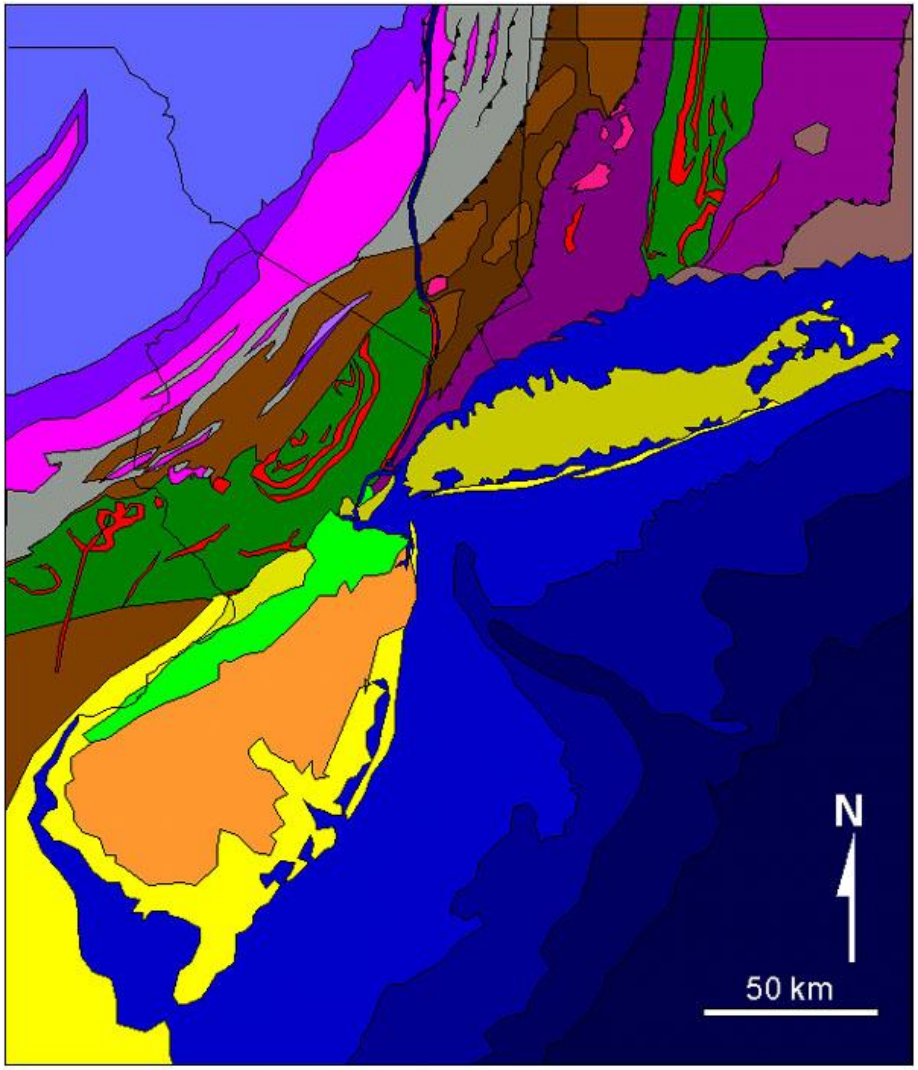
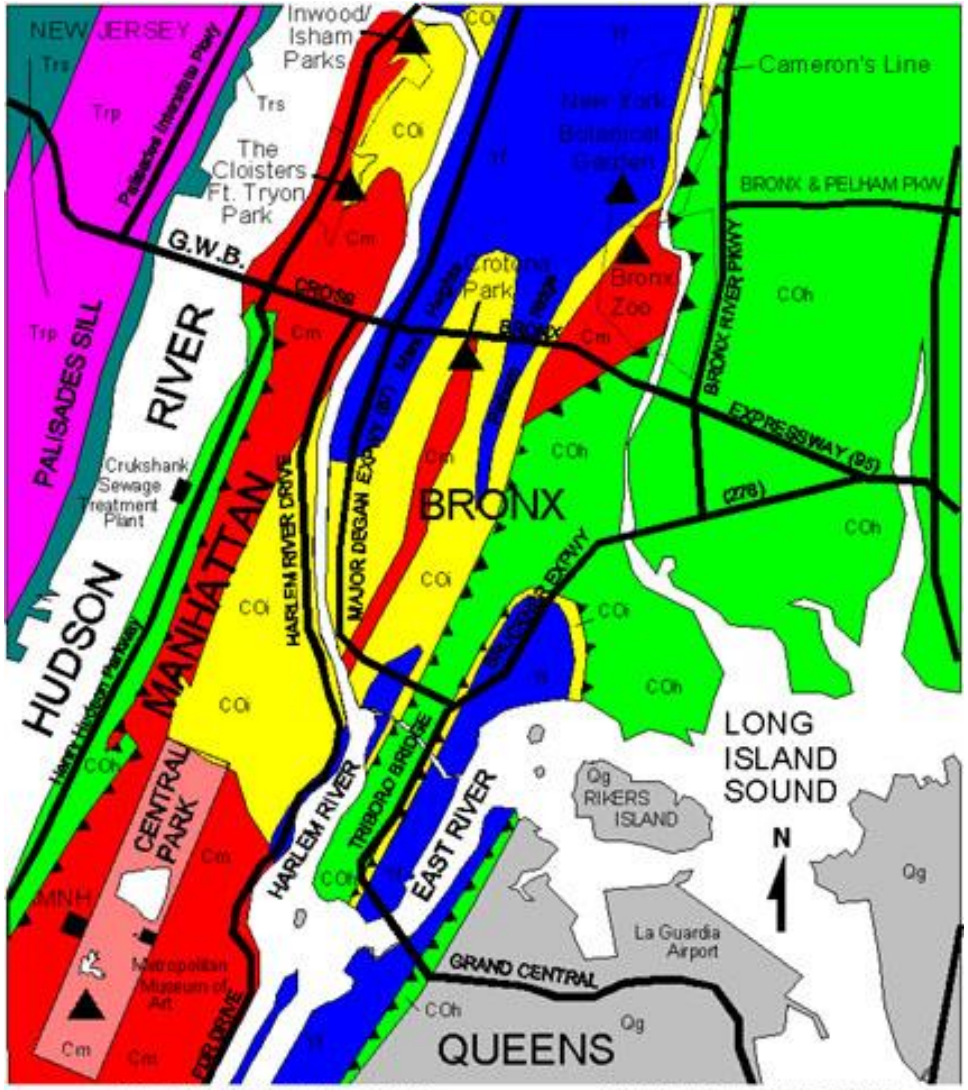
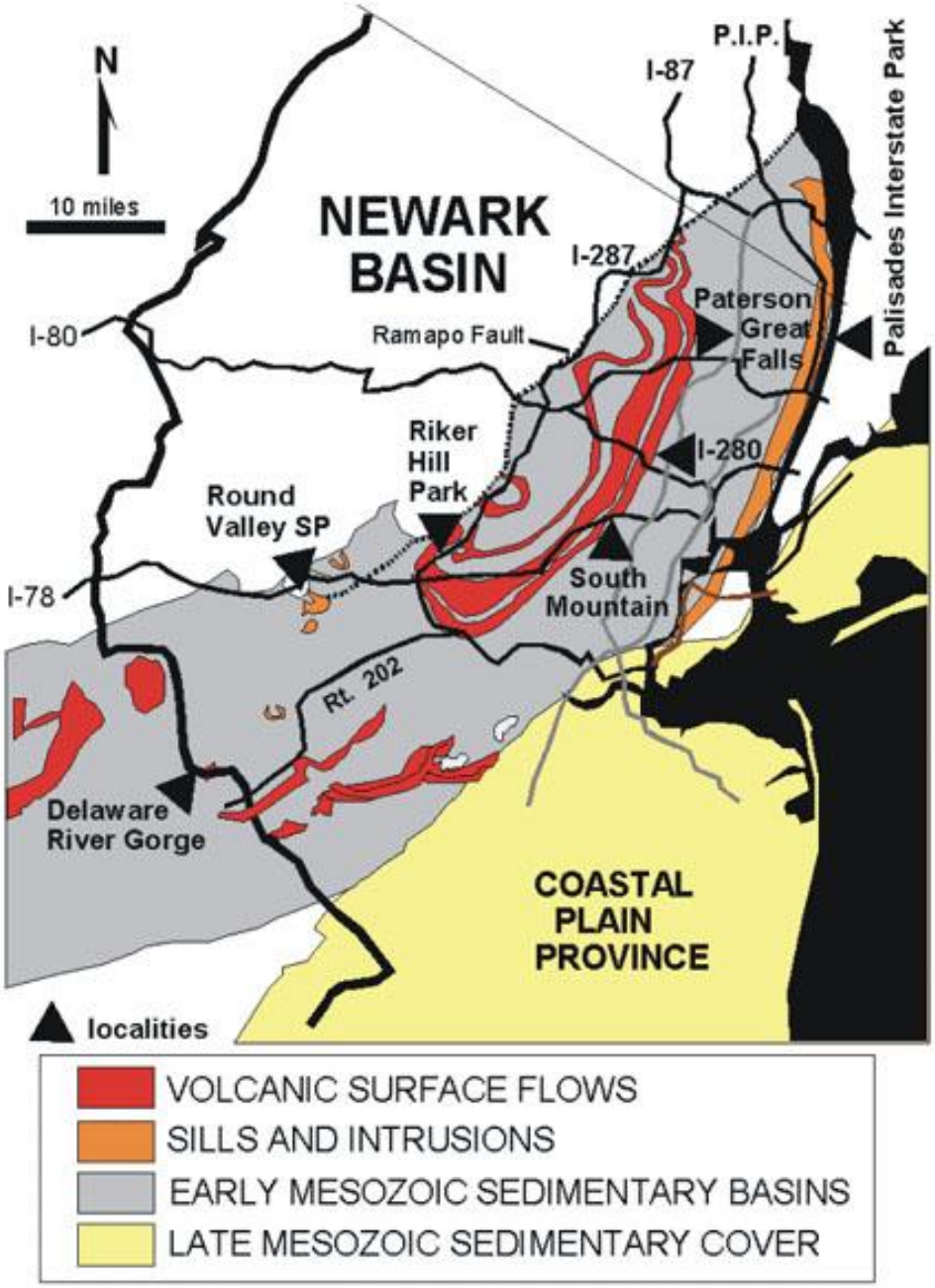
Geology of the NYC Area, Simplified

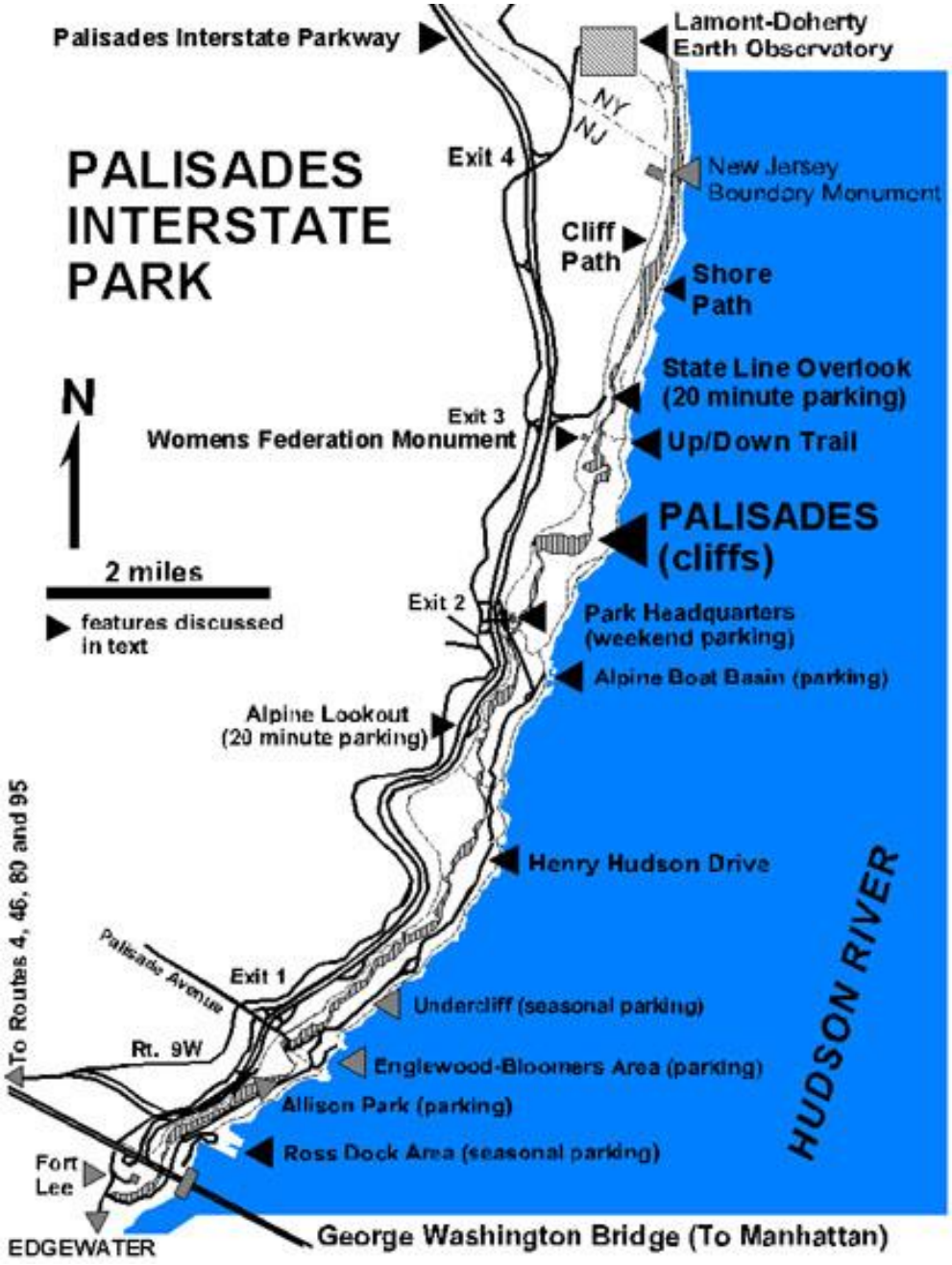
Based on USGS
"Geology of the New York City Region"
