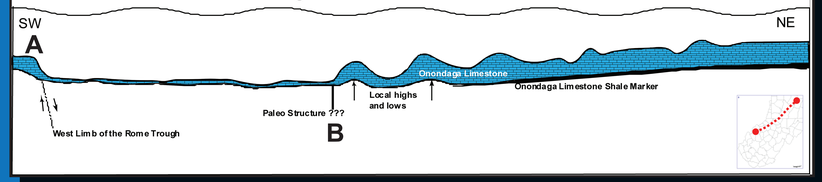
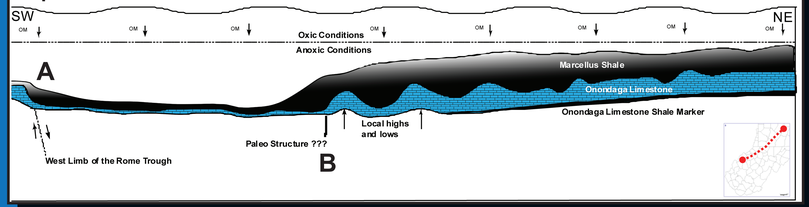
Depositional Model: Onondaga Limestone



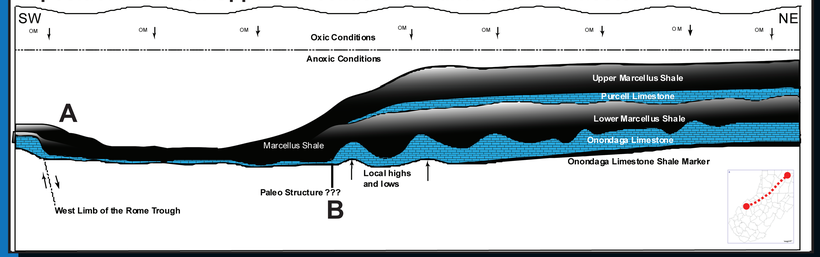
- Offshore eperic sea
- Limestone and black shale are equivalent facies in this environment
- Limestone deposition across the study area
- Structural highs and lows locally enhanced carbonate deposition
- More limestone deposition to the northeast and across the west limb of the Rome Trough (A)
- Distinct change in thickness at B as a result of a paleo feature that created a shelf break

Depositional Model: Lower Marcellus Shale



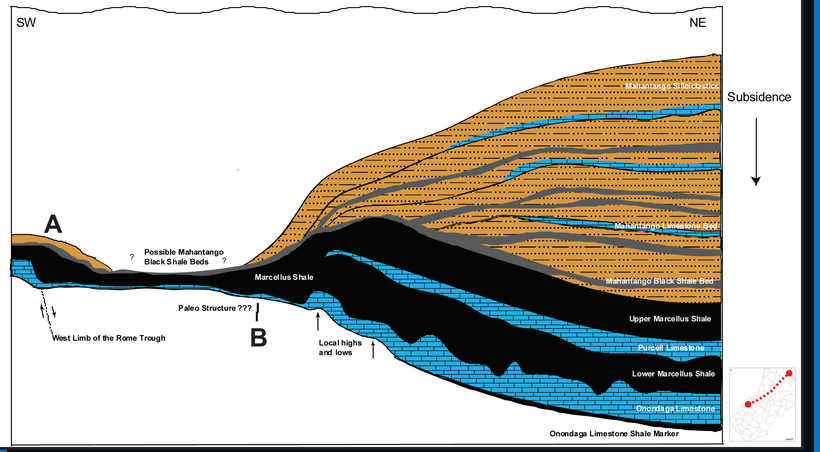
- Black shale is deposited across the study area
- Shale appears to be sourced primarily from the NE
- Thicker Marcellus deposits exist in Onondaga lows and to the NE
- Organic matter extends across the study area; however, more organic matter accumulates in the paleo-topographic lows
- Shelf breaks at A and B

