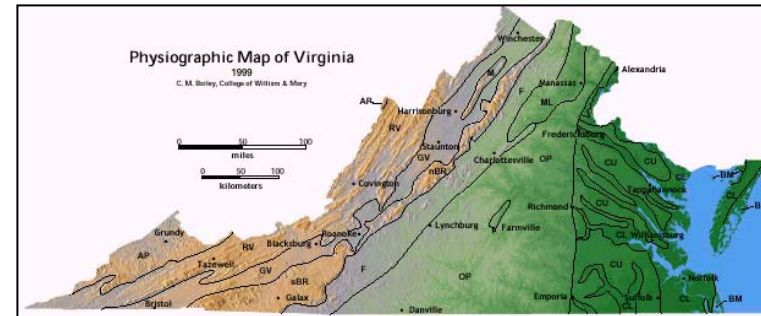
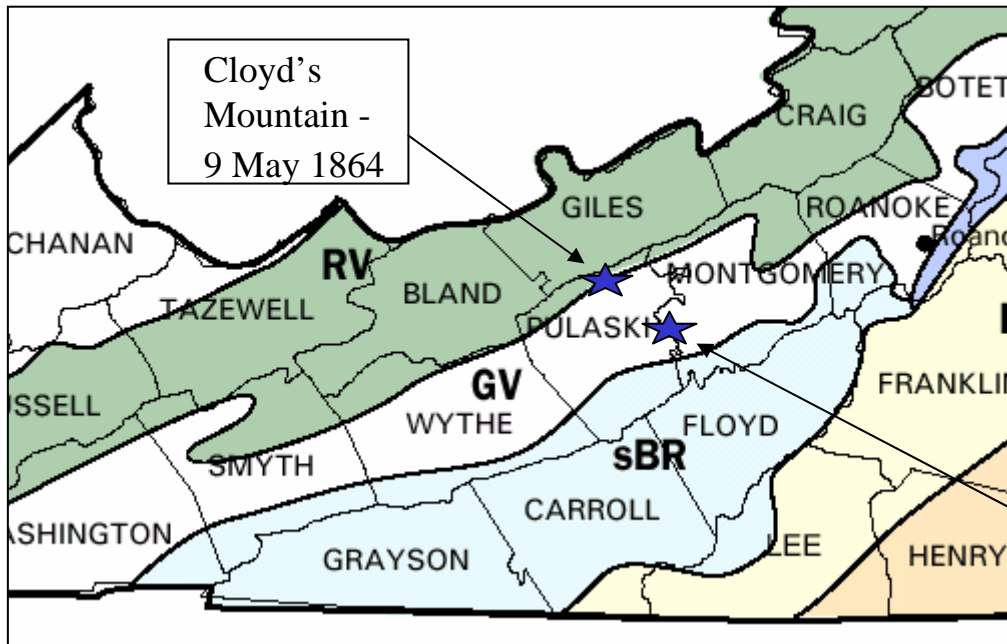


Geology and the Civil War in Southwestern Virginia: Union Raiders in the New River Valley, May 1864

Joseph M. Duracinsky



New River
Bridge -
10 May 1864

Purpose

- To tell the story of relatively unknown battles in southwestern Virginia during the American Civil War at Cloyd's Mountain and New River Bridge.
- To gain an understanding of why southwestern Virginia was an important area during the Civil War, especially to the Confederates, which leads to an understanding of the reasons for fighting at Cloyd's Mountain and New River Bridge.
- To discover how the geology of the area impacted the fighting at Cloyd's Mountain and New River Bridge.

