



**CHAPTER VI: UNIQUE FEATURES**  
**Unique Geology in the Region**

As one travels the Norton Loop of the Virginia Coal Heritage Trail, one passes through the High Knob Landform which marks the boundary between the main Coalfields and the Ridge & Valley Province. If one looks closely at the big road cuts along U.S. 23 from Norton through the Powell Valley area of Appalachia, Big Stone Gap and Pennington Gap, one can see many beautifully colored rock strata's but no COAL.

Although the High Knob Massif section contains some minor coal, it's highly limited in nature and confined by overturned stratigraphy in most places that makes mining it non-economical as compared to the many coal seams embedded within nearly horizontal lying rock stratas of the main Coalfields which begin adjacent to the High Knob Landform - i.e., the Middlesboro Syncline section that includes Black Mountain.

The High Knob Landform ( HKL ) is a great continuous mountain landform consisting of:

- a remnant massif of high country
- a northwestern mountain flank
- a southeastern mountain flank
- an eroded calcareous core that separates the mountain flanks and narrows by headward erosion, to the northeast, into the inverted V-shaped Powell Valley (adjacent to the High Knob peak ).

The remnant massif of high country is the High Knob Massif, which stretches from Guest River Gorge southwest to the Duffield Valley (in parts of Wise, Scott, northeastern Lee counties). Interestingly, the northern bank of the Clinch River has coal and yet the southern bank is made up of limestone.

The section of the High Knob Massif east of the head of Powell Valley is the only part of the High Knob Landform which still joins both the northwest and southeast flanks together via a broad section of elevated terrain. Most of the interior of the High Knob Landform has been breached by headward erosion over time, which began at the Tennessee end near I-75 and Norris Lake and worked to the northeast. The northeastern end of Powell Valley as viewed from Powell Valley Overlook marks the northeastern end of this breachment or great erosional process (all of the Powell Valley of Wise County being understood to have once been inside of High Knob).



*Stone Face*

*A unique rock formation in Lee County  
and visible from the Coal Heritage Trail*

**The Clinch, Powell, and Cumberland river basins** collectively represent the greatest assemblage of freshwater aquatic diversity in all of North America is no mistake, as this rich array of aquatic species is a direct reflection of both the surface and subterranean diversities which have developed throughout this ancient mountain landform during a span of millions of years!

**Source:**

- Wayne Browning, biologist ([nws441825@comcast.net](mailto:nws441825@comcast.net))  
To learn more, visit the website: [www.highknoblandform.com](http://www.highknoblandform.com)



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### **Geological**

According to the Virginia Division of Mineral Resources, 8/1988, Vol. 34:

- **High Knob Landform** is the peak of Stone Mountain, and is part of a large mountain (massif) *in Wise County near the city of Norton* that rises to 4,223 feet above mean sea level. High Knob is found on the western front range of the Appalachian Mountains, along the mountainous southeastern edge of the Cumberland Plateau of southwestern Virginia. It's unique to Virginia in containing both Appalachian Plateau and Ridge and Valley topography; although, it is largely a karstic landform of the Ridge and Valley Province.

**The High Knob Massif** stretches across *portions of southern Wise County, northern Scott County, and the northeastern tip of Lee County*. It is one of the most significant physical features in Virginia and is among the widest singular mountains in the southern Appalachians, being locally greater than 13 miles wide from base to base and more than 26 miles long.

- **The Breaks in Dickenson County** are made up of a narrow deeply gouged sinuous valley of the Russell Fork River made up of steep cliffs rising to 1,000 feet. The CSX Railroad is routed along the river. There is a large area on the east side of the river, part of which falls in the Breaks Interstate Park. The park itself sets on a conglomeration of sandstone and coal. The river follows fractures in the landscape.
- **And in Lee County**, the rocky face fault crosses Cumberland Gap made up of Mississippian sandstone and limestone.

#### **MAP OF HIGH KNOB LANDFORM**

