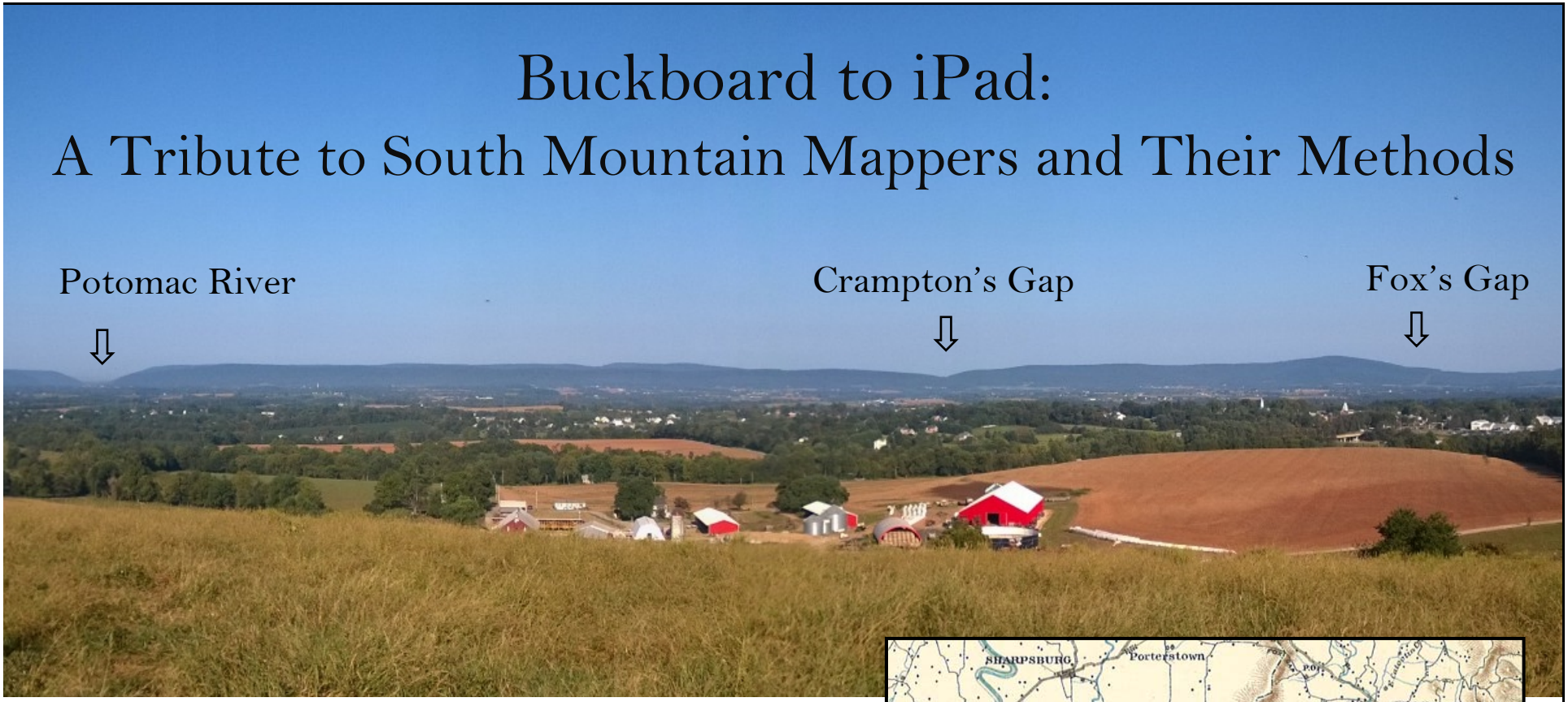
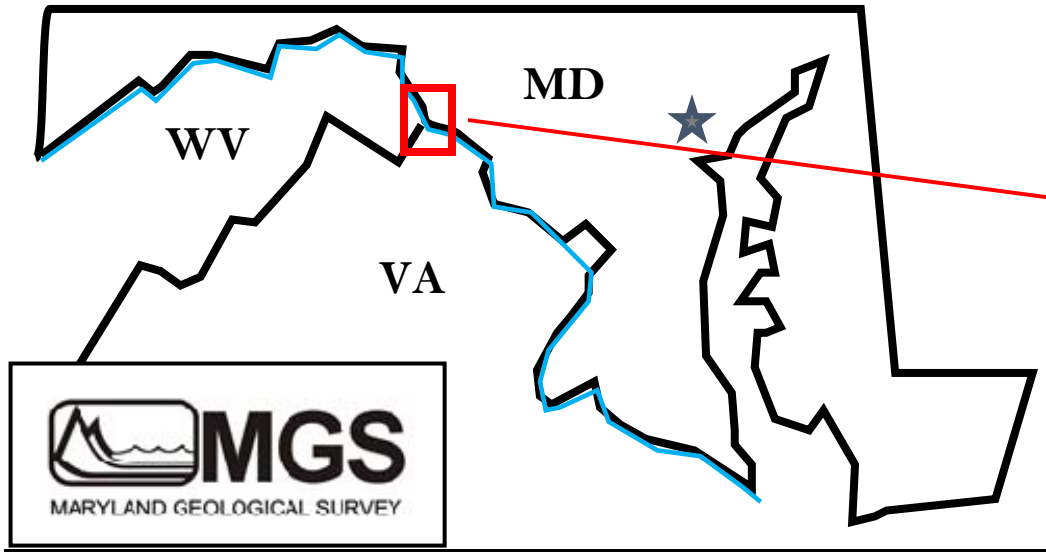
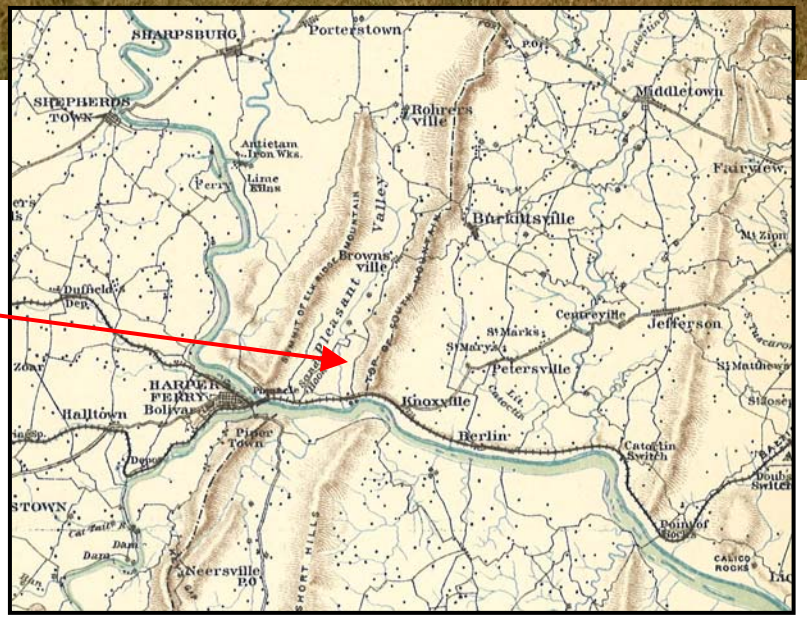
Buckboard to iPad:
A Tribute to South Mountain Mappers and Their Methods







South Mountain Mapping:

1894 - Harpers Ferry Folio, Keith

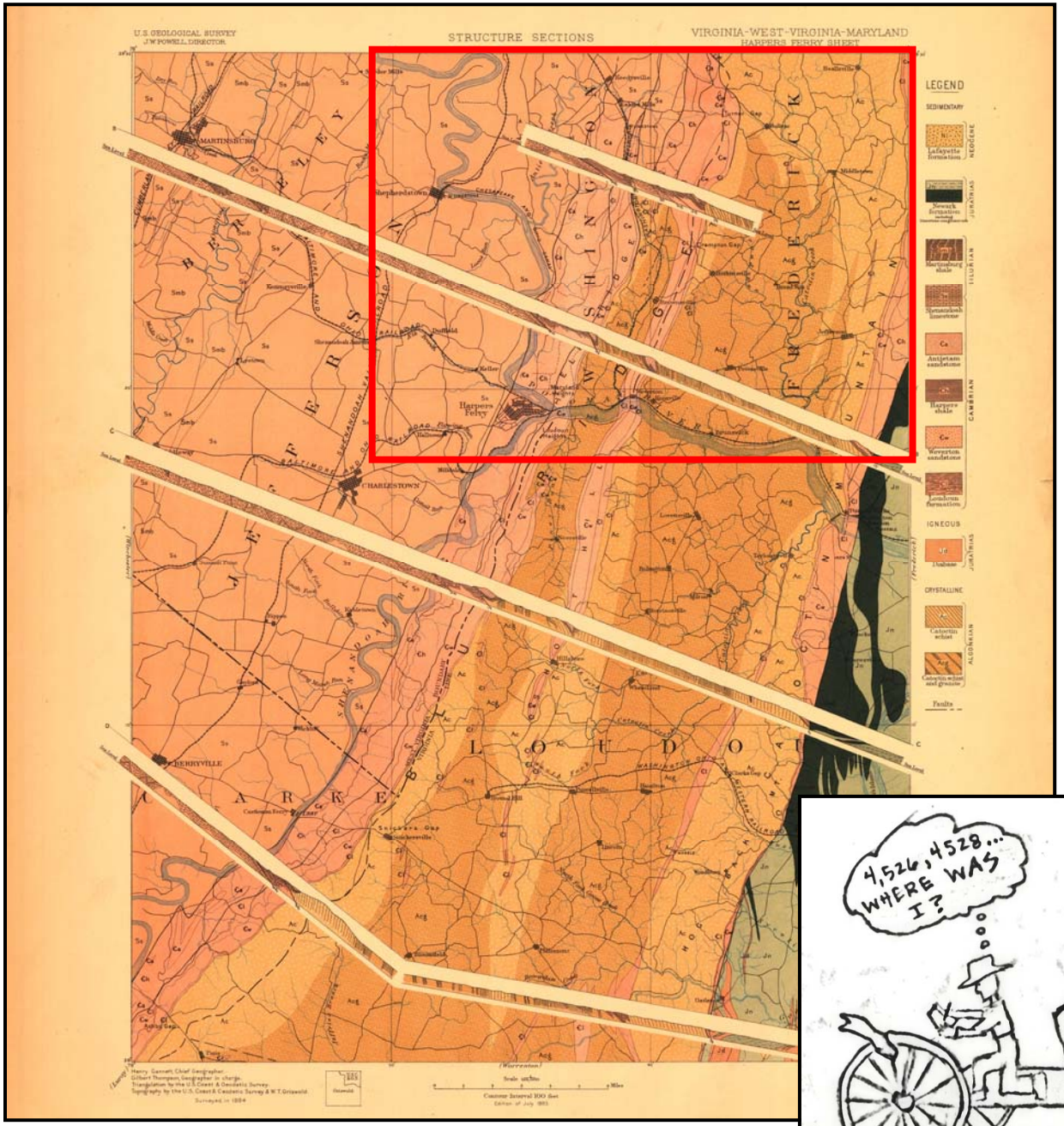
1938 - Frederick County Map, Jonas and Stose