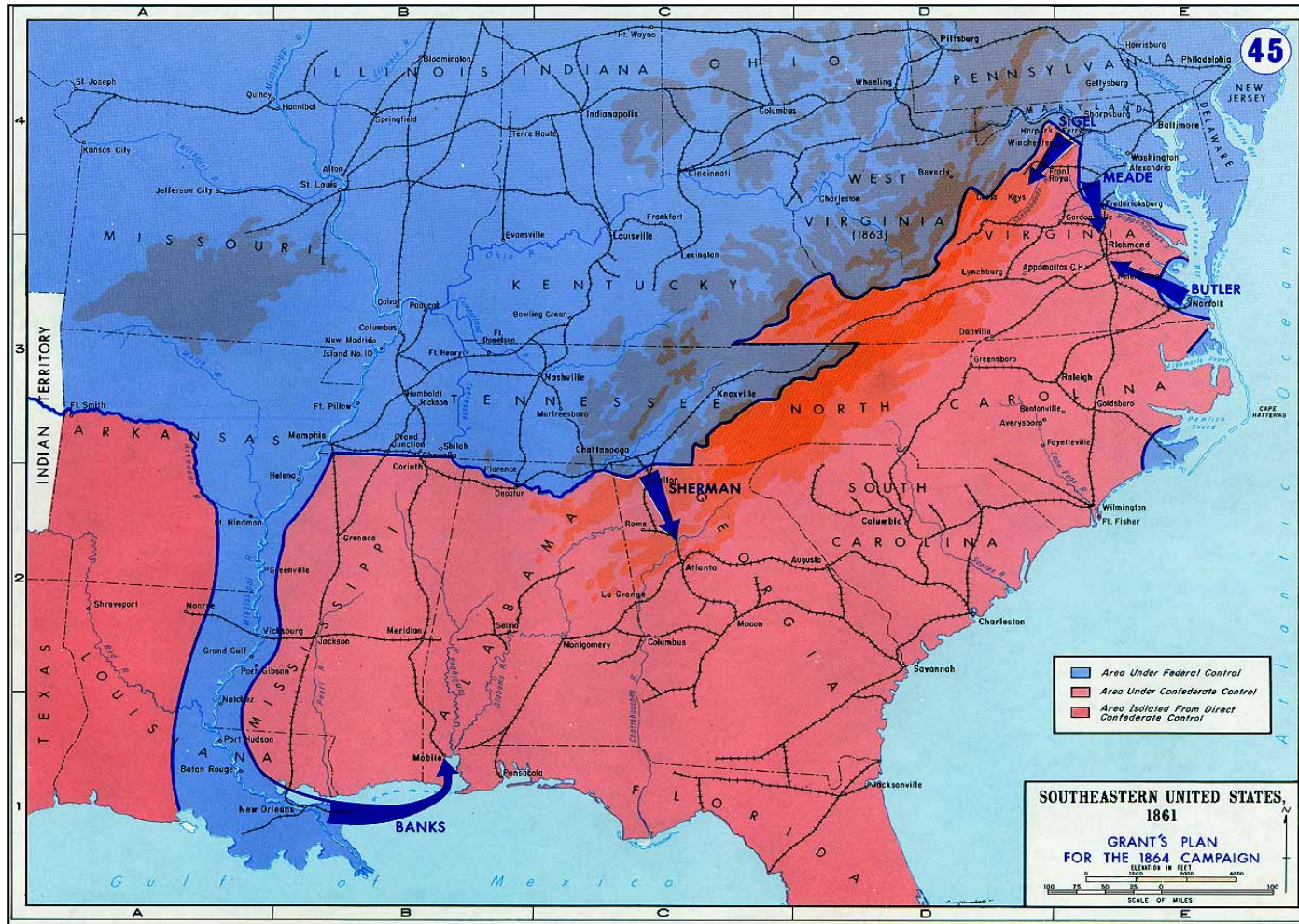
References

- “Geology and the Civil War in Southwestern Virginia: Union Raiders in the New River Valley, May 1864,” Virginia Minerals, November 1997, Virginia Department of Mines, Minerals, and Energy.
- Warfare in the Western World, Military Operations from 1600 - 1871, Doughty and Gruber, 1996.
- <http://www.wm.edu/geology/virginia>
- <http://www.mme.state.va.us/DMR/>

Outline

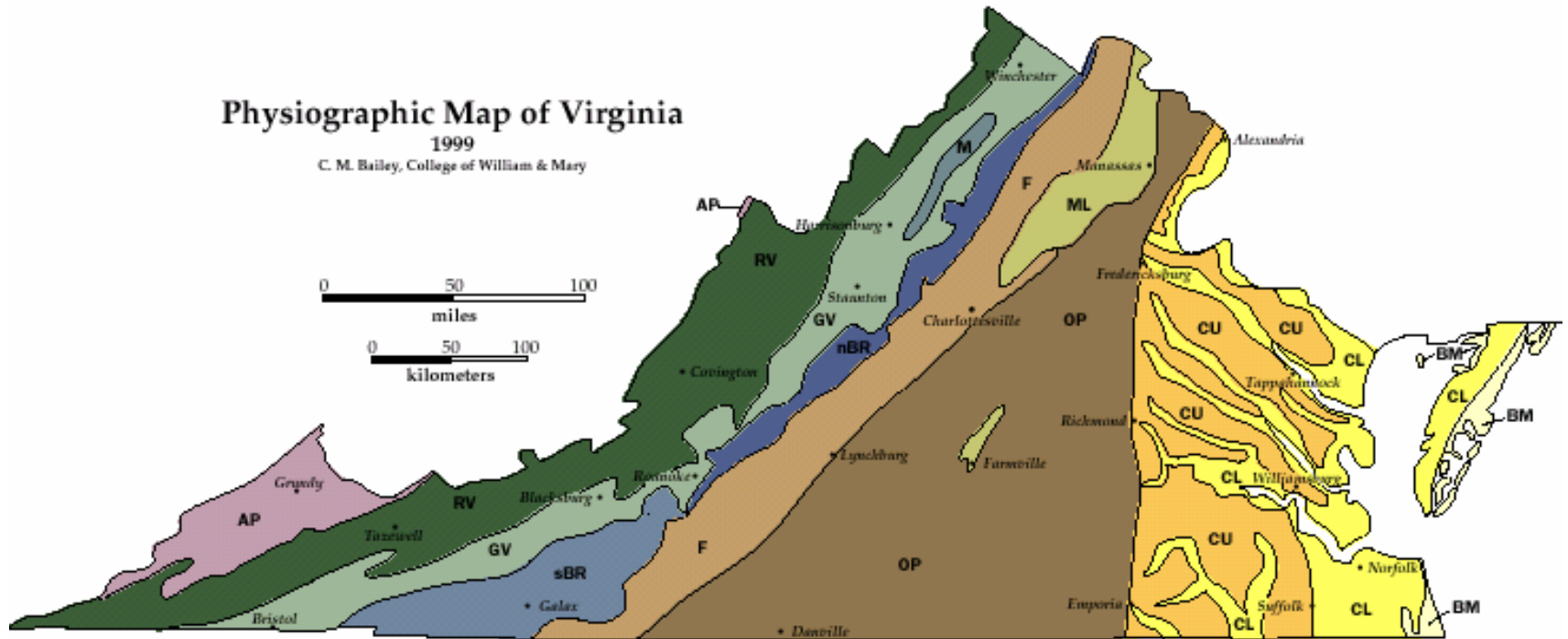
- What's Happening in the Civil War in Spring, 1864?
- A Look At Virginia's Physiographic Provinces
- The Significance of Southwestern Virginia to the Confederates
- Virginia's Railroad Network
- Why Fight at Cloyd's Mountain and New River Bridge?
- The Geology of Southwestern Virginia's Valley and Ridge
- Geologic Map at Cloyd's Mountain and New River Bridge
- General Crook's 1864 New River Valley Campaign
- The Fight at Cloyd's Mountain
- The Fight at New River Bridge
- Concluding Comments

What's Happening in the Civil War in Spring, 1864?



