

1. *Upper Barren Series, or Permian Beds.*A. DUNKARD CREEK MEASURES, GREENE COUNTY (SOUTHWESTERN COUNTY OF PA.),  
ABOUT 700 FEET.

Beneath 80' of concealed beds including some limestone :

<i>Limestone</i> 10', sandstone 50', <i>limestone</i> 4', shale 80'.....	144'
Sandstone 30', shale 12', <i>limestone</i> 2½', sandstone and shale 80'....	124½'
<i>Nineveh coal-bed</i> .....	13'
Sandstone 100', <i>limestone</i> 2½', bitum. shale 1', sandstone 30'.....	139½'
<i>Dunkard coal-bed</i> .....	1½'
Sandstone and shale 30', <i>limestone</i> 3'.....	33'
<i>Limestone</i> 2'-5', sandy shale 70', <i>limestone</i> 0'-15'.....	78'-90'
<i>Coal</i> , local bed.....	13'
Shale and iron ore 10', sandstone 31', <i>limestone</i> 2½', sandstone 19'-30' 62½'-73½'	

## B. WASHINGTON GROUP, MAXIMUM THICKNESS 400 FEET.

Sandstone 40', Upper Washington <i>limestone</i> 30'.....	70'
<i>Jolletown coal-bed</i> .....	1
Middle Washington <i>limestone</i> 15', sandstone 40'.....	55'
Sandstone and shale 20', <i>limestone</i> 8', sandstone and shale 60'....	88'
<i>Bituminous shale or coal-bed</i> .....	1'
Lower Washington <i>limestone</i> .....	20'
<i>Washington coal-bed</i> .....	10'
Laminated sandstone.....	12'
<i>Little Washington coal-bed</i> .....	1'
<i>Limestone</i> 20', shale 6'.....	26'
<i>Waynesburg "B" coal-bed</i> .....	1'
<i>Limestone</i> 8', sandstone 30'.....	38'
<i>Waynesburg "A" coal-bed</i> .....	2'

2. *Upper Productive Coal Series or Monongahela River Series, Maximum 494 feet.*

Shale 0'-12', <i>Waynesburg</i> sandstone 70'.....	70'-82'
<i>Waynesburg main coal-bed</i> .....	6'
Sandstone and shale 60', <i>limestone</i> 5', sandstone 20', fire clay 3'....	88'
<i>Uniontown coal-bed</i> .....	1'-3'
Sandstone and shale 60', <i>limestone</i> and shale 18', sandy shale 40', <i>limestone</i> and shale 55'.....	173'
<i>Sewickley coal-bed</i> .....	1'-6'
Sandstone and shale 25', <i>limestone</i> 18', sandstone 10'.....	53'
<i>Redstone coal-bed</i> .....	1'-6'
Shale 0'-12', <i>Pittsburg</i> Upper sandstone 40', <i>limestone</i> 10'.....	50'-62'
<i>Pittsburg coal-bed</i> .....	5'-12'
Fire clay.....	3'

3. *Lower Barren Coal-measures (in Westmoreland County, Pa.), 654 feet.*

<i>Limestone</i> 6', shale 10' (underneath 3' fire clay and <i>Pittsburg</i> coal)	16'
<i>Coal-bed</i> .....	1'
Shale 10', <i>limestone</i> 3', shale 25'.....	38'
<i>Coal</i> .....	1½'
Shale 35', <i>Connellsville</i> sandstone 60' (not persistent), <i>limestone</i> 5'	100'
<i>Coal-bed</i> .....	1'
Clay 9', <i>Morgantown</i> sandstone 50', <i>limestone</i> 4'.....	63'