1941 - Washington County Map, Cloos

1996 - Harpers Ferry Quad, Southworth and Brezinski

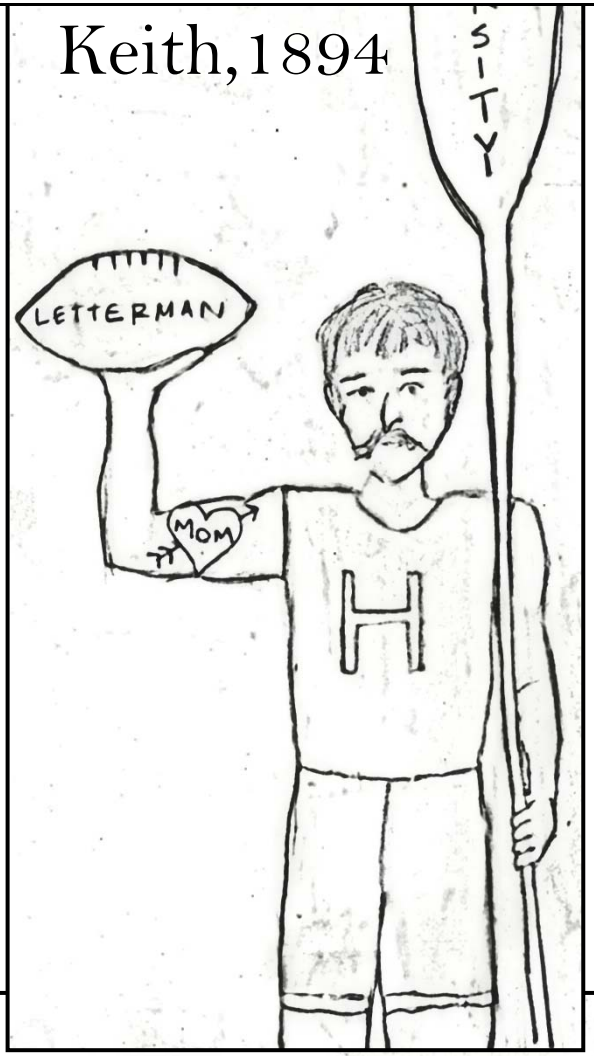
2015 - Digital Mapping, Kavage Adams

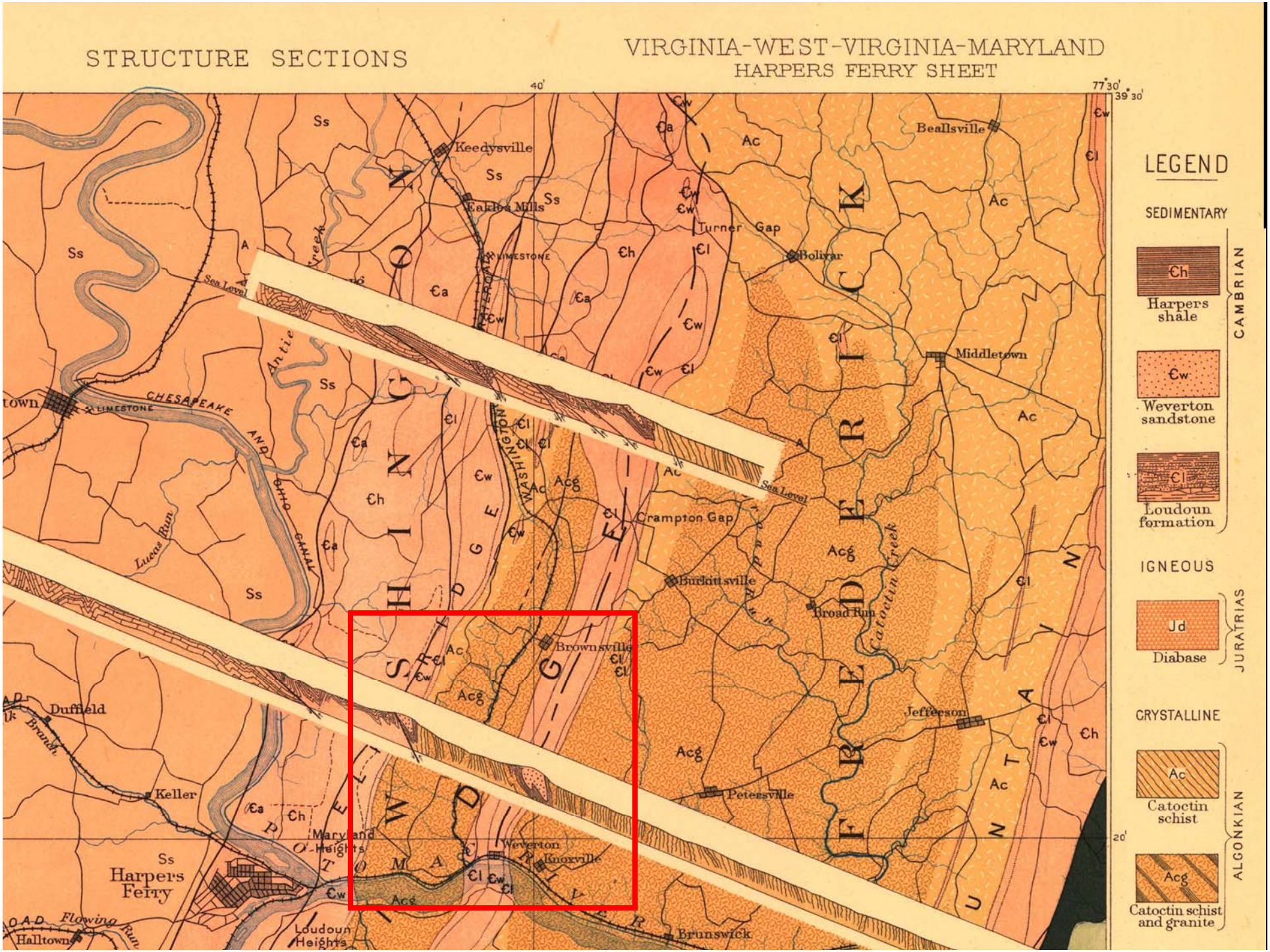
HARPERS FERRY FOLIO - USGS



1:125,000 ≈ 1000 mi²

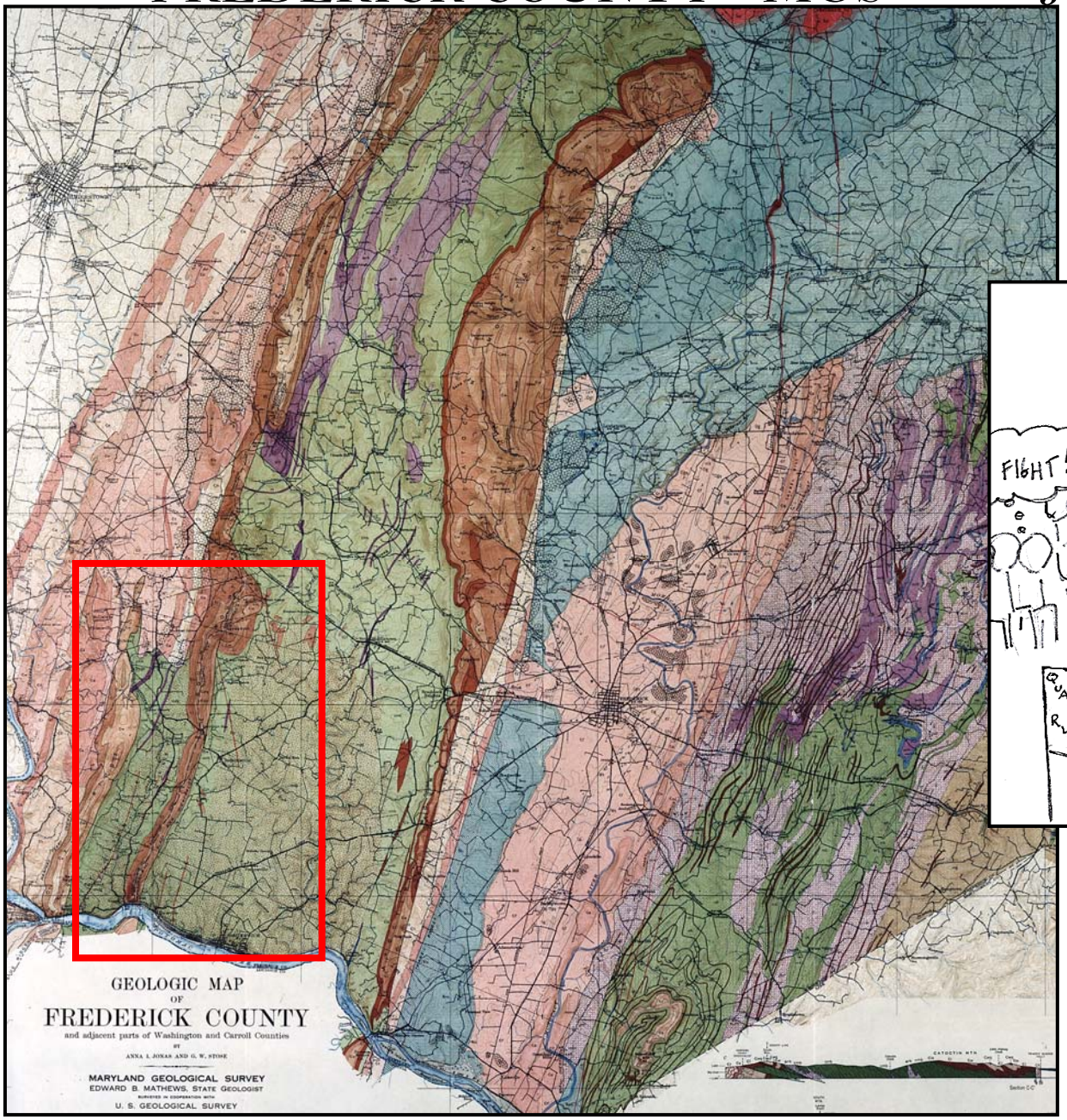
Keith, 1894




STRUCTURE SECTIONS
VIRGINIA-WEST-VIRGINIA-MARYLAND
HARPERS FERRY SHEET
40'
77°30'
39°30'
20'
Keedysville
Ss
Ac
Beallsville
Turner Gap
Bolivar
Middletown
Crampton Gap
Burkittsville
Broad Run
Brownsville
Jefferson
Petersville
Duffield
Keller
Harpers Ferry
Maryland Heights
Weverton
Knoxville
Loudoun Heights
Brunswick
Halltown
Flowing Run
Lucas Run
Antietam Creek
Catoctin Creek
Potomac River
Shenandoah River
Sea Level
LIMESTONE
CHESAPEAKE AND OHIO CANAL
WASHINGTON
LEGEND
SEDIMENTARY
Ch
Harpers shale
Cw
Weverton sandstone
Cl
Loudoun formation
CAMBRIAN
IGNEOUS
Jd
Diabase
JURATRIAS
CRYSTALLINE
Ac
Catoctin schist
Acg
Catoctin schist and granite
ALGONKIAN