- Post Gettysburg: Grant's Approach in May 1864
- Destroy Armies and Resources
- "Grant's Army" - Army of the Potomac - In Virginia
- "Sherman's Army" - Army in the West - In Tennessee

A Look at Virginia's Physiographic Provinces



Appalachian Plateau province

Valley & Ridge province

Blue Ridge province

Piedmont province

Coastal Plain province

AP - App. Plateau

RV - Ridge & Valley

nBR - North Blue Ridge

F - Foothills

CU - Coastal Uplands

GV - Great Valley

sBR - South Blue Ridge

ML - Mesozoic Lowlands

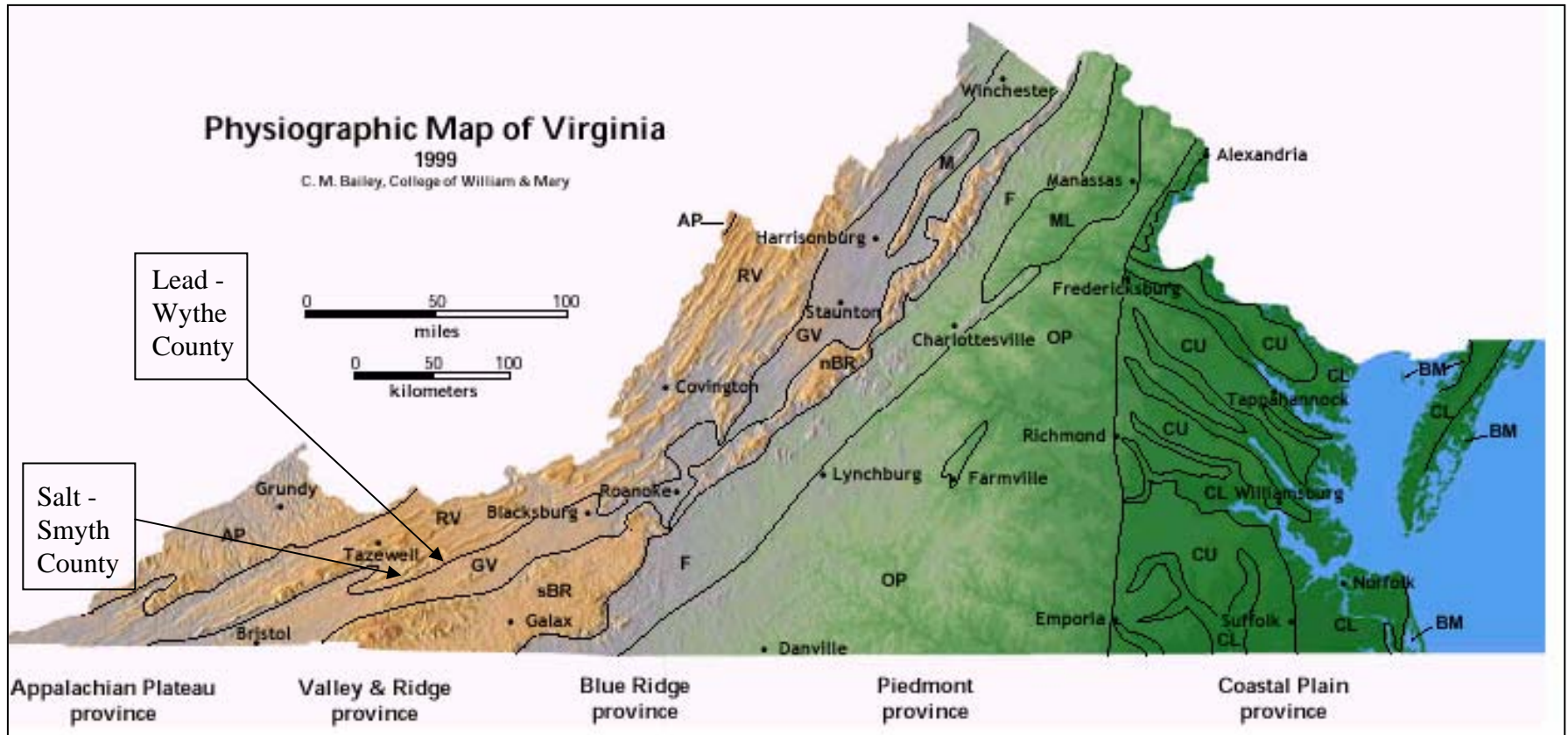
CL - Coastal Lowlands

M - Massanutten Mtn.

