DEPARTMENT OF INTERNAL AFFAIRS
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THE COAL DEPOSITS OF SOUTHERN SOMERSET COUNTY

By

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Introduction

The coals of Somerset County have been attracting an increasing amount of attention in recent years as their value has been more fully recognized and their development has extended. At the time when the work of the Second Geological Survey of Pennsylvania was completed, there were in the county only six commercial mines outside of the very small Salisbury basin and little was known of the coals outside of that basin. Since that time no official surveys have been made of the coals until a few years ago when the U. S. Geological Survey made a detailed study of the northern half of the county. This has not yet been published.

In connection with an introductory report on the coal fields of Pennsylvania now being prepared by the State Geological Survey of the Department of Internal Affairs of Pennsylvania, a reconnoissance examination was necessarily made of the south half of the county. As it may be one or two years before the report mentioned can be issued, it seems wise to present a brief abstract of the State's findings at this time as an aid in the further development of the county.

George H. Ashley,
State Geologist.

THE COALS OF SOUTHERN SOMERSET COUNTY.

The Pottsville, Allegheny, Conemaugh and Monongahela formations of the Carboniferous system are represented in southern Somerset County. No coals were observed in the Pottsville formation. On the other hand, the coals of the other formations have reached an average development, and in some few localities coals which are unimportant in other parts of the State have reached mineable thickness.

The Brockville coal is mined at several places on Buffalo and Coxes creeks. It has an average height of 36" here but its commercial value is reduced by many, and sometimes thick, shale binders always present and its high sulphur.

The Clarion coal averages about 18" thick and has not been worked commercially. The farmers have opened it in a few places for custom coal. It contains many fine shale binders, and is rather high in sulphur.

The Lower Kittanning coal is being mined for shipment in the Buffalo and Coxes creek regions. It has also been opened on its eastern outcrop in the Berlin-Salisbury basin, but its value has not yet been proven. It will average 28" in thickness and is fairly clean. The sulphur content is fairly high.

The Middle Kittanning coal does not reach a mineable thickness in the county. Several exposures only a few inches in thickness are of geologic interest.

The Upper Kittanning coal is mined on Buffalo, Cox and Whites creeks. In the latter locality is the most important coal. Its average thickness where mined varies between four and five feet. It is never entirely clean. Binders of shale and bone make cleaning difficult. In some localities it is rather high in ash and

sulphur.

The Lower Freeport coal occurs in the Buffalo and Coxes creek valleys, but is mined in only a few localities. Its greatest commercial development is in the vicinity of Rockwood, where it reaches a maximum thickness of 64", including impurities. A large shale and bone binder near the center of the bed increases the cost of production and lowers the value of the bed as a commercial producer.

The Upper Freeport coal occurs high in the hills on the slopes of Buffalo and Coxes creeks, and along the Casselman river in the vicinity of Rockwood. It reaches a maximum thickness of 64", but always carries shale and bony binders. It has not reached a large development in any locality, since more valuable beds underlie it.

The Bakerstown coal has not been definitely correlated with that bed in Maryland. A coal two feet thick and clean occurs in the Wellersburg field which might be doubtfully correlated with the Bakerstown of Maryland. The coal was not seen at any other locality.

The Pittsburgh coal is confined to the Berlin-Salisbury basin, with the exception of a few hundred acres near the hilltops north of Wellersburg. In the latter region the coal has a thickness of 93", including binders, which are thicker than is characteristic of the Pittsburgh bed. The Pittsburgh bed in the Berlin-Salisbury basin is approaching a state of exhaustion, as that region has been a large producer of high grade for many years. Its thickness varies from five to eight feet of clean coal, with the exception of a few knifeblade partings of shale and bone. In local spots these partings become thicker. The analyses are char-

acteristic of the Pittsburgh coal.

The Redstone coal occurs in the Berlin-Salisbury basin only. It has been extensively developed there in later years, as the supply of Pittsburgh coal has diminished. Although not of as good a quality as the latter bed, it has a good thickness and is fairly clean. Its thickness will average 56". Two small binders are characteristic of it, and in places more are in evidence.

The Coal Basins.

