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SURFACE WATER SUPPLY OF NEBRASKA

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SURFACE WATER SUPPLY OF NEBRASKA.

By J. C. STEVENS.

INTRODUCTION.

The material in this paper was compiled in 1904 as a thesis for the degree of bachelor of science in civil engineering at the University of Nebraska. The original manuscript has been revised and brought down to January, 1907, in order to satisfy a demand from engineers, irrigators, and the general public for a reference work covering all discharge data collected in Nebraska, inasmuch as the results of surface-water investigations in the State are widely scattered in numerous government and state publications, many of which are out of print and unavailable. Figure 1 is a map of the State, showing the principal streams and gaging stations.

ACKNOWLEDGMENTS.

The writer wishes to acknowledge special assistance and many valuable suggestions from O. V. P. Stout, professor of civil engineering, University of Nebraska, by whom or under whose immediate direction the major part of the data was obtained.

Acknowledgments are due to Adna Dobson, state engineer, secretary of the State board of irrigation, and his assistants in office, who have cheerfully furnished all information at their disposal and rendered much valuable assistance; to G. A. Loveland, section director of the United States Weather Bureau, for the liberal use of his office records; to the Burlington and Missouri River, the Union Pacific, and the Chicago and Northwestern railroads, whose cooperation has aided very materially in obtaining the data herein contained; and to Robert H. Willis, of Bridgeport, and H. O. Smith, of Lexington, for many measurements at regular and miscellaneous stations.

Thanks are also due to the many persons employed locally as gage-height observers for their interest and cooperation. Among these may be mentioned H. E. Dress, of North Platte, who has faithfully reported daily gage heights for the past twelve years; John Borman, of Valentine; E. J. Duryee, of Lexington; Burr Taft, of Norfolk; Mike Hamming, of Arlington; Porter Hannawald, of Bridgeport; and David Mowery, of Columbus.

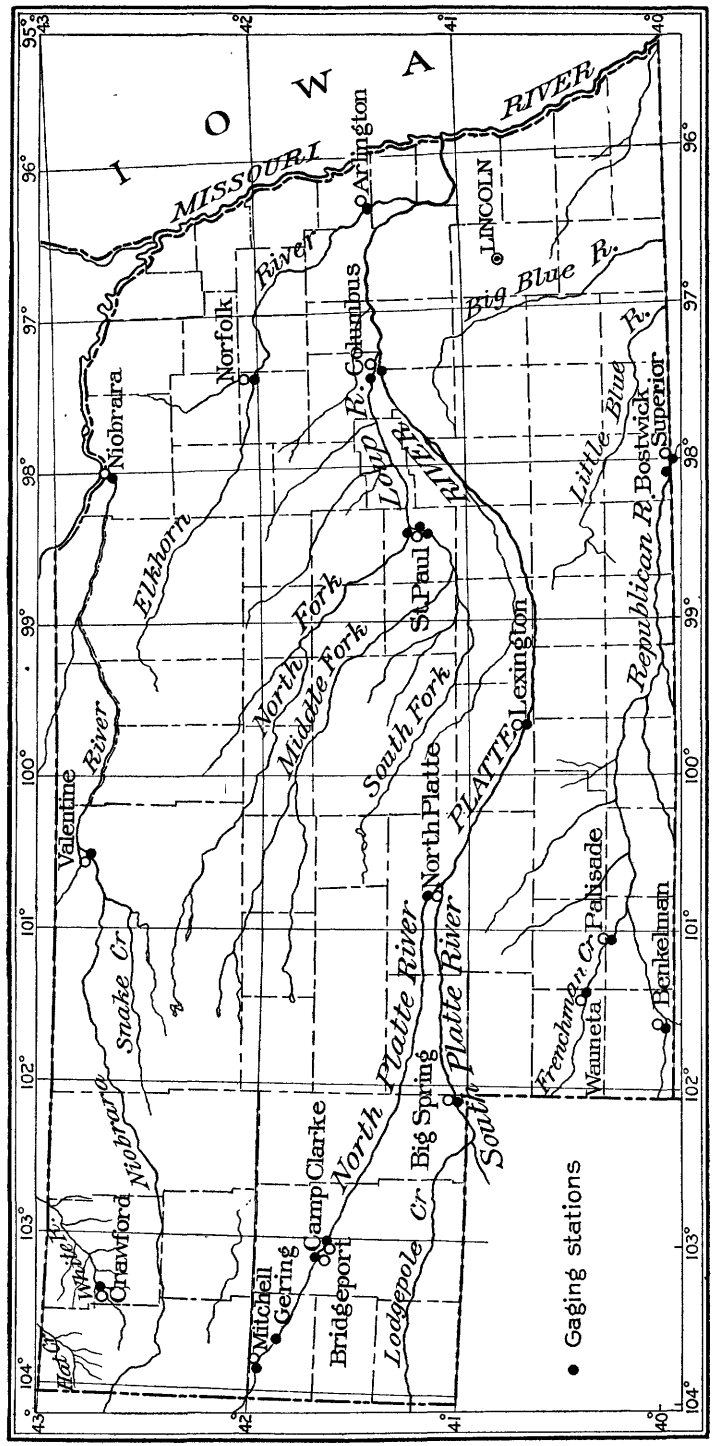

FIGURE 1.—Map of Nebraska, showing principal streams and gaging stations.

UNITS AND DEFINITIONS.

The volume of water flowing in a stream is expressed in various terms, each of which has become associated with a certain class of work. These terms may be divided into two groups—(1) those expressing a rate of flow, properly called the discharge, which may be expressed in second-feet, gallons per minute, or miner's inches; and (2) those expressing actual quantity, properly termed the run-off, which may be expressed in acre-feet or depth in inches.

"Second-foot" is an abbreviation for cubic foot per second, and is the quantity of water flowing in a stream 1 foot wide, 1 foot deep, at a rate of 1 foot per second. It is generally used as a fundamental unit from which others are computed.

"Gallons per minute" is generally used in connection with pumping and city water supply.

The "miner's inch" is the rate of discharge of water that passes through an orifice 1 inch square under a head which varies locally. It has been commonly used by miners and irrigators throughout the West, and is defined by statute in each State in which it is used. In most States, including Nebraska, the California miner's inch is used, which is the fiftieth part of a second-foot.

"Discharge per square mile" is applied to the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the run-off is distributed uniformly, both as regards time and area.

"Run-off in inches" is the depth to which the drainage area would be covered if all the water flowing from it in a given period were conserved and uniformly distributed on the surface. It is used for comparison with rainfall, which is expressed in depth in inches.

"Acre-foot" is equivalent to 43,560 cubic feet, and is the quantity required to cover an acre to the depth of 1 foot. It is commonly used in connection with storage for irrigation work. There is a convenient relation between the second-foot and the acre-foot. One second-foot flowing for twenty-four hours will deliver 86,400 cubic feet or approximately 2 acre-feet.

The following is a list of convenient equivalents:

1 second-foot equals 50 California miner's inches.

1 second-foot equals 38.4 Colorado miner's inches.

1 second-foot equals 40 Arizona miner's inches.

1 second-foot equals 7.48 United States gallons per second; equals 448.8 gallons per minute; equals 646,272 gallons for one day.

1 second-foot equals 6.23 British imperial gallons per second.

1 second-foot for one year covers 1 square mile 1.131 feet deep, or 13.572 inches deep.

1 second-foot for one year equals 0.000214 cubic mile; equals 31,536,000 cubic feet.

1 second-foot equals about 1 acre-inch per hour.

1 second-foot falling 10 feet equals 1.136 horsepower.

100 California miner's inches equal 15 United States gallons per second.

100 California miner's inches equal 77 Colorado miner's inches.
100 California miner's inches for one day equal 4 acre-feet.
100 Colorado miner's inches equal 2.60 second-feet.
100 Colorado miner's inches equal 19.5 United States gallons per second.
100 Colorado miner's inches equal 130 California miner's inches.
100 Colorado miner's inches for one day equal 5.2 acre-feet.
100 United States gallons per minute equal 0.223 second-foot.
100 United States gallons per minute for one day equal 0.44 acre-foot.
1,000,000 United States gallons per day equal 1.55 second-feet.
1,000,000 United States gallons equal 3.07 acre-feet.
1,000,000 cubic feet equal 22.95 acre-feet.
1 acre-foot equals 325,850 gallons.
1 inch deep on 1 square mile equals 2,323,200 cubic feet.
1 inch deep on 1 square mile equals 0.0737 second-foot per year.
1 inch equals 2.54 centimeters.
1 foot equals 0.3048 meter.
1 yard equals 0.9144 meter.
1 mile equals 1.60935 kilometers.
1 mile equals 1,760 yards; equals 5,280 feet; equals 63,360 inches.
1 square yard equals 0.836 square meter.
1 acre equals 0.4047 hectare.
1 acre equals 43,560 square feet; equals 4,840 square yards.
1 acre equals 209 feet square, nearly.
1 square mile equals 259 hectares.
1 square mile equals 2.59 square kilometers.
1 cubic foot equals 0.0283 cubic meter.
1 cubic foot equals 7.48 gallons; equals 0.804 bushel.
1 cubic foot of water weighs 62.5 pounds.
1 cubic yard equals 0.7646 cubic meter.
1 cubic mile equals 147,198,000,000 cubic feet.
1 cubic mile equals 4,667 second-feet for one year.
1 gallon equals 3.7854 liters.
1 gallon equals 8.36 pounds of water.
1 gallon equals 231 cubic inches (liquid measure).
1 pound equals 0.4536 kilogram.
1 avoirdupois pound equals 7,000 grains.
1 troy pound equals 5,760 grams.
1 meter equals 39.37 inches. Log. 1.5951654.
1 meter equals 3.280833 feet. Log. 0.5159842.
1 meter equals 1.093611 yards. Log. 0.0388629.
1 kilometer equals 3,281 feet; equals five-eighths mile, nearly.
1 square meter equals 10.764 square feet; equals 1.196 square yards.
1 hectare equals 2.471 acres.
1 cubic meter equals 35.314 cubic feet; equals 1.308 cubic yards.
1 liter equals 1.0567 quarts.
1 gram equals 15.43 grains.
1 kilogram equals 2.2046 pounds.
1 tonneau equals 2,204.6 pounds.
1 foot per second equals 1.097 kilometers per hour.
1 foot per second equals 0.68 mile per hour.
1 cubic meter per minute equals 0.5886 second-foot.
1 atmosphere equals 15 pounds per square inch; equals 1 ton per square foot; equals 1 kilogram per square centimeter.
Acceleration of gravity equals 32.16 feet per second every second.

1 horsepower equals 550 foot-pounds per second.
1 horsepower equals 76 kilogram-meters per second.
1 horsepower equals 746 watts.
1 horsepower equals 1 second-foot falling 8.8 feet.
1⅓ horsepower equals about 1 kilowatt.

To calculate water power quickly: $\frac{\text{Second-feet}}{11}$ = net horsepower per foot of fall on water wheel realizing 80 per cent of theoretical power.

STREAM MEASUREMENTS.

GENERAL METHODS.[a]

Discharge measurements are usually made with a current meter from a suitable bridge or cable, or, if the stream is shallow, by wading. The rate of discharge in cubic feet per second is the product of the area of the cross section of the stream in square feet and the mean velocity in feet per second. The mean velocity can not be obtained by direct measurement. It is usual, therefore, to divide the stream into a number of sections, and the velocity measured in each section is assumed to be the mean velocity for that section. The total discharge is the sum of the discharges in the several sections. Evidently the smaller the sections the more nearly the results so obtained approach the actual discharge.

In obtaining records of the daily discharge of streams the usual method employed is, briefly, as follows:

A gage rod, graduated to feet and tenths, is installed at a suitable point on the stream in such a position that the elevation of the surface of the water above some arbitrary datum plane can be read and reported each day by a local observer. The engineer in charge makes frequent visits to the station for the purpose of obtaining measurements of the flow by a current meter and noting the gage height. At the close of the season these measured discharges are plotted on cross-section paper as abscissæ, and the gage heights as ordinates. Through these points it is usually possible to draw a parabolic curve, termed the "rating curve" for that station, from which the discharge corresponding to any gage height may be obtained. In order to facilitate the application of such a rating curve, a rating table is prepared, giving the discharge for all gage heights throughout the range of the river's stage at intervals of tenths of a foot or less.

If the bed of the stream is composed of permanent material not greatly affected by the scouring effect of floods, the rating table may be expected to remain fairly constant from year to year, and the discharge measurements to conform very closely to a single rating curve. If, on the other hand, the bed of the stream is composed of

[a] For a more complete discussion of the methods employed by the United States Geological Survey in making stream measurements, see Water-Supply Paper 94 (Manual of hydrography) or the introduction to Water-Supply Paper 201.

loose shifting sands or silt, continual changes in the cross section of the stream result from the natural flow of the water, and large and sudden changes may be caused by floods. In such streams gage height and discharge may exhibit little or no conformity of relation, and therefore no single rating curve can be prepared that will correctly express this relation for any considerable period of time. Moreover, in any stream it is not sufficient, for reliable results, that the measuring section be located at a point where the bed is permanent, for even at such a point, if the stream bed immediately above and below this point is unstable, the slope of the water surface, and hence the velocity, of the stream will be greatly affected. In all such streams a single curve is applicable only for a limited period of time.

Almost without exception the streams of Nebraska are characterized by beds and banks of loose, shifting sand. Experience has shown that the only way in which reliable records of daily flow can be obtained for such streams is by the construction of measuring weirs or by making daily current-meter measurements. The excessive cost of either method prohibits its use, and it has therefore been possible to obtain only approximate results.

STOUT'S METHOD.

Even approximate results, however, have been made possible only through a method now known among hydrographers as "Stout's method," devised by O. V. P. Stout, professor of civil engineering in the University of Nebraska, and first described by him in the Nineteenth Annual Report of the United States Geological Survey, part 4, pages 323 et seq.

Briefly, this method merely minimizes the amount of labor otherwise involved in the preparation of a number of rating tables, each applicable for a limited period of time. It consists essentially in using a permanent rating table for each station and correcting the observed gage heights to what they presumably would have been were the bed and banks of permanent material. First, it is assumed that the changes occur at a fairly uniform rate between times of successive measurements. This assumption necessitates measurements at critical times when the rate of change is not uniform. As an example of the effect of a shifting bed on the relation between gage heights and discharge, two gagings made in 1903 on Loup River at Columbus may be given: March 20, gage height 5.10 feet, discharge 6,074 second-feet; May 7, gage height 5.10 feet, discharge 3,409 second-feet. In forty-eight days the bed of the stream so changed that for the same gage heights the discharge was only about half as much as at the earlier measurement.

Suppose that the bed of the stream was not subject to fluctuations, and there was available a rating table prepared on this basis, giving

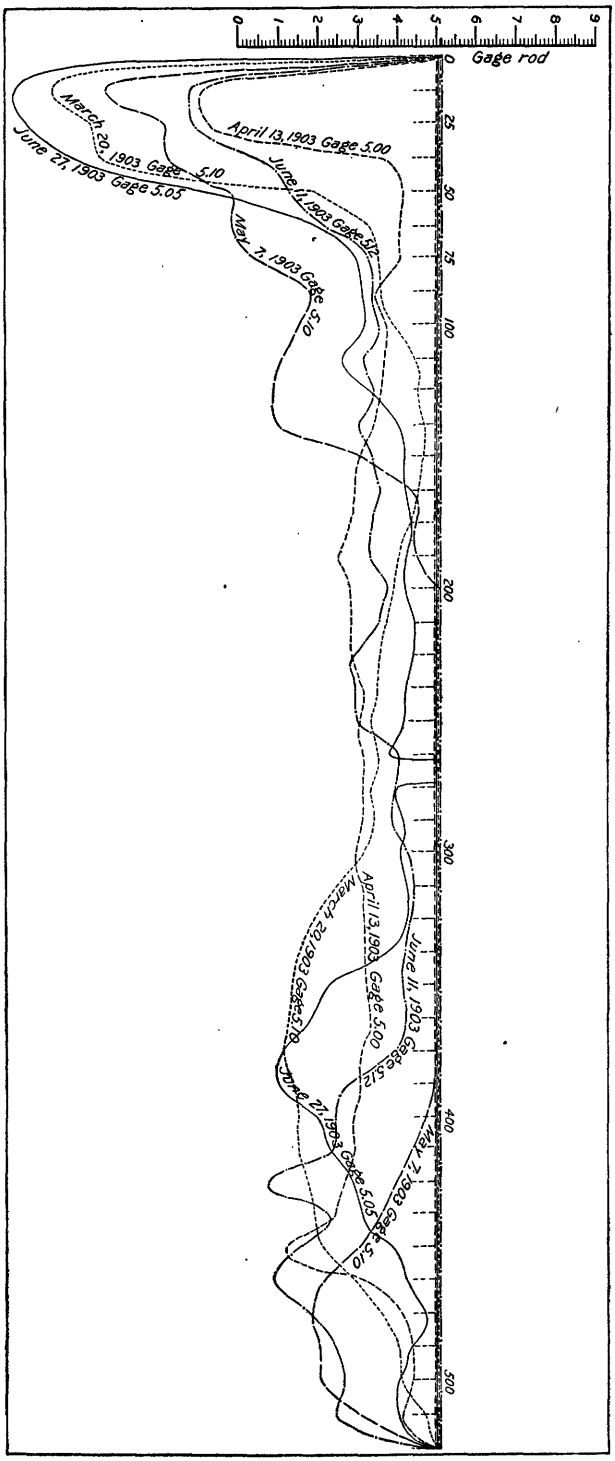

FIGURE 2.—Cross sections of Loup River at Columbus.

the discharge of the stream for all gage heights. Taking the discharge found on March 20 above and entering such a rating table, we find the gage height required to give this discharge. The difference between the observed gage height and that taken from the rating table is the correction to be applied to the gage heights for that day. Graphically the correction is the distance between any plotted point of measurement and the curve, measured parallel to the gage-height axis, plus if the point falls below the curve and minus if above. In a similar manner the correction for the measurement of May 7 is obtained. No flood occurred between these dates (see gage heights, pp. 122–123), and there is no reason to believe that changes in the

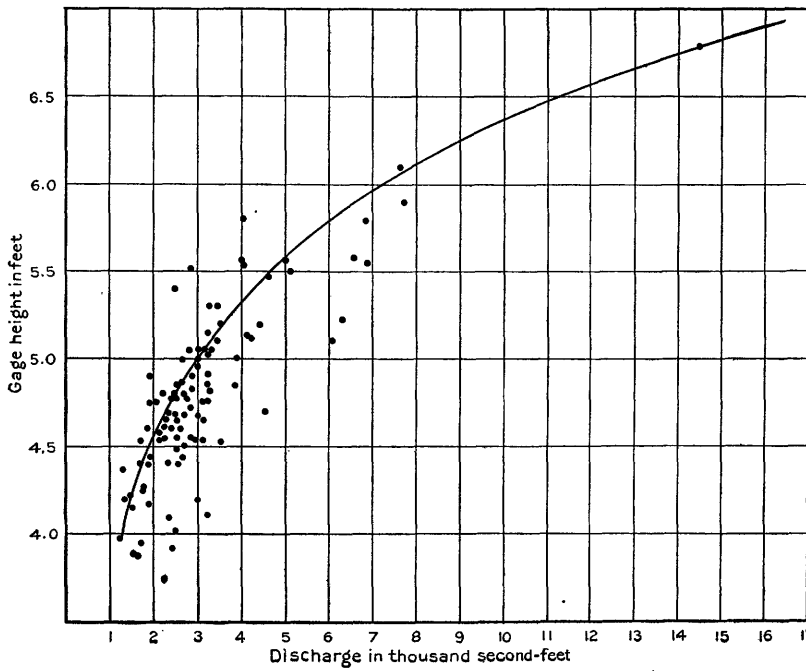

FIGURE 3.—Rating curve for Loup River at Columbus.

stream bed occurred at other than a fairly uniform rate. The corrections to be applied for intermediate dates are obtained by direct interpolation or more accurately read from a correction curve.

It is evident from a study of this method that practically the same results are obtained by it as by the use of a series of rating tables, each applicable for a short period of time. Of course the ideal rating table does not exist, and the one used is that one which conforms the best to all measurements made at the gaging station.

Owing to the rapid velocities and the large quantities of water that are at times discharged, perhaps no stream shows such utter lawlessness as Loup River. Figure 2 illustrates by means of cross sections,

obtained from five successive discharge measurements, the changes that may occur in this stream. As indicated by these sections there is very little fluctuation in the water surface, but within the period of a few weeks the bed of the stream exhibits radical changes which, however, are not abnormal, as the river remained at an ordinary stage throughout the period. In figure 3 the discharge measurements made at the Columbus station on Loup River are plotted together with the rating curve from which corrections to gage heights are obtained. The position of the points seem to be limited only by the margin lines of the diagram. The curve drawn was constructed early in the history of the station, and as practically the same final results would be obtained by the use of any parallel curve it has not been modified. The following table gives the discharge from this curve at intervals of tenths of feet of gage height:

Rating table for the indirect application of gage heights for Loup River at Columbus.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
4.0	1,220	5.0	3,000	6.0	7,050
.1	1,300	.1	3,260	.1	7,800
.2	1,400	.2	3,550	.2	8,750
.3	1,510	.3	3,890	.3	9,750
.4	1,660	.4	4.300	.4	9,750
.5	1,820	.5	4,740	.5	10,750
.6	2,040	.6	5,180	.6	11,750
.7	2,260	.7	5,620	.7	13,750
.8	2,500	.8	6,060	.8	14,750
.9	2,740	.9	6,500	.9	15,750

To illustrate more clearly the method of applying corrections to the gage heights, the records for the year 1903 are given as an example. The following table gives the results of measurements made at this station during that season, showing the gage height, the discharge, the corrections to be applied as determined from the above rating table, and the gage heights as corrected:

Discharge measurements made on Loup River at Columbus, 1903.

Day.	Hydrographer.	Gage height (feet).			Discharge (second-feet).
		Observed.	Correction.	Corrected.	
Mar. 20	J. C. Stevens	5.10	+0.70	5.80	6,074
Apr. 3	do	5.00	+ .30	5.30	3,905
May 7	do	5.10	+ .05	5.15	3,409
June 11	do	5.12	0	5.12	3,432
June 27	do	5.05	− .10	4.95	2,799
July 10	do	4.67	+ .30	4.97	3,022
July 17	do	5.56	0	5.56	5,022
Aug. 1	do	6.78	0	6.78	14,580
Aug. 18	do	5.13	+ .20	5.33	4,177
Sept. 19	F. C. Murphy	4.49	+ .35	4.84	2,644
Sept. 29	J. C. Stevens	4.40	+ .35	4.75	2,328
Oct. 30	do	4.61	+ .25	4.86	2,607
Dec. 20	do	6.50	−1.80	4.70	2,280

If all the corrections so obtained are plotted as ordinates and time in days as abscissæ, a curve called the correction curve is obtained. The ordinate to the curve gives the correction for that day, positive or negative as the case may be, which should be applied to the gage height reported by the observer. The corresponding discharge is then taken from the rating table, the *corrected* gage height being used. To illustrate: The gaging of March 20, 1903, shows a discharge of 6,074 second-feet, with a gage height of 5.10 feet. Entering the rating table with this discharge, we find that a gage height of 5.80 feet would be required to give this discharge. The correction to be applied to the gage height on March 20, therefore, is +0.70. On April 3, with a gage height of 5.00 feet, the discharge was found

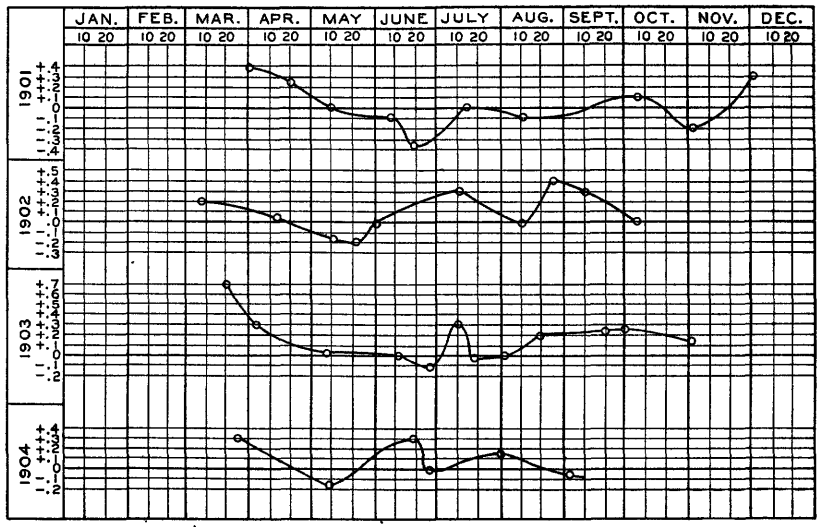

FIGURE 4.—Correction curves for Loup River at Columbus.

to be 3,505 second-feet, which would require a gage height in the rating table of 5.30 feet; and the correction to be applied to the gage height on April 3 would, therefore, be +0.30. Similarly on May 7 the correction is found to be +0.05. On June 11 the correction to gage height is found to be practically zero; on June 27 it is −0.10. On July 4 and 5 an excessive flood occurred, shortly after which, on July 10, the correction to gage height was found to be +0.30. On July 17 it had dropped to zero again, where it continued until the flood on August 15, after which positive corrections ranging from +0.20 to +0.35 are required to the end of the season. The correction curves for the years 1901 to 1904, inclusive, are shown in figure 4, a study of which will show that these curves determine to a greater or less extent the changes which take place in the bed of the stream.

Taking the curve for 1903, and imagining a mean condition of the bed of the stream, on each side of which these fluctuations may be assumed to occur, we readily see that a positive correction to the gage heights will indicate that the bed of the stream has been washed out below that of the mean bed; in other words, that the cross-sectional area of the stream at the gage has been enlarged so that a greater quantity of water can pass the gaging section without increasing the gage height, or that changes above or below have unduly increased the velocity. On the other hand, a negative correction to gage height indicates that the bed of the stream has filled in and the cross-sectional area is less than that which would otherwise be indicated for the same gage height, or that the velocities have been unduly retarded.

The slope of the correction curve also indicates the direction in which these changes are occurring. Thus if the curve slopes downward in the direction of time, it indicates that the bed of the stream at this point is being filled; and if it slopes upward in the direction of time it indicates a scouring effect. For example, it appears that from March 20 to June 27, 1903, the bed of the river was gradually filling up, and that from about May 7 to June 11 the bed of the river was practically stationary and very nearly conformed to the mean condition heretofore mentioned. About July 5 there was an excessive flood that had the effect, as indicated by the direction of the correction curve, of scouring out the channel, which, however, almost as quickly filled in as the flood receded, continuing nearly stationary till the end of the month, when another flood occurred that again scoured out the bed of the stream. Large floods in the middle and the latter part of August kept the bed scoured out throughout the month of September, but it filled in very gradually during October.

It is interesting to note the general resemblance which these curves bear to one another. On the breaking up of the ice in the spring the bed is usually washed out, but during the spring months it is gradually filled in. In July and August floods occur without regularity from year to year, and may or may not have their effect on the form of the correction curve.

METHODS OF COMPUTATION.

USE OF FORMULAS.

The field notes of a discharge measurement by current meter give (1) depth of water in the cross section, usually at regular intervals from an initial point; (2) the number of revolutions of the current meter in a given number of seconds observed at each point of depth measurement from which the velocity at these points can be determined.

A number of formulas are in use for computation of the discharge from field notes, no two of which will give exactly the same results; yet all give results well within the limit of accuracy of the measurement itself. It is therefore economy of time and energy to adopt the simplest formula. Consider the rate of discharge as the volume passed over in one second of time by all the particles of water in a plain cross section of the stream. The advancing face of such a volume will be a curved surface, usually concave, in both horizontal and vertical projection, to the planes of reference. The vertical sections of this surface are termed vertical velocity curves, and the horizontal sections horizontal velocity curves. In the field the attempt is made to determine the mean velocity in the vertical by methods described in detail in the introductions to Surface Water-Supply Papers for 1906 (Nos. 201–214).

The computation of discharge is therefore simplified to the operation of finding the cubic contents of the volume generated by moving each vertical in a plain cross section a distance downstream equal to the mean velocity in that vertical. Of such a volume all horizontal sections are bounded on the advancing face by the same curved line and all vertical sections are rectangles whose areas are the product of depth by velocity at that point. Any formula which will not lend itself to the determination of the cubical contents of such a volume can not legitimately be used as a discharge formula.

Let d_1, d_2, d_3, etc., be depths measured at regular intervals l from the initial point. Let v_1, v_2, v_3, etc., be corresponding velocities. The volume of discharge is made up of a series of prismoids each of length l bounded by the "end areas" d_1v_1, d_2v_2, d_3v_3, etc. The volume of each prismoid is given by the prismoidal rule—

$$q=\frac{l}{6}\left[d_1v_1+4\left(\frac{d_1+d_2}{2}\right)\left(\frac{v_1+v_2}{2}\right)+d_2v_2\right]$$

and the total discharge is the sum of the volumes of all such prismoids. This of course involves the assumption that velocities and depths vary uniformly between points of measurement, and in practice measurements should be made close enough together to conform to this assumption.

THE HARLACHER FORMULA.

The preceding formula is too cumbersome for practical application, and a substitute approximate formula, now generally known as the Harlacher method, has been used almost exclusively in Nebraska. It consists essentially in considering a prismoid of length $2l$ so that the mid-area is actually measured and not computed. The formula for a prismoid of length $2l$ becomes—

$$q=\frac{2l}{6}(d_1v_1+4d_2v_2+d_3v_3)$$

By adding the volumes of successive prismoids the total discharge is expressed in general as follows: Where h is substituted for (dv) and n is an even number,

$$q=\frac{l}{3}[h_0+4(h_1+h_3+\ldots h_{n-1})+2(h_2+h_4+\ldots h_{n-2})+h_n]$$

It is evident that this is merely Simpson's "one-third rule" for the area of irregular figures, except that the areas are substituted for ordinates. In the original presentation of the method the discharge was considered as proportional to the area bounded by a curve the ordinates to which were the products of depth by velocity at all points.

The errors involved by the use of this formula are indeterminate except for specific cases. If the horizontal velocity curve is continually concave to the axis of reference the error is small; if, on the other hand, the direction of curvature is reversed several times, the error may be large and different results may be obtained from the same set of field notes, if different points are taken as the beginning of application of the formula.

As previously stated, however, the errors of computation are insignificant compared with those of observation.

ACCURACY AND RELIABILITY OF STREAM-FLOW DATA.

In the analysis of hydrographic data for any particular purpose a question often arises as to the accuracy and reliability of the records, that is, how nearly do the figures given for the estimated discharges conform to the actual volume of flow? The errors resulting from observations of depth and velocity in making discharge measurements, the permanency of the rating curve, the reliability of the local observer, the frequency of making observations of gage heights and discharge measurements, the nature of the stream as to permanency of bed and fluctuations of velocity, and the local conditions surrounding the gaging station must all be considered in answering this question.

The errors of discharge measurements have been made the subject of special study by various hydrographers. One of the most complete discussions of the subject is that published by the United States Geological Survey in Water-Supply Paper 95, entitled "Accuracy of stream measurements," by E. C. Murphy.

That too much dependence is often placed on the results obtained is evident on consideration of the various errors that make up the total error of a discharge measurement. For example, a measurement made with a current meter is subject to errors in the meter rating, in measuring depth, and in counting the revolutions of the meter vane, all of which may be termed accidental errors. In addi-

tion there are the errors resulting from the fluctuations in velocity from the change of stage during the time of measurement, from the effects of wind, and from the impracticability of determining with absolute accuracy the mean velocity in any vertical, all of which have a material and largely indeterminate effect on the discharge measurement.

No definite general figures can be given for such errors, as they are different in every case. It would be possible to determine the errors in the meter rating, in counting the revolutions of the meter vane, and in measuring the depth, but such determinations are of little value if the more important errors due to fluctuations of velocity and stage are omitted.

For example, if, instead of the prismoidal formula on page 16, we consider an elementary volume of discharge extending a distance $\frac{1}{2}l$ on each side of a point where depth and velocity are measured, the discharge through such a section will be $q=ldv$. Now, let r = error involved in measuring the depth; r_1 = error involved in measuring the corresponding velocity; e = error of discharge q in a single prism of length l. From the law of facility of errors for nonlinear functions the error of discharge in a single prism is expressed by—

$$e^2=r^2\left(\frac{dq}{dd}\right)^2+r_1^2\left(\frac{dq}{dv}\right)^2.$$

But $\frac{dq}{dd}=lv$ and $\frac{dq}{dv}=ld$. Substituting $e^2=l^2(r^2v^2+r_1^2d^2)$.

Now, if r and r_1 be expressed in percentages of d and v, respectively, the above equation reduces to $e^2=l^2d^2v^2(r^2+r_1^2)$, and since ldv is the discharge through the section the percentage of error of the discharge is $\frac{e}{q}=\sqrt{r^2+r_1^2}$; that is to say, the percentage of error in the discharge of a section is the square root of the sum of the squares of the errors involved in measuring the depth and velocity expressed in percentage. Thus, if depth error is 3 per cent and velocity error 4 per cent, the resulting error in the discharge is 5 per cent. As a matter of fact, the errors of measuring depth and velocity are not properly expressed in percentages, but rather as absolute quantities. The error in velocity determinations rather than the error in depth determinations will in general govern the error of discharge.

In July, 1904, two series of measurements were made on Loup River, at Columbus and Niobrara River at Valentine, for the purpose of determining the accuracy resulting from gaging as ordinarily made at these stations.

