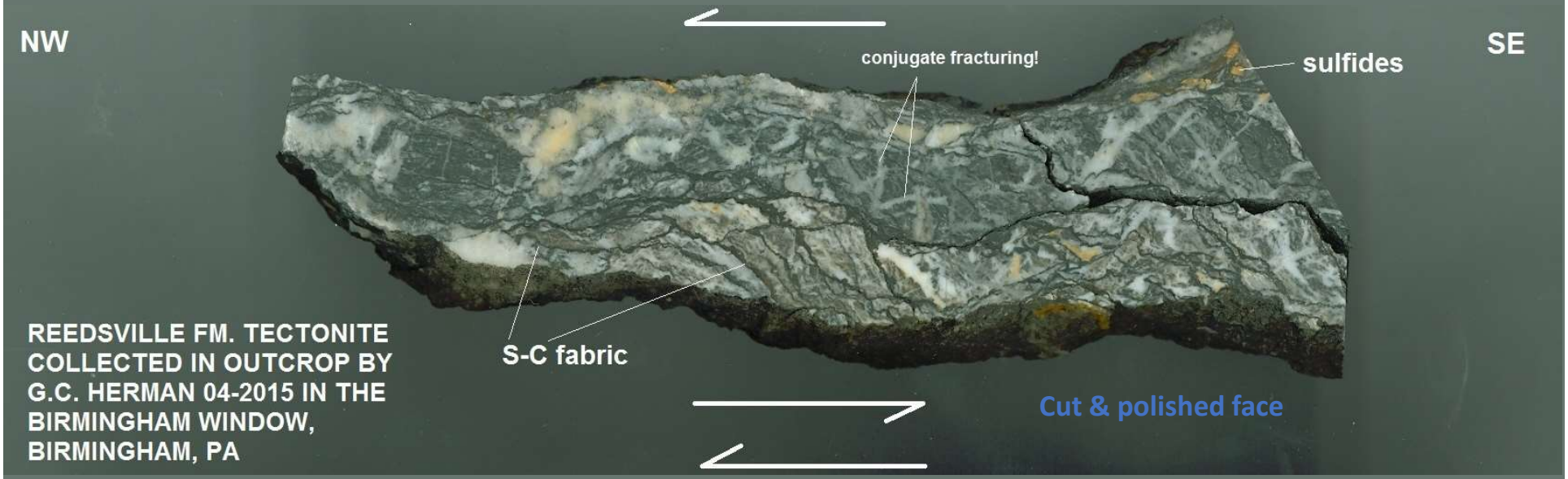
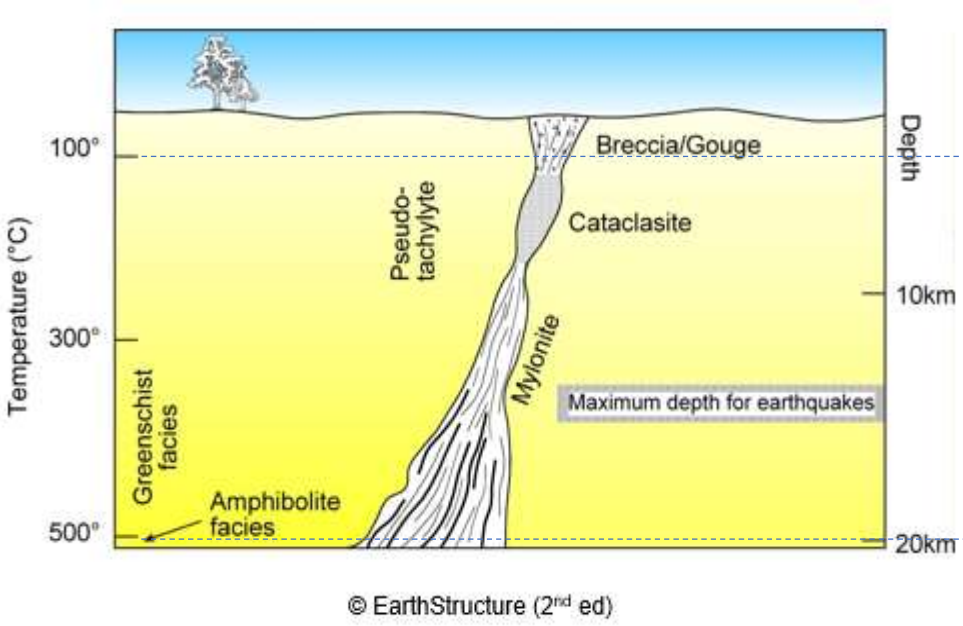
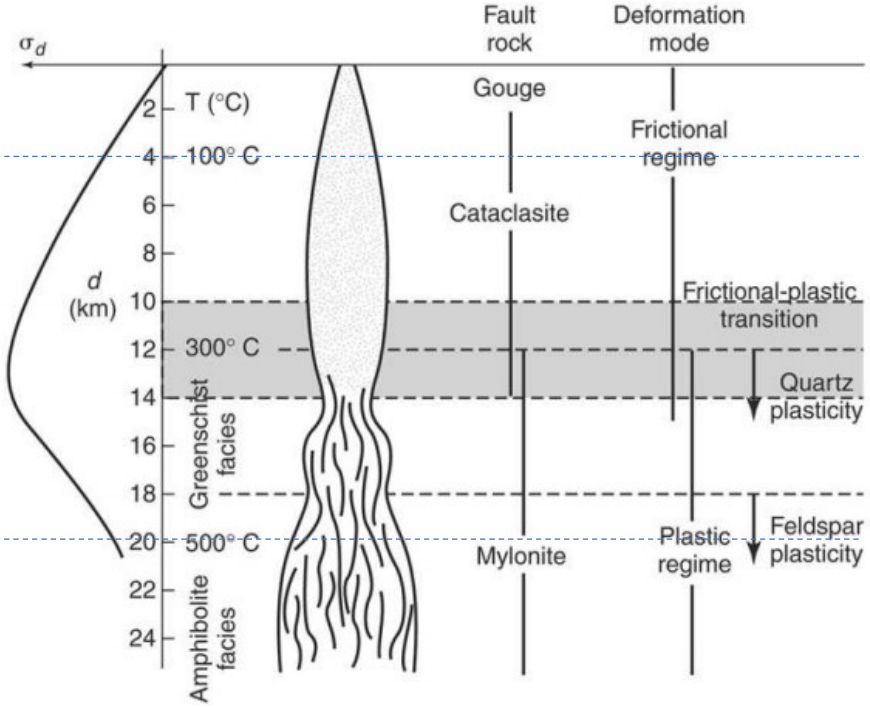
2020 Virtual Structural Geology Lab

This work is a photo-based compilation of bedrock tectonites collected in the Appalachian Mid-Atlantic region between 1985 and 2015. Many have catalogued locations from work conducted at the N.J. Geological Survey and are cut and polished to highlight structural fabrics as part of my MS and PhD research. Related work is available on my publications page: http://www.impacttectonics.org/gcherman/publications.htm



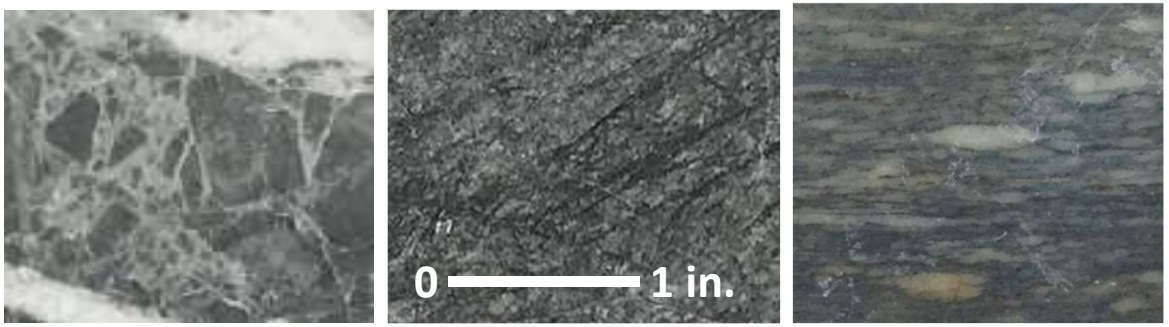
2020 Virtual Structural Geology Lab
Comparative crustal fault models



