

Geology of the NY Botanical Garden

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EARLY MEDIAL ORDOVICIAN

(Early Chazyan)

PALEOGEOGRAPHY

by Marshall Kay

Drawn by Erwin Raisz

Palinspastic base - Sinusoidal projection

0 500 1000
Miles

Paleo-shoreline

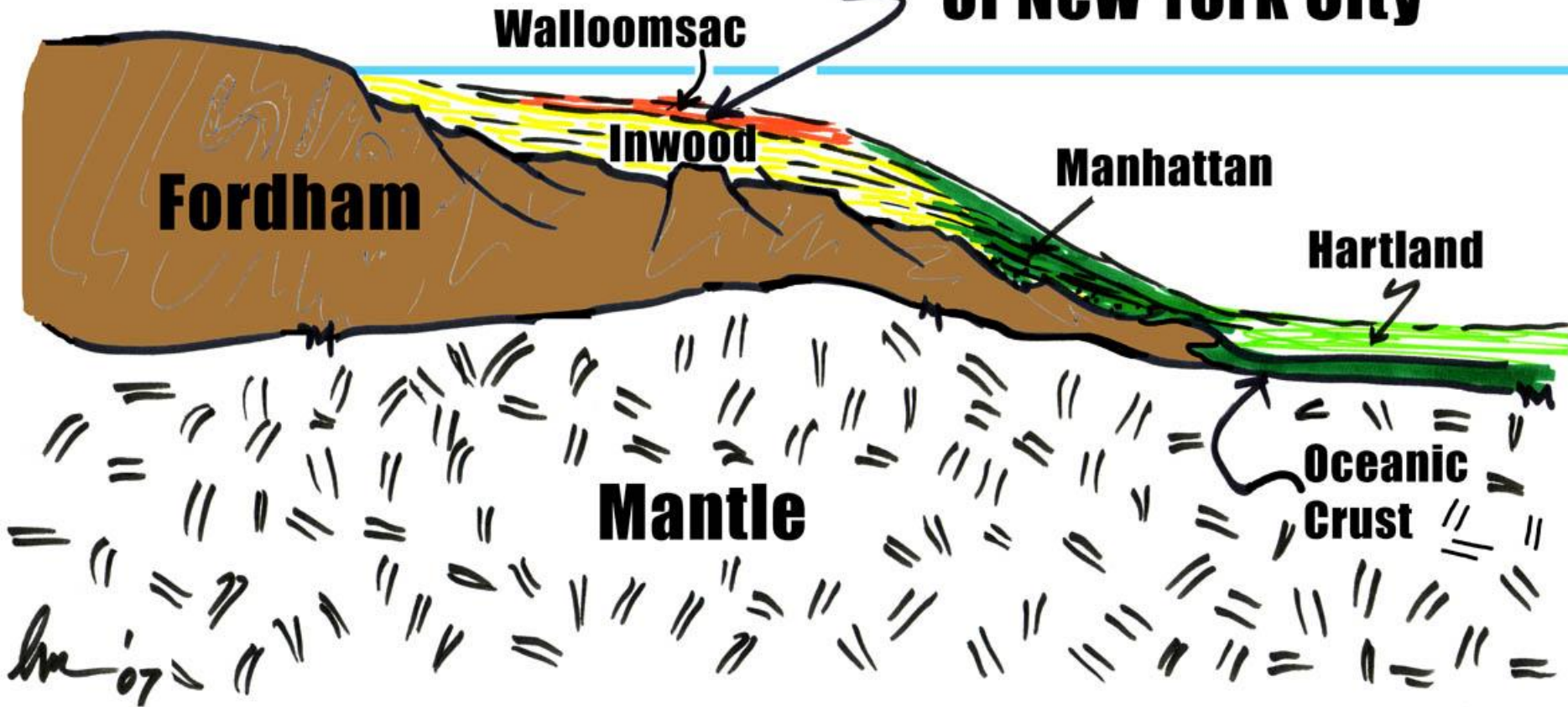
Paleo-equator

Seas with limy and sandy
bottoms on miogeosynclines

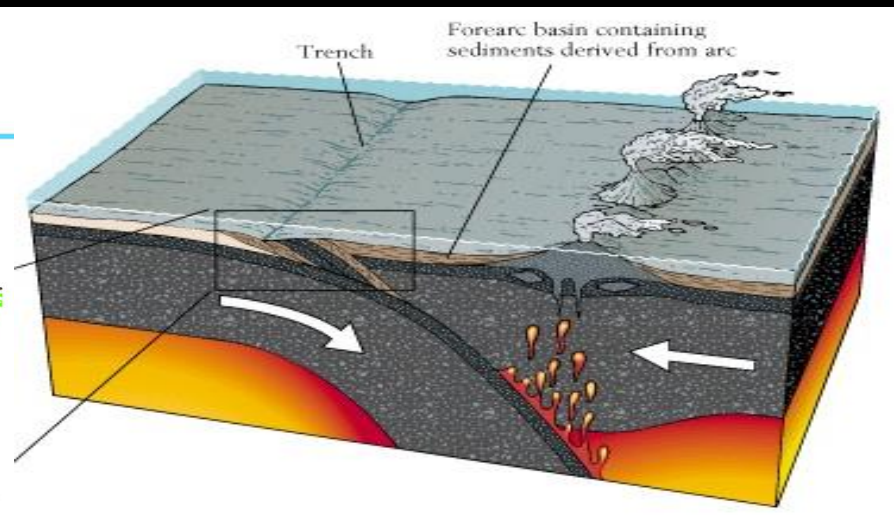
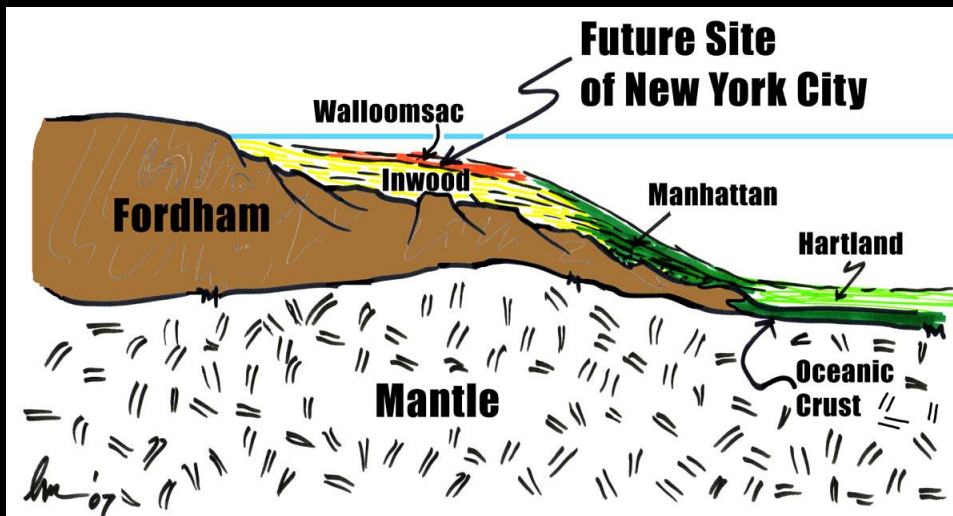
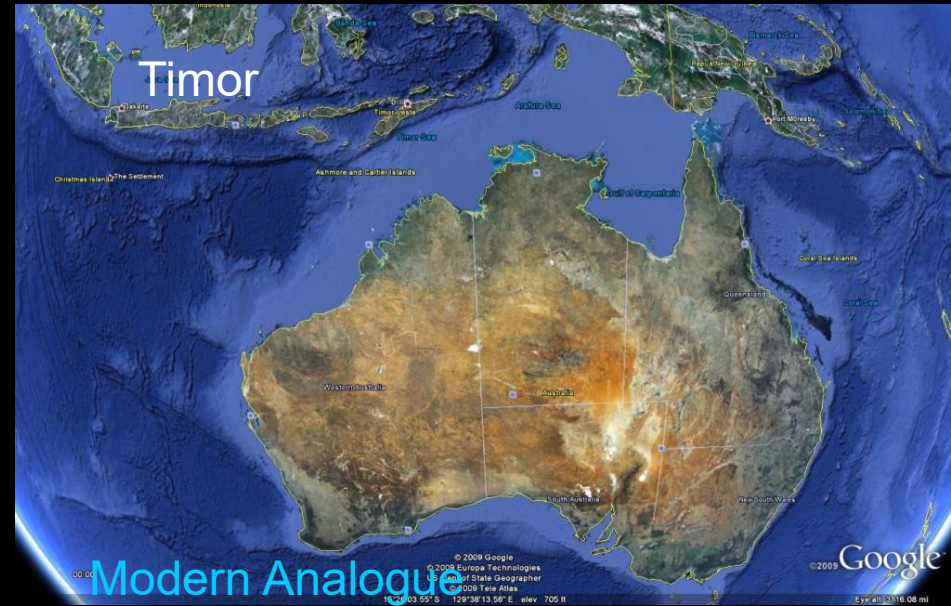
Seas with bottoms of argill-
aceous muds and volcanic
rocks on eugeosynclines

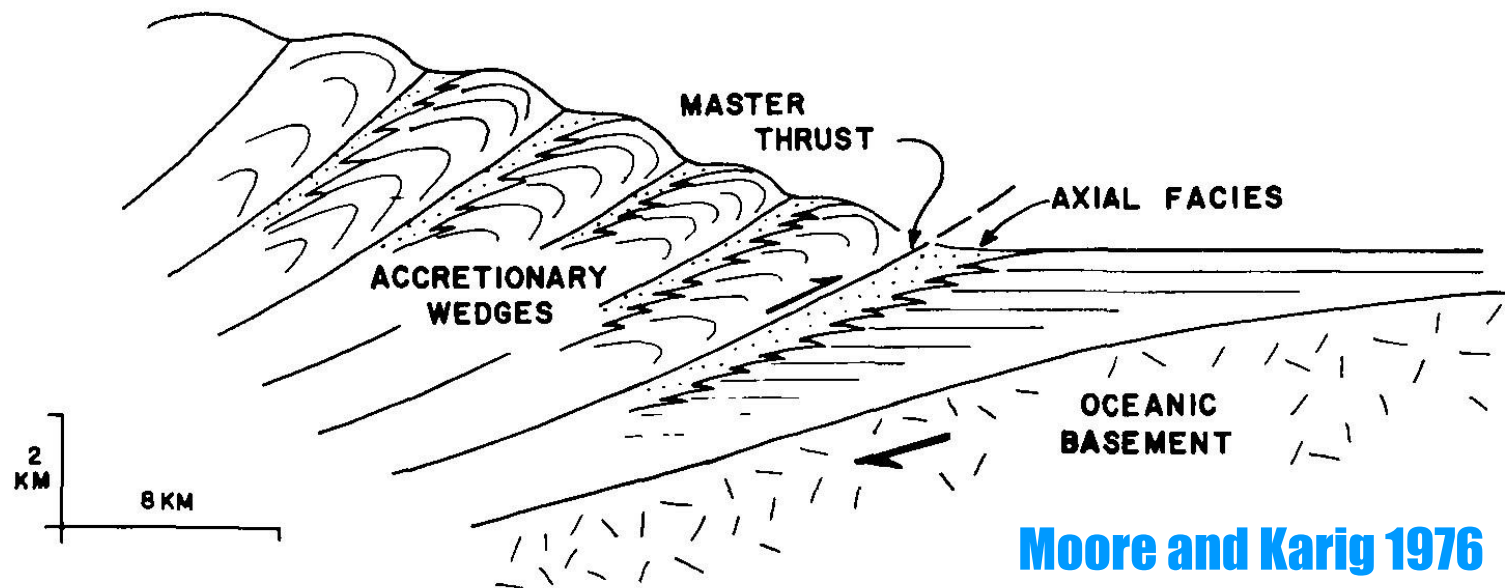
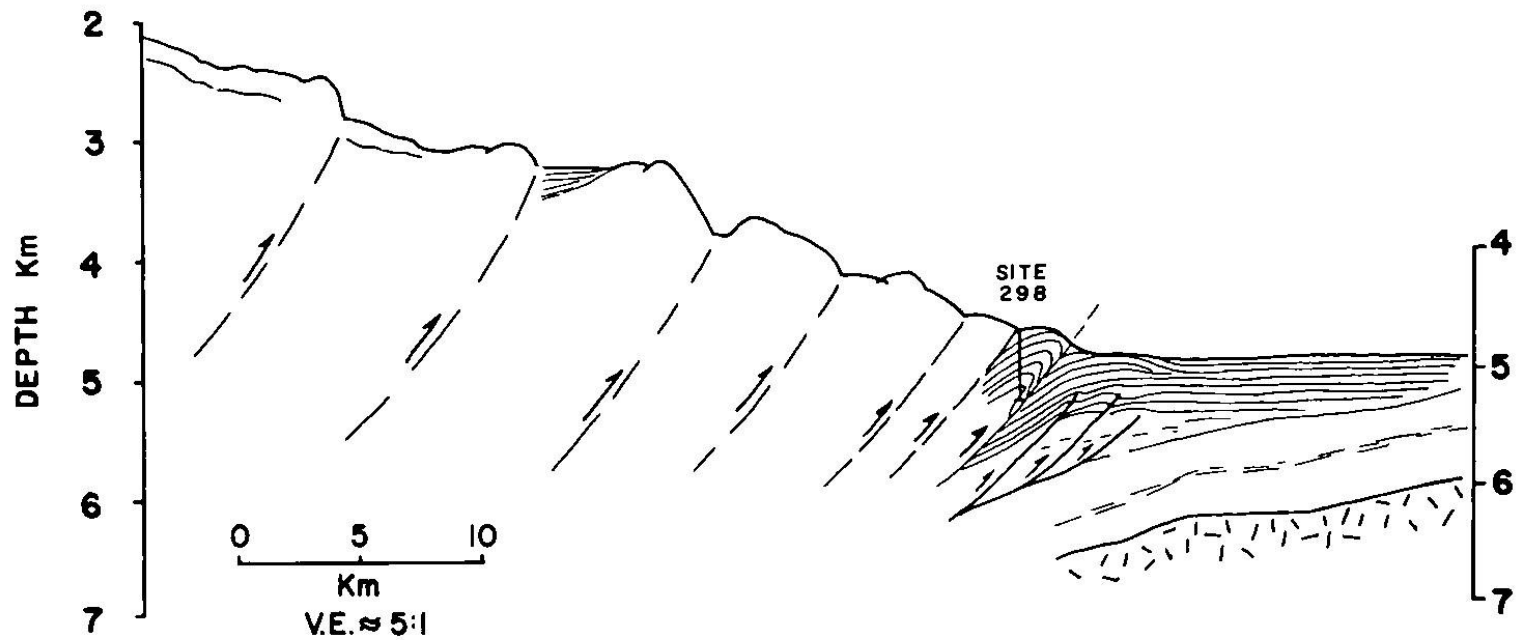
after Kay, 1951

