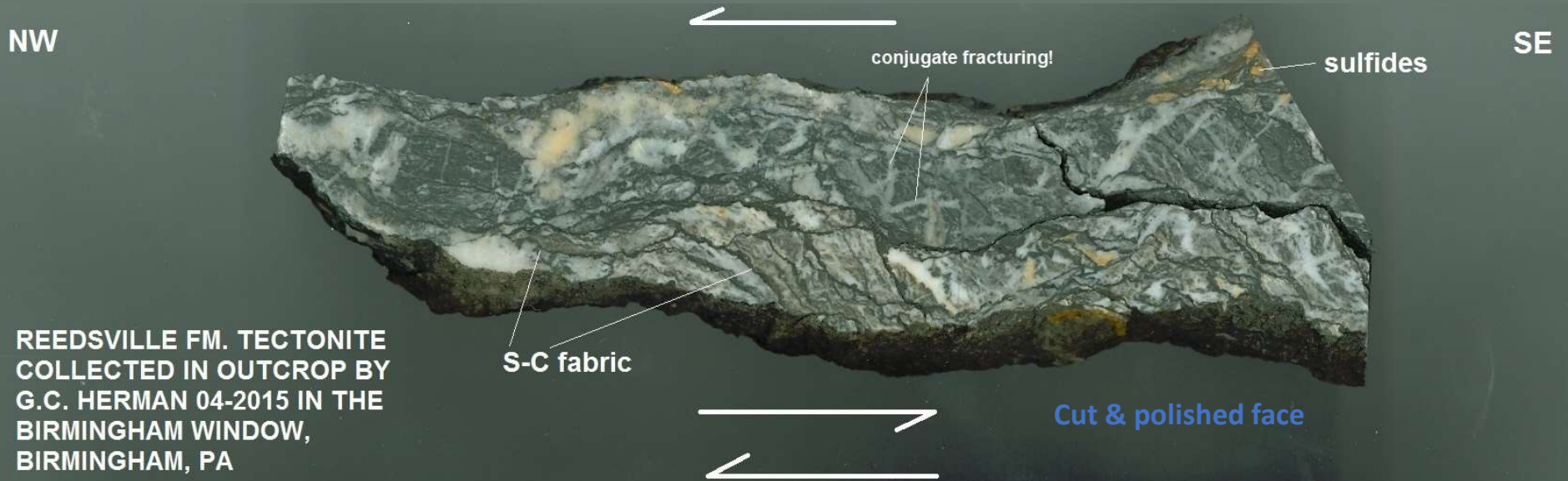


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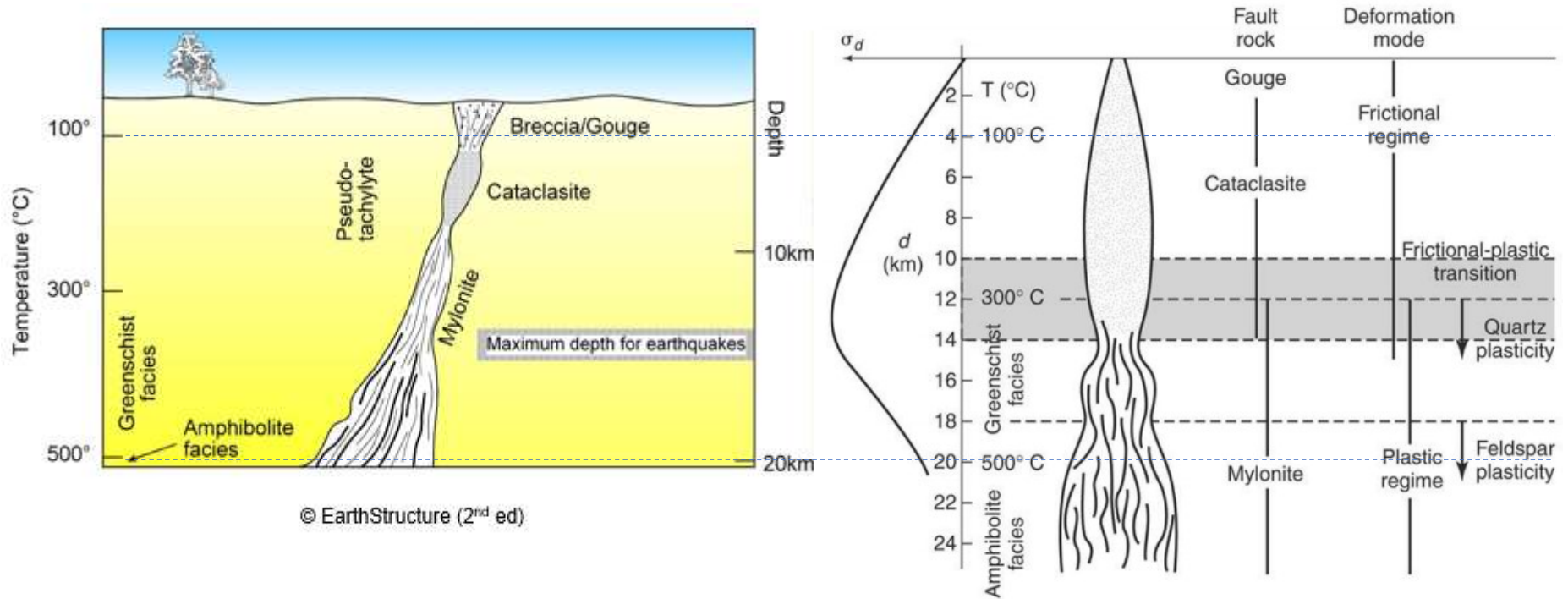
This work is a photo-based compilation of bedrock tectonites collected in the Appalachian Mid-Atlantic region between 1985 and 2015. Many have catalogued locations from work conducted at the N.J. Geological Survey and are cut and polished to highlight structural fabrics as part of my MS and PhD research.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

<http://www.impacttectonics.org/gcherman/publications.htm>



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Comparative crustal fault models