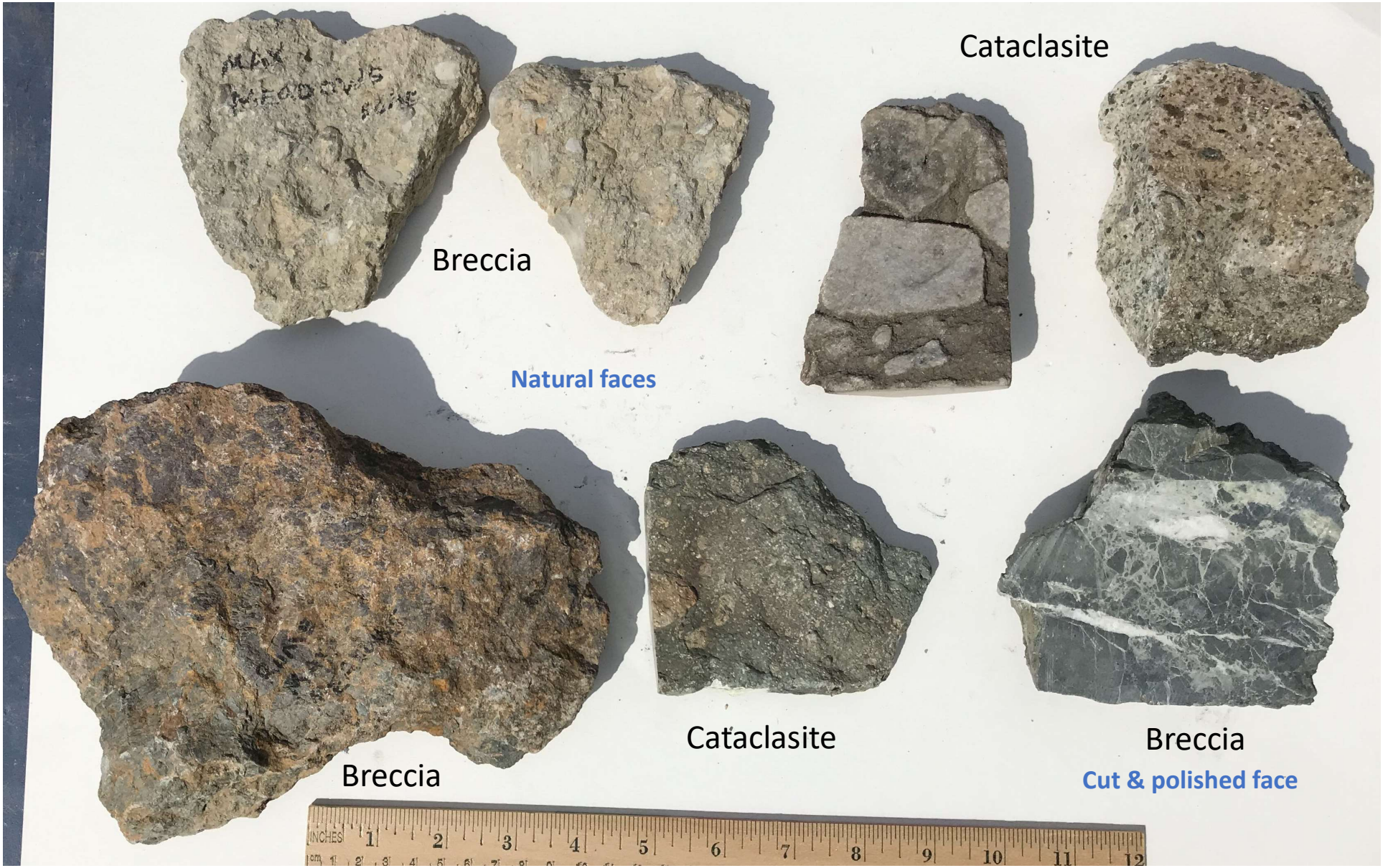


Breccia **Cataclasite** **Mylonite**

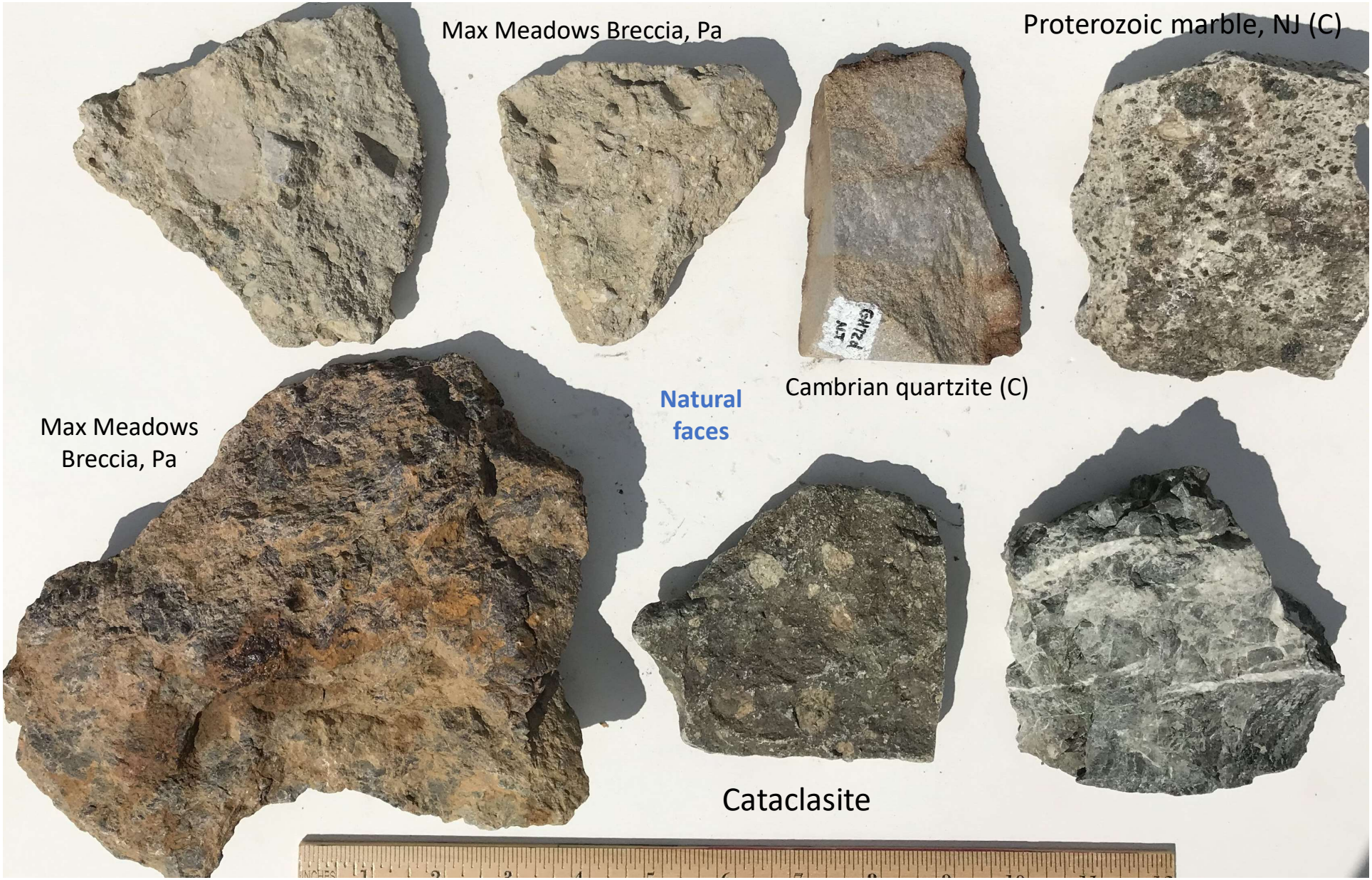
Cut & polished faces



2020 Virtual Structural Geology Lab – Breccia and Cataclasite



2020 Virtual Structural Geology Lab – Breccia and Cataclasite



2020 Virtual Structural Geology Lab – Breccia and Cataclasite

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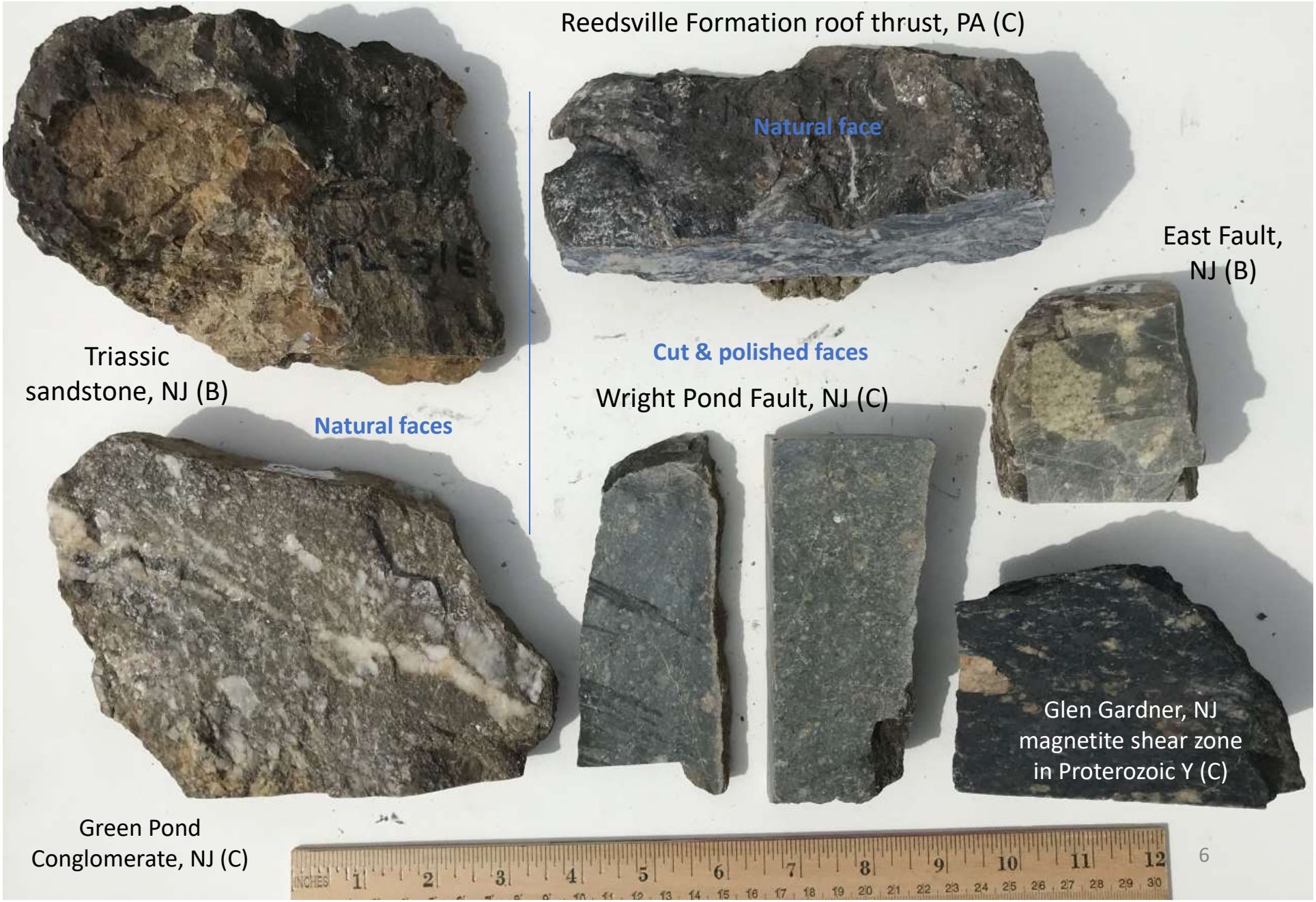
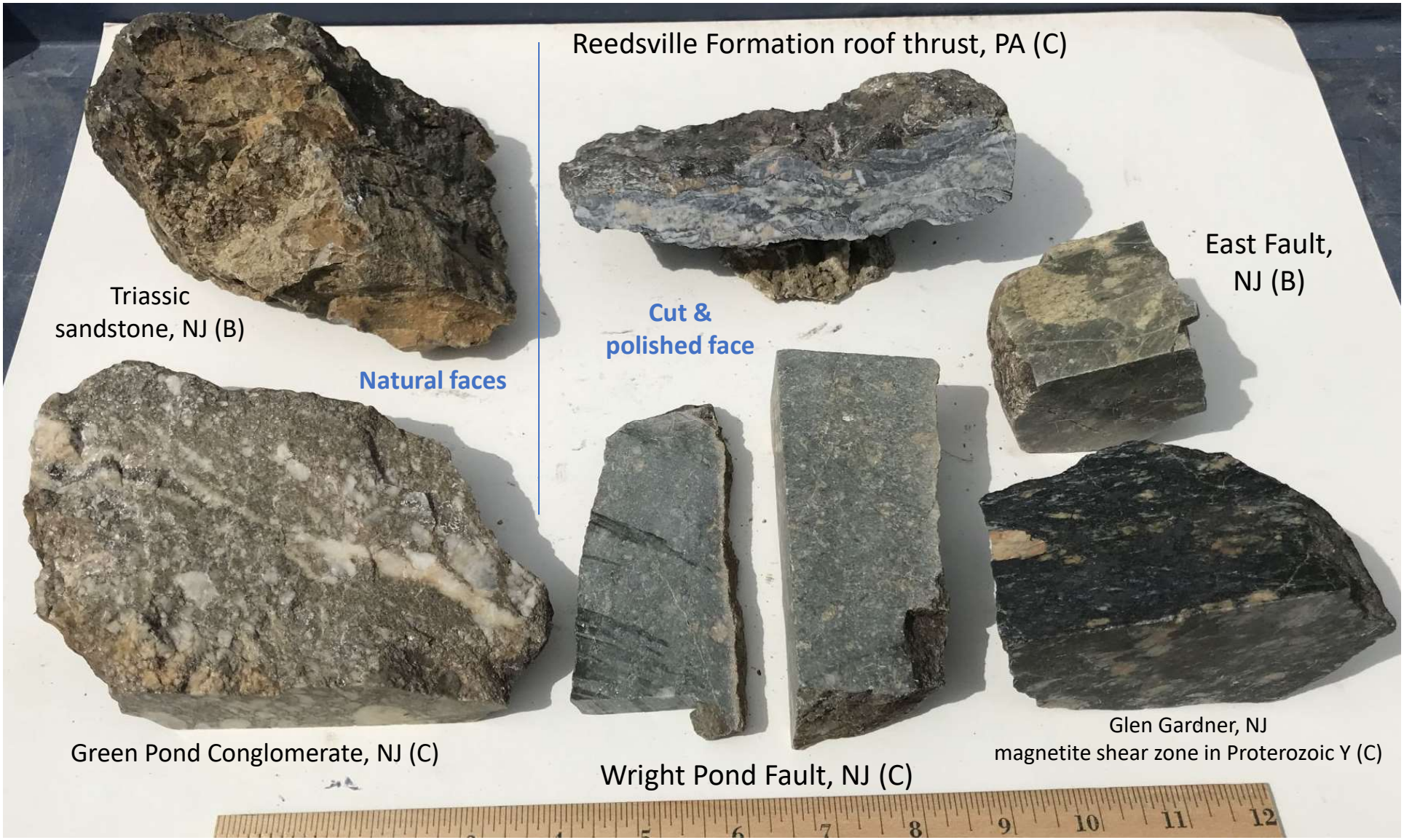
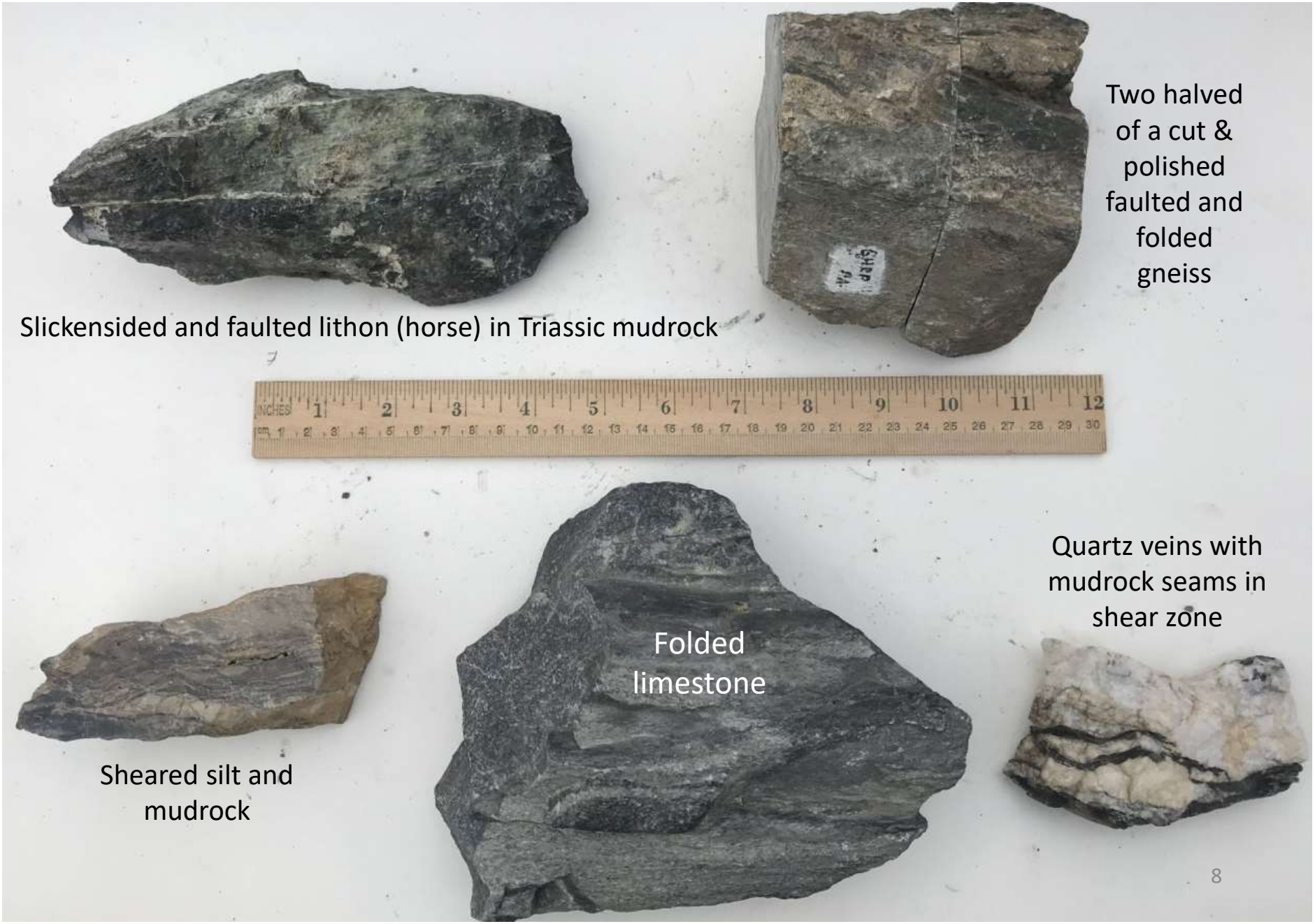