FREDERICK COUNTY - MGS

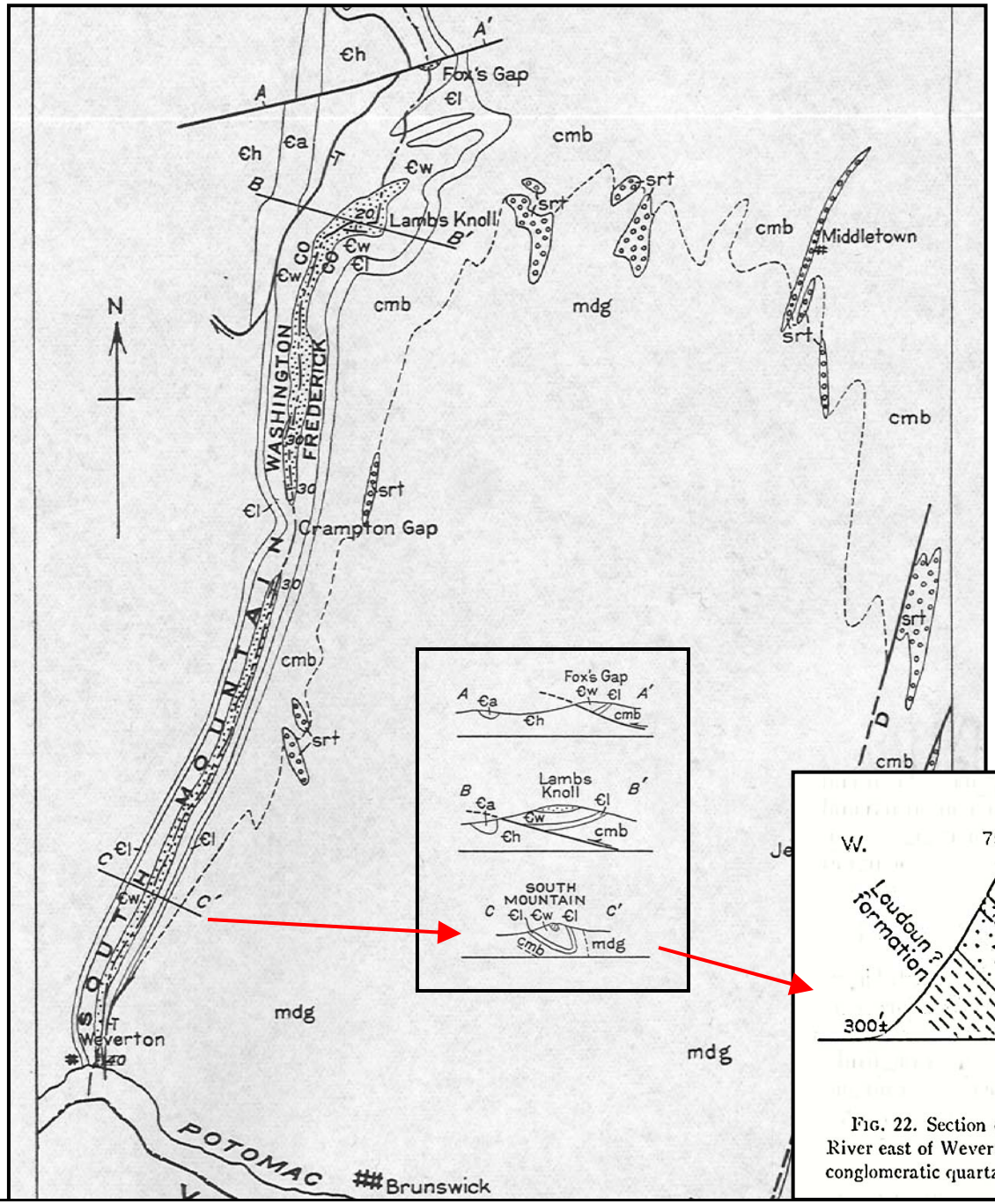
Jonas and Stose, 1938

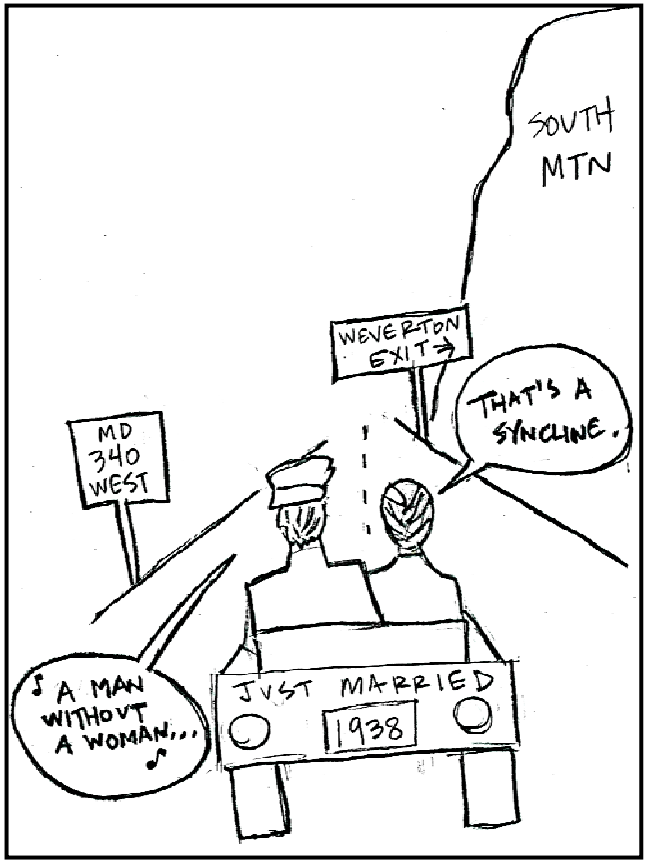


1:62,500 ≈ 700 mi²

FREDERICK COUNTY REPORT

Stose and Stose, 1946





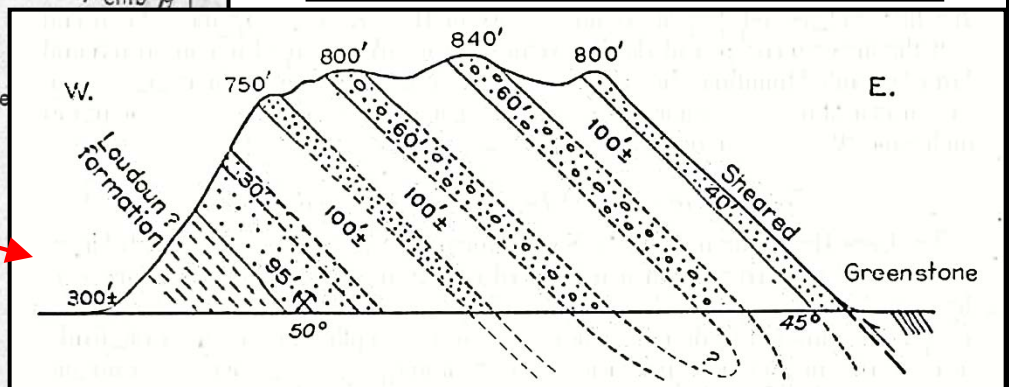
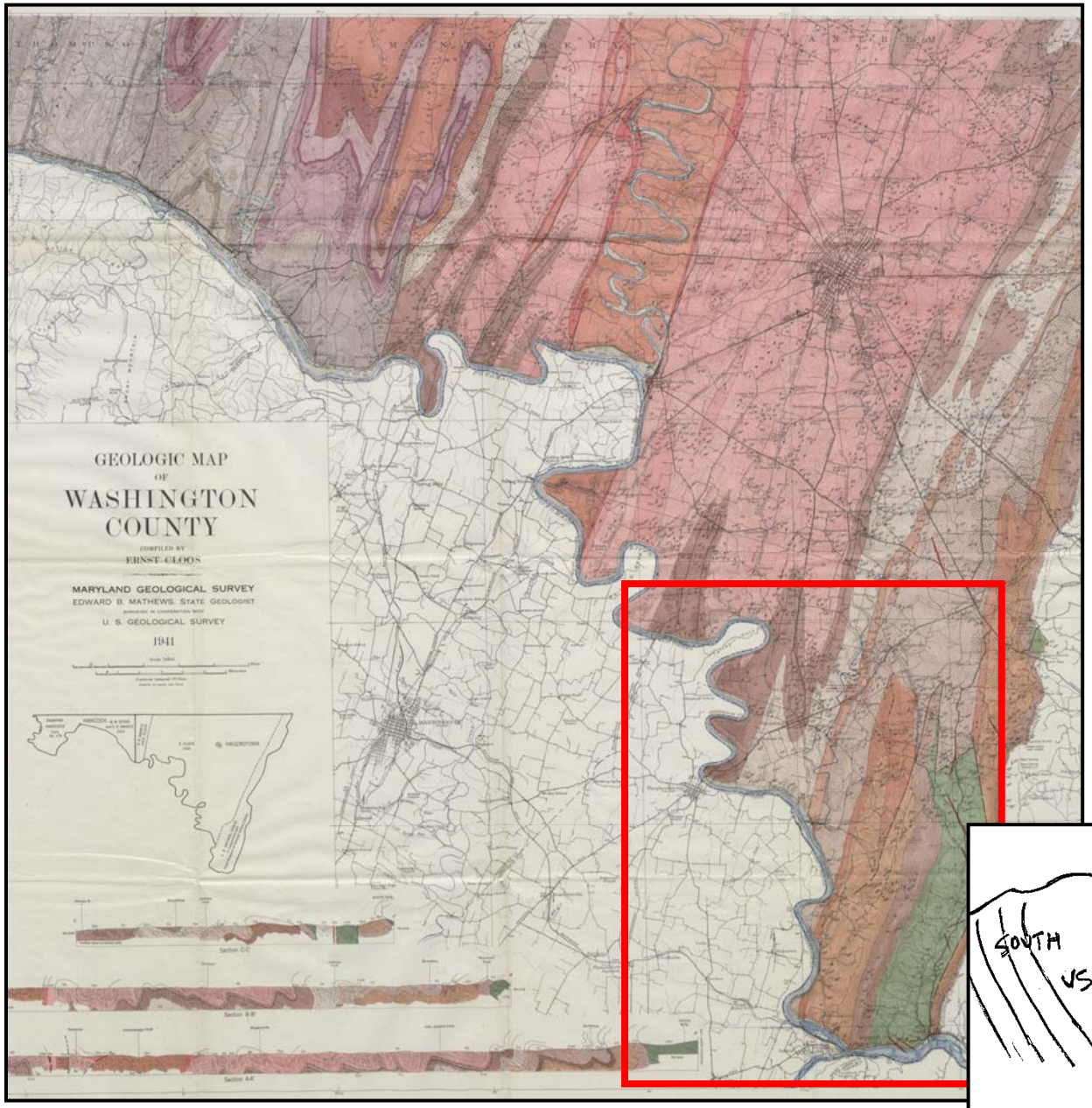