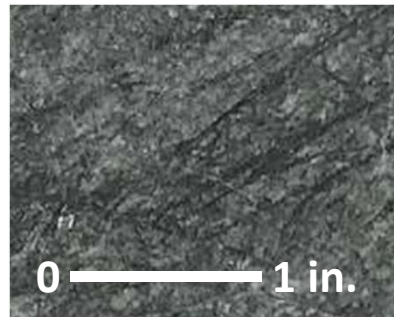


Breccia

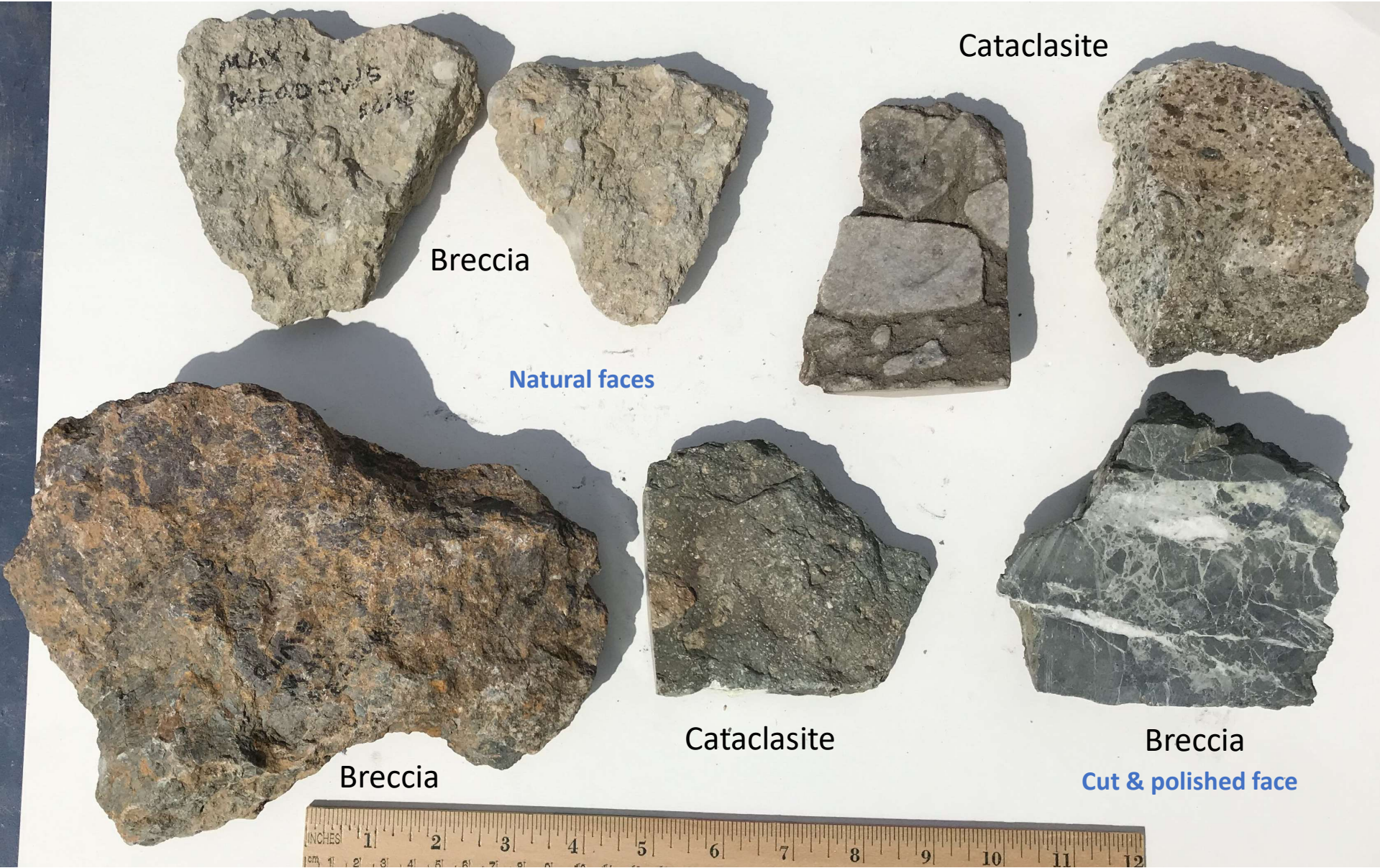
Cataclasite

Mylonite

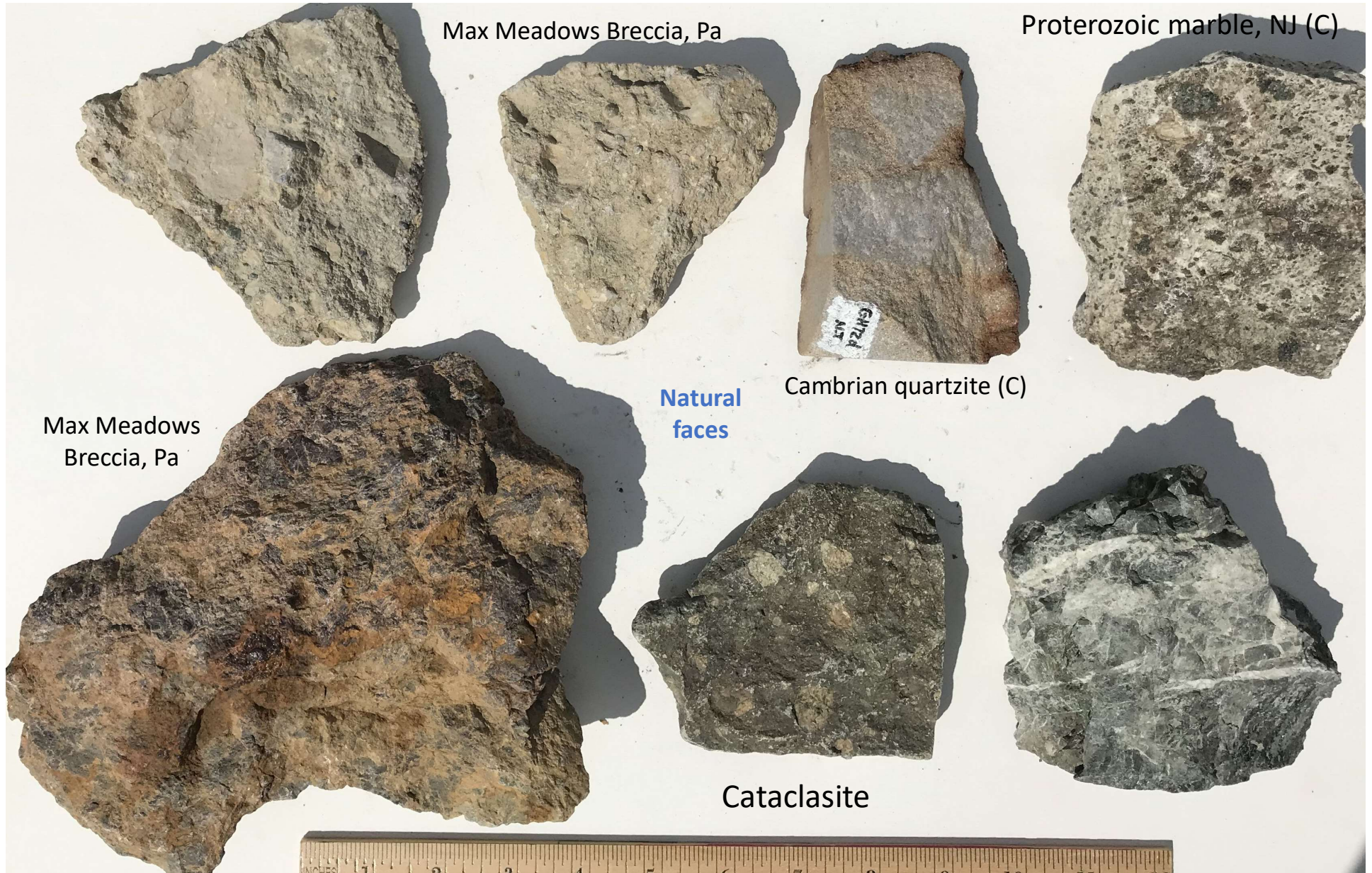
Cut & polished faces



2020 Virtual Structural Geology Lab – Breccia and Cataclasite



2020 Virtual Structural Geology Lab – Breccia and Cataclasite



Max Meadows Breccia, Pa

Proterozoic marble, NJ (C)

Cambrian quartzite (C)

Max Meadows Breccia, Pa

Natural faces

Cataclasite

2020 Virtual Structural Geology Lab – Breccia and Cataclasite



Natural face

Reedsville Formation roof thrust, PA (C)

East Fault, NJ (B)

Triassic sandstone, NJ (B)

Natural faces

Wright Pond Fault, NJ (C)

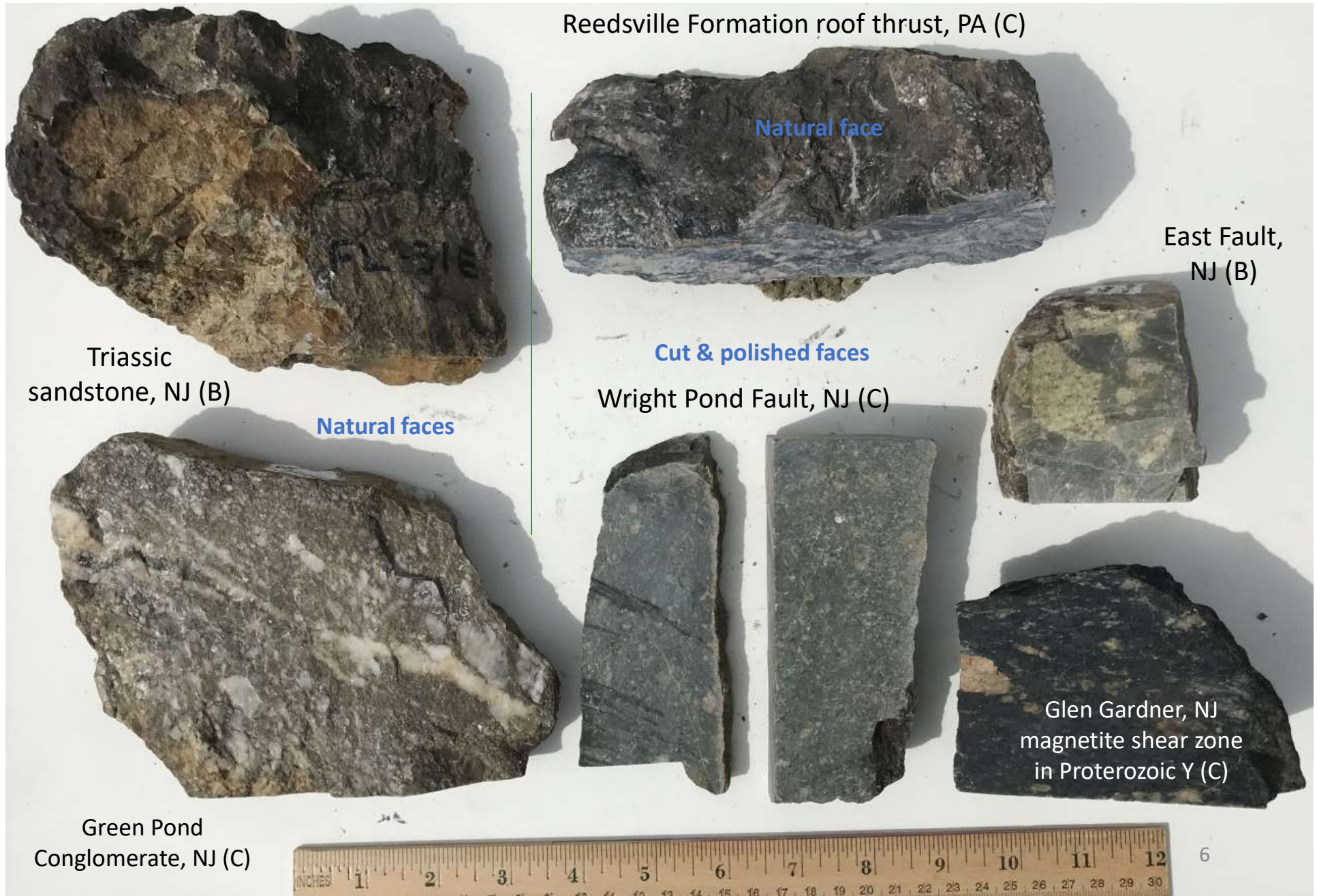
Cut & polished faces

Green Pond Conglomerate, NJ (C)

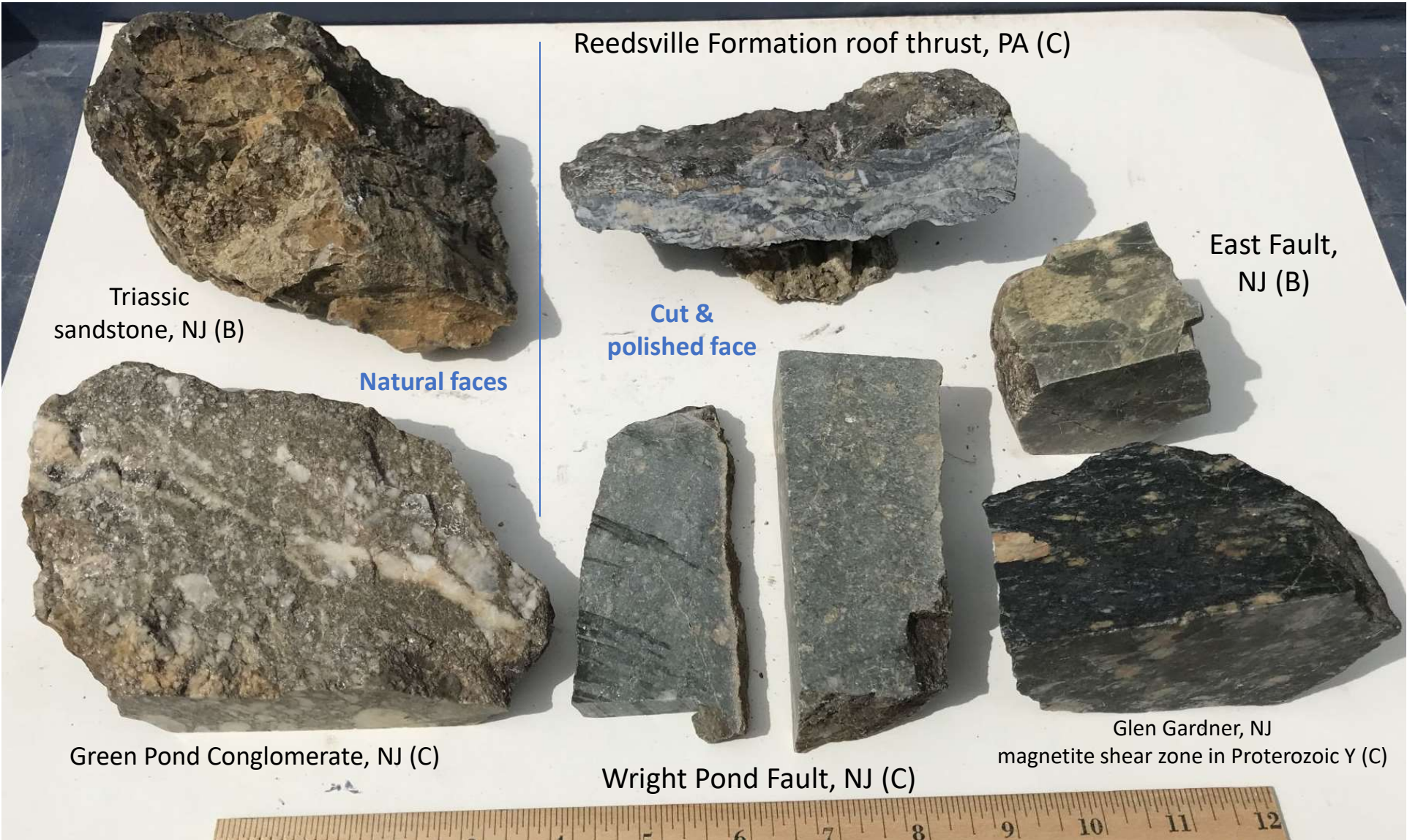
Glen Gardner, NJ magnetite shear zone in Proterozoic Y (C)



