The First Survey of the Kansas River

EDGAR LANGSDORF

I. INTRODUCTION

ON MAY 17, 1853, Fort Riley was established as a permanent military post on the Kansas river, thereby making the navigability of that stream a question of immediate interest. The Army Quartermaster corps, which was responsible for moving materials and supplies to the site and for construction of the permanent barracks, was particularly concerned because the cost of transportation by water would be considerably less than hauling overland.

Before plans could be made for hauling freight by water an examination of the river was necessary to determine whether steamboats and keelboats could ascend as far as the new post. Maj. David H. Vinton, quartermaster at St. Louis, apparently took the initiative and with the cooperation of Brevet Brig. Gen. Newman S. Clarke, commanding Military Department No. 6 with headquarters at Jefferson Barracks, Mo., arranged for a survey. His objective, he explained in a letter of December 2, 1853, to Maj. F. N. Page, was "to obtain such information as would enable me to induce masters and owners of steamers to attempt the navigation of the river at such prices for freight, as would not throw the cost of the experiment upon the Quartermaster's Department. Great expense will be saved if the necessary supplies shall be sent to Fort Riley by water transportation." 4

Under the direction of Brevet Maj. E. A. Ogden, quartermaster at Fort Leavenworth, the survey was made by Lt. Joseph L. Tidball,
Sixth infantry, in August, 1853. At that time the river was at a low stage and Tidball’s examination was therefore not conclusive. Major Vinton, in his letter to Major Page, remarked that the survey was satisfactory so far as it went, “but it leaves to conjecture still, the depth of the Kanzas River and of its navigableness at the most favorable stage of its waters. . . . It still remains to ascertain the actual depth of the Kanzas, at high water, and of the duration of the season of its navigation, if it shall prove navigable. I have therefore to request that observation may be continued for that object and that an early report (after the next ‘rise’ of that stream) may be made. . . .”

General Clarke, transmitting Tidball’s report to Col. Lorenzo Thomas, assistant adjutant general at Headquarters of the Army, New York, said that he had planned to make two surveys of the river, one when it was at its lowest stage and the other at its highest.

Altho’ it is not expected that the River is navigable for steamboats for any length of time during the year [he stated], yet I am satisfied that it is navigable at certain periods of the year sufficiently long to throw up a large amount of Supplies, and I recommend that the Quarter Master & Commissary Depts be so instructed. The Quarter Master in St Louis might keep himself advised of the stage of water in the River—and save the Government a great deal by throwing up the supplies by water at such periods as might be deemed safe. The Commanding Officer at Fort Riley will be instructed to give information to the Quarter Master in St Louis when the river is at its highest stage.

No record of the proposed examination during the period of high water has been found. However, one steamboat captain, Charles K. Baker, perhaps as a result of Major Vinton’s persuasion, undertook to try the ascent and in April, 1854, successfully sailed his 79-ton stern-wheeler, the Excel, from Weston, Mo., to Fort Riley carrying 1,100 barrels of flour. During the next two months, before he left the Kansas for the Missouri river trade, Captain Baker made several such trips, on one of which he even dared a short excursion up the Smoky Hill.
Copies of Tidball's report to Major Ogden, with a map which he made to illustrate it, were sent to Headquarters of the Army at New York, to Headquarters of the Department of the West at Jefferson Barracks, and to the Quartermaster General at Washington. The copy to the latter is on file among the "Records of the War Department, Office of the Quartermaster General," in the National Archives. The copy from which the text below is taken was received by the Historical Society on February 25, 1878, with other papers of the New England Emigrant Aid Company, from J. M. Forbes, president of the board of trustees.

II. LIEUTENANT TIDBALL'S REPORT

Fort Riley
Indn Terry Oct 10, 1853

Major:

The duty of prosecuting the survey of the Kansas river, ordered to be made under your supervision, having devolved on me, I have the honor to communicate the following report of my investigations.

As the principal object contemplated in this expedition was to determine the practicability of navigating the river by steamers or keel Boats, my attention was chiefly directed to collecting facts and obtaining information bearing on this point, and less particularly to other matters mentioned in your letter of instructions.

The place selected for departure is a point of the river about two miles below the junction of the Smoky Hill Fork and Pawnee river, estimating the sinuosities of the river, and about a mile from, and nearly East of, this post. It was not deemed important to commence operations higher up, as the place selected possesses as many advantages for a Steam Boat landing as any point above, and is more easy of access from the fort.