OP - Outer Piedmont

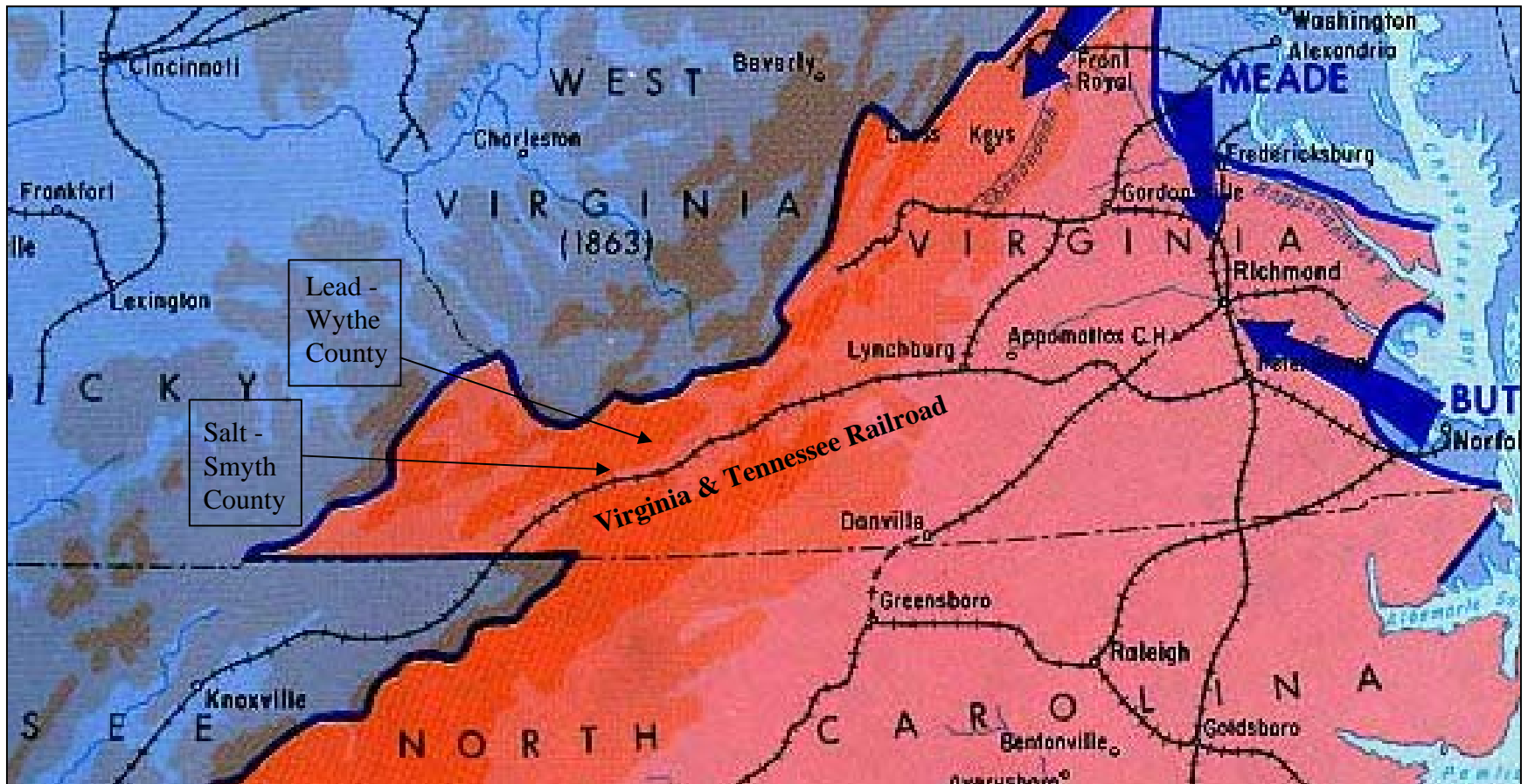
BM - Barrier Islands & Salt Marsh

Significance of Southwestern Virginia to the Confederates



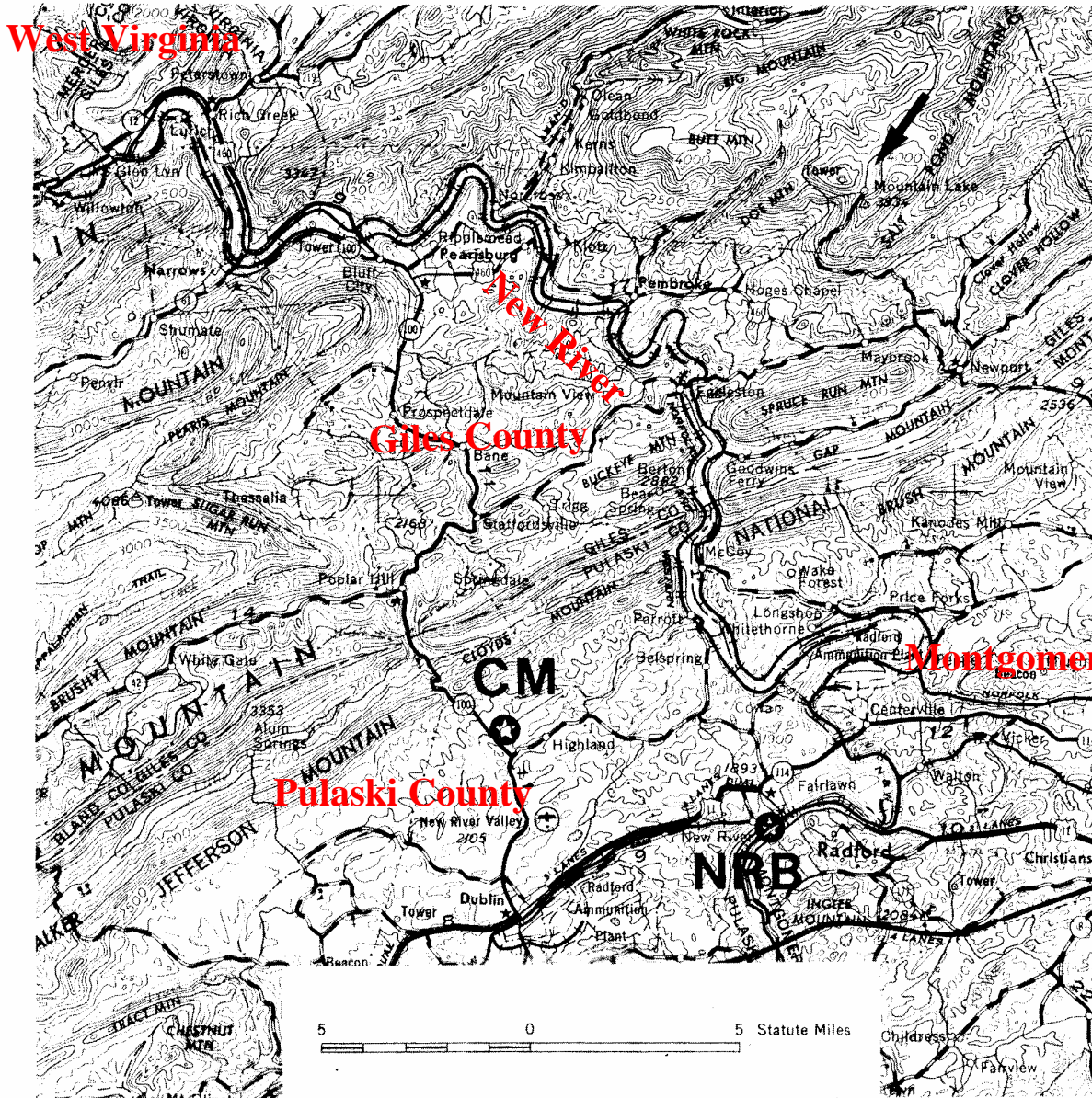
- Mined Materials: Salt, Iron, Lead, Saltpeter, Coal.
 - Virginia was top producer of salt, lead, saltpeter, and coal in the Confederacy.
 - Virginia was second to Alabama in iron production in the Confederacy.
 - Nearly all of Virginia's salt, iron, lead, and saltpeter came from the Valley and Ridge.