2020 Virtual Structural Geology Lab – Breccia and Cataclasite



2020 Virtual Structural Geology Lab – Breccia and Cataclasite



Slickensided and faulted lithon (horse) in Triassic mudrock

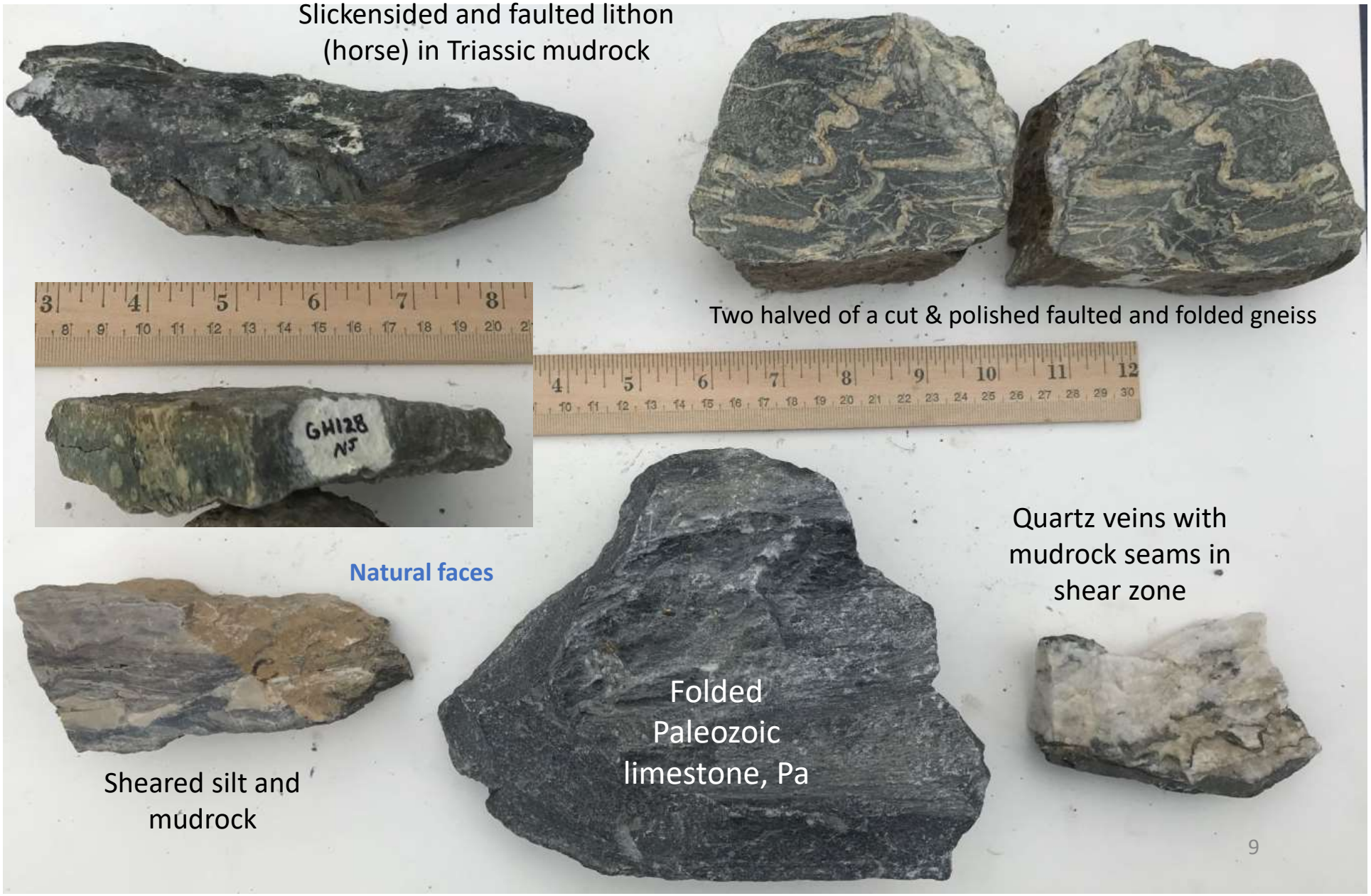
Two halved of a cut & polished faulted and folded gneiss