At the Columbus station measurements were made from a cable and car which spans the river about 75 yards above the Union Pacific Railroad Bridge. The channel at the time of the measurements was

515 feet wide. The depths varied from 1 to 7 feet and the velocities from 1 to 5 feet per second. The bed of the stream is composed entirely of loose, shifting sand, which, considering the swiftness of the current, made it impracticable to measure depths with an error of less than about 0.3 foot in the swiftest water. Individual velocity determinations are probably accurate within 5 per cent.

The gagings were made in four sets of two each. In sets A, B, and C the two gagings were made simultaneously by two hydrographers operating from different ends of the car, so that each gaging is entirely independent of the other. Depths and velocities were measured at 12½-foot intervals, the initial point of each gaging in the set being different. In these three sets the 0.6 method of obtaining mean velocities in the vertical was used. In set D one gaging followed the other, and velocities were taken by the integration method. Set A was made July 29, and sets B, C, and D on the 31st; but the change in the river stage was so slight that the two days' work has been considered together.

It has been assumed that the differences in the discharges obtained were due mainly to two general causes: (1) Errors in fluctuation, including the slight changes in the stage and fluctuations of velocity; (2) accidental errors, which include errors in measurement and observation. An attempt has been made to eliminate in part the errors due to change of stage by referring the discharges to a mean gage height. For example, the mean of the several mean gage heights is 4.80; the mean gage height of the first set of gagings was 4.82. The difference is 0.02, which corresponds to an increased discharge of 28 second-feet over that which would have been obtained had the gaging been made with a gage height of 4.80, other conditions remaining the same. The large error of the first gaging—518 second-feet—may be accounted for in part by the fact that an insufficient weight was tied on the meter, thus allowing the depths to be recorded in excess of what they actually were, the meter being carried downstream by the swift current. This source of error was eliminated in the remaining measurements.

It appears from an examination of the table below that gagings at this point with an error of less than 15 to 20 per cent need not be expected, unless exceptional precautions are taken.

It must be borne in mind that "standard cross sections" can not be used on streams of this class. Cross-sectional areas must be determined at each time of gaging. The area, and hence the discharge of the first measurement, are undoubtedly in error, as explained above. Nevertheless the result is all the more valuable as indicating what might have happened had the hydrographer been content with this one measurement for fixing this portion of the rating curve for the season. Cross sections at this station are shown in figure 2 (p. 11).

Discharge measurements on Loup River at Columbus to determine degree of accuracy resulting from gagings as ordinarily made.

Set.	No.	Date, 1904.	No. of meter.	Method of obtaining velocities.	Time of gaging.		
					Beginning.	Ending.	Duration.
							Hrs. min.
A	1	July 29	342	0.6	11.00 a. m.	1.00 p. m.	2 0
	2	do	347	.6	do	do	2 0
B	3	July 31	342	.6	10.15 a. m.	12.00 m.	1 45
	4	do	347	.6	do	do	1 45
C	5	do	342	.6	12.40 p. m.	2.00 p. m.	1 20
	6	do	347	.6	do	do	1 20
D	7	do	342	Integration.	2.00 p. m.	3.05 p. m.	1 5
	8	do	342	do	3.05 p. m.	4.10 p. m.	1 5

Set.	No.	Gage height (feet).			Area of cross section (square feet).	Mean velocity (feet per second).	Discharge (Q) (second-feet).	Discharge corrected for change of stage (Q′) (second-feet).	Residual ($Q'_m - Q'$)[a] (second-feet).	$\frac{Q'_m - Q'}{Q'_m}$ (per cent).
		Beginning.	Ending.	Mean.						
A	1	4.82	4.82	4.82	1,274	2.64	3,376	3,348	−518	−18.3
	2	4.82	4.82	4.82	1,130	2.57	2,896	2,868	− 38	− 1.3
B	3	4.77	4.77	4.77	1,036	2.63	2,723	2,763	+ 67	+ 2.4
	4	4.77	4.77	4.77	1,067	2.60	2,778	2,818	+ 12	+ 0.4
C	5	4.77	4.80	4.78	1,084	2.52	2,737	2,765	+ 65	+ 2.3
	6	4.77	4.80	4.78	1,018	2.78	2,826	2,854	− 24	− 0 8
D	7	4.80	4.80	4.80	1,020	2.44	2,492	2,492	+338	+12.0
	8	4.80	4.80	4.80	1,045	2.61	2,734	2,734	+ 96	+ 3.4

[a] Q'_m=mean value of Q′=2830.

NOTE.—Warm, still day. Conditions favorable for good results. Gagings and computations by J. C. Stevens, assisted by O. H. Timmerman.

A similar series of measurements was made on Niobrara River at Valentine. The same general method of referring the discharge to the mean gage height was adopted in order to eliminate the effects of fluctuations of the water surface. The reading of the gage was checked before and after each gaging by measuring down to the water surface from a permanent point on the bridge. The gagings were made from a single-span steel bridge, the tubular piers of which did not obstruct the channel. The bed of the stream is made up of sand mixed with bowlders and cobblestones. The depths varied from 1 to 2 feet and the velocities from 1 to 5.5 feet per second. The depths have an error of about 0.2 foot, and individual measurements of velocity are probably accurate within 4 per cent. The width at the upstream side of the bridge was 115 feet and at the downstream side 123 feet. Observations were taken at intervals of 5 feet, a different initial point being used in each measurement.

A number of duplicate measurements have been made at this point from time to time, the results of which are also shown below.

The results appear to show a greater degree of accuracy than might be expected in view of the conditions. Yet it is believed that measurements at this point can be made with errors not exceeding 4 or 5 per cent.

Discharge measurements on Niobrara River at Valentine, July 11, 1904, to determine degree of accuracy resulting from gagings as ordinarily made.

No.	Method of obtaining velocities.	Side of bridge.	Time of gaging.			Gage height (feet).			Area of cross section (square feet).	Mean velocity (feet per second).	Discharge (Q_1) (second-feet).	Discharge corrected for change of stage (Q') (second-feet).	Residual ($Q'_m - Q'$)[a] (second-feet).	$\frac{Q'_m - Q'}{Q'_m}$ (per cent).
			Beginning.	Ending.	Duration (minutes).	Beginning.	Ending.	Mean.						
1	0.6	Upstr.	8.25 a.m.	9.15 a.m.	50	1.43	1.45	1.44	197	3.86	761	783	−16	−2.1
2	.6	Downstr.	9.40 a.m.	11.15 a.m.	95	1.45	1.52	1.48	194	3.90	756	760	+ 7	+0.9
3	.6	Upstr.	3.10 p.m.	3.45 p.m.	35	1.54	1.52	1.53	197	4.07	801	782	+15	+2.0
4	.6	Downstr.	3.45 p.m.	4.15 p.m.	30	1.52	1.50	1.51	184	4.09	752	743	+24	+3.1
5	Integr.	....do....	4.15 p.m.	5.00 p.m.	45	1.50	1.44	1.47	189	4.02	760	769	− 2	−0.3

[a] Q'_m=mean value of Q'=767.

NOTE.—Warm, still day. Conditions favorable for good results. Gagings and computations by J. C Stevens. Meter No. 347.

Duplicate discharge measurements made on Niobrara River at Valentine.

Date.	Hydrographer.	Gage height.	Discharge.	$\frac{Q_1 - Q_2}{Q_1 + Q_2}$ (per cent).[a]
May 26, 1903	J. C. Stevens	1.55	873	±1.2
Do.	....do	1.55	894	
Sept. 17, 1903	E. C. Murphy	1.38	709	± .4
Do.	....do	1.38	715	
April 17, 1904	J. C. Stevens	1.57	683	±3.3
Do.	....do	1.57	640	

[a] The mean of the two gagings was assumed to be the correct discharge and the per cent of error computed on this basis; that is, 1/2 $(Q_1 - Q_2)$ is the residual and $\frac{1/2\ (Q_1 - Q_2)\ 100}{1/2\ (Q_1 + Q_2)}$ is the percentage of error.

From the foregoing discussion it is evident that individual measurements are liable to an error of 5 to 20 per cent. The errors resulting from external sources, such as unreliability of the observer's reports; from the assumption that a single gage-height observation or the average of two observations is actually the mean for the day; from the error of using a mean gage height for finding mean daily discharges; and from the unknown and largely indeterminate effect of climatic conditions at the station from day to day can be only a matter of conjecture.

The true worth of a hydrographer lies not so much in being able to measure streams accurately and develop correct discharge curves, as in having a logical conception and a working knowledge of the actual worth of hydrographic data. This knowledge can not be obtained from books.

RELATION OF RAINFALL TO RUN-OFF.

LIMITATIONS OF RAINFALL RECORDS.

It is hardly necessary to say that in any region where a knowledge of the distribution and duration of the various rates of stream discharge is a requisite for its proper development, no method of obtaining that knowledge can compare in reliability with actual systematic stream measurements, extending over a period of several years. It will also be evident after a little investigation that records of rainfall are entirely inadequate for this purpose. It is, however, frequently necessary to make some estimate of the quantity of water yielded by a particular drainage basin on which no systematic records of stream flow have been kept. For this purpose it is almost useless to attempt the determination of the time distribution of the various rates of discharge, but efforts must be confined to discovering either the mean annual yield, the quantity supplied year by year, or that supplied during distinct climatological periods of the year.

A consideration of some of the natural conditions affecting the relation between the discharge of a stream and the precipitation on its watershed will substantiate this statement. As all flowing water must at some recent period have passed through the state of precipitation, it follows that there must be some definite relation between rainfall and run-off, and the fact that it can not be determined is merely proof that all the conditions influencing this relation are not taken into account. These conditions are best illustrated by concrete examples. Consider first the simplest possible case, that of an impervious roof of known area and known slope from which the water is conducted by eave troughs over a weir to a reservoir. Assume also a rain gage in place to determine the precipitation. The effect of evaporation being disregarded, the total quantity falling on the roof in any period of time will later appear in the reservoir and should be equivalent to the depth shown by the rain gage multiplied by the horizontal projection of the roof area. The determination of the rate of run-off is a different problem, for to find this it is necessary to know the rate of rainfall; then from observations of the rate of flow over the weir, the storage capacity of conduits to the weir, and the rate at which water was stored therein, it would be possible to determine the relation between the rate of rainfall and the rate of run-off for that particular roof, at that particular angle, with that particular system of conducting the water therefrom. The mean rate is of course the total quantity precipitated divided by the time, but that is merely expressing quantity in another unit. The maximum rate would be indeterminate without elaborate preparations.

If, instead of the smooth impervious roof, an area of sod, soil, sand, and gravel of unknown thickness is considered, the quanti-

tative determination could even in this case be made, but account would have to be taken of the previous saturated condition of the material and the evaporation, as the observations would have to be extended over a much longer period of time to attain any degree of accuracy. The maximum rate of run-off could be determined for only that particular condition of saturation existing previous to the rainfall.

When it is realized that the conditions in nature are far more complicated than can be illustrated by a simple case like those cited—that the precipitation occurs under all climatic conditions from torrential cloud-bursts of a few minutes' duration to gentle showers lasting for weeks, from driving blizzards on frozen ground to fleecy snows that melt into slush during the day and freeze at night; when it is considered that records of precipitation at best are only approximations, with rarely any attempt at rate determination, and that frequently stream-flow data are quite as inaccurate and incomplete, it is evident that little will be gained by a laborious analysis of rainfall records when a common-sense guess will frequently furnish just as reliable data.

George W. Rafter, in a report on the relation of rainfall to run-off,[a] says: "In computing the run-off of various streams, small discrepancies will continually appear; when such do not exceed 1 to 2 inches they are outside the limits of discussion." Now, 2 inches is four times the annual run-off from the drainage basin of Republican River, and practically all streams of the western plains are excluded from his discussion; yet many instances can be cited where engineers have applied to streams in the arid West the formulas developed for streams in the eastern, humid part of the United States, and with this flimsy foundation built works of considerable magnitude, only to find themselves outwitted by nature.

It is therefore high time that some actual facts and figures were given and the marked individuality of the streams of the plains in this regard forcibly pointed out. Negative information is often the most valuable, and of this there is no lack.

RUN-OFF FORMULAS.

It is evident that a determination of the rate of stream discharge from records of rainfall is practically out of the question, and that any quantitative analysis is only the roughest approximation; an examination of some of the formulas now in use purporting to express this relation will therefore be of interest.

J. T. Fanning proposes the formula $D = 200\,M^{5/6}$ where D is the discharge in second-feet and M the drainage area in square miles. This relation was determined by plotting the flood discharge of some American streams.

The Ryves formula is $D = CM^{2/3}$, and Dickens proposes $D = CM^{3/4}$.

[a] Water-Supply Paper U. S. Geol. Survey No. 80, 1903.

In these two formulas C is a sliding coefficient, depending on the natural characteristics of the drainage basin. For the Dickens formula C has the following values for flat countries: Where rainfall of 3.5 to 4 inches in twenty-four hours may occur, 200; for a maximum rainfall of 6 inches, 300. The Ryves coefficient varies between 400 and 500 in flat countries.

The application of the Dickens formula, which is perhaps the most conservative, to Nebraska streams would give the following rates of discharge, the coefficient used being 200: Elkhorn River at mouth, 5,980 square miles, 139,000 second-feet; Loup River at mouth, 13,540 square miles, 250,000 second-feet; Republican River at Superior, 22,350 square miles, 366,000 second-feet. If such quantities of water should ever come down these rivers the damage to life and property would be incalculable. The maximum recorded discharges are, for the Elkhorn, 9,600 second-feet; the Loup, 26,000 second-feet; the Republican, 25,000 second-feet.

It may be contended that these formulas were never intended to apply to such large areas in dry countries; but Salt River, of Arizona, with a drainage area at Phoenix of 12,260 square miles, largely steep, bare slopes, had a maximum observed discharge in 1891 of about 300,000 second-feet, which would fall very near Dickens's curve. When it is realized that Platte and Republican rivers go entirely dry and that the Niobrara and Loup have a minimum flow of about 0.1 second-foot per square mile of drainage area under practically the same conditions of rainfall, the absurdity of attempting to apply to these streams any formula for minimum rate determination is at once apparent.

DETERMINATION OF MEAN ANNUAL RUN-OFF.

A quantitative determination of the total yield of a drainage basin during distinct climatological periods of time can often be approximately estimated, provided average or normal values are used for such periods. Moreover, the determination of stream flow from rainfall records must legitimately be limited to this problem on account of the large debits and credits at the beginning and end of short periods of time. To illustrate: The percentage of rainfall appearing as run-off in a single month will depend, among other things, on the saturated condition of the soil at the beginning of the month. If the ground water is depleted, a large part of the precipitation will go to augment the ground storage; if, on the other hand, the ground water present is greater than the normal quantity, a much larger percentage of precipitation will run off from the watershed. Again, if a heavy rainfall appears at the end of the month the total run-off for that month may be very low and the rainfall comparatively high, while in the following month the conditions would be reversed. It is therefore necessary to con-

sider longer periods of time, and for convenience the year is divided into two seasons designated the "open season," from April to October, inclusive, and the "closed season," from November to March, inclusive. In the plains of the Middle West, on account of uncertain ice conditions it is impossible without great expense to obtain stream-flow data during the closed season, hence the discharge of Nebraska streams is known only for the open season. In 1897 daily discharges were tabulated during the closed season for Nebraska stations from rating curves developed during the open season, but they are not only incorrect, but grossly misleading. The writer has seen Platte River frozen practically solid to the bed, when the position of the water on the gage, according to the open season rating curve, indicated a discharge of 4,000 or 5,000 second-feet. As a matter of fact, there was less than 100 second-feet trickling along under the ice.

SPRING FLOODS ON PLATTE RIVER.

It is popularly believed that the magnitude of the periodic spring floods on Platte River depends entirely on the quantity of snowfall on its headwaters during the preceding winter, but this is only partly true. There are so many other factors, such as the conditions of the soil saturation and the manner in which the winter snows are melted, that the relation between these quantities is not at once apparent. In the following table the total run-off, as measured at North Platte for the flood period of each year, April to July, inclusive, is compared with the total precipitation on the drainage basin above that point for the preceding winter season, November to March, inclusive.

Winter snowfall on headwaters of North Platte River and run-off during following spring flood period, at North Platte, 1894–1906.

Year.	Precipitation November to March.	Departure from average.	Run-off April to July.	Departure from average.	Year.	Precipitation November to age.	Departure from average.	Run-off April to July.	Departure from average.
1894–5	3.10	+0.16	0.99	0.0	1901–2	3.24	+0.30	0.61	−0.38
1895–6	3.06	+ .12	.57	− .42	1902–3	3.59	+ .65	.74	− .25
1896–7	3.24	+ .30	1.46	+ .47	1903–4	1.46	−1.48	.86	− .13
1897–8	2.73	− .21	.66	− .33	1904–5	2.28	− .66	1.38	+ .39
1898–9	5.00	+2.06	1.62	+ .63	1905–6	3.02	+ .08	1.13	+ .14
1899–1900	1.89	−1.05	1.05	+ .06					
1900–1	2.69	− .25	.84	− .15	Average...	2.94	.....	.99	.....

It will be noted that in 1896 the run-off was only about half the average for the twelve years, although the precipitation was above the average. This is explained by the fact that during the three preceding years—1893 to 1895, inclusive (see Table 1, p. 28)—the precipitation throughout Nebraska and neighboring States was far below the normal, and the ground water was so greatly depleted that the larger precipitation in 1896 was used up in restoring the

ground water more nearly to its normal condition and therefore did not appear in the stream. The maximum precipitation and run-off occurred simultaneously in 1898–9 and no doubt resulted in an abnormal amount of ground storage, so that during the following season, in spite of the fact that the precipitation was only about half the average, the run-off was above the normal. The excessive floods which occurred in the summer of 1905 (see discharge table for Platte River, p. 54, and Pl. I) were evidently not caused

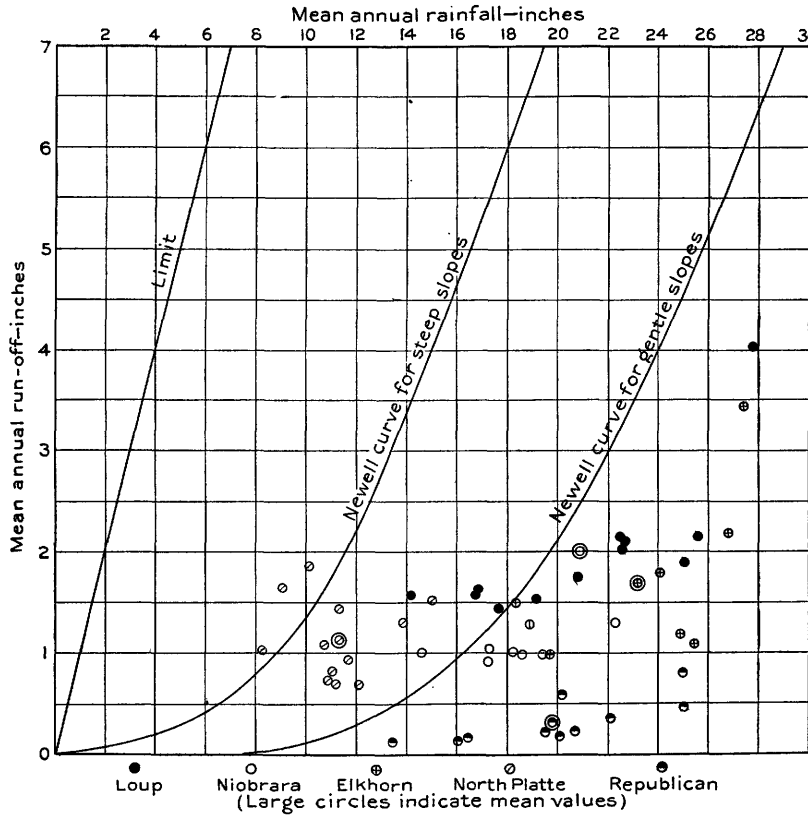

FIGURE 5.—Relation of rainfall to run-off in Nebraska.

solely by snowfall in the mountains, as the precipitation for the preceding winter was far below the normal.

The relation between annual run-off and annual precipitation has been graphically expressed by F. H. Newell in the form of a set of curves, now known as the "Newell curves." These curves are reproduced in figure 5, on which are also platted the run-off in inches as measured at gaging stations on Elkhorn River at Norfolk, Niobrara River near Valentine, Loup River at Columbus, North Platte River at North Platte, and Republican River at Bostwick, with the corresponding precipitation in inches on their drainage basins, taken

A

B

FLOOD SCENES AT LINCOLN.

from records of the United States Weather Bureau. It is true that the run-off here plotted is only for the open season, but the precipitation for the same period is used. If complete yearly records of run-off were available and corresponding yearly values of precipitation were used, the relative positions of the points would not be materially altered, as each point would then appear above and to the right of the position now occupied. Moreover, the distance they would appear to the right of their present positions would be small compared with the distance they would be moved upward, for the reason that the precipitation during the winter months is a very small proportion of the annual amount (see Table 7, p. 32); but this difference does not exist for the run-off factor. In other words, the percentage of precipitation appearing as run-off is much greater in winter than during the remainder of the year. If records were complete, it is believed that the mean annual values for Loup and Niobrara rivers would not fall far short of the curve for gentle slopes. The agreement is not so apparent with the other streams.

AVAILABLE DATA FOR DETERMINING RUN-OFF.

As a guide to the quantitative determination of run-off for streams other than those investigated by the United States Geological Survey, existing under similar climatic conditions, there is presented herewith a summary of such data collected on Nebraska streams as are sufficiently reliable to justify their use in this connection. Table 1 (p. 28), copied from the annual summary for 1906 of the Nebraska section of the climatological service of the Weather Bureau, gives the monthly, annual, and seasonal precipitation for the entire State, with departures from the normal. The normal rainfall for the crop season, April to August, inclusive, is 69 per cent of the annual.

Tables 2 to 6 give the total monthly precipitation on the drainage areas of North Platte, Republican, Loup, Niobrara, and Elkhorn rivers, respectively, for the twelve years 1895 to 1906, inclusive, together with the normal amounts compiled from records of much longer duration. Each figure in the table is a mean value obtained from a number of well-distributed stations through the basin. The precipitation in Nebraska decreases from east to west at the rate of about 4½ inches per hundred miles. It is therefore necessary to avoid giving too much weight to the records from the eastern portions of the drainage basins, though more of them are available than from the western portions; that is to say, the rainfall as measured at any station should be weighted according to the area served by that station, an indeterminate factor, or care should be taken to choose stations that serve similar areas. Where records for any station were incomplete those for an adjoining station have been used.

TABLE 1.—*Monthly, annual, and seasonal precipitation for Nebraska, with departures from the normal, 1876–1906.*

Year.	Jan.		Feb.		Mar.		Apr.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		Annual.		Crop season, Apr.–Aug.	
	Precipitation.	Departure.	Precipitation.	Departure.	Precipitation.	Departure.	Precipitation.	Departure.	Precipitation.	Departure.	Precipitation.	Departure.	Precipitation.	Departure.	Precipitation.	Departure.	Precipitation.	Departure.	Precipitation.	Departure.	Precipitation.	Departure.	Precipitation.	Departure.	Precipitation.	Departure.	Precipitation.	Departure.
Normal	0.60	.....	0.69	.....	1.15	.....	2.57	.....	3.69	.....	3.89	.....	3.56	.....	2.76	.....	2.09	.....	1.62	.....	0.68	.....	0.65	.....	23.94	.....	16.47	.....
1876	.20	−0.40	.55	−0.14	1.85	+0.70	1.45	−1.12	2.54	−1.15	1.99	−1.90	4.28	+0.72	3.25	+0.49	3.63	+1.54	.98	−0.64	1.68	+1.00	.24	−0.41	22.64	− 1.30	13.51	−2.96
1877	.98	+ .38	.31	− .38	.76	− .39	2.86	+ .29	5.79	+2.10	3.50	− .39	1.45	−2.11	2.04	− .72	2.06	− .03	2.92	+1.30	.82	+ .14	1.85	+1.20	25.34	+ 1.40	15.64	− .83
1878	.44	− .16	.31	− .38	1.95	+ .80	1.85	− .72	4.09	+ .40	5.19	+1.30	5.71	+2.15	2.16	− .60	1.90	− .19	.39	−1.23	.64	− .04	.44	− .21	25.07	+ 1.13	19.00	+2.53
1879	.80	+ .20	.80	+ .11	.70	− .45	2.61	+ .04	3.43	− .26	4.27	+ .38	5.92	+2.36	1.54	−1.22	1.40	− .69	1.03	− .59	1.31	+ .63	.58	− .07	24.39	+ .45	17.77	+1.30
1880	.38	− .22	.18	− .51	.50	− .65	.72	−1.85	2.11	−1.58	4.44	+ .55	3.36	− .20	3.87	+1.11	2.74	+ .65	1.78	+ .16	.53	− .15	.62	− .03	21.23	− 2.71	14.50	−1.97
1881	.91	+ .31	1.64	+ .95	1.51	+ .36	2.02	− .55	6.28	+2.59	5.36	+1.47	3.38	− .18	1.18	−1.58	3.77	+1.68	3.42	+1.80	.87	+ .19	.57	− .08	30.91	+ 6.97	18.22	+1.75
1882	.56	− .04	.63	− .06	.15	−1.00	3.58	+1.01	4.93	+1.24	4.34	+ .45	3.40	− .16	1.31	−1.45	.92	−1.17	2.23	+ .61	.45	− .23	1.01	+. 36	23.51	− .43	17.56	+1.09
1883	1.04	+ .44	.92	+ .23	.50	− .65	2.79	+ .22	5.39	+1.70	7.18	+3.29	2.81	− .75	3.21	+ .45	2.04	− .05	3.58	+1.96	.24	− .44	1.04	+ .39	30.74	+ 6.80	21.38	+4.91
1884	.46	− .14	.69	.00	1.96	+ .81	2.60	+ .03	3.06	− .63	2.04	−1.85	5.79	+2.23	2.97	+ .21	1.66	− .43	1.71	+ .09	.16	− .52	.90	+ .25	24.00	+ .06	16.46	− .01
1885	.51	− .09	.84	+ .15	.46	− .69	3.30	+ .73	3.73	+ .04	3.66	− .23	4.32	+ .76	3.48	+ .72	1.76	− .33	1.80	+ .18	1.18	+ .50	.94	+ .29	25.98	+ 2.04	18.49	+2.02
1886	1.21	+ .61	.84	+ .15	2.01	+ .86	2.64	+ .07	3.39	− .30	2.96	− .93	1.84	−1.72	3.22	+ .46	2.69	+ .60	.86	− .76	1.24	+ .56	.81	+ .16	23.71	− .23	14.05	−2.42
1887	.49	− .11	.78	+ .09	.39	− .76	2.32	− .25	2.27	−1.42	3.22	− .67	3.10	− .46	4.13	+1.37	4.09	+2.00	.88	− .74	.61	− .07	.71	+ .06	22.99	− .95	15.04	−1.43
1888	.47	− .13	.74	+ .05	2.13	+ .98	2.39	− .18	5.83	+2.14	3.11	− .78	3.10	− .46	3.11	+ .35	.38	−1.71	.93	− .69	.22	− .46	.45	− .20	22.86	− 1.08	17.54	+1.07
1889	.91	+ .31	.29	− .40	1.06	− .09	2.33	− .24	2.69	−1.00	3.55	− .34	5.77	+2.21	2.40	− .36	1.48	− .61	.93	− .69	.86	+ .18	.37	− .28	22.64	− 1.30	16.74	+ .27
1890	.78	+ .18	.36	− .33	.84	− .31	1.97	− .60	2.34	−1.35	3.63	− .26	2.10	−1.46	2.24	− .52	.99	−1.10	.93	− .69	.87	+ .19	.13	− .52	17.18	− 6.76	12.28	−4.19
1891	1.43	+ .83	1.13	+ .44	1.86	+ .71	3.14	+ .57	2.90	− .79	7.07	+3.18	5.48	+1.92	2.92	+ .16	1.28	− .81	1.96	+ .34	.32	− .36	1.13	+ .48	30.62	+ 6.68	21.51	+5.04
1892	.86	+ .26	.99	+ .30	1.62	+ .47	4.00	+1.43	5.63	+1.94	2.18	−1.71	2.57	− .99	3.20	+ .44	.48	−1.61	1.71	+ .09	.27	− .41	.61	− .04	24.12	+ .18	17.58	+1.11
1893	.13	− .47	.84	+ .15	1.32	+ .17	1.25	−1.32	2.66	−1.03	3.10	− .79	2.62	− .94	2.33	− .43	1.02	−1.07	.31	−1.31	.33	− .35	.89	+ .24	16.80	− 7.14	11.96	−4.51
1894	.60	.00	.58	− .11	.90	− .25	1.97	− .60	.91	−2.78	3.19	− .70	1.43	−2.13	.74	−2.02	1.21	− .88	1.21	− .41	.13	− .55	.43	− .22	13.30	−10.64	8.24	−8.23
1895	.36	− .24	.80	+ .11	.72	− .43	2.28	− .29	2.40	−1.29	4.67	+ .78	1.73	−1.83	3.04	+ .28	1.39	− .70	.22	−1.40	.94	+ .26	.15	− .50	18.70	− 5.24	14.12	−2.35
1896	.37	− .23	.16	− .53	1.45	+ .30	4.82	+2.25	4.03	+ .34	4.04	+ .15	3.87	+ .31	1.81	− .95	2.37	+ .28	1.83	+ .21	1.21	+ .53	.23	− .42	26.17	+ 2.23	18.57	+2.10
1897	.79	+ .19	.59	− .10	1.49	+ .34	3.82	+1.25	1.66	−2.03	3.60	− .29	2.57	− .99	2.60	− .16	1.26	− .83	3.34	+1.72	.51	− .17	1.31	+ .66	23.54	− .40	14.25	−2.22
1898	.67	+ .07	.43	− .26	.61	− .54	2.14	− .43	4.86	+1.17	3.54	− .35	2.12	−1.44	2.24	− .52	2.30	+ .21	.90	− .72	.57	− .11	.32	− .33	20.70	− 3.24	14.90	−1.57
1899	.24	− .36	.61	− .08	.92	− .23	.99	−1.58	3.71	+ .02	3.83	− .06	2.87	− .69	3.26	− .50	.46	−1.63	1.00	− .62	.88	+ .20	.84	+ .19	19.51	− 4.43	14.66	−1.81
1900	.07	− .53	1.07	+ .38	.62	− .53	4.68	+2.11	2.32	−1.37	2.50	−1.39	4.54	+ .98	3.46	+ .70	2.66	+ .57	2.08	+ .46	.15	− .53	.31	− .34	24.46	+ .52	17.50	+1.03
1901	.17	− .43	.83	+ .14	1.90	+ .75	2.32	− .25	1.86	−1.83	4.54	+ .65	1.59	−1.97	2.25	− .51	4.55	+2.46	1.64	+ .02	.50	− .18	.60	− .05	22.76	− 1.18	12.56	−3.91
1902	.64	+ .04	.39	− .30	1.18	+ .03	1.07	−1.50	4.14	− .45	5.12	+1.23	5.93	+2.37	3.25	+ .49	3.54	+1.45	1.92	+ .30	.52	− .16	1.40	+ .75	29.09	+ 5.15	19.51	+3.04
1903	.22	− .38	1.42	+ .73	.72	− .43	1.80	− .77	7.27	+3.58	2.21	−1.68	4.94	+1.38	5.05	+2.29	1.52	− .57	1.25	− .37	.77	+ .09	.10	− .55	27.27	+ 3.33	21.27	+4.80
1904	.35	− .25	.13	− .56	.53	− .62	2.00	− .57	3.68	− .01	4.71	+ .82	4.44	+ .88	2.80	+ .04	1.98	− .11	2.44	+ .82	.11	− .57	.20	− .45	23.37	− .57	17.63	+1.16
1905	1.07	+ .47	.76	+ .07	1.31	+ .16	3.70	+1.13	5.73	+2.04	5.04	+1.15	4.67	+1.11	2.79	+ .03	3.79	+1.70	1.23	− .39	1.53	+ .85	.02	− .63	31.65	+ 7.71	21.93	+5.46
1906	.46	− .14	.64	− .05	1.87	+ .72	4.35	+1.78	2.76	− .93	2.70	−1.19	2.70	− .86	3.66	+ .90	3.33	+1.24	2.85	+1.23	.64	− .04	1.04	+ .39	26.98	+ 3.04	16.17	− .30

TABLE 2.—*Precipitation in drainage basin of North Platte River above North Platte, 1895–1906.*

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.45	0.54	0.93	1.86	2.44	2.11	1.93	1.32	0.90	0.71	0.36	0.47	13.95
1895	.60	.37	.55	.69	1.71	3.36	1.26	.77	.25	.23	.65	.23	10.67
1896	.64	.34	1.00	1.83	2.17	2.65	1.88	1.12	.57	.70	.45	.05	13.40
1897	.37	.47	1.76	1.41	1.37	1.26	1.55	1.96	.47	1.07	.60	.74	13.03
1898	.80	.23	.79	1.12	4.34	1.75	1.68	.83	.78	.63	.74	.39	14.08
1899	.80	.83	1.64	.79	3.18	1.67	1.55	1.23	.51	1.22	.45	.41	14.28
1900	.05	.95	.29	4.34	.91	.81	2.39	.58	1.19	.54	.20	.44	12.69
1901	.04	.56	1.00	2.06	2.78	2.66	.75	1.17	1.09	.87	.25	.88	14.11
1902	.24	.49	1.12	1.26	2.47	2.70	1.75	.99	2.10	.90	.14	.94	15.10
1903	.19	.91	.98	1.33	2.03	1.71	2.11	1.79	1.56	.51	.26	.22	13.60
1904	.24	.25	.75	.99	2.87	2.97	1.86	.92	1.09	.99	.02	.21	13.16
1905	1.04	.52	.77	3.45	3.43	2.11	2.67	1.25	1.32	.82	.62	.14	18.24
1906	.54	.31	2.31	1.93	2.63	1.71	1.46	2.04	1.98	2.07	.87	.71	18.59