http://3dparks.wr.usgs.gov/nyc/common/contents.htm

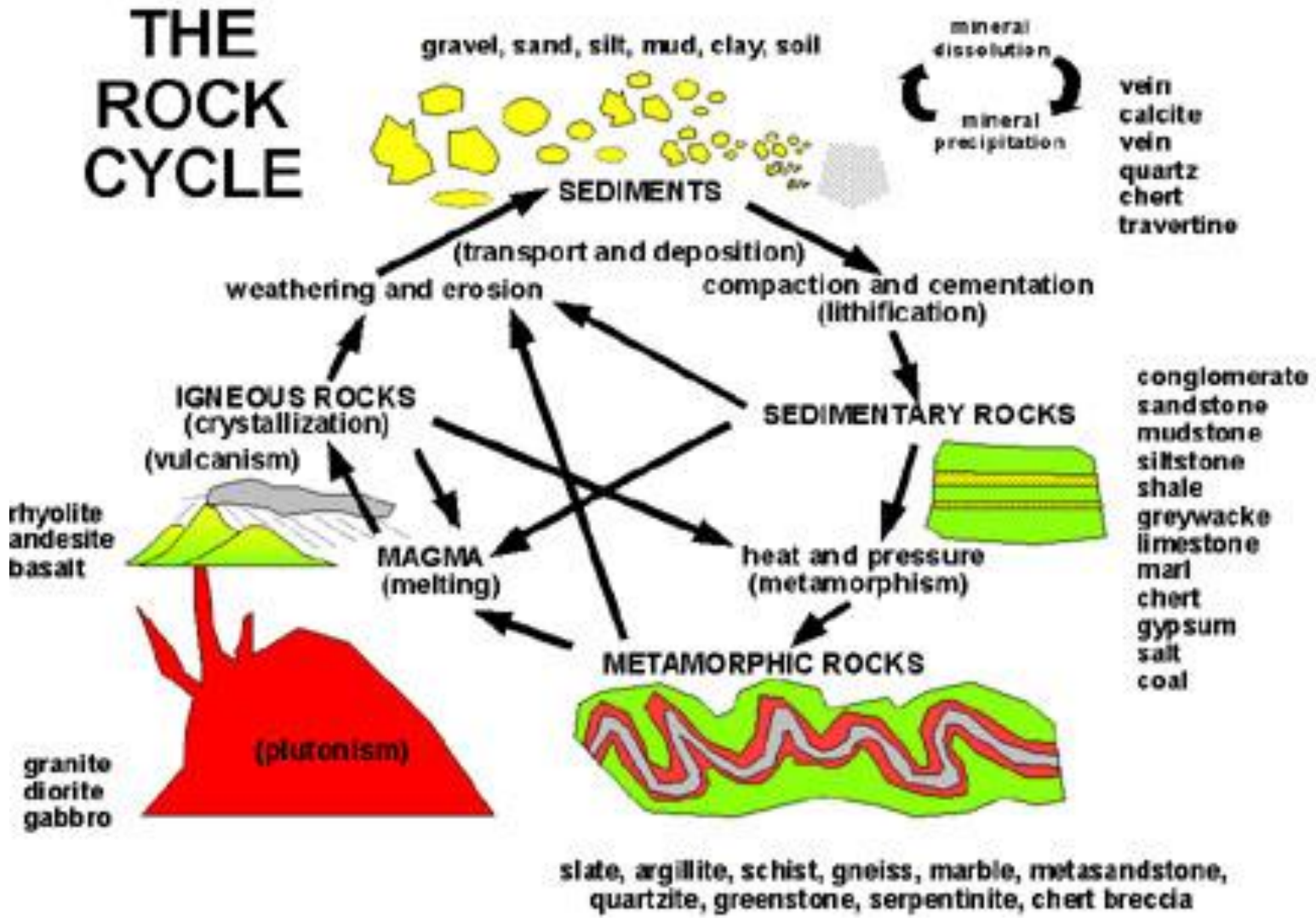


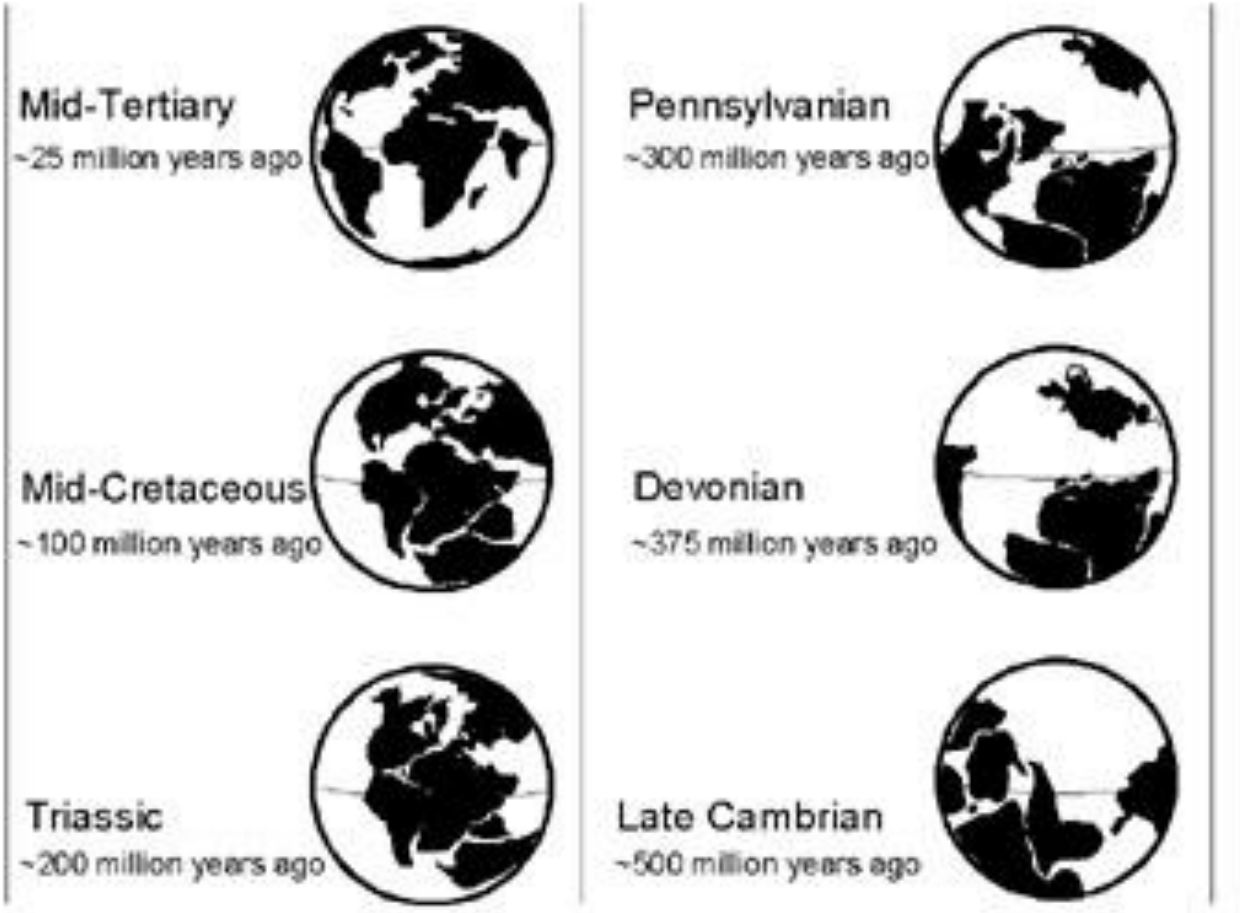
Quaternary alluvium
Pleistocene glacial/terrace deposits
Tertiary sediments
Cretaceous sediments
Triassic/Jurassic volcanic rocks
