DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

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SHEET 3 OF 3

CRETACEOUS AND YOUNGER

K

K - Cretaceous to Quaternary deposits of the Coastal Plain, undivided

JURASSIC

Js / Jrm

Js - Red, gray, green siltstone, sandstone and conglomerate

Jrm - Mafic sills and flows

TRIASSIC

Trc / Trm

Trc - Red, gray, green siltstone, sandstone and conglomerate

Trm - Mafic sills and flows

PENNSYLVANIAN

P | Pr

P: Pennsylvanian rocks of the Appalachian Plateau most commonly cyclically repeated sequences of clay, sandstone, shale limestone and coal; coal measures

Pr: Pennsylvanian rocks of New England and maritime Canada. Predominantly red, gray, green conglomerate, sandstone and shale - includes some felsic volcanic rocks

MISSISSIPPIAN

M | Mr / Mfv, Mre

M: Mississippian rocks of the Appalachian Plateau; mainly conglomerate sandstone, shale and only minor limestone

Mr: Mississippian rocks of New England and maritime Canada; red and gray conglomerate, sandstone and shale; Mfv = felsic volcanic rocks; Mre = evaporite deposits; limestone, shale and gypsiferous shale

DEVONIAN

D / D_3, D_{2c}, D_2, D_1 | Dr | Drc | Dfv | Dmv

D = Undivided Devonian rocks of the Valley and Ridge Province - Limestone in the lower part giving way upward to sandstone and shale

D_1: Lower Devonian limestone of the Helderberg Group

D_2: Limestone, cherty limestone, sandstone and arenaceous limestone

D_{2c}: Red sandstone, shale and conglomerate; post-orogenic deposits

D_3: Sandstone and shale

D_{3c}: Red conglomerate, sandstone, and shale. Post-orogenic deposits of the Catskill Delta

Dr: Gray feldspathic sandstone and shale, commonly thin-bedded, cyclically-bedded graywacke and shale with minor pebble to granule conglomerate layers

Drc: Calcareous sandstone, shale, and thin ribbon limestone beds

Dfv: Felsic volcanic rocks

Dmv: Mafic volcanic rocks

SILURIAN

Sr | Srf | Src | Sfv | Smv

Sr: White to gray, massive to thin-bedded quartz sandstone, quartzite, quartz pebble conglomerate; includes red to gray shale and sandstones grading upward into thin bedded argillaceous limestone in the Appalachian Plateau area; includes thin-to thick-bedded graywacke and shale sequence in central Maine

Srf: Polymict conglomerate, quartz sandstone, graywacke and shale - fan deposits of central Maine

Src: Calcareous sandstone, conglomerate, thin bedded limestone with thin, gray calcareous shale beds

Sfv: Felsic volcanic rocks

Smv: Mafic volcanic rocks

ORDOVICIAN

Orr

Opr | Opc | Of

Allochthonous rocks

Os | Ort | Ow | Obs | Omv

Orr - Post-orogenic deposits: red, gray and green shale, sandstone, and conglomerate

Opc - Limestone; impure sandy and silty limestone, some shale and dolostone

Opr - Ordovician limestone and shale, undivided

Of - Gray carbonaceous shale and graywacke, commonly thin-bedded, flysch-like deposits, massive graywacke and granule conglomerate lenses common - Pelitic rocks predominate in the west

Os - Argillaceous limestone and shale

Ort - Black, gray, red, and green slate, graywacke, and chert of the Taconic Klippe

Ow - Wildflysch deposits - exotic blocks of slate, quartzite, graywacke in gray to black shale matrix

Obs - Carbonaceous, sulfidic black slate, shale, and graywacke; contains lenticular polymict conglomerate lenses, tuffaceous volcanic deposits, and manganiferous silicate pods and lenses

Omv - Greenstone; mafic volcanic flows and pyroclastic deposits

CAMBRIAN

ϵpr | ϵpqz | ϵpq | ϵpc

Allochthonous rocks

ϵmv | ϵs | ϵf | ϵfd | ϵrt

ϵpq - Massive to thin bedded quartzite; locally contains thin partings and beds of pelitic rock. Includes areas of micaceous, tourmaline-rich feldspathic quartzite and pelitic rocks that may be Late Precambrian age in part

ϵpqc - Calcareous quartzite and shale

ϵpc - Limestone, dolostone, minor calcareous shale, locally includes quartzite

ϵpr - Cambrian quartzite and carbonate rocks, undivided

ϵs - Feldspathic sandstone and shale

ϵf - Carbonaceous and non-carbonaceous pelitic rocks; quartz, sericite, albite schist common; includes thin mafic volcanic layers, quartz-feldspar-rich graywacke and scattered granule conglomerate lenses

ϵfd - Graywacke, pelitic graywacke, shale, granule to cobble conglomerate layers generally near base; fan and/or delta deposits

ϵrt - Purple, gray, green, and variegated slate and phyllite, quartzite, feldspathic quartzite, and graywacke of the Taconic Klippe

ϵmv - Predominently mafic volcanic rocks

Intrusive Rocks

TRIASSIC TO CRETACEOUS

$M\zeta$: Mesozoic alkalic intrusive rocks; undivided

ωv: Volcanic breccia, felsic tuff and flows

ωs: Syenite, nepheline syenite and pulaskite

ωg: Biotite granite

$\omega p g$: Porphyritic quartz syenite

$\omega g c$: Quartz syenite

$\omega g p$: Granite porphyry

$\omega r g$: Riebeckite and/or hastingsite granite

ωm: Monzonite

ωd: Hornblende-biotite diorite

$\omega g a$: Gabbro

White Mountain Magma Series

JURASSIC-TRIASSIC

Diabase dikes

PERMIAN

Pf

Narragansett Pier Granite

CARBONIFEROUS

MPr

MPr: Pennsylvanian and Mississippian rocks undivided

DEVONIAN AND SILURIAN

DSr | DSrc | DSfv | DSmv

DSr: Undivided sandstone, shale, conglomerate, and minor limestone of Silurian and Devonian age