TABLE 3.—*Precipitation in drainage basin of Republican River above Bostwick, 1895–1906.*

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.44	0.79	1.09	2.73	3.30	3.85	3.83	2.39	1.90	1.18	0.52	0.48	22.12
1895	.51	1.11	.24	2.28	2.64	3.89	3.29	2.35	.72	.26	.87	.16	18.34
1896	.39	.11	.96	5.17	3.34	3.55	2.69	2.64	1.87	1.44	.59	.13	22.88
1897	.39	.61	1.95	3.95	1.22	4.58	2.12	3.05	1.40	3.81	.35	.95	24.38
1898	.37	.13	.35	2.77	4.72	3.35	2.17	1.55	4.13	.88	.55	.31	21.28
1899	.57	.51	.86	.65	2.94	3.74	3.67	1.79	.22	.42	.24	.48	16.09
1900	.04	1.45	.80	4.45	1.50	2.42	3.05	2.28	1.54	.87	.28	.27	18.95
1901	.17	.82	3.16	3.28	.96	3.13	1.10	3.35	3.97	.75	.28	.57	21.36
1902	.42	.50	1.14	.86	5.52	4.67	5.41	2.35	4.01	2.22	.14	1.04	28.28
1903	.26	2.14	.41	1.38	7.14	1.85	4.67	3.61	.53	1.08	.70	.02	23.59
1904	.08	.26	.27	2.78	3.37	5.48	3.23	2.82	1.83	2.61	.07	.25	23.05
1905	.63	.66	1.76	3.70	4.56	4.63	6.53	1.98	2.45	1.03	1.03	.01	28.97
1906	.48	.47	2.21	4.92	1.87	2.02	2.99	2.89	2.04	2.53	.67	.48	23.47

TABLE 4.—*Precipitation in drainage basin of Loup River above Columbus, 1895–1906.*

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.48	0.58	1.09	2.88	3.18	4.16	3.59	2.36	2.03	1.39	0.48	0.47	22.70
1895	.18	.85	.79	2.06	2.48	4.76	.98	2.49	1.81	.20	.84	.12	17.30
1896	.41	.06	1.50	4.84	2.54	4.94	4.12	.89	2.10	1.40	.87	.14	23.55
1897	.67	.44	1.68	3.88	1.26	4.11	2.53	2.96	1.16	3.02	.46	1.40	22.39
1898	.83	.23	.26	1.66	5.04	2.34	2.88	2.84	1.35	.83	.43	.19	18.92
1899	.16	.46	.68	.98	2.91	3.92	2.47	2.93	.70	.29	.57	.99	16.56
1900	.03	1.01	.35	4.47	2.57	2.30	5.50	3.67	2.41	1.72	.17	1.30	24.35
1901	.08	.75	1.37	1.92	1.61	4.92	.90	1.58	4.89	1.93	.60	.51	21.05
1902	.52	.48	1.51	1.42	4.27	4.45	6.29	3.77	3.44	1.95	.24	1.13	29.45
1903	.22	1.54	.72	1.56	5.46	1.68	6.88	5.01	.87	1.00	.51	.15	25.62
1904	.44	.09	.22	1.57	4.10	5.53	6.13	2.41	2.24	3.08	.07	.16	26.14
1905	1.21	.66	.93	4.15	6.54	6.07	4.58	1.93	3.81	.74	1.16	.08	31.88
1906	.55	.32	1.32	5.47	2.89	2.06	2.74	3.52	2.94	3.12	.93	1.27	27.03

TABLE 5.—*Precipitation in drainage basin of Niobrara River above Valentine, 1895–1906.*

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.67	0.70	1.43	2.31	2.97	3.09	2.74	2.05	1.12	1.09	0.51	0.61	19.20
1895	.50	.45	2.14	2.99	1.94	3.78	1.11	.71	.78	.10	.80	.12	15.43
1896	.58	.34	1.89	2.44	1.45	3.63	2.90	.60	2.35	.95	1.39	.20	18.72
1897	1.64	.70	1.58	1.51	1.85	2.12	3.89	2.20	.37	1.17	1.23	1.46	19.98
1898	1.01	.26	.85	1.08	6.40	1.63	2.98	1.57	.85	.24	.54	.48	17.65
1899	.42	.56	2.06	1.00	2.60	2.48	1.77	2.70	.25	.94	.26	.70	15.76
1900	.09	1.10	.89	4.01	2.49	2.42	5.74	3.55	1.52	1.45	.15	.64	25.05
1901	.03	1.35	1.66	1.45	1.32	7.02	1.49	2.44	3.38	2.31	.03	.95	23.43
1902	.46	1.22	1.84	1.08	2.60	3.73	2.26	2.77	1.34	.80	.41	1.85	19.96
1903	.50	1.31	.81	1.72	3.27	1.66	5.74	2.81	1.52	.63	.09	.23	20.29
1904	.60	.24	.28	.70	2.68	5.08	3.00	2.56	1.93	1.28	.08	.23	18.64
1905	1.03	.26	1.09	2.90	5.24	5.79	4.51	1.69	.97	1.16	.50	.16	25.30
1906	.54	.44	1.55	2.10	3.22	2.22	1.47	3.58	3.02	2.99	.60	.81	22.54

TABLE 6.—*Precipitation in drainage basin of Elkhorn River above Norfolk, 1895–1906.*

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.43	0.62	1.13	2.95	3.80	4.15	3.73	3.08	2.48	1.63	0.59	0.61	25.26
1895	.22	.29	1.38	4.78	3.11	6.34	.65	4.05	2.51	.03	.68	.04	24.08
1896	.24	.04	1.05	6.57	2.53	5.21	5.22	1.25	2.47	2.24	2.19	.10	29.11
1897	1.21	.47	1.67	4.02	1.17	3.65	2.74	2.77	2.09	3.05	.34	1.46	24.64
1898	.54	.63	.72	1.59	4.97	4.56	2.54	2.42	1.23	1.09	.35	.30	20.95
1899	.10	.52	.66	1.01	5.72	4.67	2.66	3.06	1.04	.72	.74	.75	21.65
1900	.09	.96	.93	5.21	3.05	2.10	4.62	3.53	3.29	3.12	.19	.27	27.36
1901	.07	.56	1.41	2.06	2.46	8.37	.58	.96	7.62	2.05	1.07	.71	27.92
1902	.61	.35	1.37	1.86	2.71	5.51	6.61	4.57	4.75	.81	.18	1.51	30.44
1903	.18	1.16	1.25	2.35	7.22	2.88	6.50	5.52	1.14	1.80	1.09	.14	31.23
1904	.34	.40	.34	1.61	3.74	5.35	4.44	3.70	1.85	4.85	.17	.31	29.29
1905	.98	.76	1.43	3.30	8.51	5.00	3.04	2.26	6.01	1.42	1.70	0	34.45
1906	.34	.90	.99	4.95	3.29	3.22	1.62	3.47	5.18	3.54	.83	1.22	29.55

From the foregoing precipitation tables and from discharge data collected in the State, Table 7 has been prepared. This table gives the total run-off as measured at the gaging stations on North Platte River at North Platte, Republican River at Bostwick or Superior, Loup River at Columbus, Niobrara River near Valentine, and Elkhorn River at Norfolk, for the seven months of the open season, from April to October, inclusive. This run-off is given both in inches of depth and in percentages of the rainfall on the respective catchment areas for the corresponding period. The rainfall is given both in inches of depth for the season and in percentages of the total annual amounts. It will be noticed that for five winter months the precipitation is only 15 per cent of that for the entire year. The average run-off during the seven months of the open season on North Platte and Loup rivers is 10 per cent of the precipitation for the corresponding period; Niobrara River indicates only 6 per cent, but the record is only half as long as that of the other streams; the Elkhorn discharges 8 per cent; the Republican appears to be in a class by itself, discharging less than 2 per cent of the pre-

cipitation on its drainage area. The rainfall and run-off from the upper portion of this table have been plotted in figure 5.

Table 7 gives also the mean monthly precipitation and run-off from the same stations. Twelve-year averages were available for North Platte and Loup rivers, eleven for the Republican, eight for the Elkhorn, and six for the Niobrara. For the mean monthly rainfall normal values from Tables 2 to 6 were used.

Elkhorn River is wholly in Nebraska. Its drainage area is rolling, broken in places, and largely cultivated or grass grown. It heads in the sand hills of Rock County.

The Niobrara and Loup drainage areas are similar in character and consist largely of rolling sand hills; they are given over to range land or, where the soil is firm, cultivated in small tracts. The sand areas are the controlling features of these streams, as the precipitation thereon is absorbed by the sand and gradually fed to the stream in the form of springs. Their drainage areas thus act in themselves as conserving reservoirs, and to this fact alone is due the remarkable constancy of flow observed on both rivers.

North Platte River partakes of the nature of a mountain stream and a river of the plains. It rises in northern Colorado, drains a large mountainous area in Wyoming, and traverses Nebraska on a bed of sand. It receives no large tributaries after leaving Wyoming. Its drainage area in Nebraska is rolling range land with cultivated valleys.

The Republican is not unlike the North Platte, except that it has not the mountainous headwater country. In Colorado its drainage basin is made up of table-lands broken by canyons and gullies and interspersed with low hills and rocky scab land. In Nebraska it drains a considerable area of sand hills, which, however, is only a small portion of the entire catchment basin.

TABLE 7.—*Rainfall and run-off on Nebraska streams, 1895–1906.*

BY YEARS, FOR THE SEASON, APRIL TO OCTOBER, INCLUSIVE.

Date.	North Platte.				Republican.				Loup.				Niobrara.				Elkhorn.			
	Rainfall.		Run-off.		Rainfall.		Run-off.		Rainfall.		Run-off.		Rainfall.		Run-off.		Rainfall.		Run-off.	
	Inches.	Per cent of annual.	Inches.	Per cent of rainfall.	Inches.	Per cent of annual.	Inches.	Per cent of rainfall.	Inches.	Per cent of annual.	Inches.	Per cent of rainfall.	Inches.	Per cent of annual.	Inches.	Per cent of rainfall.	Inches.	Per cent of annual.	Inches.	Per cent of rainfall.
1895	8.27	77	1.04	13	15.33	84	.....	.....	16.78	97	1.58	9	11.41	74	.....	.....	21.47	89	.....	.....
1896	10.92	81	.74	7	20.70	90	0.23	1.1	20.83	88	1.74	8	14.42	77	.....	.....	25.49	88	1.08	4
1897	9.09	70	1.64	18	20.13	82	.17	.8	18.92	85	1.52	8	13.21	67	.....	.....	19.49	79	.99	5
1898	11.13	79	.70	6	19.57	92	.22	1.1	16.94	90	1.63	10	14.75	83	.....	.....	18.40	88	1.49	8
1899	10.15	71	1.86	18	13.43	84	.12	.9	14.20	86	1.57	11	11.74	75	.....	.....	18.88	87	1.28	7
1900	10.76	85	1.09	10	16.11	85	.12	.7	22.64	93	2.02	9	21.18	85	.....	.....	24.92	91	1.17	5
1901	11.38	81	.94	8	16.54	77	.16	1.0	17.75	84	1.44	8	19.41	83	0.98	5	24.10	86	1.79	7
1902	12.17	81	.68	6	25.04	89	.46	1.8	25.59	87	2.15	8	14.58	73	.99	7	26.82	88	2.17	8
1903	11.04	81	.82	7	20.24	86	.58	2.9	22.46	88	2.15	9	17.35	85	1.04	6	27.41	88	3.42	12
1904	11.69	86	.94	8	22.12	96	.35	1.6	25.06	96	1.89	7	17.23	93	.91	5	25.54	87	.....	.....
1905	15.05	82	1.51	10	24.88	86	.82	3.3	27.82	87	4.03	14	22.26	88	1.24	6	29.54	86	.....	.....
1906	13.82	75	1.30	9	19.26	82	.31	1.6	22.74	84	2.10	9	18.59	82	.99	5	25.28	86	.....	.....
Average[a]	11.29	80	1.11	10	18.82	87	.32	1.7	20.92	86	1.98	10	18.24	80	1.02	6	23.20	86	1.67	8
MONTHLY AVERAGES FOR TERM OF YEARS.																				
April	1.86	.....	.15	8	2.73	.....	.04	1.5	2.88	.....	.30	10	2.31	.....	.17	7	2.95	.....	.27	9
May	2.44	.....	.31	13	3.30	.....	.07	2.1	3.18	.....	.31	10	2.97	.....	.15	5	3.80	.....	.34	9
June	2.11	.....	.39	18	3.85	.....	.05	1.3	4.16	.....	.32	8	3.09	.....	.14	5	4.15	.....	.36	9
July	1.93	.....	.15	8	3.83	.....	.08	2.1	3.59	.....	.27	8	2.74	.....	.16	6	3.73	.....	.23	6
August	1.32	.....	.05	4	2.39	.....	.05	2.1	2.36	.....	.28	12	2.05	.....	.14	7	3.08	.....	.17	6
September	.90	.....	.02	2	1.90	.....	.02	1.1	2.03	.....	.23	11	1.12	.....	.13	12	2.48	.....	.14	6
October	.71	.....	.04	6	1.18	.....	.02	1.7	1.39	.....	.25	18	1.09	.....	.14	13	1.63	.....	.17	6

[a] Average for rainfall obtained from those years covered by run-off records.

CONCLUSIONS.

The streams of the western plains differ markedly with respect to the relation between rainfall and run-off from streams in other portions of the United States, and formulas elsewhere applicable are wholly inadequate and may lead to gross errors.

Formulas for maximum and minimum discharge are worthless.

The magnitude of spring floods in Platte River is not always dependent on the snowfall in Wyoming during the preceding winter.

The run-off during the winter months can not be estimated by the use of precipitation records. Considerable time was spent in an endeavor to determine rational values for winter flow from winter records of precipitation. It is undoubtedly true that a much larger percentage of the precipitation appears as run-off in winter than during the remainder of the year, but just what the ratio of the percentages of rainfall for the two periods is can not be determined.

OUTLINE OF HYDROGRAPHIC DATA.

The following pages contain a compilation of all hydrographic data collected in Nebraska to and including the year 1906. These data are arranged according to the principal drainage basins of the State in the following order: Platte River, Republican River, Niobrara River, White River, and Hat Creek basins. The stations at which the volume of stream flow has been investigated are arranged in order from the headwaters toward the mouth. Those on the main stream are presented first, and are followed by the stations on tributaries arranged in the same order.

For each drainage basin there are given: (1) A brief description of the area drained; (2) hydrographic data for all stations where discharges have been obtained; (3) a table of miscellaneous measurements made at points other than at regular gaging stations; (4) precipitation tables for representative rainfall stations within the area, taken from records of the Weather Bureau.

A "regular station" is one at which equipment was installed to obtain daily discharges. For each regular station there is given: (1) A description, with sufficient information to enable anyone to use the equipment and thereby make comparisons with results herein presented; (2) a table of discharge measurements; (3) mean daily gage heights; (4) tables of daily discharge, where such were obtained, arranged in chronological order; (5) estimated monthly discharges, arranged so that all monthly estimates are readily comparable. These tables give maximum, minimum, and mean discharge in second-feet for the month, total run-off in acre-feet, mean discharge or run-off in second-feet per square mile of drainage area, monthly run-off in inches of depth, rainfall in inches on the drainage area above

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that point, and run-off in percentages of the rainfall. For incomplete months the discharges and run-off in acre-feet are given only for the actual number of days noted. Where the record for the month lacked only a few days and those not at critical stages, the mean discharge obtained for the days on which gage heights were reported has been used as the mean for the entire month. On account of the unstable character of the stream beds, mean velocities and cross-sectional areas are of little general value, and they have not been given in the table of discharge measurements. As most of the discharges herein have been obtained by the indirect method (see pp. 9–15), the rating tables would not be of value unless accompanied by tedious and lengthy explanations. They have therefore been omitted.

EVAPORATION AND SEEPAGE NEAR KEARNEY.

Observations of evaporation and seepage were made during 1896 on a small pond on the grounds of the Nebraska State Industrial School at Kearney. The pond is 320 feet long in a north-south direction and about 90 feet wide east and west. When it is full the water is nearly 7 feet deep, and is usually from 5 to 5.5 feet. Fluctuations of the water surface were read by means of a hook gage reading to hundredths of an inch. The water supply, except that which falls in the form of rain and snow upon the surface of the pond and the inner slopes of the embankment, is under complete control, being admitted from the Kearney canal through a cast-iron pipe with a gate valve. The following table summarizes the results obtained:

Estimated monthly evaporation and seepage near Kearney, 1896.

Month.	Inches per 24 hours.			Total (inches).	Month.	Inches per 24 hours.			Total (inches).
	Maximum.	Minimum.	Mean.			Maximum.	Minimum.	Mean.	
April 19–30	1.70	0.95	1.25	15.00	August	3.39	1.31	2.25	69.75
May	2.73	.62	1.25	38.75	September	3.04	1.16	1.85	55.50
June	2.10	.70	1.15	34.50	October	2.59	1.02	1.45	44.95
July	3.72	.80	1.75	54.25	November	2.55	.80	1.32	39.60

PLATTE RIVER DRAINAGE BASIN.

PLATTE RIVER PROPER.

DESCRIPTION OF BASIN.

The Platte proper is formed by the junction of North and South Platte rivers, near the center of Lincoln County, whence it flows southeast, then northeast, then east, emptying into the Missouri about 18 miles below Omaha. Its drainage basin embraces almost the entire central portion of the State and large areas in Wyoming and Colorado.

From its source in Lincoln County to a point near Ashland, in Saunders County, the Platte is a broad, shallow stream, flowing in many places as a network of interlacing channels among numerous islands and sand bars (Pl. II). Its basin lies wholly north of a line closely bordering the south bank of the stream, and is generally rolling prairie land in the middle portion, which gives way in the western and northern portions to extensive areas of sand hills. Along the main stream and its tributaries is a deep flood plain of alluvium, composed of loam, sand, and gravel in the valleys and talus on the slopes. Outside of this flood plain the soil is mostly loess, consisting of yellow clays and fine sandy loam. In the western areas there is little or no forest or timber land except in the immediate valleys of the small tributaries; but farther east there are comparatively large areas of timber land, some native and some planted, and the stream is changed in character, being confined between heavily wooded limestone bluffs. The country is almost wholly given to cattle raising in the western portions and to agriculture in the eastern.

The precipitation has a mean value of 23.33 inches, of which 69 per cent falls during the five months of the growing season, April to August; about half of the remainder is snowfall. The evaporation averages about 4½ feet.

The principal tributaries of the Platte are the Elkhorn and the Loup, both draining the country to the north of the river.

The Platte is subject to periodic floods caused by melting snows in the headwaters of the North and South Platte, which reach a maximum in June or July, often doing considerable damage to property on the lower portion of the stream. The waters of the river in the western part are extensively used for irrigation.

Gaging stations have been maintained in the drainage basin of Platte River in Nebraska as follows:

Gaging stations in Platte River basin.

River.	Station.	County.	Established.	Discontinued.
Platte	Lexington	Platte	Apr. 2, 1902	
Do	Columbus	do	June 4, 1895	
Do	South Bend	Cass	Mar. 25, 1903	Sept. 30, 1903
Loup	Columbus	Platte	Oct. 13, 1894	
North Loup	St. Paul	Howard	May 5, 1895	[a] Nov. 30, 1903
Middle Loup	do	do	do	Do.
Elkhorn	Norfolk	Madison	July 16, 1896	Nov. 21, 1903
Do	Arlington	Washington	Apr. 28, 1898	Do.

[a] Observations suspended during 1898, 1900, 1901, and 1902.

PLATTE RIVER NEAR LEXINGTON.

The station near Lexington was established April 2, 1902, and has been maintained continuously since that date, except during the closed winter months. It is located at a highway bridge 3 miles

south of Lexington, in sec. 20, T. 9 N., R. 21 W., and is shown on the Lexington atlas sheet of the United States Geological Survey.

The section of the river at the gaging station is straight. The bed is of shifting sand and the banks are low. The stream flows in two channels; the smaller one is about one-fourth mile south of the main channel and is measured from a similar pile bridge. There are no obstructions in the channel other than the piling, and the current is never sluggish, even at low water. No attempt has ever been made to obtain records of winter flow, as the river often freezes solid. The range of gage heights is about 3 feet.

Discharge measurements are made from the upstream side of the highway bridge, which consists of 187 spans of 20 feet each, supported on piles.

On account of the extreme width (3,720 feet between banks) and shallowness of the stream, and also to partly eliminate the effect of the wind, two gages are maintained at this station. Both are of the standard chain and weight type and their zeros have the same elevation. One is located at the north end of the downstream side of the bridge and the other at the south end of the upstream side. The wind sometimes creates a difference of more than a foot between the two gages, but this difficulty is in part obviated by using the mean of the two readings in the computations of the daily discharge. The gages are referred to bench marks as follows: (1) The top of the east end of the first cap at the north end of the bridge; elevation, 7.66 feet above the zero of the gage and 2,392 feet above sea level. (2) The top of the upstream end of the cap of the third bent from the north end of the bridge, marked with a cross; elevation, 9.22 feet above the zero of the gage. (3) The top of the upstream end of the cap of the third bent from the south end of the bridge, marked with a cross; elevation, 9.03 feet above the zero of the gage.

Discharge measurements of Platte River near Lexington, 1902–1906.

Date.	Hydrographer.	Gage height.	Discharge.
1902.		*Feet.*	*Sec.-ft.*
April 8	B. E. Forbes	.....	2,293
May 2	H. O. Smith	2.85	2,693
May 22	do	3.37	7,764
June 3	do	3.00	3,037
June 18	do	3.25	6,555
July 5	do	2.98	4,993
July 19	do	2.30	1,002
July 29	do	2.25	185
August 22	do	2.00	.....
August 23	do	1.20	.....
September 25	do	2.85	2,829
November 8	do	2.70	1,127
1903.			
May 8	J. C. Stevens	3.35	7,437
June 12	do	3.36	4,749
June 28	do	3.62	9,645
July 9	do	3.25	5,188
July 23	do	2.77	2,075
August 15	do	2.88	1,340
September 30	do	2.52	250
September 22	W. C. Sturdevant	2.60	296
November 1	J. C. Stevens	2.80	1,218
1904.		*Feet.*	*Sec.-ft.*
March	J. C. Stevens	3.34	3,070
May 14	do	3.54	4,731
May 27	do	4.10	10,606
June 14	do	4.48	19,100
July 27	do	3.32	1,690
September 1	do	2.99	125
1905.			
April 11	G. W. Bates	3.50	2,473
May 16	do	4.25	13,820
June 12	H. C. Gardner	4.93	25,830
July 10	do	3.93	11,010
July 18	do	3.38	2,882
August 2	do	3.48	2,877
August 23	H. O. Smith	.....	0
September 6	H. C. Gardner	3.25	990
September 20	F. S. Dobson	3.10	760
1906.			
April 10	do	3.83	6,568
May 10	do	3.93	6,558
July 8	Arthur Dobson	3.83	4,913
July 31	do	3.52	2,038
September 8	A. R. Wilson	3.38	780
October 19	Arthur Dobson	3.40	1,541
November 10	do	3.78	4,925

SANDY BED OF PLATTE RIVER.

Mean daily gage height, in feet, of Platte River near Lexington, 1902–1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.												
1	.....	.....	.....	.....	2.95	3.25	.....	2.35	1.70	2.45	2.70	2.80
2	.....	.....	.....	.....	2.85	2.95	.....	2.00	1.60	2.55	2.60	2.70
3	.....	.....	.....	.....	2.80	2.90	.....	1.95	1.50	2.55	2.65	2.30
4	.....	.....	.....	.....	2.75	3.00	.....	1.80	1.45	2.50	2.45	2.35
5	.....	.....	.....	.....	2.85	2.90	3.00	1.80	1.40	2.50	2.60	2.25
6	.....	.....	.....	.....	2.80	2.90	3.00	1.70	1.40	2.40	2.60	2.25
7	.....	.....	.....	.....	2.90	2.55	2.90	1.65	1.35	2.45	2.75	2.25
8	.....	.....	.....	.....	2.90	2.75	3.05	1.60	1.30	2.55	2.70	2.15
9	.....	.....	.....	.....	2.70	3.15	2.70	1.85	1.20	2.50	.....	2.25
10	.....	.....	.....	.....	2.75	.....	3.00	1.65	1.15	2.45	.....	2.30
11	.....	.....	.....	.....	2.75	3.00	2.90	1.60	1.10	2.70	.....	2.30
12	.....	.....	.....	.....	2.75	3.05	3.00	1.50	1.10	2.75	.....	2.35
13	.....	.....	.....	.....	2.90	3.40	3.05	1.45	1.10	2.75	.....	2.30
14	.....	.....	.....	.....	3.10	3.35	2.65	1.40	1.05	2.70	.....	2.45
15	.....	.....	.....	2.70	3.40	3.15	2.80	1.40	1.00	2.65	.....	2.50
16	.....	.....	.....	2.65	3.40	3.30	2.50	1.35	1.00	2.65	.....	2.40
17	.....	.....	.....	2.65	3.95	3.00	2.50	1.30	1.00	2.60	.....	2.50
18	.....	.....	.....	2.60	3.70	3.25	2.35	1.30	0.95	2.65	.....	2.50
19	.....	.....	.....	2.70	3.60	3.25	2.30	1.25	0.95	2.65	.....	2.60
20	.....	.....	.....	2.75	3.40	3.25	2.25	1.20	0.90	2.80	.....	2.70
21	.....	.....	.....	2.70	3.20	3.10	2.25	1.20	1.60	2.70	.....	2.65
22	.....	.....	.....	2.60	3.35	3.35	2.15	1.20	2.10	2.60	.....	2.60
23	.....	.....	.....	2.60	3.40	3.20	2.10	1.25	2.05	2.60	.....	2.70
24	.....	.....	.....	2.75	3.30	3.40	2.05	1.30	2.25	2.60	.....	2.70
25	.....	.....	.....	2.65	3.20	3.40	2.00	1.40	2.85	2.60	.....	2.80
26	.....	.....	.....	2.60	3.20	3.10	2.40	1.45	2.35	2.60	.....	2.70
27	.....	.....	.....	2.90	3.25	3.10	2.40	1.35	2.70	2.65	.....	2.80
28	.....	.....	.....	2.70	3.30	.....	2.35	1.30	2.70	2.80	.....	2.85
29	.....	.....	.....	2.75	3.40	.....	2.15	1.25	2.40	2.65	.....	2.85
30	.....	.....	.....	2.80	3.35	.....	2.40	2.15	2.45	2.70	.....	3.00
31	.....	.....	.....	.....	3.30	.....	2.30	2.00	.....	2.70	.....	3.00
1903.												
1	3.05	3.80	4.00	2.90	3.35	3.20	3.45	2.95	2.80	2.55	2.85	2.45
2	3.00	3.80	4.00	2.75	2.80	3.20	3.55	2.85	2.90	2.70	2.80	2.35
3	3.15	3.75	4.00	2.70	3.35	3.20	3.55	2.90	2.80	2.75	2.85	3.20
4	3.20	3.65	4.05	3.00	3.05	3.25	3.40	2.80	2.65	2.75	2.80	2.85
5	3.20	3.75	4.05	2.90	3.10	3.20	3.50	2.65	2.50	2.80	2.75	3.00
6	3.25	3.75	4.05	2.75	3.05	3.15	3.40	2.60	2.45	2.85	2.90	2.95
7	3.15	3.70	4.10	2.75	3.35	3.10	3.35	2.55	2.50	2.75	2.95	3.00
8	3.25	3.65	4.15	2.75	3.35	3.10	3.25	2.60	2.40	2.75	3.00	2.95
9	3.35	3.65	4.30	2.80	3.35	3.10	3.10	2.60	2.50	2.75	2.75	3.00
10	3.35	3.65	4.55	2.90	3.10	3.00	2.90	2.55	2.40	2.90	2.85	3.00
11	3.40	3.70	4.65	3.00	3.05	3.15	2.90	2.70	2.55	2.80	2.90	3.10
12	3.40	3.75	4.65	2.70	2.75	3.35	3.00	2.75	2.50	2.70	2.85	3.15
13	3.50	3.75	4.75	2.75	3.05	3.25	3.00	2.80	2.35	2.60	2.90	.....
14	3.50	3.80	3.80	2.90	3.15	3.20	3.05	2.85	2.40	2.60	2.85	.....
15	3.45	3.80	4.90	2.90	3.10	3.30	3.10	2.90	2.40	2.75	2.80	.....
16	3.50	3.80	4.80	2.90	3.10	3.25	3.00	2.95	2.45	2.75	2.75	.....
17	3.50	3.80	4.20	3.00	3.35	3.50	3.05	2.90	2.45	2.75	2.55	.....
18	3.55	3.85	4.50	3.05	3.15	3.40	2.90	2.85	2.50	2.85	2.50	.....
19	3.60	3.80	4.10	2.80	3.15	3.45	2.85	2.80	2.55	2.80	2.60	.....
20	3.60	3.80	3.50	2.85	3.00	3.55	2.95	2.80	2.55	2.80	2.55	.....
21	3.65	3.80	3.65	2.95	3.40	3.65	2.85	2.75	2.60	2.70	2.50	.....
22	3.65	3.80	3.50	2.95	3.35	3.60	2.85	2.70	2.60	2.75	2.50	.....
23	3.70	3.85	3.10	3.05	3.15	3.65	2.80	2.60	2.55	2.80	2.70	.....
24	3.65	3.85	3.15	2.95	3.10	3.85	2.80	2.55	2.55	2.80	2.75	.....
25	3.65	3.90	3.00	2.90	3.05	3.80	2.75	2.50	2.50	2.75	2.60	.....
26	3.60	3.95	3.00	3.40	3.25	3.80	2.75	2.70	2.35	2.80	2.65	.....
27	3.65	3.90	3.40	3.40	3.30	3.85	2.95	2.70	2.30	2.75	2.70	.....
28	3.70	3.95	3.20	2.70	3.40	3.65	2.70	2.60	2.40	2.80	3.05	.....
29	3.75	.....	3.35	3.10	2.80	3.55	2.80	2.65	2.55	2.95	2.90	.....
30	3.75	.....	3.10	3.50	3.15	3.65	2.85	2.70	2.60	2.85	2.60	.....
31	3.70	.....	3.00	.....	3.15	.....	2.90	2.75	.....	2.80	.....	.....
1904.												
1	.....	.....	.....	3.14	.....	4.00	3.85	3.19	3.00	3.22	3.35	.....
2	.....	.....	.....	3.28	3.14	4.12	3.78	3.18	3.05	.....	3.36	.....
3	.....	.....	.....	.....	3.20	4.15	.....	3.25	3.02	3.32	3.34	.....
4	.....	.....	.....	3.22	3.58	4.20	.....	3.20	.....	3.28	3.32	.....
5	.....	.....	.....	3.20	3.70	.....	3.88	3.29	3.05	3.10	3.38	.....

