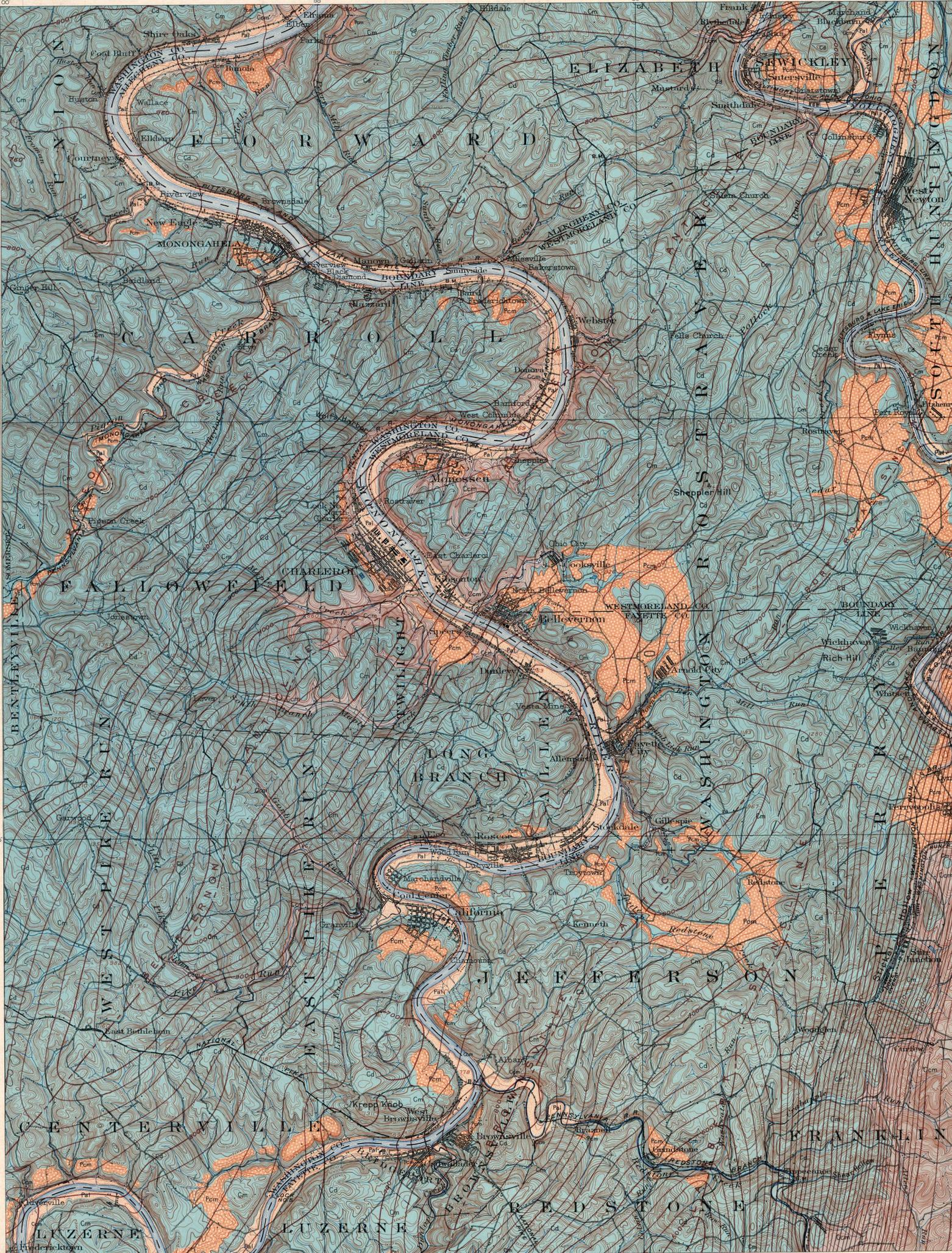


U.S. GEOLOGICAL SURVEY  
 CHARLES D. WALCOTT, DIRECTOR  
 STATE OF PENNSYLVANIA  
 GEORGE W. MC NEES, SIMON HARROLD,  
 FRED D. BARKER, COMMISSIONERS

GEOLOGIC STRUCTURE

PENNSYLVANIA  
 BROWNSVILLE QUADRANGLE



LEGEND

SURFICIAL ROCKS

- Pa1  
 Alluvium  
*(in flood plains of present streams)*
- Pcm  
 Carmichael clay  
*(clay sand and bowlders on terraces and in abandoned channels of the larger streams)*

PLEISTOCENE

SEDIMENTARY ROCKS

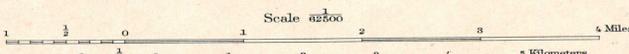
- Cd  
 Dunkard formation  
*(sand shale, coarse sandstone, some thin limestone and beds of coal, many of workable size)*
- Cm  
 Monongahela formation  
*(shale, limestone, and occasionally coarse sandstone, bituminous coal at the bottom, Ripensburg coal at the top, and coal beds of local importance between)*
- Ccm  
 Conemaugh formation  
*(sandstone, shale, small amount of limestone, and a few small coal beds)*

CARBONIFEROUS

Contour lines drawn upon floor of Pittsburg coal at base of Monongahela formation  
*(contour interval is 20 feet except in extreme southeast corner where it is 50 feet. Datum is mean sea level. Where the coal has been removed by erosion the lines are determined by the calculated position of the bed.)*

*The axes of the folds are represented by heavy lines drawn along the lowest parts of the synclines and the highest parts of the anticlines.*

H.M. Wilson, Geographer in charge.  
 Control by Sledge Tatum and Arthur C. Roberts.  
 Topography by Frank Sutton, J.H. Wheat, W.N. Morrill, and T.G. Basinger.  
 Surveyed in 1899-1900 in cooperation with the State of Pennsylvania.



Scale 62500  
 Contour interval 20 feet.  
 Datum is mean sea level.  
 Edition of Feb. 1903.

Geology by Marius R. Campbell.  
 Assisted by L.C. Glenn,  
 Charles Butts, and L.H. Woolsey.  
 Surveyed in 1891.