DSrc: Calcareous rocks of Silurian and Devonian age

DSfv: Felsic volcanic rocks

DSmv: Mafic volcanic rocks

SILURIAN AND ORDOVICIAN

SO_v | SO_{cr}

SO_v: Felsic and mafic pyroclastic rocks

SO_{cr}: Thin-bedded ribbon limestone and interbedded calcareous siltstone and fine-grained sandstone. Calcareous flysch-like deposits of northern Maine and New Brunswick

DEVONIAN

Dfi: Felsic intrusive rocks

Dmi: Mafic intrusive rocks

SILURIAN

Sfi: Felsic intrusive rocks

Smi: Mafic intrusive rocks

ORDOVICIAN

Ofr: Felsic intrusive and extrusive rocks

Ofi: Felsic intrusive rocks

Omi: Mafic intrusive rocks

Oo: Ophiolite complex

s: Serpentinite and related ultramafic rocks

ORDOVICIAN AND CAMBRIAN

Allochthonous rocks

$O\epsilon$pr | $O\epsilon$se | $O\epsilon$f | $O\epsilon$rt | $O\epsilon$m | $O\epsilon$r | $O\epsilon$mv

Shelf deposits

$O\epsilon$pr - Undivided Cambrian and Ordovician quartzite, carbonate rocks and shale

Shelf edge - slope deposits

$O\epsilon$se - Shale, calcareous shale locally contains blocks of carbonate breccia

$O\epsilon$f - Interbedded shale and graywacke fan deposits - quartz-rich granule conglomerate lenses, quartzwacke, some volcanoclastic deposits

$O\epsilon$rt - Red, green, gray slate, graywacke, cherty quartzite, ribbon limestone beds, limestone edgewise conglomerate, polymict limestone conglomerate. Shelf edge deposits in the Taconic Klippe

$O\epsilon$m - Melange deposits - blocks of graywacke, greenstone, and serpentinite in carbonaceous and noncarbonaceous pelitic matrix

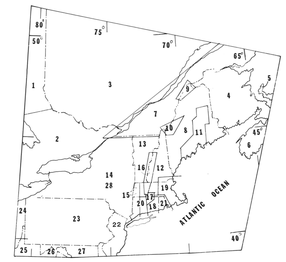
$O\epsilon$mv - Greenstone, amphibolite - mafic volcanic flows and pyroclastic deposits

$O\epsilon$r - Green, red, gray, locally black and carbonaceous slate, quartzite, feldspathic quartzite; volcanoclastic rocks and thin mafic volcanic lenses to small to show as $O\epsilon$mv

High angle fault

Dashed were uncertain, dotted where concealed

Thrust fault



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PRECAMBRIAN ROCKS

AVALONIAN PROVINCE ROCKS

Z_1: Granite, biotite hornblende granite, granitic gneiss

Z_2: Quartzite, quartz pebble conglomerate, calcsilicate rock, minor pelitic rocks and mafic volcanic rocks

Z_3: Amphibolite, hornblende biotite gneiss, mafic volcanic rocks

Z_4: Undivided rocks of Hadrynian age

NORTH AMERICAN PROVINCE ROCKS

Z_{n1}: Felsic volcanic rocks; felsic gneiss

Z_{n3}: Mafic volcanic rocks

GRENVILLE PROVINCE ROCKS

Y_u: Orthogneisses and paragneiss, undivided

Y_1: Biotite-quartz-plagioclase gneiss; hornblende-biotite gneiss mixed with granitic gneiss; contains some calcsilicate gneiss and pelitic gneiss

Y_3: Pyroxene gneiss

Y_4: Granitic gneiss and migmatitic biotite-quartz-plagioclase gneiss

Y_5: Pyroxene-bearing monzonite, syenite, and granite (charnockite and kin)

Y_6: Anorthosite, anorchositic gabbro, leucoratic garnetiferous anothosite and norite

Y_7: Gabbro and metagabbro

Y_8: Granite, syenite, plagio-granite

Y_9: Grenville-type paragneiss; garnet-sillimanite gneiss, hornblende gneiss, marble

Y_{10}: Crystalline limestone and marble

Y_{11}: Hornblende gneiss, amphibolite and related paragneiss

Y_{12}: Alkaline intrusive rocks

SUPERIOR PROVINCE ROCKS

X_1: Cobalt series: sandstone, conglomerate graywacke, some argillite

X_2: Metamorphosed graywacke, slate, quartzite, felsic tuff; some carbonate rocks

X_3: Metamorphosed sedimentary and felsic phyroclastic rocks; kyanite-staurolite schist, hornblende-biotite gneiss

X_4: Granitic gneiss, foliated granite, undifferentiated granitic rocks

X_6: Anorthosite, anorthositic gabbro, gabbro

X_7: Gabbro and diorite

X_8: Granite, monzonite, granodiorite and syenite

X_{11}: Metamorphosed mafic and intermediate lavas; greenstone, amphibolite, some metamorphosed sedimentary rocks

X_{12}: Trondhjemite, tonalite and plagio-granite

Mafic dikes; diabase, gabbro, diorite, ultramafic rock; includes some granophyre

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GEOLOGIC MAP OF NORTHEASTERN UNITED STATES AND ADJACENT CANADA

COMPILED BY

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1979