Depositional Model: Upper Marcellus Shale and Purcell Limestone



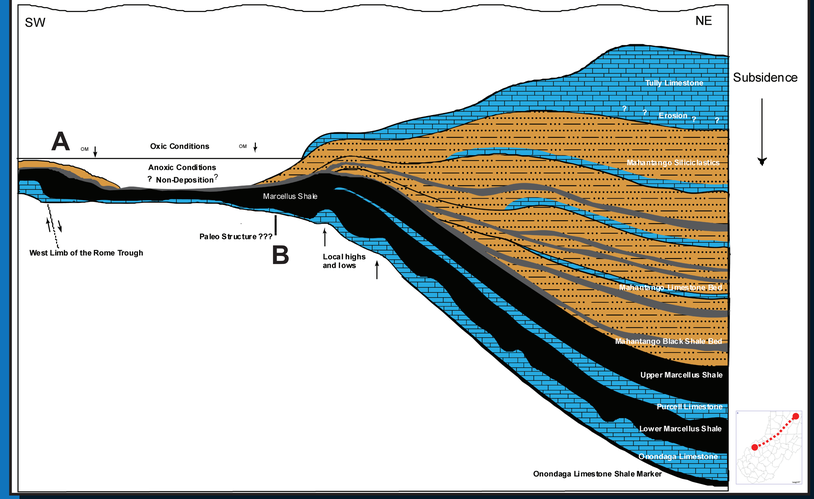
- Purcell Limestone is deposited on the underlying Marcellus highs to the NE and E
- The Purcell is not present to the SW due to water depth (approximately +200ft)
- After Purcell deposition, the sediment supply is turned-on again inhibiting limestone deposition. Sea level would have risen approximately 100 ft, allowing for the Upper Marcellus deposition
- More accumulation of black shale sediment and organics in the SW, especially near the slope breaks at A and B

Depositional Model: Mahantango Shale



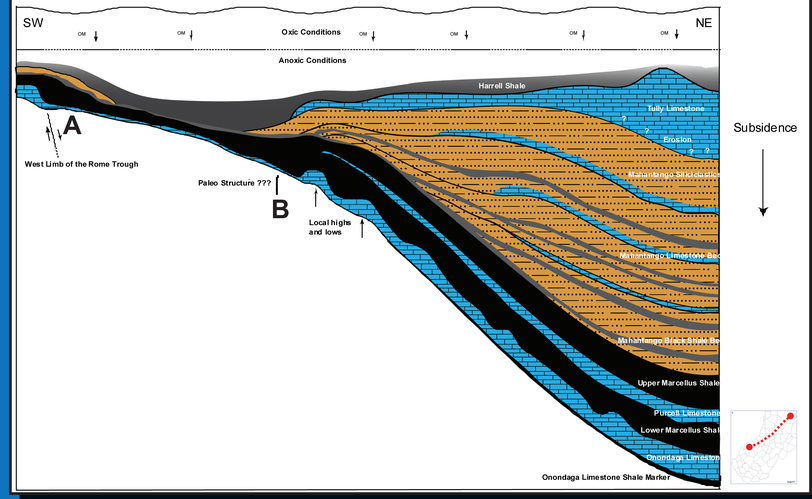
- Mahantango coarser grained terriginous clastics began to prograde from the NE creating clinoforms that downlap onto the preexisting srata as a result of the shelf break (B)
- Occasional organic rich black shale deposits exist in the Mahantango
- There is possible equivalent deposition of Mahantango black shale beds to the SW
- Occasional limestone beds form on the paleo-topographic highs to the NE
- Large sediment load (+800ft) to the NE
- The water depth to the SW is interpreted as approximately +600ft
- To the SW, a thin Mahantango deposit suggests a source to the N or W

Depositional Model: Tully Limestone



- Continued subsidence, relative drop in sea level, and the halt of sediment supply
- Tully Limestone deposited to the NE
- To the SW, Tully is absent

Depositional Model: Harrell Shale



- Subsidence continues
- Anoxia allows for Harrell Shale deposition
- The thickest sediment and organic deposits are in paleo-lows (A and B)