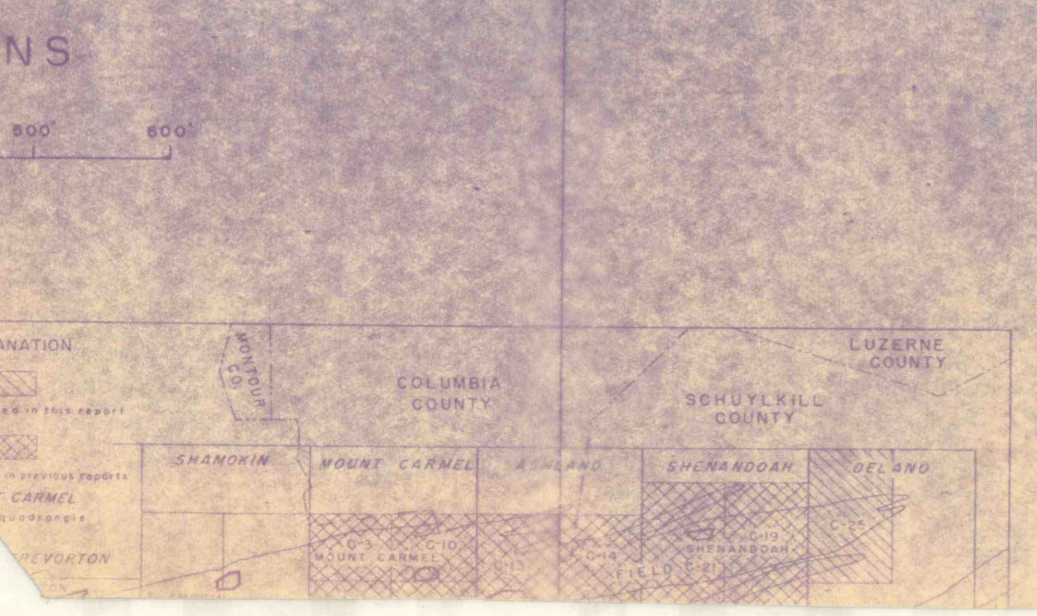


MAHANAOY CITY BASIN
MAHANAOY BASIN

Operator's designation		Thickness in feet	Operator's designation		Thickness in feet
Name	No.		Name	No.	
Primrose	11	75-82	Primrose	11	75-82
Top Split	9	82-88	Top Split	9	82-88
Middle Split	8 1/2	88-90	Middle Split	8 1/2	88-90
Bottom Split	6	90-92	Bottom Split	6	90-92
Skidmore	7	92-95	Skidmore	7	92-95
Seven-foot	6	95-100	Seven-foot	6	95-100
Leeder	5T	100-102	Leeder	5T	100-102
Top Split	5	102-105	Top Split	5	102-105
Bottom Split	5	105-110	Bottom Split	5	105-110
Local			Local		
Lykens Valley	2	95-70	Lykens Valley	2	40-80



GEOLOGY OF ANTHRACITE IN THE WESTERN PART OF THE DELANO QUADRANGLE, PENNSYLVANIA

INTRODUCTION
The Western Middle anthracite field is one of four structural basins in eastern Pennsylvania containing anthracite. This report describes the geology of the eastern end of the Western Middle field, which lies in the western part of the Delano quadrangle (see index map, sheet 2). The mapped area covers about 19 square miles in Schuylkill County, Pa. The town of Delano is in the east-central part of the area. This is the ninth in a series of reports describing different parts of the Western Middle field. Previous reports, which have been prepared by several different authors, are listed under Literature cited; areas covered by these reports are shown on the index map of the Western Middle field, sheet 2. This report has been prepared to aid in planning exploratory, developmental, and water-control operations by showings: (a) the location of all known coal outcrops (sheet 1), (b) the depth and structure of rep-

PENNSYLVANIAN ROCKS

Rocks of Pennsylvanian age consist of lenticular beds of conglomerate, sandstone, siltstone, claystone, and shale interbedded with nine persistent coal beds and several local coal beds. The lower part of the Pennsylvanian in the mapped area is predominantly conglomeratic, and the upper part is chiefly fine grained. The coal beds probably are the most persistent lithologic unit. **Pottsville formation.**—The Pottsville formation, which comprises the oldest Pennsylvanian rocks in the area, overlies the Mauch Chunk formation and underlies the Allegheny formation. It consists mainly of resistant conglomerate and sandstone, which form all of the mountains as well as most of the major ridges in the mapped area. The formation is approximately 900 feet thick over the entire area. The lower 100 feet of the Pottsville formation is composed of beds of gray conglomerate, gray, green, brown, and red sandstone and siltstone, and scattered lenses of gray conglomerate, conglomeratic sandstone, coarse- to fine-grained sandstone, and scattered lenses of siltstone and claystone. The Lykens Valley (No. 2 and No. 2-1/2) coal beds are near the middle of the formation.

