At low water the discharge is very much reduced (the proportion between high water and low water being about as 11 : 1), and runs in a channel or channels confined generally within the high water banks, meandering about and cutting out its course in a variety of curves, forming figures of more minute pattern than at time of high water.

The river is at its lowest stage during the months of November and December. First running ice appears about the middle of November, and the river gorges a few days afterwards.

A slight rise generally takes place in January, and between the middle of February and 15th of March the ice from above generally runs out, with a rise of from six to nine feet. The river continues rising during the months of March, April and May. In June and July the highest water occurs, and lasts generally for six or seven weeks. From the end of July until the end of November, the river generally runs out, and reaches its lowest stage about the end of the last named month.

Before making mention of levels or heights it is well to explain the method adopted in their notation.

The highest water in the river, on record, was, after much research, established by sworn testimony of parties who pointed out marks which they had made, and objects which they had noted in regard to high water of 1844. By connecting these points by levels and comparing their elevations the correct height was established for the flood of 1844. This level of highest water was called (in the notation upon all the bridge and river works) 100, as being that distance (100 ft.) above an imaginary line which was assumed as datum for all the work.

TABLE OF HEIGHTS.

Highest water on record, 1844,	100·00	above datum
" " " 1871,	92·50	"
" " " 1872,	93·50	"
" " " 1873,	92·50	"
Ordinary low water,	80·00	"
Extraordinary "	78·00	"
Low sand bars,	up to 86·00	"
High " "	86 to 96	"
General level of "bottoms," Kansas,	96·00	for 1880 ft. back
" " " "	100·00	beyond 1800′ to bluff, with ridges, slightly higher.
" " " Missouri,	104·00	

The greatest difference between high and low water being 22 feet.

A profile showing the record of water gauge kept at the work at St. Joseph, and also at Leavenworth, Ka., is attached hereto.

In order to record the many changes taking place upon the river, notes were taken every month and full surveys were made after all great changes. These notes were plotted upon the original map, in pencil, and tracings made and fyled away. By applying any one of these tracings upon the original map, the change is distinctly seen; in the same way, the tracing for any month can be compared with that for any other month, and the various changes noted. All these different surveys, if plotted on the original map in a permanent manner, would form such confusion of lines and colours, that the result would be unintelligible.

[illegible] attached hereto.