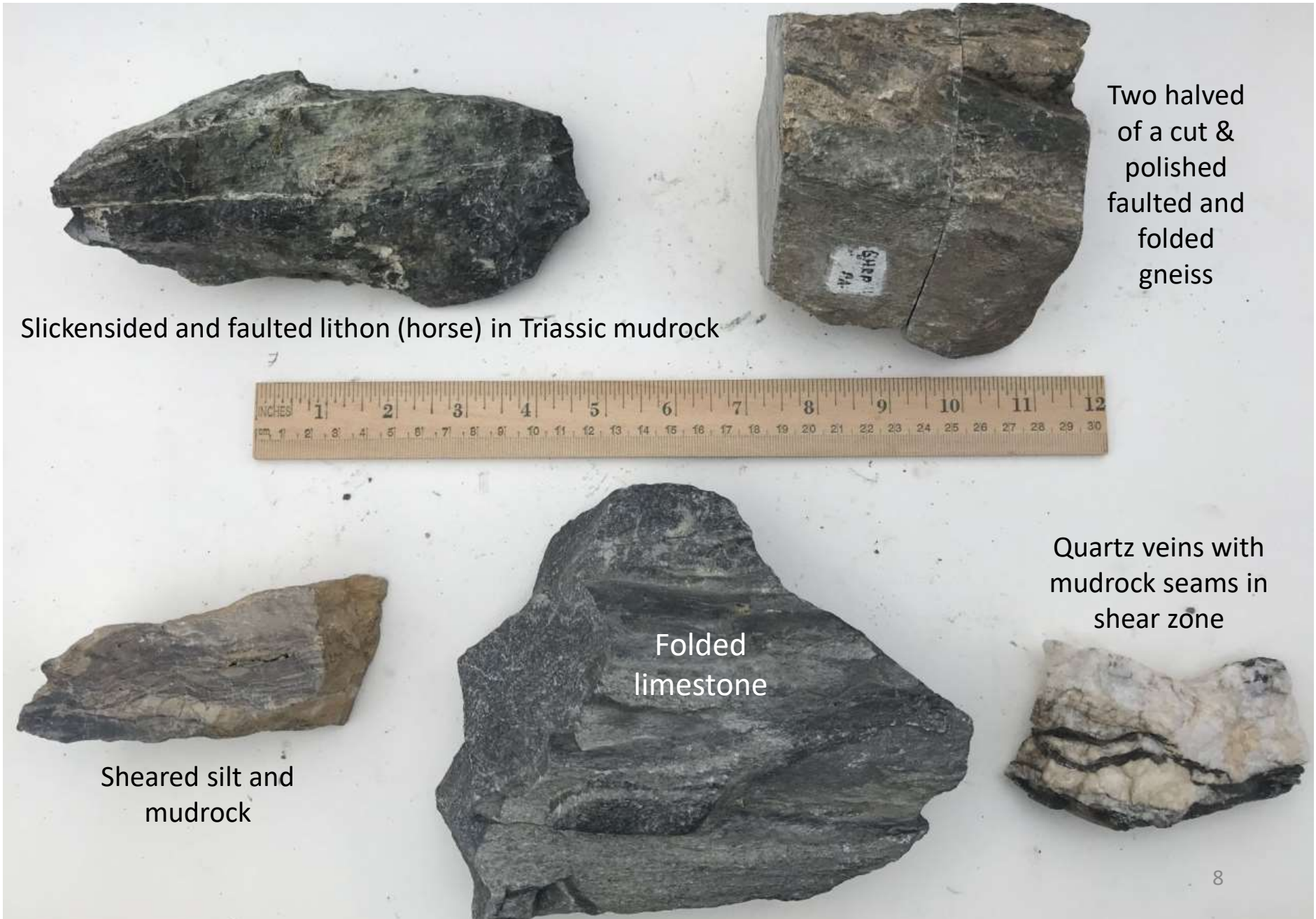
2020 Virtual Structural Geology Lab – Breccia and Cataclasite