Sheared silt and mudrock

Folded limestone

Quartz veins with mudrock seams in shear zone

2020 Virtual Structural Geology Lab – Various structures



2020 Virtual Structural Geology Lab - Cataclasite and Mylonite

2020 Virtual Structural Geology Lab - Cataclasite and Mylonite

2020 Virtual Structural Geology Lab - Mylonite

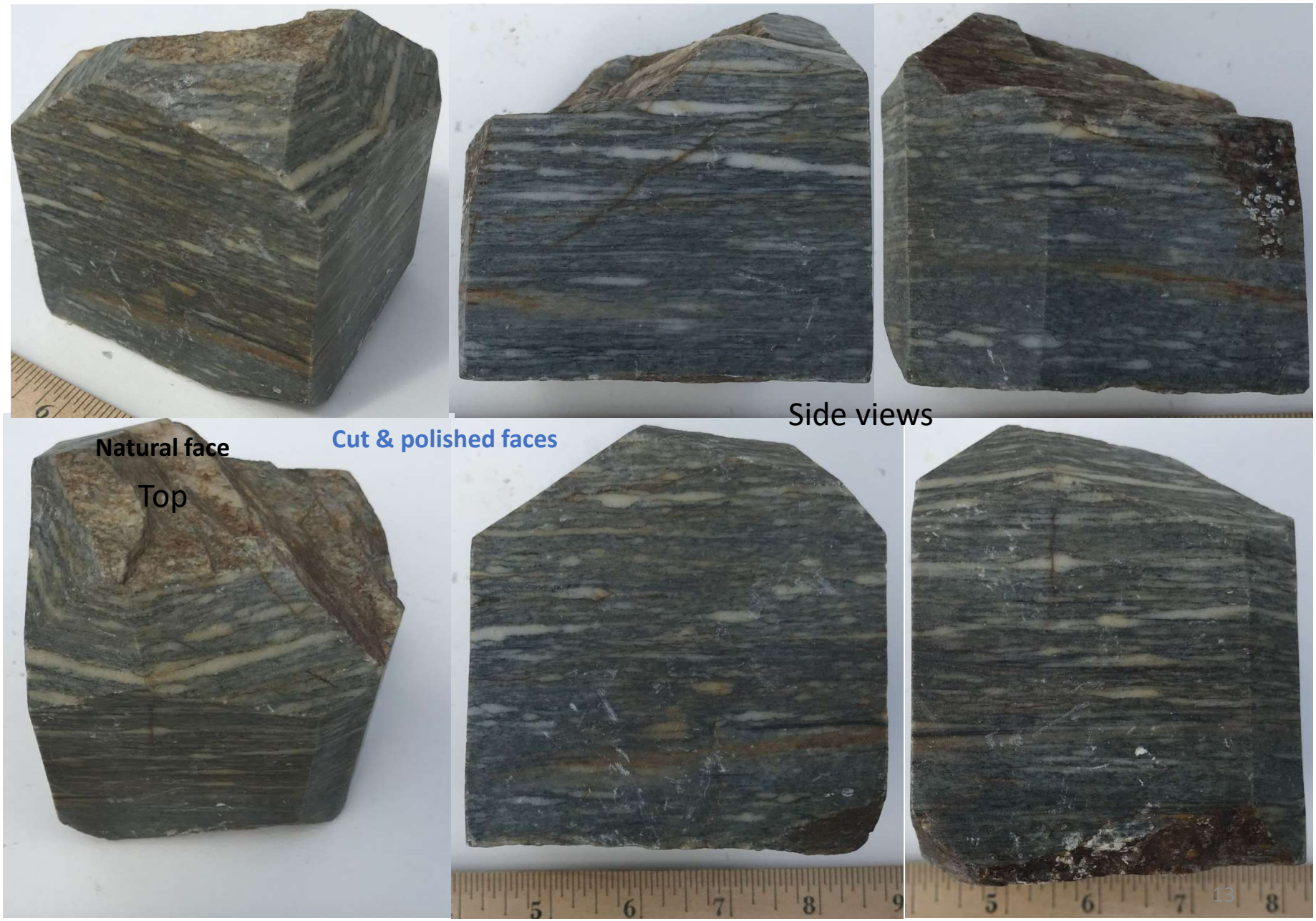
Granitic “L” mylonite, NJ

Cut & polished faces

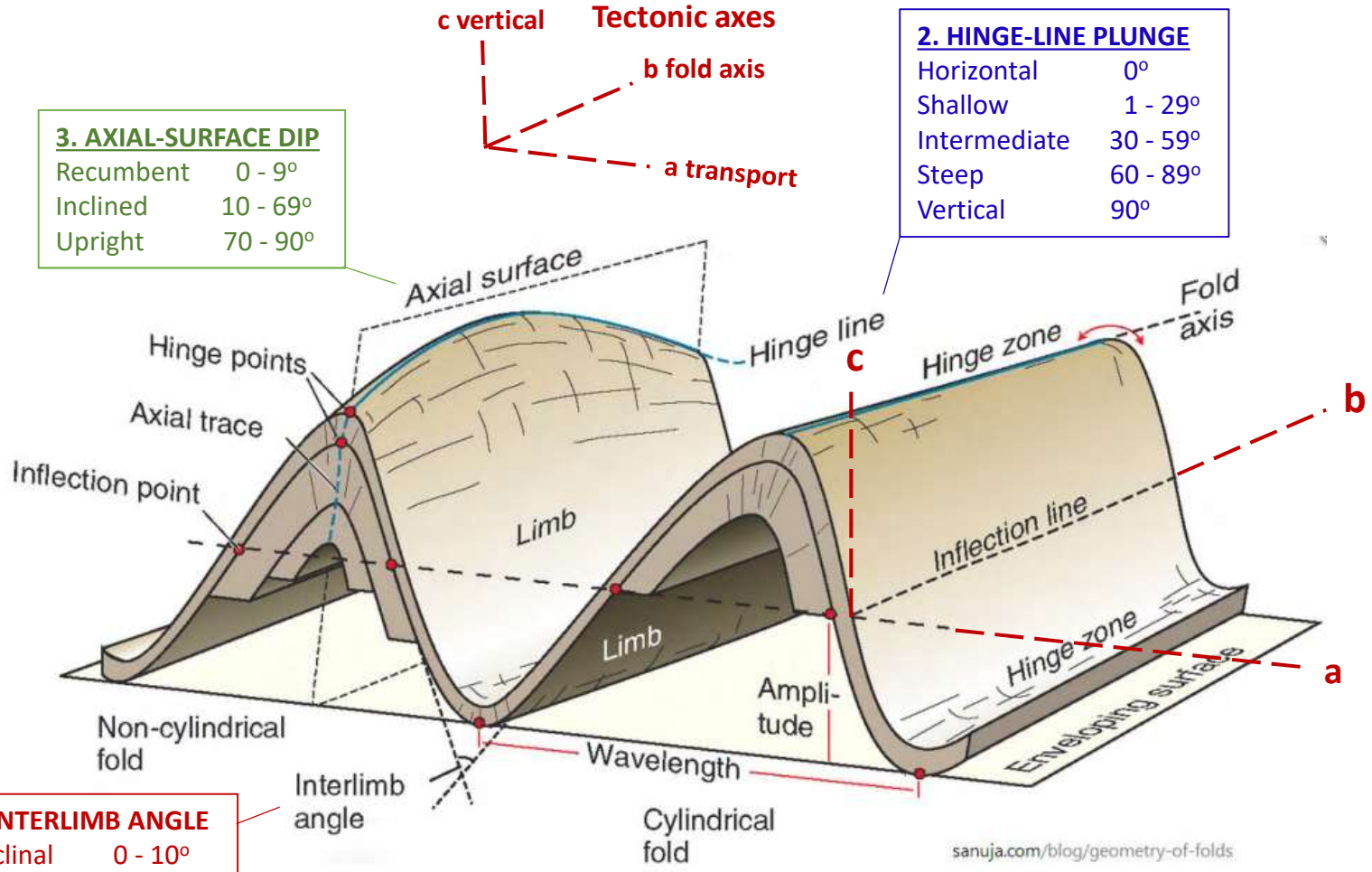
Natural face

Franklin Marble “S-C” mylonite, NJ

2020 Virtual Structural Geology Lab – Quartzite mylonite

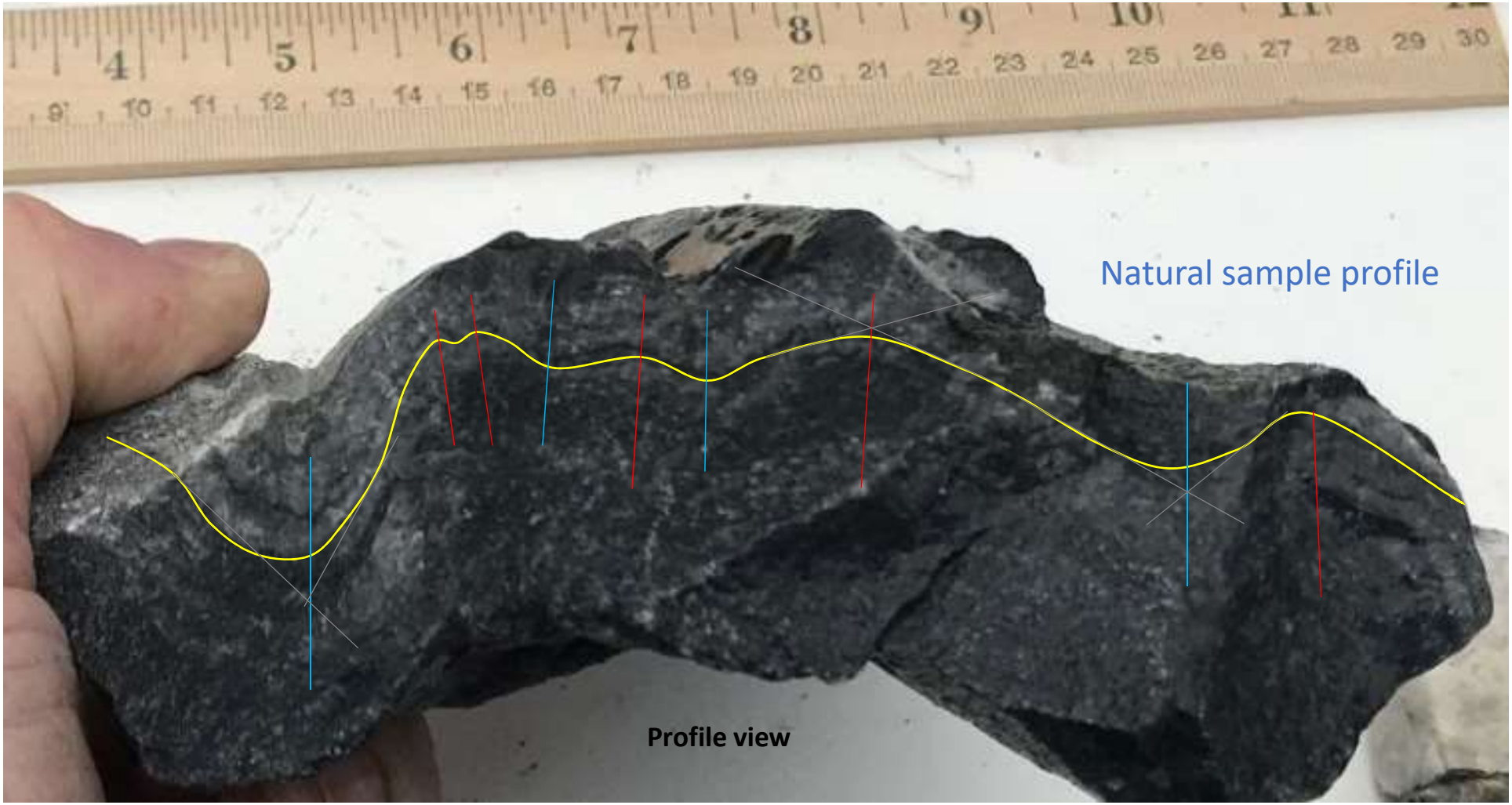


2020 Virtual Structural Geology Lab
3 Fold-classification criteria relative to tectonic reference axes



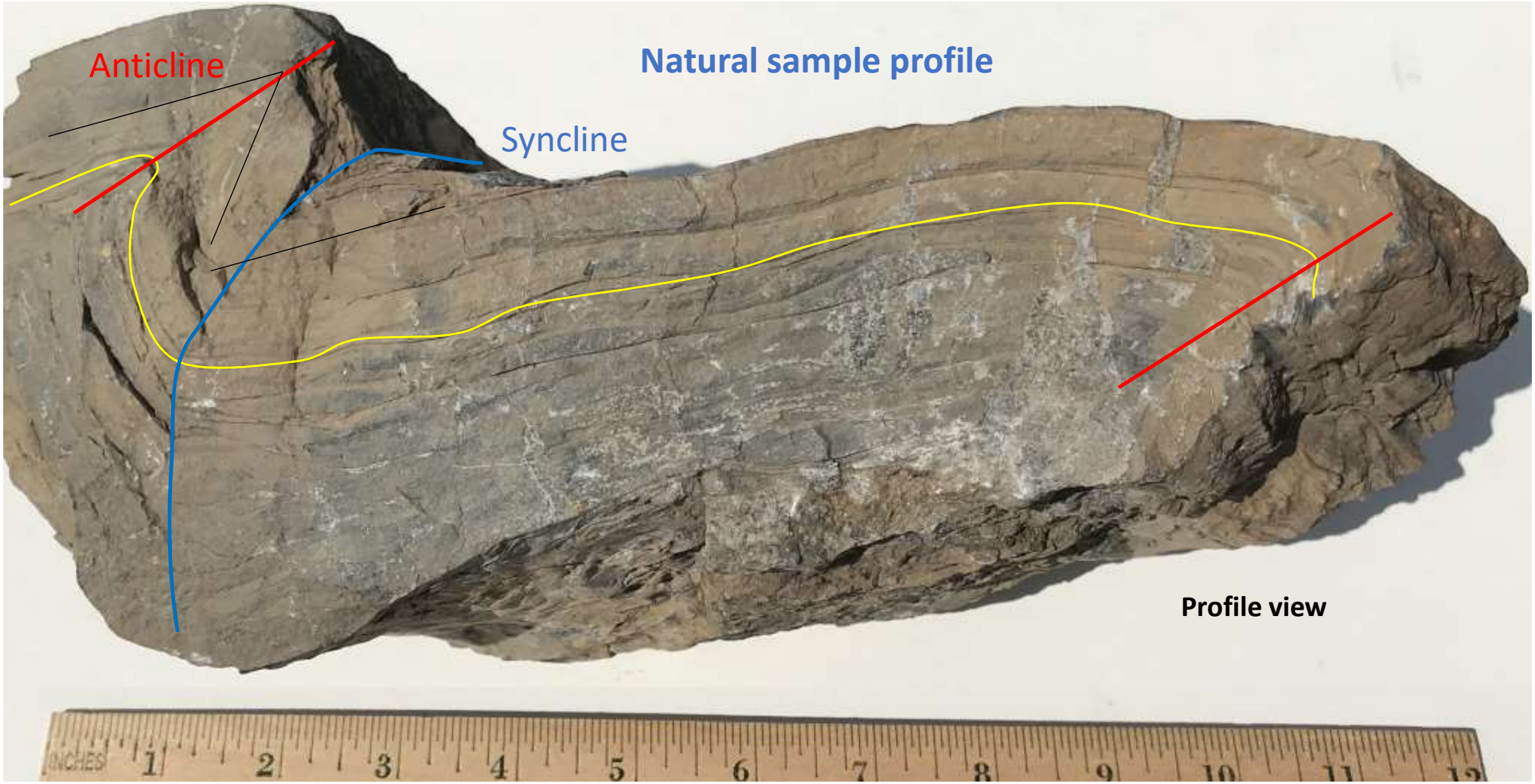
2020 Virtual Structural Geology Lab
Folds 1 – Open- to tight, upright folds in dark gray limestone

