

half miles east of Aullville, and the same in a mine west of the Lexington ferry landing. It was 17. inches on the Little Sniabar, six miles south of Lexington, and 16 inches, four miles below Berlin. Other mines are reported at 5 inches of coal (two miles east of Judge Wood's place), 6 inches, 7 inches, 8 inches, 9 inches, and so on, but none higher than 24 inches. The writer hereof measured a vein of coal 23 inches thick, with a clear outcrop in the bed of Rupe's branch about two miles back from the Missouri river, and only 30 or 40 feet from the Lexington and Gulf railroad bed which is said to now belong to the Burlington & Southwestern railroad company; this vein will furnish the railroad a good and easily-worked mine at the lowest possible cost. There are now coal shafts, or mines of some sort, in every township of Lafayette county.

Dr. J. B. Alexander called our attention to a fact of local geological interest. The coal and other formations west of Rupe's branch lie about twenty-five feet higher than the corresponding formations on the east side, which shows that there was once a cortaclysm or great fracture of the earth's rocky ribs at this point, and one side of the gully chasm finally settled lower than the other. [See also under head of "River Surveys and Soundings."]

Two petrified stumps were found in Tabo creek where the road from Lexington to Dover crosses it, and Mr. Geo. W. Garr has them at his house, which is the first one east of the bridge. He brought a large fragment of one stump to the *Lexington Intelligencer* office, where we examined it. This fragment was 13 inches long and 17 inches in diameter; its top fracture showed the open, heavy-pored, succulent structure that characterized the watery and gigantic weeds (they were not *trees* at all, in the present sense of the word) which formed the vegetation of the early carboniferous period. The wood is agatized, and some of the great pore cavities, nearly an inch square, are beautifully bordered with beadings of chalcedony. Mr. Garr said the other specimens were similar to this, except very much larger, and some of the root parts still remaining. Rev. F. R. Gray, three or four miles southwest of Higginville, section 10, township 49, range 26, also has a petrified stump, about four feet around at its base, and 18 inches high, which was found in a small stream near his house in 1861. Some other fragments were found in the vicinity.

These interesting geological specimens were originally imbedded in the bluff formation, and had been washed out and fallen to the bed of the creek as its banks kept washing down. They originally grew in some region far to the northwest, or probably in Colorado, where whole forests of similar petrifications have been found; and these fragments, after petrification, were transported by masses of floating ice and dropped in Lafayette county while the great Missouri lake was being filled up with the sediment which now forms our priceless "bluff" formation. [See page

80 of this history.] Their angles are not rounded or worn, like boulders and gravel, and this fact shows that they were not brought here during the glacial epoch, but were transported gently on or in floating ice, and "let down easy" as the bergs of ice stranded and gradually melted away.

The following article was prepared by Prof. G. C. Swallow, the first and most eminent state geologist of Missouri, specially for this work; but was not received until the foregoing geological matter had already been prepared, ready for the printers.

PROF. SWALLOW'S SKETCH.

The geological formations of Lafayette county are among the most interesting and useful to man. It is to these formations that Lafayette owes its fair fame as a most beautiful, fertile and prosperous country.

GEOLOGICAL FORMATIONS IN LAFAYETTE,

In order from the surface down, are as follows:

I. QUATERNARY SYSTEM.

PERIODS.	1. <i>Recent Alluvium.</i>
	2. <i>Bottom Prairie.</i>
	3. <i>Bluff or Loess.</i>
	4. <i>Drift.</i>

VII. CARBONIFEROUS SYSTEM.

PERIODS.	<i>Lower Coal Measures.</i>
	<i>Middle Coal Measures.</i>

1. The recent alluvium of Lafayette county includes the soils and all the recent deposits of clays, sands, gravels and river drift of pebbles found in the river bottoms or beds of lakes. These deposits abound in the beds of the stream as the sand-bars of the Missouri and the mud, gravel and pebble beds of the smaller streams, and in the stratified sands and clays beneath the bottom lands of the principal streams of the county.

2. The bottom prairie so extensive in the Missouri bottom in Chariton, Carroll and Clay, covers but small areas in Lafayette. It is known by the many thin beds of sand, clay and loam interstratified in the formations under the old bottom prairies. These beds were deposited in the Missouri river bottom, when that stream spread its sluggish waters from bluff to bluff, filling the whole valley with the sediments of its lake-like waters. After the level was changed so as to give a rapid current to the waters, the river cut its channel through these deposits thus made, and has been wearing them away ever since and forming the newer river or alluvial bottoms, whose surface is more uneven and whose deposits of sand are more irregular.

BLUFF OR LOESS.

3. It is a singular fact, that while the bluff is older than the alluvial