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

Folded limestone

Sheared silt and mudrock

Quartz veins with mudrock seams in shear zone

2020 Virtual Structural Geology Lab – Various structures

Slickensided and faulted lithon
(horse) in Triassic mudrock



Two halves of a cut & polished faulted and folded gneiss



Natural faces



Sheared silt and
mudrock

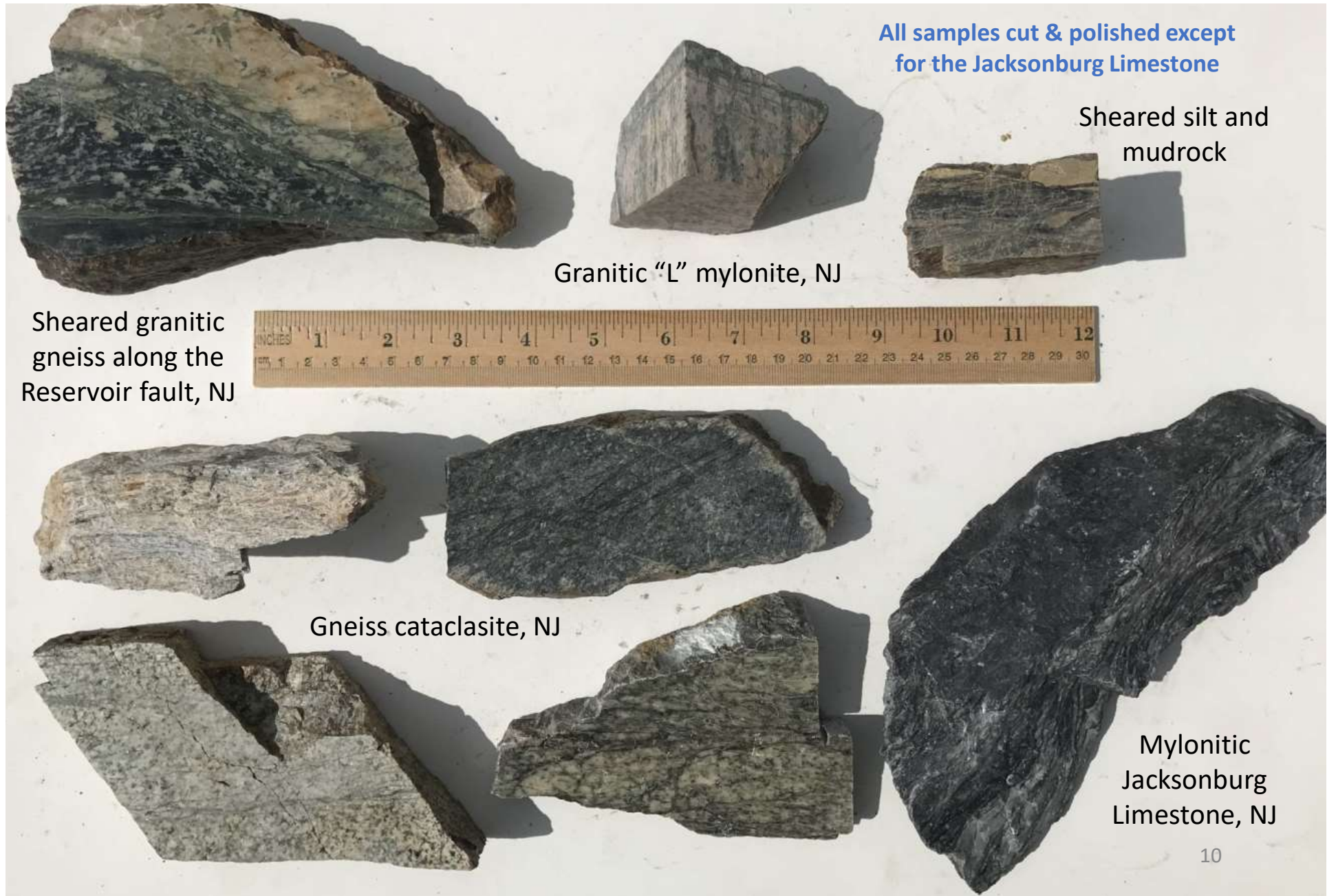


Folded
Paleozoic
limestone, Pa

Quartz veins with
mudrock seams in
shear zone



2020 Virtual Structural Geology Lab - Cataclasite and Mylonite



All samples cut & polished except for the Jacksonburg Limestone

Sheared silt and mudrock

Granitic "L" mylonite, NJ

Sheared granitic gneiss along the Reservoir fault, NJ

Gneiss cataclasite, NJ

Mylonitic Jacksonburg Limestone, NJ

2020 Virtual Structural Geology Lab - Cataclasite and Mylonite

Cut & polished face

Natural face

Sheared silt and mudrock



Sheared granitic gneiss along the Reservoir fault, NJ

Granitic "L" mylonite, NJ



Gneiss cataclasite, NJ

Natural faces

Gneiss cataclasite, NJ



Mylonitic Jacksonburg Limestone, NJ

2020 Virtual Structural Geology Lab - Mylonite

Cut & polished faces

Granitic "L" mylonite, NJ



Natural face

Franklin Marble "S-C" mylonite, NJ



2020 Virtual Structural Geology Lab – Quartzite mylonite



Side views



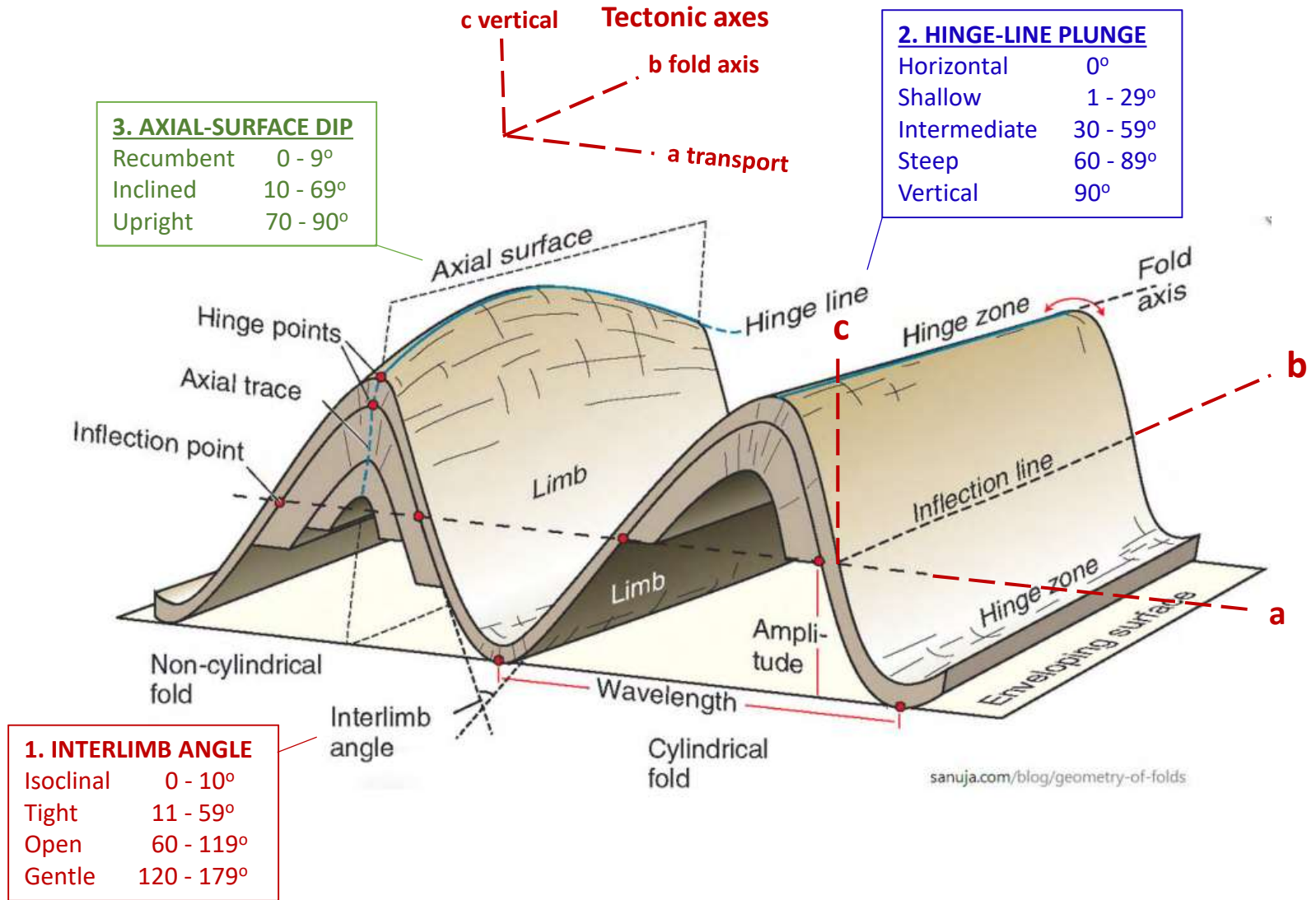
Natural face

Cut & polished faces

Top

2020 Virtual Structural Geology Lab

3 Fold-classification criteria relative to tectonic reference axes



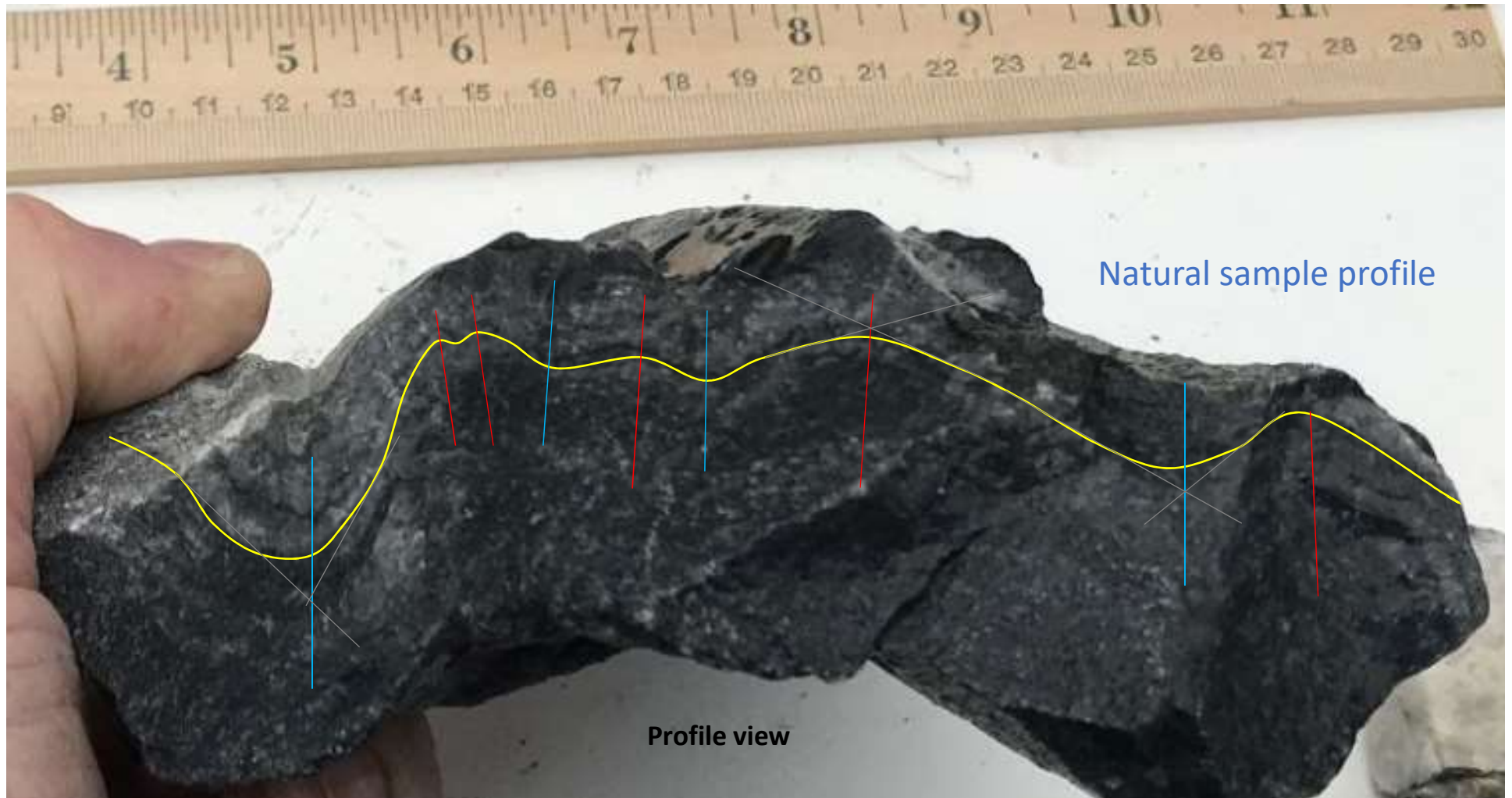
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Folds 1 – Open- to tight, upright folds in dark gray limestone



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

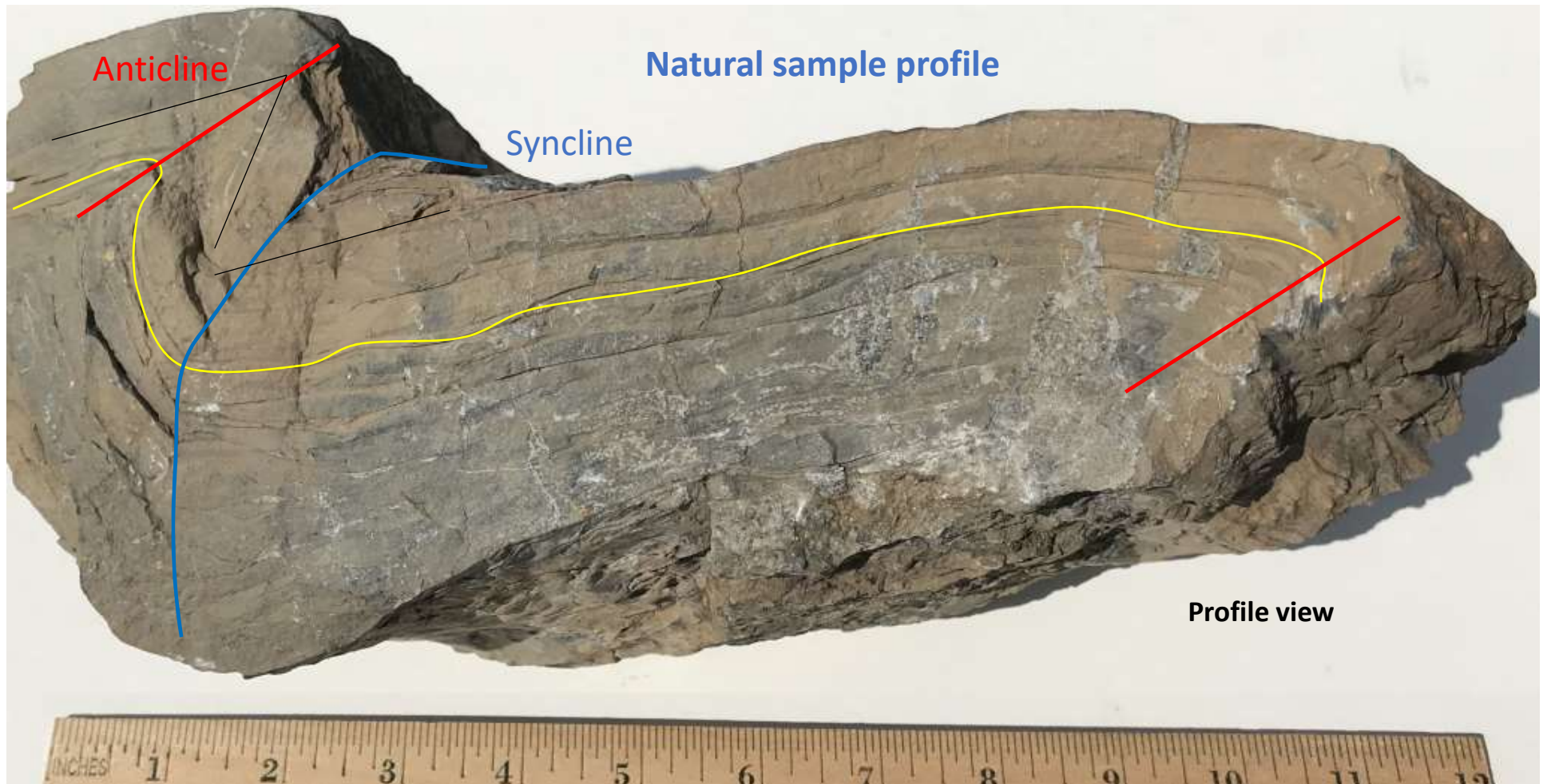
Natural sample profile



Profile view

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Folds 2 - Tight, inclined folds in gray dolomite weathered light brown



