

DEPARTMENT OF THE INTERIOR

FRANKLIN K. LANE, Secretary

UNITED STATES GEOLOGICAL SURVEY

GEORGE OTIS SMITH, Director

BULLETIN 641—K

COALS IN THE AREA BETWEEN BON AIR
AND CLIFTY, TENNESSEE

BY

CHARLES BUTTS

Contributions to economic geology, 1916, Part II
(Pages 307-310)

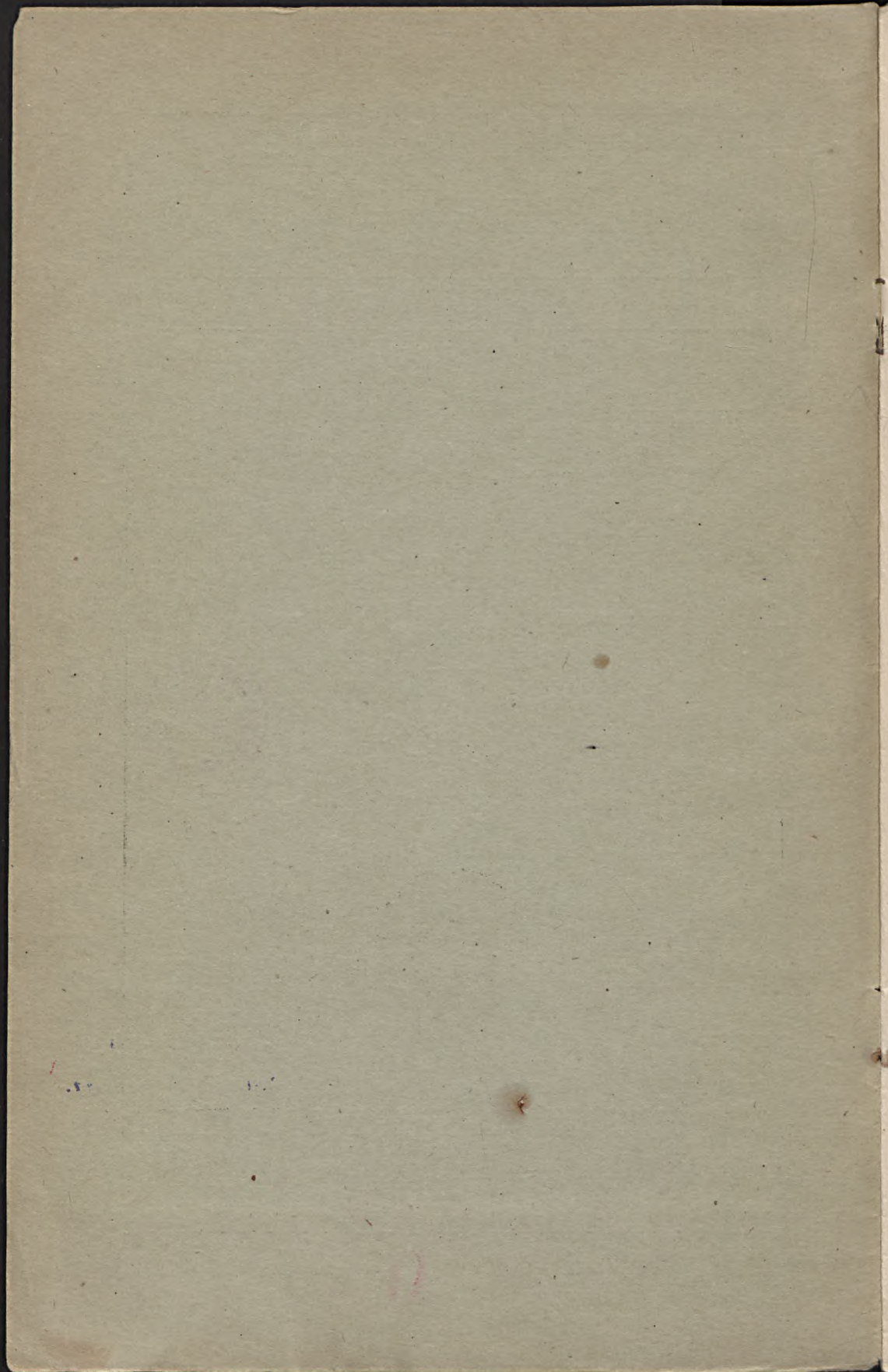
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ILLUSTRATION.

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FIGURE 36. Map showing location of coal mines and prospects in the Pikeville quadrangle, Tenn	308

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COALS IN THE AREA BETWEEN BON AIR AND CLIFTY, TENNESSEE.

By CHARLES BUTTS.



INTRODUCTION.