Future Site of New York City



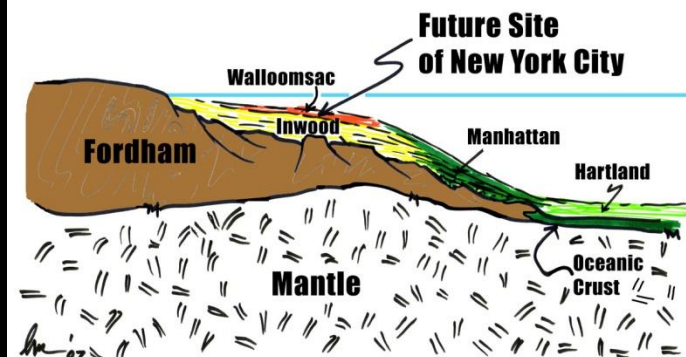
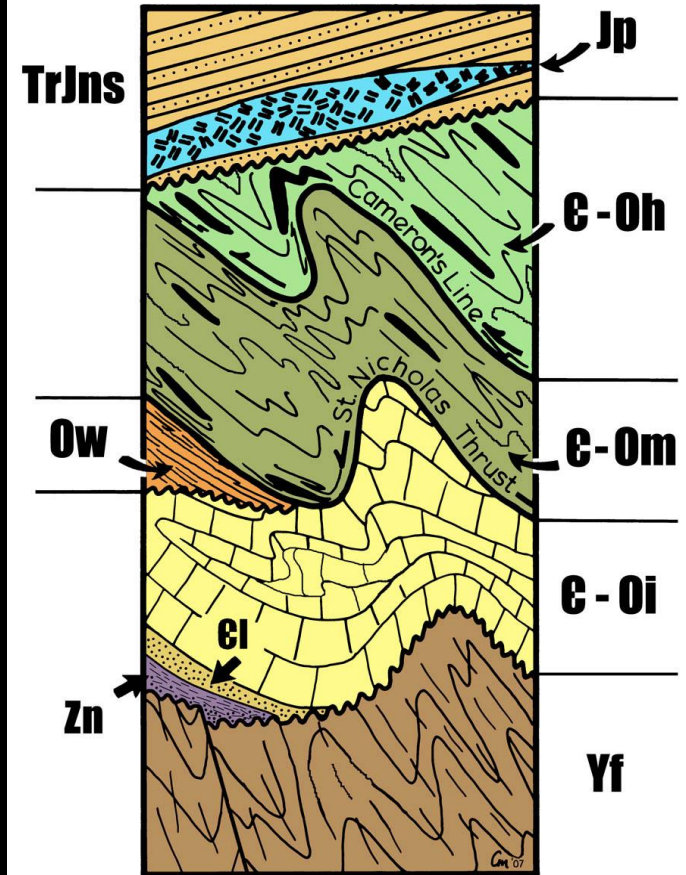
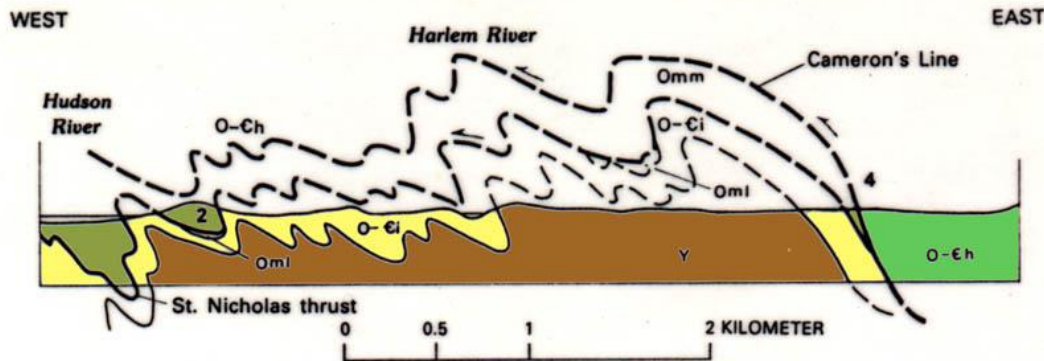
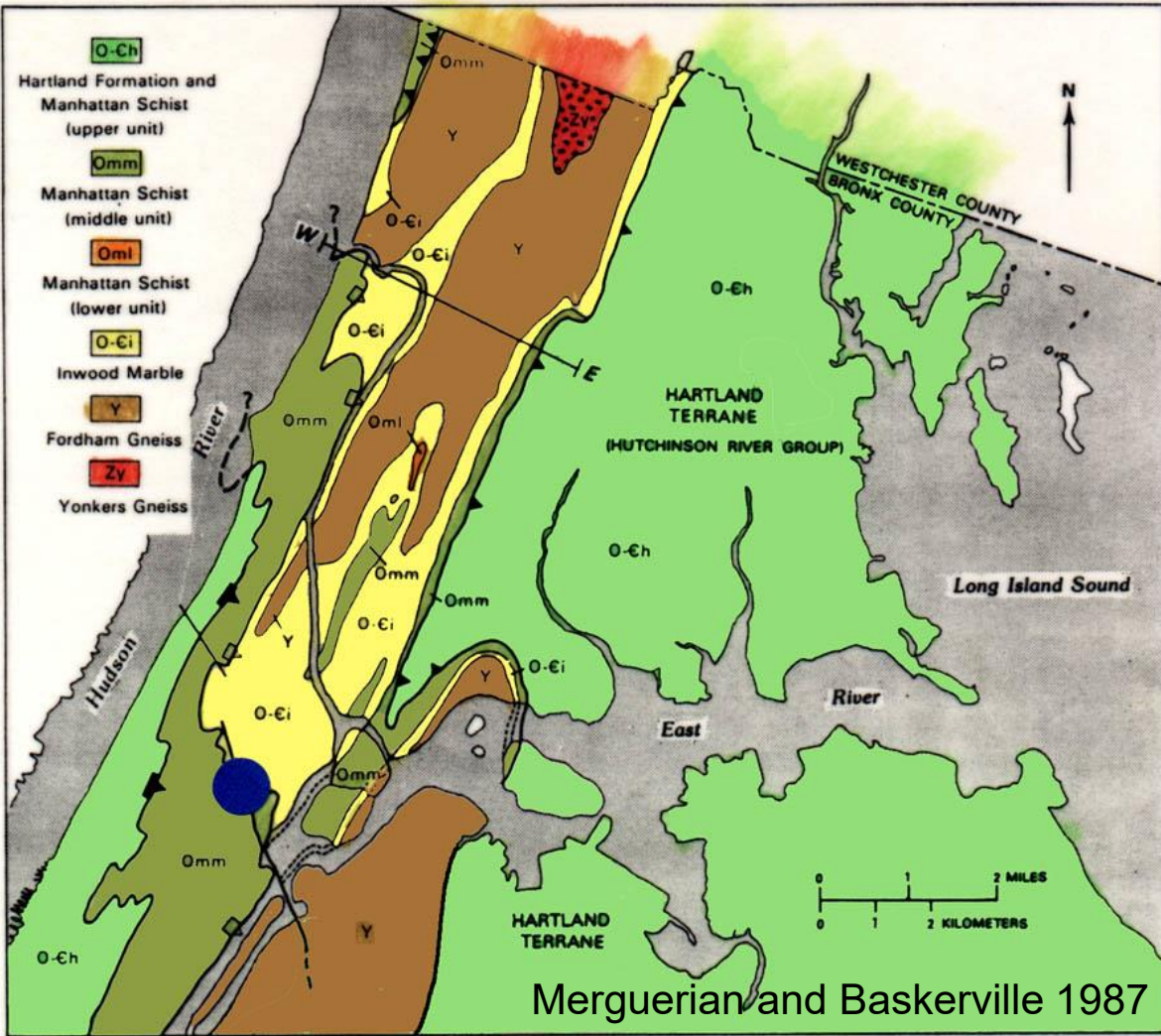
~ 450 Ma Taconian Arc – Passive Margin Collision