Mean daily gage height, in feet, of Platte River near Lexington, 1902–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.												
6				3.29	3.60	4.11	3.78	3.18	3.02	3.18		
7				3.32	3.56	4.05	3.88		3.02	3.22	3.30	
8						4.00	3.85	3.32	2.98	3.10	3.30	
9				3.05	3.45	4.02	3.72	3.22	2.92		3.35	
10					3.65	4.28		3.20	2.90	3.12	3.48	
11				3.25	3.70	4.32	3.60	3.15		3.12	3.25	
12				3.10	3.68		3.65	3.08	2.92	3.15	3.28	
13				3.10	3.52	4.50	3.60	3.00	3.18	3.18		
14				2.98	3.55	4.42	3.55		3.00	3.20	3.38	
15				3.19		4.42	3.55	2.92	2.82	3.20	3.40	
16				3.10		4.35	3.50	2.90	2.80		3.35	
17					3.50	4.48		2.82	2.75	3.12	3.32	
18				3.06	3.55	4.25	3.40	3.22		3.30	3.35	
19				3.02	3.55		3.35	3.10	2.70	3.40	3.40	
20				3.08	3.52	4.24	3.40	2.92		3.35		
21				3.06	3.45	4.20	3.40	2.88		3.38	3.35	
22				3.14		4.22	3.38	2.68		3.35	3.35	
23				3.15	3.38	4.10	3.42	2.58			3.35	
24					3.50	4.16			2.85	3.35		
25				2.98	3.40	4.18	3.32			3.28	3.42	
26				2.98	3.55		3.32		2.80	3.28	3.42	
27				3.08	4.10	4.10	3.32		2.75	3.35		
28			3.32	3.20	3.88	4.00	3.32		3.15	3.30	3.45	
29			3.22	3.12		3.98	3.28	3.25	3.10	3.28	3.38	
30			3.15	3.12	3.84	3.92	3.20	3.12	3.15		3.38	
31			3.18		3.92			3.10		3.32		
1905.												
1				3.45	4.2	4.9	4.05	3.6	3.15	3.15		
2				3.52	4.2	4.9	4.25	3.48	3.2	3.18		
3				3.58	4.28	4.9	4.48	3.6	3.2	3.15		
4				3.62	4.3	4.85	4.33	3.55	3.2	3.15		
5				3.62	4.32	4.8	4.18	3.48	3.35	3.15		
6				3.62	4.32	4.65	4.05	3.45	3.25	3.15		
7				3.6	4.36	4.55	4.2	3.42	3.22	3.15		
8				3.55	4.4	4.5	4.08	3.42	3.2	3.16		
9				3.48	4.35	4.5	4.0	3.45	3.2	3.18		
10				3.4	4.35	4.75	3.92	3.5	3.16	3.12		
11				3.45	4.42	4.82	3.92	3.35	3.12	3.1		
12				3.42	4.52	4.9	3.85	3.3	3.12	3.18		
13				3.52	4.52	4.8	3.82	3.3	3.15	3.15		
14				3.5	4.44	4.72	3.75	3.32	3.12	3.25		
15				3.5	4.35	5.0	3.65	3.38	3.12	3.26		
16				3.5	4.25	5.15	3.6	3.42	3.28	3.28		
17				3.52	4.28	5.05	3.55	3.45	3.33	3.3		
18				3.55	4.25	4.95	3.42	3.3	3.38	3.3		
19				3.52	4.22	4.82	3.40	3.28	3.32	3.32		
20				3.52	4.3	4.78	3.42	3.28	3.28	3.28		
21				3.72	4.3	4.68	3.4	3.28	3.28	3.28		
22				3.82	4.3	4.58	3.62	3.42	3.3	3.3		
23				3.85	4.2	4.75	3.56	3.4	3.3	3.3		
24			3.55	3.88	4.15	4.7	3.5	3.28	3.25	3.3		
25			3.42	4.05	4.12	4.55	3.42	3.25	3.2	3.3		
26			3.45	4.12	4.25	4.42	3.42	3.25	3.2	3.32		
27			3.45	4.15	4.3	4.32	3.4	3.22	3.18	3.3		
28			3.38	4.15		4.2	3.32	3.18	3.15	3.32		
29			3.42	4.12	4.75	4.12	3.38	3.2	3.1	3.35		
30			3.50	4.16	4.72	4.1	3.42	3.18	3.12	3.38		
31			3.50		4.78		3.45	3.18		3.4		
1906.												
1					3.97	4.27	3.85	3.45	3.30	3.37	3.81	
2					3.97	4.42	3.72	3.40	3.35	3.35	3.92	
3					4.00	4.44	3.80	3.45	3.35	3.35	3.92	
4					4.00	4.47	3.81	3.57	3.40	3.45	3.94	
5				3.82	3.95	4.47	3.82	3.61	3.40	3.40	3.95	
6				3.82	3.98	4.50	3.87	3.65	3.40	3.42	3.90	
7				3.77	4.02	4.50	3.80	3.60	3.35	3.44	3.77	
8				3.80	3.97	4.42	3.83	3.50	3.37	3.45	3.80	
9				3.82	3.92	4.17	3.72	3.47	3.33	3.45	3.80	
10				3.87	3.95	4.11	3.67	3.40	3.30	3.42	3.81	

Mean daily gage height, in feet, of Platte River near Lexington, 1902–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1906.												
11	.....	.....	.....	3.95	3.95	4.05	3.57	3.40	3.25	3.42	3.86	.....
12	.....	.....	.....	3.87	3.85	3.97	3.60	3.34	3.42	3.42	3.90	.....
13	.....	.....	.....	3.80	3.82	3.95	3.60	3.27	3.45	3.45	3.85	.....
14	.....	.....	.....	3.82	3.80	4.00	3.55	3.22	3.52	3.46	3.80	.....
15	.....	.....	.....	3.87	3.82	4.05	3.56	3.20	3.50	3.47	3.80	.....
16	.....	.....	.....	3.92	3.85	4.02	3.59	3.17	3.44	3.37	3.66	.....
17	.....	.....	.....	3.85	3.75	3.97	3.55	3.20	3.37	3.50	3.80	.....
18	.....	.....	.....	3.80	3.77	3.92	3.55	3.20	3.37	3.45	3.75	.....
19	.....	.....	.....	3.80	3.72	3.87	3.55	3.15	3.40	3.50	3.70	.....
20	.....	.....	.....	3.80	3.80	3.90	3.60	3.10	3.42	3.52	3.60	.....
21	.....	.....	.....	3.85	3.87	3.85	3.62	3.07	3.45	3.52	3.60	.....
22	.....	.....	.....	3.84	4.00	4.05	3.60	3.02	3.47	3.52	3.48	.....
23	.....	.....	.....	3.82	4.00	4.07	3.57	3.00	3.46	3.57	3.32	.....
24	.....	.....	.....	3.75	4.02	4.10	3.55	3.10	3.45	3.55	3.32	.....
25	.....	.....	.....	3.72	4.07	4.12	3.55	3.25	3.40	3.52	3.46	.....
26	.....	.....	.....	3.70	4.20	4.15	3.65	3.30	3.42	3.55	3.60	.....
27	.....	.....	.....	3.80	4.16	4.10	3.60	3.35	3.40	3.55	3.65	.....
28	.....	.....	.....	3.87	4.12	4.07	3.55	3.42	3.42	3.75	3.60	.....
29	.....	.....	.....	3.95	4.55	4.02	3.52	3.27	3.40	3.95	3.42	.....
30	.....	.....	.....	3.96	4.15	3.97	3.50	3.27	3.38	3.77	3.25	.....
31	.....	.....	.....	.....	4.20	.....	3.52	3.25	.....	3.90	.....	.....

Mean daily discharge, in second-feet, of Platte River near Lexington, 1902–1906.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1902.									
1	.....	.....	3,895	5,232	.....	565	0	836	1,226
2	.....	.....	2,693	2,760	.....	0	0	1,158	892
3	.....	.....	2,400	2,400	.....	0	0	1,124	1,022
4	.....	.....	2,112	3,092	.....	0	0	954	465
5	.....	.....	2,760	3,160	5,140	0	0	920	836
6	.....	.....	2,460	2,580	5,140	0	0	640	836
7	.....	.....	3,092	2,340	4,290	0	0	780	1,302
8	.....	2,293	3,160	1,842	5,600	0	0	1,056	1,106
9	.....	.....	1,950	3,432	2,820	0	0	892	.....
10	.....	.....	2,220	.....	5,140	0	0	724	.....
11	.....	.....	2,280	3,500	4,373	0	0	1,596	.....
12	.....	.....	2,280	3,816	5,232	0	0	1,842	.....
13	.....	.....	3,228	7,204	5,692	0	0	1,788	.....
14	.....	.....	4,885	6,906	2,580	0	0	1,554	.....
15	.....	2,220	7,714	5,232	3,579	0	0	1,302	.....
16	.....	1,950	7,714	6,812	1,788	0	0	1,302	.....
17	.....	1,950	14,672	4,211	1,788	0	0	1,056	.....
18	.....	1,680	11,264	6,555	1,158	0	0	1,260	.....
19	.....	2,220	10,004	6,624	1,002	0	0	1,200	.....
20	.....	2,520	7,918	6,718	780	0	0	1,896	.....
21	.....	2,220	5,968	5,416	696	0	0	1,428	.....
22	.....	1,680	7,408	7,918	367	0	0	1,055	.....
23	.....	1,680	7,918	6,530	160	0	0	1,022	.....
24	.....	2,520	6,812	8,644	32	0	367	1,022	.....
25	.....	1,950	5,784	8,748	0	0	2,780	988	.....
26	.....	1,680	5,692	5,876	696	0	615	988	.....
27	.....	3,500	5,968	5,968	640	0	1,896	1,124	.....
28	.....	2,220	6,342	.....	465	0	1,842	1,734	.....
29	.....	2,520	7,204	.....	184	0	724	1,090	.....
30	.....	2,820	6,530	.....	590	275	836	1,260	.....
31	.....	.....	5,876	.....	390	0	.....	1,260	.....
1903.									
1	.....	3,500	7,510	4,715	8,020	2,220	920	390	1,470
2	.....	2,520	2,820	4,715	9,060	1,680	1,260	780	1,260
3	.....	2,220	7,510	4,290	8,540	1,950	920	920	1,470
4	.....	4,290	4,715	4,715	7,000	1,470	515	1,920	1,260
5	.....	3,500	5,140	4,290	8,020	920	160	1,260	1,090

Mean daily discharge, in second-feet, of Platte River near Lexington, 1902–1906—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1903.									
6	.....	2,520	4,715	3,500	7,000	640	80	1,470	1,680
7	.....	2,520	7,510	3,160	6,530	515	160	1,090	1,950
8	.....	2,520	7,510	3,160	5,600	640	0	1,090	2,220
9	.....	2,820	7,510	3,160	3,895	640	160	1,090	1,090
10	.....	3,500	5,140	2,520	2,520	515	0	1,680	1,470
11	.....	4,290	4,715	3,500	2,520	920	275	1,260	1,680
12	.....	2,220	2,520	4,715	3,160	1,090	160	920	1,470
13	.....	2,520	4,715	3,895	3,160	1,260	0	640	1,680
14	.....	3,500	5,140	3,500	3,500	1,470	0	640	1,470
15	.....	3,500	4,715	4,290	3,895	1,470	0	1,090	1,260
16	.....	3,500	4,715	4,290	3,160	1,680	80	1,090	1,470
17	.....	4,290	7,000	6,530	3,500	1,470	0	1,090	.....
18	.....	4,715	5,140	5,600	2,520	1,260	80	1,470	.....
19	.....	2,820	4,715	6,530	1,950	1,090	160	1,260	.....
20	9,060	3,160	3,500	7,510	2,520	1,090	160	1,260	.....
21	10,880	3,895	7,000	8,540	1,950	920	275	920	.....
22	9,060	3,895	6,530	9,060	1,950	780	275	1,090	.....
23	5,140	4,715	4,715	9,650	1,680	515	160	1,260	.....
24	5,600	3,895	4,290	12,190	1,680	390	160	1,260	.....
25	4,290	3,500	3,895	11,520	1,470	275	160	1,090	.....
26	4,290	8,020	5,140	12,190	1,470	780	80	1,260	.....
27	8,020	8,020	5,600	12,860	2,520	780	0	1,090	.....
28	6,060	2,220	6,530	10,240	1,090	515	80	1,260	.....
29	7,510	5,140	1,950	9,060	1,470	640	390	1,950	.....
30	5,140	9,060	4,290	10,240	1,680	780	515	1,470	.....
31	4,290	.....	4,290	.....	1,950	920	.....	1,260	.....
1904.									
1	.....	1,050	1,025	9,100	7,100	1,350	200	1,350	2,350
2	.....	2,000	1,050	10,600	6,500	1,350	475	1,575	2,350
3	.....	1,675	1,350	11,600	6,900	1,675	200	2,000	2,350
4	.....	1,350	4,400	12,600	7,300	1,350	330	2,000	2,000
5	.....	1,350	5,400	11,600	7,700	2,000	475	750	2,700
6	.....	2,000	4,400	10,600	6,500	1,350	200	2,000	2,350
7	.....	2,000	3,950	9,850	7,700	1,675	200	1,350	2,000
8	.....	1,350	3,525	9,100	7,100	2,000	200	750	2,000
9	.....	1,000	3,100	9,100	5,400	1,350	100	750	2,350
10	.....	1,350	4,900	14,700	4,900	1,350	100	750	1,600
11	.....	1,675	5,400	14,700	4,400	1,050	100	750	1,675
12	.....	1,000	5,400	15,050	4,900	750	100	1,050	2,000
13	.....	1,000	3,500	19,400	4,400	200	1,350	1,350	2,350
14	.....	1,000	3,950	16,900	3,950	150	200	1,350	2,700
15	.....	1,350	3,800	16,900	3,950	100	100	1,350	2,700
16	.....	1,000	3,650	15,800	3,500	100	100	1,050	2,350
17	.....	1,100	3,500	19,400	3,100	100	100	750	2,000
18	.....	1,000	3,950	13,650	2,700	1,350	100	2,000	2,350
19	.....	1,000	3,950	13,650	2,300	750	100	2,700	2,700
20	.....	1,000	3,500	13,650	2,700	100	0	2,350	2,525
21	.....	1,000	3,100	12,600	2,700	100	0	2,700	2,350
22	.....	1,050	2,900	12,600	2,700	100	0	2,350	2,350
23	.....	1,050	2,700	10,600	2,700	100	0	2,350	2,350
24	.....	1,025	3,500	11,600	2,350	0	100	2,350	2,525
25	.....	1,000	2,700	12,600	2,000	0	100	2,000	2,700
26	.....	1,000	3,950	11,600	2,000	0	100	2,000	2,700
27	.....	1,000	10,600	10,600	2,000	0	100	2,350	.....
28	2,000	1,350	7,700	9,100	2,000	0	1,050	2,000	.....
29	1,350	1,000	7,400	9,100	2,000	1,675	750	2,000	.....
30	1,350	1,000	7,100	7,700	1,350	750	1,050	2,000	.....
31	1,350	.....	7,700	.....	1,350	750	.....	2,000	.....
1905.									
1	.....	2,150	12,500	27,600	11,500	3,900	0	.....	.....
2	.....	2,600	12,500	27,600	15,600	2,900	300	.....	.....
3	.....	3,100	14,200	26,400	21,600	3,800	300	.....	.....
4	.....	3,400	14,700	25,200	17,800	3,400	300	.....	.....
5	.....	3,400	15,100	24,000	14,200	2,900	1,200	.....	.....
6	.....	3,400	15,100	20,300	11,600	2,200	990	.....	.....
7	.....	3,600	16,000	17,700	16,700	1,900	800	.....	.....
8	.....	3,250	17,000	16,500	14,000	1,900	800	.....	.....
9	.....	2,700	15,800	16,500	12,300	2,200	800	.....	.....
10	.....	2,100	16,100	21,400	11,000	2,500	600	.....	.....

Mean daily discharge, in second-feet, of Platte River near Lexington, 1902–1906—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1905.									
11	.....	2,500	18,000	23,200	11,000	900	400	.....	.....
12	.....	2,300	20,300	25,200	9,600	700	500	.....	.....
13	.....	3,000	20,300	22,600	8,000	700	700	.....	.....
14	.....	2,850	18,400	20,700	7,200	800	500	.....	.....
15	.....	2,850	16,200	27,700	6,000	1,100	700	.....	.....
16	.....	2,850	13,800	30,000	5,500	600	1,600	.....	.....
17	.....	3,400	14,600	29,000	4,300	800	200	.....	.....
18	.....	3,650	13,800	28,000	3,200	100	2,300	.....	.....
19	.....	3,400	13,300	25,500	3,000	100	2,100	.....	.....
20	.....	3,400	14,000	24,300	3,200	100	1,900	.....	.....
21	.....	5,200	14,000	22,000	3,000	100	1,900	.....	.....
22	.....	6,300	14,000	19,400	4,700	100	2,000	.....	.....
23	.....	6,600	12,000	26,100	4,100	0	2,000	.....	.....
24	2,900	7,000	11,100	25,000	3,600	0	1,700	.....	.....
25	1,900	9,300	10,500	21,100	3,000	0	1,300	.....	.....
26	2,000	10,400	13,000	17,900	2,800	0	1,300	.....	.....
27	2,150	10,900	13,000	15,600	2,650	0	1,200	.....	.....
28	1,650	11,500	18,200	12,900	2,100	0	1,000	.....	.....
29	1,900	11,000	23,700	11,800	2,300	0	800	.....	.....
30	2,470	11,700	23,100	12,600	2,600	0	900	.....	.....
31	2,470	.....	24,500	.....	2,800	0	.....	.....	.....
1906.									
1	.....	.....	8,100	12,500	5,100	1,400	200	1,000	5,600
2	.....	.....	8,100	15,500	3,600	1,000	600	900	7,100
3	.....	.....	8,500	15,800	4,500	1,400	600	900	7,000
4	.....	.....	8,500	16,400	4,600	2,400	900	1,600	7,200
5	.....	6,500	7,700	16,400	4,700	2,800	900	1,200	7,400
6	.....	6,500	8,200	17,000	5,400	3,000	900	1,600	6,700
7	.....	5,800	8,800	17,000	4,500	2,700	600	1,700	5,000
8	.....	6,100	7,500	15,400	4,900	1,800	700	1,800	5,200
9	.....	6,500	6,800	10,500	3,600	1,600	500	1,800	5,200
10	.....	7,200	7,200	9,400	3,100	1,000	250	1,600	5,300
11	.....	8,500	7,200	8,400	2,100	1,000	100	1,600	6,000
12	.....	7,100	5,800	7,100	2,600	600	1,100	1,600	6,500
13	.....	6,200	5,400	6,800	2,600	100	1,300	1,800	5,800
14	.....	6,400	5,200	7,500	2,100	0	1,900	1,900	5,200
15	.....	6,800	5,400	8,400	2,200	0	1,800	2,000	5,200
16	.....	7,600	5,800	7,900	2,300	0	1,400	1,300	3,600
17	.....	6,600	4,500	7,000	2,100	0	900	2,400	5,200
18	.....	6,000	4,800	6,300	2,200	0	900	2,000	4,600
19	.....	6,000	4,000	5,500	2,200	0	1,100	2,400	4,000
20	.....	6,000	4,900	6,000	2,600	0	1,300	2,700	2,900
21	.....	6,600	5,900	5,300	2,800	0	1,500	2,700	2,900
22	.....	6,500	7,700	8,100	2,600	0	1,700	2,700	1,800
23	.....	6,100	7,700	8,500	2,400	0	1,600	2,900	600
24	.....	5,000	8,000	9,000	2,200	0	1,500	2,700	600
25	.....	4,600	8,900	9,300	2,200	100	1,100	2,400	1,700
26	.....	4,400	11,100	9,900	3,200	200	1,400	2,700	3,000
27	.....	5,600	10,400	9,000	2,700	600	1,200	2,700	3,400
28	.....	6,600	9,700	8,500	2,300	1,100	1,400	4,800	3,000
29	.....	7,700	18,000	7,800	2,000	100	1,200	7,600	1,300
30	.....	8,000	10,200	7,000	1,900	100	1,100	5,000	200
31	.....	.....	11,000	.....	2,000	100	.....	6,800	.....

Estimated monthly discharge of Platte River near Lexington, 1902–1906.

[Drainage area, 53,300 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
March.								
1903 [a]	10,880	4,290	6,612	157,400	.....	.....	.....	0.85
1904 [b]	2,000	1,350	1,512	12,000	.....	.....	.....	.77
1905 [c]	2,900	1,650	2,180	34,600	.....	.....	.....	.77
April.								
1902 [d]	3,500	1,680	2,208	70,000	.....	.....	.....	1.08
1903	9,060	2,220	3,893	231,600	0.073	0.08	6	1.25
1904	2,000	1,000	1,218	72,500	.023	.03	3	1.08
1905	11,700	2,100	4,990	297,000	.094	.10	3	3.45
1906	8,500	4,400	6,420	382,000	.120	.13	7	1.93
May.								
1902	14,670	1,950	5,490	337,500	.103	.12	5	2.64
1903	7,510	1,950	3,749	230,500	.070	.08	4	1.91
1904	10,700	1,020	4,295	264,100	.081	.09	2	3.67
1905	24,500	10,500	15,800	972,000	.296	.34	10	3.43
1906	18,000	4,000	7,770	478,000	.146	.17	6	2.63
June.								
1902	8,750	1,840	5,135	305,500	.096	.13	6	2.17
1903	12,860	2,520	6,471	385,000	.121	.13	7	1.99
1904	19,500	7,700	12,570	748,000	.236	.26	8	3.16
1905	30,000	11,800	22,100	1,320,000	.415	.46	21	2.11
1906	17,000	5,300	9,970	593,000	.187	.21	17	1.71
July.								
1902	5,690	0	2,234	137,400	.042	.05	2	2.02
1903	9,060	1,090	3,709	228,000	.070	.08	3	2.51
1904	7,700	1,350	4,071	250,300	.076	.09	4	2.51
1905	21,600	2,100	7,770	478,000	.146	.17	6	2.67
1906	5,400	1,900	3,010	185,000	.056	.06	4	1.46
August.								
1902	565	0	27	1,700	.001	.001	.8	1.22
1903	2,220	275	1,009	62,000	.042	.02	1	2.01
1904	2,000	0	760	46,700	.014	.02	1	1.60
1905	3,900	0	1,090	67,000	.020	.02	2	1.25
1906	3,000	0	745	45,800	.014	.02	1	2.04
September.								
1902	2,780	0	302	18,000	.006	.01	.3	2.93
1903	1,260	0	237	14,100	.004	.004	.3	1.24
1904	1,350	0	266	15,800	.005	.01	1	1.49
1905	2,300	0	1,040	61,800	.020	.02	2	1.32
1906	1,900	100	1,060	63,100	.020	.02	1	1.98
October.								
1902	1,900	640	1,191	73,200	.022	.02	2	1.08
1903	1,950	390	1,140	70,100	.021	.02	2	.79
1904	2,700	750	1,662	102,200	.031	.04	4	1.09
1906	7,600	900	2,482	152,000	.047	.05	3	2.07
November.								
1902 [a]	1,230	465	961	15,300	.....	.....	.....	.37
1903 [b]	2,220	1,090	1,499	47,600	.....	.....	.....	.33
1904 [c]	3,100	1,600	2,392	142,300	.....	.....	.....	.04
1906	7,400	200	4,210	251,000	.079	.09	10	.87

[a] March 20 to 31. [b] March 28 to 31. [c] March 24 to 31. [d] April 15 to 30.

PLATTE RIVER NEAR COLUMBUS.

The station near Columbus was established June 4, 1895, and has been maintained continuously since that date except during the winter months. It is located above the mouth of Loup River at the Meridian bridge, about 3 miles south of Columbus, in sec. 31,

T. 17 N., R. 1 E., and is shown on the David City atlas sheet of the United States Geological Survey.

The stream flows in three channels, known as the main, middle, and south channels, having widths of 194, 320, and 75 feet, respectively. At the gaging section the main and middle channels are straight. The bed is of shifting sand, and the banks are low but not subject to overflow. In the south channel the stream flows at an angle of about 25° to the bridge. A small tributary furnishes a supply of water in the south channel even when the other channels are entirely dry. The only obstructions to flow are the bridge piles. The current is never sluggish, even at extreme low stages. Gage heights have a range of about 6 feet.

Discharge measurements are made from pile bridges which cross the three channels. The Meridian bridge lies on the sixth principal meridian, and consists of sixty-five 30-foot spans across the main channel.

The gage is of the standard weight and chain type and is fastened to the downstream hand rail of the bridge approach near the left bank of the main channel. The length of the chain from index to end of weight is 16.21 feet. The gage is referred to a standard United States Geological Survey bench mark, 60 feet north of the north end of the bridge truss and 10 feet west of a large cottonwood tree; elevation, 7.06 feet above the zero of the gage.

In past years deposits of sand about the gage have made it impossible to obtain uninterrupted records, even during the open season.

Discharge measurements of Platte River near Columbus, 1896–1906.

Date.	Hydrographer.	Gage height.	Discharge.
1896.		*Feet.*	*Sec.-ft.*
June 5	O. V. P. Stout	3.19	4,320
June 14	do	4.11	10,307
June 30	do	3.35	4,450
July 22	E. T. Youngfelt		14
August 26	O. V. P. Stout	1.06	1
August 28	E. T. Youngfelt		0
September 6	O. V. P. Stout		0
September 25	E. T. Youngfelt	1.70	188
1897.			
March 20	Adna Dobson	2.90	4,963
April 29	do	3.93	8,608
May 5	do	3.79	7,322
May 26	do	4.31	10,694
June 17	O. V. P. Stout	4.37	12,685
July 11	do	3.05	4,001
July 28	do	2.43	994
August 17	do	3.18	3,343
August 29	do	2.50	1,649
October 7	Adna Dobson		2
November 20	do	2.88	2,645
1898.			
April 17	Glenn E. Smith	2.37	1,994
May 9	do	3.65	5,612
May 19	do	3.33	3,619
May 29	do	3.82	7,104
June 8	do	4.69	16,543
June 19	O. V. P. Stout	3.95	9,123
July 10	Glenn E. Smith	3.00	3,006
July 29	do		285
July 31	do		45
August 21	Adna Dobson		2
September 4	do		2
September 18	do		10
October 16	do		14
October 30	do		13
November 11	Glenn E. Smith		16
November 20	do		25
1899.			
April 9	do	3.50	6,736
April 23	do	3.94	8,210
May 7	do	4.14	10,121
May 23	do	3.81	7,878
June 4	do	4.01	9,294
June 18	do	4.00	9,279
June 29	do	4.82	18,631
July 9	do	4.61	17,032
July 23	do	3.84	8,693
August 6	do	4.00	9,450
August 20	do	2.80	3,338
September 3	do	.90	93
September 17	do		15
October 5	do		0
October 15	do		8

Discharge measurements of Platte River near Columbus, 1896–1906—Continued.

Date.	Hydrographer.	Gage height.	Discharge.
1900.		*Feet.*	*Sec.-ft.*
April 8	Adna Dobson	2.68	1,907
April 29	do	4.58	15,673
May 13	do	5.05	21,826
May 27	do	4.00	18,557
June 10	do	4.95	15,696
June 24	do	4.30	12,519
July 15	do	2.06	1,456
July 29	do	.98	394
August 26	do	.86	149
September 16	do	1.07	403
October 31	do	1.72	998
November 30	do	1.17	317
December 19	do	1.33	569
1901.			
March 31	do	2.50	1,816
April 21	do	3.25	4,824
May 10	do	3.45	6,799
June 7	B. E. Forbes	3.90	8,241
June 18	do	4.35	11,949
July 14	O. V. P. Stout	.....	379
August 11	do	.....	20
October 6	F. Dobson	.....	20
November 2	do	1.90	978
December 1	do	1.85	922
1902.			
March 8	do	3.39	5,664
April 13	do	2.22	996
May 11	do	2.37	1,695
May 22	J. C. Stevens	2.75	8,447
June 1	do	3.38	5,852
July 11	do	3.55	6,992
August 10	do	1.31	350
August 26	do	1.60	546
September 11	do	.50	5
October 5	do	2.50	1,989
1903.			
April 3	J. C. Stevens	3.28	5,912
May 7	do	3.54	5,420
June 11	do	3.55	4,934
June 27	do	4.64	13,133
July 10	do	3.96	7,198
July 17	do	4.10	7,524
August 1	do	3.87	5,864
August 18	do	3.62	2,898
September 29	do	2.00	126
October 31	do	2.82	878
1904.			
May 8	do	3.85	5,747
June 18	do	4.52	15,194
June 25	do	4.13	12,024
July 28	do	2.96	2,549
September 2	O. H. Timmerman	1.91	60
1905.			
March 16	Adna Dobson	3.08	3,978
April 27	H. C. Gardner	4.45	13,630
May 16	do	5.60	33,410
June 21	do	5.10	27,570
July 8	do	4.45	19,760
July 14	do	3.50	8,514
August 12	do	2.25	2,341
September 27	F. S. Dobson	2.10	1,739
October 13	do	1.80	891
1906.			
April 30	Geo. W. Bates	4.51	16,814
May 3	do	5.12	19,770
June 8	Arthur Dobson	4.52	13,795
July 13	do	2.90	2,877
August 28	do	1.24	51
September 29	do	1.88	594
October 27	do	2.98	3,157
November 24	do	2.65	2,147

Mean daily gage height, in feet, of Platte River near Columbus, 1895–1906.

Day.	June.	July.	Aug.	Day.	June.	July.	Aug.	Day.	June.	July.	Aug.
1895.				1895.				1895.			
1	.....	1.12	0.20	12	2.05	0.62	0.14	23	1.50	0.35	0.19
2	.....	.98	.12	13	2.05	.61	.22	24	1.43	.33	.22
3	.....	.85	.01	14	1.90	.64	.17	25	1.45	.33	.15
4	.....	.81	.03	15	1.78	.68	.10	26	1.40	.29	.04
5	.....	.69	.07	16	1.74	.59	.09	27	1.25	.23	—.04
6	.....	.59	.08	17	1.76	.50	.08	28	1.35	.24	—.07
7	.....	.56	.04	18	1.70	.45	.08	29	1.35	.26	—.10
8	.....	.61	.07	19	1.75	.52	.09	30	1.31	.26	.11
9	1.30	.54	.12	20	1.69	.48	.02	31	.....	.26	.17
10	1.43	.54	.06	21	1.62	.42	.02				
11	2.03	.49	.11	22	1.57	.39	.09				

Day.	June.	July.	Aug.	Oct.	Nov.	Dec.	Day.	June.	July.	Aug.	Oct.	Nov.	Dec.
1896.							1896.						
1	.....	3.30	.....	1.70	2.60	.....	17	4.10	1.00	1.35	1.80	2.65	.....
2	.....	3.30	1.90	1.70	2.60	.....	18	3.90	1.00	1.30	1.70	2.30	.....
3	.....	3.32	2.65	1.75	2.60	.....	19	3.86	.....	1.30	1.70	2.20	.....
4	3.40	3.32	2.45	1.70	2.68	.....	20	3.65	.....	1.20	1.70	2.20	2.80
5	3.24	3.28	2.20	1.75	2.70	2.60	21	3.60	.....	1.20	1.70	2.20	.....
6	3.50	3.10	2.15	1.80	2.70	.....	22	3.55	.....	1.30	1.70	2.20	.....
7	3.60	3.10	1.95	1.85	2.75	.....	23	3.69	.....	1.30	1.78	2.20	.....
8	3.78	3.04	1.80	1.90	2.80	6.45	24	3.60	.....	1.45	1.82	2.20	.....
9	4.04	2.94	1.78	1.95	3.05	.....	25	3.69	.....	1.70	1.90	2.30	.....
10	4.49	3.16	1.70	2.20	2.80	6.21	26	3.65	.....	1.50	1.90	2.40	.....
11	4.25	3.06	1.75	2.20	2.35	.....	27	3.70	.....	1.18	1.95	2.60	.....
12	4.28	2.69	1.80	2.10	1.90	6.58	28	3.59	.....	1.10	.....	2.60	3.01
13	4.15	2.50	1.90	2.10	1.90	2.60	29	3.48	.....	1.10	2.01	.....	.....
14	4.10	2.32	2.40	1.90	1.90	.....	30	3.32	.....	1.10	2.60	.....	.....
15	3.65	1.95	2.05	1.80	2.40	.....	31	.....	.....	1.10	2.70	.....	.....
16	3.90	1.70	1.70	1.80	2.90	.....							

Mean daily gage height, in feet, of Platte River near Columbus, 1895–1906—Continued.

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Day.	May.	June.	July.	Aug.	Sept.	Oct.
1897.							1897.						
1	.....	4.90	3.90	(a)	(a)	(a)	17	4.30	4.42	2.70	2.70	(a)	(a)
2	.....	4.88	3.90	(a)	(a)	(a)	18	4.40	4.05	2.70	2.80	(a)	(a)
3	.....	4.88	3.82	(a)	(a)	(a)	19	4.40	3.90	(a)	2.80	(a)	(a)
4	3.70	5.15	3.65	(a)	(a)	(a)	20	4.28	3.95	(a)	2.90	(a)	(a)
5	3.75	4.95	3.35	(a)	(a)	(a)	21	4.20	4.20	(a)	2.90	(a)	(a)
6	3.82	4.80	3.18	(a)	(a)	(a)	22	4.20	4.32	(a)	2.90	(a)	(a)
7	3.95	4.80	3.10	(a)	(a)	(a)	23	4.10	4.22	(a)	2.80	(a)	(a)
8	4.10	4.85	3.10	(a)	(a)	(a)	24	4.00	4.18	(a)	2.70	(a)	(a)
9	4.05	4.90	3.10	(a)	(a)	(a)	25	4.15	4.25	(a)	2.60	(a)	(a)
10	4.20	4.95	3.00	(a)	(a)	(a)	26	4.30	4.30	(a)	2.60	(a)	(a)
11	4.15	5.00	2.85	(a)	(a)	(a)	27	4.28	4.30	(a)	2.60	(a)	2.20
12	4.20	5.20	2.70	(a)	(a)	(a)	28	4.48	4.25	(a)	2.60	(a)	2.20
13	4.20	5.20	2.70	(a)	(a)	(a)	29	4.52	4.15	(a)	2.20	(a)	2.25
14	4.20	4.82	2.70	(a)	(a)	(a)	30	4.75	3.95	(a)	2.20	(a)	2.25
15	4.30	4.68	2.70	(a)	(a)	(a)	31	4.90	(a)	(a)	2.20	(a)	(a)
16	4.30	4.58	2.70	(a)	(a)	(a)							

Day.	Apr.	May.	June.	July.	Day.	Apr.	May.	June.	July.	Day.	Apr.	May.	June.	July.
1898.					1898.					1898.				
1	.....	2.50	3.90	3.60	12	.....	3.45	4.35	2.80	23	2.25	3.98	3.50	(a)
2	.....	2.80	5.10	3.40	13	.....	3.34	4.28	2.60	24	2.10	4.12	3.60	(a)
3	.....	3.22	4.50	3.42	14	.....	3.27	4.22	2.55	25	2.00	3.98	3.60	(a)
4	.....	3.40	5.00	3.45	15	.....	3.24	4.15	2.50	26	2.06	3.85	3.50	(a)
5	.....	3.70	4.90	3.40	16	.....	3.27	4.35	2.55	27	1.97	4.04	3.40	(a)
6	.....	3.75	4.72	3.38	17	2.36	3.34	4.20	2.50	28	1.95	3.93	3.42	(a)
7	.....	3.80	4.85	3.20	18	2.42	3.50	4.05	2.45	29	1.95	3.75	3.45	(a)
8	.....	3.70	4.65	3.15	19	2.55	3.28	3.96	2.20	30	2.60	3.85	3.50	(a)
9	.....	3.56	4.45	3.20	20	2.60	3.90	3.78	2.00	31	.....	4.03	.....	(a)
10	.....	3.55	4.52	3.00	21	2.65	4.30	3.56	(a)					
11	.....	3.35	4.48	2.90	22	2.40	4.10	3.58	(a)					

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1899.							1899.						
1	.....	3.90	4.30	5.10	3.70	1.20	17	3.10	3.41	4.98	4.40	2.95	.....
2	0.00	3.73	4.10	4.90	3.65	1.10	18	3.20	3.36	4.00	4.23	2.85	.....
3	.00	3.80	4.00	4.80	3.60	.90	19	3.60	3.21	4.00	4.11	2.81	.....
4	4.00	3.85	4.01	4.85	3.68	.85	20	3.80	3.30	4.00	4.10	2.80	.....
5	4.80	3.93	3.40	4.95	3.88	.80	21	4.00	3.91	4.20	4.00	2.81	.....
6	4.50	4.00	3.70	4.98	4.00	.70	22	3.90	4.10	4.40	3.90	2.80	.....
7	4.40	4.14	4.00	4.97	3.90	.65	23	3.94	3.81	4.50	3.83	2.75	.....
8	3.70	3.96	3.81	4.98	3.96	.60	24	3.50	4.50	4.63	3.80	2.70	.....
9	3.45	4.00	3.65	4.61	3.94	.50	25	3.93	4.70	4.40	3.70	2.60	.....
10	3.50	3.94	3.64	4.63	3.90	.....	26	4.50	4.90	4.43	3.72	2.55	.....
11	3.55	3.87	4.50	4.62	3.80	.....	27	3.90	5.05	4.50	3.74	2.40	.....
12	3.60	3.80	4.60	4.60	4.00	.....	28	3.83	4.83	4.75	3.80	2.00	.....
13	3.65	3.73	4.80	4.58	3.50	.....	29	3.90	4.70	4.85	3.90	1.60	.....
14	3.20	3.68	4.95	4.56	3.40	.....	30	3.93	4.60	5.15	3.92	1.50	.....
15	3.10	3.60	4.98	4.50	3.30	.....	31	.....	4.51	.....	3.85	1.35	.....
16	3.00	3.63	4.99	4.50	2.90	.....							

