



The lower part of the Pennsylvania in the mapped area is predominantly conglomerate, and the upper part is chiefly sandstone. The coal beds are the most prominent of the lithologic units. The other rock units exhibit so many changes in lithology that they have little value as reference or key beds.

Pottsville formation.—The Pottsville formation, which includes the oldest rocks of Pennsylvania age in the area, overlies the Mauch Chunk formation and underlies the Allegheny formation. The Pottsville consists mainly of resistant conglomerate and sandstone that form most of the mountain and lower ridges in the mapped area. The formation is approximately 800 feet thick throughout the area of this report. The lower 100 feet of the Pottsville formation is composed of beds of gray conglomerate, gray, green, brown, and red sandstone or siltstone, and scattered lenses of gray or red claystone. The rest of the formation consists mainly of gray conglomerate, conglomeratic sandstone, coarse- to fine-grained sandstone, and scattered lenses of siltstone and claystone. The Lykens Valley (No. 2) and No. 20) coal beds are near the middle of the formation, and the Little Buck Mountain (No. 4) coal bed is in the upper part of the formation.

Allegheny formation.—The Allegheny formation, the base of which is the Buck Mountain (No. 5) coal bed (White, 1900, p. 828), overlies the Pottsville formation and underlies the Conowingo formation. The thickness of the Allegheny formation ranges from 350 feet in the north to a maximum of 530 feet in the south. The formation is composed of conglomerate, sandstone, siltstone, claystone, and coal. The coal beds are the laterally persistent lithologic units. In general, conglomerate and sandstone are more abundant in the lower part of the formation, and yellow to light-brown sandstone and siltstone are more abundant in the upper part.

The Allegheny formation is the source of most of the coal mined in the area. Six persistent coal beds—the Buck Mountain (No. 5), Seven-foot (No. 6), Slidmore (No. 7), and three beds in the Mammoth coal zone (No. 8, No. 9, and No. 10)—are present in the Allegheny formation. The Buck Mountain and Mammoth zone coal beds are economically the most important of these.

Conowingo formation.—The Conowingo formation, the base of which is the Helmes (No. 10) coal bed (Lohman, 1921, p. 46), overlies the Allegheny formation. Lohman has named the formation in the southern part of the area, but 550 feet of the formation remains in the mapped area. The formation consists of siltstone, sandstone, claystone, carbonaceous claystone, scattered lenses of conglomerate, and coal. Six persistent coal beds are present in the formation—Holmes (No. 10), Princess (No. 11), Orchard (No. 12), Little Orchard (No. 13), Diamond (No. 14), and Tracy (No. 15) coal beds—and are of economic value throughout most of their extent.

Delano formation.—The Delano formation begins in the southeastern part of the area and extends into the northeastern part of the area. This is a very irregular fault, as shown on the cross sections. It truncates the southern limb of the Knickerbocker and Delano basins. The Delano fault begins in the southeastern part of the area and extends into the northeastern part of the area. This is a very irregular fault, as shown on the cross sections. It truncates the southern limb of the Knickerbocker and Delano basins.

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MAJOR FAULTS

Most faults in the mapped area are thrust faults that dip southward and are the result of compression. They generally trend northeast parallel to the axes of the folds and cutting the bedding at an angle generally less than 60° except where drag has affected the beds. The principal faults, from north to south, are the Delano, Shenandoah, and Suffolk faults.

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STRUCTURE

Each of the Pennsylvania anticline fields is a north-south-trending synclinal fold composed of several overlapping folds, some of which have been folded. The area covered by this report is in the eastern part of the synclinal fold that constitutes the Western Middle anticline field. The coal-bearing area of the Western Middle field is in the southeastern part of the synclinal fold. The coal-bearing area of the Western Middle field is in the southeastern part of the synclinal fold. The coal-bearing area of the Western Middle field is in the southeastern part of the synclinal fold.

ROCKS OF MISSISSIPPIAN AGE

Mauch Chunk formation.—The Mauch Chunk formation crops out in the northern part of the area north of Locust Mountain basin, and in a small area immediately north of Reserve No. 3. In the southern part of the area the formation crops out on the crest of the Eisenhart Run anticline, in the valley occupied by Mill Creek, and in the Locust Creek valley. Only the upper 1,000 feet of the formation is exposed in the mapped area.

The rocks in the Mauch Chunk formation are mainly red claystone, shale, siltstone, and fine-grained sandstone, but green siltstone and fine-grained sandstone, red or green medium- to coarse-grained sandstone, and scattered lenses of gray or green conglomerate are also present. All the beds are lenticular. The contact between the Mauch Chunk and the overlying Pottsville formation is gradational and is mapped at that horizon below which the beds are predominantly red and above which they are predominantly gray, green, or brown.

ROCKS OF PENNSYLVANIAN AGE

Rocks of Pennsylvania age consist of lenticular beds of conglomerate, sandstone, siltstone, claystone, and shale, interbedded with 12 persistent coal beds and several local coal beds.