The Negro Mountain anticlinal extending through the center of the county from the state line north to Somerset, divides the southern portion into two distinct basins, the Berlin-Salisbury basin on the east and the Somerset-Confluence basin on the west. The Wellersburg basin, which is the northern remnant of the Georges Creek basin in Pennsylvania, lies near the eastern line of Somerset county, and east of the Allegheny mountains. Since each one of these basins is a geologic unit, they will be treated separately.

The Wellersburg Basin.

The Wellersburg basin is a continuation and the tailing out of the Georges Creek basin of Maryland. Owing to the overshadowing value of the latter basin, the Wellersburg field has a very small production and has never been fully prospected. Drilling and prospecting in the future may prove it a field of value.

The Pittsburgh coal is confined to a small acreage in the hilltops north of Wellersburg. The only coal shipped out of this area comes from the Pittsburgh bed. In coming north from Frostburg the bed appears to decrease in thickness and many small binders are present. The analysis is not up to the average standard of the Pittsburgh bed. The sulphur and ash content are rather high. Its total thickness is 93" of which 30" are impurities consisting of bone coal, shale and rock.

The coals beneath the Pittsburgh bed have never been definitely correlated with those of Maryland. The scarcity of information on this field will warrant the use of information already collected on the same beds across the state line.

The Little Pittsburgh coal has been opened near Wellersburg and its section varied from 32 to 34 inches of clean coal of good quality, except for one 2" binder.

A coal has been prospected in the approximate horizon of the Franklin coal. Twenty inches of clean coal was found.

The Conemaugh formation in this field contains four additional coals. The first in descending order lies from 425 to 440 feet below the Pittsburgh bed. It has been opened for custom coal, and has an average thickness of 4'. It is divided in the center by a shale parting which varies from 2' to 2" in thickness. A second bed lies some 490' below the Pittsburgh bed. It has not been prospected, but its thickness and quality on its outcrops would indicate that its commercial value is slight. A coal 34" in thickness and lying 585' below the Pittsburgh bed was reported. An exposure of this bed was not seen by the writer. The lowest Conemaugh coal lies at an interval of 675 feet below the Pittsburgh coal. Its thickness will reach an average of 22". Its commercial possibilities are slight.

A coal lying 740' beneath the Pittsburgh bed has been doubtfully correlated with the Upper Freeport. It shows two benches, the upper one varying from 2 to 3 feet, the lower from 1' to 1½', parted by a shale 6" to 1' thick. A drill record shows a coal 50' below the above bed, having a thickness of 4'. This thickness has not been verified. A bed 130' beneath the one which has been doubtfully correlated with the Upper Freeport is reported to be 5' thick.

The Salisbury-Berlin Basin.

From Meyersdale south to the state line the chief development is in the Pittsburgh and Redstone beds. The anticlinals on each side of the basin have brought the lower coals to light; but little prospecting has been done and it is hard to say what their future value might be. They appear to have only a fair thickness, and are dirty, with the possible exception of the Lower Kittanning, which is of mineable thickness, and comparatively free from impurities. The high dips from the sides of the anticlinals would introduce mining difficulties, and a deep shaft would be needed to reach this coal from the center of the basin.

The axis of the syncline forming the above basin is slightly tilted, which tilting has deepened the basin to the southward. This tilting has resulted in the preservation of large areas of Pittsburgh and Redstone coal in the trough. In the vicinity of Salisbury the coals have but very little cover, and not far beyond the state line they have been entirely eroded. In the vicinity of Boynton, Coal Run and Shaw mines the cover is ample, but going northward to Meyersdale, the coals are again lost through erosion.

In this basin the Pittsburgh coal varies much as to thickness and quality. At Salisbury the coal is in five benches, 5", 12", 30",36" and 33" thick separated by partings or binders of from 1/8 to 2". On Coal Run the coal is in two benches of 30" each. The bed thins toward its northern outcrop, as shown at the Shaw mines where the thickest bench is 28 3/4 inches and the benches above only 13½", 3", and 5", with a 20" bony coal between the second and third benches. Still further to the north the bed continues to thin and the binders increase in thickness. The sulphur and ash content is also higher than in the southern protion of the

basin.