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1900.								
1	.....	4.00	4.45	3.30	0.10	(a)	(a)	1.60
2	.....	3.95	4.55	3.38	(a)	(a)	(a)	1.48
3	.....	3.94	4.69	3.32	(a)	(a)	(a)	1.37
4	.....	3.95	4.70	3.33	(a)	(a)	(a)	1.25
5	.....	4.65	4.66	3.87	(a)	(a)	(a)	1.23
6	.....	4.68	4.75	3.38	(a)	(a)	(a)	1.20
7	.....	5.60	5.05	2.95	(a)	(a)	(a)	1.16
8	2.69	5.30	5.00	2.87	(a)	(a)	(a)	1.10
9	2.65	5.20	4.95	3.02	(a)	(a)	(a)	1.03
10	2.64	5.20	4.95	3.00	(a)	(a)	(a)	(b)

[a] Sand at gage; water in pools.

[b] Frozen.

Mean daily gage height, in feet, of Platte River near Columbus, 1895–1906—Continued.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1900.								
11	2.64	5.30	5.10	2.73	(a)	2.78	(a)	(b)
12	2.64	5.30	4.95	2.43	(a)	2.25	(a)	(b)
13	2.64	5.05	4.85	2.20	(a)	2.05	(a)	(b)
14	2.64	5.05	4.80	2.10	(a)	1.80	(a)	(b)
15	2.63	5.00	4.95	3.06	(a)	1.48	(a)	(b)
16	2.64	4.95	5.20	3.23	0.03	1.07	(a)	(b)
17	2.68	4.90	5.34	2.30	(a)	1.01	(a)	(b)
18	3.50	4.90	4.96	1.83	(a)	(a)	(a)	.....
19	3.80	4.80	5.00	1.86	(a)	(a)	(a)	.....
20	3.70	4.75	4.90	1.98	(a)	(a)	(a)	.....
21	3.60	4.95	4.82	2.00	(a)	(a)	(a)	.....
22	3.95	5.10	4.60	1.43	(a)	(a)	(a)	.....
23	3.96	5.40	4.42	1.50	(a)	(a)	(a)	.....
24	3.98	5.30	4.30	1.75	(a)	(a)	1.70	.....
25	4.00	5.00	4.20	1.43	0.70	(a)	1.70	.....
26	4.10	4.95	3.96	1.50	.70	(a)	1.70	.....
27	4.25	4.90	3.90	1.65	.53	(a)	1.60	.....
28	4.45	4.70	3.74	1.63	.28	(a)	1.55	.....
29	4.63	4.50	3.60	.98	.03	(a)	1.50	.....
30	4.30	4.45	3.55	.85	.....	(a)	1.45	.....
31	.....	4.40	.....	.50	.....	.....	1.66	.....

Day.	Mar.	Apr.	May.	June.	July.	Nov.	Day.	Mar.	Apr.	May.	June.	July.	Nov.
1901.							1901.						
1	.....	2.40	2.60	3.90	3.40	1.20	17	.....	5.00	3.30	4.30	.....	1.40
2	.....	2.35	2.60	3.90	3.22	1.90	18	.....	4.90	3.40	4.31	.....	1.40
3	.....	2.35	2.55	3.90	3.06	1.90	19	.....	4.70	3.45	4.35	.....	1.40
4	.....	2.40	2.50	3.85	2.90	1.90	20	.....	4.40	3.45	4.40	.....	1.40
5	.....	3.50	2.50	3.80	2.85	1.80	21	.....	3.25	3.50	4.45	.....	1.40
6	.....	3.40	2.60	3.80	2.80	1.75	22	.....	3.25	3.50	4.45	.....	1.40
7	.....	3.40	2.70	3.85	2.79	1.70	23	.....	3.20	3.60	4.45	.....	1.40
8	.....	3.40	2.80	3.85	2.50	1.60	24	2.60	3.20	3.50	4.30	.....	1.50
9	.....	3.45	2.90	3.85	2.40	1.60	25	2.60	3.10	3.50	4.10	.....	1.60
10	.....	3.50	3.10	3.85	2.22	1.60	26	2.70	3.00	3.50	4.00	.....	1.65
11	.....	3.60	3.20	3.90	2.00	1.60	27	2.70	2.80	3.50	3.95	.....	1.70
12	.....	3.80	3.20	3.95	(c)	1.55	28	2.60	2.75	3.60	3.90	.....	1.75
13	.....	4.60	3.20	4.00	.....	1.50	29	2.50	2.75	3.70	3.80	.....	1.80
14	.....	4.80	3.25	4.10	.....	1.50	30	2.50	2.60	3.80	3.60	.....	1.85
15	.....	4.80	3.30	4.20	.....	1.45	31	2.50	.....	3.90	.....	.....	.....
16	.....	5.10	3.30	4.30	.....	1.40							

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.										
1	.....	2.80	2.30	3.38	3.40	1.90	1.10	1.95	1.80	.....
2	.....	2.60	2.25	3.39	3.60	1.80	1.10	2.00	1.90	.....
3	.....	2.40	2.20	3.39	3.60	1.70	1.10	2.20	1.95	.....
4	.....	2.30	2.40	3.40	4.00	1.50	1.00	2.40	2.00	.....
5	.....	2.35	2.50	3.55	4.10	1.35	1.00	2.50	2.00	.....
6	.....	2.10	2.65	3.90	4.10	1.20	1.00	2.75	2.00	.....
7	.....	2.15	2.75	3.80	4.00	1.10	1.10	2.75	2.00	.....
8	3.39	2.15	2.85	3.85	4.00	1.05	1.00	2.50	1.95	.....
9	3.38	2.20	2.85	3.70	3.90	1.00	.90	2.30	1.90	.....
10	3.30	2.20	2.86	3.65	3.75	1.30	.80	2.30	1.90	.....
11	3.00	2.20	2.87	3.50	3.50	1.10	.50	2.40	1.80	.....
12	2.90	2.21	2.90	3.40	3.40	1.00	.45	2.80	1.70	.....
13	2.80	2.22	2.90	3.20	3.20	.90	.40	3.00	1.70	.....
14	2.80	2.20	3.00	3.20	3.21	1.10	.40	3.20	1.80	.....
15	2.80	2.20	3.20	3.05	3.00	1.20	.30	3.30	2.00	.....
16	2.80	2.15	3.35	3.25	2.89	1.10	.20	3.00	2.00	.....
17	2.70	2.15	3.45	3.40	2.80	1.00	.20	2.95	2.10	.....
18	2.40	2.10	4.00	3.55	2.80	1.00	.20	2.90	2.10	.....
19	2.30	2.10	4.30	3.55	3.05	1.00	.40	2.60	2.05	.....
20	2.20	2.15	4.20	3.50	3.38	1.00	.65	2.50	2.05	.....

a Sand at gage; water in pools.
b Frozen.
c Sand around gage, water standing in pools, July 12 to November 1.

Mean daily gage height, in feet, of Platte River near Columbus, 1895–1906—Continued.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.										
21	2.20	2.10	3.85	3.50	3.00	1.40	0.70	2.40	2.10	.....
22	2.10	2.05	3.84	3.50	2.90	2.20	1.00	2.30	2.10	.....
23	2.10	1.95	3.82	3.40	2.80	2.00	1.85	2.20	2.10	.....
24	2.50	1.97	3.80	3.40	2.70	1.90	1.85	2.10	2.10	.....
25	2.70	2.00	3.75	3.40	2.60	1.60	1.85	2.05	2.05	.....
26	3.00	2.10	3.70	3.40	2.50	1.20	1.90	2.05	2.05	.....
27	3.10	2.09	3.60	3.40	2.40	1.30	1.95	2.00	2.00	.....
28	3.10	2.10	3.50	3.42	2.30	1.30	1.95	1.95	1.95	.....
29	3.10	2.15	3.39	3.40	2.20	1.30	1.90	1.85	1.95	.....
30	3.00	2.25	3.38	3.40	2.10	1.30	1.85	1.85	.....	.....
31	2.90	.....	3.38	.....	2.05	1.20	.....	1.85	.....	.....
1903.										
1	.....	3.55	3.70	5.00	3.75	3.94	4.00	2.00	3.10	3.10
2	.....	3.40	3.45	4.75	3.70	3.95	4.10	2.10	3.20	3.10
3	.....	3.30	4.00	4.65	3.70	3.95	4.00	2.10	3.30	3.20
4	.....	3.25	3.90	4.45	4.00	3.95	3.90	2.10	3.30	3.20
5	.....	3.20	3.90	4.25	4.60	3.80	3.60	2.10	3.31	3.20
6	.....	2.85	3.80	4.10	4.65	3.70	3.40	2.10	3.35	.....
7	.....	2.90	3.55	3.90	4.40	3.50	3.00	2.15	3.40	.....
8	.....	3.00	3.75	3.70	4.10	3.40	2.95	2.15	3.40	.....
9	4.11	3.10	4.10	3.60	4.00	3.41	2.90	2.20	3.30	.....
10	.....	3.20	4.10	3.55	3.96	3.10	2.80	2.20	3.30	.....
11	.....	3.00	4.35	3.55	3.96	3.00	2.80	2.30	3.25	.....
12	.....	2.65	4.60	3.45	3.70	3.10	2.80	2.30	3.20	.....
13	.....	2.55	4.62	3.40	3.65	3.35	2.90	2.35	3.00	.....
14	.....	2.50	4.40	3.35	3.65	3.40	3.00	2.40	2.90	.....
15	3.80	2.90	4.35	3.60	3.60	3.80	2.90	2.50	2.90	.....
16	3.85	3.10	4.15	3.60	3.60	3.45	2.80	2.70	2.90	.....
17	3.85	3.10	4.10	3.70	4.13	3.65	2.75	2.75	2.80	.....
18	3.95	3.05	3.85	3.75	4.10	3.60	2.75	2.85	2.70	.....
19	3.90	3.20	3.55	3.80	4.05	3.60	2.72	2.80	2.60	.....
20	4.00	3.20	3.25	3.85	4.00	3.55	2.50	2.80	2.55	.....
21	4.10	3.25	3.10	4.05	3.85	3.40	2.30	2.85	2.55	.....
22	3.80	3.25	3.20	4.20	3.70	3.20	2.20	2.85	2.60	.....
23	3.85	3.35	3.25	4.15	3.65	3.10	2.10	2.85	2.60	.....
24	3.70	3.05	3.30	4.15	3.50	3.10	2.10	2.85	2.70	.....
25	3.65	3.05	3.80	4.30	3.30	3.20	2.00	2.82	2.85	.....
26	3.55	3.05	4.00	4.50	3.20	3.40	2.00	2.80	2.90	.....
27	3.50	3.10	4.10	4.66	3.20	3.80	2.00	2.80	2.95	.....
28	3.45	3.00	4.25	4.45	3.20	3.90	2.00	2.80	3.00	.....
29	3.50	3.00	4.55	4.20	3.10	4.20	2.00	2.80	3.00	.....
30	3.80	3.40	4.75	4.00	3.20	4.20	2.00	2.83	3.05	.....
31	3.55	.....	5.00	.....	3.30	4.00	.....	2.80	.....	.....
1904.										
1	.....	3.20	2.60	4.15	3.91	2.52	1.87	2.05	2.40	.....
2	.....	3.20	2.60	4.20	3.81	2.35	1.80	2.00	2.35	.....
3	.....	3.15	2.60	4.65	3.76	2.40	1.65	1.80	2.30	.....
4	.....	3.20	2.65	4.75	3.75	2.42	1.65	1.80	2.35	.....
5	.....	3.20	2.65	4.85	3.75	2.32	1.70	1.25	2.35	.....
6	.....	3.10	3.00	4.65	3.80	2.29	1.80	1.20	2.35	.....
7	.....	3.10	.....	4.55	3.95	2.26	1.70	1.30	2.40	.....
8	.....	3.30	3.80	4.45	4.02	2.21	1.65	2.00	2.40	.....
9	.....	3.20	3.75	4.35	4.00	2.40	1.53	2.25	2.30	.....
10	.....	3.05	3.75	4.10	3.85	2.85	1.46	2.45	2.20	.....
11	.....	3.05	3.80	4.18	4.20	2.85	1.30	2.25	2.10	.....
12	.....	3.00	3.85	4.35	3.97	2.70	1.12	2.15	2.00	.....
13	3.20	2.90	3.85	4.90	3.80	2.52	1.55	2.20	2.20	.....
14	3.10	2.90	3.90	5.00	3.50	2.40	1.55	2.30	2.30	.....
15	3.10	2.80	3.60	4.60	3.42	2.25	1.35	2.40	2.30	.....
16	3.00	2.80	3.70	4.92	3.35	2.15	1.35	2.35	2.40	.....
17	3.00	2.75	3.60	4.80	3.70	1.95	1.35	2.35	2.55	.....
18	3.00	2.75	3.66	4.50	3.31	2.12	1.30	2.40	2.55	.....
19	3.00	2.70	3.65	4.52	3.20	2.15	1.30	2.45	2.45	.....
20	3.25	2.70	3.65	4.25	3.26	2.17	1.25	2.83	2.42	.....
21	3.30	2.65	3.60	4.20	3.27	2.08	1.50	3.10	2.40	.....
22	3.30	2.60	3.50	4.20	3.25	1.92	1.55	3.10	2.40	.....
23	3.30	2.60	3.38	4.10	3.17	1.65	1.40	3.25	2.40	.....
24	3.20	2.60	3.35	4.10	3.20	1.55	1.40	2.95	2.35	.....
25	3.10	3.00	.....	4.20	3.15	1.45	1.40	2.90	2.40	.....

Mean daily gage height, in feet, of Platte River near Columbus, 1895–1906—Continued.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.										
26	3.00	3.25	3.30	4.55	3.10	1.35	1.45	2.70	2.40	.....
27	3.10	3.45	3.40	4.50	3.03	1.30	1.45	2.60	.....	.....
28	3.10	3.20	3.60	4.25	2.95	1.35	1.50	2.40	.....	.....
29	3.10	2.90	3.70	4.12	3.00	1.40	1.60	2.35	.....	.....
30	3.10	2.75	4.20	4.00	2.91	1.45	1.75	2.30	.....	.....
31	3.10	.....	4.10	.....	2.73	2.00	.....	2.35	.....	.....
1905.										
1	.....	2.6	4.8	5.35	4.6	2.75	1.5	1.7	.....	.....
2	.....	2.4	4.6	5.55	4.65	3.2	.75	1.55	.....	.....
3	.....	2.6	4.4	5.5	4.85	3.2	.7	1.5	.....	.....
4	.....	2.7	4.15	5.35	5.3	3.4	.75	1.5	.....	.....
5	.....	2.6	4.75	5.3	4.95	3.2	1.6	1.3	.....	.....
6	.....	3.0	5.6	5.2	5.5	3.25	1.8	1.3	.....	.....
7	.....	3.2	4.5	5.2	4.7	3.15	2.35	1.25	.....	.....
8	.....	3.1	4.4	5.2	4.55	3.0	2.85	1.2	.....	.....
9	.....	3.1	4.5	4.95	4.2	2.8	2.65	1.35	.....	.....
10	.....	2.9	4.3	5.25	4.15	2.5	2.4	1.2	.....	.....
11	.....	2.9	4.6	5.1	4.0	2.35	2.2	1.15	.....	.....
12	.....	2.8	4.55	5.3	3.75	2.25	1.9	1.15	.....	.....
13	.....	2.6	5.3	5.3	3.55	2.25	1.85	1.2	.....	.....
14	.....	2.7	5.75	5.25	3.35	2.2	2.6	1.35	.....	.....
15	.....	2.6	6.2	5.3	3.15	2.2	2.55	1.4	.....	.....
16	.....	2.6	5.45	5.3	3.0	2.25	2.2	1.3	.....	.....
17	3.1	2.8	5.6	5.8	2.85	2.5	2.25	1.35	.....	.....
18	3.6	2.8	5.15	5.35	2.7	2.55	3.5	1.3	.....	.....
19	3.2	2.8	4.6	5.45	2.5	2.6	3.45	1.35	.....	.....
20	3.8	3.4	4.55	5.15	2.3	2.35	3.35	1.4	.....	.....
21	3.7	3.8	4.35	5.15	2.3	2.35	3.25	1.5	.....	.....
22	3.6	4.0	4.35	4.95	2.2	2.25	3.15	1.6	.....	.....
23	3.7	4.2	4.25	6.35	2.25	2.3	3.0	1.65	.....	.....
24	3.5	4.4	4.2	5.4	2.1	1.95	2.95	1.85	.....	.....
25	3.3	4.6	4.1	5.25	2.1	1.9	2.45	2.0	.....	.....
26	3.1	4.8	4.25	5.25	2.85	2.1	2.2	1.9	.....	.....
27	3.0	5.0	4.15	5.3	3.15	2.2	2.05	1.9	.....	.....
28	2.8	5.3	4.45	5.0	2.85	1.75	1.9	2.0	.....	.....
29	2.7	5.15	5.1	4.95	2.7	1.55	1.75	2.5	.....	.....
30	2.6	5.1	5.25	4.85	2.65	1.35	1.7	2.5	.....	.....
31	2.6	.....	5.5	.....	2.6	1.15	.....	2.5	.....	.....
1906.										
1	.....	.....	5.10	3.90	4.15	2.75	.85	1.90	2.70	.....
2	.....	.....	5.10	4.10	3.75	2.70	1.45	1.90	3.45	.....
3	.....	.....	5.15	4.10	3.70	2.65	1.55	1.85	3.45	.....
4	.....	.....	4.70	4.55	3.55	3.20	1.35	1.70	3.40	.....
5	.....	.....	4.40	4.55	3.45	3.00	1.35	1.65	3.55	.....
6	.....	.....	4.30	4.50	3.30	2.75	1.35	1.70	3.55	.....
7	.....	.....	4.10	4.45	3.20	3.25	1.35	1.70	3.60	.....
8	.....	3.75	3.80	4.65	3.15	3.05	1.40	1.65	3.60	.....
9	.....	3.65	3.80	4.45	3.05	3.00	1.65	1.65	3.50	.....
10	.....	3.60	3.75	4.40	2.95	3.15	1.70	1.75	3.50	.....
11	.....	3.60	3.70	4.10	2.90	2.95	1.60	1.90	3.30	.....
12	.....	3.65	3.65	3.90	2.80	3.00	1.65	1.90	3.30	.....
13	.....	3.80	3.55	3.75	2.90	2.80	1.65	1.85	3.45	.....
14	.....	4.20	3.50	3.60	2.85	2.60	2.05	1.90	3.30	.....
15	.....	3.95	3.35	3.55	2.75	2.60	2.75	1.95	3.30	.....
16	.....	3.65	3.35	3.50	2.70	2.25	2.35	2.10	3.30	.....
17	.....	3.70	3.25	3.65	2.65	2.50	2.60	2.25	3.15	.....
18	.....	3.60	3.20	4.00	3.20	1.95	2.70	2.40	3.10	.....
19	.....	3.45	3.20	3.75	2.80	1.65	2.75	2.45	3.10	.....
20	.....	3.35	3.20	3.85	2.80	1.35	2.50	2.45	3.00	.....
21	.....	3.00	3.15	3.55	2.65	1.35	2.40	2.40	.....	.....
22	.....	3.25	3.15	3.35	2.60	1.35	2.20	2.95	.....	.....
23	.....	3.40	3.05	3.30	2.60	1.35	2.20	3.40	.....	.....
24	.....	3.50	3.55	3.35	2.85	1.20	2.15	3.20	2.90	.....
25	.....	3.30	4.10	4.00	2.80	1.15	2.05	3.35	2.95	.....
26	.....	3.30	3.70	.....	2.75	1.35	2.05	3.35	2.95	.....
27	.....	3.45	3.80	4.50	2.15	1.25	2.15	3.00	2.90	.....
28	.....	3.80	3.10	4.15	2.95	1.05	2.05	3.00	2.90	.....
29	.....	4.50	3.05	3.95	3.05	1.03	1.90	2.70	2.90	.....
30	.....	4.30	3.85	4.00	3.00	1.00	1.90	2.55	3.20	.....
31	.....	.....	3.95	.....	3.00	.90	.....	2.80	.....	.....

Mean daily discharge, in second-feet, of Platte River near Columbus, 1895–1906.

Day.	May.	June.	July.	Aug.	Day.	May.	June.	July.	Aug.
1895.					1895.				
1			9,315	1,250	17		17,130	3,375	845
2			7,900	970	18		16,150	2,950	850
3	5,550		6,600	590	19		16,970	3,545	910
4		9,420	6,210	698	20		16,150	3,205	672
5		8,600	5,170	782	21		14,960	2,700	536
6		7,100	4,165	846	22	5,896	14,440	2,530	878
7		5,170	3,895	564	23		13,470	2,135	1,250
8		7,500	4,345	444	24		12,580	1,980	1,340
9		11,240	3,720	312	25		12,800	1,980	1,070
10		12,580	3,720	472	26		12,250	1,745	725
11		27,200	3,205	236	27		10,590	1,380	508
12		22,400	4,435	264	28		11,550	1,380	416
13		22,420	4,345	96	29		11,750	1,525	360
14		19,280	4,615	1,105	30		11,450	1,525	336
15		17,460	4,985	910	31			1,470	1,140
16		16,150	4,165	910					

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1896.							
1			4,400	0	0	188	2,250
2	4,550		4,400	620	0	188	2,250
3			4,490	2,375	0	305	2,250
4		4,890	4,490	1,850	0	188	2,425
5		4,320	4,280	1,250	0	305	2,500
6		5,260	3,700	1,140	0	425	2,500
7		5,750	3,700	725	0	525	2,640
8		7,050	3,505	425	0	620	2,780
9		9,715	3,190	350	0	725	3,535
10		14,900	3,880	188	0	1,250	2,780
11		11,975	3,570	305	0	1,250	1,600
12		12,185	2,475	420	0	1,030	620
13		10,925	1,975	620	0	1,030	620
14		10,400	1,530	1,715	0	625	620
15		6,100	725	930	0	425	.....
16		8,250	188	188	0	425	.....
17		10,400	0	0	0	425	.....
18		8,250	0	0	0	188	.....
19		7,950	0	0	0	188	.....
20		6,100	0	0	0	188	.....
21		5,750	0	0	0	188	.....
22		5,510	0	0	0	188	.....
23		6,380	0	0	0	350	.....
24		5,750	0	0	0	365	.....
25		6,380	0	0	0	620	.....
26		6,100	0	0	0	620	.....
27		6,450	0	0	0	725	.....
28		6,380	0	0	0	785	.....
29		5,145	0	0	0	845	.....
30		4,535	0	0	0	2,250	.....
31			0	0	0	2,500	.....

Day.	May.	June.	July.	Aug.	Oct.	Day.	May.	June.	July.	Aug.	Oct.
1897.						1897.					
1		21,600	8,200			17	12,250	13,900	2,000	3,300	.....
2		22,600	8,200			18	13,400	9,800	.....	4,400	.....
3		21,400	7,600			19	13,400	8,200	.....	4,400	.....
4	6,700	27,400	6,400			20	12,100	5,500	.....	4,900	.....
5	7,000	22,600	4,700			21	11,250	11,250	.....	4,900	.....
6	7,350	19,700	3,900			22	11,250	12,500	.....	4,900	.....
7	8,200	19,700	3,500			23	10,300	11,500	.....	4,400	.....
8	10,300	20,600	3,500			24	9,250	11,100	.....	3,800	.....
9	12,250	21,600	3,500			25	10,800	11,750	.....	3,400	.....
10	11,250	22,600	3,100			26	12,250	12,200	.....	3,400	.....
11	10,800	23,750	2,550			27	12,100	12,250	.....	3,400	1,400
12	11,250	31,100	2,000			28	14,675	11,750	994	3,400	1,400
13	11,250	28,575	2,000			29	15,250	10,750	.....	1,400	1,600
14	11,250	20,300	2,000			30	18,000	8,700	.....	1,400	1,600
15	12,700	17,750	2,000			31	21,600	.....	.....	1,400	.....
16	12,250	16,000	2,000								

Mean daily discharge, in second-feet, of Platte River near Columbus, 1895–1906—Cont'd.

Day.	May.	June.	July.	Sept.	Oct.	Nov.	Day.	May.	June.	July.	Sept.	Oct.	Nov.
1898.							1898.						
1	1,500	7,800	6,100				17	3,650	11,700	1,400			
2	2,400	24,600	5,000				18	4,500	10,300	1,300	10		
3	4,000	13,900	5,050				19	3,500	9,300	750			
4	4,800	22,200	5,200	2			20	6,850	7,600	500			
5	6,400	20,200	4,900				21	10,700	6,200				
6	6,600	17,100	4,800				22	8,900	6,350				
7	6,800	19,000	3,900				23	7,950	5,750				
8	6,000	15,800	3,650				24	9,600	6,400				
9	5,100	13,100	3,800				25	8,300	6,350				
10	4,950	14,100	3,000				26	6,600	5,700				
11	3,900	13,900	2,770			16	27	9,100	5,100				
12	4,400	12,400	2,350				28	8,100	5,200				
13	3,800	11,900	1,700				29	6,700	5,300	285			
14	3,500	11,400	1,550				30	7,350	5,600			13	
15	3,300	10,900	1,400				31	9,000					
16	3,175	13,200	1,550										

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1899.									
1			7,720	12,415	24,850	6,980			
2			6,505	10,300	20,840	6,570			
3			6,980	9,200	19,190	6,245			
4		11,300	7,330	9,310	20,270	6,770		0	
5		23,700	7,960	5,000	22,440	8,200			
6		18,000	8,600	6,700	23,280	9,420			
7		16,400	10,080	9,200	23,280	8,400			
8		8,200	8,200	7,480	23,700	9,100		0	
9		6,375	8,700	6,375	17,040	9,000			
10		6,635	8,200	6,375	17,360	8,800			
11		6,910	7,720	14,960	17,360	8,040			
12		7,120	7,260	16,560	17,200	10,400			
13		7,330	6,840	19,890	17,040	6,245			
14		4,559	6,505	22,860	16,880	5,775		0	
15		3,950	6,050	23,490	15,920	5,350			
16		3,600	6,310	23,700	16,080	3,500			
17		3,750	5,150	23,490	14,665	3,900		0	
18		4,150	4,950	9,310	12,644	3,460			
19		6,715	4,750	9,200	11,400	3,700		0	
20		7,400	4,700	9,200	11,400	3,340	0		
21		9,100	8,800	11,200	10,400	3,380		0	
22		7,960	10,800	13,220	9,310	3,340			
23		8,200	7,880	14,395	8,600	3,140			
24		7,880	15,600	16,240	8,300	2,938	0		
25		8,040	18,850	12,875	7,400	2,547		0	
26		14,125	22,400	13,105	7,480	2,361			
27		7,800	25,770	13,855	7,560	1,861	0		
28		7,260	20,745	18,170	3,380			0	
29		7,800	18,340	19,190	8,800				
30		7,960	16,720	25,540	8,900		0		
31			15,120		8,120				
1900.									
1			7,800	11,600	5,400				950
2			7,400	12,415	5,900				600
3			7,330	13,850	5,700				500
4			7,260	13,720	5,900				400
5			14,800	13,000	10,500				400
6			15,280	13,850	6,500				400
7			35,400	18,000	3,620				350
8		1,907	27,500	16,880	3,850				300
9		1,800	25,100	15,760	4,625				300
10		1,738	25,100	15,600	4,700				
11		1,738	27,500	18,170	3,550		4,600		
12		1,707	27,500	15,920	2,440		2,350		
13		1,676	21,800	14,665	1,750		1,700		
14		1,648	21,600	14,125	1,550		1,030		
15		1,594	20,650	16,720	5,610		550		

Mean daily discharge, in second-feet, of Platte River near Columbus, 1895–1906—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1900.									
16	.....	1,594	19,700	21,600	2,000	.....	403	.....	.....
17	.....	1,707	18,850	25,770	2,280	.....	400	.....	.....
18	.....	5,100	18,850	18,510	950	.....	.....	.....	.....
19	.....	6,770	17,200	20,080	1,000	.....	.....	.....	.....
20	.....	6,050	16,400	18,850	1,300	.....	.....	.....	.....
21	.....	5,500	19,700	18,340	400	.....	.....	.....	.....
22	.....	7,720	22,440	15,600	500	.....	.....	.....	.....
23	.....	7,720	29,440	13,450	520	.....	.....	.....	.....
24	.....	7,880	26,960	12,530	800	.....	.....	920	.....
25	.....	7,960	20,270	11,600	500	.....	.....	920	.....
26	.....	8,800	19,360	9,600	550	149	.....	950	.....
27	.....	10,800	18,510	9,275	660	.....	.....	770	.....
28	.....	12,875	15,120	7,800	650	.....	.....	680	.....
29	.....	14,530	12,415	6,900	394	.....	.....	610	.....
30	.....	10,800	12,875	6,700	250	.....	.....	600	.....
31	.....	.....	11,200	.....	200	.....	.....	998	.....
1901.									
1	.....	1,483	2,361	9,100	4,500	.....	.....	.....	375
2	.....	1,300	2,394	9,000	3,600	.....	.....	.....	978
3	.....	1,300	2,228	8,900	2,938	.....	.....	.....	978
4	.....	1,455	2,054	8,300	2,324	.....	.....	.....	978
5	.....	6,180	2,088	7,720	2,154	.....	.....	.....	850
6	.....	5,555	2,435	7,560	1,984	.....	.....	20	800
7	.....	5,555	2,857	8,241	1,946	.....	.....	.....	750
8	.....	5,555	3,260	7,800	1,270	.....	.....	.....	700
9	.....	5,775	3,750	7,720	1,150	.....	.....	.....	700
10	.....	6,050	6,799	7,640	920	.....	.....	.....	700
11	.....	6,700	5,250	7,960	725	.....	.....	.....	700
12	.....	8,200	5,250	8,300	.....	.....	.....	.....	590
13	.....	18,000	5,200	8,700	.....	.....	.....	.....	570
14	.....	21,600	5,450	9,640	379	.....	.....	.....	570
15	.....	21,600	5,665	10,600	.....	.....	.....	.....	550
16	.....	28,400	5,665	11,500	.....	.....	.....	.....	500
17	.....	26,000	5,610	11,400	.....	.....	.....	.....	500
18	.....	21,810	6,115	11,949	.....	.....	.....	.....	500
19	.....	19,790	6,375	11,821	.....	.....	.....	.....	500
20	.....	14,960	6,310	12,300	.....	.....	.....	.....	500
21	.....	4,824	6,635	12,875	.....	.....	.....	.....	500
22	.....	4,850	6,570	12,875	.....	.....	.....	.....	500
23	.....	4,600	7,190	12,875	.....	.....	.....	.....	500
24	2,054	4,650	6,440	11,300	.....	.....	.....	.....	600
25	2,054	4,150	6,375	9,200	.....	.....	.....	.....	680
26	2,398	3,700	6,110	8,200	.....	.....	.....	.....	720
27	2,436	2,898	6,245	7,800	.....	.....	.....	.....	770
28	2,123	2,736	6,840	7,400	.....	.....	.....	.....	820
29	1,799	2,816	7,480	6,700	.....	.....	.....	.....	870
30	1,800	2,324	8,200	5,500	.....	.....	.....	.....	922
31	1,816	.....	9,200	.....	.....	.....	.....	.....	.....
1902.									
1	.....	2,398	1,312	5,852	5,995	845	253	975	635
2	.....	1,738	1,262	5,885	7,330	745	257	1,025	725
3	.....	1,287	1,212	5,885	7,330	626	257	1,275	775
4	.....	1,162	1,593	5,400	11,140	482	226	1,676	825
5	.....	1,212	1,922	6,910	11,140	376	229	1,989	825
6	.....	915	2,473	9,950	11,140	291	229	2,816	825
7	.....	965	2,898	8,960	11,140	250	260	2,816	825
8	5,664	955	3,340	9,450	11,140	235	232	1,826	775
9	5,610	1,005	3,340	8,040	10,050	220	202	1,337	725
10	5,100	995	3,429	7,640	8,580	350	175	1,337	725
11	3,650	995	3,500	6,570	6,992	250	5	1,400	635
12	3,180	996	3,600	5,940	5,995	220	.....	2,696	550
13	2,776	996	3,550	4,900	4,900	190	.....	3,500	550
14	2,736	985	3,950	4,900	4,950	250	.....	4,500	635
15	2,736	996	4,900	4,150	3,900	285	.....	5,000	825
16	2,696	955	4,555	5,150	3,340	250	.....	3,100	825
17	2,324	965	6,050	5,940	2,978	220	.....	2,898	925
18	1,387	925	10,480	6,910	2,978	220	.....	2,698	925
19	1,262	935	13,800	6,910	4,050	220	.....	1,676	875
20	1,125	995	12,400	6,635	5,720	220	120	1,400	875