The turbid cast of the water rendering it next to impossible for my Steersman, in his position close to the surface, to determine where the main channel lay, to enable me to keep in it, I found it

10. The instructions referred to have not been found either in the files of the Society or those of the National Archives.—Ibid.
11. The Smoky Hill and Republican rivers join at Junction City, near Fort Riley, to form the Kansas. The Republican took its name from a branch of the Pawnee confederacy known as the Kitkehahki or Republican Pawnees who lived along its banks until about 1813, but it was also called the Pawnee by several early explorers, including John C. McCoy, who performed many of the surveys of Indian reservations in present Kansas. He stated that the river was called Pa-ne-no-hah or Pawnee by the Kansas Indians.—See John C. McCoy, "Survey of Kansas Indian Lands," in Kansas Historical Collections, v. 4, p. 305; Frank W. Blackmar, Kansas, A Cyclopedia of State History, . . . . (Chicago, 1912), v. 2, p. 677; George A. Root, "Ferries in Kansas," in Kansas Historical Quarterly, v. 3, p. 346; F. W. Hodge, ed., Handbook of American Indians . . . . Smithsonian Institution, Bureau of American Ethnology, Bulletin 30 (Washington, 1907), Pt. 1, p. 707. Tidball's point of departure was at or near the point where One Mile creek enters the Kansas.
necessary, almost from the outset, to feel my way by having recur-verse to the sounding rod, the use of which, was seldom discontinued during a run, and only when the appearance of the water removed all doubt as to its considerable depth. This process, though vexatious and wearisome, was attended with the advantage of giving a more accurate knowledge of the general depth of the water than could have resulted from less frequent soundings. This system of soundings showed the general depth of water in the main channel, for a distance of fifty miles, or thereabout, to be from two to seven feet; that is, it varied between these limits, more frequently exceeding the greater than falling below the less; when the latter occurred, special mention is [made] of it, and the localities are, as nearly as possible, pointed out.

These I found to be quite numerous, nine such having been found above the mouth of the Blue Earth river. The first is about one mile from the point of starting; the second, above a small island some four miles lower down; about three fourths of a mile above Clarke’s Creek, again just above the mouth, and at distances of four and six miles below the mouth of this creek, there are bars. Severally, these are of little extent in the direction of the flow of water, not more, perhaps, than fifteen or twenty yards, but most of them traverse the river throughout its entire width, with a minimum depth of twelve inches of water. Four miles below the last mentioned point, is a bar of considerable magnitude, fifty or sixty yards across, with only eight inches of water. Two other bars were found above the mouth of the Blue Earth river; the first a small one, a little way above two small islands abreast; the other, opposite the mouth of a slough on the left shore, between six and seven miles lower down. The least depth of water on the first of these was one foot; on the second, about ten inches, though next the left bank, there was a narrow channel with eighteen inches water. The general width of the Kansas above the mouth of the Blue Earth river, is about eighty yards, seldom narrower, and occasionally widening to a hundred and twenty or more. It is comparatively free from flood wood and snags; a circumstance due most probably to the sparsity of timber in this region. In respect of flood wood and snags in this part of the river, I deem it necessary only to mention the mouth of Clarke’s Creek, a point some ten miles lower down, and a point in the main channel,

12. The Big Blue, as it is known today, is the largest tributary of the Kansas. It was commonly called the Blue Earth river in earlier days, from the name “Mon-e-ca-to” or “Moh-e-ca-to” by which it was known to the Kansas Indians. The Indian name is used in Isaac McCoy’s field notes of his survey of the Delaware lands and outlet in 1830 and on his plat of the north and south lines of the Kansas Indian lands.—See superintendency of Indian Affairs, St. Louis, “Records,” v. 1, pp. 48, 58.
at an island about two miles above the mouth of the Blue Earth river.

Of these places the last two are the worst, though I do not regard any of them as considerable impediments. At the junction of the Blue Earth and Kansas there is a bar of considerable extent, formed most probably, in great part, by deposits from the waters of the former, the least depth of water on it, ten inches. It stretches almost entirely across the Kansas, and completely spans the mouth of the Blue. This is much the largest affluent of the Kansas; its width at the mouth from sixty to eighty yards, and its depth there was found to be from two and a half to four feet. Notwithstanding, however, it was discharging a considerable volume of water, there was no perceptible addition to the general depth of the Kansas, the increment of water being fully absorbed by the expansion in the width of the river commencing there, and with little variation continuing to prevail as far down as Soldier's creek.