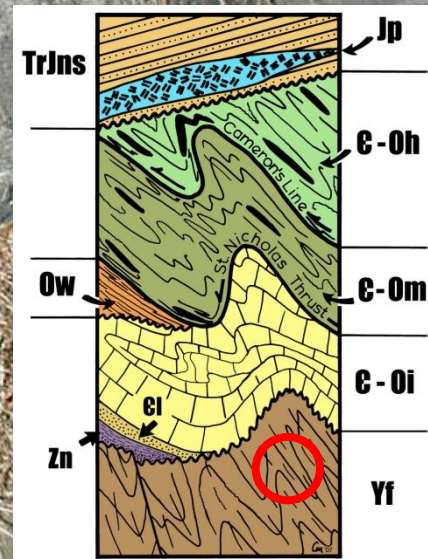
Moore and Karig 1976

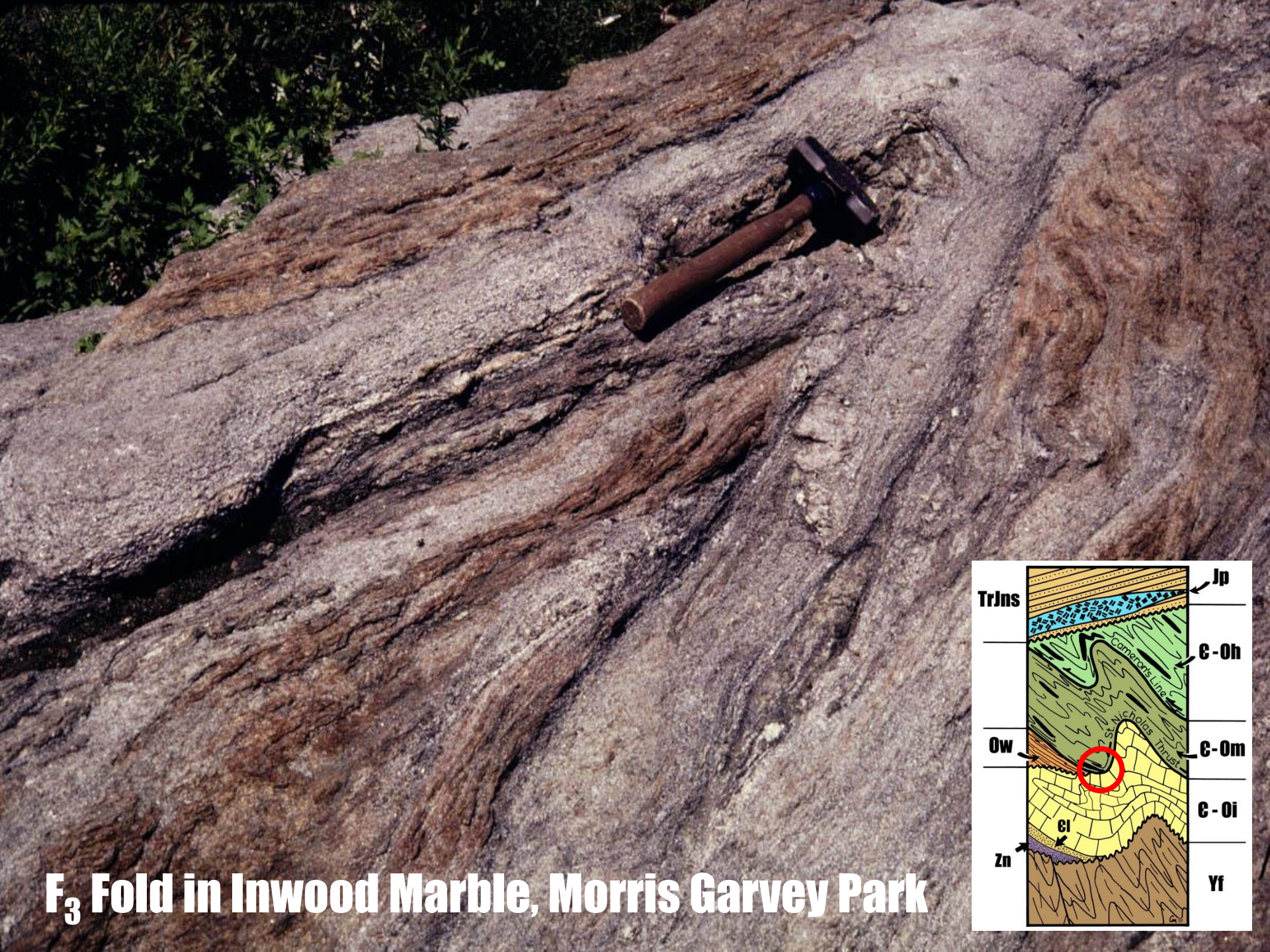
New York City



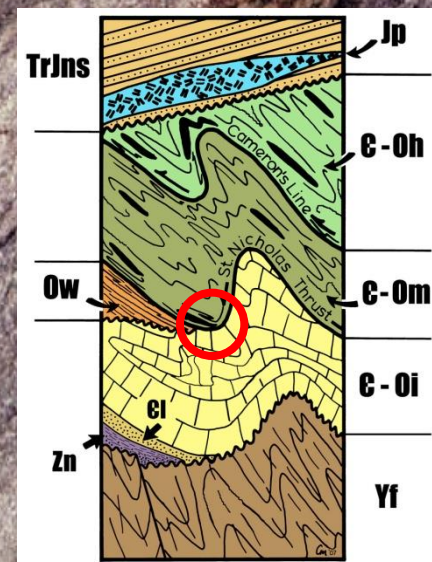


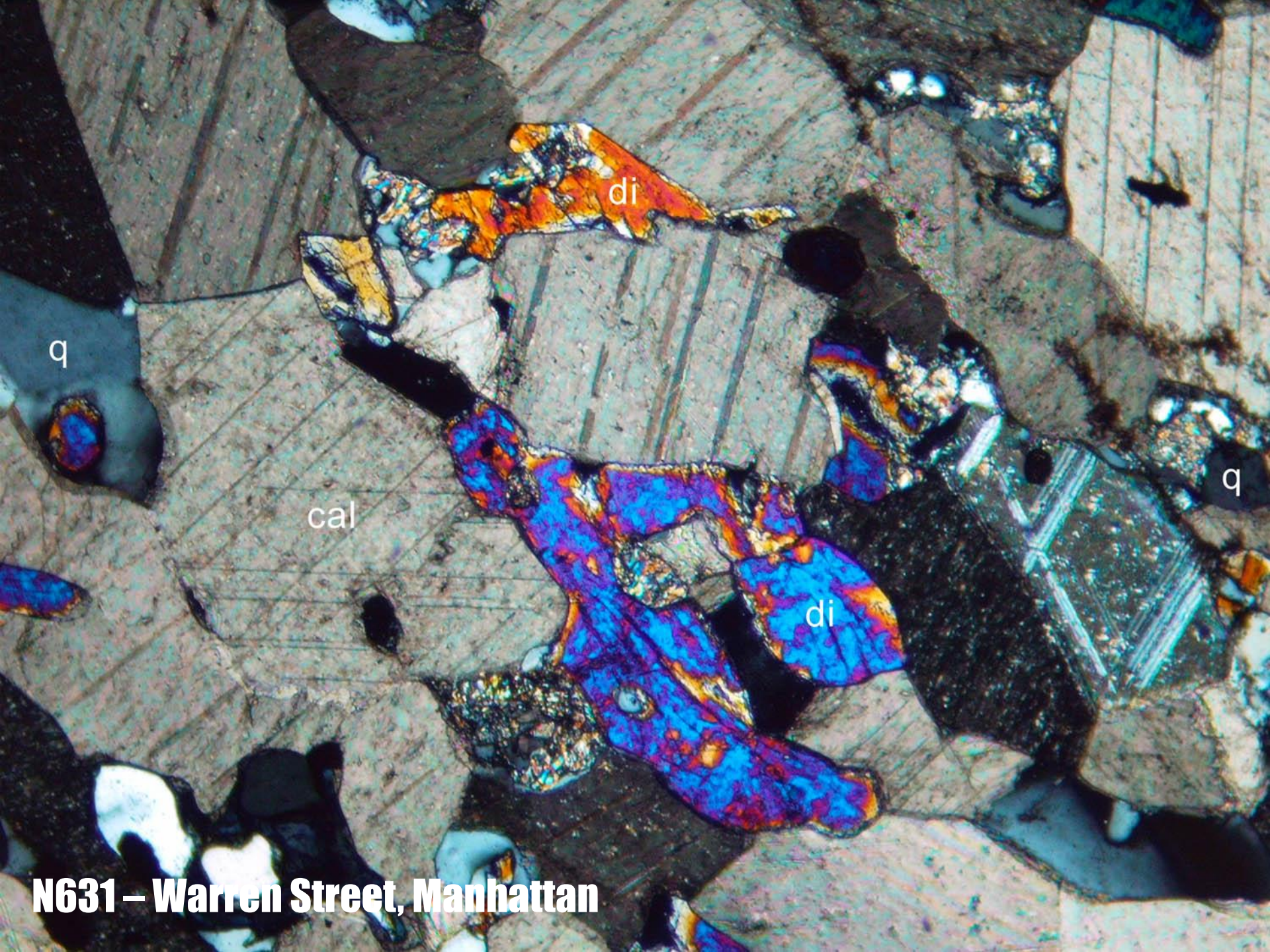
Fordham Gneiss, Echo Park, Bronx



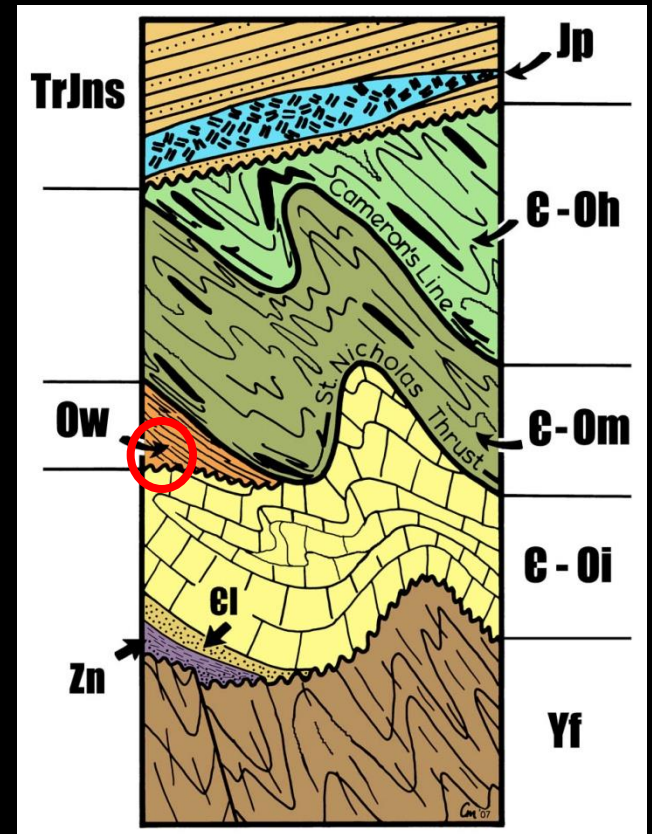


F₃ Fold in Inwood Marble, Morris Garvey Park

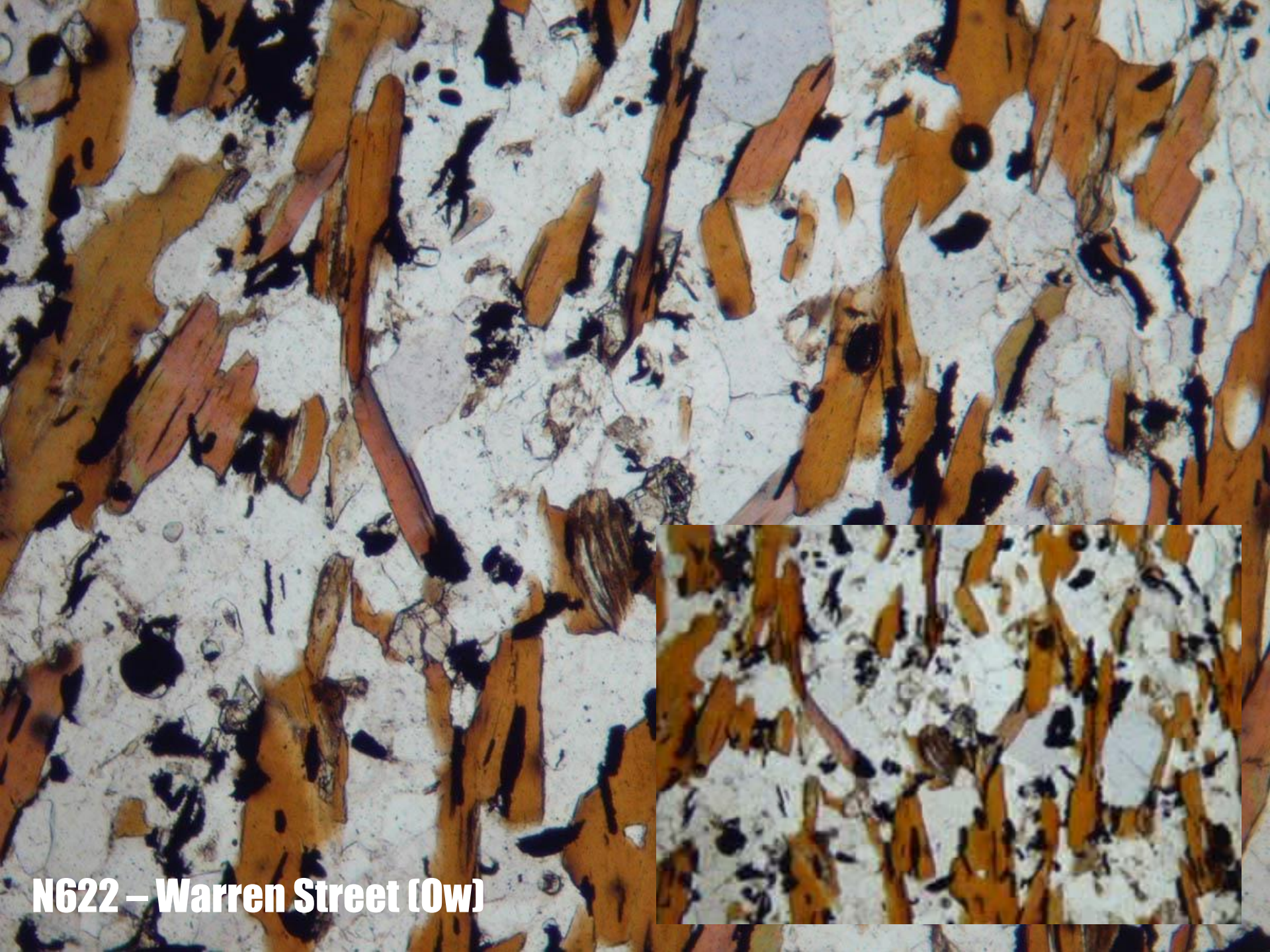




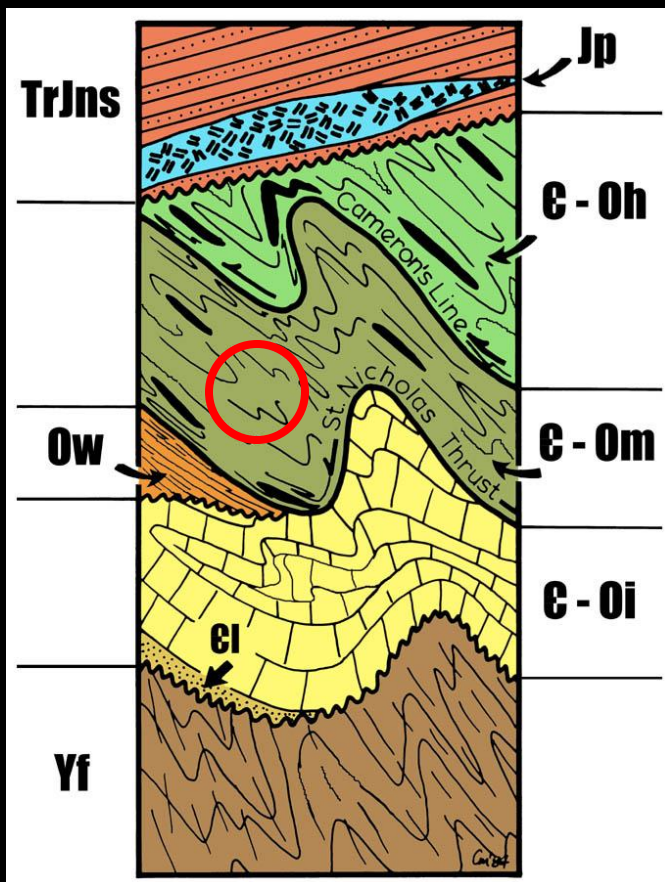
N631 – Warren Street, Manhattan



Walloomsac "Balmville" Contact, Grand Concourse, Bronx, NY



N622 – Warren Street (0w)

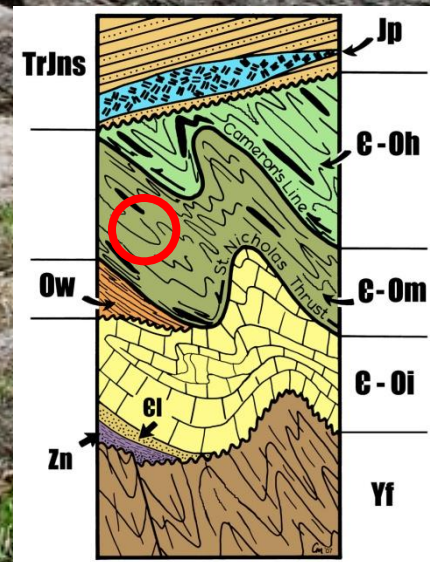


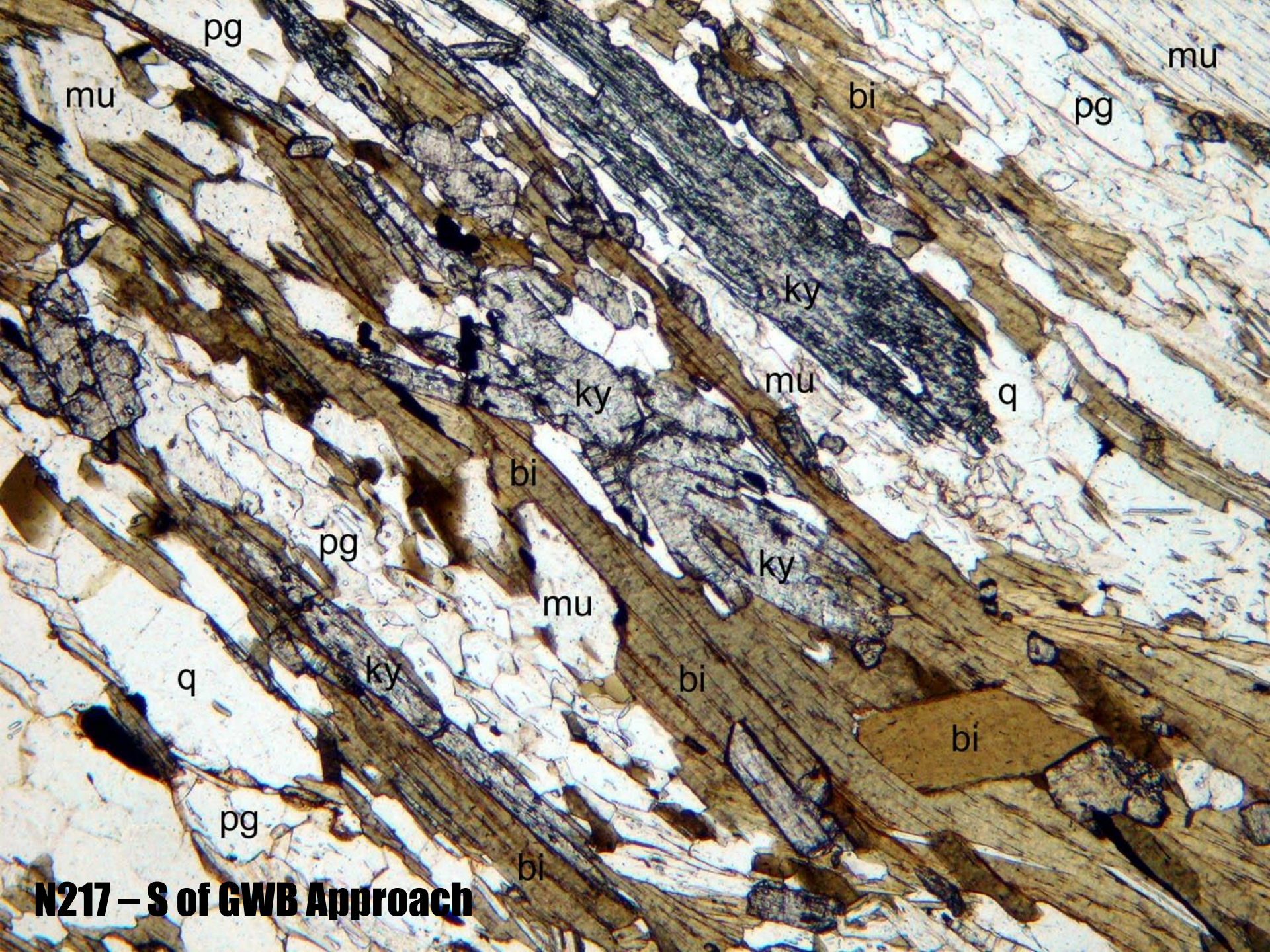
Manhattan Schist
 F_3 Folds of S_2
Central Park, NYC