2020 Virtual Structural Geology Lab
Folds 1 – Open- to tight, upright folds in dark gray limestone



2020 Virtual Structural Geology Lab
Folds 2 - Tight, inclined folds in gray dolomite weathered light brown

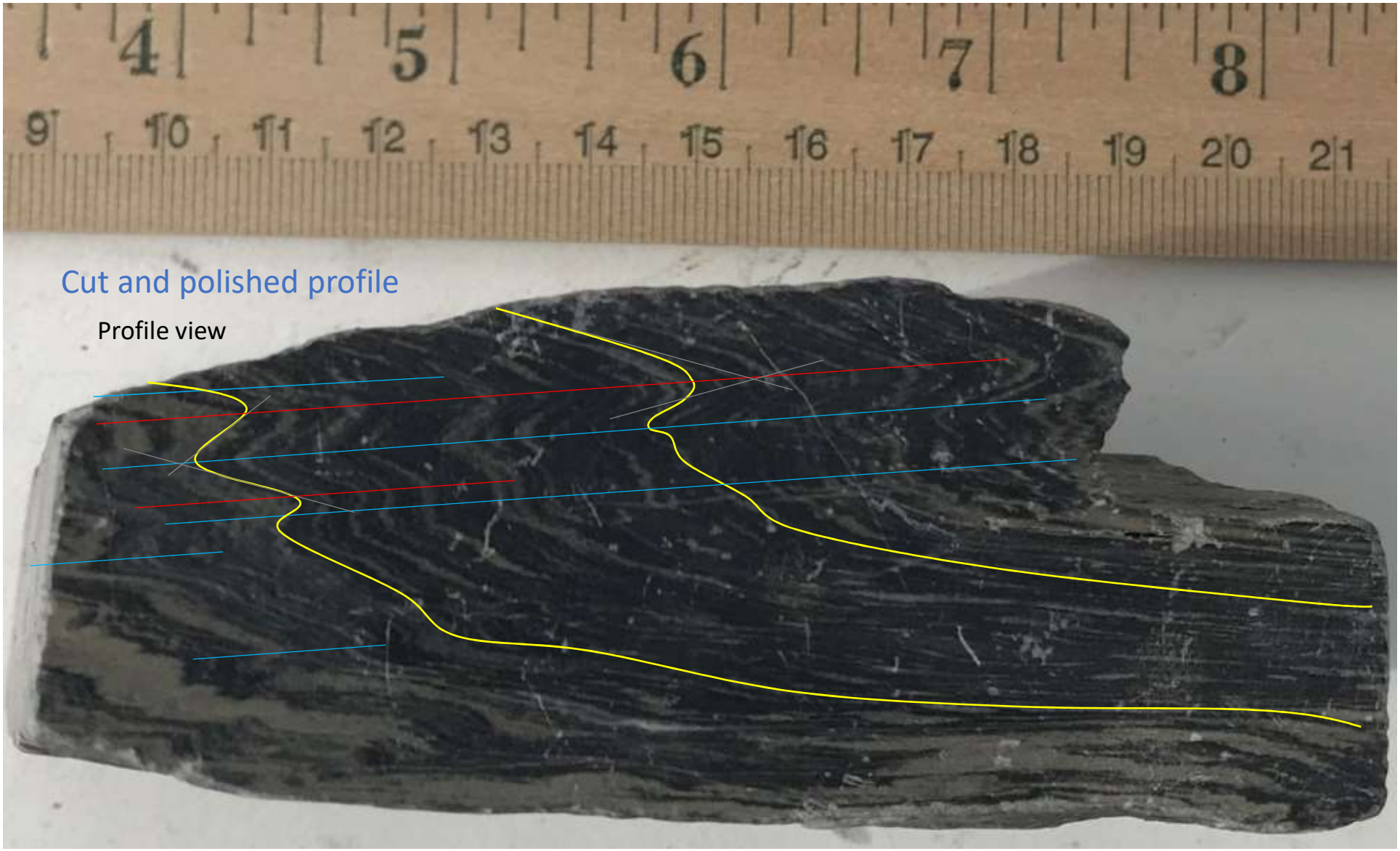
2020 Virtual Structural Geology Lab
Folds 2 - Tight, inclined folds in gray dolomite weathered light brown



2020 Virtual Structural Geology Lab
Folds 3 - Tight, recumbent folds in laminated mudrock

2020 Virtual Structural Geology Lab
Folds 3 - Tight, recumbent folds in laminated mudrock

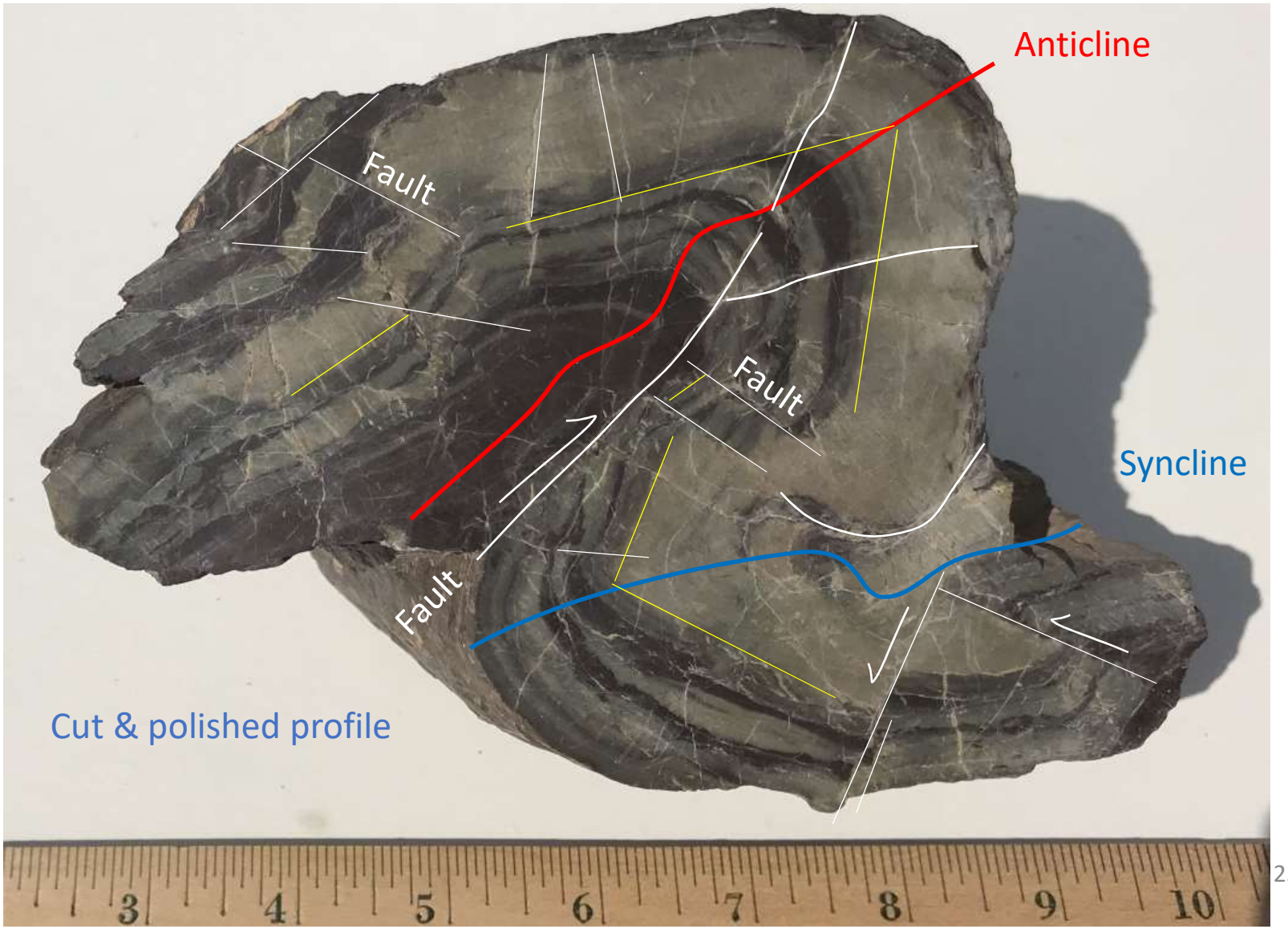
2020 Virtual Structural Geology Lab
Folds 3 - Tight, recumbent folds in laminated mudrock



2020 Virtual Structural Geology Lab
Folds 4 - Compound structures Open- to recumbent folds and conjugate faults in dark-red to tan mudrock

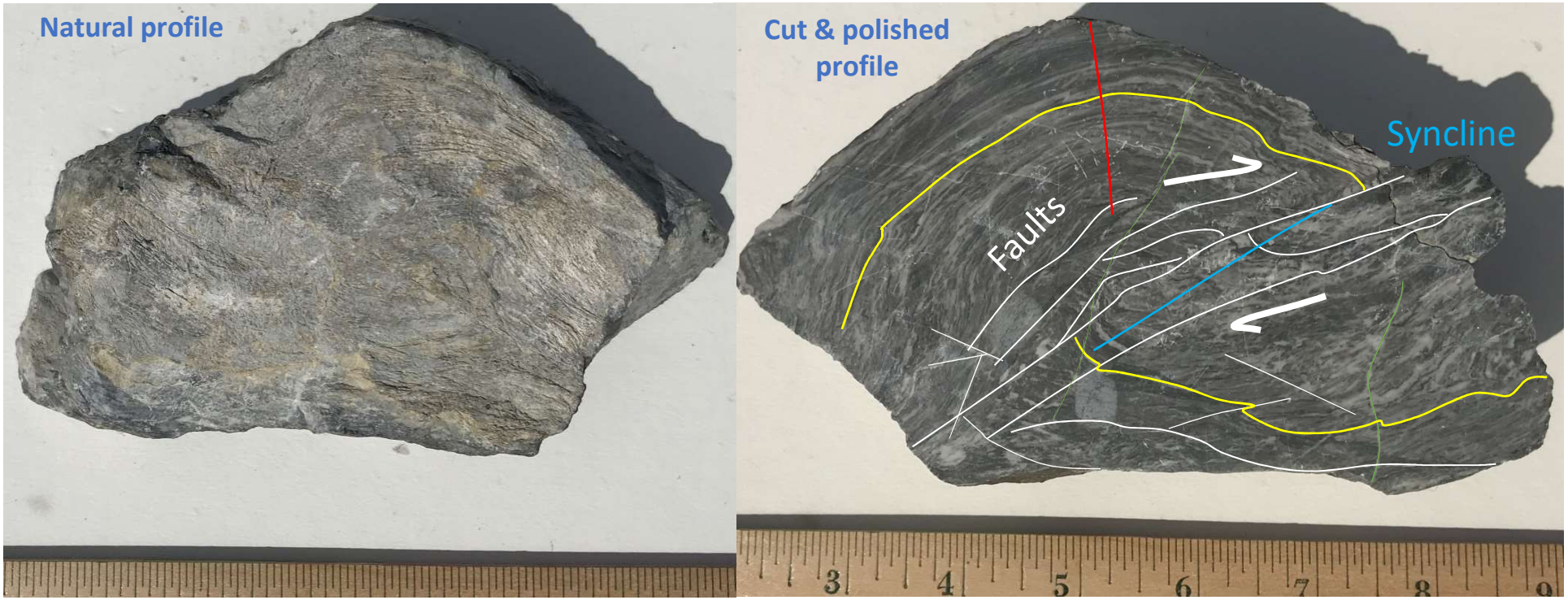
2020 Virtual Structural Geology Lab

Folds 4 - Compound structures Open- to recumbent folds and conjugate faults in dark-red to tan mudrock