Passing below the mouth of the Blue Earth river, there was an approach to uniformity in the general depth of the water, though it was by no means regular; bars and shoals were of less frequent occurrence, but many of them were of much greater extent than any yet mentioned. At a distance of five miles below, a bar was found stretching nearly across the river; and half a mile lower down a second; neither large, with a depth of one and a half feet, on each. Four or five miles farther on, there is a marked increase in the width of the river—which there flows between banks lower on both sides than usual—the water gradually becomes shallow, and for a distance of three or four hundred yards the prevailing depth was fourteen inches. There is no distinctly defined bar, but it seemed, rather, a shoaling of the water due to the expansion in the width of the stream. A little distance below this point there is a rapid, or a succession of rapids, for there are three, distinctly marked, at intervals of two or three hundred yards. These are caused by a flat reef of rock, no where visible, but first discoverable at the upper rapid, and thence continuing to form the bed of the river for some distance below the last. Loose water worn stones and fragments of rock are strewn over the bed of the river in places, in greatest abundance near the upper rapid. Individually, these rapids are but a few yards across. The Channel is straight, with a depth of one and a half feet, and the acceleration of current is about one half; but at the distance of twenty five or thirty yards below the several rapids, it resumes its usual velocity. Between this point and St. Mary's Mission there is little change in the general character of the river, except that, for
part of that distance, the limits between which the general depth of water varied, were somewhat different. This was first remarked a few miles above the mouth of Vermillion, and from the time my attention was drawn to the fact, until I had passed Uniontown ferry, the prevailing depth was from eighteen inches to seven feet.

There are two other places, between the rapids mentioned and St. Mary's Mission, that require notice. About twelve miles above the mouth of the Vermillion is an island between which and the left bank, the great body of water pours. I found this place almost impassable for my skiff, in consequence of its being choked with a series of little bars, disposed like ribs across the channel, with not more than eight inches of water on some of them, while below and between them it was not unfrequently six or seven feet deep. I find it difficult to designate the locality of this island that it may be distinguished from others very similar in appearance, and removed but little distances from it. It may suffice to state that it is the fifth above the mouth of the Vermillion.

A bend below the mouth of Phillip's creek, a small branch emptying in a short distance above the Mission, presented a collection of snags, not numerous, however, and the only point thus far below the Blue Earth river, which, in this particular, it is important to mention. Of course I would not be understood to say that that part of the river, or any other of considerable extent enjoys entire immunity from these ugly customers; but from the impossibility of defining [or] fixing positions, mention only is made of such as appeared to me likely to prove [provide?] difficulties in the way of navigation, or invest it with any degree of danger. In the vicinity of St. Mary's Mission the river widens beyond its usual limits, and is thereabout, for perhaps a mile, from one hundred and fifty to two hundred yards wide. Within this stretch, nearly opposite, perhaps somewhat below, the Mission, are two small islands close together, and still another, lower down. The whole distance embracing these islands, and extending a little above and below them, is a bar, seamed by narrow irregular gullies through which, with a variable depth of from eight to eighteen inches, the great volume of water finds its way. Some two miles below the Mission the river makes an abrupt bend, running in a westerly direction for one or two miles, when it sweeps away to the southward, gradually resuming its general course. It is somewhat narrower than usual between these el-

13. Uniontown crossing, just above the Uniontown rapids near the point where Cross creek flows into the Kansas, was about one and one-half miles above the old village of Uniontown and about five miles above Silver Lake. The ferry there was operated by L. K. Darling in 1853 and was known as Darling's ferry.—See George A. Root, loc. cit., p. 20.
bows, both of which are receptacles of snags, most numerous and
dangerous in the upper. Below an island, situated in the lower
bend, the river again spreads out to a greater width than usual, the
water becomes shoal, and [an]other stretch, not unlike that in the
vicinity of the Mission, presents itself. The least depth of water
found here was twelve inches, which may be regarded as that pre-
vailing for the greater part of a mile, when the prevalent features
as to depth were restored, and continued without interruption some
eighteen or twenty miles farther. Eight or nine miles below the
Mission, another nest of snags, numerous and ugly, was found.
About a mile lower down there is a rocky developement in the right
bank, from one point of which a spur, nearly perpendicular to the
thread of the current, and extending about one third the width of
the river, causes a partial rapid. Between this point of rock, and
the left bank the channel was three feet deep; there was slight in-
crease in the velocity of the water, so little, it is doubtful, if, at a
higher stage, it would be distinguishable from the general current.