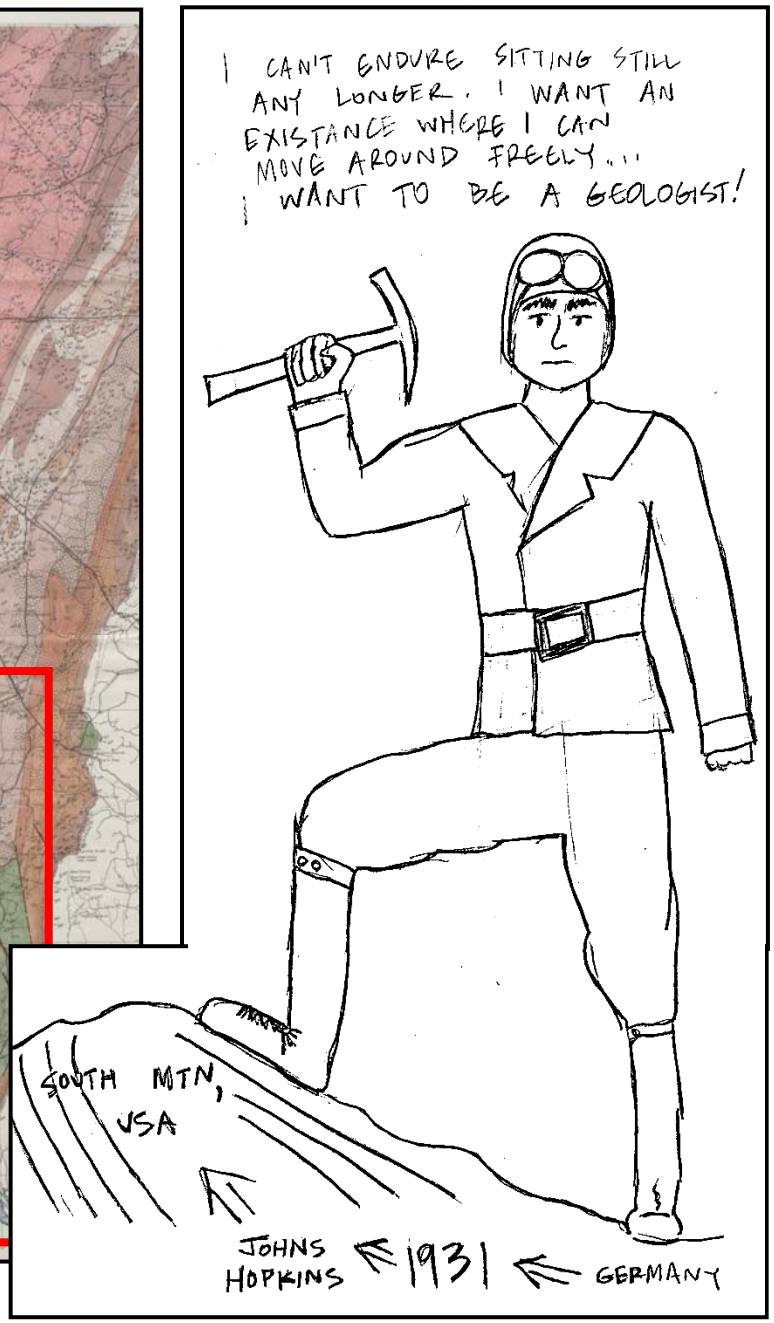
FIG. 22. Section of Weverton quartzite in South Mountain in bluff on north side of Potomac River east of Weverton. The structure is interpreted as an overturned isoclinal syncline enclosing conglomeratic quartzite of the upper part of the Weverton in the center of the fold.

WASHINGTON COUNTY - MGS

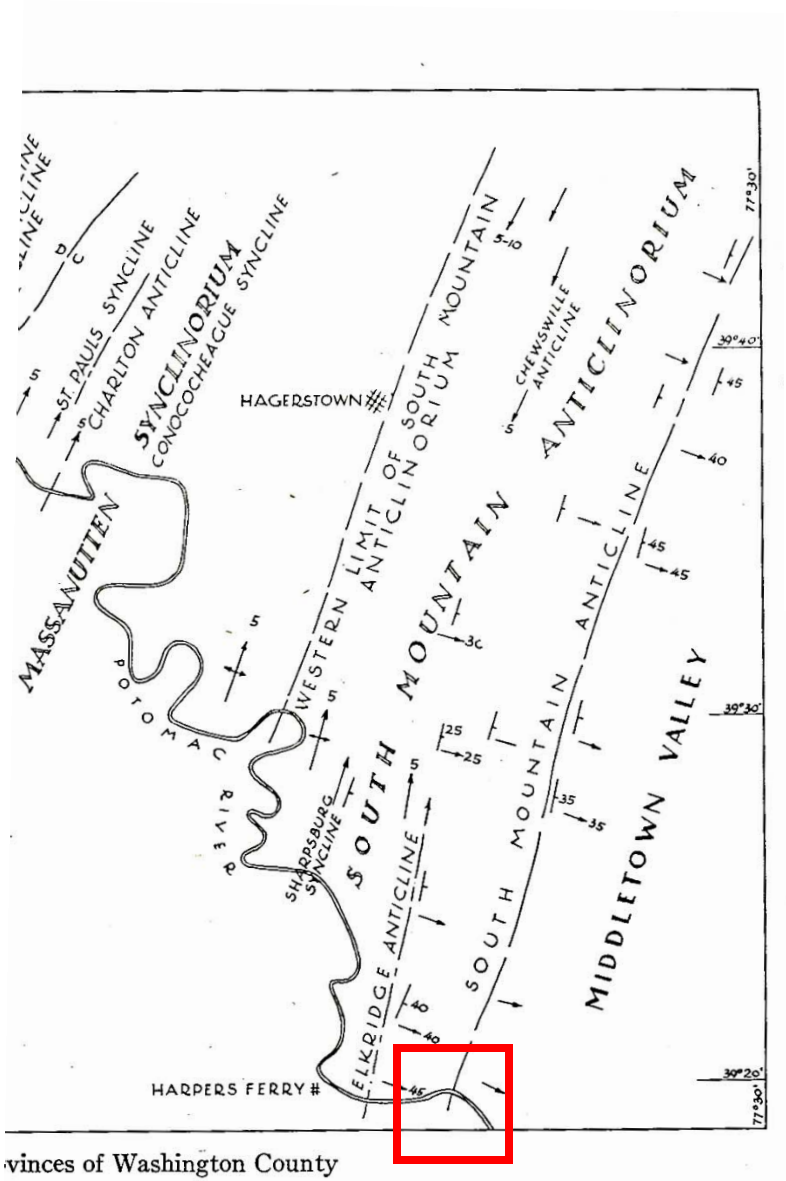


1:62,500 ≈ 500 mi²

Cloos, 1941



WASHINGTON COUNTY REPORT Cloos, 1951



vinces of Washington County

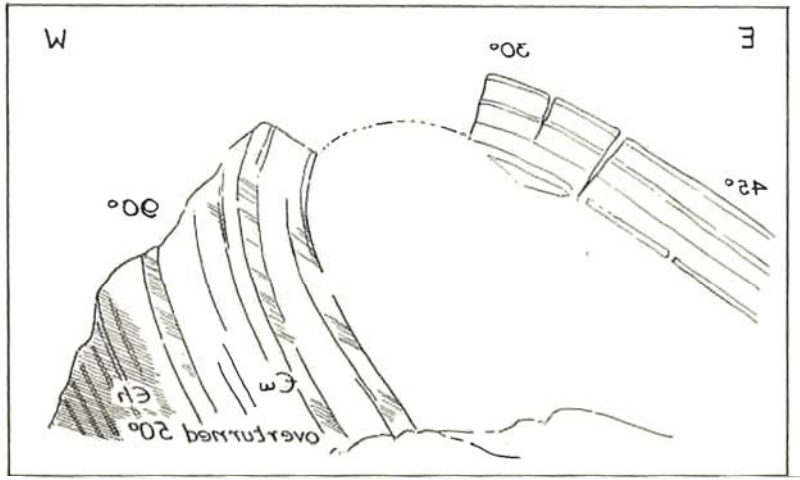


FIGURE 10. South Mountain Anticline Viewed from U. S. 340 across Potomac River. Distance from limb to limb at base approximately 2,000 feet. Top limb almost a dip slope, west limb overturned, cleavage gentler than bedding, both dip east (see also Figure 23).