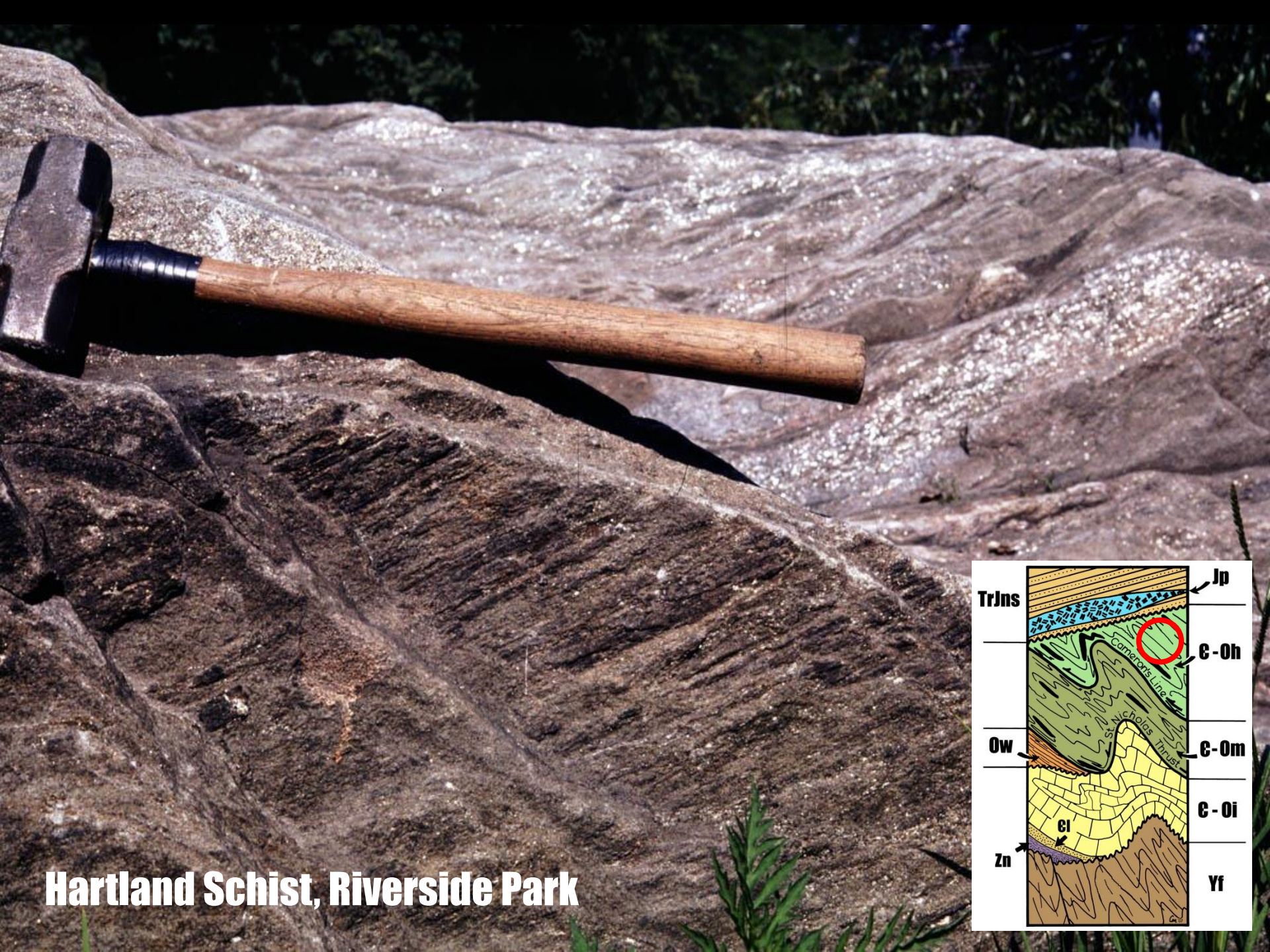


Manhattan Schist, Central Park

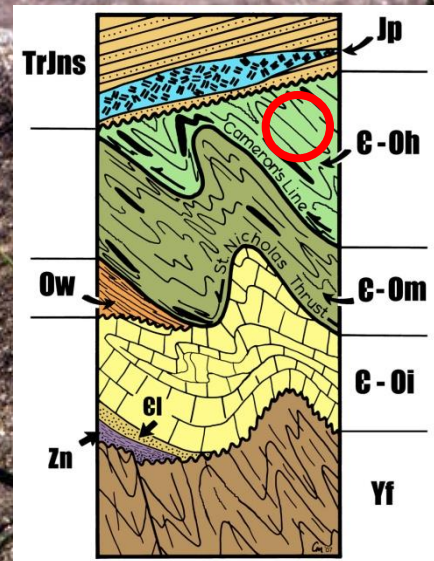


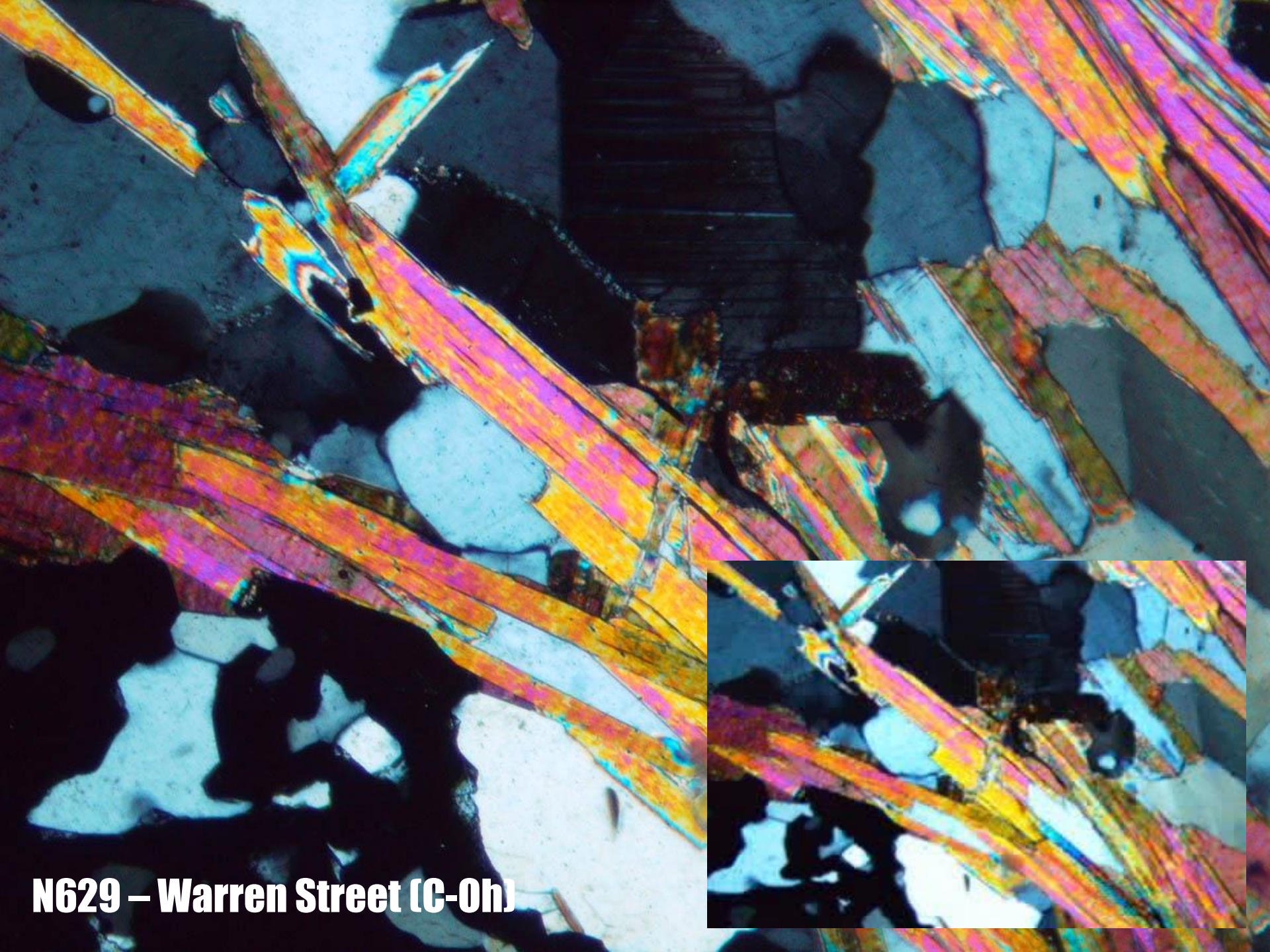


N217 – S of GWB Approach

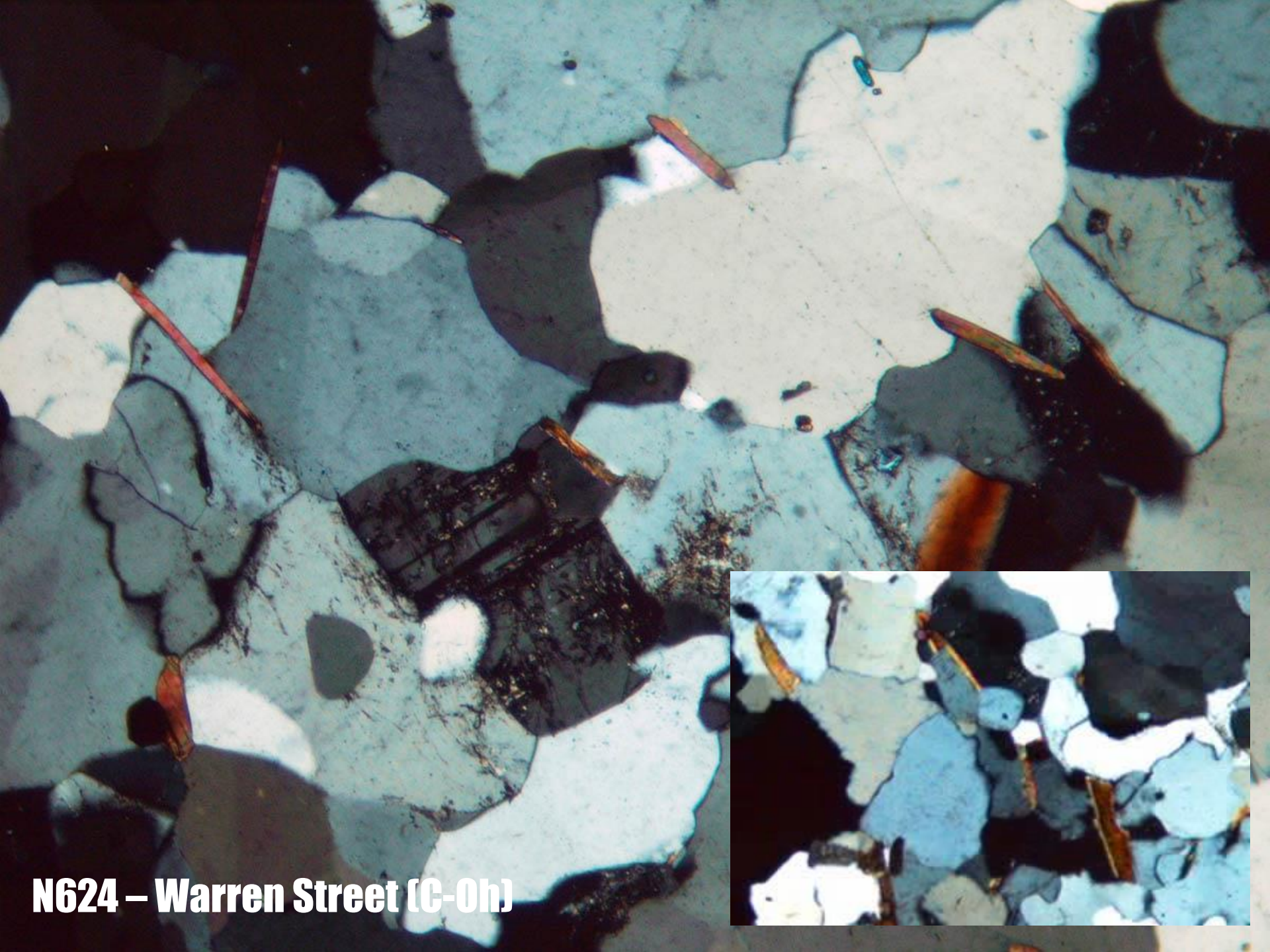


Hartland Schist, Riverside Park

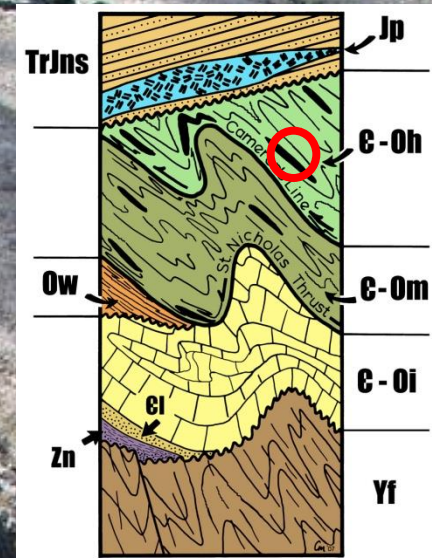




N629 – Warren Street (C-0h)

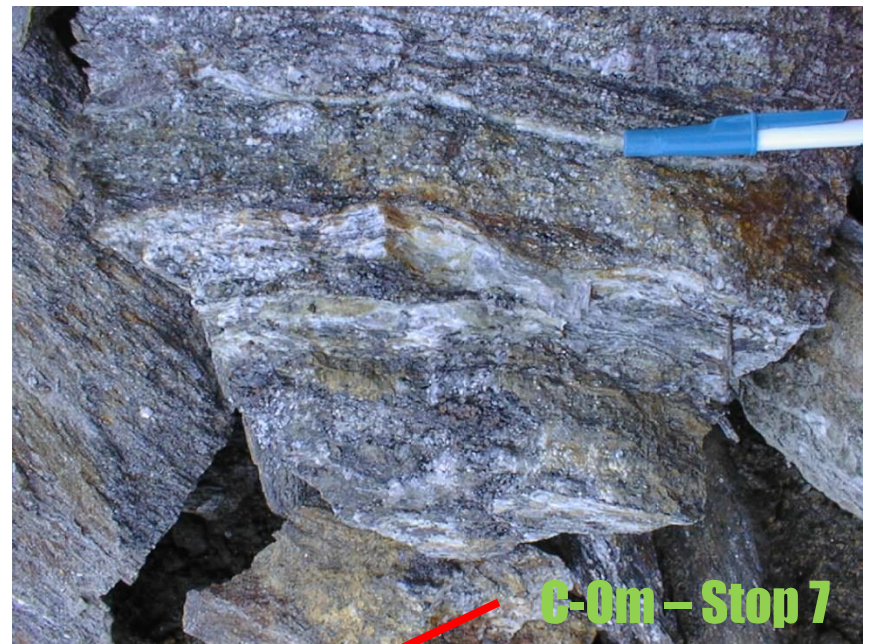
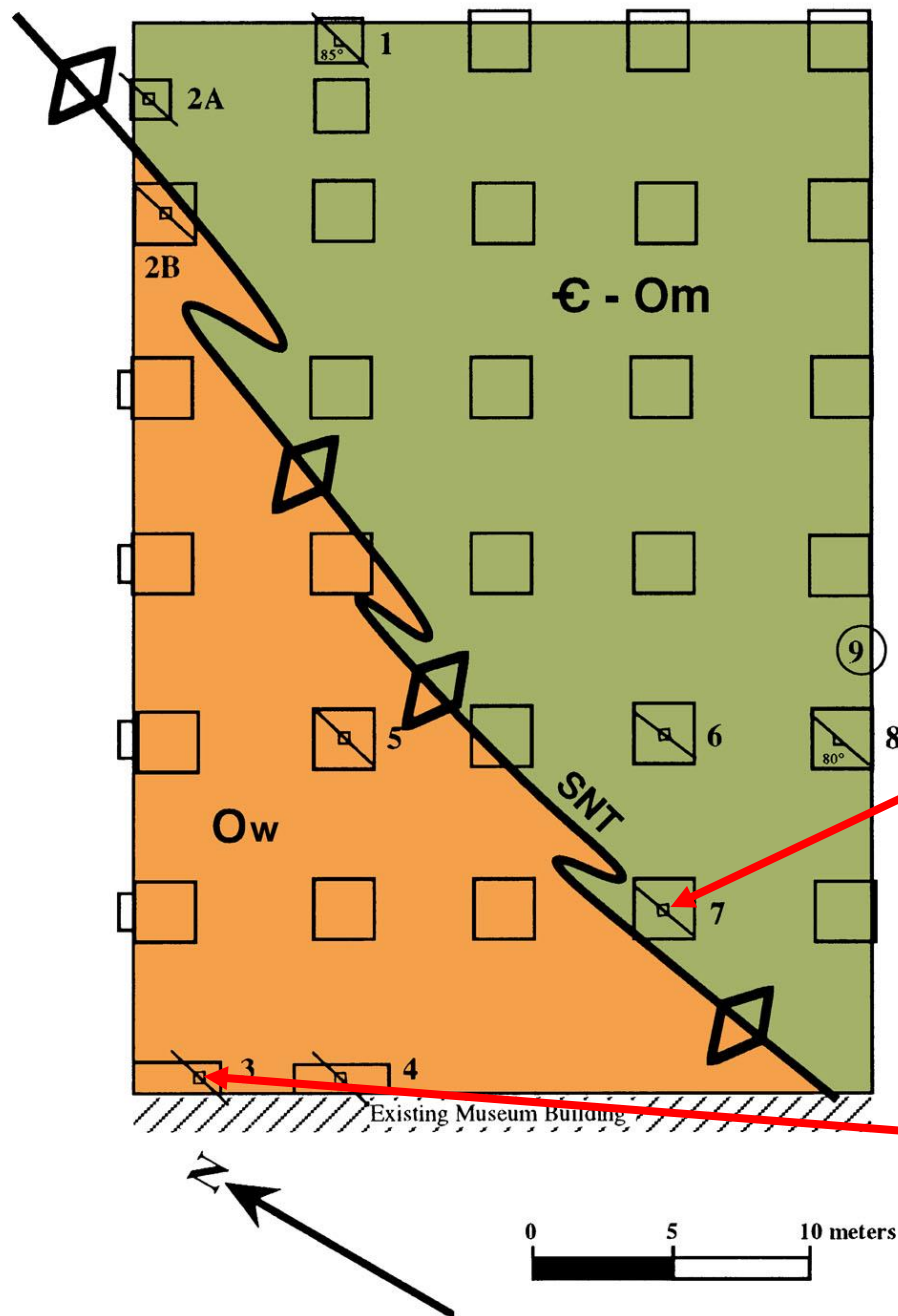