In the vicinity of Salisbury a coal appears a few feet above the Pittsburgh bed and is of sufficient thickness and quality to be profitably mined. Its maximum thickness, as observed, was 5', the upper foot or so of which tends to be shaly. This bed is called the Redstone by the miners, but the writer is of the opinion that a careful tracing of the Redstone coal would show that it has been eroded at that point and that the local development of coal six to seven feet above the Pittsburgh is the rider which has thickened locally.

With the gradual depletion of the Pittsburgh coal areas in this basin, the Redstone coal, lying 40 to 50 feet above that bed has come into prominence. Although it does not have the thickness nor the quality of the Pittsburgh bed, it is extensively mined on the properties where the Pittsburgh bed has been worked out. It yields a large percentage of the output of the basin. The total thickness of this bed averages around 50" exclusive of some 4 to 4½ feet of dirty, bony coal which is not mined but is taken down in the headings and rooms for height. The mineable portion is generally divided into benches by a shale parting. In other places even in the same mine other small binders develop, and at times an 1/8" band of sulphur is in evidence. At Salisbury the bed has a thickness of 5' 2" not including two shale binders each of ½" in thickness. At Boynton the coal is 42" thick not including two binders totalling 6"; at Coal Run the bed thickens up to 59" and the two binders are of slight thickness. In the vicinity of Meyersdale the bed shows a tendency to carry an 1/8" binder of sulphur in addition to the three other shale binders totalling some 2½". The presence of these impurities tend to make the bed rather high in sulphur and ash in local areas near its northern outcrop.

The Freeport coals outcrop in the Buffalo creek valley, from Garrett northward toward Berlin. The Upper Freeport is the most important bed. It has been mined with varying success at many points along the valley. Its average thickness is 30", not including one small binder which varies in thickness from ½ to 2"; in some mines a foot of dirty bony coal is found next to the floor. This is moved only when additional height is desired. The coal is fairly clean, but the sulphur content is above the average.

The Lower Freeport is thin and has no present value as a commercial producer. It has been prospected in a few places without success.

The Upper Kittanning coal is an important one in the Buffalo Creek valley. Many commercial mines have been opened in it. The bed varies much in thickness and quality on different properties, but the part of the coal mined is clean. A shale parting and bony coal totalling on an average 15" in the bottom of the bed is not mined. The clean coal above the bony will average 40".

The Lower Kittanning, Clarion and Brookville beds have not been mined in this valley. Their thickness and quality as shown by prospecting and core drilling does not warrant their development while more valuable coals are available. At McDonaldtown the Lower Kittanning has been developed with success near its eastern outcrop. At that locality it is very irregular in thickness, varying from 24 to 50 inches in thickness. The bed contains small local binders but these are eliminated by careful hand picking. The ash and sulphur contents is fairly low.

The Conemaugh formacion in this state is usually devoid of coal beds that can be worked commercially at a profit; the region around Berlin is an exception to this rule. There, three beds in the Conemaugh have such an unusual development that they have been

commercially worked. These beds have not yet been definitely correlated with the Conemaugh beds in a region where detailed geology has been done, so it will be necessary to describe them in their relative positions in the stratigraphic column. The highest coal in the formation is the most valuable one. The bed will average as a whole 5'6". A shale parting averaging 5" in thickness divides the bed into two benches. The upper bench is thin and bony in spots, and is seldom mined. The lower bench of 3 to 4 feet presents a solid face of clean coal of high quality, as to its sulphur and ash contents. The coal is very soft and friable and is difficult to handle. This bed has been the largest producer in this region.

A bed lying 25' below the bed described above often reaches a total thickness of 8'. It is banded from top to bottom by shale and sulphur streaks which make its ash and sulphur content very large. It has been opened in many places for custom coal.

At an interval of 55" below the bed last described lies another good bed of coal. This bed carries a characteristic shale parting varying from ½ to 2" in thickness about a foot from the bottom. With the exception of this binder the coal is clean. Locally other small binders are developed. The average thickness of this bed is 40" including the impurities. The coal is fairly low in ash and sulphur, but is soft and friable.