Virginia's Railroad Network



- Virginia had most extensive railroad network in the Confederacy.
- Salt mining in Smyth County and lead mining in Wythe County depended on the Virginia & Tennessee Railroad which connected Richmond to the west.
- Virginia & Tennessee Railroad ran completely through southwestern Virginia along the length of the Great Valley (part of the Valley and Ridge).

Why Fight at Cloyd's Mountain and New River Bridge?

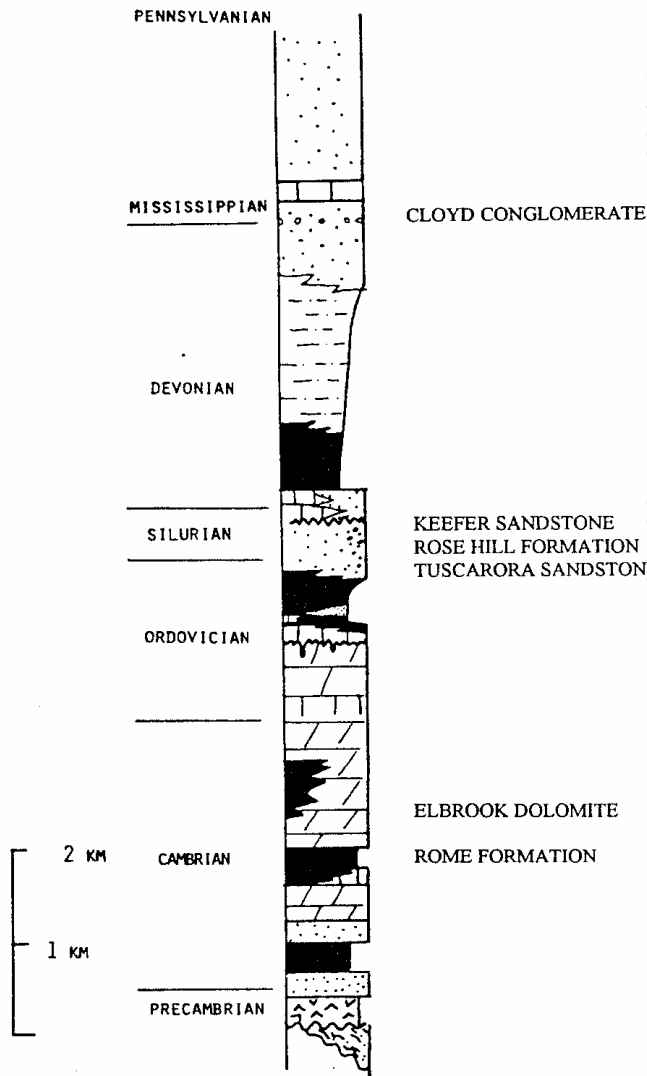


- Part of Grant's Approach: Starve the Confederacy of their resources by disabling the railroad in the Valley and Ridge Province (i.e. destroy the New River Bridge).

- Note: Up to this point in the Civil War, there wasn't much fighting in the Valley and Ridge because virtually no one wanted to deal with crossing the complex terrain.

- Note: Wythe County (lead) borders Pulaski County to the west; Smyth County (salt) borders Wythe County to the west.