Triassic sediments (redbeds)
Devonian Catskill sedimentary rocks
Silurian sedimentary rocks
Late Ordovician sedimentary rocks
Cambrian/Lower Ordovician meta-sedimentary rocks
Cambrian/Ordovician metamorphic rocks (Iapetus Terrane)
Paleozoic granitic intrusive igneous rocks
Precambrian metamorphic rocks (Avalon Terrane)
Precambrian gneisses (Grenvillian)
Precambrian metasedimentary rocks (Grenvillian)
Major thrust faults
Ocean depths represent 20 fathom contour interval

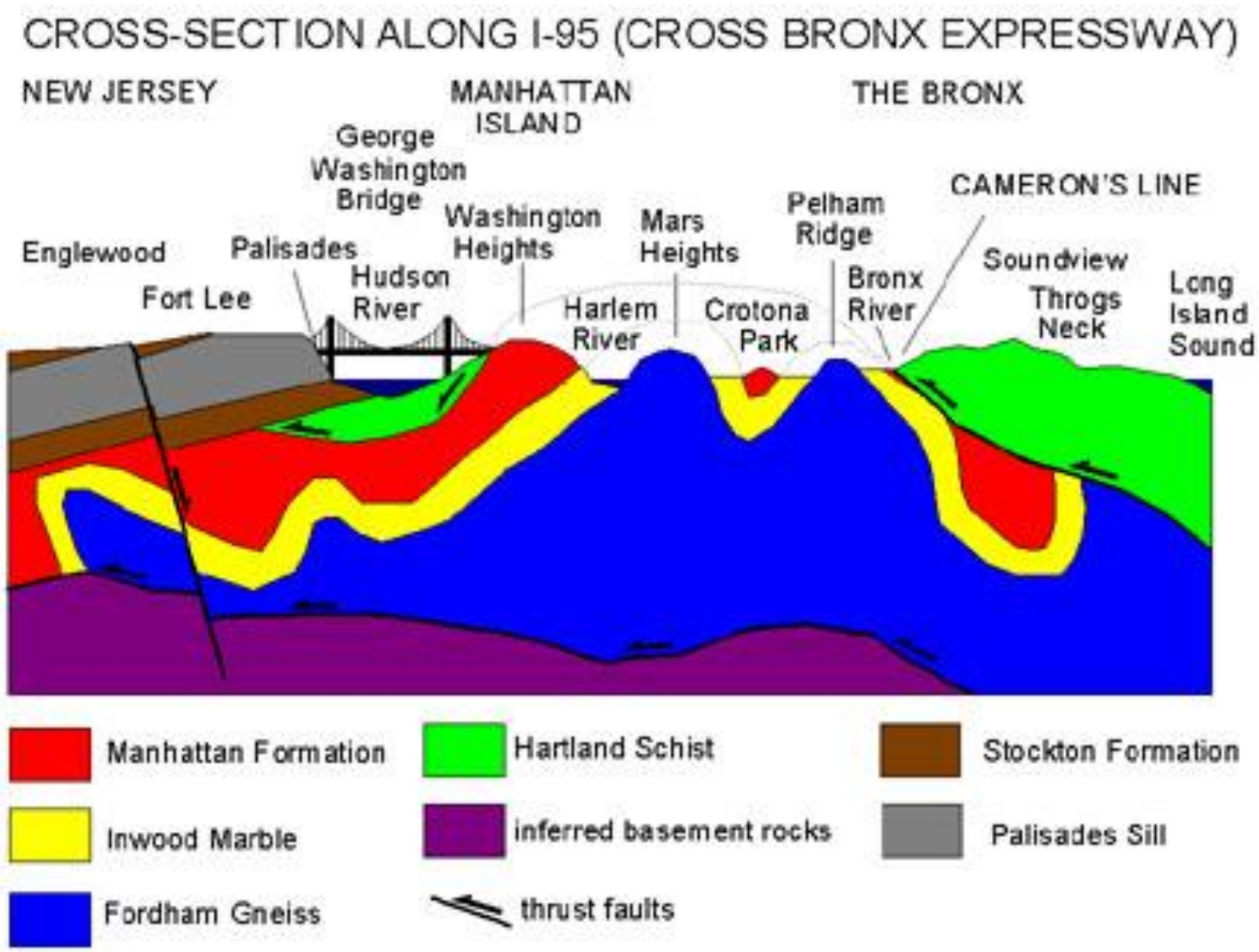

