

U.S. GEOLOGICAL SURVEY  
CHARLES D. WALCOTT, DIRECTOR

STATE OF PENNSYLVANIA  
GEORGE W. MC NEES, SIMON HARROLD,  
FRED D. BARKER, COMMISSIONERS

# AREAL GEOLOGY

PENNSYLVANIA  
BROWNSVILLE QUADRANGLE



## LEGEND

### SURFICIAL ROCKS

(Areas of Surficial rocks are shown by patterns of dots and circles)

Pal  
Alluvium  
(In flood plains of present streams)

Pcm  
Carmichael clay  
(Clay and loess on terraces and in abandoned channels of the larger streams)

PLEISTOCENE

### SEDIMENTARY ROCKS

(Areas of Sedimentary rocks are shown by patterns of parallel lines)

Cd  
Dunkard formation  
(Sandy shale, coarse sandstone, some thin limestone and beds of coal, many of workable size)

Cm  
Monongahela formation  
(Sandy shale, coarse sandstone, some thin limestone, Wyanetsburg coal at the bottom, Wyanetsburg coal at the top and local interbeds)

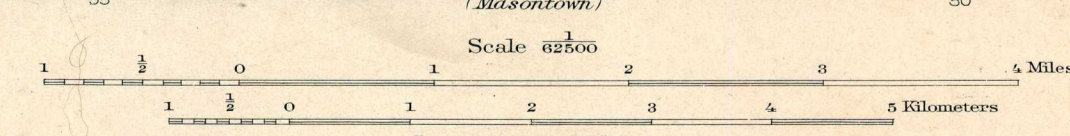
Ccm  
Conemaugh formation  
(Sandstone, shale, small amount of limestone, and a few small coal beds)

CARBONIFEROUS

Permian series

Pennsylvanian series

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.



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