2020 Virtual Structural Geology Lab

Folds 3 - Tight, recumbent folds in laminated mudrock



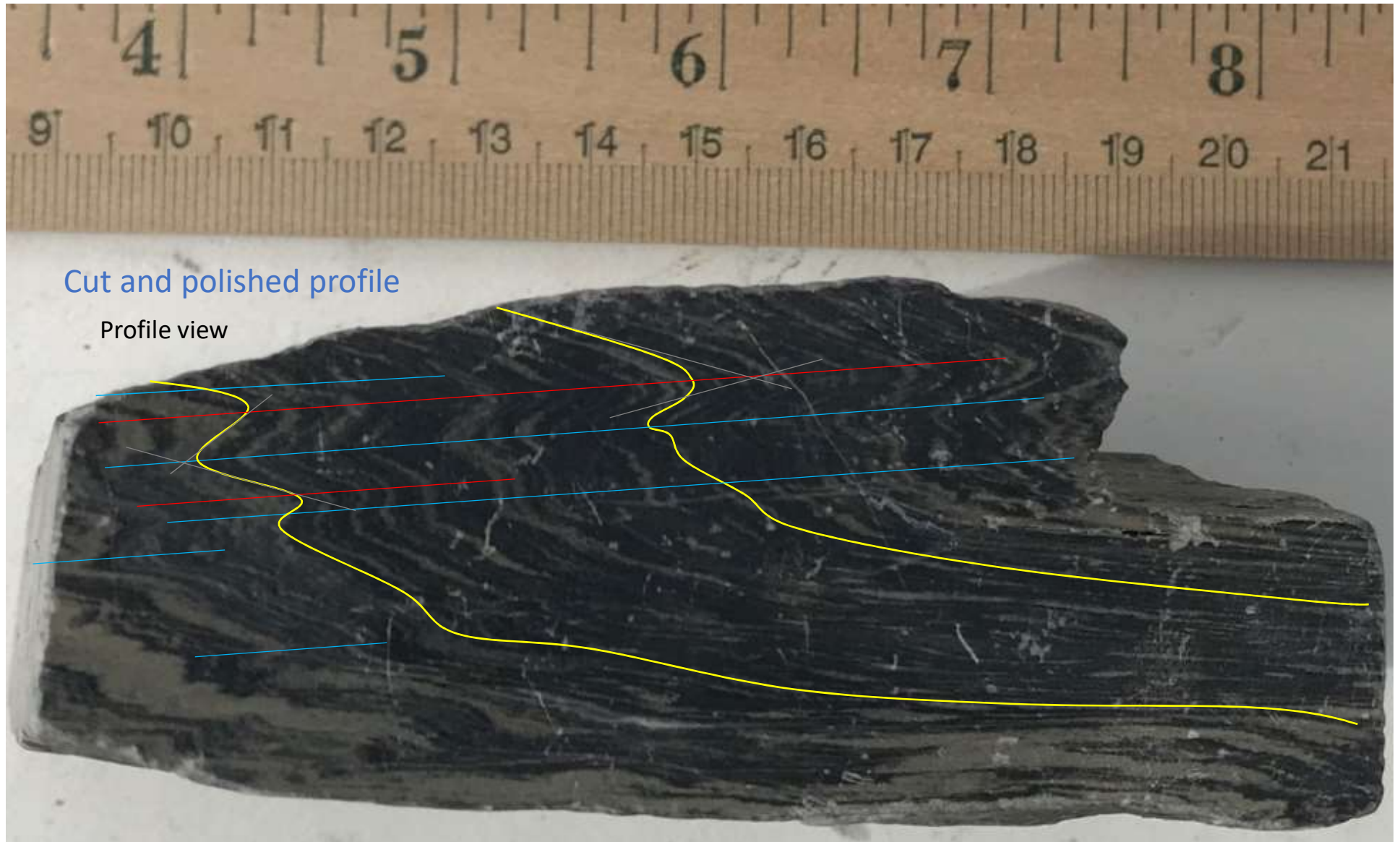
2020 Virtual Structural Geology Lab

Folds 3 - Tight, recumbent folds in laminated mudrock



2020 Virtual Structural Geology Lab

Folds 3 - Tight, recumbent folds in laminated mudrock



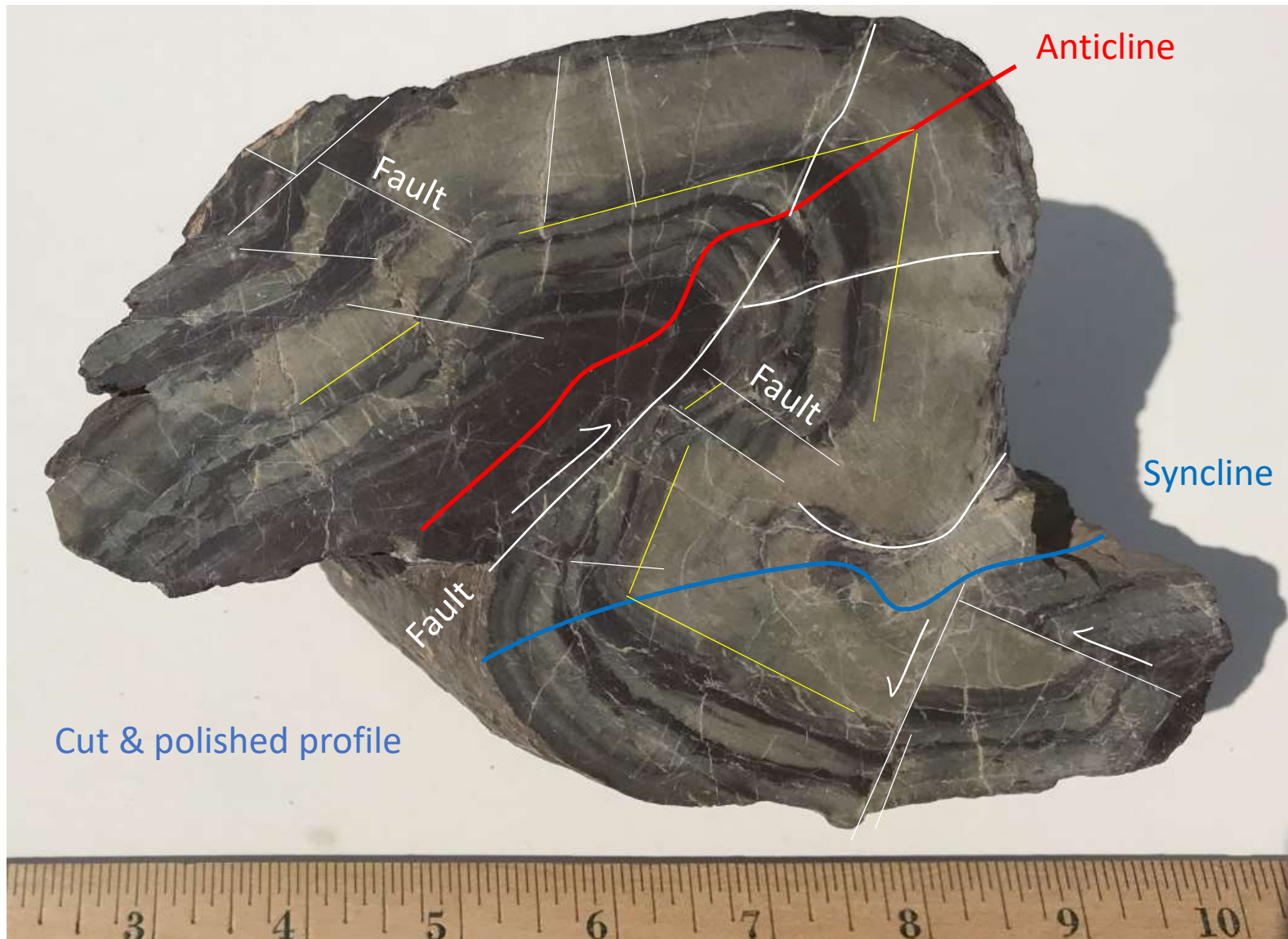
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Folds 4 - Compound structures Open- to recumbent folds and conjugate faults in dark-red to tan mudrock



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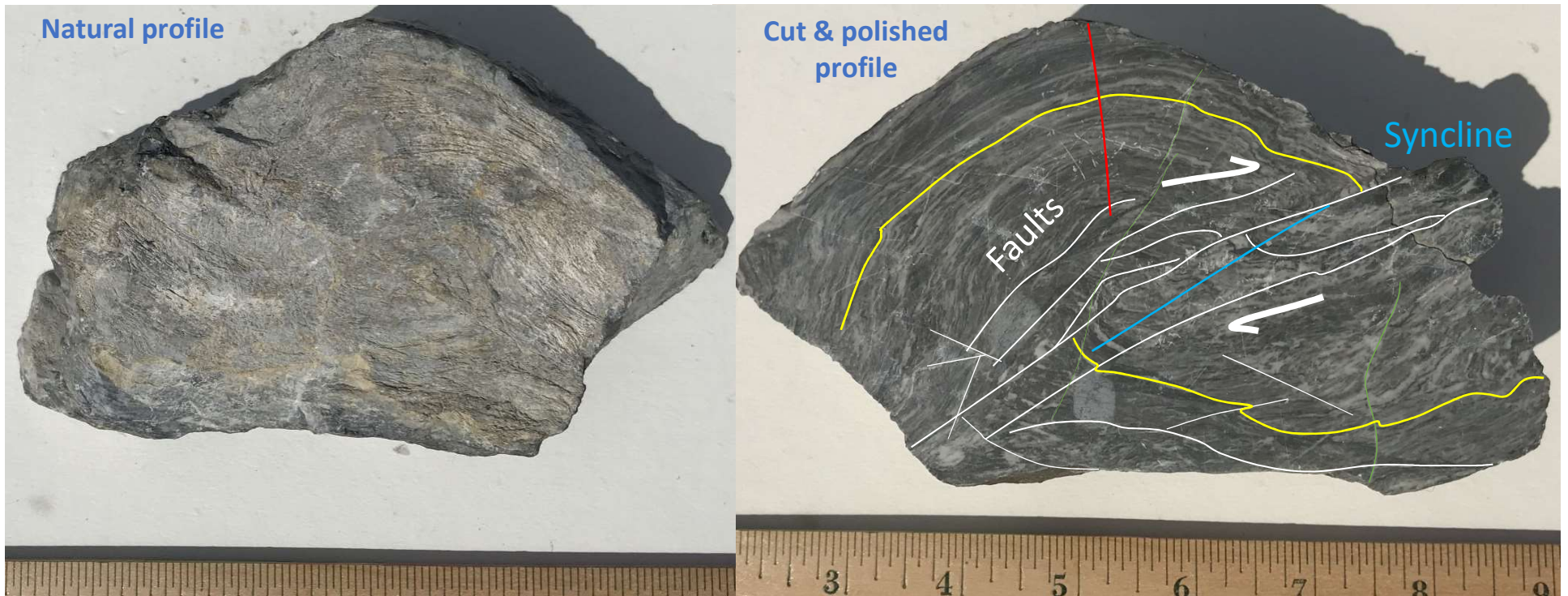
Folds 4 - Compound structures Open- to recumbent folds and conjugate faults in dark-red to tan mudrock



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.