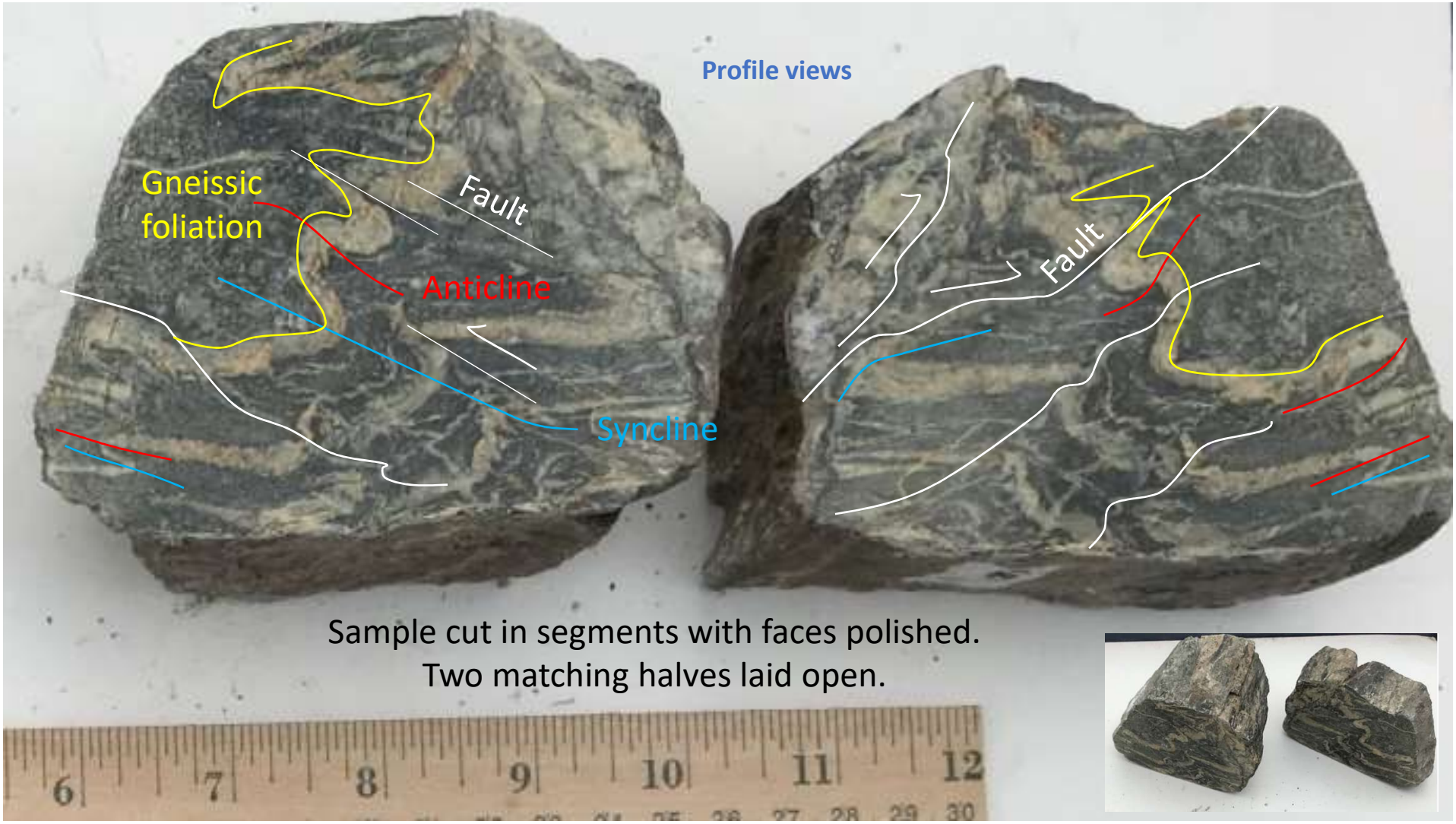
2020 Virtual Structural Geology Lab
Folds 5 – Compound structures
Fault-propagation folding in Paleozoic Limestone cut by mineralized extension fractures

2020 Virtual Structural Geology Lab
Folds 5 – Compound structures
Fault-propagation folding in Paleozoic Limestone cut by mineralized extension fractures



2020 Virtual Structural Geology Lab
Folds 6 - Compound structures: Open- to recumbent folds and faults in sheared gneiss.

2020 Virtual Structural Geology Lab
Folds 6 - Compound structures: Open- to recumbent folds and faults in sheared gneiss.



2020 Virtual Structural Geology Lab - Cleavage

Samples of Alleghenian spaced and slaty cleavage from NJ and Eastern, Pa

Natural faces

Cut & polished face

2020 Virtual Structural Geology Lab - Cleavage

Samples of Alleghanian spaced and slaty cleavage from NJ

Natural faces

Top view

Profile view

2020 Virtual Structural Geology Lab - Cleavage

Profile view

Top view

Natural faces

Profile view

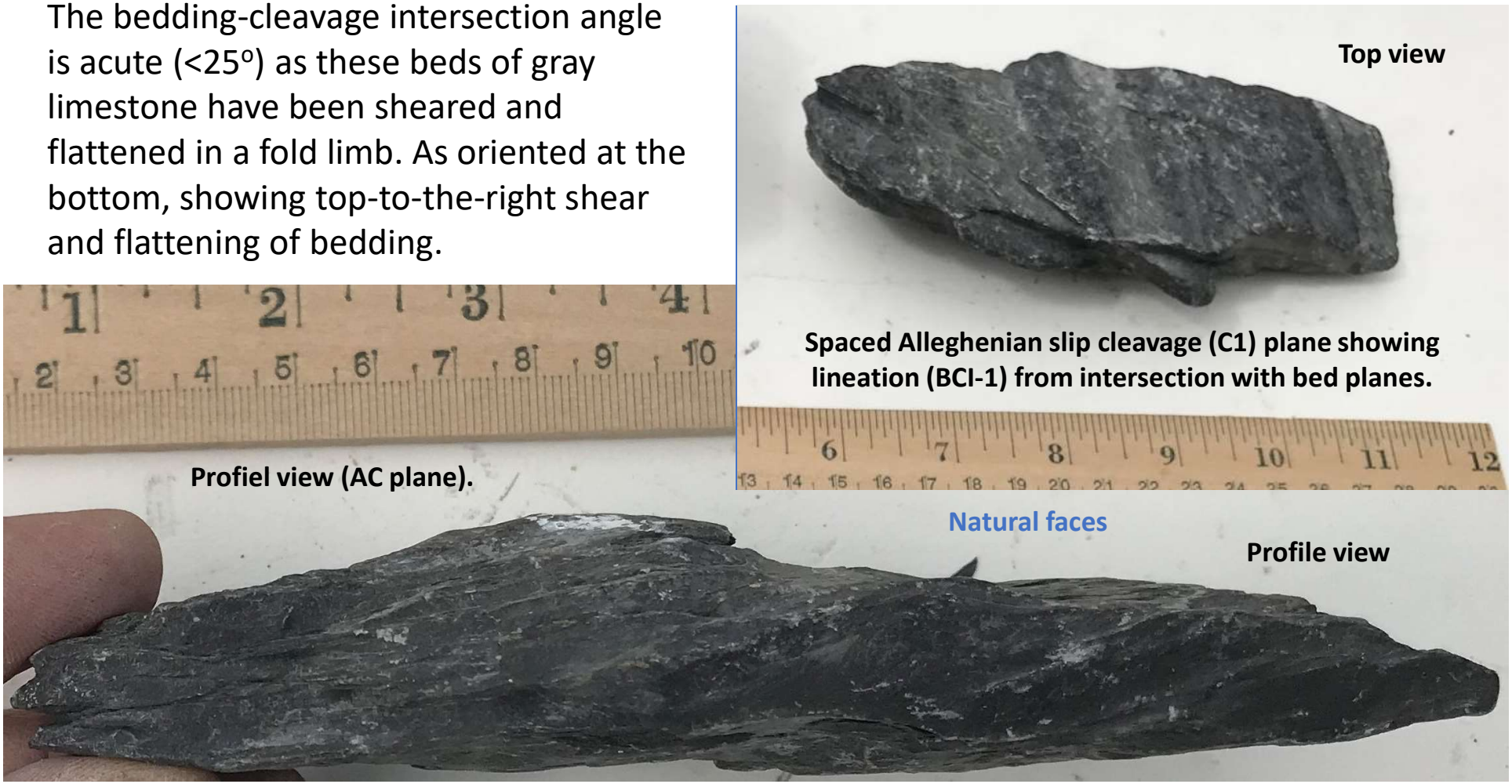
Cut & polished face


Top view
Profile view
Profile view
Samples of Alleghenian spaced and slaty cleavage from NJ
Cut & polished face
Natural face
2020 Virtual Structural Geology Lab - Cleavage
Top view
Natural faces
Top view
Profile view


Top view
2020 Virtual Structural Geology Lab - Cleavage
Natural faces
Samples of Alleghenian spaced and slaty cleavage
from NJ and Eastern, Pa
Profile view
Cut &
polished face

2020 Virtual Structural Geology Lab
Spaced slip cleavage

The bedding-cleavage intersection angle is acute (<25°) as these beds of gray limestone have been sheared and flattened in a fold limb. As oriented at the bottom, showing top-to-the-right shear and flattening of bedding.



2020 Virtual Structural Geology Lab
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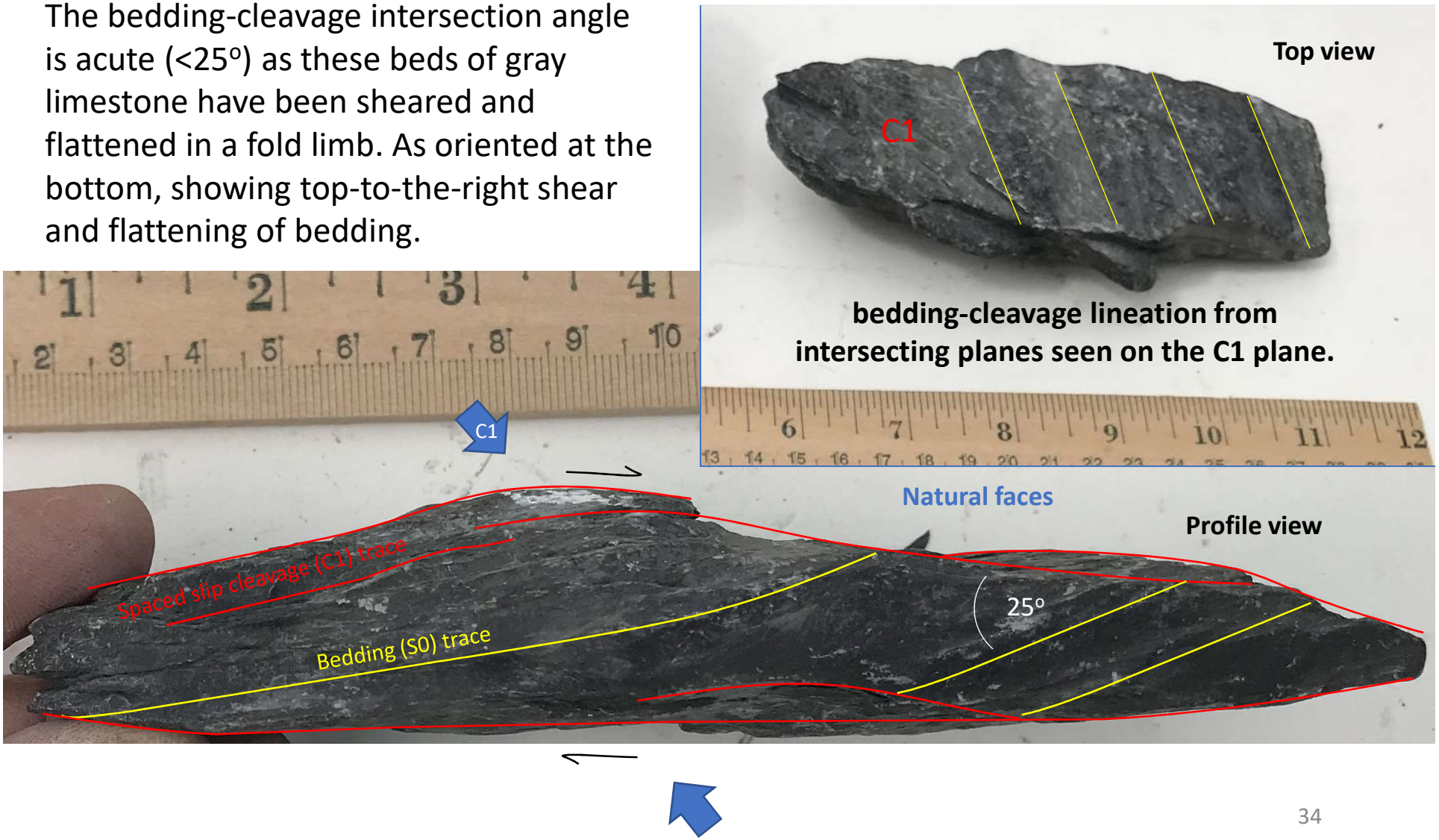

