http://www.geology.19thcenturyscience.org/books/1850-Lyell-Principles/README.htm

decrease, of surface.* The St. Francis, White, Arkansas, and Red rivers, are also absorbed by the main stream with scarcely any apparent increase of its width, although here and there it expands to a breadth of $1\frac{1}{2}$, or even to 2 miles. On arriving at New Orleans, it is somewhat less than half a mile wide. Its depth there is very variable, the greatest at high water being 168 feet. The mean rate at which the whole body of water flows is variously estimated; according to Mr. Forshey the mean velocity of the current at the surface, somewhat exceeds $2\frac{1}{2}$ miles an hour when the water is at a mean height of eight feet below the maximum. From his observations he infers that *the annual average could be 1·88 mile per hour at the surface, and* about $1\frac{1}{2}$ mile for that of the whole body of water.

The alluvial plain of the Mississippi begins to be of great width below Cape Girardeau, 50 miles above the junction of the Ohio. At this junction it is about 50 miles broad, south of which it contracts to about 30 miles at Memphis, expands again to 80 miles at the mouth of the White River, and then, after various contractions and expansions, protrudes beyond the general coast-line, in a large delta, about 90 miles in width, from N. E. to S. W. Mr. Forshey estimates the area of the great plain as above defined at 31,200 square miles, with a circumference of about 3000 miles, exceeding the area of Ireland. If that part of this plain which lies below, or to the south of the branching off of the highest arm, called the Atchafalaya, be termed the delta, it constitutes less than half of the whole, being 14,000 square British miles in area. The delta may be said to be bounded on the east, west, and south, by the sea; on the north chiefly by the broad valley-plain which entirely resembles it in character, as in origin. The east and west boundaries of the alluvial region above the head of the delta consists of cliffs or bluffs, which on the east side of the Mississippi are very abrupt, and are undermined by the river at many points. They consist, from Baton Rouge in Louisiana, where they commence, as far north as the borders of Kentucky, of geological formations of very modern date, the lowest being Eocene, and the uppermost consisting of loam, with freshwater and land shells almost all of existing species. These recent shells are associated with the bones of the mastodon, elephant, mylodon, and other extinct quadrupeds. In that part of its course which is below the mouth of the Ohio, the Mississippi frequently washes the eastern bluffs, but never once comes in contact with the western. These are composed of similar formations; but I learn from Mr. Forshey that they rise up more gently from the alluvial plain. It is supposed that the waters are thrown to the eastern side, because all the large tributary rivers entering from the west have filled that side of the great valley with their deltas, or with a sloping mass of clay and sand; so that the opposite bluffs are undermined, and the Mississippi is slowly but incessantly advancing eastward.†

* Flint's Geography, vol. i. p. 142. See also Lyell's Second Visit to the United States, vol. ii. chaps. 28. to 34.

† Geograph. Descrip. of the State of Louisiana, by W. Darby, Philadelphia, 1816, p.102.