

**Moore-Butler, Geraldine**

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**From:** Robert E Weems [rweems@usgs.gov]  
**Sent:** Wednesday, November 19, 2008 9:24 AM  
**To:** Hanson, Kathryn  
**Subject:** Re: FW: Trenching studies in the Shenandoah Valley  
**Attachments:** Image169.jpg; Image175.jpg; Image230.jpg; Image061.jpg

Hi Kathryn,

I have been down in Georgia helping to get a new project started there in the Savannah region. While away, I was out of touch with my email, so I am getting back to you now that I am back in the office. Sorry if the delay in my responding is a problem, but there is only one of me and I am a somewhat technologically challenged old horse in a new century.

The problem with getting unequivocal results from the trenching was that we were unable to get all the way through the colluvial/conglomerate gravel bed that covers the west flank of the Blue Ridge in this region. This precluded us from demonstrating a basement offset, even if there is one there. What we did see was a zone of disrupted cobbles which tended to sit "on edge" relative to the slope surface but parallel to the zone of disruption. I am attaching a couple of photos of this zone (demarked by two pieces of string) for you to see for yourself. About 100 yards north of the trench, in a stream bed that paralleled the trench, Steve found what looks like a respectable mylonite zone. The gravel above is somewhat bulged, but there is no significant offset. This gravel bed, however, was the stream bed prior to recent incision, which may well be only a few hundred years old and almost certainly is not the base of the colluvial deposit that has the linear bulge on it. So circumstantially there is good reason to say there is a fault, but the nature of the outcrop and depth of the colluvium so far have not afforded a smoking gun. The linear feature, however, is rather easy to see on the ground, and I am at a total loss to explain it as anything other than a tectonically-induced compressional feature. This bulge is almost undissected by erosion, again suggesting relative recency. Interestingly, in Grand Caverns, about 3 miles to the west, a number of quite thick flowstone columns are broken through at their base and show little or no sign of overgrowth by new flowstone. Again circumstantial, but strongly suggestive of fairly recent tectonic shearing.

A couple of other cases of unequivocal faulting, shoving Neogene gravels at high angle over basement rocks, have been documented elsewhere in the Valley and Ridge region of Virginia, near Covington and near Abingdon. No age constraints in either of these cases, but these features trend N10-20W, which is the same trend as the Harriston feature.

If I can be of any further help, please let me know.

Rob

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"In God we trust" -- motto on American currency

"Beer is proof that God loves us and wants us to be happy" -- Benjamin Franklin

"Trust, but verify" -- President Ronald Reagan