Mean daily discharge, in second-feet, of Platte River near Columbus, 1895–1906—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1902.									
21	1,125	955	8,580	6,635	3,800	400	138	1,275	925
22	995	1,015	8,447	6,635	3,300	1,150	244	1,150	925
23	995	825	8,200	5,995	2,898	925	865	1,025	925
24	1,565	855	8,120	5,995	2,510	825	865	925	925
25	2,188	895	7,800	5,995	2,120	550	865	875	875
26	3,300	1,005	7,480	5,995	1,799	285	925	875	875
27	3,750	1,005	6,840	5,500	1,510	340	975	825	825
28	3,700	1,025	6,245	6,050	1,300	340	975	775	775
29	3,700	1,100	5,665	5,995	1,187	340	925	690	775
30	3,220	1,237	5,665	5,995	1,062	346	875	690	.....
31	2,817	.....	5,720	.....	995	290	.....	690	.....
1903.									
1	.....	7,800	6,700	21,600	5,250	6,375	4,500	190	1,680
2	.....	6,700	5,250	17,200	5,000	6,375	4,750	220	1,980
3	.....	6,050	9,150	15,600	5,000	6,375	4,250	220	2,320
4	.....	5,775	7,800	12,960	7,050	6,050	3,750	220	2,320
5	.....	5,500	7,800	10,700	12,960	5,250	2,510	220	2,320
6	.....	3,750	7,050	9,150	13,550	4,750	1,830	220	2,900
7	.....	4,000	5,500	7,050	10,700	3,500	1,040	235	3,100
8	.....	4,250	6,700	5,775	7,800	3,100	985	235	3,100
9	10,150	4,750	9,650	5,250	7,050	3,100	930	250	2,700
10	.....	5,250	9,650	5,000	7,050	1,830	820	250	2,700
11	.....	4,250	12,390	5,000	7,050	1,540	820	285	2,510
12	.....	2,510	15,600	4,500	5,500	1,830	770	285	2,320
13	.....	2,150	15,600	4,250	5,000	2,510	875	310	1,980
14	.....	1,980	12,960	4,000	5,000	2,700	985	400	1,680
15	7,400	3,500	12,390	5,250	4,750	4,500	875	475	1,680
16	10,700	4,250	10,150	5,000	4,750	2,700	770	635	1,680
17	10,700	4,250	9,650	5,500	7,800	3,500	680	680	1,415
18	11,820	4,000	7,400	5,775	7,400	3,100	680	875	1,285
19	11,250	4,750	5,500	6,050	7,050	3,100	635	820	1,155
20	12,390	4,500	4,000	6,375	6,700	2,900	475	820	1,095
21	13,550	4,750	3,300	7,400	5,775	2,320	340	985	1,095
22	10,150	4,750	3,750	8,675	5,000	1,680	285	985	1,155
23	10,700	5,250	4,000	8,200	4,750	1,350	250	985	1,155
24	9,150	3,500	4,250	8,200	4,000	1,350	235	985	1,285
25	8,675	3,500	6,700	9,650	3,100	1,540	205	930	1,540
26	7,800	3,500	8,200	11,820	2,700	2,150	205	1,040	1,680
27	7,400	3,750	9,150	12,960	2,700	3,750	205	1,040	1,830
28	7,050	3,100	10,700	10,700	2,700	4,000	205	1,040	1,980
29	7,400	3,100	14,175	8,200	2,320	5,500	190	1,040	1,980
30	10,150	5,000	17,200	6,700	2,700	5,500	190	1,095	2,150
31	7,800	.....	21,600	.....	3,100	4,500	.....	1,040	.....
1904.									
1	.....	.....	.....	8,550	10,130	1,000	50	150	1,000
2	.....	.....	.....	8,945	9,340	600	50	100	1,000
3	.....	.....	.....	13,290	8,945	700	(a)	50	1,000
4	.....	.....	.....	14,080	8,945	700	(a)	50	1,000
5	.....	.....	.....	15,265	8,945	500	(a)	0	1,000
6	.....	.....	.....	13,290	9,340	500	(a)	0	1,000
7	.....	.....	.....	12,105	10,525	425	(a)	0	1,000
8	.....	.....	5,390	11,315	10,920	350	(a)	100	1,000
9	.....	.....	4,995	10,525	10,920	700	(a)	425	1,000
10	.....	.....	4,995	7,760	9,735	2,075	(a)	800	1,000
11	.....	.....	5,390	8,550	12,500	2,075	(a)	425	1,000
12	.....	.....	5,785	10,130	10,525	1,400	(a)	275	1,000
13	.....	.....	5,785	15,660	9,340	900	(a)	350	1,000
14	.....	.....	6,180	16,450	6,970	700	(a)	500	1,000
15	.....	.....	3,430	15,660	6,180	425	(a)	700	1,000
16	.....	.....	4,600	18,030	5,785	275	(a)	600	1,000
17	.....	.....	3,430	17,240	8,550	50	(a)	600	1,000
18	.....	.....	3,810	14,870	5,390	200	(a)	700	1,000
19	.....	.....	3,810	14,870	4,600	275	(a)	800	1,000
20	.....	.....	3,810	12,895	4,995	275	(a)	2,075	1,000
21	.....	.....	3,430	12,500	4,995	200	(a)	3,810	1,000
22	.....	.....	2,700	12,500	4,995	(a)	(a)	3,810	1,000
23	.....	.....	1,800	11,710	4,205	0	(a)	4,995	1,000
24	.....	.....	1,400	11,710	4,600	0	(a)	2,700	1,000
25	.....	.....	.....	12,500	4,205	0	(a)	2,350	1,000

a Pools.

Mean daily discharge, in second-feet, of Platte River near Columbus, 1895–1906—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1904.									
26	.....	.....	1,250	15,265	3,810	0	(a)	1,400	1,000
27	.....	.....	1,800	14,870	3,430	0	(a)	1,100	.....
28	.....	.....	3,430	12,895	2,700	0	(a)	1,000	.....
29	.....	.....	4,205	11,710	3,050	0	(a)	1,000	.....
30	.....	.....	8,550	10,920	2,350	0	(a)	1,000	.....
31	.....	.....	7,760	.....	1,600	100	.....	1,000	.....
1905.									
1	.....	2,280	18,450	32,100	20,450	4,270	260	670	.....
2	.....	1,750	15,500	35,600	21,150	6,700	0	360	.....
3	.....	2,280	13,170	34,700	24,050	6,700	0	260	.....
4	.....	2,580	10,850	32,100	31,250	8,040	0	260	.....
5	.....	2,280	17,670	31,250	25,580	6,700	460	0	.....
6	.....	3,650	33,550	29,600	34,700	7,020	900	0	.....
7	.....	4,510	14,260	29,600	21,850	6,395	2,590	0	.....
8	.....	4,060	13,170	29,600	19,780	5,520	4,745	0	.....
9	.....	4,060	14,260	25,580	15,450	4,500	3,820	0	.....
10	.....	3,270	12,190	30,420	14,900	3,180	2,780	0	.....
11	.....	3,270	15,500	27,950	13,280	2,590	2,050	0	.....
12	.....	2,910	14,880	31,250	10,880	2,220	1,150	0	.....
13	.....	2,280	27,400	31,250	9,170	2,225	1,025	0	.....
14	.....	2,580	36,800	30,420	7,690	2,050	3,600	0	.....
15	.....	2,280	47,200	31,250	6,390	2,050	3,390	80	.....
16	.....	2,280	30,420	31,250	5,520	2,220	2,050	0	.....
17	4,060	2,910	33,550	40,150	4,740	3,180	2,225	0	.....
18	6,720	2,910	24,520	32,100	4,040	3,390	8,780	0	.....
19	4,510	2,910	15,500	33,820	3,180	3,600	8,410	0	.....
20	8,080	5,530	14,880	28,780	2,400	2,590	7,700	80	.....
21	7,380	8,080	12,680	28,780	2,400	2,590	7,025	260	.....
22	6,720	9,600	12,680	25,570	2,050	2,225	6,400	460	.....
23	7,380	11,280	11,740	51,100	2,220	2,400	5,520	565	.....
24	6,100	13,170	11,280	32,950	1,730	1,290	5,260	1,025	.....
25	5,000	15,500	10,420	30,420	1,730	1,150	2,980	1,430	.....
26	4,060	18,450	11,740	30,420	4,740	1,730	2,050	1,150	.....
27	3,650	21,800	10,850	31,250	6,390	2,050	1,580	1,150	.....
28	2,910	27,400	13,720	26,350	4,740	785	1,150	1,430	.....
29	2,580	24,500	23,600	25,580	4,040	360	785	3,180	.....
30	2,280	23,600	26,420	24,050	3,820	0	670	3,180	.....
31	2,280	.....	31,450	.....	3,600	0	.....	3,180	.....
1906.									
1	.....	.....	22,300	8,090	10,100	2,440	8	630	2,290
2	.....	.....	22,300	9,690	7,040	2,290	155	630	4,240
3	.....	.....	23,200	9,690	6,700	2,160	235	565	4,240
4	.....	.....	16,100	14,200	5,790	4,040	95	380	4,970
5	.....	.....	12,500	14,200	4,240	3,240	95	330	5,790
6	.....	.....	11,500	13,600	4,490	2,440	95	380	5,790
7	.....	.....	9,690	13,100	4,040	4,260	95	380	6,080
8	.....	7,040	7,370	15,400	3,830	3,430	120	330	6,080
9	.....	6,390	7,370	13,100	3,430	3,240	330	330	5,500
10	.....	6,080	7,040	12,500	3,070	3,830	380	440	5,500
11	.....	6,080	6,700	9,690	2,900	3,070	280	630	4,490
12	.....	6,390	6,390	8,090	2,580	3,240	330	630	4,490
13	.....	7,370	5,790	7,040	2,900	2,580	330	565	4,240
14	.....	10,600	5,500	6,080	2,740	2,020	850	630	4,490
15	.....	8,480	4,730	5,790	2,440	2,020	2,440	700	4,490
16	.....	6,390	4,730	5,500	2,290	1,210	1,420	930	4,490
17	.....	6,700	4,260	6,390	2,160	1,770	2,020	1,210	3,830
18	.....	6,080	4,040	8,860	4,040	700	2,290	1,530	3,620
19	.....	4,240	4,040	7,040	2,580	330	2,440	1,650	3,620
20	.....	4,730	4,040	7,730	2,580	95	1,770	1,650	3,240
21	.....	3,240	3,830	5,790	2,160	95	1,530	1,530	3,160
22	.....	4,260	3,830	4,730	2,020	95	1,110	3,070	3,070
23	.....	4,970	3,430	4,490	2,020	95	1,110	4,970	2,980
24	.....	5,500	5,790	4,910	2,740	40	1,020	4,040	2,900
25	.....	4,490	9,690	8,860	2,580	32	850	4,730	3,070
26	.....	4,490	6,770	11,100	2,440	95	850	4,730	3,070
27	.....	4,240	7,370	13,600	1,020	55	1,020	3,240	2,900
28	.....	7,370	3,620	10,100	3,070	20	850	3,240	2,900
29	.....	13,600	3,430	8,480	3,430	18	630	2,290	2,900
30	.....	11,500	7,730	8,860	3,240	15	630	1,900	4,040
31	.....	.....	8,480	.....	3,240	10	.....	2,580	.....

a Pools.

Estimated monthly discharge of Platte River near Columbus, 1895–1906.

[Drainage area, 56,900 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
March.								
1901 [a]	2,440	1,800	2,060	32,700	.....	.....	.....	1.59
1902 [b]	5,660	995	2,817	134,100	.....	.....	.....	1.19
1903 [c]	13,550	7,050	9,652	325,500	.....	.....	.....	.94
1905 [d]	8,080	2,280	4,914	146,200	.....	.....	.....	1.31
April.								
1898 [e]	2,700	500	1,477	87,900	.....	.....	.....	1.65
1899	23,700	3,600	8,600	511,700	0.151	0.17	2	.83
1900 [f]	14,530	1,590	5,584	332,300	.....	.....	.....	5.79
1901	28,400	1,300	8,827	525,200	.155	.18	7	2.64
1902	2,400	825	1,076	64,000	.019	.02	2	1.07
1903	7,800	1,980	4,339	258,200	.076	.08	5	1.48
1905	27,400	1,760	7,800	464,100	.137	.15	4	3.70
1906	13,600	3,240	6,530	388,600	.115	.13	3	4.35
May.								
1897	21,600	6,700	11,801	725,600	.207	.24	12	1.97
1898	10,700	1,500	5,851	359,800	.103	.12	3	4.40
1899	25,770	4,700	10,373	637,800	.182	.21	7	2.86
1900	35,400	7,300	19,039	1,170,600	.333	.38	28	1.37
1901	9,200	2,050	5,300	325,900	.093	.10	5	2.09
1902	13,800	1,210	5,462	335,800	.096	.11	3	3.40
1903	21,600	3,300	9,159	563,200	.161	.19	4	4.60
1904	8,550	1,250	4,128	253,800	.073	.08	2	3.37
1905	47,200	10,420	19,360	1,190,000	.340	.39	7	5.73
1906	23,200	3,430	8,180	503,000	.144	.17	6	2.76
June.								
1895	27,200	5,170	14,027	834,700	.247	.28	7	4.04
1896	14,900	4,320	7,510	446,900	.132	.15	6	2.65
1897	31,100	5,500	16,904	1,005,800	.296	.33	12	2.77
1898	24,600	5,100	11,278	671,100	.200	.22	7	3.03
1899	25,540	5,000	13,747	818,800	.241	.27	10	2.66
1900	25,570	6,700	14,696	874,500	.258	.29	19	1.51
1901	12,880	5,500	9,363	857,100	.164	.18	6	2.96
1902	9,950	4,150	6,426	382,300	.113	.13	4	3.38
1903	21,600	4,000	8,816	524,600	.155	.17	8	2.20
1904	18,190	7,760	12,880	766,400	.226	.25	7	3.64
1905	51,100	24,050	31,180	1,855,000	.548	.61	12	5.04
1906	15,400	4,490	9,220	549,000	.162	.18	7	2.70
July.								
1895	9,320	1,380	3,685	226,600	.065	.08	7	1.12
1896	4,490	0	1,629	100,200	.029	.03	1	3.43
1897	8,200	990	2,771	170,400	.049	.06	3	2.36
1898 [g]	6,100	500	3,029	186,200	.....	.....	.....	1.59
1899	24,850	3,380	14,551	894,700	.255	.30	12	2.55
1900	10,500	200	2,883	177,300	.050	.06	2	2.63
1901 [h]	4,500	725	1,991	47,400	.....	.....	.....	1.29
1902	11,140	995	5,267	323,800	.093	.11	3	3.84
1903	13,550	2,320	5,847	359,500	.103	.12	3	3.71
1904	12,500	1,520	6,888	423,500	.121	.14	5	3.14
1905	34,700	1,730	10,770	662,200	.189	.22	5	4.67
1906	10,100	1,020	3,480	214,000	.061	.07	3	2.70
August.								
1895	1,340	96	722	44,400	.012	.01	.6	1.63
1896	2,380	0	423	26,000	.007	.01	.6	1.74
1897	.....	.....	(i)	.....	.....	.....	.....	2.46
1898	.....	.....	(i)	.....	.....	.....	.....	1.84
1899	10,400	1,860	5,658	347,900	.100	.01	.5	2.04
1900	.....	.....	(i)	.....	.....	.....	.....	2.20
1901	.....	.....	(i)	.....	.....	.....	.....	1.80
1902	1,150	190	404	24,800	.007	.01	.6	1.65
1903	6,380	1,350	3,507	215,600	.062	.07	2	3.52
1904	2,080	0	451	27,700	.008	.01	.5	2.11
1905	8,040	0	3,217	197,800	.057	.07	3	2.79
1906	4,230	10	1,580	97,200	.028	.03	1	3.66

[a] March 24 to 31.
[b] March 8 to 31.
[c] March 15 to 31.
[d] March 17 to 31.
[e] April 17 to 30.
[f] April 8 to 30.
[g] July 1 to 20.
[h] July 1 to 11.
[i] Water in pools or tiny channels.

Estimated monthly discharge of Platte River near Columbus, 1895–1906—Continued.

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
September.								
1896			(a)					2.10
1897			(a)					.81
1898			(a)					1.06
1899			(a)					.60
1900 [b]			1,588	22,100				2.41
1901			(a)					2.82
1902	975	0	337	20,500	0.006	0.01	0.3	3.22
1903	4,750	190	1,175	69,900	.021	.02	2	1.27
1904	41	0	200					1.56
1905	8,780	0	2,978	177,200	.052	.06	2	3.79
1906	2,440	0.8	846	50,300	.015	.02	1	2.00
October.								
1896	2,500	188	649	38,900	.011	.01		1.37
1897			(a)					2.04
1898			(a)					.73
1899			(a)					.40
1900 [c]			806	12,800				1.56
1901			(a)					1.09
1902	5,000	690	1,798	110,600	.032	.04	2	1.88
1903	1,100	190	613	37,700	.011	.01	1	1.00
1904	4,990	0	1,037	63,800	.018	.02	1	1.87
1905	3,180	0	604	37,100	.011	.01	1	1.23
1906	4,970	330	1,640	101,000	.029	.03	1	2.40
November.								
1896 [d]	3,540	620	2,098	58,300				.87
1900 [e]			472	8,400				.19
1901	978	375	672	40,000	.012	.01	2	.53
1902	925	635	796	47,400	.014	.02	5	.35
1903	3,100	1,090	1,926	114,600	.034	.04	7	.55
1904			1,000	59,500	.018	.02	25	.08
1905	6,080	2,290	4,080	243,000	.072	.08	12	.64

[a] Water in pools or tiny channels
[b] September 11 to 17.
[c] October 24 to 31.
[d] November 1 to 14.
[e] November 1 to 9

PLATTE RIVER AT SOUTHBEND.

The station at Southbend was established March 25, 1903, and discontinued September 30 of the same year. When the station was selected it was expected that measurements could be made from a foot bridge which was then out of repair; but as the repairs were not made and as there was no other practical method of making measurements, it was necessary to abandon the station. Its location at Southbend, below all important tributaries of the Platte, is shown on the Fremont topographic sheet of the United States Geological Survey.

The channel at the gage is straight. The right bank is low and subject to overflow; the left bank is a high limestone bluff. The bed is of shifting sand and a large number of measurements would be required for accurate results.

The gage was an inclined staff, graduated to half-tenths, located on the left bank in the NE. ¼ sec. 13, T. 12 N., R. 10 E., one-fourth mile north of the Burlington and Missouri River Railroad depot at Southbend. The gage was referred to bench marks as follows: (1) The sill

of the north window of the Burlington and Missouri River Railroad depot; elevation, 10.47 feet above the zero of the gage. (2) The northeast corner of the southeast cornerstone of the left masonry abutment to an old bridge 100 feet downstream from the gage; elevation, 13.78 feet above the zero of the gage.

Discharge measurements of Platte River at Southbend, 1903.

Date.	Hydrographer.	Gage height.	Discharge.
1903.		*Feet.*	*Second-feet.*
May 5	J. C. Stevens	3.80	13,178
August 31	do	4.90	38,846
September 14	do	2.30	11,986

Mean daily gage height, in feet, of Platte River at Southbend, 1903.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1		3.15	3.40	6.50	3.15	2.55	4.50
2		3.05	3.25	5.95	2.90	5.50	4.15
3		3.00	3.25	5.70	2.85	4.55	3.20
4		2.10	3.45	5.20	3.05	4.25	2.90
5		2.10	3.80	4.70	5.00	3.85	2.30
6		2.90	3.55	4.45	4.40	3.45	2.05
7		2.70	3.35	3.80	4.00	3.25	1.85
8		2.55	3.25	3.65	3.65	2.90	1.70
9		2.50	3.15	3.50	3.15	2.45	2.00
10		2.50	3.15	3.20	2.65	2.25	1.95
11		2.50	3.85	3.05	2.75	1.95	1.85
12		2.52	4.70	2.85	2.55	2.00	1.95
13		2.75	4.65	2.70	2.35	1.95	2.00
14		2.60	4.45	2.55	2.25	4.00	2.30
15		2.45	4.15	2.35	2.15	3.60	2.55
16		2.50	4.10	2.25	2.15	3.60	2.75
17		2.55	3.40	2.00	3.05	3.15	2.90
18		2.55	3.15	2.05	3.55	2.75	2.45
19		2.55	3.40	2.35	3.70	2.50	1.90
20		2.55	3.50	2.20	3.45	2.20	1.60
21		2.60	3.60	2.55	2.25	2.20	1.50
22		2.60	3.95	3.00	2.90	1.90	1.40
23		2.65	4.05	3.25	2.45	1.80	1.35
24		2.70	4.00	2.95	2.35	1.70	1.15
25	3.55	2.60	4.50	3.30	1.70	1.45	1.05
26	3.65	2.35	5.40	3.60	1.35	1.75	1.05
27	3.65	2.35	5.15	3.75	1.25	2.30	1.05
28	3.15	2.45	5.40	3.65	1.25	5.55	.95
29	3.25	2.95	5.60	3.60	1.95	5.45	.90
30	3.15	3.50	6.55	3.60	1.75	5.15	.90
31	3.45	.....	6.60	.....	2.60	4.90	.....

NORTH PLATTE DRAINAGE BASIN.

DESCRIPTION OF BASIN.

North Platte River rises in the northern part of North Park, in Colorado, flows north and then east through Wyoming and the west-central part of Nebraska, and unites with South Platte River in Lincoln County, Nebr., to form the Platte.

The headwaters of this river are mountainous streams, flowing in narrow canyons or gorges and receiving numerous canyon tributaries

almost to the Nebraska state line, where it becomes a wide, shallow, sandy stream, spreading over the plains. Its drainage basin thus includes both the mountainous, forested type and the grass-grown areas and embraces 28,500 square miles.

The topography and geology of its headwater area are essentially those of the Rocky Mountain region, which have been described many times by scientific and popular writers. Throughout its course in western Nebraska the river has eroded a valley 10 to 15 miles wide and more than 300 feet deep. The present valley floor, consisting of sediments deposited in a former, greater valley, is bordered by terraces and table-lands that are scarred by numerous tributaries and arroyos. In the upper terrace are pebbles and cobblestones that point to the former existence of a deep, swift stream; in the lower terrace the material is fine; and in the present valley the bed is almost entirely of sand and the stream is broad and shallow, with a flood plain from a mile to 4 miles wide. These table-lands and terraces are composed of pinkish clays, hard and more or less sandy, dotted here and there with characteristic remains of an overlying formation of impure limestone that forms many distinct landmarks of the North Platte Valley, among which may be mentioned Chimney Rock, Court House and Jail, and Castle Rock. Beyond these table-lands and terraces, particularly on the north, are sand hills, in many places extending almost to the river valley.

The soil of the North Platte Valley is sandy but very fertile and requires only the application of water to make it highly productive. There is little or no forest land except on the headwaters, and the timber that exists has been planted by man. Outside of the immediate river valley the country is given over almost entirely to range land for cattle. In the valley of the river large quantities of hay, grains, corn, etc., are raised, mostly by the aid of irrigation.

The precipitation on the headwaters comes chiefly in the form of snow during the winter months. In the lower portion of the stream basin the precipitation is from 15 to 18 inches and the evaporation is from 5 to 6 feet.

The North Platte is subject to floods which occur periodically, reaching their maximum at the mouth of the stream sometime during the latter part of June. After these floods have subsided the flow greatly diminishes until about the first of September, when the river is almost dry so far as surface flow is concerned. The waters of the stream are extensively used for irrigation, but owing to the fluctuation of the discharge storage is necessary to make the entire supply available for use. To this end a large storage reservoir is being built by the United States Reclamation Service in Wyoming, whence waters will be taken in canals to supply the needs of the valley. The principal tributaries of North Platte River are the Sweetwater and the

Laramie, in Wyoming. Just below the mouth of the Sweetwater is the site of the Pathfinder dam. In Nebraska the tributaries are a few small creeks.

The following table shows the number and location of the stations which have been and are at present maintained on this stream in Nebraska:

Gaging stations on North Platte River in Nebraska.

Station.	County.	Established.	Discontinued.
Mitchell	Scotts Bluff	June 3, 1901	
Gering	do	May 29, 1897	May 25, 1901
Camp Clarke	Cheyenne	June 27, 1896	Nov. 10, 1900
Bridgeport	do	May 4, 1902	
North Platte	Lincoln	Oct. 5, 1894	

NORTH PLATTE RIVER AT MITCHELL.

Observations were begun near this point on the North Platte on May 29, 1897, when the Gering station was established. On June 3, 1901, this was replaced by the station at Mitchell, where conditions were more favorable and which had the added advantage of being nearer the Nebraska-Wyoming state line. The station at Mitchell is located at the highway bridge 1 mile south of the town, in sec. 27, T. 23 N., R. 56 W., and is shown on the Scotts Bluff topographic atlas sheet of the United States Geological Survey.

At the gaging section the stream flows in three channels and the alignment is straight for a considerable distance both above and below. The bed is composed of shifting sand, 20 feet or more in depth. The banks are low but not liable to overflow. The water is never sluggish, even at extreme low stages, when it runs in numerous tiny channels. The range of gage heights is about 6 feet. Attempts to obtain reliable records of winter flow have heretofore proved unsuccessful, as at times during the winter the river freezes solid.

Discharge measurements are made from the upstream side of a long pile bridge, supported on bents spaced 20 feet apart.

The gage is of the standard weight and chain type, fastened to the upstream end of the hand rail near the center of the bridge. The length of the chain from the index to the end of the weight is 10.60 feet. The gage is referred to bench marks as follows: (1) A cross cut in the floor of the bridge at the gage; elevation, 9.74 feet above the zero of the gage. (2) A standard aluminum bench-mark cap, marked United States Geological Survey, leaded into the top of a 2-inch gas pipe 4 feet long, located 138 feet north and 30 feet east of the left end of the downstream hand rail; elevation, 8.64 feet above the zero of the gage.

During 1901 the gage datum was 1 foot higher than during subsequent years, a fact which resulted in negative gage heights. Accordingly, on May 3, 1902, the gage datum was lowered 1 foot. All gage heights so affected have been corrected to the present gage datum, which is 8.64 feet below bench mark No. 2.

Discharge measurements of North Platte River at Mitchell, 1901–1906.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
1901.			
June 3	O. V. P. Stout	3.67	10,521
June 21	R. H. Willis	3.32	8,478
July 2	do	2.27	4,114
July 11	do	1.37	1,768
July 19	H. O. Smith	.66	1,048
August 3	R. H. Willis	.72	1,038
August 12	do	.45	566
August 24	do	.28	351
September 3	do	.23	227
September 11	do	.38	422
September 24	do	.25	341
October 11	do	.29	302
October 29	do	.39	438
November 26	do	.45	576
1902.			
April 4	Frank Dobson	1.56	917
May 3	do	2.22	2,649
May 28	do	2.46	3,698
June 12	do	3.15	6,426
June 19	do	3.00	4,895
June 27	do	2.42	3,270
July 16	do	1.58	1,014
July 24	do	1.30	630
August 8	do	1.05	349
August 19	do	.85	102
September 2	do	.82	29
October 25	R. H. Willis	.96	372
1903.			
March 31	J. C. Stevens	1.76	1,735
May 12	do	2.60	3,580
June 20	do	3.68	9,637
July 7	do	2.72	4,230
July 30	do	1.50	1,067
August 12	J. C. Stevens	1.20	456
August 21	do	.87	184
August 22	do	.88	215
September 3	O. V. P. Stout	.82	158
1904.			
March 29	M. D. McWilliams	2.30	1,273
April 23	J. C. Stevens	2.58	1,890
May 9	M. D. McWilliams	3.40	5,070
May 23	do	4.75	11,891
June 9	J. C. Stevens	3.15	4,540
September 27	R. D. Hubbard	1.75	209
September 29	A. J. Parshall	1.72	214
September 30	do	1.80	266
1905.			
March 29	H. C. Gardner	2.40	1,186
May 12	do	4.15	8,619
June 13	do	5.20	16,770
July 11	do	3.25	3,852
July 20	do	2.50	1,622
August 3	do	2.75	2,014
September 21	F. S. Dobson	1.92	383
September 7	H. C. Gardner	1.95	507
1906.			
April 12	F. S. Dobson	3.35	3,168
May 8	do	3.45	3,991
do	do	3.45	4,261
June 26	Arthur Dobson	4.05	6,786
July 24	do	3.12	2,630
September 1	do	2.45	852
October 16	Arthur Wilson	2.53	643
December 8	do	2.95	2,077

Mean daily gage height, in feet, of North Platte River at Mitchell, 1901–1906.

Day.	June.	July.	Aug.	Sept.	Oct.	Nov.	Day.	June.	July.	Aug.	Sept.	Oct.	Nov.
1901.							1901.						
1	.....	2.40	.....	0.18	0.23	0.40	17	3.40	1.06	0.35	0.27	0.40	.....
2	.....	2.27	.....	.19	.23	.40	18	3.60	1.05	.34	.25	.40	.....
3	3.67	2.21	0.72	.23	.23	.....	19	3.50	1.03	.35	.25	.40	.....
4	.....	2.09	.....	.20	.24	.....	20	3.40	1.01	.34	.28	.43	.....
5	.....	2.01	.....	.30	.24	.....	21	3.32	.....	.35	.25	.40	.....
6	.....	2.00	.....	.35	.25	.....	22	3.22	.....	.30	.25	.40	.....
7	.....	1.94	.....	.37	.25	.....	23	2.90	.....	.30	.24	.40	.....
8	.....	1.82	.....	.37	.24	.....	24	2.75	.....	.28	.25	.40	.....
9	3.50	1.65	.....	.34	.23	.....	25	2.60	.....	.25	.25	.40	.....
10	3.30	1.57	.....	.35	.25	.....	26	2.55	.....	.25	.23	.40	0.45
11	3.15	1.48	.....	.38	.29	.....	27	2.42	.....	.23	.25	.40	.....
12	3.15	1.31	.45	.34	.22	.....	28	2.41	.....	.20	.22	.40	.....
13	3.00	1.22	.30	.30	.33	.....	29	2.40	.....	.20	.22	.40	.....
14	3.00	1.22	.35	.28	.40	.....	30	2.40	.....	.28	.24	.40	.....
15	4.00	1.11	.35	.28	.45	.....	31	.....	.....	.18	.....	.38	.....
16	3.30	1.08	.38	.27	.40	.....							

