

SIMPLIFIED BEDROCK GEOLOGY HARTFORD
2° SHEET (1:250,000)

[Simplified from detailed bedrock geology map
also prepared at 1:250,000]

LEGEND

b	Upper Triassic or younger; Newark Group; mafic dikes and flows
s	Upper Triassic or younger; Newark Group; arkosic conglomerates, sandstones, siltstones and shales
m	Upper Triassic or younger; Newark Group; Shuttle Meadow Formation; arkosic siltstones and shale underlain and overlain by mafic dikes and flows
Pmn	Lower to Upper Paleozoic; "younger" mafic bodies and older gneisses
Png	Upper Middle Paleozoic; "younger" granitic bodies and older gneisses
Psh	Lower to Middle Paleozoic; shales, slates, phyllites, graywackes and cherts
Pl	Lower to Middle Paleozoic; limestones, marbles, dolomites and calcareous shales and sandstones
Pu	Middle to Lower Paleozoic; schists and undifferentiated schists and gneisses with "younger" mafic and granitic bodies
Ps	Lower to Middle Paleozoic; mostly schists
Psn	Lower to Middle Paleozoic; mostly schistose gneisses
Pn	Lower to Middle Paleozoic; mostly quartz-rich gneisses
1{q	Lower Cambrian; quartzites, orthoquartzites and slaty argillites
1{s	Lower Cambrian; mostly schists
Xm	Precambrian to Lower Paleozoic; marbles and dolomites
Xns	Precambrian to Lower Paleozoic; mostly gneissic schists

U. S. Geological Survey
OPEN FILE MAP

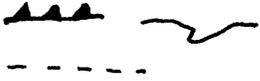
This map is preliminary and has not been edited for conformity with Geological Survey standards or nomenclature.

Xn

Precambrian to Lower Paleozoic; mostly quartz-rich gneisses, some granitic and mafic bodies

Xmn

Precambrian to Lower Paleozoic; mostly amphibolitic bodies and hornblende gneisses



Thrust faults showing direction of thrust, known faults, and indicated faults

Simplified Geology Map

The Simplified Geology Map was made from a detailed geologic map of the same scale which was compiled from various sources. The main sources for Conn. were the quadrangle maps at mostly 1:24,000 by various authors which cover about half of the state, and the Preliminary Geologic Map of Connecticut at 1:253,440 for 1956 compiled by John Rodgers and others in the Conn. Geol. and Nat. Hist. Survey Bull. No. 84, 1959. For New York, the main source was the Lower Hudson Sheet of the 5-sheet Geologic Map of New York State at 1:250,000 for 1961 compiled by Don Fisher and others of the N.Y. State Geol. Survey for the State Education Department of the Univ. of the State of N.Y.

The order of simplifying the detailed map was primarily based on the combining of major geologic units of similar description, and secondly on geologic age. The major rock units from the source maps that comprise the map units of the Simplified Geology Map are listed below.

The Upper Triassic or younger Newark Group of mafic dikes and flows map unit ($T_R b$) in Conn. is comprised of Upper Triassic or younger.

- a) Hampden Basalt
- b) Holyoke Basalt
- c) Talcott Diabase
- d) Buttress Diabase
- e) West Rock Diabase
- f) Uncorrelated diabase dikes

and in N.Y. is the Upper Triassic or younger

- g) Palisade Diabase

The Upper Triassic or younger Newark Group of arkosic conglomerates, sandstones, siltstones, and shales map unit ($T_R s$) in Conn. is comprised of Upper Triassic or younger.

- a) Portland Arkose of arkosic siltstone, arkose, arkose conglomerate, and micaceous shale
- b) East Berlin Formation of arkosic siltstone, shale and mudstone
- c) New Haven Arkose of arkosic siltstone, arkose, arkosic conglomerate and shale

and in N.Y. is comprised of Upper Triassic or younger

- d) Brunswick Formation of sandstone, red shale, conglomerate and limestone fanglomerate.
- e) Stockton Formation of arkosic sandstone, conglomerate, red shale, and sandstone.

The Upper Triassic or younger Newark Group Shuttle Meadow Formation of arkosic siltstones and shales map unit ($T_R m$) is comprised only of the Shuttle Meadow Formation which occurs between the Holyoke Basalt and Talcott Basalt in the Triassic Conn. Valley.