On the economic-geology map in the Pikeville folio¹ of the Geologic Atlas of the United States a strip representing ground between Bon Air and Clifty, Tenn., and lying within a space shaded to show the probable extent of workable coal beds was left unshaded, presumably because the knowledge available at the time did not warrant a positive conclusion regarding the coal resources of the area represented by the unshaded strip. The absence of shading was simply an expression of lack of knowledge, but it has been misinterpreted by some persons as a condemnation, so the area has recently been reexamined by the United States Geological Survey. It is hoped that the following notes giving the results of the examination will serve to correct any misunderstanding regarding the probable coal resources of this area that may have grown out of the use of the Pikeville map.

SECTIONS OF THE COAL BEDS.

Bon Air coal.—In an old, abandoned mine at Owens station (locality 1 on the map, fig. 36), at the level of the creek, the bed of coal mined seems to be one of the Bon Air beds. The coal was not accessible and could not be examined, but its thickness is reported to be variable and to reach a maximum of 28 inches.

In the "gulf" of Caney Fork, 1 mile south of Welch Knob (2 on fig. 36), a bed supposed to be the Bon Air is in part exposed immediately beneath the basal conglomeratic sandstone of the coal measures. The upper 2 feet 6 inches of the bed is visible, and the total thickness is reported to be 4 feet. The coal has been dug on a small scale for local supply. On Lost Creek about 1½ miles northwest of Chestnut Mountain (3 on fig. 36) the Bon Air bed is 44 inches thick, apparently all clean, hard, bright coal.

¹ Hayes, C. W., U. S. Geol. Survey Geol. Atlas, Pikeville folio (No. 21), 1895.

The Bon Air bed is probably workable as far east as Owens, though present knowledge does not justify positive assertion to that effect.

Clifty coal.—The continuity of the Clifty coal as a workable bed is uncertain. At the Clifty mines it thins out toward the north along

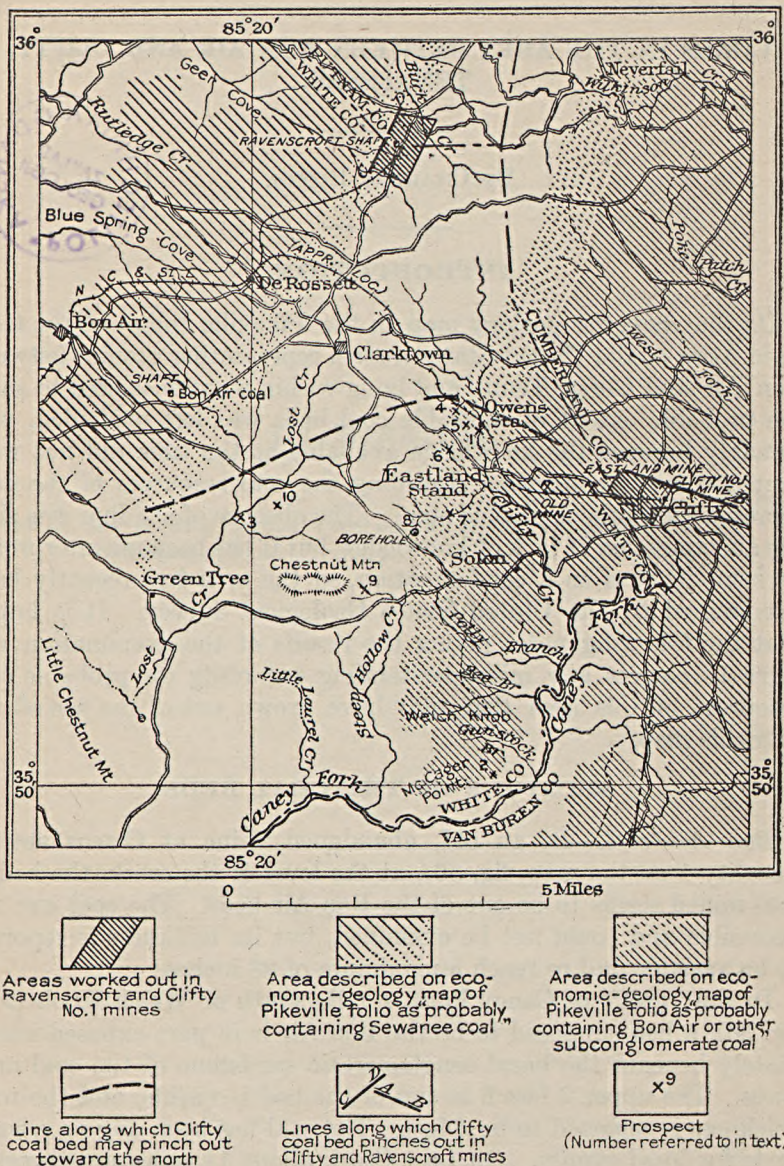


FIGURE 36.—Map showing location of coal mines and prospects in the Pikeville quadrangle, Tenn.

the line A-B on the map. It extends westward along that line as far as Owens station. West of Owens it becomes thin and is of little value.