N624 – Warren Street (C-0h)



N567 - Hartland Amphibolite, Central Park

New York Botanical Garden Site N540



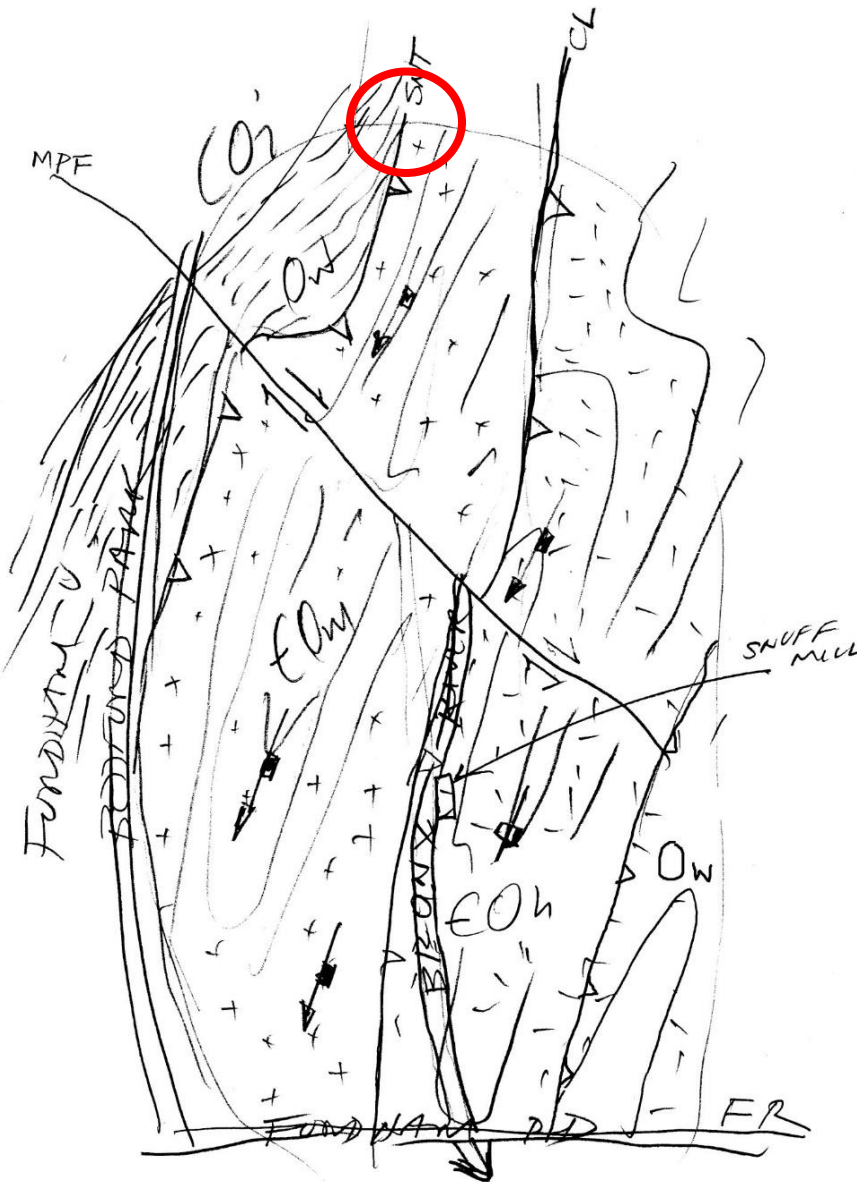
€-Om – Stop 7



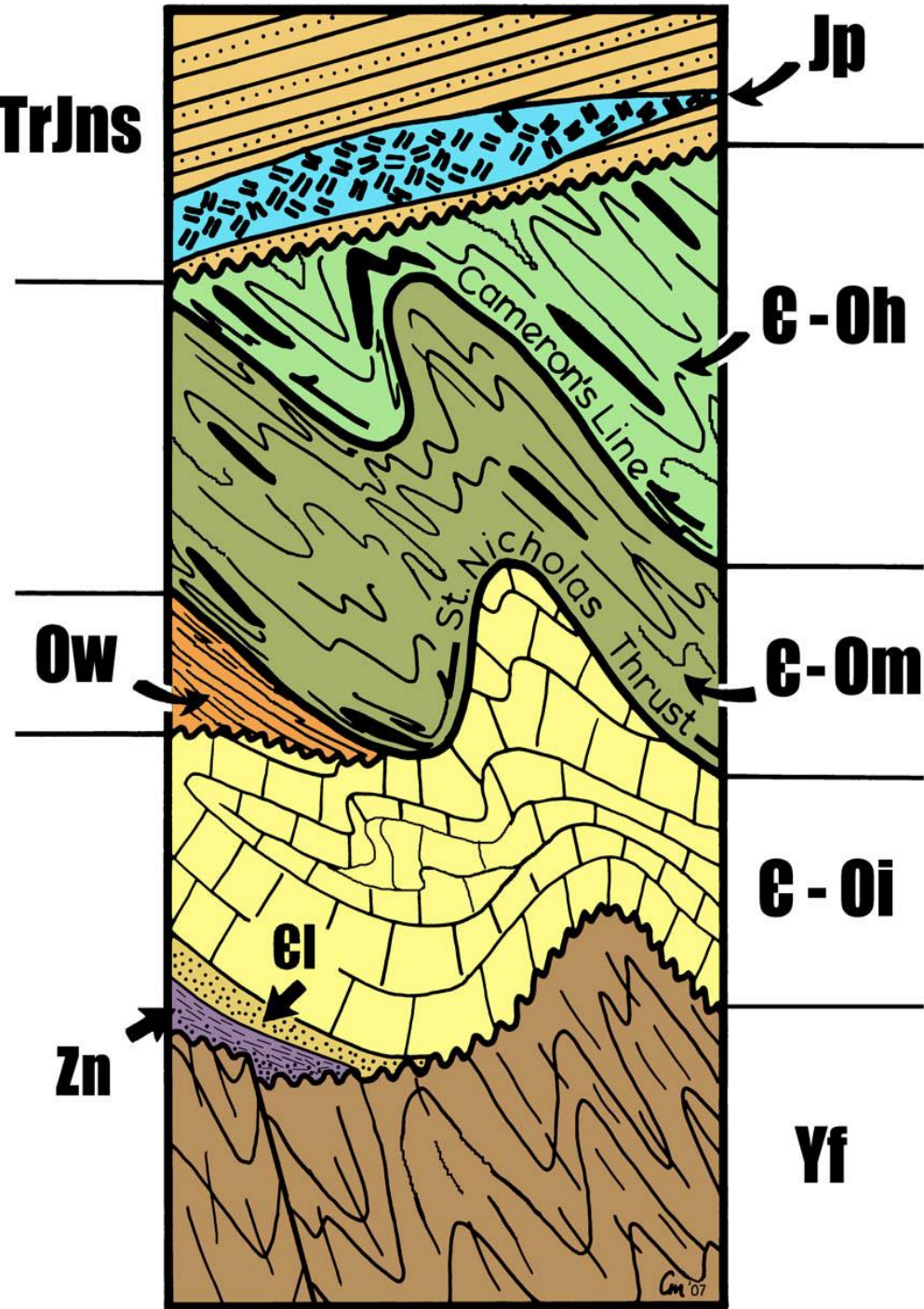
Ow – Stop 3

Merguerian and Sanders 1998

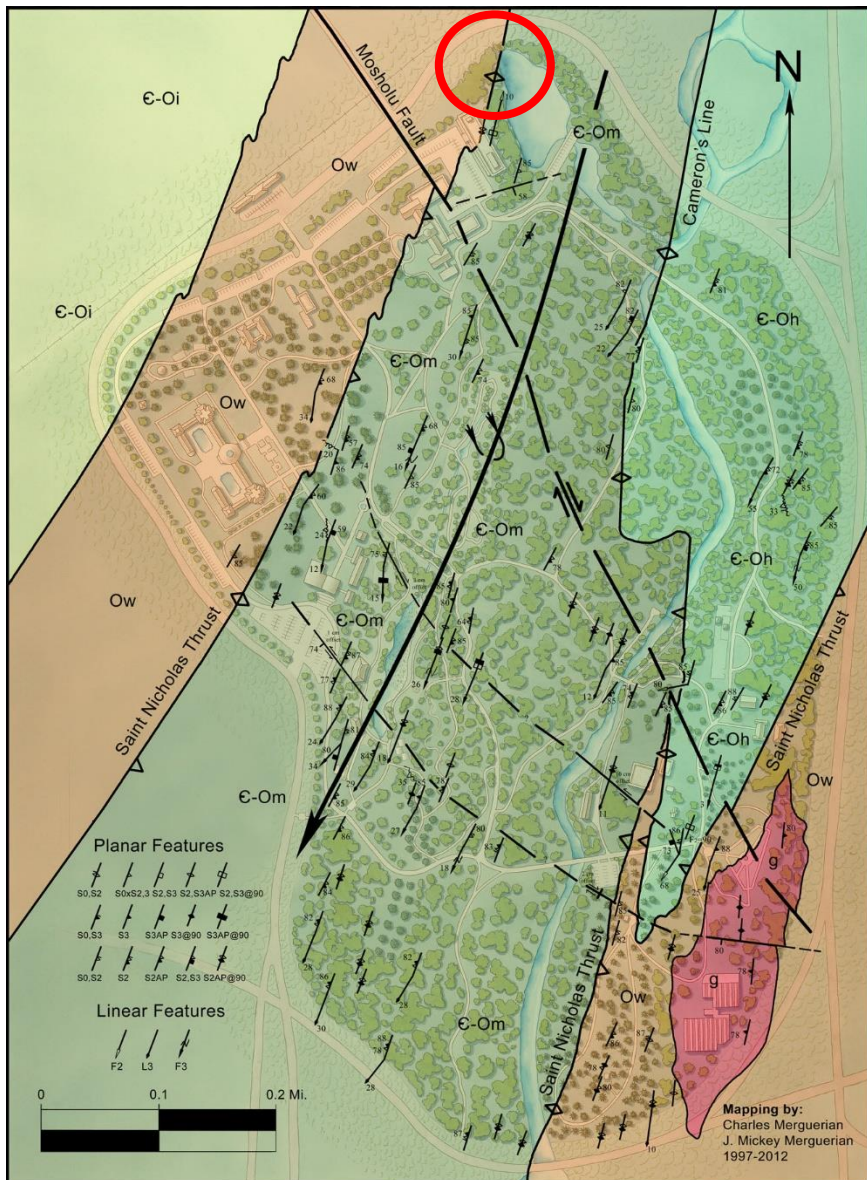
NY Botanical Garden Mapping Project 2011