The Lower to Upper Paleozoic "younger" mafic bodies and older gneisses map unit (Pmn) in eastern Conn. is comprised of;

- a) Pre-Pennsylvanian Lebanon Gabbro
- b) Ordovician (?) Middletown Gneiss of biotite and amphibolite gneisses.

and in western Conn. is comprised of:

- c) Litchfield mafic intrusives
- d) Paleozoic Hornblende Gneiss Unit, including the Mount Tom body to north and Long Hill body to south
- e) Paleozoic Brookfield diorite gneisses with biotite pyroxenite and biotite hornblendite, and quartz monzonite porphyry
- f) Ordovician (?) Allingtown Metadiabase, of metamorphosed intrusive which in many places is porphyritic
- g) Ordovician (?) Maltby Lakes of medium- to fine-grained metavolcanic rocks of mafic to intermediate composition. Mostly greenschist and low-grade amphibolite, formerly part of ~~Northland Group~~ *Middle Chlorite Schist Unit.*
- h) Cambro-Ordovician Harrison Gneiss, a granodiorite gneiss and dark gray greenish gneiss.

The Upper Middle Paleozoic "younger" granitic bodies and older gneisses map unit (Png) in southeastern Conn. is comprised of:

- a) Pre-Pennsylvanian Sterling Plutonic Group Alaskite Gneiss and Granite Gneiss Unit of gneisses, granite gneisses, gneissic granites and granites; part of former Clinton Granite Gneiss and Lyme Granitic Gneiss

and in western Conn. is comprised of:

- b) uncorrelated Paleozoic "younger" granites
- c) Paleozoic Nonewaug Granite
- d) Paleozoic Mine Hill Granite Gneiss

The Lower to Middle Paleozoic shales, slates, phyllites, graywackes and cherts map unit (Psh) in N.Y. is comprised of:

- a) Upper Devonian Sonyea Group, Cashaqua Shale replaced eastwardly by Enfield Formation, of shale, siltstone, sandstone and the Middlesex Shale
- b) Middle Devonian Lower Hamilton Group of shale and siltstone
- c) Middle Ordovician Normanskill Formation of graywacke, shale, slate and chert
- d) Middle Ordovician Berkshire Phyllite of black phyllite and schist

The Lower to Middle Paleozoic limestones, marbles, dolomites and calcareous shales and sandstones map unit (P1) in western Conn. and N.Y. is comprised of:

- a) Lower Devonian Onondaga Limestone and Schoharie Formation of shale limestone and sandstone
- b) Lower Devonian Glenerie Formation of siliceous limestone and chert
- c) Middle Ordovician Balmville Limestone
- d) Upper Cambrian and Lower Ordovician either Copake, Rochdale or Holcyon Lake Formation of dolomites and limestones
- e) Upper Cambrian and Lower Ordovician either Briarcliff Dolomite or Pine Plains Formation of dolomites, shales and oolites
- f) uncorrelated Upper Cambrian and Lower Ordovician limestones, shales and calcareous sandstones
- g) Upper Cambrian Stockbridge Group of undifferentiated carbonates
- h) Lower Cambrian Stissing Limestone

The Middle to Lower Paleozoic schists and undifferentiated schists and gneisses with "younger" mafic and granitic bodies map unit (Pu) in eastern Conn. is comprised of:

- a) Pre-Silurian Tatnic Hill Formation, formerly the Putnam Gneiss, of gneisses and schist

and in western Conn. of:

- b) Cambro-Ordovician Hartland Group of mica quartzite, schist, igneous material of hornblende gneiss, granodioritic and dioritic gneiss, granite, granitic gneiss and quartzo-feldspathic gneisses

and in N.Y. of:

- c) Lower Paleozoic-Precambrian dioritic and granodioritic gneisses
- d) Lower Paleozoic-Precambrian schists and gneisses undivided

The Lower to Middle Paleozoic mostly schists map unit (Ps) in eastern Conn. is comprised of:

- a) Pre-Pennsylvanian Brimfield Schist of mainly schist with biotite, muscovite, graphite, garnet, some gneiss, minor limestone and calc-silicate rock
- b) Pre-Pennsylvanian Scotland Schist of muscovite and biotite schists
- c) Lower or Middle Silurian to Lower Devonian Bolton Group of graphitic schist, calcareous biotite gneiss, quartzite and conglomeratic quartzite
- d) Middle Ordovician (?) Collins Hill Formation of graphitic garnetiferous two-mica schist, sillimanite and kyanite

and in western Conn. is comprised of:

- e) Devonian Prospect Gneiss of mainly interlayered phyllitic schist and quartz-rich paragneiss; metamorphic equivalent of Hartland Group
- f) Silurian and Devonian Wepawaug Schist of mainly phyllitic schist; part of former Orange Phyllite Unit
- g) Ordovician Derby Hill Schist of schist, phyllite and gneiss; part of former Milford Chlorite Schist Unit and Orange Phyllite Unit.
- h) Cambro-Ordovician Hartland Group the Straits Schist of mostly coarse-grained muscovite schists

The Lower to Middle Paleozoic mostly schistose gneisses map unit (Psn) in eastern Conn. is comprised of:

- a) Pre-Pennsylvanian Hebron Gneiss of quartz mica schist or gneiss, schistose gneiss and calcareous gneiss

and in western Conn. is comprised of:

- b) Devonian Trap Falls Formation, schistose part of Shelton facies of medium-grained well-foliated, well-lined granitic to dioritic but commonly quartz-monzonitic gneiss to north, and mostly medium-grained poorly-foliated gneiss and coarse-grained schist to south. Part of former Milford Chlorite Schist Unit.
- c) Cambrian (?) and Ordovician (?) schistose part of Southington Mountain Schist of mainly interlayered muscovite schist and quartz-rich paragneiss, subordinate marble and calc-silicate rocks. Part of former Milford chlorite Schist Unit.
- d) Cambro-Ordovician Taine Mountain Gneiss of medium-grained garnet-plagioclase-mica-quartz schist and fine- to medium-grained biotite-plagioclase quartz gneiss.

The Lower to Middle Paleozoic mostly quartz-rich gneisses map unit (Pn) in eastern Conn. is comprised of:

- a) Pre-Pennsylvanian Canterbury Granitic Gneiss of micaceous granodiorite or quartz monzonite gneiss.
- b) Pre-Pennsylvanian Willimantic Gneiss
- c) Ordovician (?) Maromas Granitic Gneiss of mostly massive tonalite gneiss of porphyritic texture
- d) Ordovician (?) Glastonbury Gneiss of granite gneiss, schistose biotite gneiss and massive mica gneiss
- e) Cambrian (?) Plainfield Formation of mainly quartzite and gneisses, and some schists; part of former Stonington Gneiss

and in western Conn. is comprised of:

- f) Devonian Ansonia Gneiss, a homogeneous well-foliated gneiss
- g) Devonian Trap Falls Formation, gneissic part of Shelton facies of medium-grained well-foliated, well-lineated granitic to dioritic but commonly quartz monzonitic gneiss to north, and mostly medium-grained poorly-foliated gneiss and coarse-grained schist to south. Part of former Milford chlorite Schist Unit.
- h) Devonian Prospect Gneiss of mainly interlayered phyllitic schist and quartz-rich paragneiss, biotite augen gneiss and granodiorite gneiss, a metamorphic equivalent to Hartland Group

- i) Ordovician Derby Hill Schist with this facies of formation quartz-rich paragneiss with schistose to phyllitic partings; part of former Milford Chlorite Schist Unit *and Orange Phyllite Unit*
- j) Cambro-Ordovician Collinsville Gneiss, includes Bristol Gneiss, of feldspar, quartz and biotite
- k) Precambrian to Cambrian Waterbury Gneiss of complex of gneiss and schist and small granitic and pegmatitic sills

The Lower Cambrian quartzites, orthoquartzites and slaty argillites map unit (l + g) is comprised in N.Y. of:

- a) Lower Cambrian Poughquag (Cheshire) Orthoquartzite
- b) Probably Lower Cambrian Elizaville Formation of slaty argillite and quartzite

The Lower Cambrian mostly schists map unit (l + s) in western Conn. and in N.Y. is comprised of:

- a) Lower Paleozoic-Precambrian Canaan Mountain Schist (Hudson Schist, Berkshire Schist)
- b) Probably Lower Cambrian Everett Schist

The Precambrian to Lower Paleozoic marbles and dolomites map unit (Xm) in western Conn. and N.Y. is comprised of:

- a) Lower Paleozoic-Precambrian Inwood Marble (Woodville Marble) of generally coarse-grained crystalline limestone, in places dolomitic, in places with a basal calcareous quartzite layer, with some granite dikes
- b) Precambrian Calcitic and Dolomitic Marble Unit of southeastern N.Y., variably siliceous with some calc-silicate and amphibolite

The Precambrian to Lower Paleozoic mostly gneissic schists map unit (Xns) in western Conn. and N.Y. is comprised only of the Lower Paleozoic-Precambrian Manhattan Formation of mostly schist with some schistose gneiss, amphibolite and marble.

The Precambrian to Lower Paleozoic mostly quartz-rich gneisses with some granitic and mafic bodies map unit (Xn) in western Conn. and N.Y. is comprised of:

- a) Lower Paleozoic-Precambrian Fordham Gneiss of quartz-plagioclase paragneiss with some amphibolite, migmatite, mica schist and marble
- b) Lower Paleozoic-Precambrian Poundridge Leucogranite
- c) Lower Paleozoic-Precambrian Peekskill Granite
- d) Lower Paleozoic-Precambrian Waramaug Formation of biotite quartz gneiss with some granite intrusive
- e) Lower Paleozoic-Precambrian Yonkers Granitic Gneiss

- f) Precambrian Biotite Granitic Gneiss Unit of southeastern N.Y.
- g) Precambrian Biotite-Quartz-Plagioclase Paragneiss Unit of southeastern N.Y. with some biotite granitic gneiss, amphibolite and calc-silicate
- h) Precambrian Hornblende Granite and Granitic Gneiss Unit of southeastern N.Y. with some leucogranite
- i) Precambrian Interlayered Granitic Gneiss and Metasedimentary Rock Unit of southeastern N.Y.
- j) Precambrian Quartz Plagioclase Gneiss Unit of southeastern N.Y. with some amphibolite
- k) Precambrian Garnet-bearing Leucogranitic Gneiss interlayered with Quartzite Unit of southeastern N.Y. with some marble, amphibolite and paragneiss
- l) Precambrian Danbury Granite Gneiss of gneissic augen granite or augen gneiss

The Precambrian to Lower Paleozoic mostly amphibolitic bodies and hornblende gneisses map unit (Xmn) in eastern Conn. is comprised of:

- a) Ordovician or older Quinebaug Formation of hornblende and biotite gneisses
- b) Ordovician (?) or older Monson Gneiss and Monson Tonalite Gneiss of plagioclase and biotite, hornblende and amphibolite; includes parts of former Lighthouse Granitic Gneiss, Branford Granitic Gneiss, and Stony Creek Granitic Gneiss
- c) Pre-Silurian New London Gneiss with granodiorite gneiss, amphibolite, alaskite, granite gneiss, gneiss, gneissic granodiorite and quartz monzonite
- d) Pre-Silurian Mamacoke Formation of gneiss

and in western Conn. and N.Y. is comprised of:

- e) Lower Paleozoic-Precambrian Biotite Augite Norite Unit of the Cortlandt complex of southeastern N.Y.
- f) Lower Paleozoic-Precambrian Diorite Unit with hornblende and biotite of the Cortlandt complex of southeastern N.Y.
- g) Lower Paleozoic-Precambrian Hornblende Norite Unit of poikilitic hornblende of the Cortlandt complex of southeastern N.Y.
- h) Lower Paleozoic-Precambrian Olivine Pyroxenite Unit with locally peridotite of the Cortlandt complex of southeastern N.Y.

- i) Lower Paleozoic-Precambrian Pyroxenite Unit of the Cortlandt complex of southeastern N.Y.
- j) Lower Paleozoic-Precambrian Gabbro to Hornblende Diorite Unit with minor pyroxenite
- k) Lower Paleozoic-Precambrian Hornblende Gneiss Unit with amphibolite, pyroxenic amphibolite, biotite granitic gneiss, migmatite, minor calc-silicate