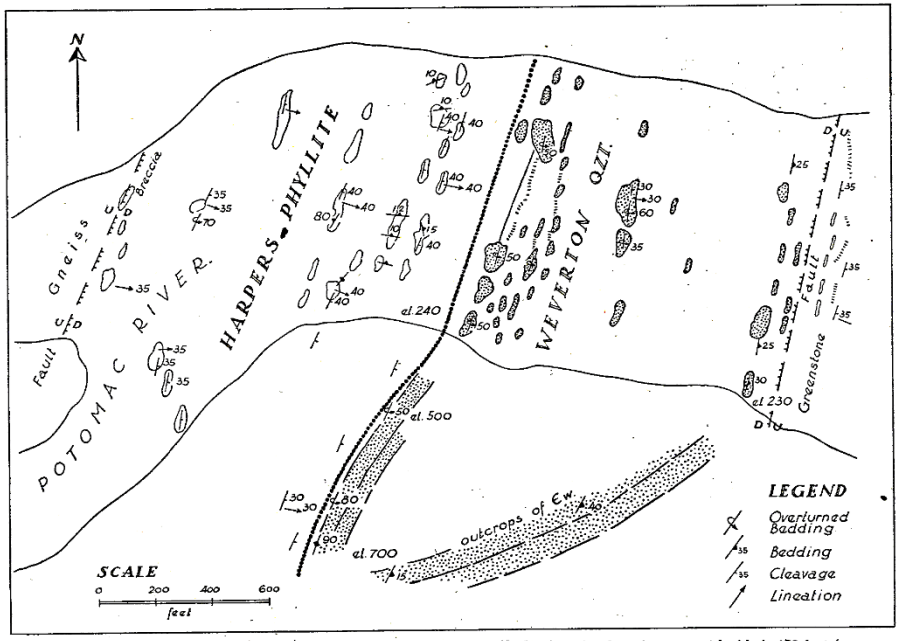
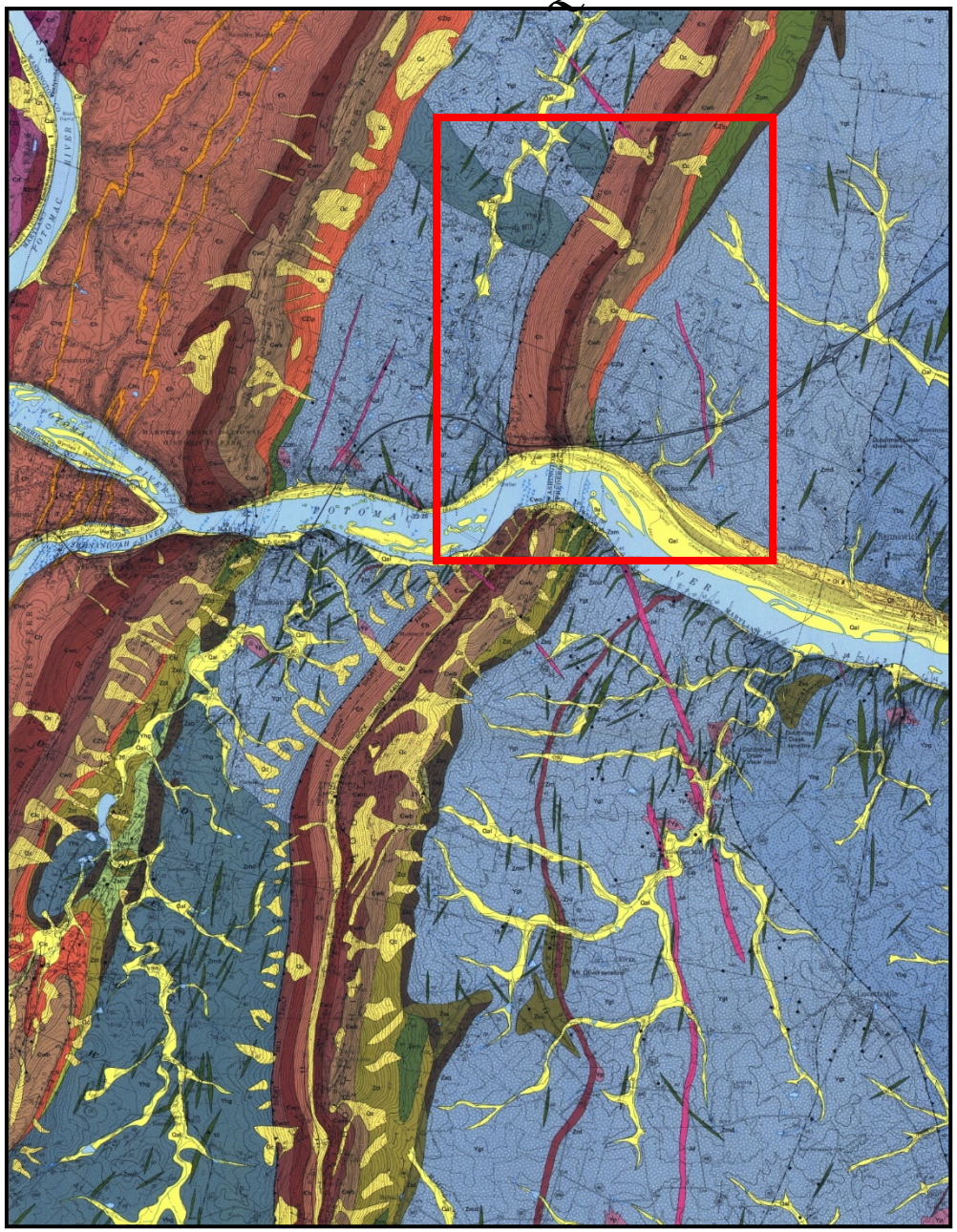


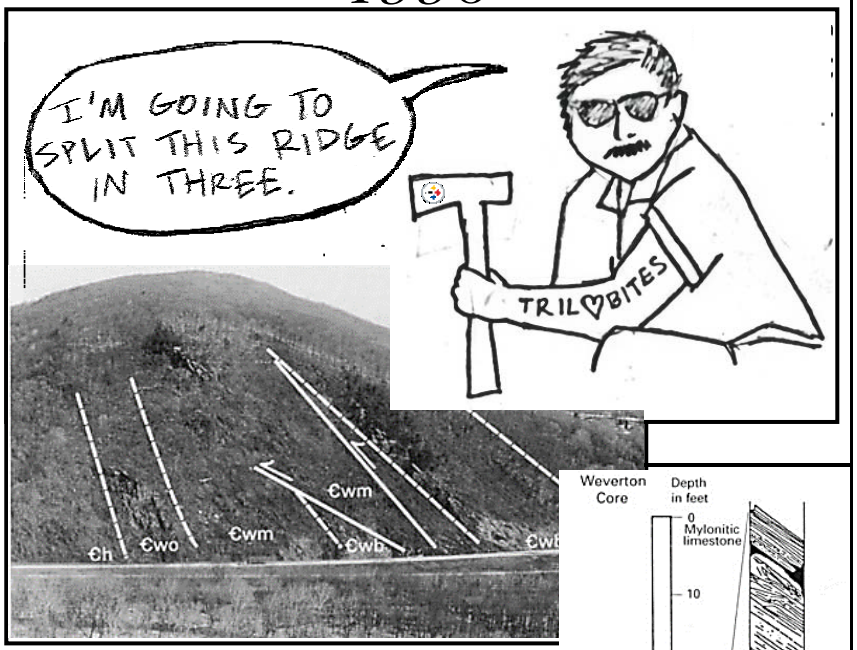
FIGURE 21. Plane Table Map of Potomac River Gorge at Weverton. Difference in elevation on south side is 470 feet (compare Fig. 10).

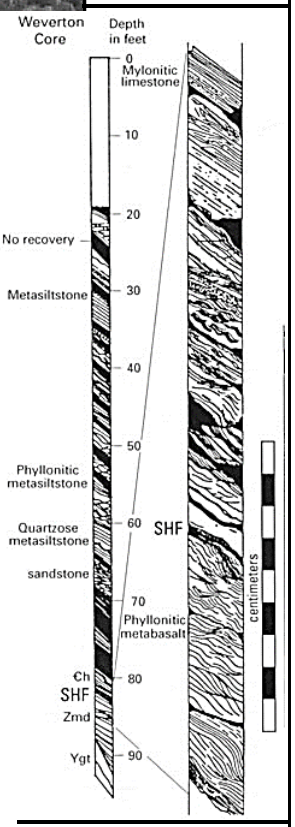
HARPERS FERRY QUAD - USGS



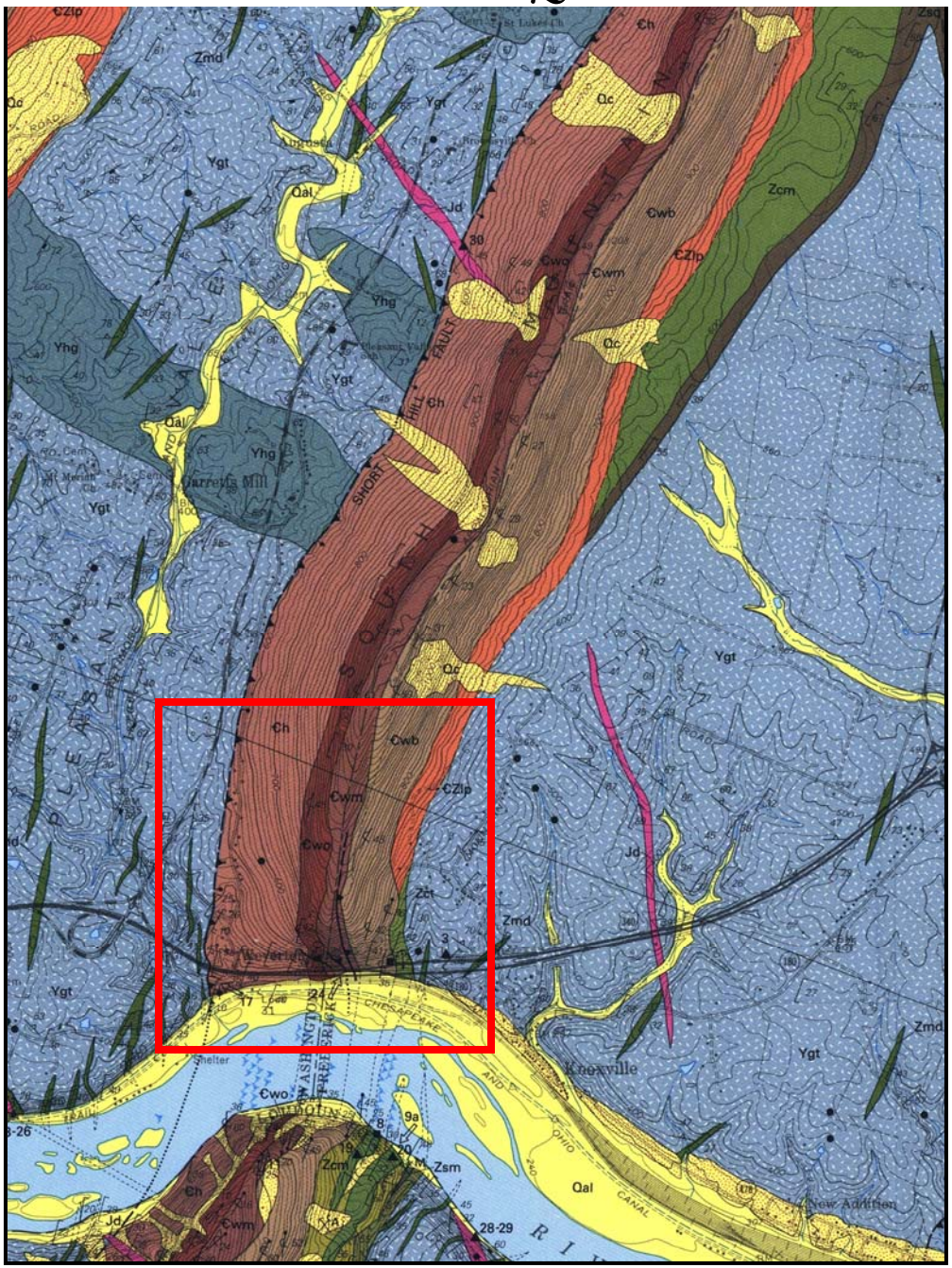
1:24,000 ≈ 50 mi²

Southworth and Brezinski, 1996





HARPERS FERRY QUAD - USGS



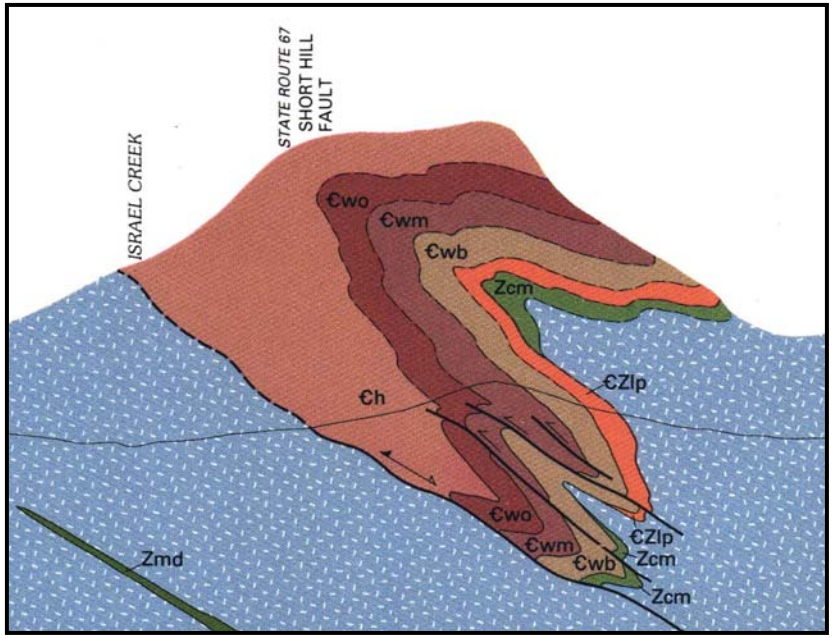
Southworth and Brezinski

Weverton Formation (Lower Cambrian) (Keith, 1894; King, 1950)