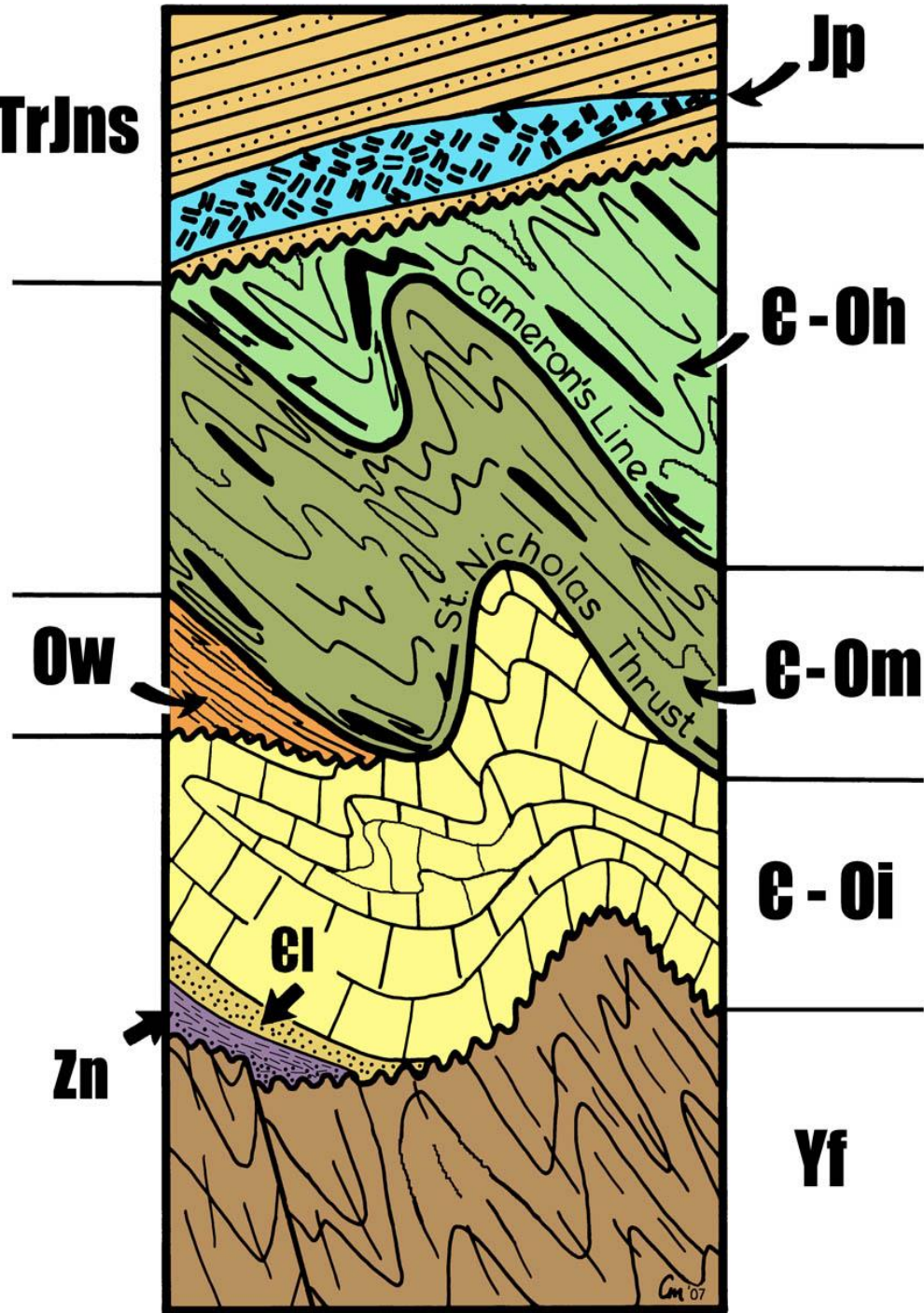
TrJns



NY Botanical Garden Mapping Project 2011



TrJns





Stop 38 – C-0m with Ky nubs



Stop 64 – C-0m Migmatite Gneiss w/ Gt and Ky



Stop 63 – C-0m Amphibolite F₃ Parasitic Fold



Stop 81 – C-0h F₂ Fold



Stop 84 – C-0h cut by late syn-tectonic pegmatite



Stop 3 – Roche Moutonnee in C-Oh



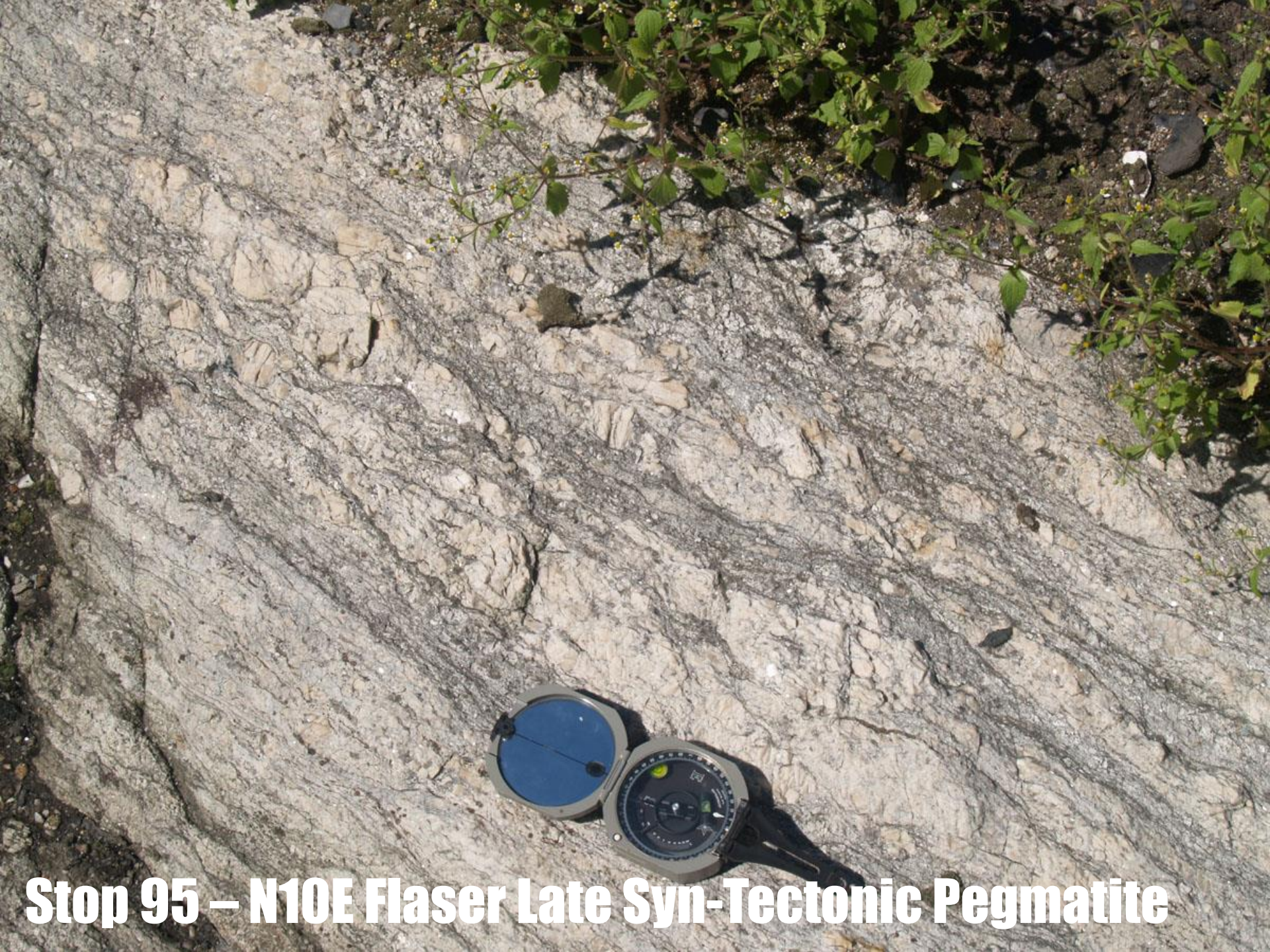
Stop 105 – 0w (Walloomsac + g)



Stop 105 – Garnetiferous Granitoid cutting Ow

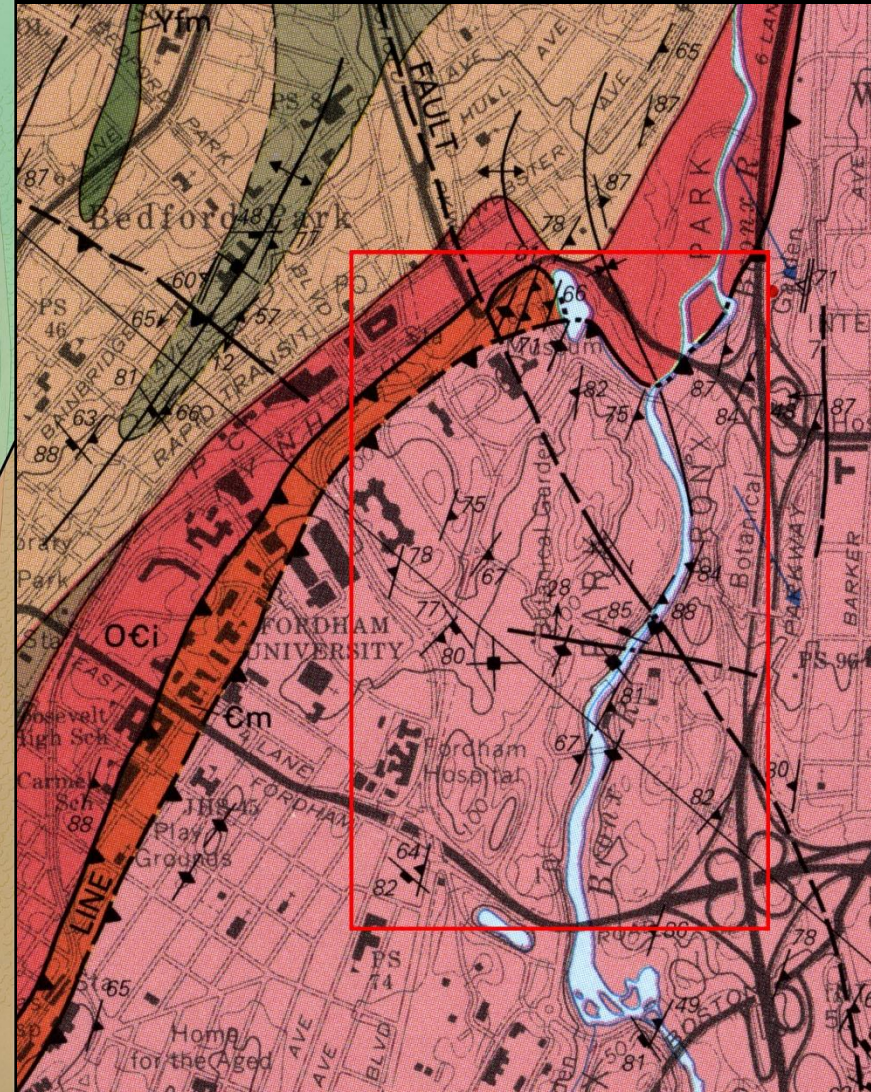
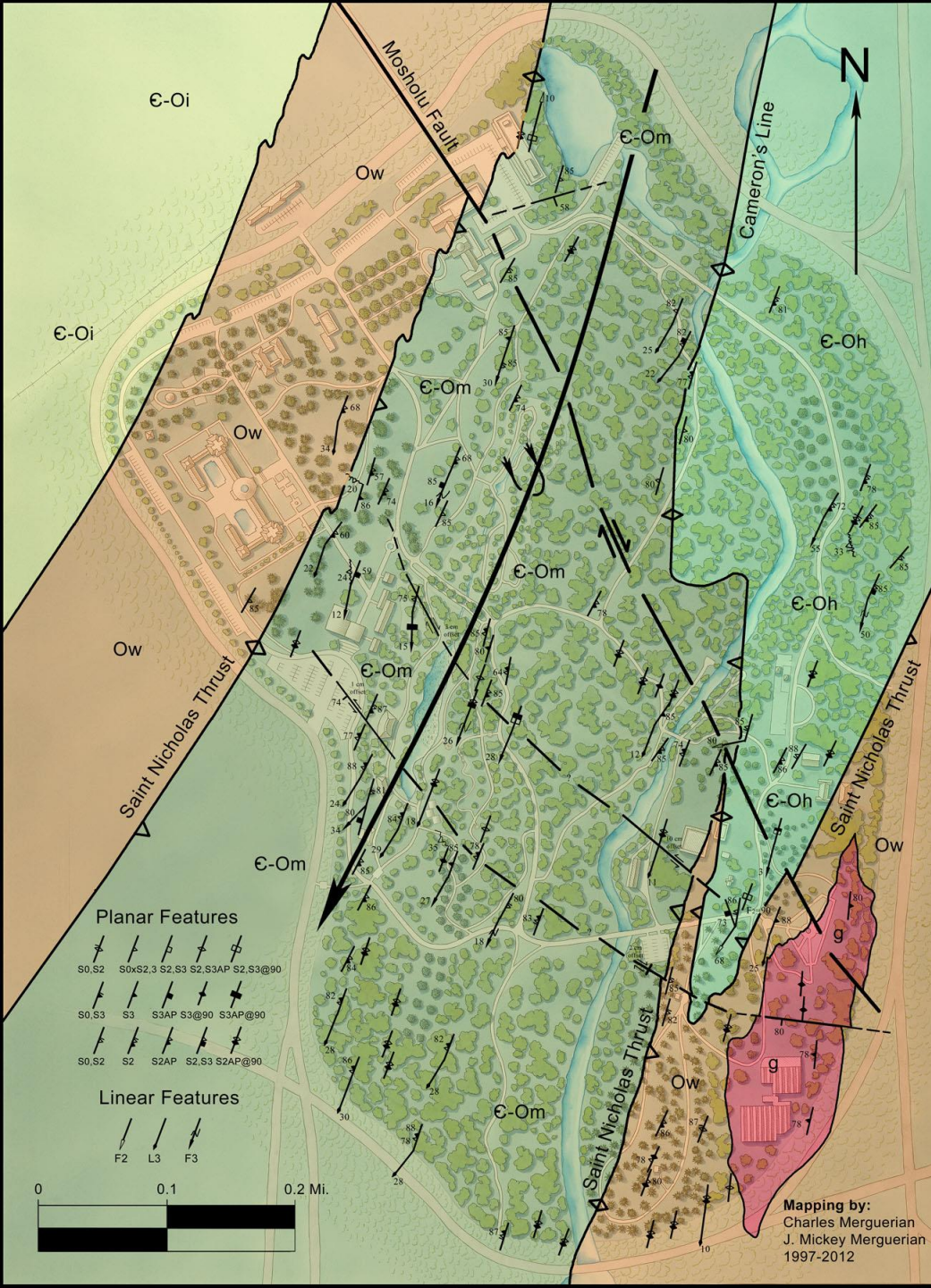


Stop 106 – Sheared Ow (Walloomsac)

