Sulfidic Schist Submember (SDhlg). Thin lens of rusty weathering schist, characteristic of the schist members. Does not outcrop in Stafford Springs quadrangle.
					SDhlg	Lower Gneiss Amphibolite Submember (SDhlg). Conspicuous lens of thinly layered, evenly layered black hornblende schist and gneiss about 50 in thick.
					SDhlg	Lower Gneiss Layered Submember (SDhlg). Thinly layered strongly banded gray-weathering fine-grained biotite gneiss containing black pods of amphibolite 1-3 cm long.
Devonian			Silurian - Devonian	SDhls	SDhls	Lower Schist Member (SDhls). Rusty, reddish- and orange-gray weathering, quartz-garnet-biotite-sillimanite gneiss and schist.

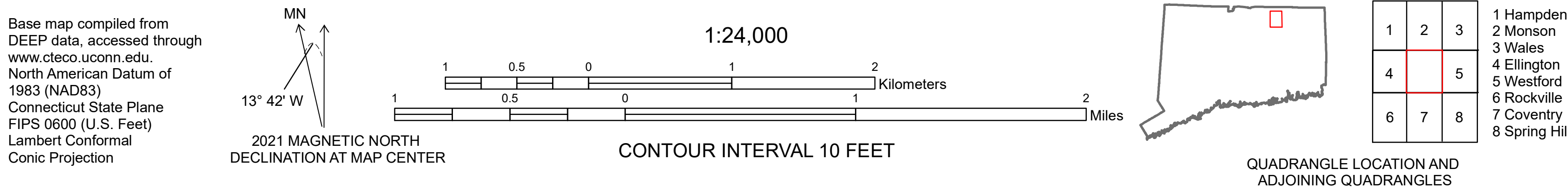
### EXPLANATION OF MAP SYMBOLS

 <p>Geologic Contact: Location accurate where solid, approximate where dashed, queried where uncertain.</p>	 <p>Thrust fault: Identity and existence certain, location accurate where solid, approximate where dashed. Sawteeth on upper block.</p>	 <p>Bearing and plunge of inclined rodding.</p>	 <p>Strike of small, minor vertical joint.</p>
 <p>Fault: Unspecified orientation. Identity and existence certain. Location accurate where solid, approximate where dashed.</p>	 <p>Axial trace of overturned syncline; terminal arrow shows plunge. Location approximate.</p>	 <p>Inclined foliation in intrusive orthogneiss.</p>	 <p>Strike of vertical foliation in intrusive orthogneiss.</p>
 <p>Axial trace of syncline; terminal arrow shows plunge. Location approximate.</p>	 <p>Small, minor asymmetric anticline with a vertical axial surface.</p>	 <p>Inclined foliation in metamorphic rocks, parallel to relict bedding.</p>	 <p>Vertical foliation in metamorphic rocks, parallel to relict bedding.</p>
	 <p>Small, minor syncline with an inclined axial surface.</p>	 <p>Inclined foliation in metamorphic rocks, parallel to overturned relict bedding.</p>	 <p>Inclined crinkled foliation in metamorphic rocks.</p>
		 <p>Inclined gneissic layering.</p>	 <p>Strike of vertical gneissic layering.</p>





Preliminary Bedrock Geologic Map of the Stafford Springs Quadrangle, Tolland County, Connecticut  
Maurice H. Pease, 1975  
Plate 2



Pease, Maurice H. 1975, Preliminary Bedrock Geologic Map of the Stafford Springs Quadrangle, Tolland County, Connecticut. Open File Report #75-633, 1:24,000 scale, PDF; GIS geodatabase [GeMS format] [www.ct.gov/deep/geology](http://www.ct.gov/deep/geology)

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Digital cartography and geodatabase by David Vohra & Erick Bora, Connecticut Geological Survey, 2021.

#### EXPLANATION OF MAP SYMBOLS

Geologic Contact: Location accurate where solid, approximate where dashed, queried where uncertain.	Thrust fault: Identity and existence certain, location accurate where solid, approximate where dashed. Sawteeth on upper block.	Bearing and plunge of inclined rodding.
Fault: Unspecified orientation. Identity and existence certain. Location accurate where solid, approximate where dashed.	Axial trace of overturned syncline; terminal arrow shows plunge. Location approximate.	Inclined foliation in intrusive orthogneiss.
Axial trace of syncline; terminal arrow shows plunge. Location approximate.	Small, minor asymmetric anticline with a vertical axial surface.	Inclined foliation in metamorphic rocks, parallel to relict bedding.
	Small, minor syncline with an inclined axial surface.	Inclined foliation in metamorphic rocks, parallel to overturned relict bedding.