Two other coal beds occur beneath the one last described, but their thickness as now known would not warrant their present development.

The Somerset-Confluence Basin.

In the Coxes creek valley north to Somerset the Lower Kittanning is the most important bed with the Clarion as the second most important producer. The Upper Freeport has been opened on the hill-

tops in many places for custom coal but its importance is slight. It rarely reaches a thickness of 24" and is inclined to be dirty.

The Upper Kittanning has been mined in a few localities. It carries numerous shale partings and the lower bench is very high in sulphur. The lower 8" of the bed is generally canneloid. The average thickness of the entire bed is 40".

Many commercial mines are working the Lower Kittanning coal in this district. The bed is cut by many shale and bone binders which can be eliminated by careful picking. The bed has a regular thickness and is not rolly like the Clarion beneath it. The thickness varies from 30" to 36" including impurities. The coal has a medium sulphur content. The percentage of ash is also fairly low, if the coal is properly prepared for shipment.

The Clarion coal has an average thickness of 45". In places local rolls give a range of thickness of from a few inches to 3½ feet. This total thickness includes many thin shale and bone binders which cannot be separated by hand picking. The bed is also rather high in sulphur, occurring in the form of nodules. The importance of this bed in normal times is slight. The best showing of this bed is at Wilson Creek, where the top 36" is good clean coal. The middle 26" is a mixture of clean coal and shale partings; the lower 22" is clean coal but has a rather high sulphur content.

The Upper Freeport, the Lower Freeport, the Upper Kittanning and the Lower Kittanning are all mined in the valley of the Casselman river between Rockwood and Casselman. The Lower Kittanning is considered the most important bed.

The upper Freeport is irregular in thickness and is inclined to be rolly. Its thickness varies from 2' to 4'. The top 12 to 40 inches, according to the total thickness, is generally good

clean coal. As a rule it is separated from the roof by a few inches of bony coal. The lower portion of the bed is an alternation of partings of bone and coal.

The Lower Freeport is also variable in thickness. Its average thickness is 4½ feet including the impurities. The top 30" is good clean coal beneath which invariably occurs a mixture of 4 to 14 inches of bone coal and rock. The bottom coal having a thickness of 4 to 8 inches is good coal in most places, but is higher in sulphur than the top bench.

At Casselman the Upper Kittanning coal appears as a double bed separated by a hard fire clay parting varying in thickness from ½ to 7". The top bench is composed of 26" of clean coal with 4" of bony coal. The coal is of good quality. The lower bench is 50" thick, but it carries two bone partings. The lower 6" is canneloid.

The Lower Kittanning in this region is thin, having an average thickness of 26". It is a coal of very good quality. It has been commercially mined by the use of a Longwall Scraper Loader.

Along the Casselman River southwest to Ursina the Upper Kittanning continues to be the most important bed, its total thickness varies from four to nine feet including the many impurities. It continues as a double bed, both benches being cut by numerous partings and binders of shale and bone coal. Draw slate having a thickness of 4" to 6" is present at the top of the bed. The bottom 6" to 15" are invariably so dirty that they cannot be mined. In places the bottom bench is so dirty that it is not mined except for height in the rooms and headings. The fire clay parting between the two benches is used for a floor. In such places the upper bench has a thickness of 24" of good clean coal.

In this region the Lower Kittanning coal is thin, but of good quality. Its thickness will average 26". It is clean with the ex-

ception of one binder less than one inch in thickness, which usually runs about 6" from the roof. This coal has not been fully prospected and little can be said of its commercial value in the future. Its outcrop would indicate, however, that its thickness does not exceed 31".

The Freeport coals outcrop high in the hills on each side of the river. They have not been mined. What little prospecting that has been done would indicate that their thickness is not great but that as a rule the coal is clean.

The lower coals do not outcrop in this region. Their value can be tested only by the core drill.

At Ursina and northward to Humbert both the Upper Freeport and Upper Kittanning have been mined. The Upper Freeport reaches a maximum thickness of 5½' including the impurities. The top 26" is usually a good clean coal. The middle portion of the bed is cut by numerous bony partings. The bottom coal, which varies in thickness from 10 to 24 inches, is good quality coal.