€wo Owens Creek Member (Brezinski, 1992)—Dusky-blue (5*PB* 3/2) to dark-gray (*N*3) quartz-pebble conglomerate and greenish-gray (5*G* 6/1) quartz-pebble conglomeratic quartzite, metasiltstone, and interbedded quartzite. Poorly sorted, medium to thick bedded, graded, and cross-bedded. Contains local accumulations of magnetite, heavy minerals, red jasper, red quartz, and phyllite clasts. Pebbles commonly are 0.4 in. in diameter. Top of unit is a sharp contact occurring at top of quartz-pebble conglomeratic quartzite; bottom of unit is gradational with the metasiltstone of the Maryland Heights Member. Thickness is 105 ft on Short Hill-South Mountain and 90 to 150 ft on Blue Ridge-Elk Ridge

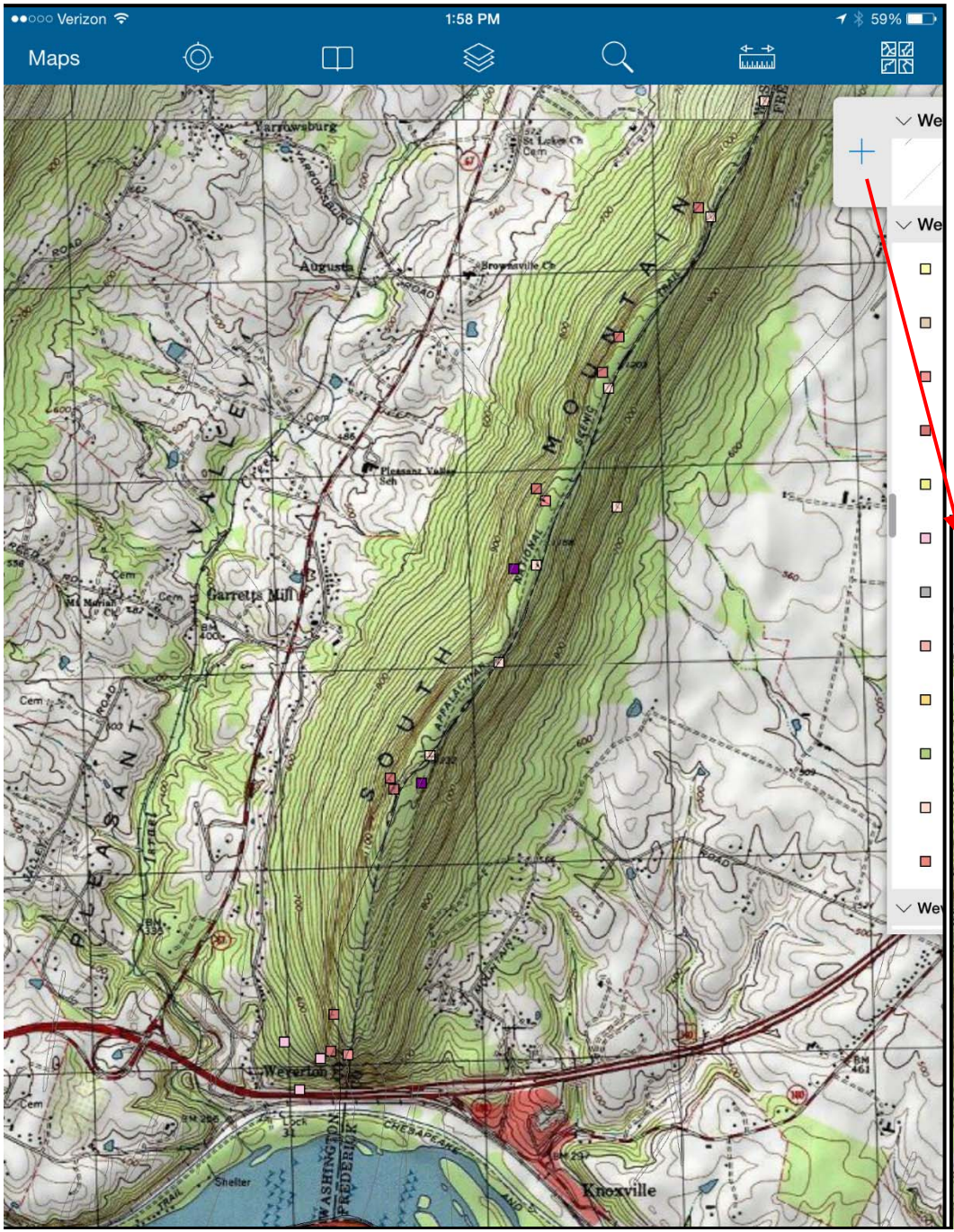
€wm Maryland Heights Member (Brezinski, 1992)—Interbedded, dark-greenish-gray (5*GY* 4/1) metasiltstone and dusky-blue (5*PB* 3/2) to greenish-gray (5*G* 6/1), very coarse grained to granular quartzite. Quartzite beds vary from 16 to 32 ft in thickness. Total thickness ranges from 160 to 480 ft

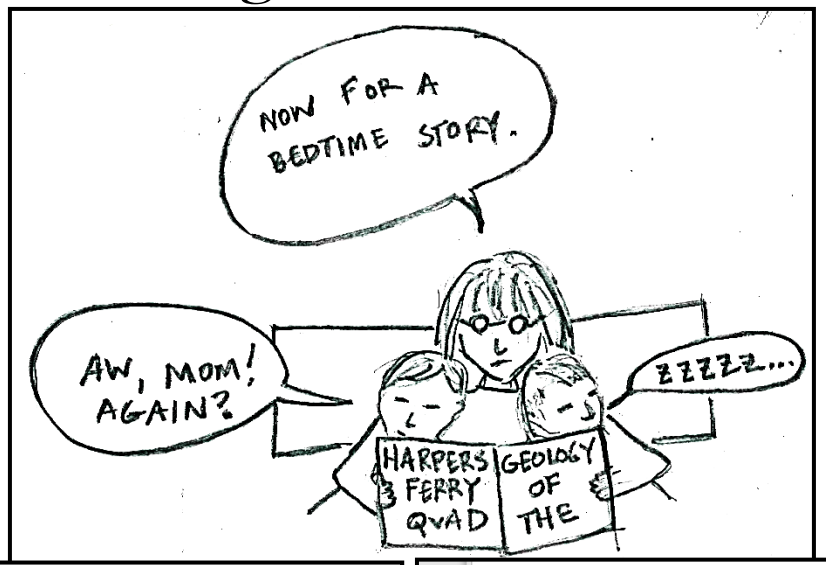
€wb Buzzard Knob Member (Brezinski, 1992)—Light-gray (*N*7) to medium-light-gray (*N*6), medium- to fine-grained, well-sorted, graded, and crossbedded quartzite. Massive to thick bedded at base and top. Middle part is thin bedded and contains light-gray (*N*7) phyllitic metagray-wacke and metasiltstone. Lower part is locally arkosic and overlies conglomerate and phyllite of the Loudoun Formation, metabasalt of the Catoctin Formation, or locally, hornblende gneiss. Total thickness ranges from 130 to 160 ft