NEW JERSEY
Inwood/
Isham
Parks
Cameron's Line
The
Cloisters
Ft. Tryon
Park
G.W.B.
BRONX & PELHAM PKWY
BRONX RIVER PKWY
Bronx
Zoo
Crotona
Park
BRONX
EXPRESSWAY (95)
(278)
PALISADES SILL
RIVER
Crukshank
Sewage
Treatment
Plant
HUDSON
MANHATTAN
HARLEM RIVER DRIVE
MAJOR DEGAN EXPY
BRONX
LONG
ISLAND
SOUND
CENTRAL
PARK
HARLEM RIVER
TRIBORO BRIDGE
EAST RIVER
RIKERS
ISLAND
N
Metropolitan
Museum of
Art
La Guardia
Airport
GRAND CENTRAL
QUEENS
ALLOCHTHONOUS ROCKS
Cambrian-Ordovician Hartland Schist
AUTOCHTHONOUS ROCKS
Cambrian-Ordovician Inwood Marble
Cambrian Manhattan Formation
Proterozoic Fordham Gneiss
NEWARK BASIN ROCKS
Triassic Stockton Formation
Jurrasic Palisades Diabase
surficial glacial & alluvial deposits
thrust faults
field localities


N
10 miles
NEWARK
BASIN
P.I.P.