Mean daily gage height, in feet, of North Platte River at Mitchell, 1901–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.												
1	.....	.....	.....	.....	2.26	2.79	2.30	1.21	0.82	0.86	0.95	.....
2	.....	.....	.....	.....	2.36	2.91	2.65	1.23	.82	.86	.94	.....
3	.....	.....	.....	.....	2.22	3.05	2.22	1.19	.83	.87	.94	.....
4	.....	.....	.....	1.56	2.42	3.17	2.05	1.13	.83	.87	.93	.....
5	.....	.....	.....	1.56	2.27	3.25	1.89	1.14	.82	.87	.94	.....
6	.....	.....	.....	1.56	2.32	3.27	1.91	1.14	.82	.87	1.08	.....
7	.....	.....	.....	1.31	2.43	3.05	1.90	1.00	.82	.93	1.09	.....
8	.....	.....	.....	1.21	2.47	3.05	1.91	1.03	.83	.....	1.08	.....
9	.....	.....	.....	1.31	2.48	3.02	1.90	1.04	.83	.....	1.08	.....
10	.....	.....	.....	1.27	2.65	3.17	1.85	1.00	.82	.....	1.11	.....
11	.....	.....	.....	1.27	2.75	3.11	1.76	.98	.82	.....	1.09	.....
12	.....	.....	.....	1.41	2.70	3.16	1.69	.95	.82	.89	1.10	.....
13	.....	.....	.....	1.51	2.80	3.14	1.69	.90	.82	.93	1.10	.....
14	.....	.....	.....	1.61	2.95	3.14	1.76	.93	.83	.93	1.10	.....
15	.....	.....	.....	1.71	3.01	3.19	1.61	.90	.83	.91	1.10	.....
16	.....	.....	.....	1.91	3.07	3.10	1.60	.87	.83	.93	1.14	.....
17	.....	.....	.....	1.81	3.14	3.05	1.54	.86	.83	.92	1.10	.....
18	.....	.....	.....	1.81	3.14	3.01	1.46	.85	.83	.91	1.75	.....
19	.....	.....	.....	1.86	3.19	3.03	1.41	.85	.82	.93	1.15	.....
20	.....	.....	.....	1.86	3.19	2.99	1.38	.85	.84	.93	1.18	.....
21	.....	.....	.....	1.91	3.02	2.94	1.37	.84	.85	.94	1.17	.....
22	.....	.....	.....	1.86	3.27	2.76	1.37	.84	.88	.96	1.16	.....
23	.....	.....	.....	1.86	3.19	2.64	1.39	.84	.89	.97	.....	.....
24	.....	.....	.....	2.26	3.15	2.51	1.33	.84	.85	.97	.....	.....
25	.....	.....	.....	2.21	3.05	2.32	1.28	.84	.84	.98	.....	.....
26	.....	.....	.....	2.41	2.90	2.21	1.31	.84	.85	.99	.....	.....
27	.....	.....	.....	2.41	2.70	2.30	1.29	.84	.84	.98	.....	.....
28	.....	.....	.....	2.51	2.52	2.20	1.25	.84	.87	.99	.....	.....
29	.....	.....	.....	2.46	2.49	2.53	1.46	.83	.86	1.00	.....	.....
30	.....	.....	.....	2.36	2.39	2.39	1.50	.83	.86	.99	.....	.....
31	.....	.....	.....	.....	2.20	.....	1.31	.83	.....	.97	.....	.....
1903.												
1	.....	.....	.....	1.76	2.95	2.50	2.95	1.47	.85	1.80	1.86	2.14
2	.....	.....	.....	1.70	2.80	2.52	2.95	1.47	.82	1.72	1.86	2.00
3	.....	.....	.....	1.80	2.83	2.51	2.95	1.40	.80	1.69	1.86	1.81
4	.....	.....	.....	2.15	2.81	2.56	2.95	1.40	.80	1.71	1.85	1.97
5	.....	.....	.....	2.44	2.71	2.65	2.80	1.40	.82	1.67	1.89	2.12
6	.....	.....	.....	2 30	2.71	2.90	2.70	1.40	.72	1.61	1.87	2.30
7	.....	.....	.....	2.21	2.68	3.05	2.72	1.30	.77	1.65	1.90	2.01
8	.....	.....	.....	2 23	2 63	3.16	2.65	1.30	.77	1.70	1.86	1.91
9	.....	.....	.....	2.15	2.59	3.36	2.60	1.25	.95	1.75	1.91	1.80
10	.....	.....	.....	2.14	2.60	3.39	2.35	1.25	.95	1.80	1.89	1.67
11	.....	.....	.....	2.14	2.58	3.40	2.32	1.35	.72	1.76	1.81	1.60
12	.....	.....	.....	2.15	2.60	3.44	2.32	1.25	.82	1.77	2.02	1.45
13	.....	.....	.....	2.25	2.65	3.60	2.25	1.25	.81	1.74	2.01	1.43
14	.....	.....	.....	2.25	2.69	3.50	2.15	1.30	1.35	1.76	2.10	1.50
15	.....	.....	.....	2.26	2.56	3.50	2.10	1.15	1.50	1.76	2.07	1.46
16	.....	.....	.....	2.21	2.85	3.46	2.05	1.15	1.60	1.79	2.08	1.47
17	.....	.....	.....	2.30	2.87	3.56	2.05	1.23	1.60	1.80	2.78	1.46
18	.....	.....	.....	2 34	2.90	3.65	2.00	1.18	1.65	1.84	2.67	1.65
19	.....	.....	.....	2 33	3.02	3.71	1.87	1.05	1.65	1 87	2.18	1.70
20	.....	.....	.....	2.35	3.11	3 65	1.80	.95	1.66	1.82	1.65	1.66
21	.....	.....	.....	2.34	3.20	3 78	1.70	.92	1.65	1.81	2.00	1.76
22	.....	.....	.....	2.35	3.24	3.91	1.63	.90	1.65	1.85	2.30	1.85
23	.....	.....	.....	2.36	3.17	3.80	1.67	.72	1.68	1.85	2.00	1.81
24	.....	.....	.....	2 46	2.97	3.75	1.82	1.10	1.70	1.80	2.01	1.71
25	.....	.....	.....	2 40	2.95	3.70	1.87	1.20	1.70	1.80	1.92	1.91
26	.....	.....	.....	2.41	2.90	3.61	1.75	1.10	1.75	1.80	2.04	1.82
27	.....	.....	.....	2.04	2.80	3.42	1.60	.87	1.74	1.81	2.08	2.00
28	.....	.....	.....	2 70	2.84	3.30	1.55	.85	1.80	1.82	2.03	1.82
29	.....	.....	.....	2.83	2.76	3.31	1.50	.85	1.77	1.82	2.10	1.79
30	.....	.....	.....	2.93	2.60	3.25	1.50	.82	1.72	1.88	2.16	1.80
31	.....	.....	1.76	.....	.....	.....	1.50	.87	.....	1.89	.....	2.00
1904.												
1	2.08	.....	.....	2.22	2.75	4.30	3.30	2.12	1.97	1.75	1.87	1 81
2	2.00	2 50	.....	2.15	2 80	4.50	3.28	2.16	1.93	1.72	1.86	1.83
3	1.95	2 25	.....	2 14	2 84	4 40	3.40	2.13	1.90	1.70	1.85	1.86
4	1 85	2 20	.....	2 32	2 94	4 60	3.07	2.12	1.95	1.73	1.80	1 78
5	2.03	2 22	.....	2.30	3.70	4.35	3.00	2.10	1.93	1.75	1.86	1.71

Mean daily gage height, in feet, of North Platte River at Mitchell, 1901–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.												
6	1.97	2.23	2.53	2.27	3.90	4.50	3.15	2.11	1.95	1.70	1.87	1.73
7	1.85	2.20	2.45	2.25	3.84	4.70	3.23	2.15	1.97	1.75	1.88	1.72
8	1.90	2.15	2.60	2.27	3.70	4.80	3.20	2.09	1.93	1.77	1.89	1.71
9	2.12	2.17	2.55	2.18	3.58	4.75	3.15	2.11	1.90	1.70	1.86	1.72
10	1.87	2.25	2.57	2.17	3.49	4.73	3.10	2.11	1.95	1.75	1.88	1.74
11	2.10	2.20	2.55	2.18	3.45	4.60	3.05	2.08	1.85	1.73	1.89	1.75
12	2.00	2.23	2.50	2.15	3.40	4.40	3.00	2.02	1.87	1.76	1.98	1.77
13	2.15	2.19	2.47	2.20	3.37	4.55	2.90	2.00	1.85	1.70	1.97	1.80
14	2.12	.....	2.45	2.25	3.35	4.00	2.85	2.05	1.90	1.75	1.96	1.78
15	2.25	.....	2.43	2.19	3.33	4.35	2.75	2.07	1.92	1.70	1.98	1.76
16	2.15	.....	2.45	2.20	3.37	4.20	2.63	2.00	1.95	1.73	1.97	1.73
17	2.30	.....	2.47	2.18	3.45	4.30	2.60	2.01	1.90	1.75	1.95	2.30
18	2.37	.....	2.46	2.13	3.47	4.40	2.59	2.05	1.89	1.72	1.93	2.30
19	2.35	.....	2.47	2.10	3.48	4.30	2.58	1.95	1.92	2.05	1.94	2.30
20	2.38	.....	2.45	2.40	3.45	4.50	2.55	2.00	1.85	2.00	1.95	2.00
21	2.40	.....	2.47	2.60	3.72	4.40	2.53	2.03	1.87	1.95	1.97	1.90
22	2.45	.....	2.43	2.58	3.67	4.15	2.50	1.95	1.83	1.92	1.89	1.80
23	2.45	.....	2.42	2.60	4.90	4.20	2.48	1.97	1.85	1.90	1.87	1.77
24	.....	.....	2.38	2.65	4.90	4.35	2.48	1.90	1.87	1.95	1.86	1.76
25	.....	.....	2.30	2.71	4.00	4.50	2.45	1.95	1.83	1.93	1.85	.....
26	.....	.....	2.34	2.75	4.30	4.65	2.42	1.93	1.80	1.95	1.87	.....
27	.....	.....	2.32	2.80	4.20	4.57	2.45	1.94	1.82	1.90	1.88	.....
28	.....	.....	2.35	2.79	4.50	4.40	2.40	1.92	1.79	1.88	1.84	.....
29	.....	.....	2.33	2.81	4.10	4.30	2.35	1.93	1.75	1.92	1.85	.....
30	.....	.....	2.30	2.82	4.80	3.90	2.30	1.90	1.77	1.92	1.83	.....
31	.....	.....	2.32	.....	4.50	.....	2.26	1.94	.....	1.87	.....	.....
1905.												
1	1.87	1.67	2.72	2.5	4.1	5.0	4.1	2.7	2.1	1.9	.....	.....
2	1.79	.....	2.65	2.6	4.1	4.9	4.1	2.6	2.0	1.9	.....	.....
3	1.77	.....	2.4	2.6	4.2	4.8	4.1	2.7	2.0	1.9	.....	.....
4	1.8	.....	2.37	2.55	4.3	4.8	3.9	2.7	2.0	1.9	.....	.....
5	1.81	.....	2.35	2.5	4.4	4.8	3.8	2.6	2.0	1.9	.....	.....
6	1.76	.....	2.34	2.5	4.3	4.8	3.7	2.6	1.9	1.9	.....	.....
7	1.77	.....	2.32	2.5	4.4	4.8	3.6	2.6	1.9	1.9	.....	.....
8	1.78	.....	2.3	2.5	4.5	4.9	3.6	2.5	2.0	1.9	.....	.....
9	1.75	.....	2.34	2.5	4.4	5.1	3.5	2.5	2.0	1.9	.....	.....
10	1.74	.....	2.35	2.5	4.4	5.0	3.4	2.5	1.95	1.9	.....	.....
11	1.65	.....	2.34	2.6	4.3	5.0	3.2	2.5	1.9	1.9	.....	.....
12	1.64	.....	2.25	2.7	4.2	5.0	3.2	2.5	1.9	1.9	.....	.....
13	1.64	.....	2.3	2.7	4.2	5.2	3.1	2.65	1.9	1.9	.....	.....
14	1.65	.....	2.27	2.8	4.15	5.2	3.0	2.8	1.9	2.0	.....	.....
15	1.66	.....	2.35	2.8	4.1	5.0	2.9	2.6	1.9	2.0	.....	.....
16	1.76	.....	2.38	2.9	4.1	4.9	2.85	2.5	1.9	2.0	.....	.....
17	1.71	.....	2.41	3.0	4.1	4.8	2.8	2.4	1.9	1.9	.....	.....
18	1.82	.....	2.35	3.1	4.0	4.8	2.7	2.3	1.9	1.9	.....	.....
19	1.86	.....	2.4	3.1	3.9	4.8	2.6	2.3	1.9	1.9	.....	.....
20	1.88	.....	2.35	3.1	3.9	4.7	2.6	2.25	1.9	2.0	.....	.....
21	1.95	.....	2.4	3.1	4.0	4.7	2.5	2.2	1.9	2.0	.....	.....
22	2.0	2.1	2.45	3.3	4.1	4.6	2.5	2.3	1.9	2.0	.....	.....
23	2.05	2.15	2.5	3.4	4.2	4.4	2.55	2.3	1.9	2.0	.....	.....
24	2.1	2.25	2.45	3.5	4.9	4.3	2.6	2.2	1.9	2.0	.....	.....
25	1.87	2.3	2.35	3.6	4.7	4.25	2.6	2.2	1.9	2.0	.....	.....
26	2.07	2.53	2.42	4.1	4.6	4.2	2.5	2.2	1.9	2.0	.....	.....
27	2.09	2.55	2.4	4.2	4.6	4.1	2.7	2.15	1.9	2.0	.....	.....
28	2.01	2.6	2.36	4.1	4.7	4.0	2.8	2.1	1.9	2.0	.....	.....
29	1.8	.....	2.42	4.3	4.8	4.0	2.8	2.0	1.9	2.05	.....	.....
30	1.72	.....	2.45	4.2	4.9	4.0	2.75	2.0	1.9	2.1	.....	.....
31	1.69	.....	2.42	.....	4.9	.....	2.7	2.0	.....	2.1	.....	.....
1906.												
1	.....	.....	.....	.....	3.80	5.10	.....	2.80	2.50	2.50	2.70	.....
2	.....	.....	.....	.....	3.70	5.30	3.70	2.80	.....	2.50	2.70	.....
3	.....	.....	.....	.....	3.60	.....	3.60	2.80	2.40	2.50	2.80	.....
4	.....	.....	.....	.....	3.50	5.00	3.50	2.80	2.40	2.50	.....	.....
5	.....	.....	.....	.....	3.60	4.80	3.40	.....	2.40	2.50	2.80	.....
6	.....	.....	.....	3.60	.....	4.70	3.40	2.70	2.40	2.50	2.80	.....
7	.....	.....	.....	3.50	3.50	4.60	3.30	2.70	2.40	.....	2.80	.....
8	.....	.....	.....	.....	3.50	4.40	.....	2.70	2.50	2.50	2.80	.....
9	.....	.....	.....	3.40	3.50	4.40	3.20	2.90	.....	2.50	2.70	.....
10	.....	.....	.....	3.30	3.50	.....	3.20	2.80	2.40	2.40	2.70	.....

Mean daily gage height, in feet, of North Platte River at Mitchell, 1901–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1906.												
11	.....	.....	.....	3.30	3.60	4.50	3.20	2.70	2.40	2.40	.....	.....
12	.....	.....	.....	3.30	3.60	4.40	3.20	.....	2.40	2.40	2.70	.....
13	.....	.....	.....	3.40	.....	4.20	3.30	2.70	2.50	2.40	2.70	.....
14	.....	.....	.....	3.50	3.70	4.00	3.30	2.70	2.60	.....	2.80	.....
15	.....	.....	.....	3.80	3.80	3.90	.....	2.60	2.60	2.40	2.90	.....
16	.....	.....	.....	3.80	3.90	4.00	3.30	2.60	.....	2.40	2.80	.....
17	.....	.....	.....	3.80	4.00	.....	3.40	2.50	2.60	2.40	2.80	.....
18	.....	.....	.....	3.60	4.00	4.50	3.50	2.50	2.50	2.40	.....	.....
19	.....	.....	.....	3.60	3.90	4.50	3.40	.....	2.50	2.50	.....	.....
20	.....	.....	.....	3.50	.....	4.40	3.30	2.40	2.50	2.50	.....	.....
21	.....	.....	.....	3.50	3.90	4.40	3.20	2.40	2.50	.....	.....	.....
22	.....	.....	.....	.....	4.00	4.20	.....	2.50	2.40	2.50	.....	.....
23	.....	.....	.....	3.50	4.10	.....	3.20	2.70	.....	2.50	.....	.....
24	.....	.....	.....	3.70	4.20	4.10	3.10	2.80	2.50	2.60	.....	.....
25	.....	.....	.....	3.60	4.20	4.20	3.10	2.90	2.60	3.00	.....	.....
26	.....	.....	.....	3.60	4.40	.....	3.00	.....	2.50	2.70	2.60	.....
27	.....	.....	.....	3.60	.....	4.00	3.00	2.90	2.40	2.60	2.60	.....
28	.....	.....	.....	3.80	4.70	4.00	3.00	2.90	2.40	.....	2.50	.....
29	.....	.....	.....	.....	5.20	4.20	.....	2.80	2.40	2.60	2.40	.....
30	.....	.....	.....	3.90	5.30	4.10	2.90	2.70	.....	2.60	2.40	.....
31	.....	.....	.....	.....	5.20	.....	2.80	2.60	.....	2.60	.....	.....

Mean daily discharge, in second-feet, of North Platte River at Mitchell, 1901–1906.

Day.	June.	July.	Aug.	Sept.	Oct.	Nov.	Day.	June.	July.	Aug.	Sept.	Oct.	Nov.
1901.							1901.						
1	.....	4,530	.....	210	298	454	17	8,900	1,263	398	320	443	.....
2	.....	4,114	.....	210	287	455	18	9,920	1,263	386	298	444	.....
3	10,521	3,922	1,038	227	287	.....	19	9,400	1,048	409	298	445	.....
4	.....	3,555	.....	218	298	.....	10	8,850	1,217	409	340	481	.....
5	.....	3,350	.....	420	287	.....	21	8,478	.....	420	320	455	.....
6	.....	3,288	.....	375	298	.....	22	7,987	.....	363	330	455	.....
7	.....	3,102	.....	398	287	.....	23	6,510	.....	375	330	455	.....
8	.....	2,818	.....	398	276	.....	24	5,838	.....	351	341	455	.....
9	9,400	2,406	.....	363	266	.....	25	5,264	.....	319	313	454	.....
10	8,405	2,126	.....	375	276	.....	26	5,075	.....	309	308	454	576
11	7,695	1,768	.....	422	302	.....	27	4,629	.....	303	330	454	.....
12	7,695	1,650	566	375	235	.....	28	4,595	.....	245	287	454	.....
13	7,015	1,506	455	330	352	.....	29	4,562	.....	245	287	438	.....
14	7,015	1,506	398	320	432	.....	30	4,560	.....	320	308	454	.....
15	12,120	1,326	398	320	520	.....	31	.....	.....	218	.....	432	.....
16	8,405	1,294	432	308	443	.....							

Day.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.											
1	.....	.....	.....	2,703	4,695	2,910	533	34	130	397	.....
2	.....	.....	.....	2,958	5,110	3,777	559	30	130	386	.....
3	.....	.....	.....	2,649	5,627	2,635	507	32	140	386	.....
4	.....	.....	917	3,126	6,145	2,209	432	34	145	374	.....
5	.....	.....	932	2,795	6,510	1,853	443	34	.....	386	.....
6	.....	.....	947	2,910	6,877	1,853	455	34	.....	559	.....
7	.....	.....	612	3,203	5,590	1,798	298	37	.....	572	.....
8	.....	.....	494	3,335	5,590	1,779	329	44	.....	559	.....
9	.....	.....	639	3,363	5,477	1,724	329	44	.....	559	.....
10	.....	.....	598	3,864	6,100	1,596	277	44	.....	598	.....
11	.....	.....	612	4,186	5,839	1,406	245	48	.....	572	.....
12	.....	.....	818	4,039	6,027	1,263	209	48	201	585	.....
13	.....	.....	976	4,371	5,926	1,232	158	54	245	585	.....
14	.....	.....	1,140	4,896	5,839	1,326	175	58	245	585	.....
15	.....	.....	1,310	5,110	5,969	1,080	145	58	235	585	.....
16	.....	.....	1,668	5,365	5,515	1,050	124	62	266	776	.....
17	.....	.....	1,506	5,665	5,254	961	114	66	256	585	.....
18	.....	.....	1,524	5,665	5,038	846	104	66	256	652	.....
19	.....	.....	1,632	5,926	5,038	776	102	66	266	652	.....
20	.....	.....	1,650	5,969	4,896	734	102	79	287	693	.....

Mean daily discharge, in second-feet, of North Platte River at Mitchell, 1901–1906—Cont'd.

Day.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.											
21	.....	.....	1,761	5,290	4,729	720	94	89	298	679	.....
22	.....	.....	1,687	6,373	4,186	720	89	109	329	666	.....
23	.....	.....	1,705	6,0o6	3,835	748	84	114	351	.....	.....
24	.....	.....	2,545	5,882	3,470	666	79	99	363	.....	.....
25	.....	.....	2,455	5,515	2,982	598	74	99	386	.....	.....
26	.....	.....	2,934	5,002	2,934	639	70	104	443	.....	.....
27	.....	.....	2,958	4,371	2,958	612	66	104	432	.....	.....
28	.....	.....	3,229	3,864	2,703	598	62	124	443	.....	.....
29	.....	.....	3,126	3,777	3,497	860	54	119	455	.....	.....
30	.....	.....	2,910	3,497	3,102	918	51	124	443	.....	.....
31	.....	.....	.....	3,006	.....	652	44	.....	420	.....	.....
1903.											
1	.....	.....	1,710	5,070	3,250	5,310	900	190	1,500	1,600	.....
2	.....	.....	1,600	4,370	3,250	5,310	900	180	1,300	1,600	.....
3	.....	.....	1,820	4,600	3,250	5,310	800	180	1,300	1,600	.....
4	.....	.....	2,670	4,370	3,410	5,310	800	180	1,300	1,600	.....
5	.....	.....	3,580	3,950	3,760	4,600	800	180	1,200	1,710	.....
6	.....	.....	3,100	3,950	4,830	4,150	800	165	1,100	1,600	.....
7	.....	.....	2,810	3,950	5,550	4,150	650	170	1,200	1,710	.....
8	.....	.....	2,810	3,760	6,050	3,950	720	170	1,300	1,600	.....
9	.....	.....	2,540	3,580	7,150	3,760	520	220	1,400	1,710	.....
10	.....	.....	2,540	3,580	7,450	2,950	520	220	1,500	1,710	.....
11	.....	.....	2,540	3,580	7,450	2,810	650	165	1,400	1,500	.....
12	.....	.....	2,540	3,580	7,760	2,810	520	180	1,400	1,930	.....
13	.....	.....	2,670	3,760	8,740	2,670	520	180	1,400	1,930	.....
14	.....	.....	2,670	3,950	8,080	2,410	580	580	1,400	2,170	.....
15	.....	.....	2,670	3,410	8,080	2,290	400	900	1,400	2,050	.....
16	.....	.....	2,540	4,600	7,760	2,170	400	1,100	1,500	2,170	.....
17	.....	.....	2,810	4,600	8,410	2,170	520	1,100	1,500	.....	.....
18	.....	.....	2,950	4,830	9,080	2,050	460	1,200	1,600	.....	.....
19	.....	.....	2,950	5,310	9,430	1,710	300	1,200	1,600	.....	.....
20	.....	.....	2,950	5,800	9,080	1,600	220	1,200	1,500	.....	.....
21	.....	.....	2,950	6,310	10,150	1,400	200	1,200	1,500	.....	.....
22	.....	.....	2,950	6,580	10,870	1,300	200	1,200	1,600	.....	.....
23	.....	.....	2,810	6,050	10,150	1,300	165	1,300	1,600	.....	.....
24	.....	.....	3,100	5,070	9,790	1,600	350	1,300	1,500	.....	.....
25	.....	.....	2,950	5,070	9,430	1,710	460	1,300	1,500	.....	.....
26	.....	.....	2,950	4,830	9,080	1,500	350	1,400	1,500	.....	.....
27	.....	.....	2,050	4,370	7,760	1,200	190	1,400	1,500	.....	.....
28	.....	.....	3,950	4,600	7,150	1,100	190	1,500	1,500	.....	.....
29	.....	.....	4,600	4,150	7,150	1,000	190	1,400	1,500	.....	.....
30	.....	.....	5,070	3,580	6,860	1,000	180	1,300	1,710	.....	.....
31	.....	.....	.....	.....	.....	1,000	190	.....	1,710	.....	.....
1904.											
1	1,810	.....	950	2,710	9,530	4,905	750	480	210	480	270
2	1,090	.....	850	2,900	10,555	4,905	850	480	150	340	340
3	950	.....	850	3,090	10,040	5,330	850	400	150	340	340
4	950	.....	1,225	3,380	11,080	4,075	750	480	210	270	270
5	1,090	1,985	1,225	6,655	9,785	3,675	750	480	210	340	150
6	950	1,660	1,090	7,580	10,555	4,280	750	480	150	340	210
7	850	2,160	1,090	7,345	11,610	4,695	850	480	210	400	150
8	850	1,985	1,090	6,655	12,150	4,485	750	480	210	400	150
9	1,090	1,985	950	6,205	11,880	4,280	750	400	150	340	150
10	950	1,985	850	5,765	11,880	4,075	750	480	210	400	210
11	1,090	1,810	950	5,550	11,080	3,875	750	340	210	400	210
12	950	1,660	850	5,330	10,040	3,675	570	340	210	570	210
13	.....	1,660	950	5,115	10,820	3,285	570	340	150	480	270
14	.....	1,660	1,090	5,115	11,080	3,090	660	400	210	480	270
15	.....	1,660	950	5,115	9,785	2,710	660	400	150	570	210
16	.....	1,660	950	5,115	9,030	2,340	570	480	210	480	210
17	.....	1,660	950	5,550	9,530	2,160	570	400	210	480	1,225
18	.....	1,660	850	5,550	10,040	2,160	660	400	150	480	1,225
19	.....	1,660	750	5,765	9,530	2,160	480	400	660	480	1,225
20	.....	1,660	1,510	5,550	10,555	1,985	570	340	570	480	570
21	.....	1,660	2,160	6,655	10,040	1,985	660	340	480	480	400
22	.....	1,510	2,160	6,430	8,785	1,810	480	340	400	400	270
23	.....	1,510	2,160	12,700	9,030	1,810	480	340	400	340	210
24	.....	1,225	2,340	12,700	.....	1,810	400	340	480	340	210
25	.....	1,365	2,525	8,055	.....	1,660	480	340	480	340	.....

Mean daily discharge, in second-feet, of North Platte River at Mitchell, 1901–1906—Cont'd.

Day.	Feb.	Mar.	Apr.	May.	June.	July	Aug.	Sept.	Oct.	Nov.	Dec.
1904.											
26		1,225	2,710	9,530	11,345	1,510	480	270	480	340	
27		1,365	2,900	9,030	10,820	1,660	480	270	400	400	
28		1,365	2,900	10,555	10,040	1,510	400	270	400	340	
29		1,225	2,900	8,540	9,530	1,365	480	210	400	340	
30		1,225	2,900	12,150	7,580	1,225	400	210	400	340	
31				10,555		1,090	480		340		
1905.											
1		2,036	1,480	8,300	15,100	8,300	1,980	670	380		
2		1,850	1,720	8,300	14,300	8,300	1,720	520	380		
3		1,250	1,720	8,900	13,500	8,300	1,980	520	380		
4		1,184	1,600	9,600	13,500	7,150	1,980	520	380		
5		1,140	1,480	10,300	13,500	6,600	1,720	520	380		
6		1,118	1,480	9,600	13,500	6,050	1,720	380	380		
7		1,074	1,480	10,300	13,500	5,500	1,720	380	380		
8		1,030	1,480	11,100	14,300	5,500	1,480	520	380		
9		1,118	1,480	10,300	15,900	5,000	1,480	520	380		
10		1,140	1,480	10,300	15,100	4,520	1,480	450	380		
11		1,118	1,720	9,600	15,100	3,650	1,480	380	380		
12		935	1,980	8,900	15,100	3,650	1,480	380	380		
13		1,030	1,980	8,900	16,800	3,260	1,850	380	380		
14		973	2,260	8,600	16,800	2,900	2,260	380	520		
15		1,140	2,260	8,300	15,100	2,570	1,720	380	520		
16		1,206	2,570	8,300	14,300	2,415	1,480	380	520		
17		1,273	2,900	8,300	13,500	2,260	1,250	380	380		
18		1,140	3,260	7,700	13,500	1,980	1,030	380	380		
19		1,250	3,260	7,150	13,500	1,720	1,030	380	380		
20		1,140	3,260	7,150	12,700	1,720	935	380	520		
21		1,250	3,260	7,700	12,700	1,480	840	380	520		
22		1,365	4,070	8,300	11,900	1,480	1,030	380	520		
23		1,480	4,520	8,900	10,300	1,600	1,030	380	520		
24		1,365	5,000	14,300	9,600	1,720	840	380	520		
25		1,140	5,500	12,700	9,250	1,720	840	380	520		
26		1,296	8,300	11,900	8,900	1,480	840	380	520		
27		1,250	8,900	11,900	8,300	1,980	755	380	520		
28		1,162	8,300	12,700	7,700	2,260	670	380	520		
29		1,296	9,600	13,500	7,700	2,260	520	380	595		
30		1,365	8,900	14,300	7,700	2,120	520	380	670		
31		1,296		14,300		1,980	520		670		
1906.											
1				5,580	14,100	6,110	1,640	940	680	1,160	
2				5,070	15,700	5,070	1,640	845	680	1,160	
3				4,580	14,500	4,580	1,640	750	680	1,400	
4				4,120	13,300	4,120	1,640	680	680	1,400	
5				4,580	11,800	3,680	1,510	680	680	1,400	
6			4,580	4,350	11,100	3,680	1,380	680	600	1,450	
7			4,120	4,120	10,400	3,270	1,380	680	600	1,450	
8			3,900	4,120	9,060	3,080	1,380	860	600	1,450	
9			3,680	4,120	9,060	2,890	1,920	770	600	1,200	
10			3,270	4,120	9,380	2,890	1,640	680	500	1,200	
11			3,270	4,580	9,710	2,890	1,380	680	500	1,220	
12			3,270	4,580	9,060	2,890	1,380	680	500	1,240	
13			3,680	4,820	7,820	3,270	1,380	770	500	1,240	
14			4,120	5,070	6,660	3,270	1,380	960	500	1,500	
15			4,820	5,580	6,110	3,270	1,150	960	500	1,750	
16			5,580	6,110	6,660	3,270	1,150	960	500	1,520	
17			5,580	6,660	8,120	3,680	940	960	510	1,520	
18			5,070	6,660	9,710	4,120	940	770	510	1,300	
19			4,580	6,110	9,710	3,680	845	770	650	1,300	
20			4,120	6,110	9,060	3,270	750	770	650	1,300	
21			4,120	6,110	9,060	2,890	750	770	675	1,300	
22			4,120	6,660	9,060	2,890	940	600	700	1,300	
23			4,120	7,230	7,820	2,890	1,380	640	700	1,300	
24			5,070	7,820	7,520	2,540	1,640	680	860	1,300	
25			4,580	7,820	7,230	2,540	1,920	850	1,820	1,300	
26			4,580	9,060	7,820	2,220	1,920	680	1,070	1,080	
27			4,580	10,000	6,660	2,220	1,920	530	900	1,080	
28			5,580	11,100	6,660	2,220	1,920	530	900	900	
29			5,840	14,900	7,820	2,070	1,640	530	900	720	
30			6,110	15,700	7,230	1,920	1,380	605	900	720	
31				14,900		1,640	1,150		900		

Estimated monthly discharge of North Platte River at Mitchell, 1901–1906.

[Drainage area, 24,400 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
March.								
1904	2,170	1,200	1,632	100,400	0.067	0.08	10	0.78
1905	2,040	935	1,239	76,200	.052	.06	9	.64
April.								
1902	3,230	494	1,603	95,500	.066	.07	5	1.29
1903	5,070	1,600	2,862	170,300	.117	.13	9	1.37
1904	2,980	710	1,511	89,900	.062	.07	8	.91
1905	9,600	1,480	3,573	212,600	.146	.16	5	3.17
1906	6,110	3,270	4,490	223,000	.184	.20	12	1.71
May.								
1902	6,370	2,650	4,346	267,200	.178	.20	11	1.86
1903	6,580	3,410	4,471	274,900	.183	.21	11	1.83
1904	12,700	2,720	6,873	422,600	.281	.32	11	2.78
1905	14,300	7,150	10,010	615,500	.410	.47	16	2.85
1906	15,700	4,120	6,850	421,000	.280	.32	13	2.47
June.								
1901	12,120	4,560	7,514	448,000	.307	.34	13	2.54
1902	6,880	2,700	4,915	242,400	.202	.23	9	2.62
1903	10,870	3,250	7,340	436,800	.300	.34	23	1.45
1904	12,150	7,580	10,270	611,100	.421	.47	17	2.81
1905	16,800	7,700	12,760	759,300	.520	.58	43	1.34
1906	15,700	6,110	9,260	551,000	.379	.42	29	1.46
July.								
1901 [a]	4,530	1,050	2,353	93,300				.80
1902	3,780	598	1,308	80,400	.053	.06	4	1.44
1903	5,310	1,000	2,632	161,800	.107	.12	6	2.02
1904	5,330	1,090	2,875	176,800	.118	.14	9	1.52
1905	8,300	1,480	3,594	221,000	.147	.17	9	1.94
1906	6,110	1,640	3,190	196,000	.131	.15	11	1.40
August.								
1901 [b]	566	218	398	16,300				1.07
1902	559	44	207	12,700	.008	.01	1	.90
1903	900	165	472	29,000	.019	.02	1	1.56
1904	842	400	594	36,500	.024	.03	5	.63
1905	2,260	520	1,296	79,700	.053	.06	5	1.10
1906	1,920	750	1,410	86,700	.058	.07	5	1.48
September.								
1901	422	210	322	19,200	.013	.01	1	.83
1902	124	30	69	4,100	.003	.003	0.1	1.96
1903	1,500	165	765	45,500	.031	.03	2	1.66
1904	498	225	382	22,700	.016	.02	2	.93
1905	670	380	420	25,000	.017	.02	2	1.22
1906	960	530	742	44,200	.030	.03	1	1.94
October.								
1901	520	235	384	23,600	.016	.02	2	.92
1902	455	130	299	18,400	.012	.01	1	.85
1903	1,710	1,100	1,449	89,100	.059	.07	13	.52
1904	625	170	307	18,900	.013	.02	2	.86
1905	670	380	460	28,300	.019	.02	3	.79
1906	1,820	500	708	43,500	.029	.03	2	1.88
November.								
1902 [c]	776	374	563	24,600				.14
1903 [d]	2,170	1,500	1,762	55,900				.26
1904	512	280	398	23,700	.016	.02	100	.02
1906	1,750	720	1,270	75,600	.052	.06	7	.88

[a] July 1 to 20. [b] August 12 to 31. [c] November 1 to 22. [d] November 1 to 16.

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NORTH PLATTE RIVER AT GERING.

Observations were begun at Gering May 29, 1897, and were continued during the open seasons until 1901, when the Mitchell station was established. The station is 1 mile north of Gering and is shown on the Scotts Bluff topographic atlas sheet.

The channel is straight at the section and the bed is composed of shifting sand. The banks are low but seldom overflow.

The gage was on the upstream side of the highway bridge from which the measurements were made, being spiked to a piling near the right bank. The bench mark was a spike in the top of the upstream end of the first cap from the right end of the bridge; elevation, 6.61 feet above zero of the gage.

Discharge measurements of North Platte River at Gering, 1897–1901.