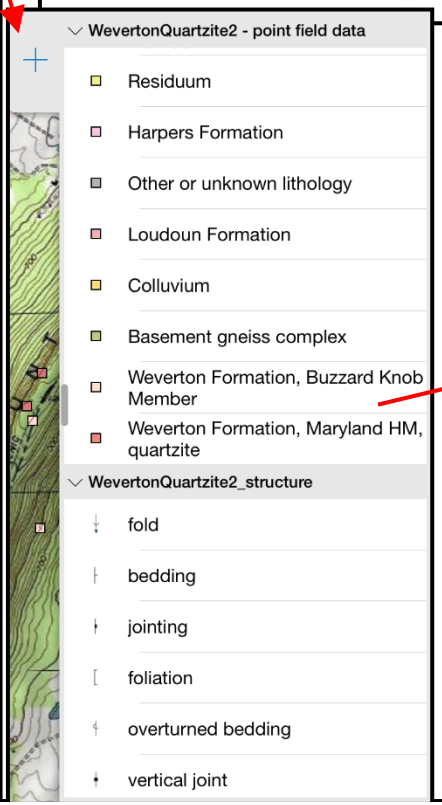


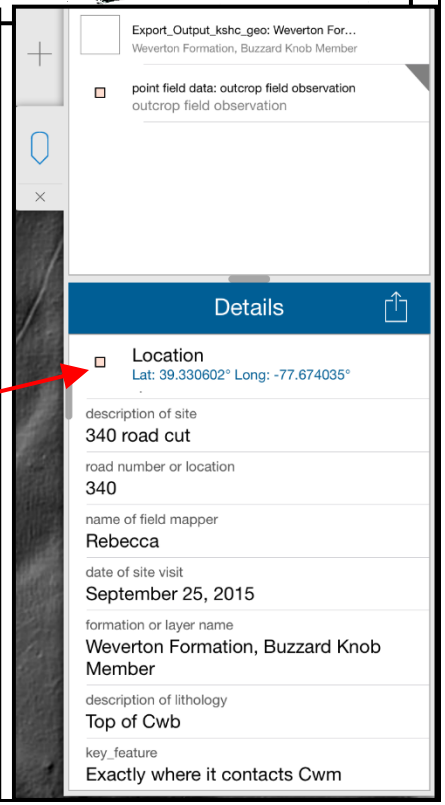
MGS DIGITAL MAPPING

Kavage Adams, 2015



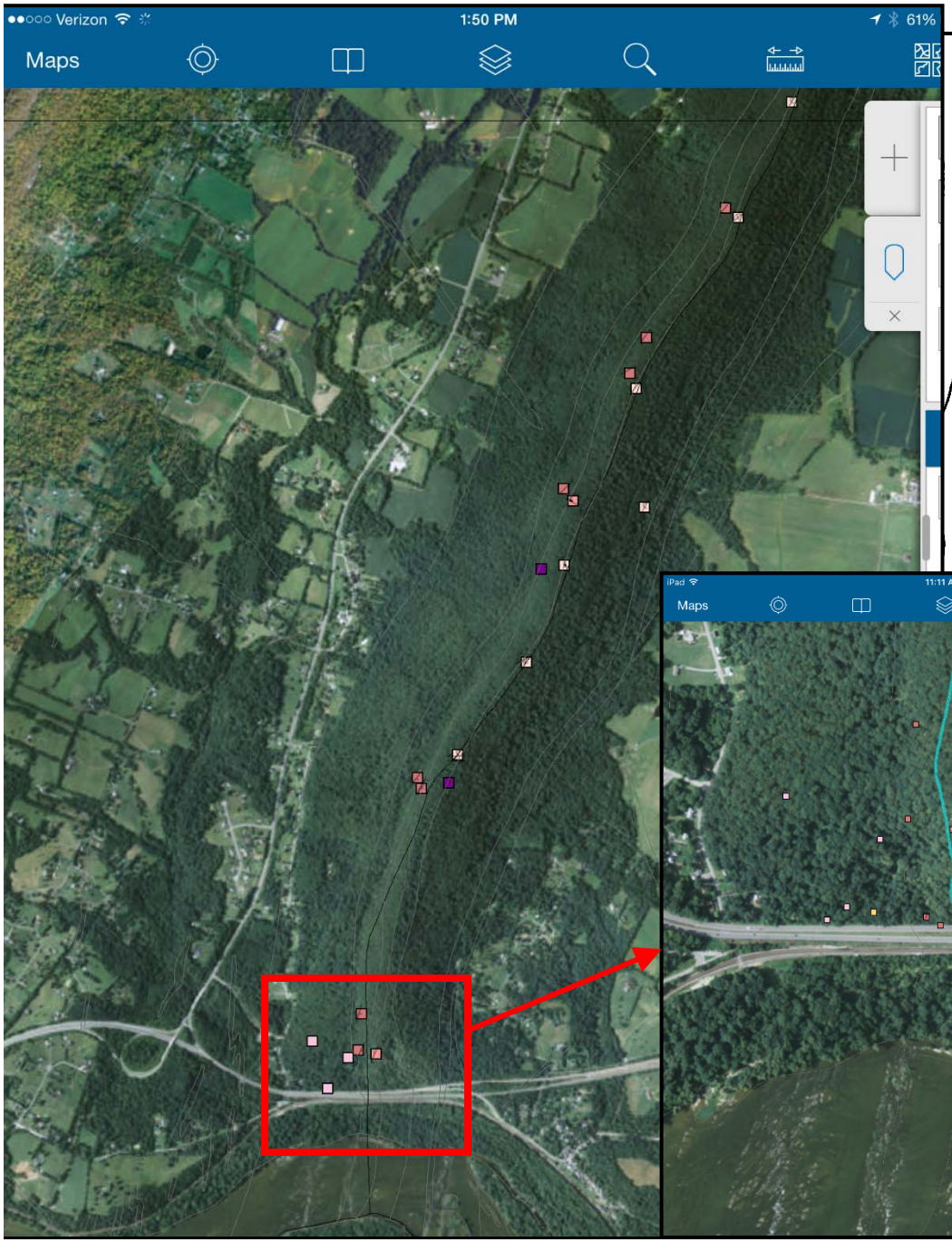


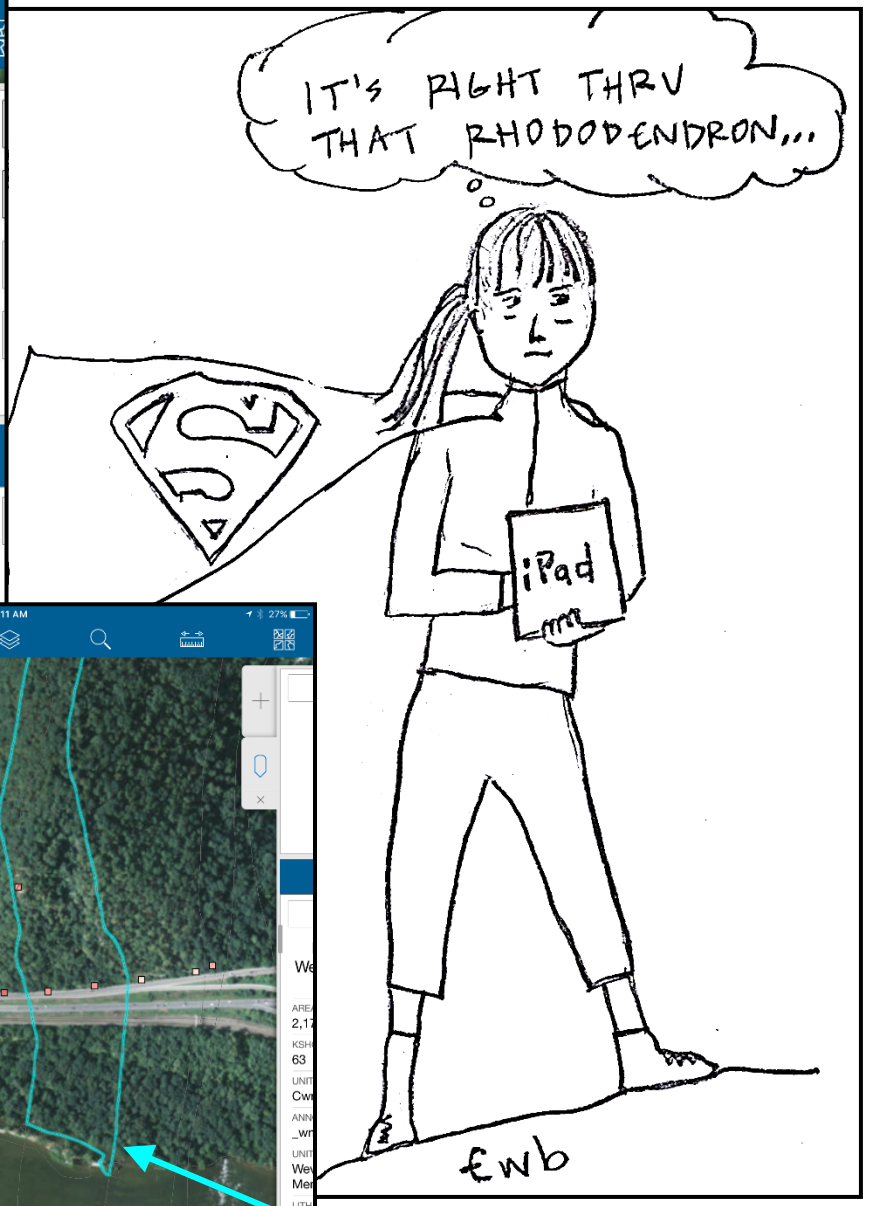




MGS DIGITAL MAPPING

Kavage Adams, 2015

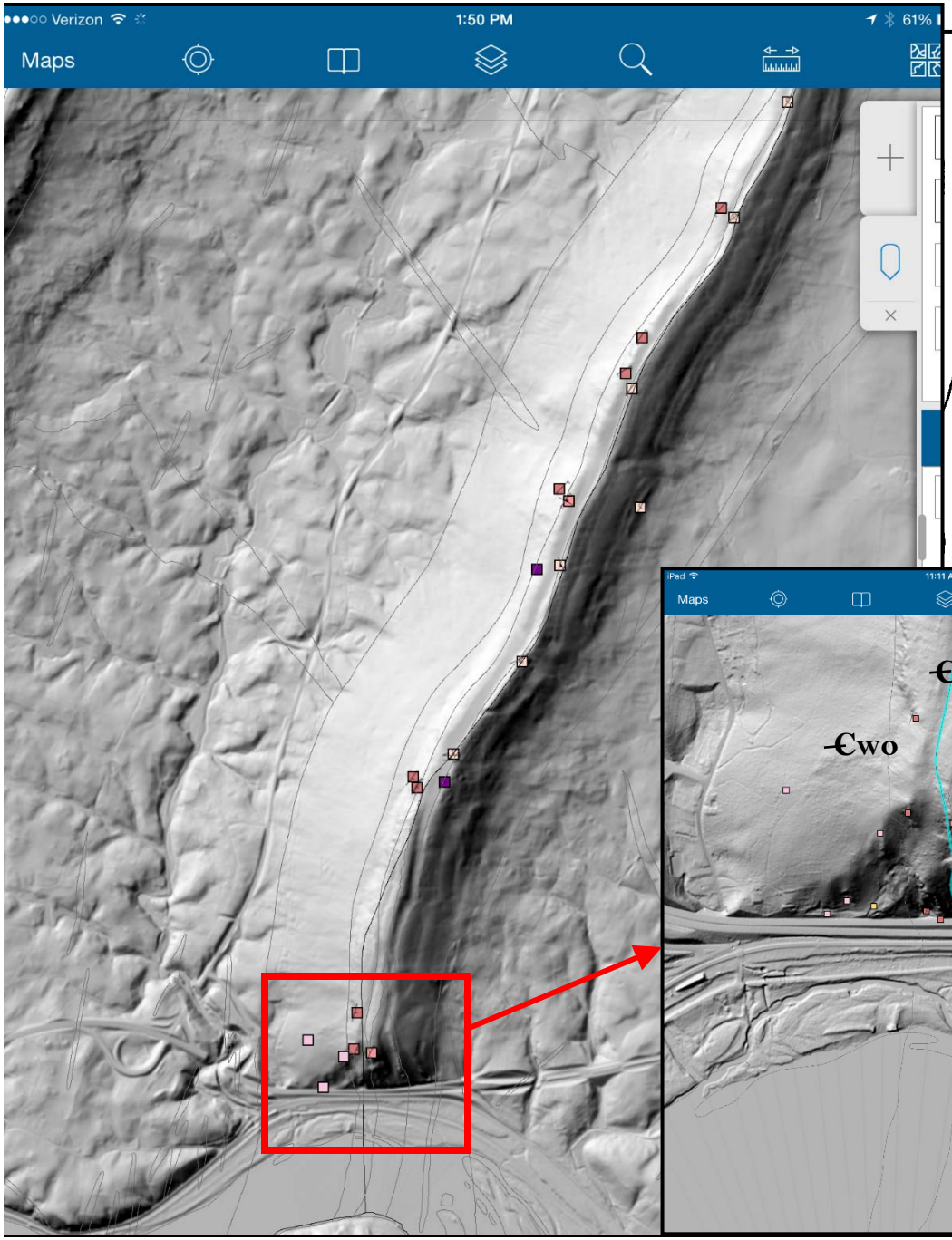


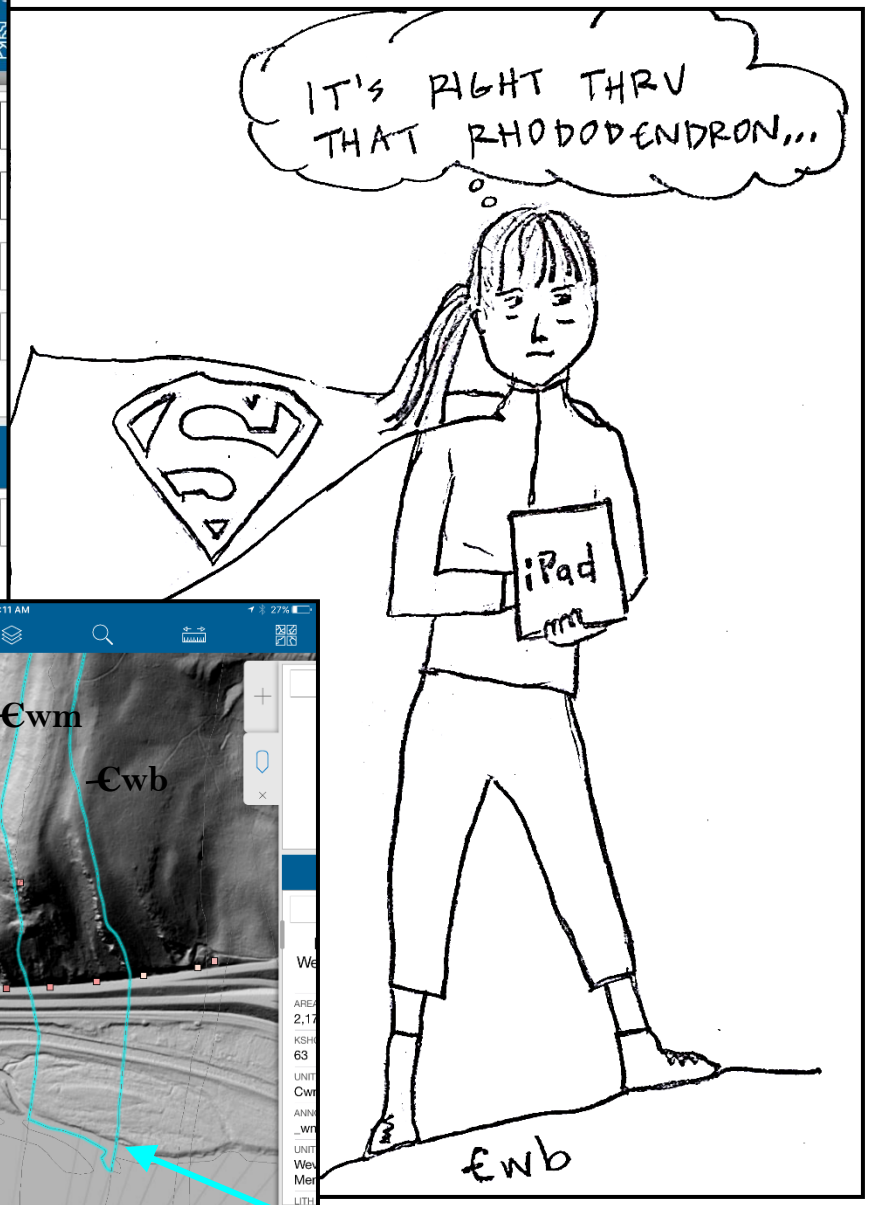


blue = current 1:24,000 GIS Maryland Height member (Cwm)

MGS DIGITAL MAPPING

Kavage Adams, 2015