Of the rapids in this river, that usually known as the Uniontown
rapid is the only one that fairly embodies the idea suggested by the
term. It extends the entire width of the river, and is caused by a
ledge of rock stretching diagonally across, presenting a general con-
cavity down stream, its lower extremity resting on the right bank.
I had not the means of determining the difference of level between
the head and foot of the rapid, but the fall is sufficient to produce
an increased velocity of current, extending through sixty or seventy
yards. The depth of water was variable; the deepest on the crest
of the rapid, was found between the middle of the river, and the
right bank, and was from two to four feet, increasing somewhat
below, the least depth, between the middle and left bank, but
thirteen inches. The channel conforms pretty generally to the di-
rection of the stream, and seems to cross the head of the rapid about
one third the width of the river from the right bank. Detached
masses of rock strew the bed of the rapid; only a few of these were
visible, and those near the left bank, in the shoalest water. In re-
spect of magnitude, this is much the [most] considerable rapid in
the river, and, therefore, all else being equal, would be found a much
more serious difficulty in the way of navigation. But the current is,
as nearly as I could estimate it, about twice as strong as that of the
river in general; the crest of the rapid is little, if any, more than a
hundred yards above an abrupt curve in the river narrower there
than above, so that, at a high stage, a stronger current than usual
may be looked for throughout this curve.
These circumstances I apprehend may be found to render this point additionally difficult to pass. Another rapid, produced doubtless by a continuation of the same body of rock, in part forming the right bank between the two, occurs about a fourth of a mile below. It is unimportant as compared with the principal rapid; and as it appeared to me likely to offer no difficulty at a time when a boat may reach it, little more is necessary than to note its existence and position. On this, the deepest water, from eighteen inches to two feet, was found between the middle of the river and the left bank. Soon after leaving Uniontown rapids I again had occasion to observe a change in the general depth; and until I reached the vicinity of Soldier creek it ranged between fourteen inches and half as many feet. So frequently was it the former, that I am not sure a great error would be committed were much of this distance denominated a series of shoals. This extent, however, is not equally bad throughout. Between Weld’s and Papan’s ferries the course of the stream is more direct, and the channel less irregular in depth. Except these general features, the only matters presenting themselves to my notice, in this part of the river, as bearing on the matter under consideration, were, the existence of numerous snags just below Pappan’s ferry, and at intervals between that and the mouth of Soldier creek, and a bar, about midway between these points, on which, for perhaps a hundred yards, I found only ten inches of water.—A change in the breadth of the river is observable soon after passing the mouth of Soldier creek. It becomes narrower. And indeed the lower part of the river is, with occasional exceptions compressed within narrower limits than were found to characterize, as a rule, the portion between the Blue Earth river and Soldier creek; while for several miles above its junction with the Missouri, and at that point, it is even more contracted, a circumstance that may lead to an erroneous idea of its prevailing width. If that portion lying between Turtle creek and Cedar creek be excepted, abrupt curves in the stream, below the mouth of Soldiers creek, are comparatively few; as a whole, the channel was more distinctly defined; some improvement and less irregularity were perceived in the general depth, which was from eighteen inches to six feet, until within a few miles of the Missouri, when it became more regularly deep, seldom less than five feet. This part of the river is not, however, exempt from those features that disfigure other portions of it. Bars of considerable mag-

14. Probably this should be Wells’ ferry. Hiram Wells and John Ogge established a ferry service in 1858 at a point near the old Baptist Mission which became known as the “Great Crossing.” Papan’s ferry in that year was operating about four miles above the mouth of Soldier creek.—See George A. Root, loc. cit., v. 2, pp. 396, 396; v. 3, p. 15.
nitude were found at intervals; while snags are of more frequent occurrence, and the collections of these in places are equal, if not greater, than any yet mentioned. A partial rapid, too, similar to that between St. Mary's Mission and Uniontown rapids, occurs between the mouth of Grasshopper and Turtle creek, about six miles above the latter. A rib of the reef causing it, extends from the right bank about halfway across; but between it and the left bank is a smooth channel, of which the least depth, on the prolongation of the rib, was two feet.