Geology of Southwestern Virginia's Valley and Ridge



Stratigraphic Column of Valley and Ridge Province in southwestern Virginia

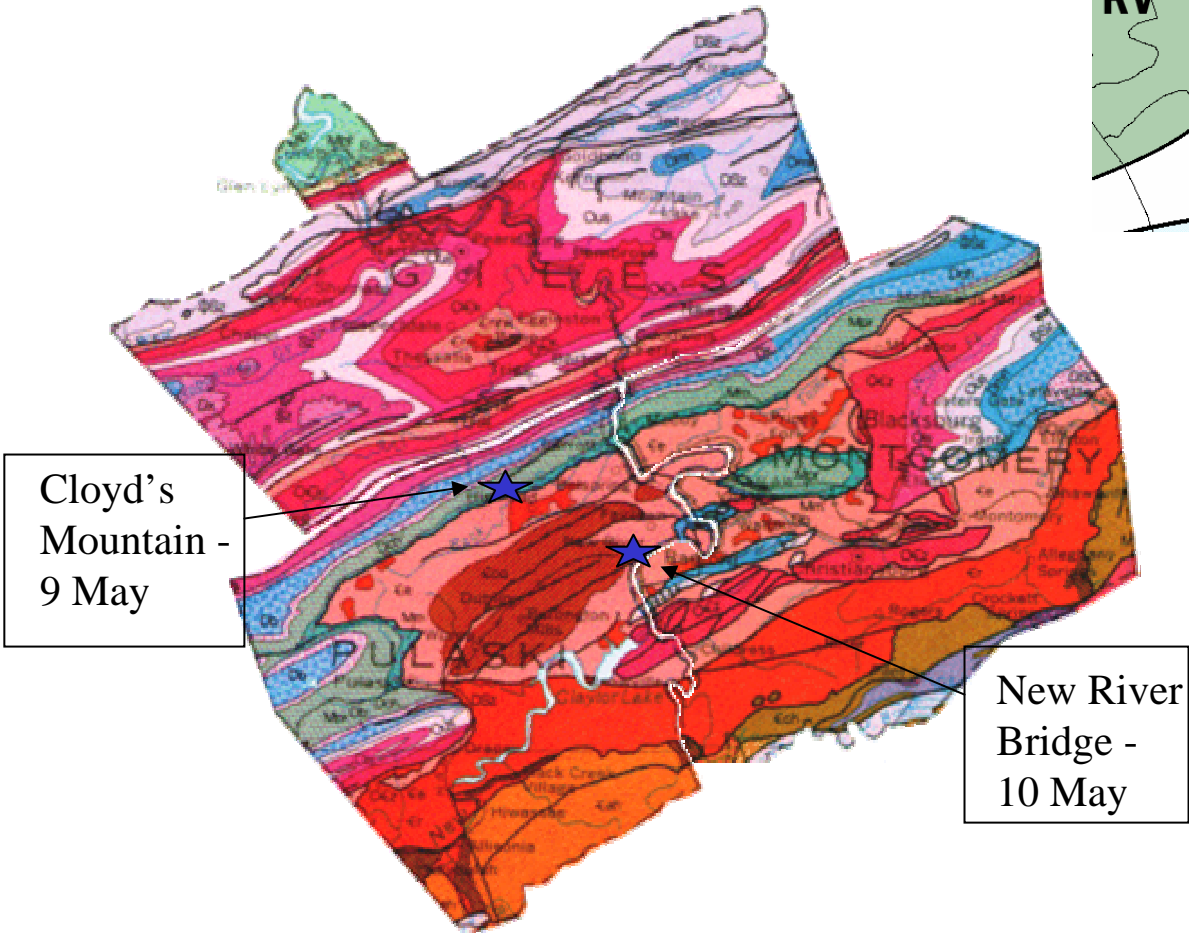
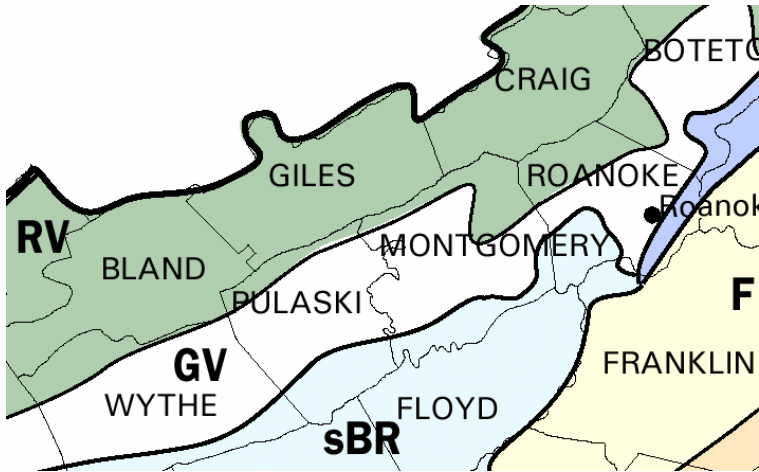
- Late Mississippian to Late Paleozoic - Terminal Alleghanian Orogeny caused by continental collision produced folded/faulted region we see today; erosion-resistant siliciclastic sedimentary rocks dominate ridges while erosion-prone carbonates underlie valleys (southwest-northeast trend of linear ridges and valleys).

- Middle Silurian to Early Mississippian - Acadian Orogeny (mountain building) followed by erosion, deposition, and lithification of siliciclastic sedimentary rock; Keifer and Cloyd Formations also form today's ridges.

- Middle Ordovician to Late Silurian - Taconic Orogeny (mountain building) followed by erosion, deposition, and lithification of siliciclastic sedimentary rock; Tuscarora and Rose Hill Formations form today's ridges.

- Precambrian to Middle Ordovician - carbonates and some shales deposited (was a continental shelf and under ocean water); Elbrook and Rome Formations form today's valleys.

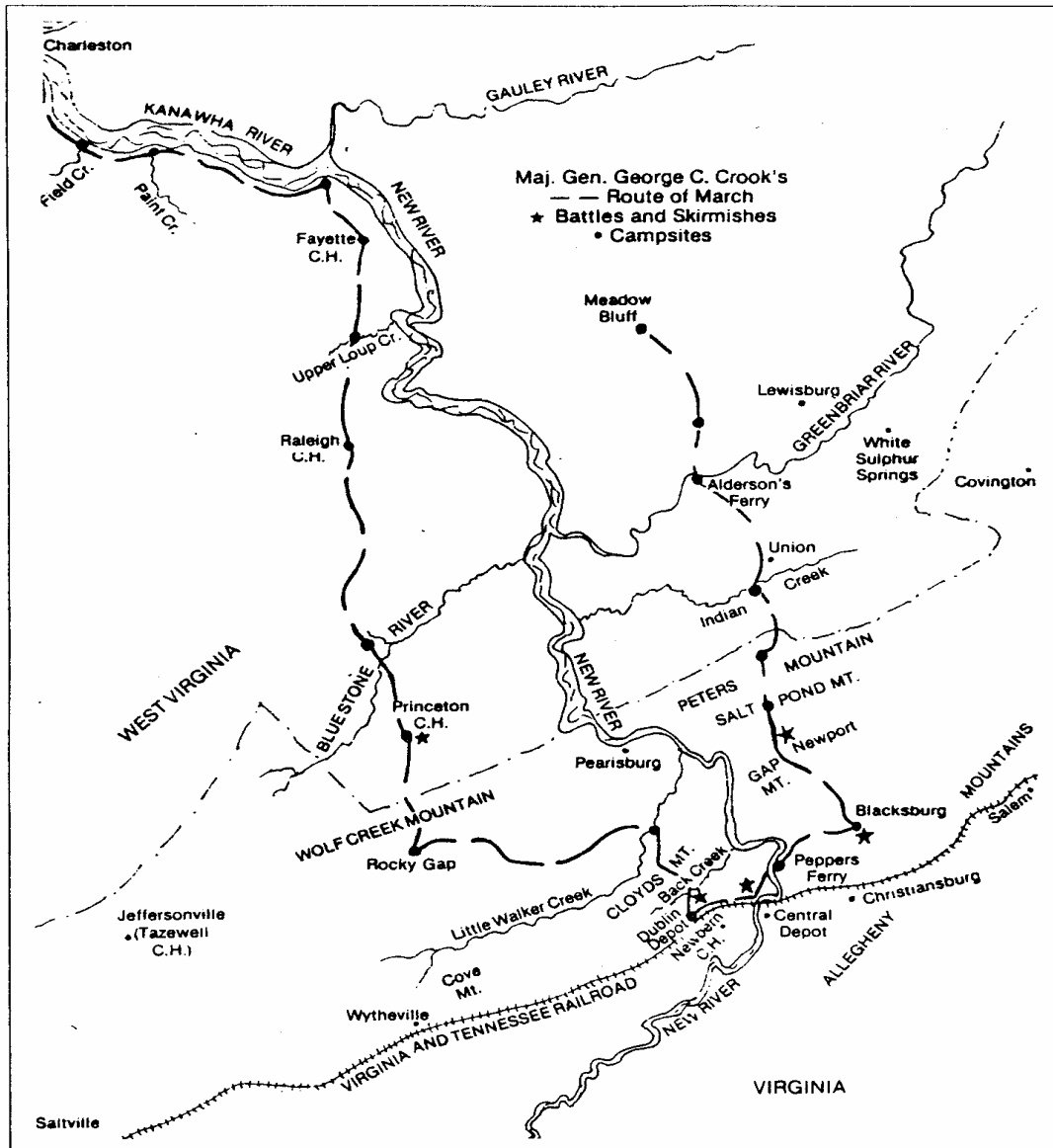
Geo. Map at Cloyd's Mountain and New River Bridge



