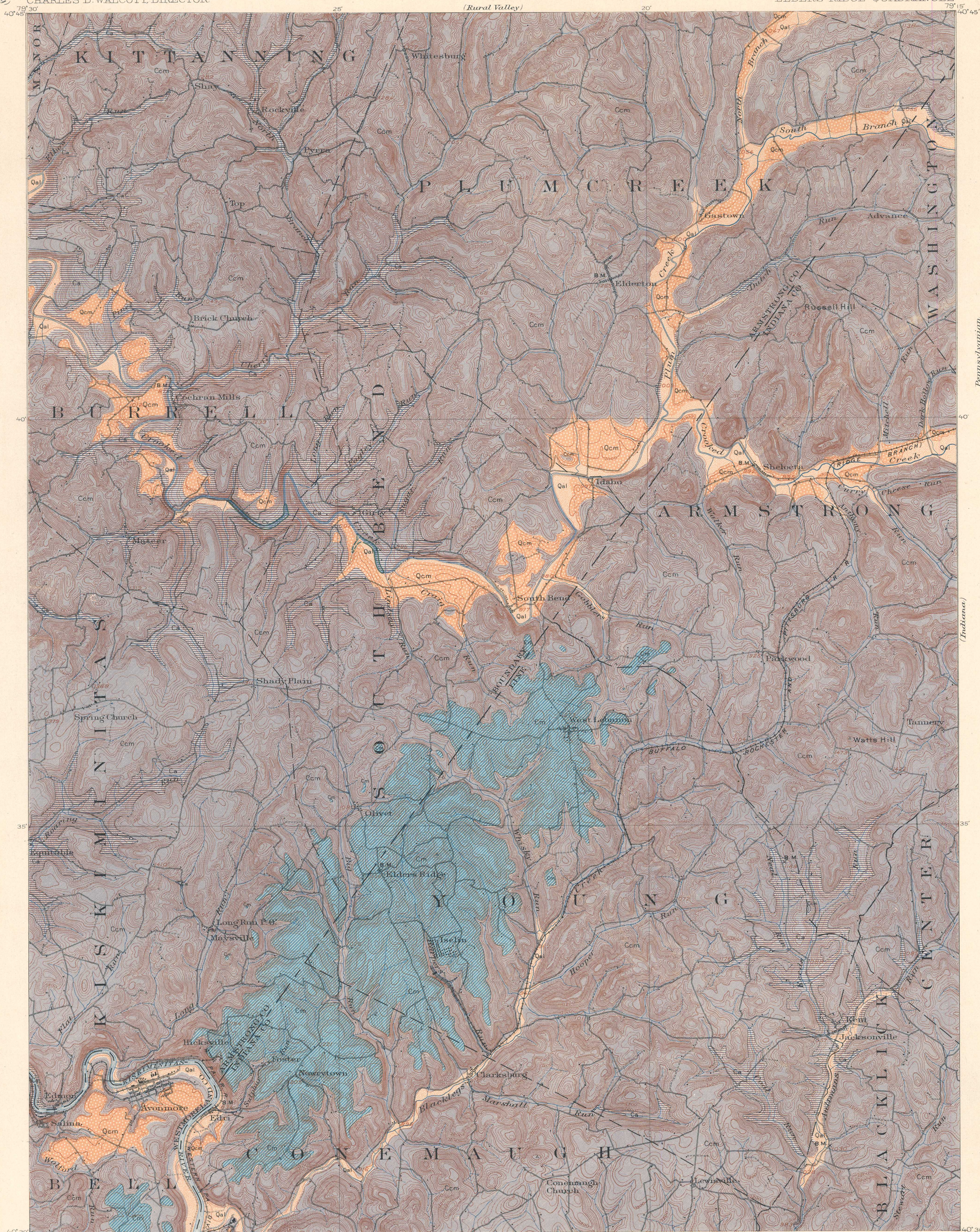


(Kittanning)

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

AREAL GEOLOGY

PENNSYLVANIA
ELDERS RIDGE QUADRANGLE



LEGEND

SEDIMENTARY ROCKS
(Areas of subaqueous deposits are shown by patterns of parallel lines; subaerial deposits by patterns of dots and circles)

Qal
Alluvium
(in flood plains of present streams)

Qcm
Cammichaels formation
(clay sand and boulders on terraces)

Cm
Monongahela formation
(shale, limestone, and occasionally coarse sandstone; Pittsburgh coal at the bottom)

Ccm
Conemaugh formation
(sandstone, shale, and limestone with a few small coal beds)

Ca
Allegheny formation and Vamport limestone lentil
(shale, sandstone, thin limestone, fire clay, and several beds of coal; Upper Freeport coal at the top)

Pennsylvanian

QUATERNARY

CARBONIFEROUS

H. M. Wilson, Geographer in charge.
Triangulation by A. H. Thompson.
Topography by Frank Sutton, E. B. Clark, and J. H. Wheat.

SURVEYED IN 1902 IN COOPERATION WITH THE STATE OF PENNSYLVANIA.

APPROXIMATE MEAN
DECLINATION 1902.

Scale 62500
1 2 3 4 Miles
1 2 3 4 Kilometers

Contour interval 20 feet.
Datum is mean sea level.
Edition of Mar. 1905

Geology by Ralph W. Stone,
assisted by Lester H. Woolsey,
under the direction of M. R. Campbell.

SURVEYED IN 1902 IN COOPERATION WITH THE STATE OF PENNSYLVANIA.