Bars, in the order in which they occur, were found at a point about three miles above the mouth of Grasshopper; a mile above the mouth of Turtle creek; at the mouth of a little creek, emptying in from the south, between Turtle creek and Stranger; some three miles above the mouth of Cedar creek; opposite the mouth of Rock creek; at Delaware ferry; and just below a small island from three to five miles lower down. Of these the largest are those situated at about equal distances above the mouth of Grasshopper and Cedar creek, and that at Delaware ferry;—the first at least half a mile in extent, without any discoverable main channel across it; the others traceable for a distance of two or three hundred yards. The minimum depth of water on the first two, was ten inches; on the last, one foot. The least depth of water on these, in the order in which they are enumerated, was, ten inches on the first, fourteen on the second, but eight on the third, and on the fourth ten inches. Of the portion of the river under consideration, that between the Grasshopper and Cedar creek is most plenteously supplied with snags. Few of the elbows in this interval but hold them in greater or less abundance.

A sharp bend about six miles below Grasshopper, (river running northeasterly, for a little distance) the vicinity of the rapid last mentioned, and a bend in the river just above the mouth of Cedar creek, are repositories of the largest collections. The last of these surpasses in extent any other in the river, stretching along a distance of nearly or quite two hundred yards. Below Cedar creek there are comparatively few; two other points, however, one in the vicinity of Delaware ferry, the other a few miles above the mouth of the river, are worthy of mention in this connection.

Except in a few places to which allusion has been made, at the rapids and in their vicinity, the bed of the river is an easily yield-

15. Delaware or Grinner’s ferry, known also as Military ferry and Secondine crossing, was the earliest ferry established on the Kansas river. It was about eight and one-half miles west of the Kansas-Missouri boundary, near the Indian village of Secondine, and was operated by Moses Grinner as a crossing on the military road between Cantonment Leavenworth and Fort Gibson, Okla.—Ibid., v. 2, pp. 264, 265.
ing quicksand, and its surface broken. In descending, a gradual shoaling of the water was noticed in approaching the bars, which were found to terminate very abruptly, so that not infrequently a few feet only intervened between least and greatest depth of water. The banks of the upper portion of the river are formed almost entirely of sand, occasionally mingled with clay. Lower down, this is seen in somewhat greater abundance, sometimes in thin strata alternating with sand; occasional beds of gravel and in a few places, for short distances, rocky developments occur. But these last are rather exceptions to the general rule than a prominent feature in the geological character of the banks.

The river, as a whole, is quite crooked, varying of course in this respect in different parts, and some of the curves are very abrupt. This feature is perhaps more strongly marked in the portion between this post and the mouth of the Blue Earth river; in that lying between St. Mary’s Mission and Weld’s ferry; and in that between Turtle creek and Cedar creek. In the main, as was to be anticipated the greatest depth of water was found following the concave portions of the banks, and along the bluff shores; but not always, for in many places, and in straight portions of the river, where there was no apparent cause for a diversion in the channel, it was found to run in a zigzag course from bank [to bank?], crossing a right line three or four or half a dozen times in a distance of a few hundred yards; of course every salient point seems to give a new direction to the great body of the water; so that, numerous as are the curves of the river, the channel is even more tortuous.

The tributaries of the Kansas, below this point, though numerous are small. The Blue Earth river is the largest. It is not to be supposed that the discharge of water from these, singly, can at any time, in great degree, augment that of the river, but during the spring and early summer its volume is probably much swollen by their united supply.

It is needless to speculate as to whether the river is navigable at a low stage of water. Still, the facts elicited by no means, I think, definitely settle the question whether or not it is ever navigable. Throughout the entire course of the stream the evidences were abundant that the water had been from six to eight feet above its level when I descended. The water marks along the banks were satisfactory on this point; but if doubt could rest upon these, the accumulation of flood wood on the heads of islands and in other places, as indication of the height to which the river had risen was not to be
mistaken. Nor could it be supposed, as at first seemed probable, that that which lay highest had, in every instance, been forced above the surface by the accumulating drift wood above, for instances were numerous when that occupying the highest positions lay apart from the general collection, in places it could have reached through no other agency than the immediate action of the water, and where, that having subsided, it rested. These conclusions are strengthened by the concurrent testimony of persons of whom inquiry was made, at different points along the river. Touching the duration of the period of high water, the testimony is concordant.