- Devonian, Mississippian Ridge (i.e. Cloyd's Mountain)
- Cambrian Valley (i.e. carbonates, Karst Features)

Note: Pulaski overthrust fault at base of Cloyd's Mountain

General Crook's 1864 New River Valley Campaign

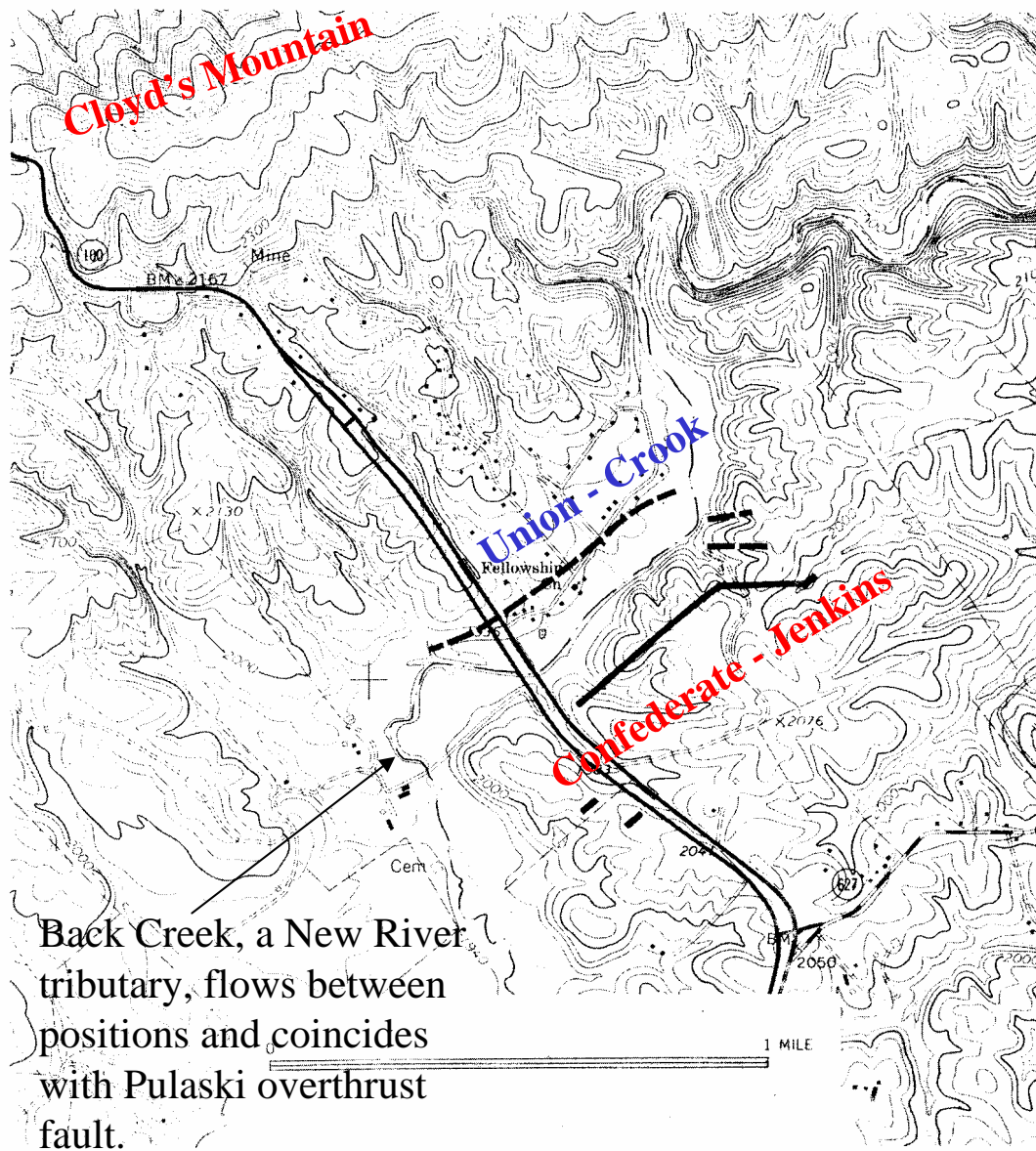


- GEN Crook led the Army of the Kanawha from Charleston, WV. This was another leg of Grant's strategy in Virginia. Crook's objective was to sever the Virginia and Tennessee Railroad by destroying the New River Bridge at Central Depot. If successful, Crook would continue eastward to link up with Sigel from the Shenandoah.