2020 Virtual Structural Geology Lab
Compound structures: Slaty and crenulation cleavage

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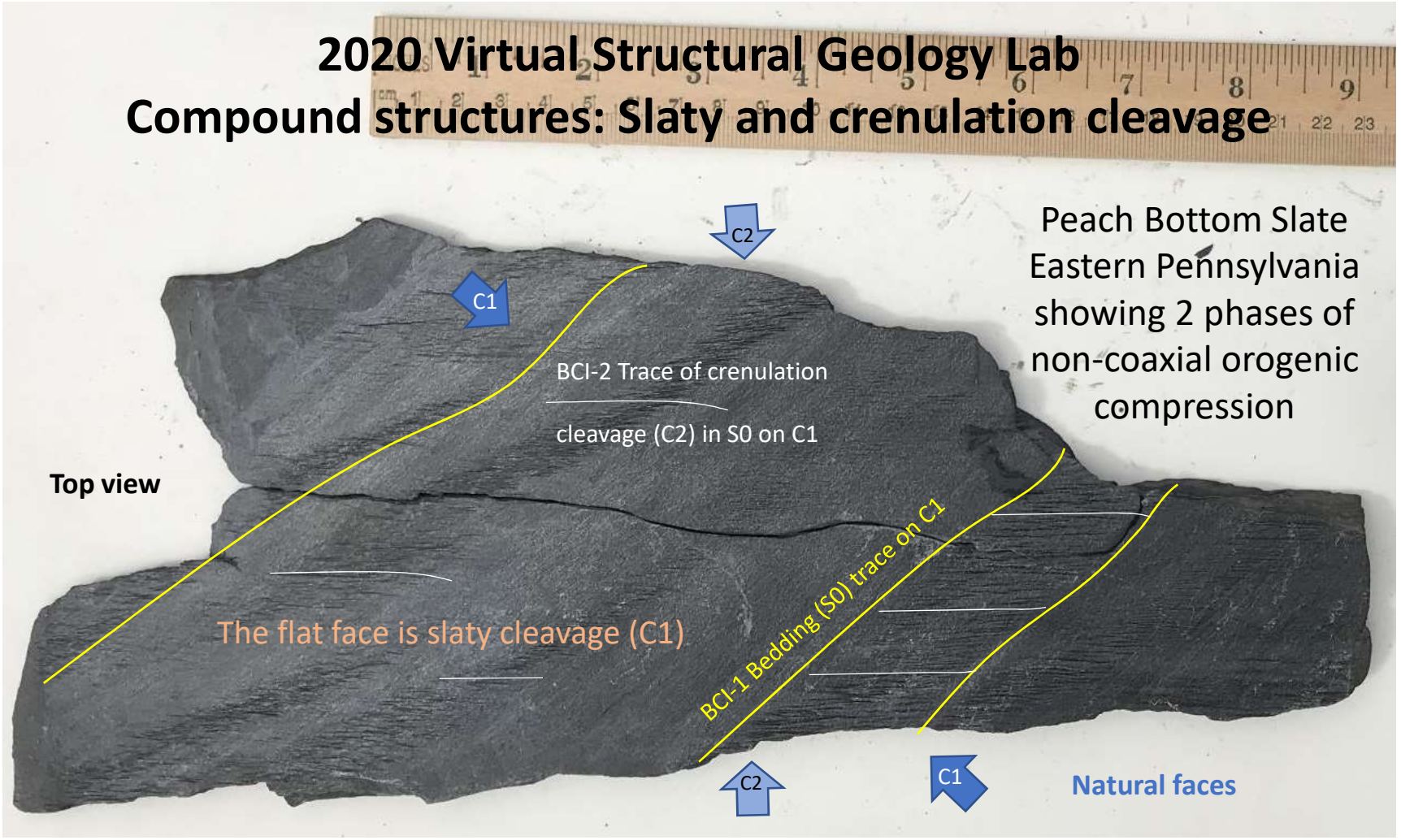

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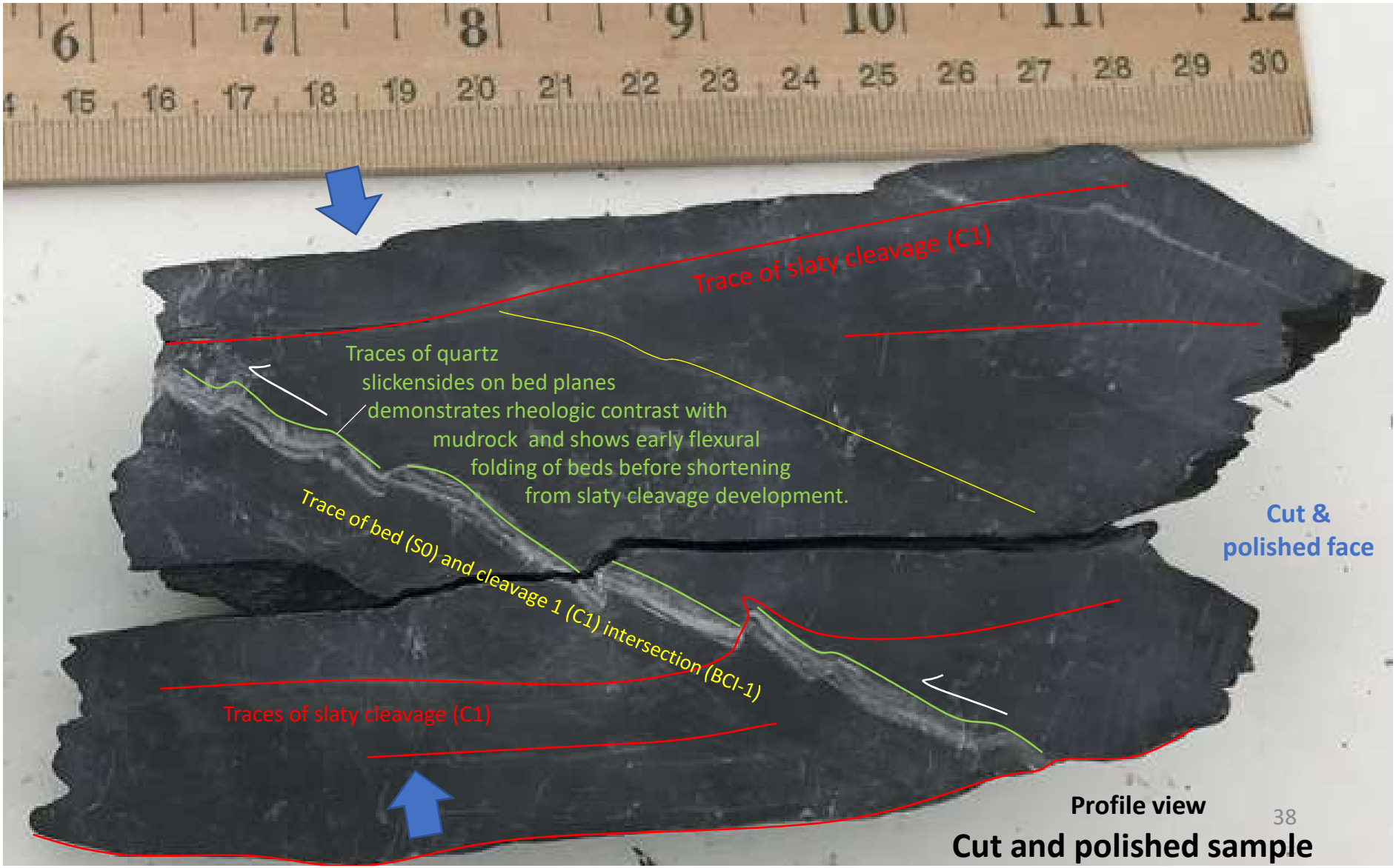
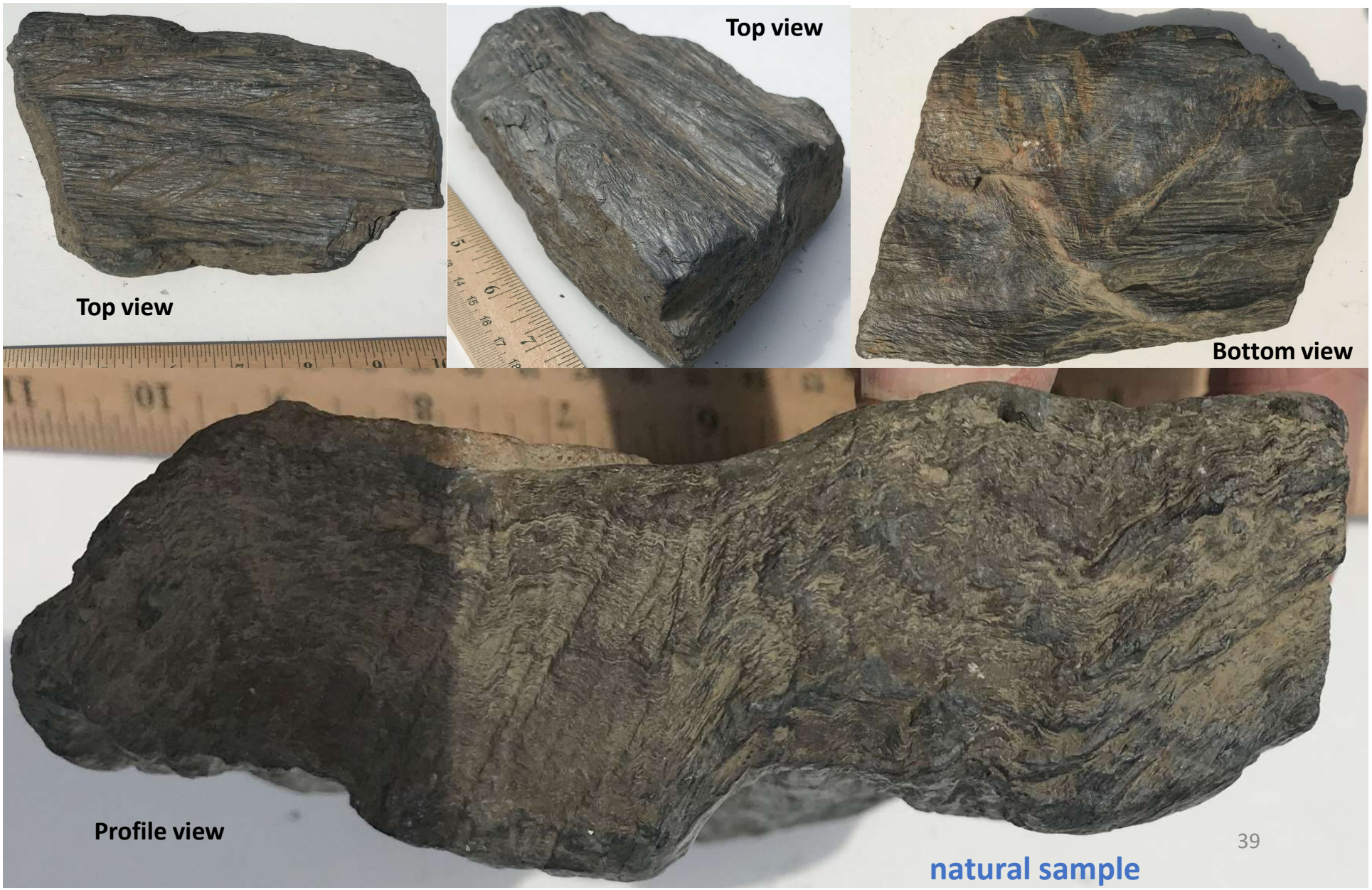
Compound structures: Slaty cleavage offsetting slickensided bed-parallel shear planes in Martinsburg Formation, Newton, New Jersey