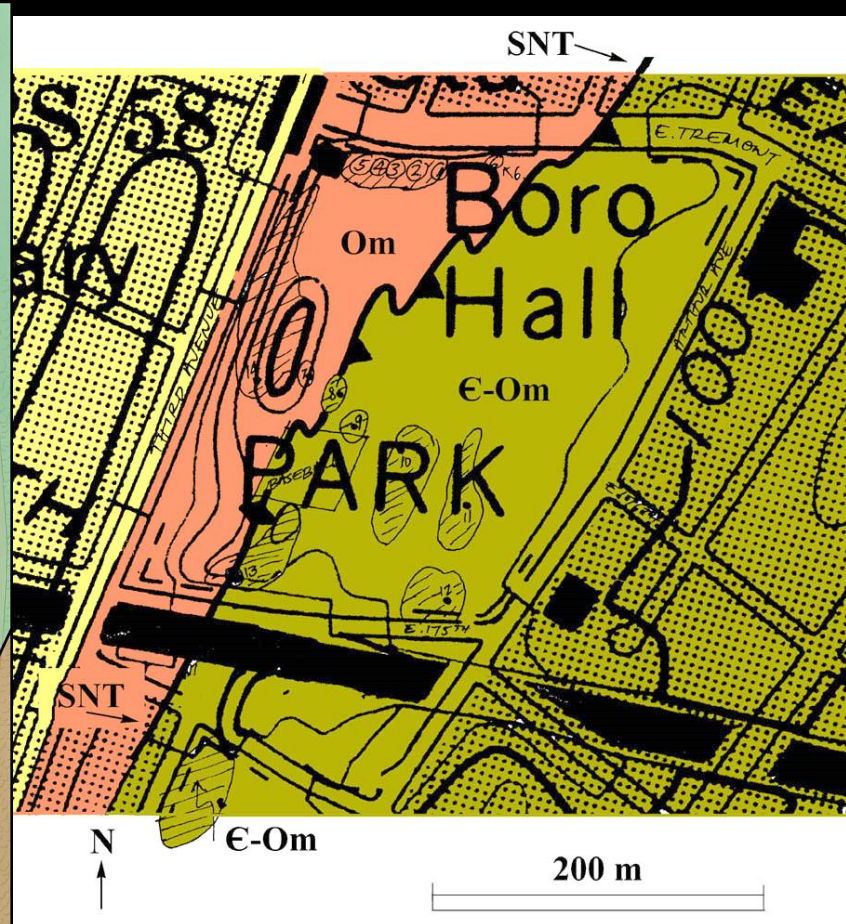
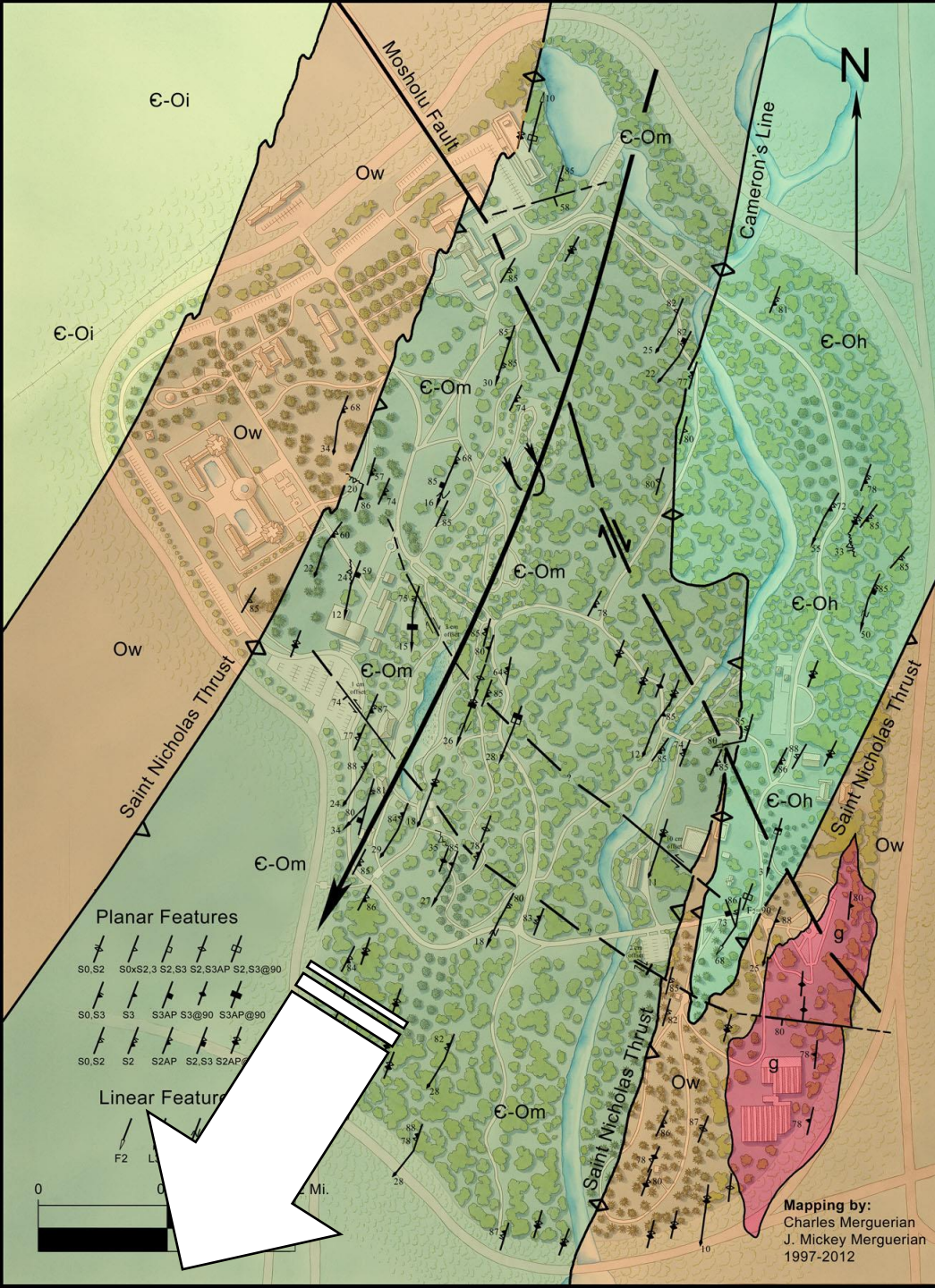


Stop 95 – N10E Flaser Late Syn-Tectonic Pegmatite

NY Botanical Garden



Baskerville 1992



**Synformal Sequence
Extends SW –
Wallomsac crops out
3 km SW in Boro Hall
and Crotona parks**

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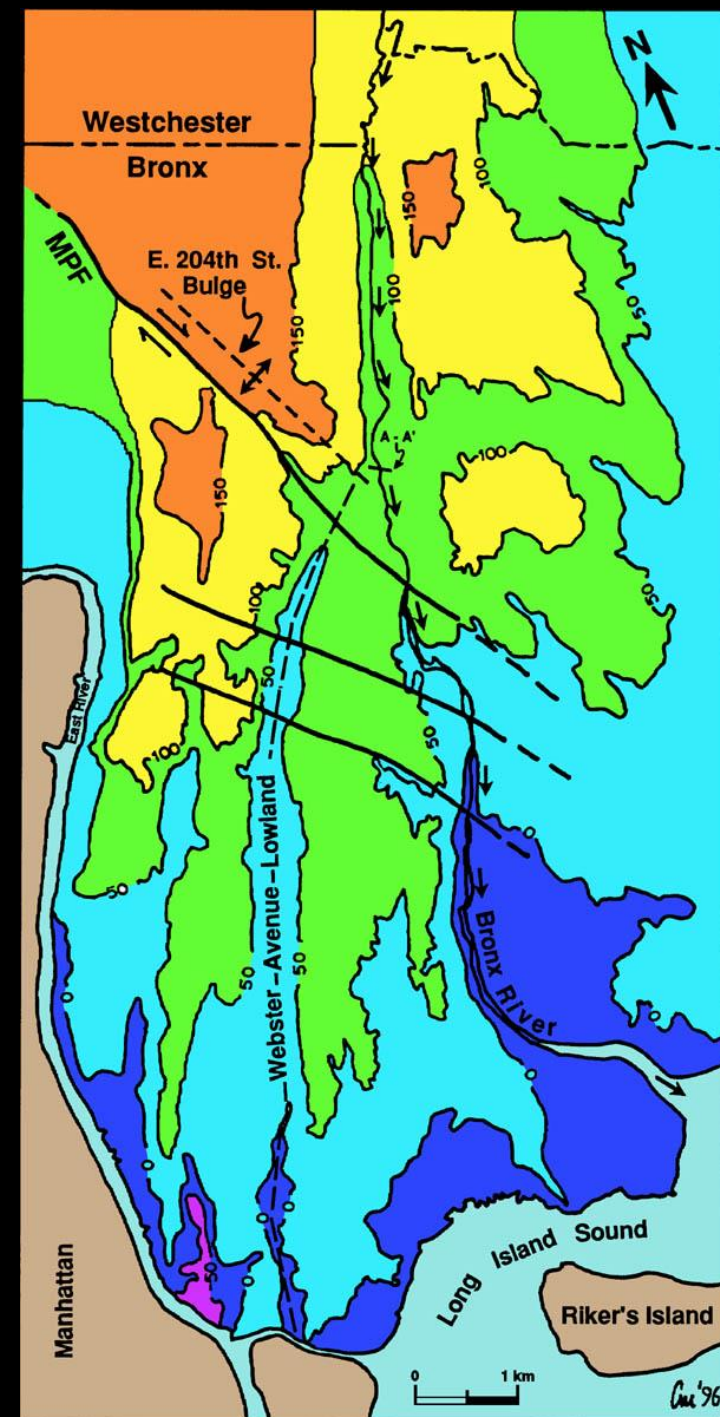
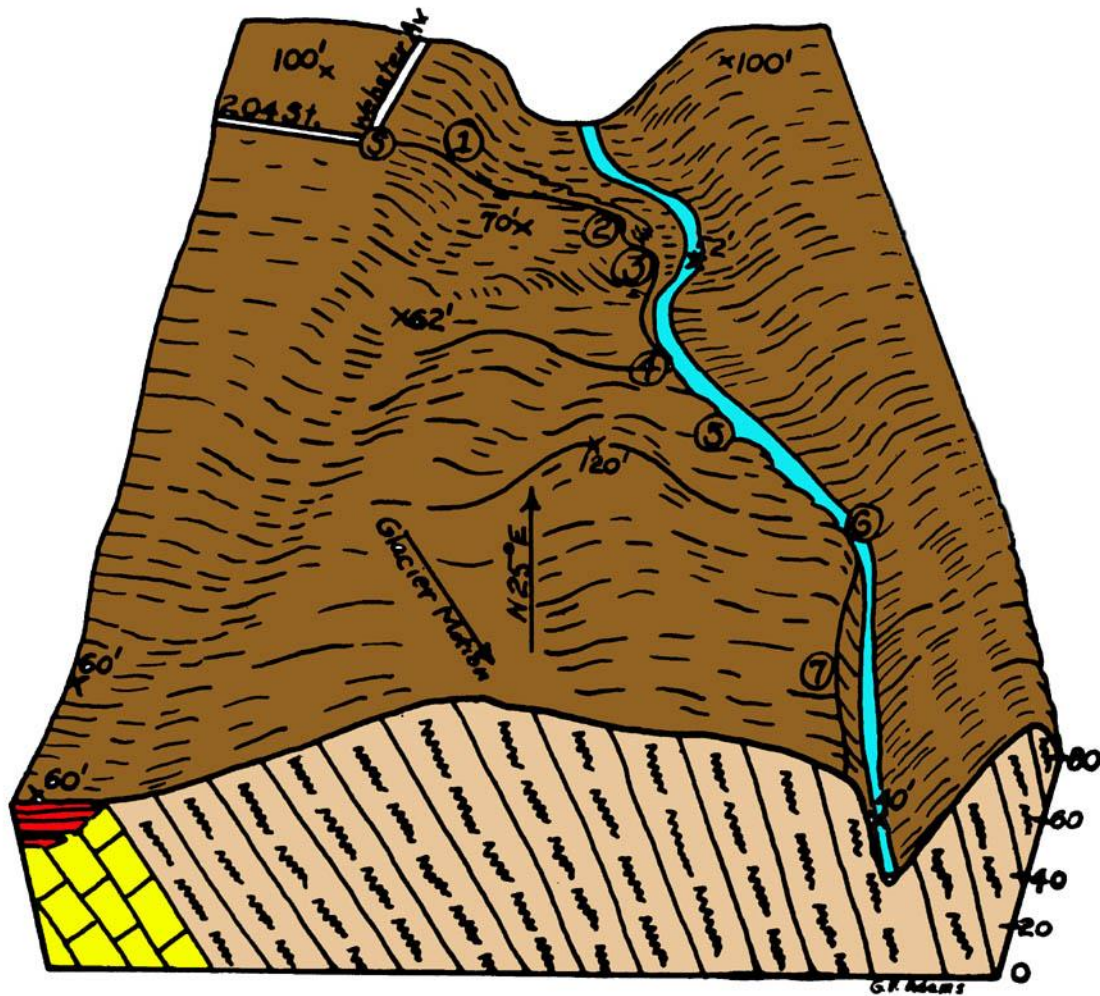
**What's That
Noise?**

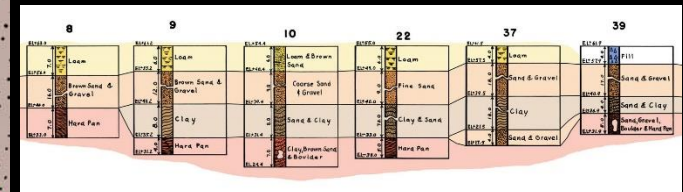
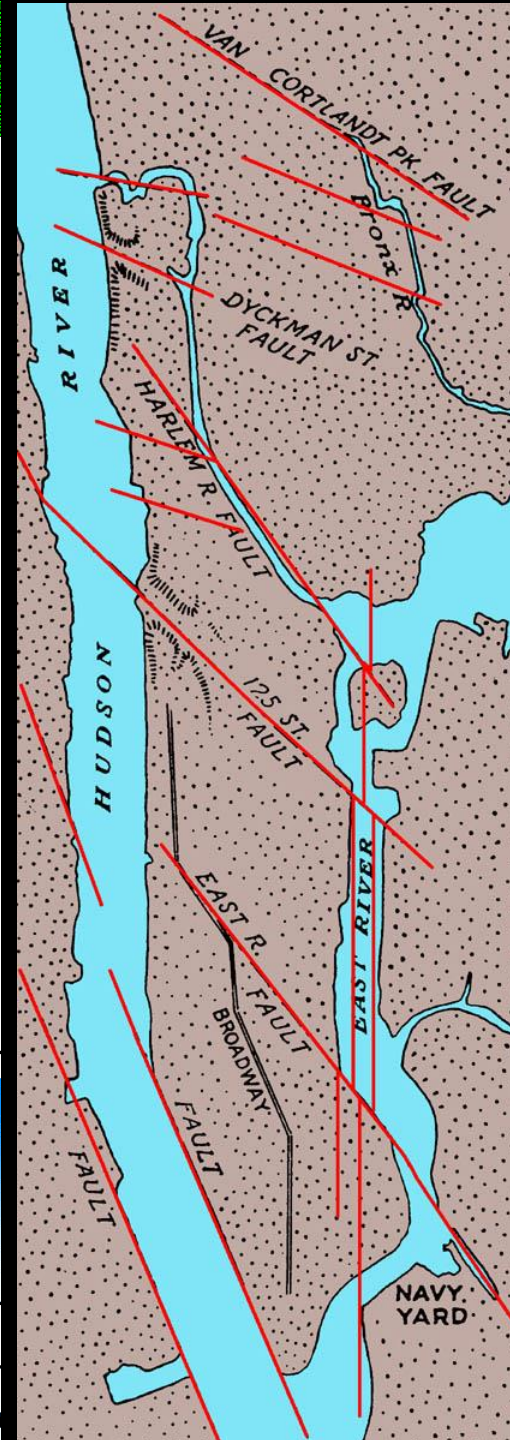
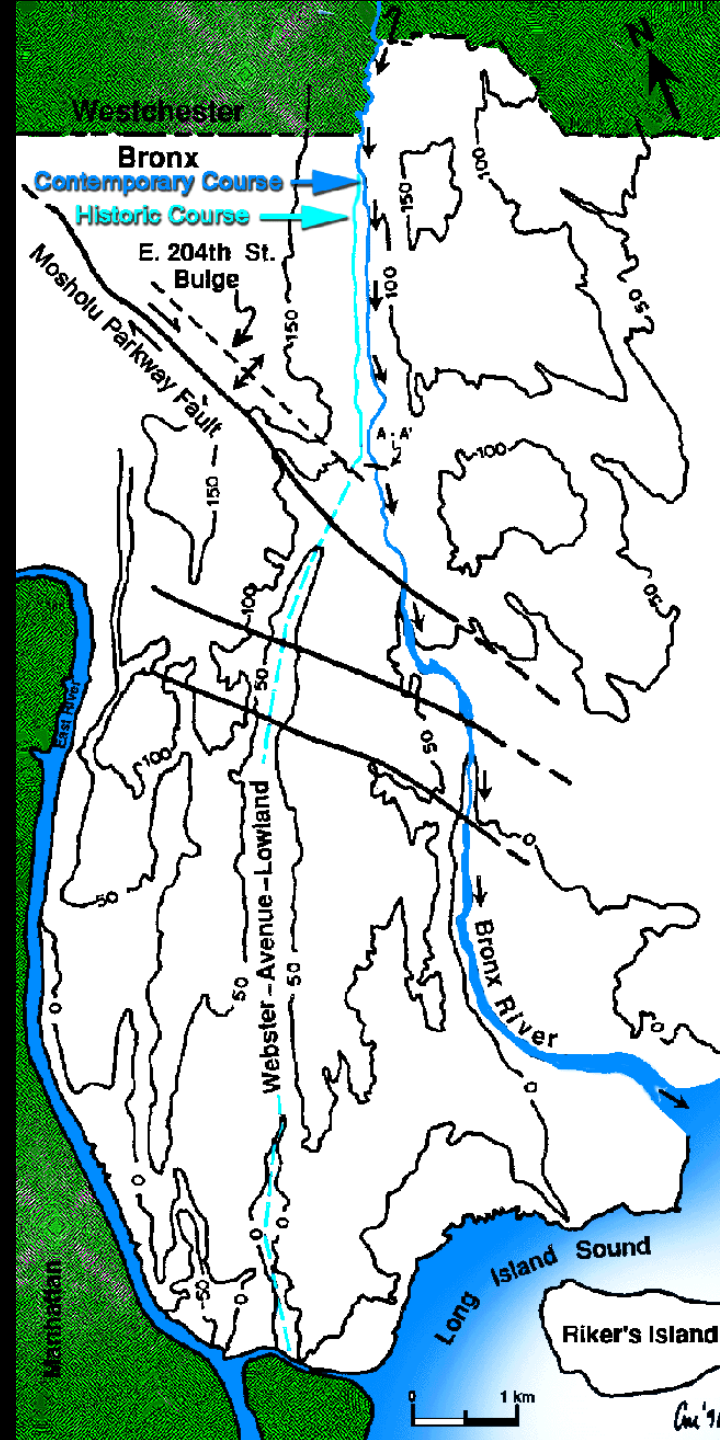