FOLDS

From north to south the major folds of the Western Middle anthracite field within the map area are the Delano, Mahanoy City, Mahanoy, and New Boston basins or synclines, and the Delano, Girardville, and Frackville anticlines. These major folds trend N. 55°-80° E., and the dips of their axial planes range from 70° N. to 55° S. The folds are asymmetric and their limbs subtend angles ranging from 60° to 140°. The axes of the folds plunge to the southwest in the western part of the Delano quadrangle. The basins become shallower and the anticlines more prominent toward the eastern end of the Western Middle anthracite field. The Delano syncline, the northernmost coal basin, is a relatively narrow flexure that trends east-northeast across the area to the eastern end of the field. The fold is asymmetric, having a steeply dipping southern limb and a moderately dipping northern limb. The Delano anticline, which closely parallels the Delano syncline on the south,

STRUCTURAL CROSS SECTIONS

strike of the fault then swings back to its original east-northeast direction and from this point the fault displaces beds on the southern flank of the Delano anticline. Near the eastern edge of the mapped area the Suffolk and Delano faults join. East of the junction the Suffolk fault continues to strike east-northeast. The fault dips south-south-east in the western part of the map area, east-southeast in the central part, and south-southeast in the eastern part of the area. In general, the dip does not exceed 65°. The stratigraphic displacement in most localities is about 250 feet. The actual movement and displacement, however, are not known. A tear fault in the vicinity of Park Place offsets the north limb of the Delano syncline. This tear fault and other transverse or oblique faults in the area have relatively small displacements that range from a few feet to a few tens of feet and are in many places associated with shear zones in the coal beds. Most of the shear zones are elongate, oblique to the axes of the folds, have little or no apparent vertical displacement, and are thought to represent transverse faults in an early stage of development. Other shear zones apparently have no regular orientation. Mining is adversely affected by (1) faults with steeply dipping

THICKNESS OF COAL BEDS

Listed below are the average thicknesses and range in thicknesses of coal beds in the area covered by this report. Figures on the right side of the table show thickness of all coal in each bed; figures on the left side of the table show total thickness of all coal and all shale partings in each bed. Most of the coal and bed thicknesses were obtained from mine company data and were chosen to show an average of many underground observations. Measurements that may have been abnormally affected by deformation were not recorded. The maximum and minimum thicknesses of the coal beds in this report and in the other sections (sheet 2) are given in the following table. The thicknesses of the coal beds in this report are given in feet and inches. The thicknesses of the coal beds in the other sections are given in feet.

CONCLUSION

The resultant topographic bench generally identifies and is an aid in locating the Buck Mountain coal bed. Two splits of the Buck Mountain coal are present in this area; they are known as the Bottom Split (No. 5) and the Top Split (No. 5T). The rock between these two splits is carbonaceous claystone or siltstone containing scattered lenses of sandstone, conglomeratic sandstone, and conglomerate. The maximum interval between the splits is 80 feet in the Mahanoy City basin. The Buck Mountain coal is mined extensively, and both splits can be seen in the faces of the many strip pits in the area. The seven-foot (No. 6) and Skidmore (No. 7) coal beds are present in the lower part of the Allegheny formation. They are about 120 feet and 185 feet, respectively, above the base of the Allegheny. Both beds are mined in the area. The average thickness of the seven-foot coal bed in mined areas is 4 feet 4 inches, of which 3 feet 6 inches is coal. The Skidmore coal bed averages 5 feet 11 inches, of which 4 feet 11 inches is coal. The Mammoth coal zone is economically the most important group of coals in the Allegheny formation. In the mapped area the Mammoth zone is composed of the Bottom Split (No. 8), Middle Split (No. 8-1/2), and Top Split (No. 9). The Top Split (No. 9) coal occurs more than 100 feet