#### Bronson Hill Anticlinorium Sequence

Silurian - Devonian	Dis	<u>Littleton Formation (DI)</u> . Gray-weathering garnet-staurolite-muscovite schist exposed in the trough of the Atari syncline. Conspicuous interlamination of very fine psammite common.
	DI	<u>Sandy Member (Dis)</u> . Similar to DI, except for predomination of fine-grained psammitic beds over pelitic beds in this section at top of formation. Maximum thickness of ~50 m.
	Sc	<u>Clough Quartzite (Sc)</u> . Mostly fine-grained well bedded, evenly bedded 1-15 m thick muscovite-garnet quartzite and muscovite-quartz schist exposed in two narrow bands.

#### Unconformity

Ordovician	Op	<u>Partridge Formation (Op)</u> . Interlayered gray sulfide-graphite bearing granular schist and thinly layered fine grained dark-gray sulfide-bearing quartz feldspar.
	Oa	<u>Ammonoosuc Formation (Oa)</u> . Light-to-medium-gray felsic meta-volcanic rock. Chiefly layered fine-grained granular felsic gneiss exposed along the Bolton Syncline.
	Oaa	<u>Volcanics Member (Oaa)</u> . Mafic metavolcanic and volcanoclastic rock. Thinly layered dark-green amphibolite locally mapped at or near the base of the formation.
	Oma	<u>Monson Gneiss (Om)</u> . Light-to medium-gray to medium-grained granitic gneiss. The principal mafic mineral is biotite, with minor hornblende; it occurs in thin laminae which gives the rock a persistent compositional banding.
	Om	<u>Amphibolite Member (Oma)</u> . Amphibolite unit less than 20 m thick exposed east of Tolland Turnpike and south of Charter Brook.

#### INTRUSIVE ROCKS

Triassic	Tr d	<u>Diabase Dike</u> . Dark-gray, fine-grained, massive basalt with diabasic texture. Composed of labradorite, augite, orthopyroxene, and magnetite.
	Df qdh	<u>Foliated Quartz</u> . Medium- to dark-gray brown weathered foliated medium- to coarse-grained biotite gneiss. Thick-layered to non-layered except near borders where locally strongly parted along compositional planes.
Devonian	Df gg	<u>Foliated Granitic Gneiss</u> . Several orthogneiss bodies within the Hamilton Reservoir Formation similar in composition and texture to Df qdh. Sugary texture light-gray foliated weakly compositionally banded non-layered quartz-feldspar-biotite gneiss with garnet.
	Df mg	<u>Mafic Gneiss</u> . Rock is massive to weakly foliated near the intrusive in the Mount Pisgah Formation, and near the border. Principal mineral constituents: plagioclase, An70, brown biotite and green hornblende with minor epidote and trace of apatite and quartz.
	Df pg	<u>Foliated Porphyritic Gneiss</u> . Strongly foliated light-gray, grayish-orange-weathering, quartz monzonite porphyry. Phenocrysts 1-5 cm long of potassium feldspar compose 1-30 percent; groundmass is quartz, potassium feldspar, plagioclase, olive to brown biotite and muscovite.
	Df p	<u>Foliated Pegmatite</u> . Light gray foliated medium- to fine-grained pegmatite bodies mostly emplaced parallel to regional lineation in the plane of foliation. Composed of potassium feldspar (50 percent), oligoclase (25 percent) and quartz with accessory biotite, muscovite, garnet, sillimanite, and sulfides.
	Dg	<u>Glastonbury Gneiss</u> . Medium- to coarse-grained, medium- to light-gray foliated orthogneiss that wider-lies much of the northwestern third of quadrangle. Compositionally homogenous rock of trondhjemitic composition; chiefly quartz, plagioclase, and biotite (olive to brown pleochroism) with only minor potassium feldspar.