At a prospect three-fourths of a mile west of Owens (4 on fig. 36) the section of the bed is as shown below:

Section of Clifty coal bed three-fourths of a mile west of Owens station.

Shale roof.	Ft. in.
Coal.....	1 4½
Clay (exposed).....	6
	<hr/>
Total coal.....	1 4½

A short distance west of this locality the bed is reported to split into a number of thin streaks in sandstone.

At a prospect on the side of the ridge just west of Owens (5 on fig. 36) the following measurements were obtained:

Sections of Clifty coal bed at prospect west of Owens.

	Mouth of prospect.	
Shale roof.		Ft. in.
Coal.....		1 4
	200 feet in.	
Shale roof.		
Coal.....		2 0
Coal and bone.....		4

At a prospect about three-fourths of a mile southwest of Owens (6 on fig. 36), now inaccessible, the bed is reported to be about 30 inches thick.

About 1½ miles south of Owens (7 on fig. 36) the Clifty bed carries 5 feet of coal, as shown below:

Section of Clifty coal bed 1½ miles south of Owens.

Shale roof.	Feet.
Coal.....	5
Coal and bone.....	2
	<hr/>
	7

At locality 8, three-fourths of a mile southwest of locality 7, a boring was made to the coal, which is reported to be 38 to 40 inches thick.

At a prospect pit on the old Sal Scott place, at the east end of Chestnut Mountain (9 on fig. 36), the bed is reported to be 5 feet thick. The prospect was closed and the coal was inaccessible.

On Lost Creek, 1½ miles northwest of Chestnut Mountain (10 on fig. 36), the bed has the following section in a prospect pit:

Section of Clifty coal bed 1½ miles northwest of Chestnut Mountain.

Shale roof.	Ft. in.
Coal.....	8
Bone (pyritous).....	1 0
Coal.....	1 2
Bone and coal, mostly bone.....	1 0
	<hr/>
	3 10



CONCLUSIONS.

The facts here stated constitute all that is known about the coal resources of the area represented by unshaded space on the economic-geology map in the Pikeville folio. They seem to justify the belief that the Bon Air coal underlies the area north of Caney Fork to a line drawn from Owens to Bon Air and west of a line drawn from Owens to Welch Knob. The Bon Air coal is not present, however, at the mouth of Clifty Creek just north of its junction with the river, nor on Little Laurel Creek 2 miles south of Chestnut Mountain, where the conglomerate above the coal rests upon shale that would underlie the coal if it was present. The bed may or may not extend beneath the area represented by the unshaded space on the map north of a line between Owens and Bon Air. The absence of the bed on Little Laurel Creek and at the mouth of Clifty Creek, together with its thinness and irregularity at Owens, shows that it is patchy where it is best known and suggests that it is likely to be patchy throughout the area.

The Clifty coal can reasonably be considered of workable thickness in the area southeast of a line drawn from Owens station to the opening $1\frac{1}{2}$ miles northwest of Chestnut Mountain (10 on fig. 36). It is absent in the area north of the Clifty mines (north of the line *A-B*), where it thins out and disappears. It also thins to a feather edge about a mile west of Owens station, and it is not present in the cliff at Bon Air. Its absence in these areas may be explained as follows: At Clifty the coal is in shale between two sandstones. The two sandstones converge northward and westward and finally unite on a line north of Clifty and west of Owens and somewhere between Bon Air and locality 10 (fig. 36) northwest of Chestnut Mountain, thus cutting out the shale and the included coals. The hypothetical limit of the coal is indicated by the broken line extended from the line *A-B* north of the Clifty mine. Somewhere north of the broken line in the area represented in the unshaded part of the economic-geology map in the Pikeville folio the coal evidently comes in again, for it is a thick and valuable bed at the Ravenscroft mine, at the northwest corner of that area. At the southwest angle of the Ravenscroft workings, however, the coal pinches out, as it does north of Clifty, and it is not known on the bluff west of Ravenscroft, where the conditions seem to be the same as at Bon Air.

Present knowledge, therefore, seems to justify the conclusion that two coal beds lie beneath the area represented by the unshaded space on the economic-geology map in the Pikeville folio but that the areas in which these coals are workable are patchy in distribution, so that any investment or mining in this area should be preceded by careful and thorough prospecting.