Queens Tunnel

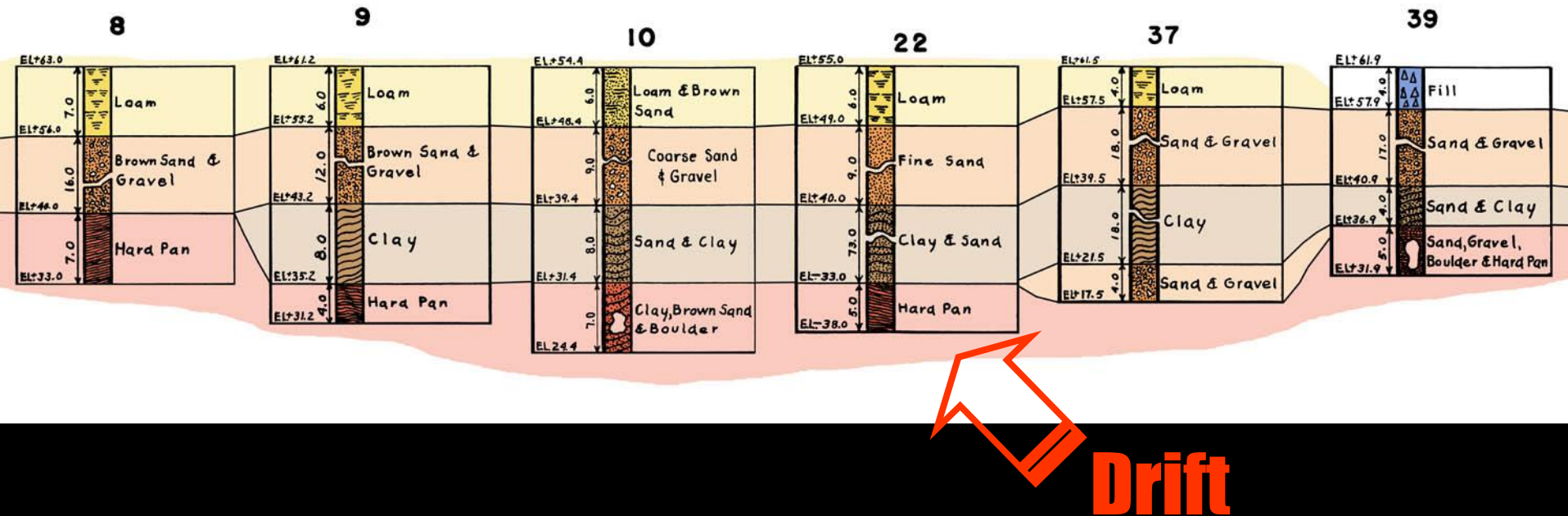
Bronx River

Drainage Anomaly

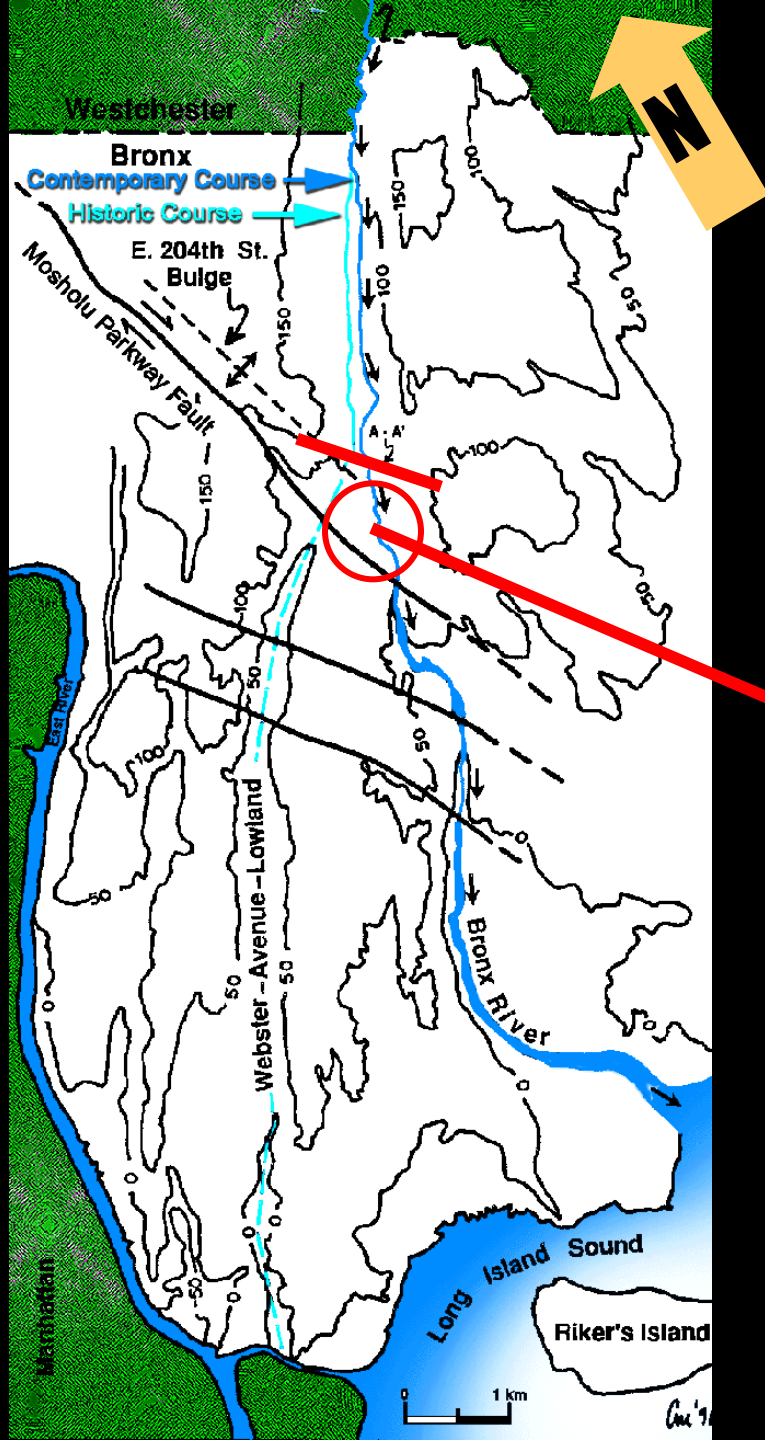




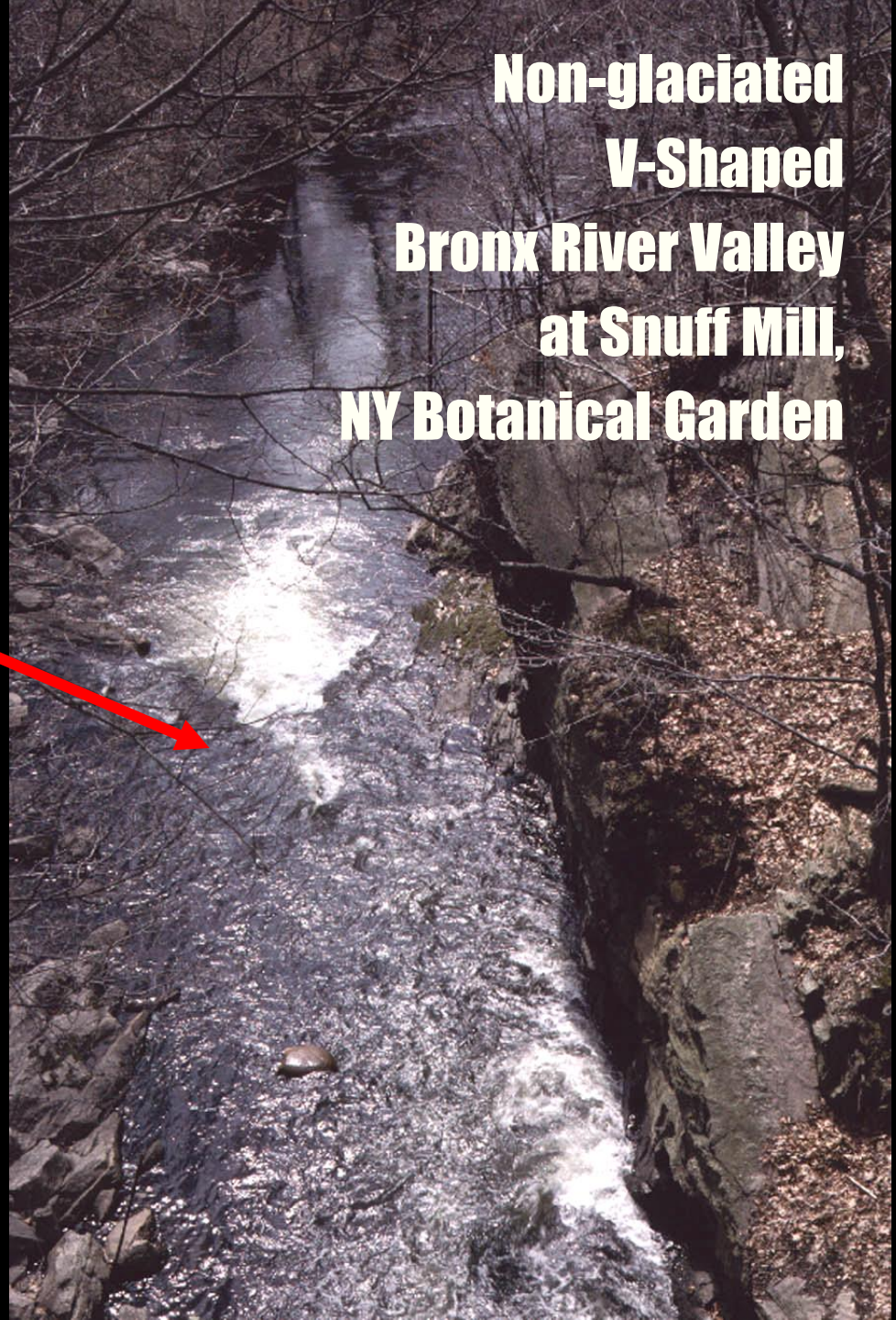
Burke Avenue Profile – Bronx WPA

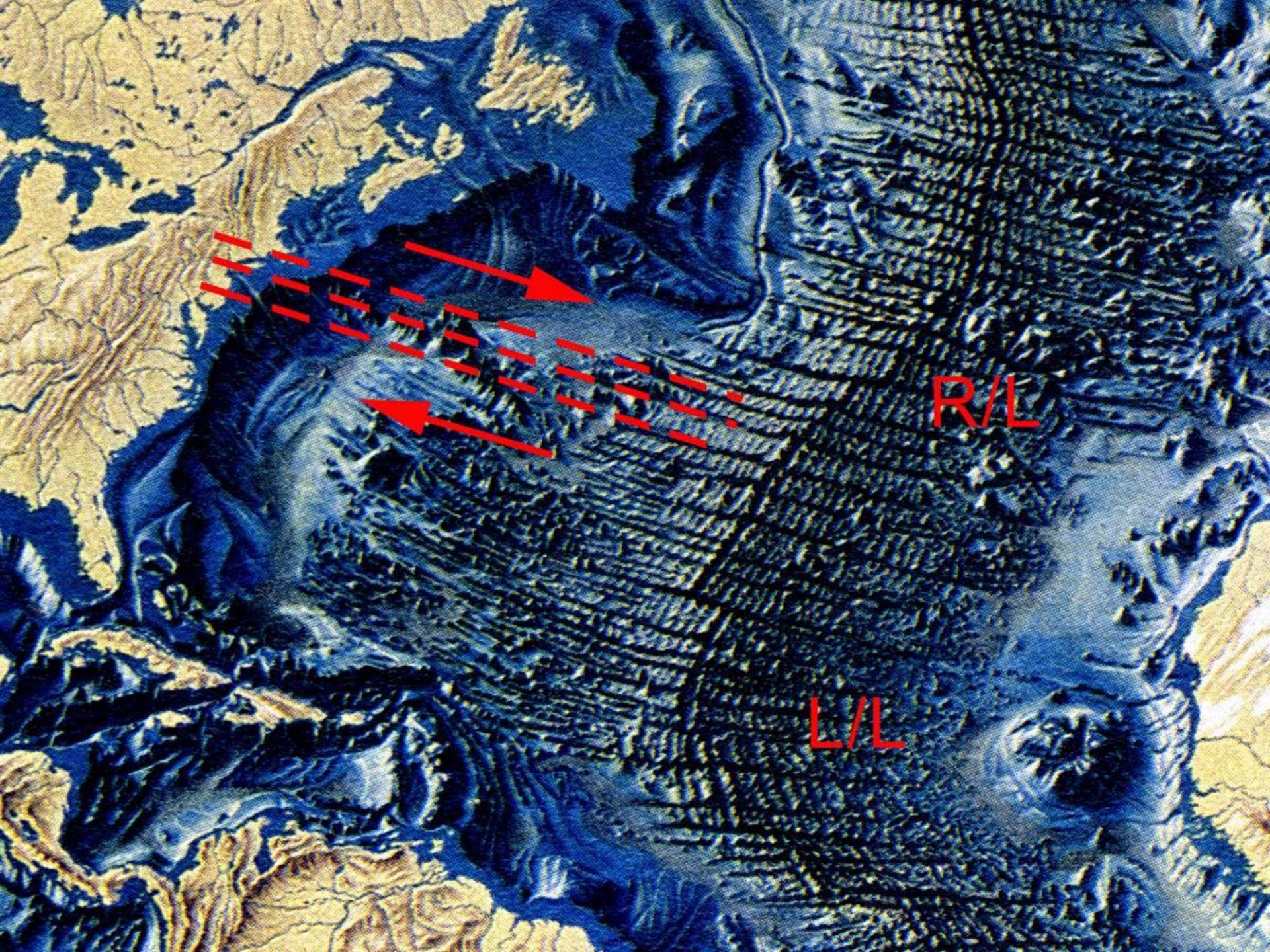


Lake Strata Overlie Glacial Drift (Till) in WPA Borings!!!
Supports Merguerian and Sanders 1998 hypothesis
that diversion of Bronx River was post-glacial



**Non-glaciated
V-Shaped
Bronx River Valley
at Snuff Mill,
NY Botanical Garden**





R/L

L/L