2020 Virtual Structural Geology Lab

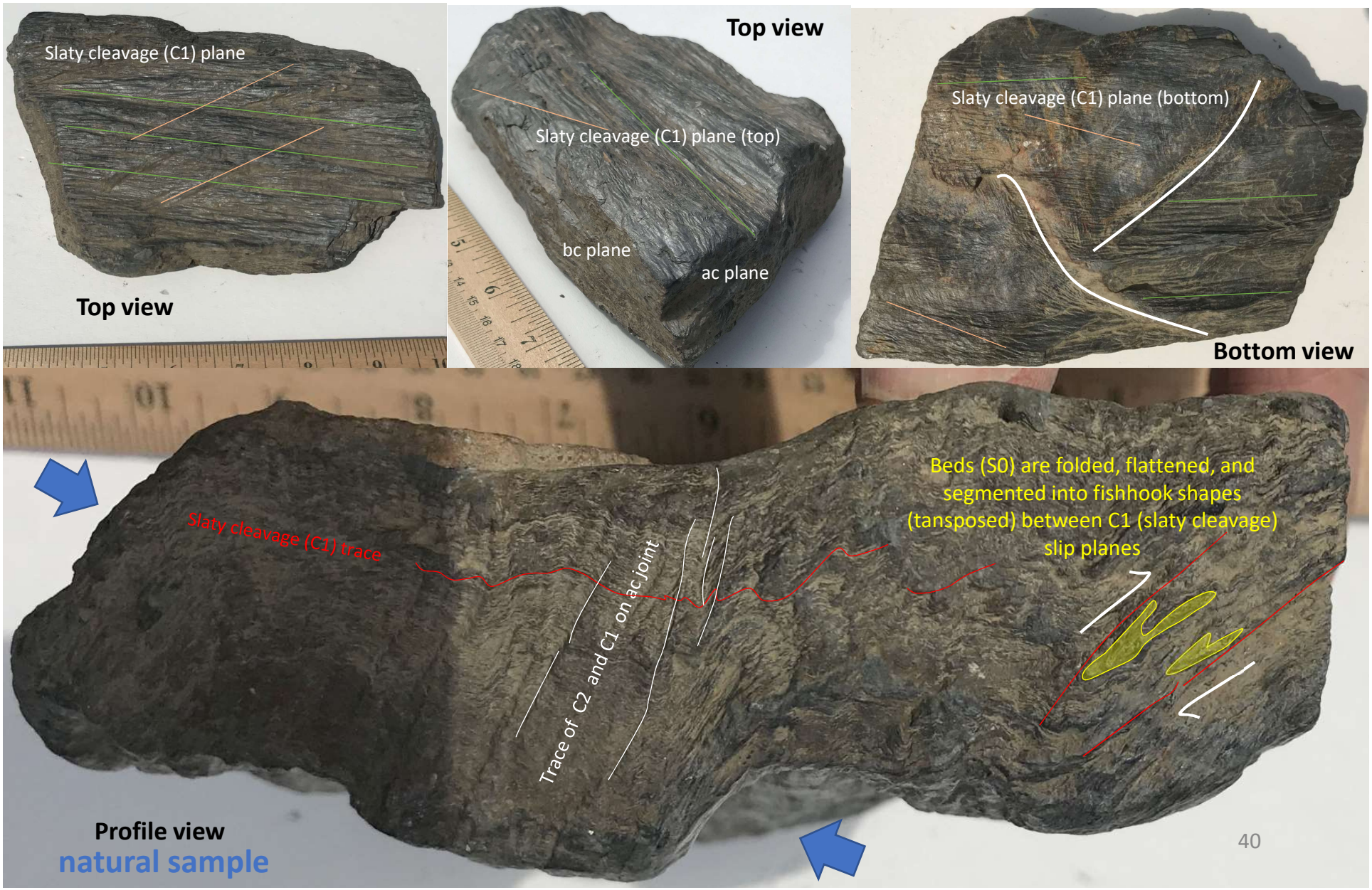
Compound structures: Slaty cleavage offsetting slickensided bed-parallel shear planes in Martinsburg Formation, Newton, New Jersey



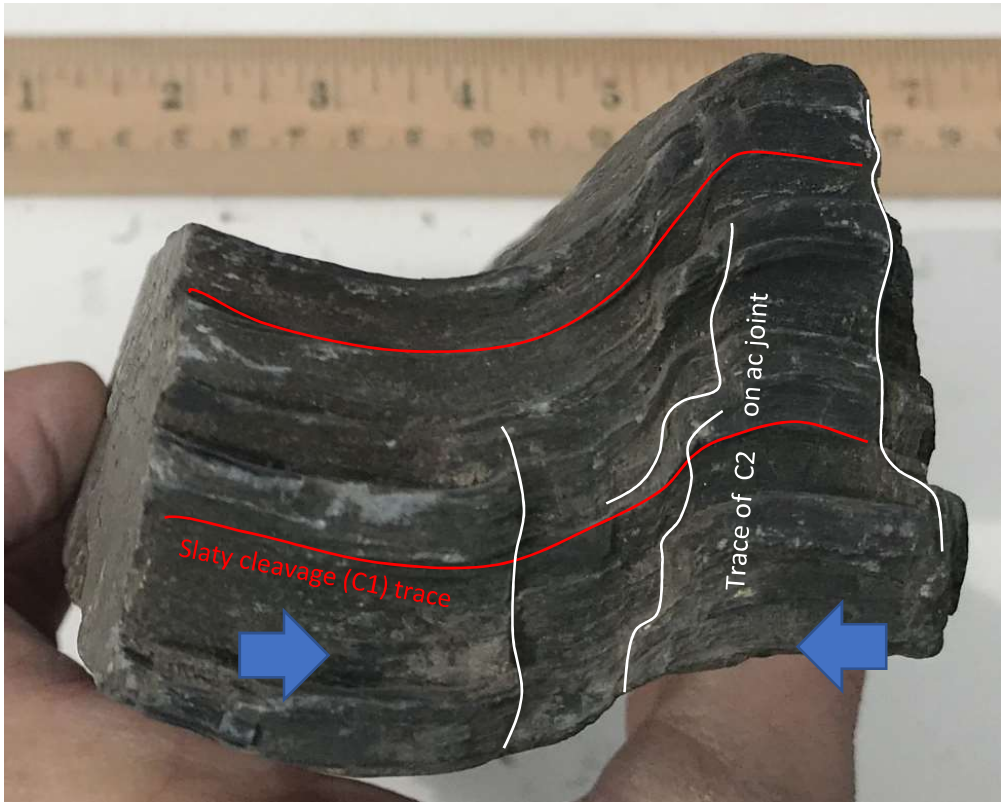
2020 Virtual Structural Geology Lab - Compound structures: Two crenulation cleavages in transposed Martinsburg Formation, NJ



2020 Virtual Structural Geology Lab - Compound structures: Two crenulation cleavages in transposed Martinsburg Formation, NJ



2020 Virtual Structural Geology Lab
Compound structures: Crenulation cleavage and slaty cleavage in Martinsburg Formation, Warren County New Jersey



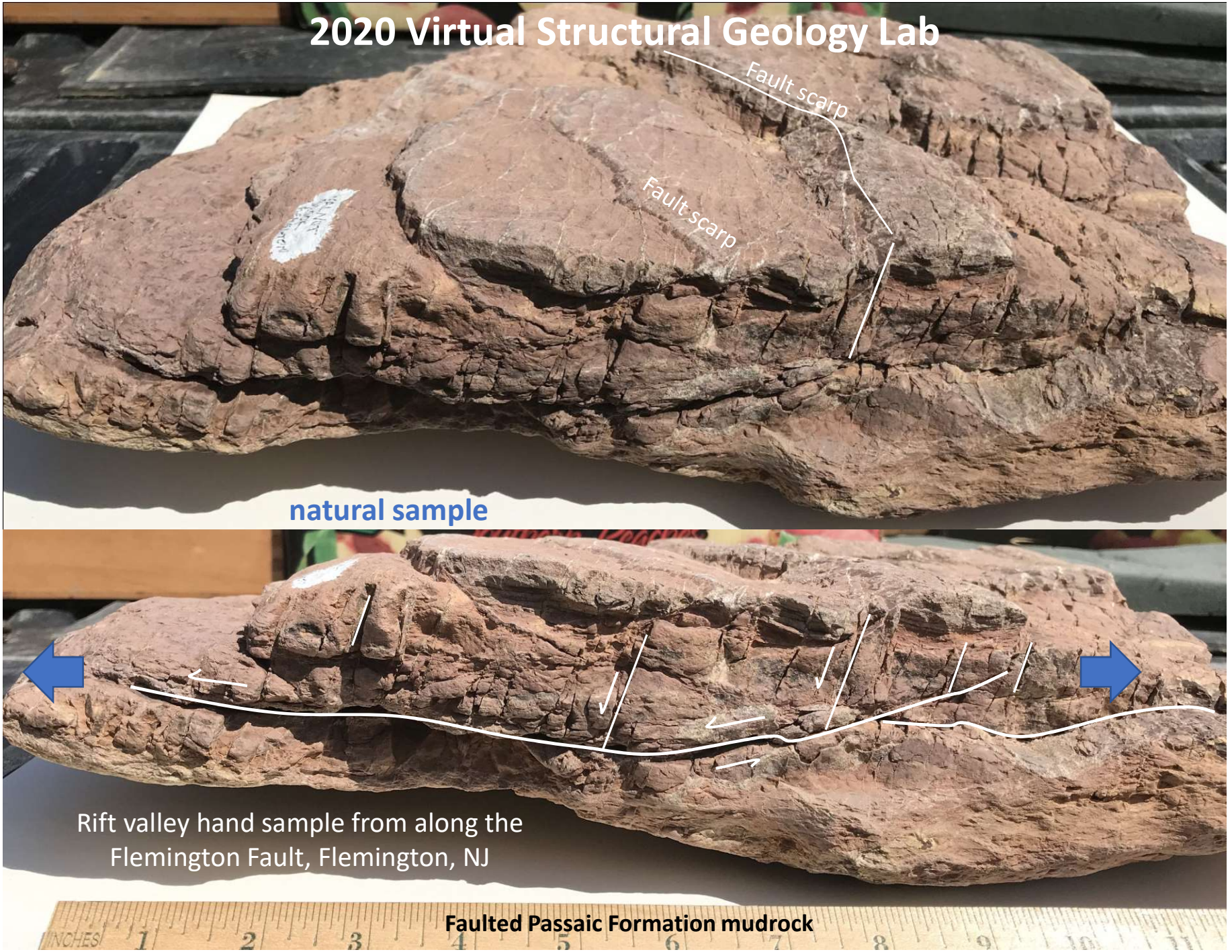
Natural faces

2020 Virtual Structural Geology Lab

2020 Virtual Structural Geology Lab

2020 Virtual Structural Geology Lab

Faulted Passaic Formation mudrock from along the Flemington Fault, NJ


2020 Virtual Structural Geology Lab
Fault scarp
Fault scarp
natural sample
Rift valley hand sample from along the
Flemington Fault, Flemington, NJ
Faulted Passaic Formation mudrock

2020 Virtual Structural Geology Lab

Slickensided horse (fault slice) having watermelon-seed geometry with striae on all faces.