The Upper Kittanning again comes into prominence at Humbert. Its thickness will average 34". One parting, varying from 2" to 4" in thickness, is invariably present 2 to 6 inches from the bottom. Other than this one binder the coal is clean. Its sulphur content is medium and the ash is low.

The Upper Kittanning is the most important bed in the Confluence-Listonburg area. Its prominence has so overshadowed the other coals that they have never been prospected to any extent. They are present but their thickness and quality does not justify development at the present when large acreages of the Upper Kittanning remain unmined.

The Upper Freeport has been prospected at several points along the valley, but its thickness never exceeded 2', but is reported as

being clean coal.

At Confluence the Upper Kittanning has an average thickness of 40". The top 24" is clean coal. The bottom 16" includes 1" of shale parting and 4" of bone coal at the base. At Harnedsville the upper bench is 3' in thickness, separated from a lower bench of 10" by a parting of fire clay 8" in average thickness. At Beachley the bed has the same characteristics which it had in the vicinity of Confluence. To the south of Beachley in a local area a large number of shale partings appear in the bed as the thickness increases to 50". At Listonburg the bed varies in thickness from 30 to 48 inches. The bottom is at times a mixture of bone coal and shale. This is not taken up in mining. Other than three knife blade partings the coal is clean and hard. In spots the coal is high in ash and sulphur, but as a rule the analysis shows the coal to be of good quality.

The Lower Kittanning crops in the vicinity of Harnedsville. It has a thickness of 34" but many impurities make it high in ash and sulphur. In the vicinity of Listonburg the bed presents a solid bench 52 inches in thickness but it carries a great number of thin shale partings and a large amount of iron pyrites.

The lower coals do not crop in the valley of Whites Creek. What little prospecting has been done did not indicate that they are of workable thickness and quality.

Table of Analyses - Coals of Southern Somerset County.

Note: Analyses 1-18 are in the Berlin-Salisbury basin; analyses 19-24 are in the Somerset-Confluence basin. Analyses 1-3 are of Redstone coal; 4-8 of Pittsburgh coal; 9 of Little Pittsburgh coal; 10 and 11, 19 and 20 of Upper Freeport coal; 12 and 13 of Lower Freeport coal; 14, 15 and 21 of Upper Kittanning coal; 16 and 17, 22-24 of Lower Kittanning coal; 18 of Brookville coal.

Name of Company	Name of Mine	Location
Meyersdale Fuel Co	Meyersdale #3	6 miles so. of Meyersdale
Consolidation Coal Co	Consolidation #105	2½ miles s.w. of Meyersdale
E. Stattler and Son	Stattler	¼ n.w.of Meyersdale
Boynton Coal Co.	Chapman #3	3/4 mile w. of Salisbury
	Merchants #3	1½ miles n.e. of Salisbury
Meyersdale Fuel Co.	Myersdale Fuel #3	6 miles so. of Meyersdale
Consolidation Coal Co	Consolidation #104	2½ miles s.w. of Meyersdale
E. Stattler and Son	Stattler	¼ mile n.w. of Meyersdale
	Consolidation #112	2 miles s.w. of Berlin
Black Coal Co.		3 miles n.w. of Meyersdale
	Coronet #3	1½ miles east of Berlin
MeAllen Coal Co.		1½ miles north of Garrett
	Eagle	2½ miles east of Salisbury
	John Wills #2	1½ miles northeast of Berlin
	John Wills #3	1½ miles east of Berlin
	Pen Mar #2	1½ miles s.w.of MacDonaldton
	Pen Mar #3	MacDonaldton
Atlantic Coal Co.	(#1 Atlantic Coal Co.	5 miles n.w. of Garrett
Quemahoning Co.	Quemahoning #10	½ mile west of Rockwood
Ursina Fuel Company	Mill	¼ mile east of Ursina
	Linmer	4½ miles s.e. of Confluence

Analyses:

H_2O	V.M.	F.C.	Ash	S.	B.t.u.
3.15	20.86	62.20	13.79	2.88	12803

Many other mines have been samples in the Somerset-Confluence basin this summer, but as yet the Bureau of Mines have not completed the analyses.