EXERCISE 9.3

TOPOGRAPHIC EXPRESSION OF FOLDED STRATA – STRASBURG, VIRGINIA

1. What kind of roc’c makes up the ridges? ____________ The valleys? ____________
   All of the ridges are continuously connected, so they must all be composed of the same bed.

2. Check the ridges for asymmetry and V-shaped notches. Without good asymmetry and
   without V-shaped notches in the ridges, other evidence must be used to work out the geologic
   structure. The best place to look for diagnostic features is at the apex (nose) of plunging folds
   where the dip is usually gentle enough to show asymmetry. Note the crest of Little Crease Mt.
   (A). Does it have a gently-tapering nose or a steep, blunt nose? ____________ Therefore,
   the geologic structure of Little Crease Mt. is ____________ plunging ____________
   That means the valley of Mill Run (B) must be a ____________ plunging ____________
   Check this by noting the nose of the fold at C. Is it gently tapering or steep and
   blunt?

3. Considering your analysis of the structure at Mill Run, the ridge at ‘D’ must then be a
   (structure) ____________ (topographic form) ____________
   Draw the axis of the structure on the map.

4. The bed making up the ridge at ‘D’ can be traced continuously around to the north where it
   becomes the ridge at ‘E’. If the bed making the ridge at ‘D’ dips ____________ and it is the same
   as the bed making the ridge at ‘E’, the geologic structure of the valley at ‘F’ must be a
   (structure) ____________ (topographic form) ____________
   Draw the axis of this structure on the map. Thus, Three Top Mt. (G) must be a
   (structure) ____________ (topographic form) ____________ dipping ____________ and Little Fort Valley (I) is a

5. This leaves only the structure of the ridge at ‘E’ to be determined. Although this can be done by
   continuing the same logic, an easy way to visualize the structure is by drawing a geologic
   cross-section along the line J-P, making sure that all of structures are continuous and consistent
   with your answers to the questions above. Use the profile below for your cross section.

7. Mill Run flows part of the way in the valley at ‘B’, but instead of flowing out the lower end of
   this valley, the stream turns abruptly and cuts across Little Crease Mt. at Veach Cap. Can you
   offer an explanation for this anomalous behavior?