- Chronology:

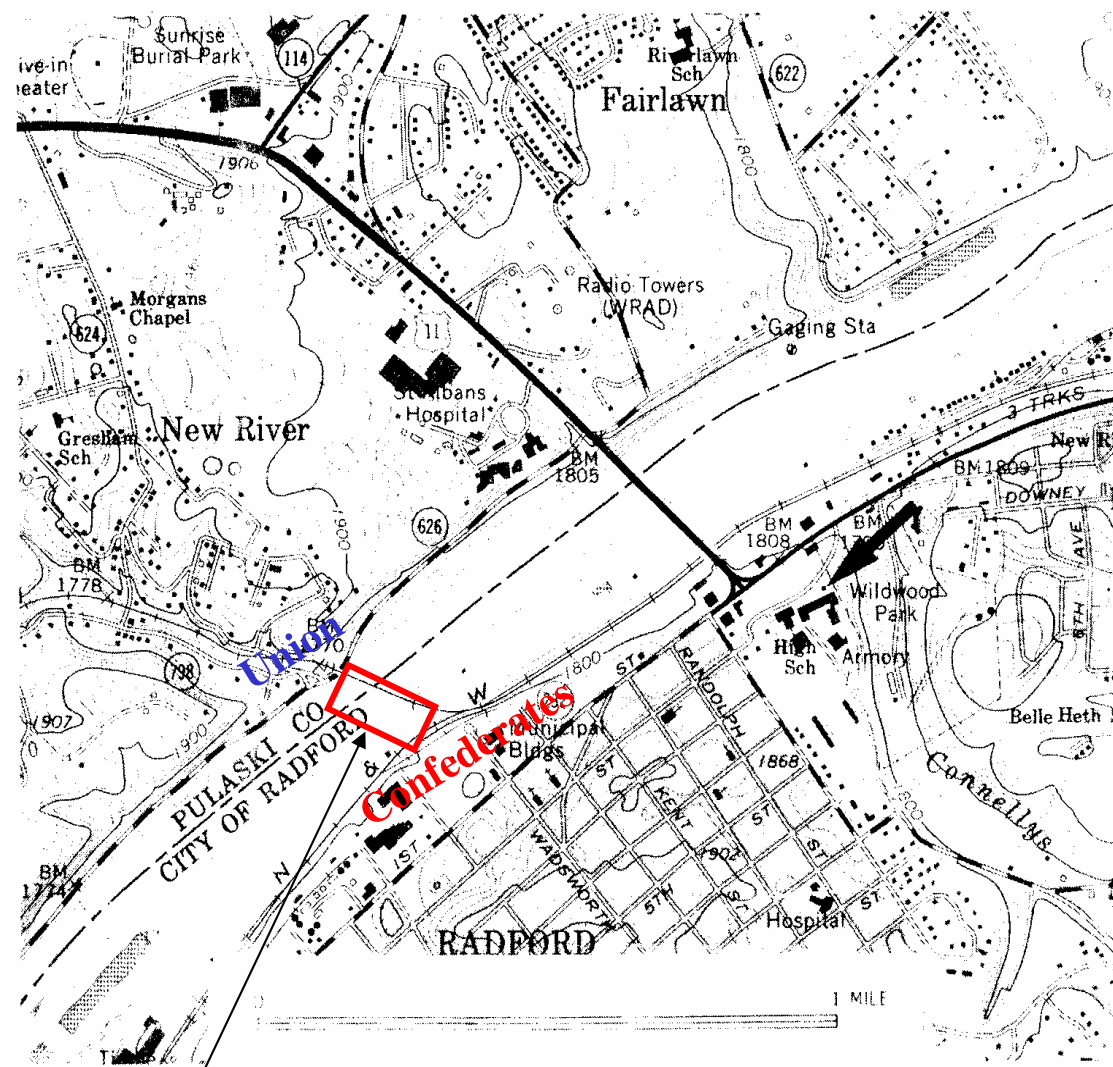
- 29 April - Departed WV
- 7 May - Entered Valley and Ridge
- 9 May - Cloyd's Mountain
- 10 May - New River Bridge
- 11 May - Return to WV
- 19 May - Reached HQs in WV

The Fight at Cloyd's Mountain



- Opening Numbers:
 - Union Forces - 6500 men
 - Confederate Forces - 2400 men
- Geology Factors:
 - Confederates entrenched on small knolls developed on erosion-resistant portions of Elbrook and Rome Formations.
- Events:
 - Artillery dual at 1100 hours
 - Union assault and CQC
 - Confederate right collapses
 - Confederates retreat around 1200
 - Confederates move to NRB
- Results:
 - Union lost 10% of their force
 - Confederates lost 23%

The Fight at New River Bridge



- Geology Factors:

- Cambrian carbonates and Karst features are dominant.
- Elbrook Dolomite bluffs (200ft high) exist on north and south ends of NRB. North side bluffs were higher giving the Union an advantage.
- Karst sinkholes used for cover and concealment.

- Events:

- Artillery duel at 1000 hours
- Confederates expend ammunition
- Bridge burned around 1300 hours
- Confederates withdraw
- Union begins return to WV

- The New River Bridge at Central Depot (today Radford) had a 700ft long wooden superstructure and was supported by metal piers anchored in the river bottom.

Concluding Comments

- For 21 days (16 in the rain), Crook's forces marched 270 miles through some of the most difficult terrain in the eastern United States. Seventeen mountain ridges and countless streams were crossed. Indeed, Union forces destroyed the NRB; however, Crook never linked up with the other Union forces in Virginia.

- On top of this, Union forces only burned the bridge's superstructure. The metal piers remained intact because explosives were left behind in West Virginia. Confederates rebuilt the bridge span within five weeks.

- Was this really a Union success?

- Did we accomplish the purpose(s) of this briefing?