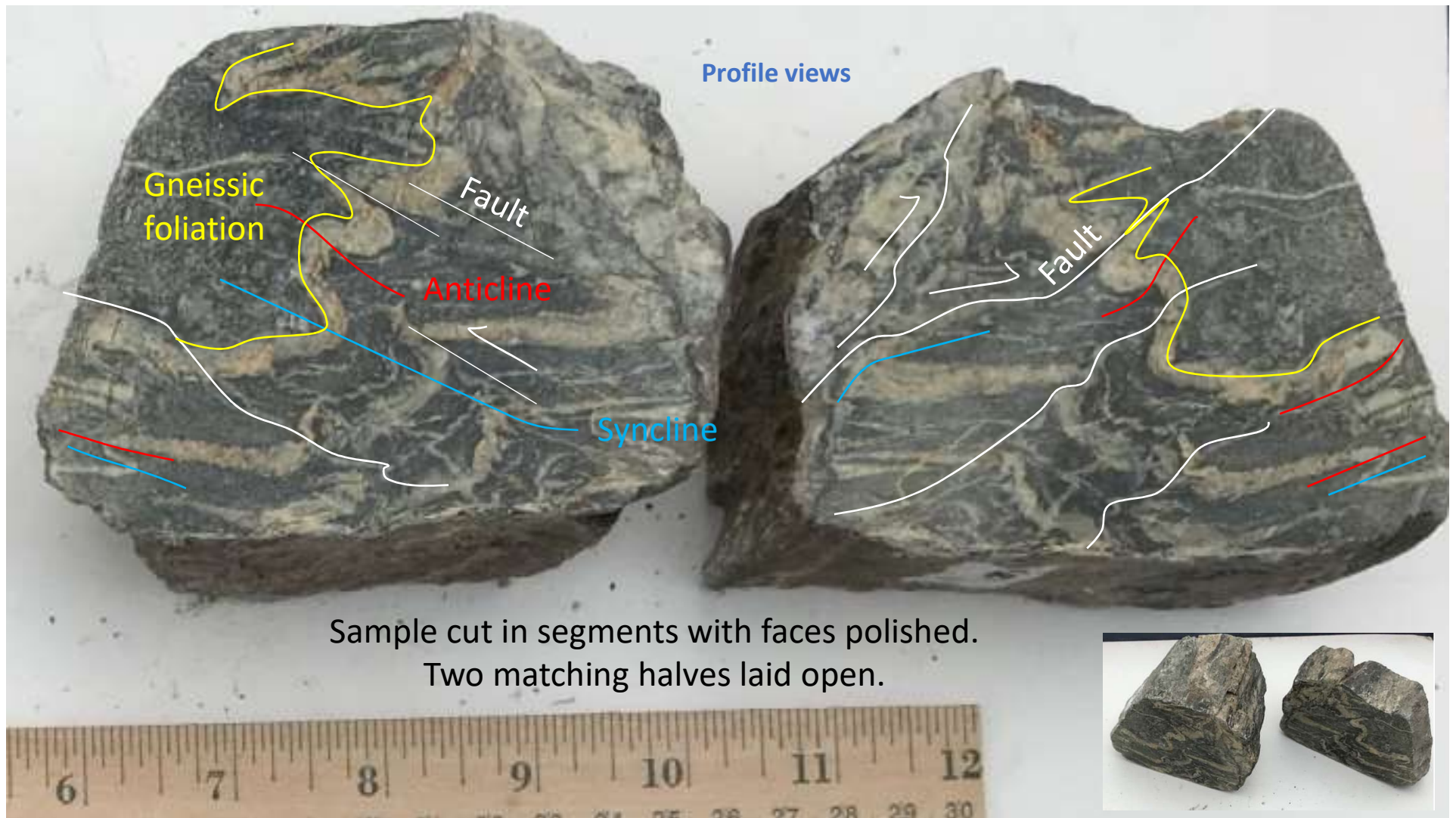
Profile views



Sample cut in segments with faces polished.
Two matching halves laid open.

2020 Virtual Structural Geology Lab

Folds 6 - Compound structures: Open- to recumbent folds and faults in sheared gneiss.



Sample cut in segments with faces polished.
Two matching halves laid open.

2020 Virtual Structural Geology Lab - Cleavage



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

Natural faces



2020 Virtual Structural Geology Lab - Cleavage



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

Samples of Alleghanian spaced and slaty cleavage from NJ

Natural faces



Profile view



Top view



2020 Virtual Structural Geology Lab - Cleavage

Profile view

Top view

Natural faces



Profile view



Cut & polished face



Top view

Profile view

Profile view

981

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

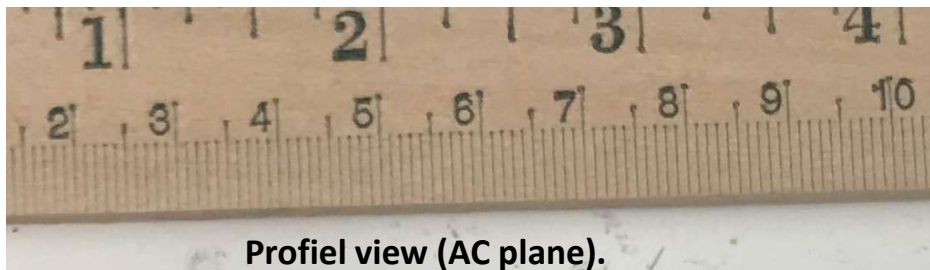


Cut & polished face

2020 Virtual Structural Geology Lab

Spaced slip cleavage

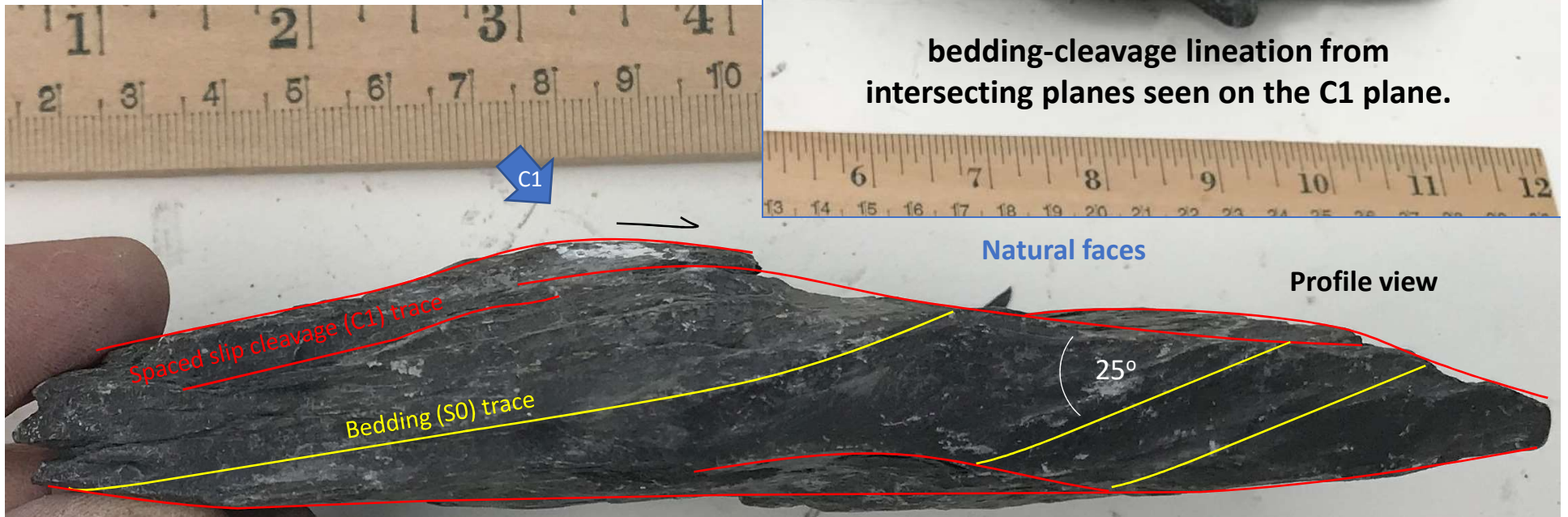
The bedding-cleavage intersection angle is acute ($<25^\circ$) as these beds of gray limestone have been sheared and flattened in a fold limb. As oriented at the bottom, showing top-to-the-right shear and flattening of bedding.



2020 Virtual Structural Geology Lab

Spaced slip cleavage

The bedding-cleavage intersection angle is acute ($<25^\circ$) 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

Compound structures: Slaty and crenulation cleavage

Peach Bottom Slate
Eastern Pennsylvania
showing 2 phases of
non-coaxial orogenic
compression

