

and worked whenever a sufficient demand for coal has been created to warrant the necessary outlay of capital.

SECTION OF THE COAL MEASURE STRATA.

(IN DESCENDING ORDER).

1. *The Upper Sandstone Formation.*—It consists principally of sandstones and arenaceous and argillaceous shales, with some calcareous intercalations. These latter do not form heavy ledges, but either thin layers of rather pure or slaty limestone, or else heavier layers of very much mixed rock, of calcareous sandstone or mudstone. Such is the rock at Joliff's mill, on Crooked creek, which is supposed to be about sixty-two feet above the base of this division, but is perhaps a higher stratum. Another calcareous ledge is found in the upper part of this formation in Washington county, together with a seam of stone-coal from eight to twelve inches in thickness. Some coal has also been observed irregularly distributed through a sandstone, sixty or seventy feet above the base of this division. The aggregate thickness of this upper sandstone formation in Washington county is estimated at between two hundred and two hundred and fifty feet.\*

2. *The Shoal Creek Limestone.*—A light-colored, grayish or bluish, compact, close-textured limestone, averaging seven feet in thickness, which is remarkable for its uniform development over a wide range, far beyond the limits of this county, whereby it affords a marked division line in the series of formations.

3. *The Slaty Division.*—Below the Shoal creek limestone generally follow some two or three feet of black laminated slate, which at some points contains a thin streak of coal; then shales, arenaceous shales or sandstones; and finally more slates, generally with a thin layer of slaty limestone or merely with calcareous concretions, and a stratum of coal from eight to sixteen inches in thickness. This slaty division varies in thickness from fifteen to fifty feet.

4. *The Lower Sandstone Formation.*—It consists mainly of sandstones and arenaceous and argillaceous shales, and corresponds to the sandstone formation of the upper part of the Coal Measures of St. Clair and Perry counties. Its

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\* We are at a loss to know on what evidence the above estimate is based, for in the section of the Nashville shaft, given on a following page, which is sunk at one of the most elevated points in the county, and through superficial deposits only eleven feet in thickness, we find that but sixty-nine feet of strata, including sandy and argillaceous shales, sandstone and impure limestone, were passed through above the Shoal creek limestone; and at Richview, a limestone supposed to be the Shoal creek bed, was passed through in the shaft at that point, at a depth of one hundred and twenty feet; but, as the thickness of the superficial clays in this shaft is not stated, we cannot know exactly the thickness of these upper shales at that point. They are probably, however, not over one hundred feet thick, and this would no doubt be a much nearer approximation to the aggregate thickness of the strata above the Shoal creek limestone in this county than that given above.

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in several shallow wells, on the high ridge; but thence it seems to dip strongly to the north-east. Near the south-east corner of section 15 it has been found in a well on much lower ground, and at Nashville it lies at a considerable depth.

Nashville is situated in the north-east part of section 24, township 2, range 3, near a branch of Little Crooked creek, on the northern slope of the ridge. I will not now speak of the uppermost formations there which overlie the Shoal-creek limestone, but I will give the section of the shaft which was sunk by Mr. HUEGELI, near his flouring mill, on the lowest upland adjoining the creek bottom. The shaft was sunk two hundred and thirty feet deep, and then two hundred feet more were drilled down. The work was stopped in 1862. The following is a closely approximate section, for which I am indebted to the courtesy of Mr. HUEGELI:

*Section of Strata in Mr. Huegeli's Shaft, at Nashville, on the south-west quarter of the south-east quarter of Section 13, Township 2 south, Range 3 west.*

No.

1. Soil and drift-clay.....	11 feet.
2. Shale.....	4 "
3. Arenaceous limestone.....	3 "
4. Sandstone and shales.....	62 "
5. Hard blue limestone—Shoal-creek limestone.....	7 "
6. Black laminated slate, with streaks of coal.....	3½ "
7. Sandstone.....	13 "
8. Clay shale.....	15½ "
9. Gray and brown fossiliferous limestone.....	1 "
10. Black shales, with fossils.....	9 "
11. Coal, 14 inches.....	1½ "
12. Sandstones and shales.....	70 "
13. Limestone (areno-calcareous conglomerate?).....	7 "
14. Coal, 8 to 10 inches.....	0¼ "
15. Shales.....	22 "
Bottom of shaft.....	230 feet.

Below this a boring was carried down two hundred feet from the bottom of the shaft; one hundred and seventy feet reported to be shale, and the lower thirty feet alternations of limestone and shale, probably the beds overlying the DuQuoin coal.

At various depths concretions of carbonate of iron (kidney ore) were found in the shales. It is a great pity that the work was abandoned at this point, when very little more work would have settled the question whether the Du Quoin coal extends that far, and with what thickness, for the boring must nearly have reached the base of the limestone above the coal. The shaft is only covered, not filled, and the drill-hole is probably still open, at least part of the depth. The work could probably be resumed at a small cost, and the boring ought to be carried deeper by all means. By boring from twenty to