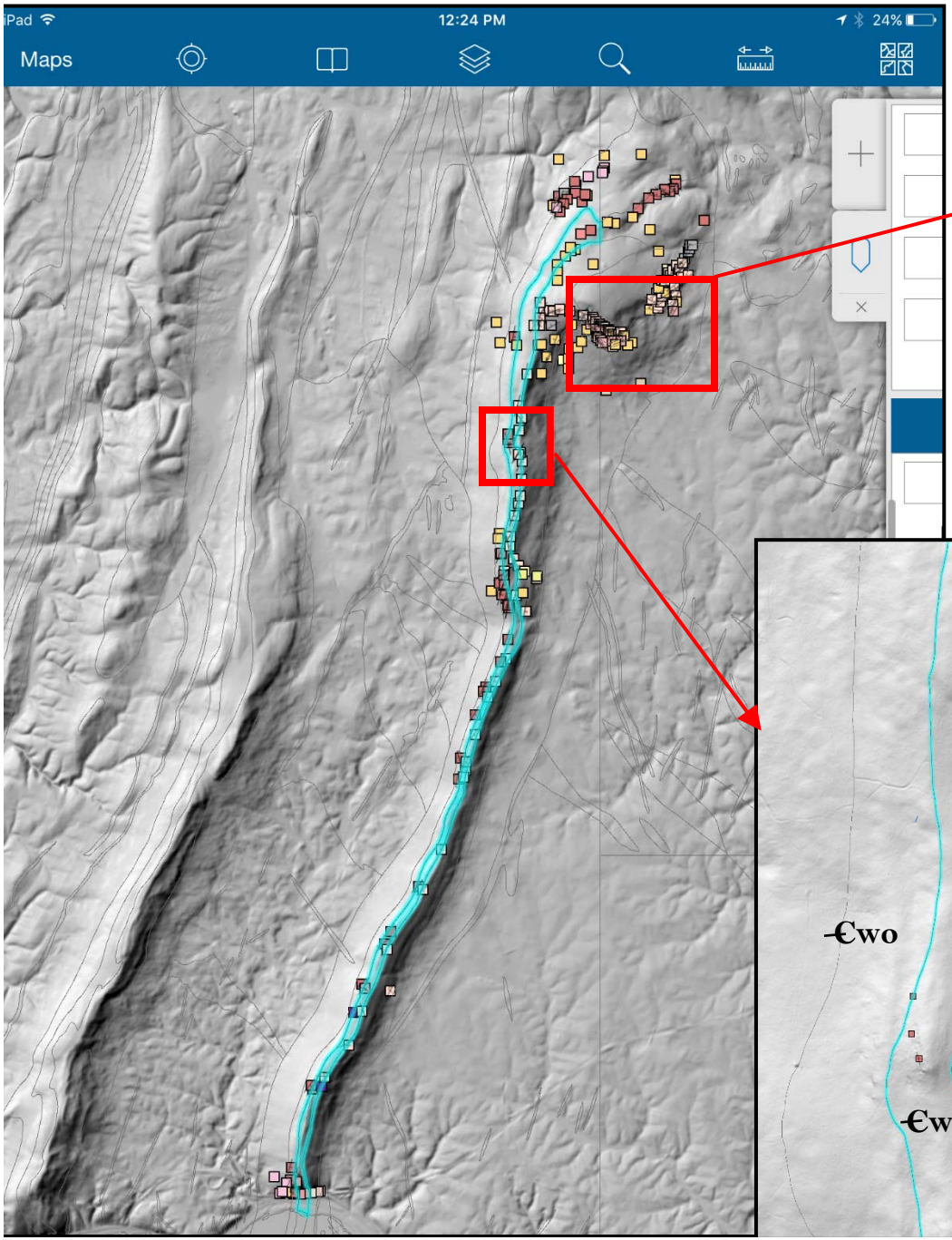


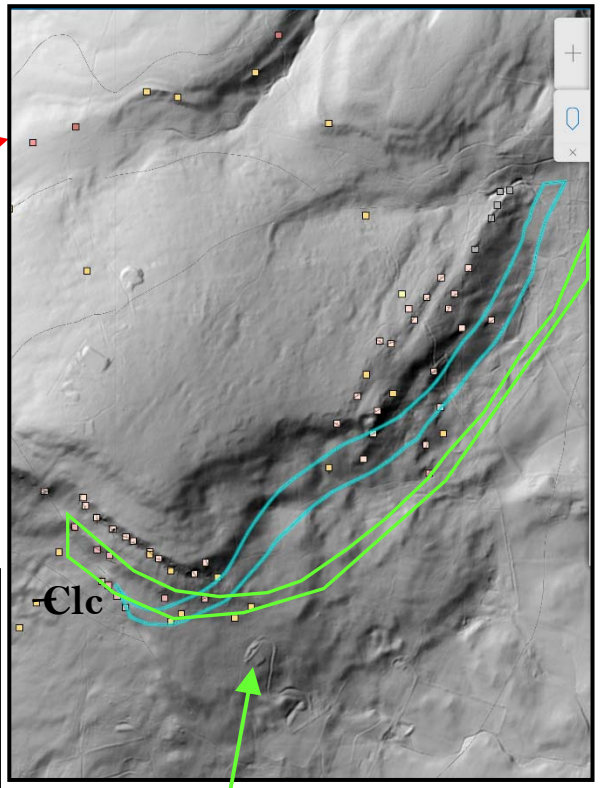


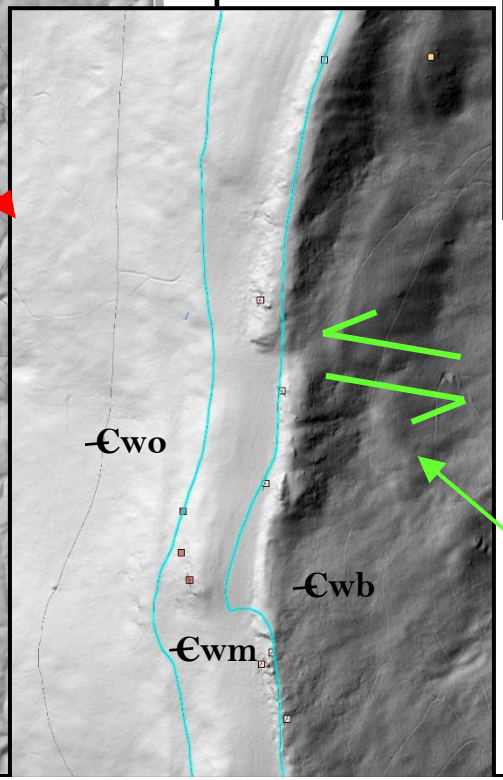
blue = current 1:24,000 GIS Maryland Height member (Cwm)

MGS DIGITAL MAPPING

Kavage Adams, 2015







Change location of Loudoun Fm. (Clc) ≈ 150m

blue = current 1:24,000 GIS

green = 2015 digital mapping

Previously unmapped transverse fault ≈100m offset

Thanks:

Maryland Geological Survey

The Adams Boys

Nathan Hale's Hazardous Tales