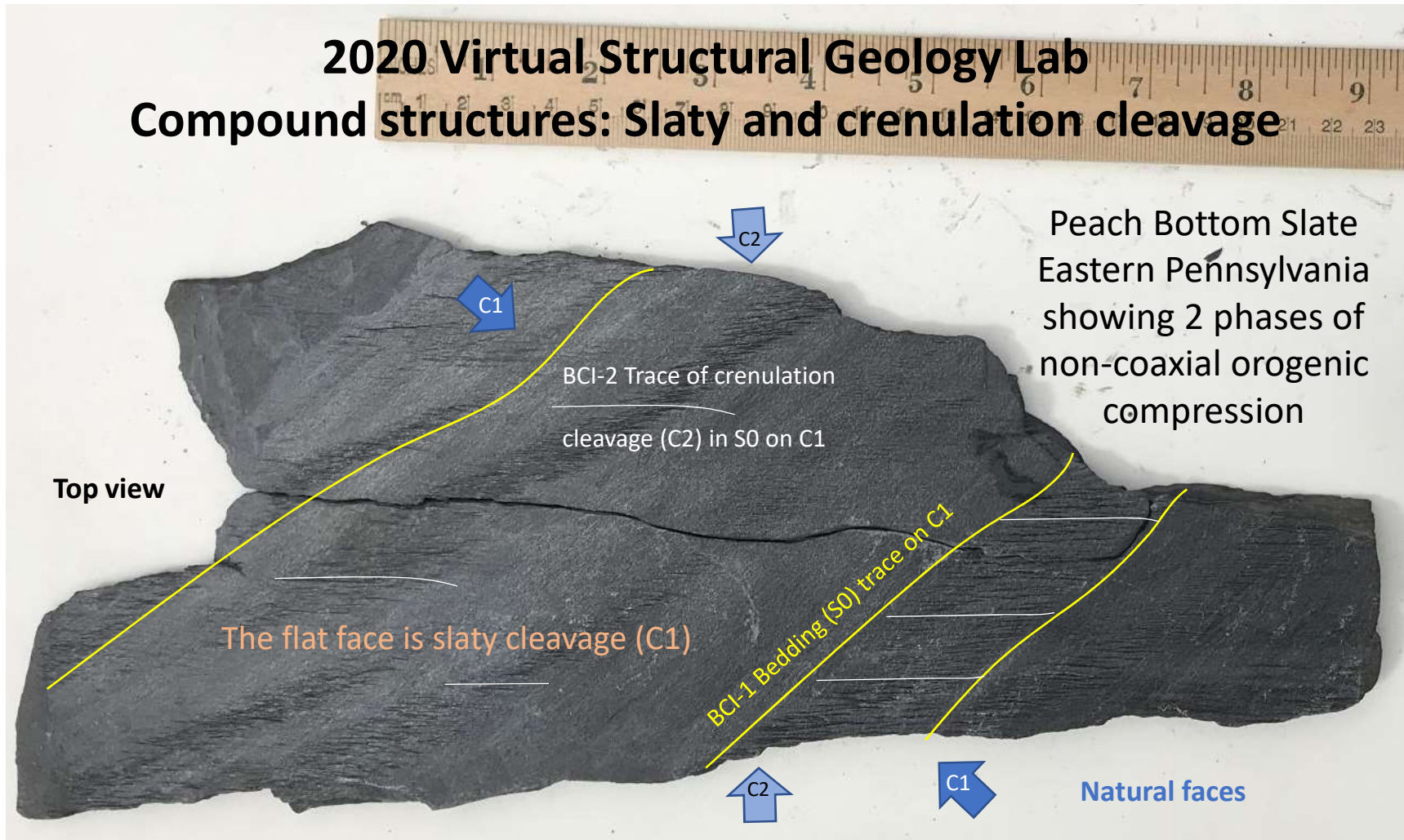
Top view

Natural faces



2020 Virtual Structural Geology Lab

Compound structures: Slaty and crenulation cleavage



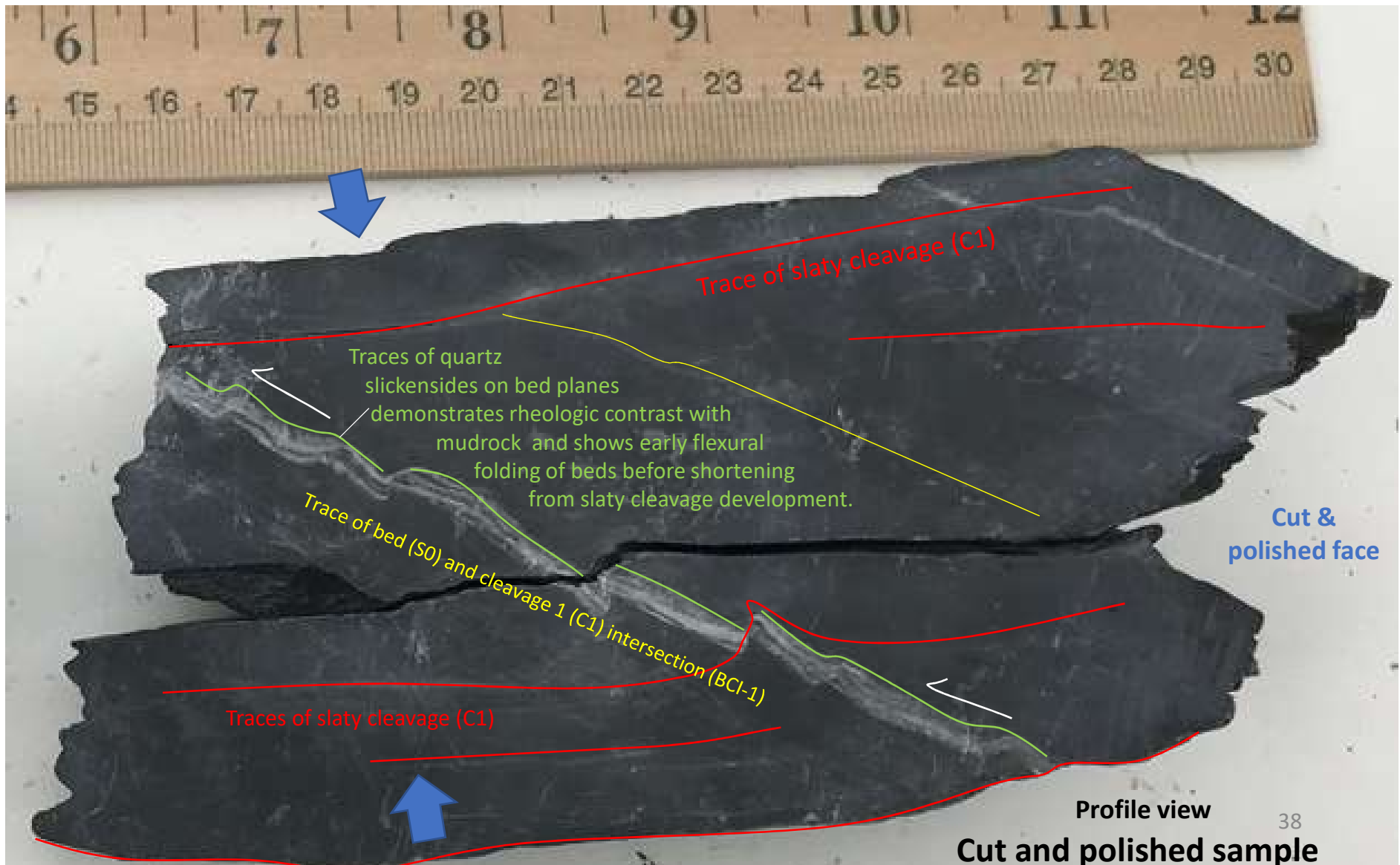
2020 Virtual Structural Geology Lab

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

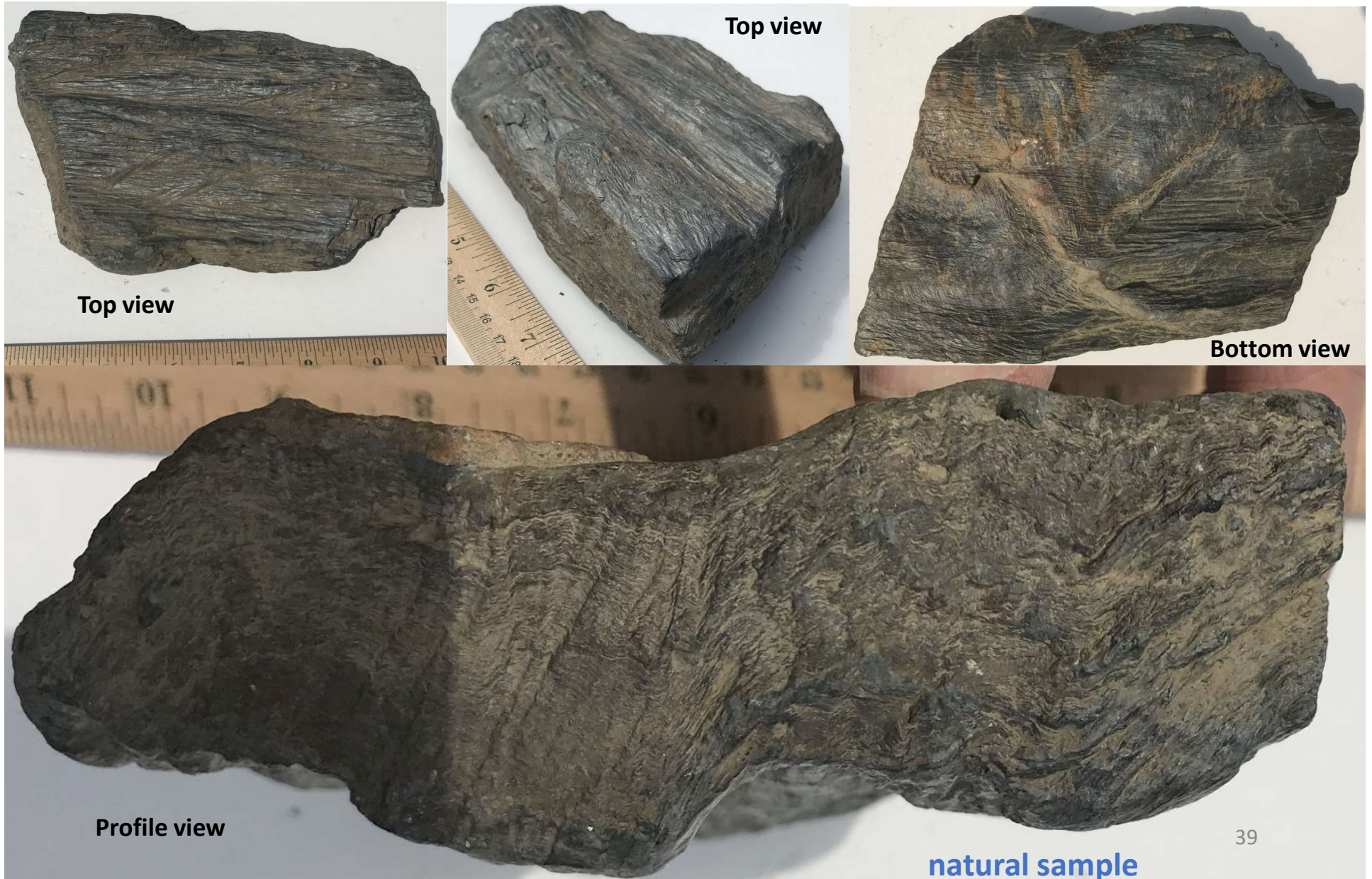


2020 Virtual Structural Geology Lab

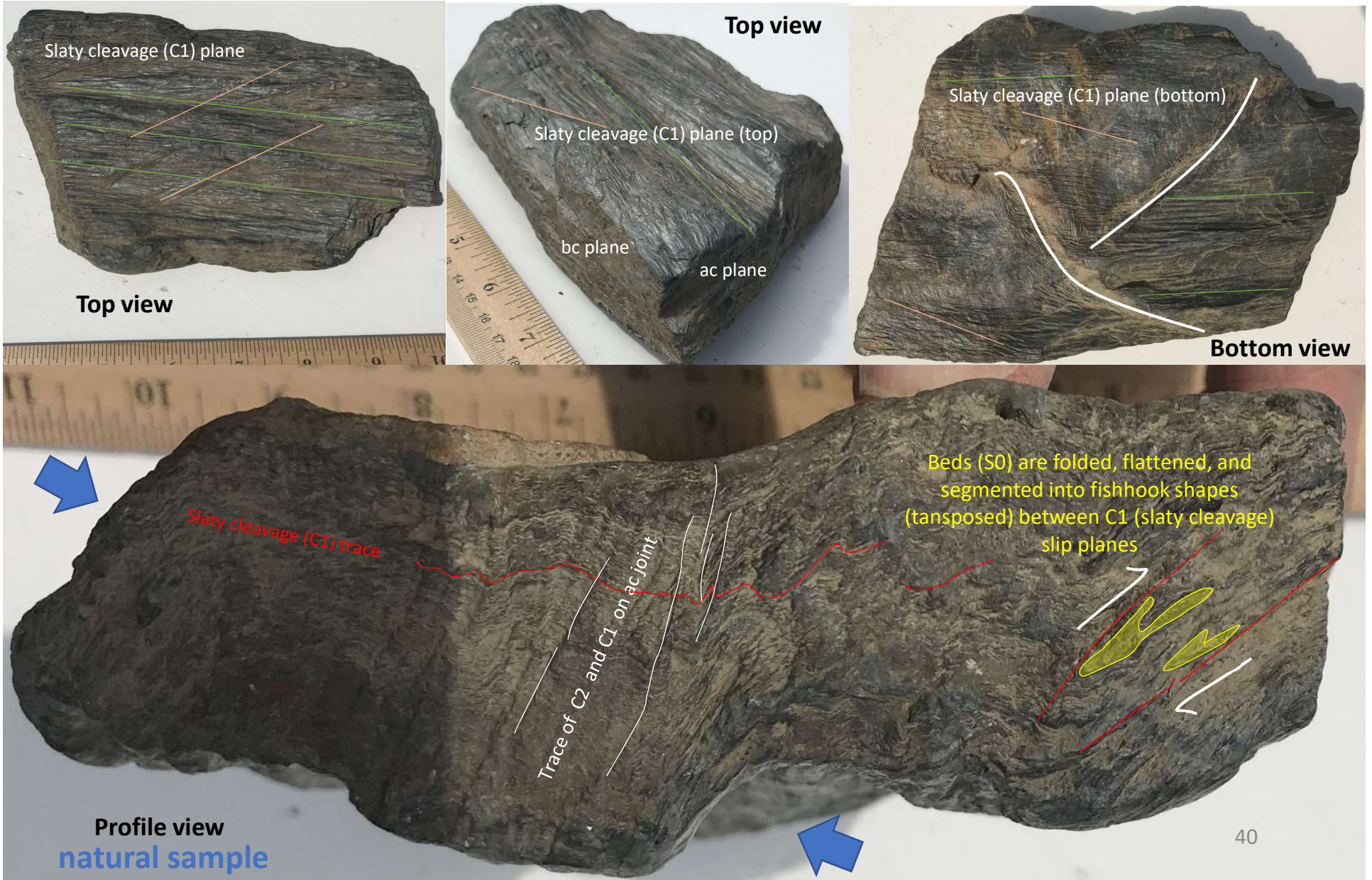
Compound structures: Slaty cleavage offsetting slickensided bed-parallel shear planes in Martinsburg Formation, Newton, New Jersey