I-87
Palisades Interstate Park
I-287
Paterson
Great
Falls
I-80
Ramapo Fault
Riker
Hill
Park
I-280
Round
Valley SP
South
Mountain
I-78
Rt. 202
Delaware
River Gorge
COASTAL
PLAIN
PROVINCE
localities
VOLCANIC SURFACE FLOWS
SILLS AND INTRUSIONS
EARLY MESOZOIC SEDIMENTARY BASINS
LATE MESOZOIC SEDIMENTARY COVER

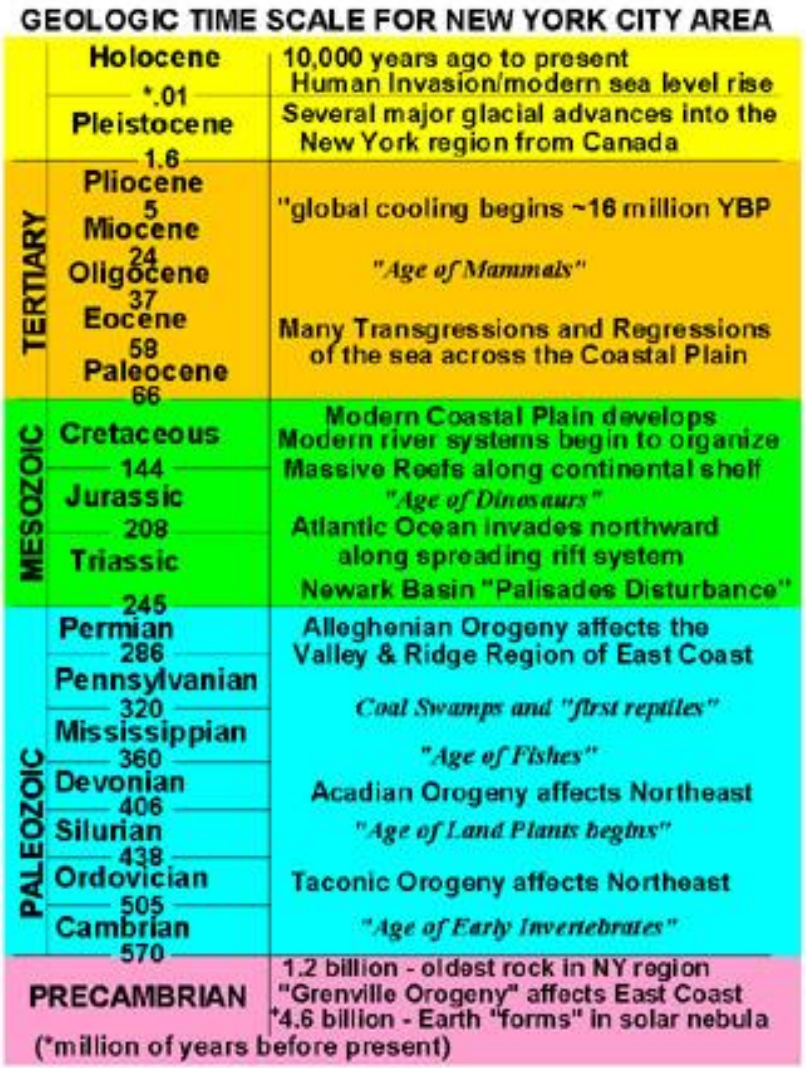

Palisades Interstate Parkway
Lamont-Doherty Earth Observatory
NY
NJ
PALISADES INTERSTATE PARK
Exit 4
New Jersey Boundary Monument
Cliff Path
Shore Path
State Line Overlook (20 minute parking)
N
Exit 3
Womens Federation Monument
Up/Down Trail
PALISADES (cliffs)
2 miles
features discussed in text
Exit 2
Park Headquarters (weekend parking)
Alpine Boat Basin (parking)
Alpine Lookout (20 minute parking)
To Routes 4, 46, 80 and 95
Henry Hudson Drive
HUDSON RIVER
Palisades Avenue
Exit 1
Undercliff (seasonal parking)
Rt. 9W
Englewood-Bloomers Area (parking)
Allison Park (parking)
Ross Dock Area (seasonal parking)
Fort Lee
EDGEWATER
George Washington Bridge (To Manhattan)


THE ROCK CYCLE
gravel, sand, silt, mud, clay, soil
SEDIMENTS
(transport and deposition)
weathering and erosion
compaction and cementation (lithification)
mineral dissolution
mineral precipitation
vein calcite
vein quartz
chert
travertine
IGNEOUS ROCKS (crystallization)
(vulcanism)
rhyolite
andesite
basalt
MAGMA (melting)
SEDIMENTARY ROCKS
heat and pressure (metamorphism)
conglomerate
sandstone
mudstone
siltstone
shale
greywacke
limestone
marl
chert
gypsum
salt
coal
METAMORPHIC ROCKS
(plutonism)
granite
diorite
gabbro
slate, argillite, schist, gneiss, marble, metasandstone, quartzite, greenstone, serpentinite, chert breccia


Mid-Tertiary
~25 million years ago
Mid-Cretaceous
~100 million years ago
Triassic
~200 million years ago
Pennsylvanian
~300 million years ago
Devonian
~375 million years ago
Late Cambrian
~500 million years ago



http://geologycafe.com/nyc/images/fig17.jpg



http://geologycafe.com/nyc/images/fig5.jpg


FORDHAM