#### STRATIGRAPHIC UNITS

#### Merrimac Synclinorium Sequence

Silurian - Devonian	Hamilton Reservoir Formation	Dpp	<u>Mt. Pisgah Formation (Dp)</u> . Light- to medium-gray weathering medium- to coarse-grained garnet-sillimanite-potassium feldspar gneiss and schist. Rock is conspicuously layered.
		Dp	<u>Porphyroblastic Unit (Dpp)</u> . Narrow wedge of layered brown-weathering biotite schist crowded with conspicuous houndstooth orthoclase crystals 1-5 cm long and aligned subparallel to foliation and bedding.
	SDhus	SDhusr	<u>Upper Schist Member (SDhus)</u> . More than 75 percent of these strata are an alternation of rusty weathering dark- to light-gray felsic gneiss and brownish pelitic schist on scale of 1 cm to 3 m.
		SDhusv3/SDhusv3a	<u>Rusty submember (SDhusr)</u> . Sulfide-graphite bearing biotite-sillimanite pelitic schist and fine-grained sandy schist.
		SDhusa2	<u>Upper Volcanics Submember (SDhusv3)</u> . Medium-gray weathering thickly layered to massive medium- to fine-grained feldspar-quartz-black biotite gneiss with hornblende.
		SDhusa1	<u>Amphibolite Unit (SDhusv3a)</u> . Amphibolite lens in upper metavolcanic and metavolcanoclastic unit in the upper schist member of the Hamilton Reservoir Fm.
		SDhusg	<u>Upper Schist Amphibolite 2 (SDhusa2)</u> . Massive amphibolite exposed in large outcrop east side Highway 32 at hill 665.
		SDhusb	<u>Upper Schist Amphibolite 1 (SDhusa1)</u> . Lens of massive amphibolite less than 10 m thick about 300 m stratigraphically below SDhusa2.
		SDhusv2	<u>Upper Schist Breccia Submember (SDhusb)</u> . Massive foliated gray-weathering gneiss containing distinctly more-mafic elongate brown hornblende gneiss fragments.
		SDhusv1	<u>Middle Volcanics Submember (SDhusv2)</u> . Medium-gray, brownish gray-weathering, compositionally homogeneous orthopyroxene-hornblende-biotite-labradorite gneiss.
		SDhuss	<u>Lower Volcanics Submember (SDhusv1)</u> . Thinly layered gray- to brown-weathering granular biotite schist with conspicuous diopside.
			<u>Sulfidic Schist Submember (SDhuss)</u> . Rusty weathering sulfidic graphitic fine-grained granular biotite-garnet-sillimanite schist.
		SDhugs	<u>Upper Gneiss Granular Member (SDhug)</u> . Chiefly light gray medium-grained felsic gneiss interlayered with gneiss and granular schist, containing brown biotite.
		SDhuga	<u>Upper Gneiss Sulfidic Schist Submember (SDhugs)</u> . Lenticular sulfidic graphitic sillimanitic schist and subordinate garnet gneiss. No outcrop in quadrangle.
		SDhugc3	<u>Upper Gneiss Amphibolitic Submember (SDhuga)</u> . Strongly color banded dark- and medium-gray gneiss and schist with interleaved black hornblende & biotite-rich layers.
		SDhugc2	<u>Upper Gneiss Calc-Silicate 3 (SDhugc3)</u> . One of three mapped units containing conspicuous lenses of calc-silicate bearing fine-grained granular gneiss.
		SDhugc1	<u>Upper Gneiss Calc-Silicate 2 (SDhugc2)</u> . One of three mapped units containing conspicuous lenses of calc-silicate bearing fine-grained granular gneiss.
			<u>Upper Gneiss Calc-Silicate 1 (SDhugc1)</u> . One of three mapped units containing conspicuous lenses of calc-silicate bearing fine-grained granular gneiss.
	Fault	SDhmsb	<u>Middle Schist Member (SDhms)</u> . Medium-gray, rusty grayish-orange weathering, grained pelitic biotite schist rich in sillimanite and garnet, poor in potassium feldspar.
		SDhms	<u>Middle Schist Biotite Submember</u> . Medium gray, medium-layered fine-grained quartz-plagioclase-biotite granular gneiss with clinopyroxene and calc-silicate minerals common.