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

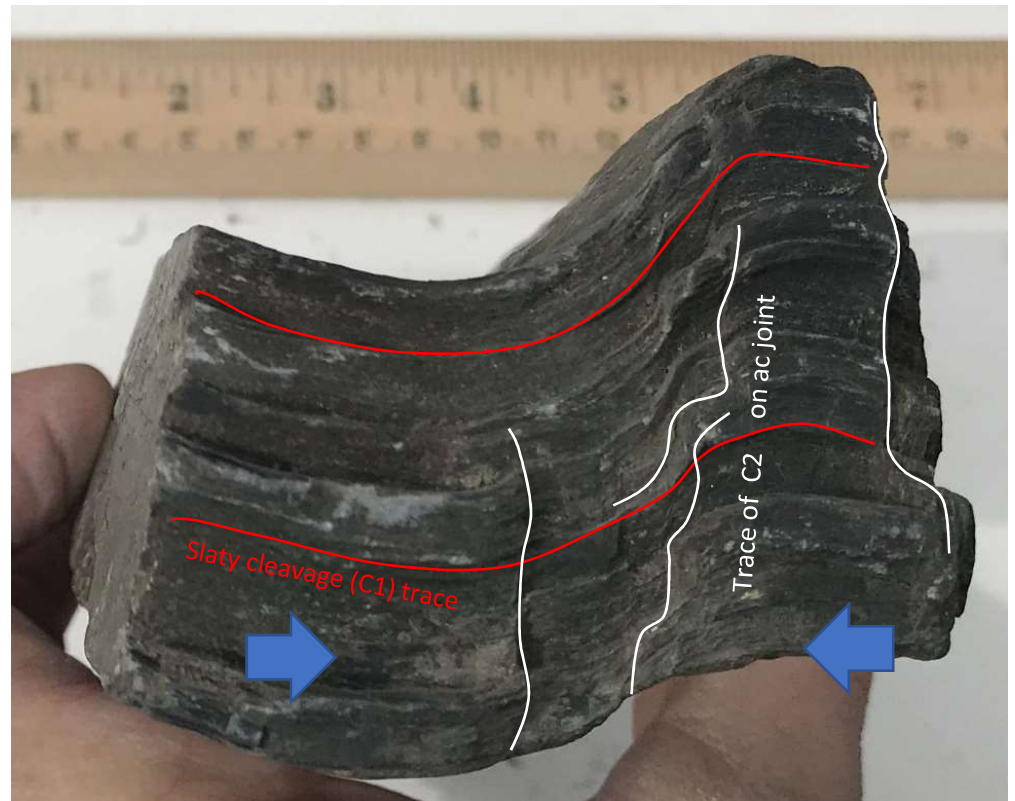


2020 Virtual Structural Geology Lab - Compound structures: Two crenulation cleavages in transposed Martinsburg Formation, NJ



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



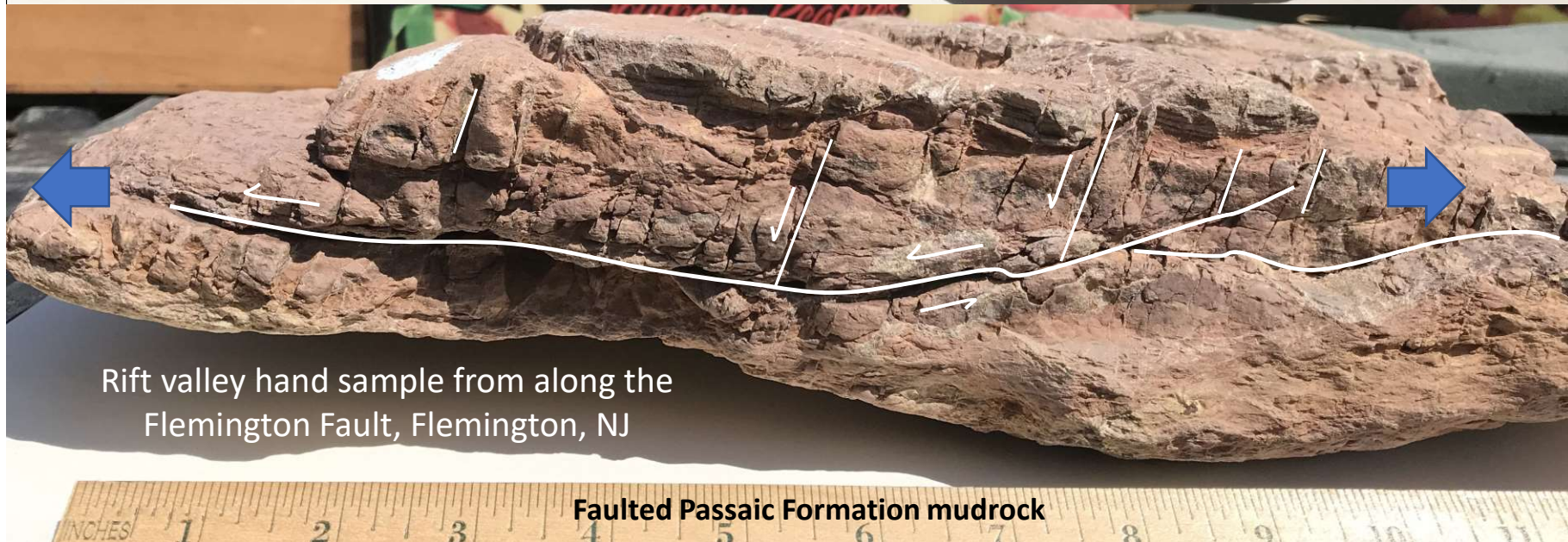
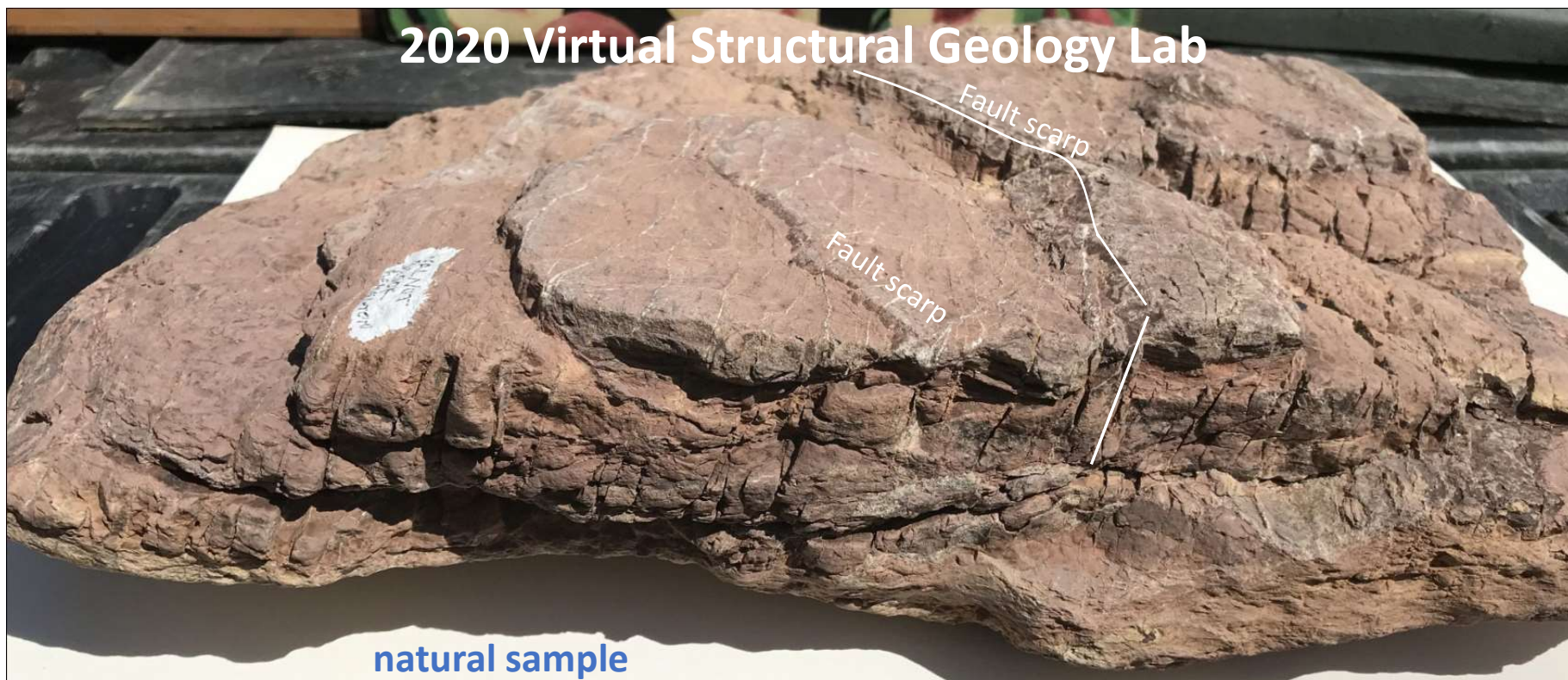
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Faulted Passaic Formation mudrock from along the Flemington Fault, NJ



Rift valley hand sample from along the Flemington Fault, Flemington, NJ

2020 Virtual Structural Geology Lab



2020 Virtual Structural Geology Lab

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