At Uniontown ferry, I was informed that, for about two months preceding my arrival there, the water had been from six to seven feet higher than at that time; at Weld’s ferry, that it had been from eight to ten feet higher, and all summer several feet above its stage then; at Delaware ferry, that from the tenth of April until the tenth of August it had been about five feet higher than I found it, but that high water had prevailed, it might be, a month longer this year than usual. Added to this, it is well known here, that from the time of the arrival of a battalion of the 6th Infantry at this place, about the 20th of May, until about the 10th of August, the river at this point was from five to ten feet above its level a month later.

I have too little experience in matters relating to navigation to form opinions concerning it in which I can rest entire confidence; yet, with all the facts and evidence before me, I am strongly impelled to the belief that there is a period of from two to four months of the year, dating from the first spring rise, during which boats can ascend to this point. I am gratified to be able to state that this opinion is also entertained by Capt. Lovell of my regiment, who descended the river in the Autumn of last year, in a skiff. The effort to ascend, if made at the proper time, would at least be attended with such positive results as cannot be arrived at by any examination of the river, however carefully conducted, by parties descending in small boats.

The removal of the snags I conceive to be the only valuable improvement that could be made in the river. This might be affected by means usually available for such purposes; but I do not regard their removal as absolutely necessary. Their existence can only ren-
der transit in some degree hazardous, without interfering to effec-
tually prevent it. No remedy suggests itself for the bars; they will
always exist, if not where I found them, at other points; and during
low water their presence must be an insuperable obstacle to naviga-
tion. Should any attempt at improvement of the rapids be contem-
plated, it suggests itself to me that it would be wisdom to institute,
under the direction of a competent practical Engineer, or an officer
of the Department to which such duties properly pertain, a more
rigid examination than it was possible for me to make. I am of
opinion that expenditure for their improvement is unnecessary; for
it is clear to my mind that if a boat can ever reach them, it will find
sufficient water to pass them without danger.

The nature of my duties was such that my investigations were
necessarily confined within narrow limits. Hence I had little oppor-
tunity of acquiring information relative to the valley of the river,
and the adjacent country. The valley is comparatively narrow, and
is terminated on either side by a range of limestone bluffs, at dis-
tances varying from a few hundred yards to several miles; occasion-
ally, however, approaching closely to the river; still more rarely,
and for short intervals, forming its banks. As a whole, it is sparsely
timbered. This is particularly true of the upper portion, throughout
which timber exists only in clumps and narrow belts along the banks
of the river, and in its immediate vicinity. Descending, a gradual
increase is perceptible; but it is not until approaching the lower part
of the valley, that it is found in any considerable abundance. There,
too, the better qualities of forest trees, as the hickory, oak, ash,
hackberry, walnut, &c. replace in some degree, the cottonwood,
which is the prevailing growth in the upper region.

At only one of the places mentioned in your letter of instructions,
was I enabled to obtain definite information of the existence of coal.
This is found in a limestone cliff, within a few hundred yards of
Welds' ferry. Where it was shown me, it exists in seams three or
four inches in thickness. I was told it appears at different points
along the face of the bluff. It is doubtful if it exists in great abun-
dance.

Notwithstanding the scarcity of timber along the river, I think
there is sufficient for the probable wants of steam navigation for
years. The larger islands, which are numerous, are covered with a
fine growth of cottonwood. This could be made available. Were
there any demand, there is no doubt but the supply, at convenient
points, would fully meet it.
The means placed at my disposal for inquiring into the feasibility of navigating the Kansas, were, you are well aware, insufficient for the prosecution of a minute and accurate survey. My researches do not pretend to that dignity. Only such facts as were to be obtained with those meagre means were sought after. In regard to the matter of distances, I may be somewhat at fault. Their calculation rests upon data that could not be relied on for positive accuracy; and, therefore, as laid down, they can only be regarded as approximate. The difficulty of determining them with exactness has, too, involved me, in making this report, in a deal of circumlocution that otherwise were unnecessary.

It may be well to state that this examination was commenced in the latter part of August, when the river was very low, and that is was constantly falling during the progress of the inquiry.

I am very respectfully,
Your Obt Servant

(signed) J. L. Tidball

2d Lieut. 6 Infy

Brevet Major E A Ogden
A. Q. M.—U. S. A.
Fort Leavenworth
Mo.