Date.	Hydrographer.	Gage height.	Discharge.
1897.		*Feet.*	*Sec.-ft.*
May 29	O. V. P. Stout	3.28	23,364
September 11	do	.90	500
November 2	do	1.02	661
1898.			
May 13	R. H. Willis	1.50	3,572
June 6	do	2.20	9,307
June 22	do	2.20	8,751
July 2	do	1.70	5,237
November 7	A. B. McCoskey	1.06	593
1899.			
April 10	R. H. Willis	1.48	3,412
April 21	do	2.11	9,140
May 2	do	2.35	10,364
May 16	do	2.10	8,543
May 26	do	2.90	12,325
June 6	do	2.70	13,393
June 14	A. B. McCoskey	.....	16,105
1900.		*Feet.*	*Sec.-ft.*
April 18	R. H. Willis	1.67	5,251
April 27	do	1.90	7,138
May 11	do	2.16	10,980
June 12	do	2.86	13,706
June 21	do	2.24	9,230
June 28	do	1.80	6,321
July 9	do	1.45	2,874
July 19	do	1.55	3,947
August 1	do	1.15	1,152
August 10	do	1.02	849
August 22	do	.93	529
August 30	do	.84	395
September 11	do	.96	385
September 20	do	.85	356
September 26	A. B. McCoskey	.....	333
October 19	R. H. Willis	.32	486
October 20	do	.35	399
October 30	do	.45	522
November 5	A. B. McCoskey	.....	625
1901.			
June 1	O. V. P. Stout	3.45	10,630

Mean daily gage height, in feet, of North Platte River at Gering, 1897–1900.

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Day.	May.	June.	July.	Aug.	Sept.	Oct.
1897.							1897.						
1	.....	3.00	1.80	1.20	1.10	0.80	17	.....	.....	1.30	1.40	0.90	0.95
2	.....	3.00	1.80	1.10	1.10	.80	18	.....	.....	1.40	1.30	.90	.95
3	.....	3.12	1.80	1.10	1.10	.80	19	.....	.....	1.50	1.20	.90	.95
4	.....	3.30	1.70	1.20	1.00	.80	20	.....	.....	1.30	1.20	.90	.95
5	.....	3.35	1.70	1.10	1.00	.80	21	.....	.....	1.30	1.10	.90	.95
6	.....	.....	1.60	1.10	1.00	.80	22	.....	.....	1.30	1.10	.85	.95
7	.....	.....	1.50	1.10	1.00	.80	23	.....	.....	1.30	1.00	.85	.95
8	.....	.....	1.50	1.30	.90	.80	24	.....	.....	1.30	1.00	.85	1.00
9	.....	.....	1.60	1.30	.90	.80	25	.....	.....	1.30	1.00	.85	1.00
10	.....	.....	1.70	1.50	.90	.85	26	.....	.....	1.30	.90	.85	1.00
11	.....	.....	1.50	1.30	.90	.85	27	.....	.....	1.30	.90	.85	.95
12	.....	.....	1.40	1.30	.90	.85	28	.....	.....	1.30	.90	.85	.95
13	.....	.....	1.40	1.30	.90	.90	29	.....	.....	1.30	.90	.80	.95
14	.....	.....	1.30	1.40	.90	.90	30	3.50	.....	1.20	.90	.80	.95
15	.....	.....	1.30	1.40	.90	.90	31	3.30	.....	1.20	.90	.....	.....
16	.....	.....	1.30	1.40	.90	.90							

Mean daily gage height, in feet, of North Platte River at Gering, 1897–1900—Continued.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1898.								
1	1.10	1.70	2.50	1.80	0.90	0.70	0.70	.....
2	1.10	1.60	2.40	1.70	.90	.70	.70	.....
3	1.10	1.70	2.40	1.60	.90	.70	.70	.....
4	1.10	1.80	2.30	1.50	.80	.70	.70	.....
5	1.10	1.90	2.30	1.45	.80	.60	.70	.....
6	1.20	1.80	2.20	1.50	.80	.60	.75	.....
7	1.20	1.70	2.20	1.40	.90	.70	.75	.....
8	1.20	1.70	2.20	1.30	.80	.70	.75	.....
9	1.20	1.70	2.20	1.30	.80	.80	.75	.....
10	1.20	1.70	2.10	1.30	.80	.70	.75	.....
11	1.20	1.60	2.10	1.30	.80	.70	.80	.....
12	1.20	1.60	2.10	1.30	.70	.70	.80	.....
13	1.30	1.50	2.00	1.30	.70	.70	.80	.....
14	1.30	1.50	2.10	1.40	.70	.70	.80	.....
15	1.30	1.50	2.10	1.30	.70	.70	.80	.....
16	1.30	1.60	2.35	1.30	.70	.70	.80	.....
17	1.40	1.70	2.40	1.30	.80	.70	.90	.....
18	1.40	1.80	2.40	1.30	.80	.70	.90	.....
19	1.40	1.90	2.30	1.30	.80	.70	.90	.....
20	1.50	1.90	2.30	1.30	.70	.70	.90	.....
21	1.70	2.00	2.20	1.20	.80	.70	.90	.....
22	1.80	2.00	2.10	1.10	.80	.70	.90	.....
23	1.80	2.10	2.10	1.10	.80	.70	.90	.....
24	1.80	2.10	2.10	1.10	.80	.70	.90	.....
25	1.80	2.00	2.10	1.10	.70	.70	.95	.....
26	1.80	1.90	2.00	1.10	.70	.70	.95	.....
27	1.80	3.00	2.00	1.00	.70	.70	.90	.....
28	1.90	2.90	2.00	1.00	.70	.70	.90	.....
29	1.90	3.00	1.90	1.00	.70	.70	.90	.....
30	1.90	2.80	1.80	1.00	.70	.70	.90	.....
31	.....	2.70	.....	.95	.70	.....	.90	.....
1899.								
1	.....	2.35	2.70	3.20	1.65	1.05	.93	.....
2	.....	2.37	2.71	3.15	1.70	1.02	.95	.....
3	.....	2.35	2.66	3.10	1.75	1.00	.95	.....
4	.....	2.10	2.61	3.07	1.70	1.02	.96	.....
5	.....	2.00	2.60	3.10	1.58	1.04	.95	.....
6	.....	1.95	2.72	3.05	1.55	1.01	.95	.....
7	.....	1.80	3.10	3.00	1.51	1.01	.96	.....
8	.....	1.75	3.00	2.95	1.47	1.00	.96	.....
9	.....	1.73	2.83	2.87	1.48	1.00	.96	.....
10	1.48	1.70	2.73	2.70	1.53	1.00	.97	.....
11	1.41	1.68	2.69	2.75	1.47	1.00	1.06	.....
12	1.53	1.64	2.68	2.68	1.50	1.00	1.07	.....
13	1.85	1.82	2.80	2.55	1.48	1.00	1.07	.....
14	2.22	1.93	2.90	2.46	1.37	.95	1.06	.....
15	2.42	2.00	3.00	2.45	1.35	.95	1.07	.....
16	2.51	2.25	3.20	2.44	1.43	1.00	1.04	.....
17	2.58	2.40	3.25	2.42	1.40	.98	1.10	.....
18	2.38	2.60	3.15	2.37	1.37	1.00	1.02	.....
19	2.43	2.76	3.00	2.30	1.36	1.00	1.16	.....
20	2.20	2.80	2.95	2.25	1.32	1.06	1.20	.....
21	2.21	2.85	3.00	2.13	1.26	1.06	1.23	.....
22	2.08	2.87	3.05	2.05	1.23	.98	1.25	.....
23	1.92	2.87	3.20	2.00	1.23	1.03	1.27	.....
24	1.90	3.10	3.27	2.00	1.20	1.03	1.23	.....
25	1.88	2.85	3.50	1.95	1.20	.98	1.23	.....
26	1.93	2.65	3.55	1.90	1.10	.98	1.23	.....
27	2.12	2.43	3.50	1.85	1.10	1.00	1.27	.....
28	2.40	2.41	3.30	1.81	1.10	.98	1.30	.....
29	2.39	2.43	3.27	1.77	1.13	.91	1.30	.....
30	2.37	2.52	3.25	1.67	1.10	.90	1.30	.....
31	.....	2.70	.....	1.67	1.07	.....	1.30	.....
1900.								
1	.....	2.25	2.75	1.70	1.00	.78	.48	0.35
2	.....	2.20	2.80	1.70	1.00	.77	.35	.36
3	.....	2.25	2.90	1.71	1.02	.78	.33	.36
4	.....	2.40	2.98	1.70	1.00	.79	.27	.37
5	.....	2.35	2.85	1.60	1.01	.76	.27	.39

Mean daily gage height, in feet, of North Platte River at Gering, 1897–1900—Continued.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1900.								
6	.....	2.35	2.85	1.53	1.00	0.77	1.26	0.40
7	.....	2.20	2.82	1.53	.97	.73	.27	.41
8	.....	2.15	2.80	1.44	.98	.76	.27	.40
9	.....	2.15	2.78	1.44	.95	.75	.27	.42
10	.....	2.05	.....	1.40	.96	.80	.26	1.05
11	.....	2.15	.....	1.30	.95	.85	.25	1.04
12	.....	2.16	2.71	1.21	.93	.87	.23	1.03
13	.....	2.30	2.71	1.10	.90	.90	.24	1.04
14	.....	2.36	2.86	1.12	.90	.90	.24	1.05
15	.....	2.53	2.76	1.29	.86	.90	.23	.....
16	.....	2.62	2.56	1.21	.90	.85	.24	.....
17	.....	2.65	2.46	1.30	.90	.80	.24	.....
18	1.67	2.56	2.29	1.30	.90	.80	.23	.....
19	1.60	2.50	2.23	1.56	.88	.77	.32	.....
20	1.55	2.45	2.26	1.42	.88	.75	.31	.....
21	1.55	2.46	2.19	1.25	.88	.75	.31	.....
22	1.60	2.49	2.01	1.30	.84	.75	.30	.....
23	1.85	2.40	1.89	1.22	.82	.75	.30	.....
24	1.90	2.35	1.89	1.30	.80	.75	.31	.....
25	1.83	2.31	1.91	1.40	.71	.60	.31	.....
26	1.80	2.29	1.87	1.21	.73	.62	.32	.....
27	1.90	2.35	1.81	1.21	.76	.60	.33	.....
28	2.00	2.50	1.80	1.19	.75	.61	.34	.....
29	2.00	2.53	1.76	1.01	.74	.55	.34	.....
30	2.40	2.60	1.70	1.05	.75	.53	.36	.....
31	.....	2.69	.....	1.05	.75	.....	.37	.....

Mean daily discharge, in second-feet, of North Platte River at Gering, 1897–1900.

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Day.	May.	June.	July.	Aug.	Sept.	Oct.
1897.							1897.						
1	.....	18,700	4,269	1,084	815	455	17	.....	12,650	1,428	1,847	500	550
2	.....	18,700	4,269	815	815	455	18	.....	14,300	1,847	1,428	500	550
3	.....	20,400	4,269	815	815	455	19	.....	14,300	2,340	1,428	500	550
4	.....	24,000	3,552	1,084	620	455	20	.....	12,650	1,428	1,428	500	550
5	.....	25,900	3,552	815	620	455	21	.....	11,400	1,428	815	500	550
6	.....	26,000	2,909	815	620	455	22	.....	7,600	1,428	815	468	550
7	.....	24,000	2,340	815	620	455	23	.....	6,600	1,428	650	468	550
8	.....	20,400	2,340	1,428	500	455	24	.....	6,600	1,428	620	468	620
9	.....	18,700	2,909	1,428	500	455	25	.....	5,650	1,428	620	468	620
10	.....	17,300	3,557	2,340	500	468	26	.....	5,650	1,428	500	468	620
11	.....	14,300	2,340	1,428	500	468	27	.....	5,650	1,428	500	468	550
12	.....	11,400	1,847	1,428	500	468	28	.....	6,600	1,428	500	468	550
13	.....	8,700	1,847	1,428	500	500	29	23,360	5,650	1,428	500	455	550
14	.....	11,400	1,428	1,847	500	500	30	27,900	4,850	1,084	500	455	550
15	.....	14,300	1,428	1,847	550	500	31	24,000	.....	1,084	500	.....	.....
16	.....	14,300	1,428	1,847	500	500							

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1898.							
1	1,000	4,900	12,150	5,750	350	100	100
2	1,000	4,200	11,150	4,900	350	100	100
3	1,000	4,900	11,150	4,200	350	100	100
4	1,000	5,750	10,100	3,400	200	100	100
5	1,000	6,500	10,100	3,000	200	50	100
6	1,450	5,750	9,200	3,400	200	50	150
7	1,450	4,900	9,200	2,700	350	100	150
8	1,450	4,900	9,200	2,000	200	100	150
9	1,450	4,900	9,200	2,000	200	200	150
10	1,450	4,900	8,250	2,000	200	100	150
11	1,450	4,200	8,250	2,000	200	100	200
12	1,450	4,200	8,250	2,000	100	100	200
13	2,000	3,400	7,400	2,000	100	100	200
14	2,000	3,400	8,250	2,700	100	100	200
15	2,000	3,400	8,250	2,000	100	100	200

Mean daily discharge, in second-feet, of North Platte River at Gering, 1897–1900—Cont'd.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1898.							
16	2,000	4,200	10,600	2,000	100	100	200
17	2,700	4,900	11,150	2,000	200	100	350
18	2,700	5,750	11,150	2,000	200	100	350
19	2,700	6,500	10,100	2,000	200	100	350
20	3,400	6,500	10,100	2,000	100	100	350
21	4,900	7,400	9,200	1,650	200	100	350
22	5,750	7,400	8,250	1,000	200	100	350
23	5,750	8,250	8,250	1,000	200	100	350
24	5,750	8,250	8,250	1,000	200	100	350
25	5,750	7,400	8,250	1,000	100	100	500
26	5,750	6,500	7,400	1,000	100	100	500
27	5,750	18,500	7,400	650	100	100	350
28	6,500	17,100	7,400	650	100	100	350
29	6,500	18,500	6,500	650	100	100	350
30	.....	15,700	5,750	650	100	100	350
31	.....	14,600	.....	.....	100	.....	350
1899.							
1	.....	11,308	11,114	18,085	4,452	1,316	893
2	.....	11,308	11,209	17,250	4,785	1,146	893
3	.....	11,019	10,733	16,541	5,197	1,020	893
4	.....	8,728	10,352	16,085	4,854	1,062	893
5	.....	7,793	10,352	16,200	4,062	1,104	935
6	.....	6,880	11,605	15,514	3,936	935	893
7	.....	6,213	15,741	15,067	3,753	893	893
8	.....	5,843	14,625	14,625	3,507	851	893
9	.....	5,698	12,920	13,869	3,446	815	893
10	3,446	5,408	12,000	12,200	3,997	815	893
11	3,155	5,265	11,700	12,818	3,630	815	1,316
12	3,997	4,991	11,700	12,303	3,690	815	1,316
13	6,441	6,290	13,020	11,209	3,446	775	1,316
14	9,708	7,144	14,187	10,542	2,755	584	1,316
15	11,900	7,709	15,513	10,733	2,543	584	1,316
16	13,125	9,891	17,974	10,923	2,926	737	1,316
17	14,080	11,209	19,190	11,114	2,650	622	1,316
18	12,200	12,921	18,686	11,114	2,489	700	900
19	12,818	14,405	17,490	10,352	2,489	653	1,777
20	10,638	14,295	17,600	9,708	2,329	893	1,770
21	10,828	14,295	17,843	8,552	2,077	893	2,000
22	9,525	13,655	18,208	7,709	2,026	800	2,275
23	8,045	13,023	19,694	7,224	2,275	854	2,275
24	7,877	15,290	20,324	7,144	2,275	803	2,000
25	7,625	12,405	23,002	6,595	2,275	737	2,000
26	7,961	10,447	23,500	6,213	1,730	757	2,000
27	9,525	8,465	22,554	5,843	1,730	893	2,275
28	12,000	8,295	19,820	5,553	1,684	893	2,275
29	11,900	8,550	19,190	5,266	1,777	700	2,275
30	11,605	9,342	18,817	4,582	1,639	737	2,275
31	.....	11,019	.....	4,582	1,454	.....	2,275
1900.							
1	.....	10,475	13,800	5,320	1,157	400	400
2	.....	10,190	14,200	5,120	1,150	400	400
3	.....	10,700	15,200	5,110	1,100	400	400
4	.....	12,380	15,800	5,000	1,100	400	400
5	.....	12,000	14,300	4,200	1,050	400	400
6	.....	12,090	14,200	3,600	1,050	400	400
7	.....	10,600	13,800	3,550	1,000	400	400
8	.....	10,260	13,400	2,960	950	400	400
9	.....	10,390	13,190	2,850	900	400	400
10	.....	9,480	13,000	2,720	849	400	400
11	.....	10,400	12,500	2,200	800	385	400
12	.....	10,400	12,180	1,750	800	375	450
13	.....	11,680	12,380	1,300	750	375	400
14	.....	12,200	14,200	1,400	750	360	450
15	.....	13,800	13,210	2,275	700	360	450
16	.....	14,600	11,400	1,900	700	360	450
17	.....	14,600	10,600	2,390	600	360	450
18	5,300	13,800	9,205	2,430	600	360	475
19	4,750	12,990	8,900	4,000	550	360	486
20	4,400	12,380	9,310	3,190	550	356	399

Mean daily discharge, in second-feet, of North Platte River at Gering, 1897–1900—Cont'd.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1900.							
21	4,465	12,200	8,400	2,200	550	360	400
22	4,770	12,390	7,450	2,390	529	360	400
23	6,600	11,310	6,650	1,950	500	360	425
24	7,000	10,700	6,690	2,280	500	360	425
25	6,510	10,250	6,930	2,790	475	375	425
26	6,390	9,870	6,710	1,700	450	375	450
27	7,190	10,390	6,380	1,690	400	375	450
28	8,100	11,680	6,380	1,500	400	375	475
29	8,190	11,800	5,950	1,200	400	375	475
30	11,900	12,400	5,400	1,200	395	375	500
31	.....	13,210	.....	1,200	.....	.....	522

Estimated monthly discharge of North Platte River at Gering.

[Drainage area, 24,400 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
April.								
1898	6,500	1,000	3,108	184,900	0.127	0.14	13	1.07
1899[a]	14,080	3,150	9,448	394,000	.....	.....	.....	.78
1900[b]	11,900	4,400	6,582	169,700	.....	.....	.....	4.45
May.								
1898	18,500	3,400	7,326	450,500	.300	.35	8	4.37
1899	15,290	4,990	9,649	593,300	.395	.46	15	3.14
1900	14,800	9,480	11,672	717,700	.477	.55	80	.69
June.								
1897	26,000	4,850	13,622	810,600	.558	.62	49	1.26
1898	12,150	5,750	9,002	535,600	.368	.41	25	1.64
1899	23,500	10,350	16,025	953,600	.615	.73	45	1.63
1900	15,800	5,400	10,737	638,900	.439	.49	67	.73
July.								
1897	4,270	1,080	2,140	131,600	.088	.10	7	1.51
1898	5,750	650	2,048	125,900	.084	.10	6	1.73
1899	18,080	4,580	10,823	665,500	.443	.52	35	1.49
1900	5,320	1,200	2,689	165,300	.110	.13	6	2.28
August.								
1897	2,340	500	1,071	65,900	.044	.04	2	1.77
1898	350	100	177	10,900	.007	.01	1	.75
1899	5,200	1,450	2,964	182,200	.121	.14	12	1.17
1900	1,160	395	713	43,800	.029	.03	6	.49
September.								
1897	815	455	537	32,000	.022	.02	4	.45
1898	200	50	100	5,900	.004	.005	1	.42
1899	1,320	584	844	50,200	.035	.04	7	.54
1900	400	356	378	22,500	.015	.02	2	1.30
October.								
1897	620	455	514	31,600	.021	.02	4	.46
1898	500	100	258	15,900	.011	.01	1	.72
1899	2,280	893	1,501	92,300	.061	.07	5	1.33
1900	522	399	431	26,500	.018	.02	4	.55

[a] April 10 to 30.

[b] April 18 to 30.

NORTH PLATTE RIVER AT CAMP CLARKE.

The station at Camp Clarke was established June 27, 1896, and observations were continued until the close of the season in 1900. The station was located at the highway bridge at Camp Clarke, in sec. 22, T. 20 N., R. 51 W., and is shown on the Camp Clarke topographic atlas sheet.

The channel is wide and the water is shallow. The bed is composed of shifting sand, and although the banks are low they are not liable to overflow.

The inclined staff gage was located on the right bank 40 feet upstream from the bridge. A spike in the northeast side of the downstream pile at the north end of the first truss span at the right end of the bridge; elevation, 7.55 feet above the zero of the gage. A marked point on the southeast corner of the window sill at the front of the general store; elevation, 9.74 feet above the zero of the gage.

Discharge measurements of North Platte River at Camp Clarke, 1891–1901.

Date.	Hydrographer.	Gage height.	Discharge.
1891.		*Feet.*	*Sec.-ft.*
May 29	United States Geological Survey.	.....	8,075
1892.			
October 8	do	.....	333
1894.			
July 26	O. V. P. Stout	.....	1,900
1896.			
June 27	do	3.18	3,600
August 10	R. H. Willis	2.41	812
November 21	do	2.70	931
1897.			
September 12	O. V. P. Stout	2.11	551
1898.			
May 6	R. H. Willis	3.17	4,541
May 27	do	2.43	6,170
June 8	do	3.54	7,553
June 17	do	3.61	7,391
June 29	do	3.30	5,170
September 28	do	1.79	150
1899.			
April 11	do	2.57	2,484
April 22	do	3.45	8,462
May 3	do	3.41	7,825
May 17	R. H. Willis	3.52	9,953
May 27	do	3.90	14,335
June 8	do	4.42	15,807
July 29	do	3.09	5,002
August 5	do	2.90	4,893
1900.			
April 19	do	3.28	4,928
April 28	do	3.71	7,146
May 14	do	4.10	11,838
June 13	do	4.27	11,334
June 22	do	3.75	7,695
June 29	do	3.35	4,049
July 11	do	2.74	2,116
July 20	do	3.08	3,654
July 28	do	2.61	1,624
August 11	do	2.20	501
August 24	do	2.05	421
September 12	do	1.96	274
September 21	do	2.08	320
October 3	do	2.08	246
October 20	do	2.10	234
October 31	do	2.18	377
October 31	do	2.26	610
1901.			
June 27	do	.....	5,800
July 10	do	.....	2,900

Mean daily gage height, in feet, of North Platte River at Camp Clarke, 1896–1900.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1896.												
1							3.02	2.56	2.36	2.37	2.45	2.91
2							2.94	2.50	2.45	2.40	2.49	2.97
3							2.87	2.50	2.30	2.37	2.51	3.09
4							2.80	2.48	2.35	2.37	2.52	2.99
5							2.75	2.47	2.33	2.40	2.53	3.01
6							2.68	2.48	2.34	2.39	2.28	2.98
7							2.64	2.48	2.35	2.39	2.45	2.98
8							2.65	2.50	2.38	2.41	2.50	2.95
9							2.64	2.45	2.44	2.55	2.67	2.97
10							2.63	2.41	2.51	2.46	2.60	2.97
11							2.62	2.36	2.45	2.44	2.80	2.96
12							2.50	2.34	2.40	2.45	2.80	2.97
13							2.50	2.32	2.48	2.44	2.80	2.95
14							2.49	2.28	2.38	2.45	2.79	2.95
15							2.50	2.29	2.36	2.45	2.69	2.95
16							2.42	2.23	2.34	2.45	2.60	2.95
17							2.45	2.28	2.33	2.44	2.55	2.95
18							2.78	2.40	2.48	2.43	2.60	2.95
19							2.69	2.35	2.33	2.45	2.37	2.95
20							2.49	2.31	2.41	2.43	2.70	2.95
21							2.51	2.38	2.42	2.45	2.70	2.95
22							2.50	2.46	2.40	2.44	2.87	2.96
23							2.67	.....	2.45	2.41	2.89	2.96
24							2.65	.....	2.50	2.42	2.89	2.96
25							2.58	2.36	2.48	2.42	2.86	2.96
26							2.57	2.34	2.41	2.41	2.86	2.96
27							2.65	2.32	2.47	2.45	2.89	2.96
28							2.48	2.32	2.37	2.45	2.89	2.96
29						3.28	2.59	2.43	2.35	2.44	2.89	2.96
30						3.12	2.80	2.35	2.35	2.54	2.89	2.96
31						3.07	2.75	2.33	.....	2.44	.....	2.94

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1897.											
1	2.91	2.89	2.80	2.85	4.20	4.55	3.35	2.30	2.20	2.03	.....
2	2.90	2.89	2.76	2.82	4.26	4.50	3.30	2.35	2.19	2.02	.....
3	2.90	2.89	2.72	2.81	4.20	4.51	3.15	2.50	2.19	2.05	.....
4	2.85	2.89	2.74	2.78	4.25	4.68	3.10	2.52	2.20	2.04	.....
5	2.85	2.89	2.78	2.74	4.26	4.90	3.03	2.45	2.18	2.05	.....
6	2.80	2.89	2.78	2.68	4.25	5.00	2.99	2.50	2.14	2.06	.....
7	2.80	2.89	2.85	2.75	4.32	4.78	2.91	2.54	2.13	2.06	.....
8	2.80	2.89	2.79	2.84	4.25	4.50	2.91	.....	2.12	2.08	.....
9	2.80	2.89	2.55	2.80	4.35	4.27	3.05	2.61	2.12	2.08	.....
10	2.80	2.89	2.46	2.65	4.30	4.10	3.05	2.79	2.10	2.06	.....
11	2.80	2.89	2.30	2.75	4.50	3.95	2.97	2.79	2.10	2.12	.....
12	2.84	2.89	2.20	2.80	4.46	3.87	2.90	2.65	2.10	2.10	.....
13	2.84	2.89	2.12	2.60	4.40	4.00	2.90	2.68	2.13	2.10	.....
14	2.84	2.83	.....	2.75	4.35	4.03	2.80	2.67	2.12	2.10	.....
15	2.85	2.80	2.57	2.75	4.17	4.10	2.75	2.60	2.15	2.11	.....
16	2.87	2.75	2.59	2.77	4.07	4.03	2.65	2.54	2.15	2.11	.....
17	2.87	2.65	2.57	2.75	3.94	4.05	2.57	2.50	2.16	2.11	.....
18	2.89	2.75	2.52	2.79	4.05	4.10	2.92	2.49	2.14	2.12	.....
19	2.89	2.86	2.45	2.90	4.07	4.08	2.92	2.43	2.17	2.17	.....
20	2.89	2.90	2.40	3.30	4.25	4.08	2.68	2.35	2.15	2.15	.....
21	2.89	2.85	2.40	3.60	4.33	3.89	2.60	2.29	2.13	2.20	.....
22	2.89	2.85	2.42	3.68	4.26	3.89	2.62	.....	2.10	2.21	.....
23	2.89	2.85	2.45	3.95	4.37	3.65	2.60	2.30	2.09	2.19	.....
24	2.89	2.85	2.43	4.28	4.56	3.62	2.65	2.24	2.10	2.18	.....
25	2.89	2.85	2.45	4.28	7.72	3.47	2.58	2.25	2.09	2.19	.....
26	2.89	2.85	2.42	3.95	4.78	3.50	2.52	2.22	2.10	2.21	.....
27	2.89	2.85	2.43	3.88	4.77	3.49	2.57	2.20	2.11	2.22	.....
28	2.89	2.80	2.41	3.80	4.72	3.51	2.52	2.22	2.10	2.20	.....
29	2.89	.....	2.42	3.88	4.74	3.57	2.56	2.22	2.11	2.21	.....
30	2.89	.....	2.45	4.00	4.70	3.40	2.45	2.18	2.06	2.21	.....
31	2.89	.....	2.80	.....	4.67	.....	2.40	2.20	.....	2.21	.....

Mean daily gage height, in feet, of North Platte River at Camp Clarke, 1896–1900—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1898.											
1				2.27	2.91	3.89	3.20	2.33	1.65	1.72	
2				2.27	2.84	3.86	3.05	2.32	1.65	1.80	
3				2.37	2.91	3.69	2.98	2.30	1.60	1.80	
4				2.44	3.07	3.60	2.95	2.23	1.60	1.81	
5				2.45	3.12	3.59	2.95	1.98	1.62	1.80	
6				2.35	3.17	3.49	2.86	2.30	1.62	1.80	
7				2.37	3.17	3.47	2.75	2.31	1.65	1.81	
8				2.35	3.05	3.47	2.72	1.90	1.65	1.81	
9				2.39	3.02	3.34	2.68	1.95	1.65	1.83	
10				2.40	3.00	3.50	2.65	1.90	1.87	1.87	
11				2.42	3.02	3.49	2.60	1.86	1.81	1.89	
12				2.49	2.93	3.45	2.70	1.81	1.80	1.89	
13				2.38	3.02	3.45	2.55	1.80	1.80	1.87	
14				2.40	3.04	3.44	2.50	1.78	1.81	1.87	
15				2.42	2.88	3.54	2.50	1.75	1.80	1.85	
16				2.50	2.90	3.56	2.50	1.80	1.80	1.82	
17				2.44	2.92	3.60	2.50	1.85	1.80	1.80	
18				2.55	2.92	3.65	2.50	1.86	1.80	1.80	
19				2.65	2.96	3.55	2.55	1.85	1.75	1.78	
20				2.72	3.17	3.56	2.55	1.80	1.67	1.75	
21				2.85	3.34	4.59	2.50	1.76	1.70	2.05	
22				2.87	3.38	3.57	2.48	1.78	1.70	2.05	
23				3.00	3.45	3.60	2.52	1.78	1.68	2.06	
24				3.06	2.93	3.59	2.47	1.75	1.65	2.04	
25				2.97	3.40	3.55	2.46	1.75	1.72	2.05	
26				2.97	3.44	3.47	2.45	1.72	1.73	2.07	
27				2.97	4.10	3.40	2.35	1.60	1.73	2.10	
28				2.87	4.40	3.34	2.33	1.68	1.79	2.09	
29				2.93	4.35	3.29	2.33	1.68	1.65	2.08	
30				2.96	4.11	3.25	2.35	1.68	1.65	2.07	
31					3.94		2.32	1.66		2.10	
1899.											
1					3.68	4.12	4.81	2.88	2.28	2.28	
2					3.73	4.18	4.83	2.98	2.22	2.27	
3					3.30	4.12	4.85	3.10	2.06	2.23	
4					3.13	4.10	4.88	3.03	2.03	2.22	
5				2.55	3.34	4.09	4.80	2.88	2.11	2.21	
6				2.60	3.30	4.22	4.87	2.88	2.16	2.19	
7				2.62	2.80	4.40	4.83	2.90	2.00	2.30	
8				2.67	2.80	4.35	4.82	2.84	2.10	2.20	
9				2.68	2.74	4.25	4.70	2.75	2.12	2.28	
10				2.58	2.80	4.21	4.50	2.85	2.16	2.25	
11				2.55	2.73	4.02	4.45	2.95	2.11	2.28	
12				2.54	2.87	3.97	4.40	2.91	2.02	2.22	
13				2.86	2.99	4.02	4.25	3.08	2.03	2.29	
14				3.26	3.02	4.08	4.14	2.81	2.15	2.28	
15				3.76	3.19	4.22	4.20	2.74	2.13	2.34	
16				3.70	3.40	4.45		2.84	2.15	2.25	
17				3.58	3.61	4.48		2.82	2.17	2.30	
18				3.58	3.74	4.25		2.77	2.18	2.25	
19				3.60	3.87	4.10	4.00	2.70	2.21	2.22	
20				3.65	4.06		3.93	2.68	2.23	2.25	
21				3.50	4.19		3.80	2.60	2.21	2.40	
22				3.43	4.32	4.80	3.75	2.62	2.19		
23				3.15	4.23	4.95	3.65	2.58	2.22		
24				3.08	4.19	5.08	3.50	2.55	2.40		
25				3.05	4.30	5.30	3.48	2.58	2.30		
26				3.05	4.03	5.35	3.32	2.48	2.23		
27				3.20	3.85	5.20	3.20	2.47	2.20		
28				3.55	3.75	5.00	3.20	2.48	2.30		
29				3.65	3.80	4.85	3.07	2.47	2.22		
30				3.75	3.92	4.85	2.93	2.35	2.25		
31					4.03		3.04	2.34			
1900.											
1					4.10	4.29	3.31	2.25	1.98	2.10	2.23
2					3.85	4.31	3.27	2.33	1.92	2.05	2.23
3					3.85	4.45	3.21	2.30	1.95	2.09	2.22
4					4.05	4.49	3.15	2.38	1.96	2.08	2.24
5											

Mean daily gage height, in feet, of North Platte River at Camp Clarke, 1896–1900—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1900.											
6					3.98	4.52	2.95	2.24	1.97	2.15	2.25
7					3.89	4.48	2.91	2.26	1.98	2.11	2.26
8				2.90	3.92	4.43	2.71	2.20	1.93	2.10	2.28
9				3.03	3.84	4.48	2.70	2.20	2.03	2.10	2.30
10				3.23	3.94	4.42	2.73	2.20	2.08	2.08	2.31
11				3.20	3.92	4.34	2.71	2.16	2.10	2.09	
12				3.27	3.99	4.38	2.62	2.15	2.09	2.11	
13				3.16	4.02	4.27	2.62	2.15	1.96	2.14	
14				3.28	4.10	4.25	2.62	2.15	1.98	2.16	
15				3.42	4.19	4.28	2.74	2.11	2.05	2.18	
16				3.25	4.27	4.17	2.72	2.11	2.02	2.15	
17				3.20	4.34	4.10	2.62	2.10	2.05	2.15	
18				3.30	4.23	3.90	2.73	2.07	2.07	2.16	
19				3.24	4.12	3.89	2.68	2.05	2.04	2.18	
20				3.22	4.05	3.84	3.05	2.07	2.01	2.19	
21				3.21	4.07	3.81	2.83	2.05	2.03	2.20	
22				3.26	4.09	3.75	2.77	2.03	2.02	2.21	
23				3.57	4.05	3.51	2.78	2.06	2.01	2.20	
24				3.57	3.91	3.52	2.83	2.03	2.15	2.20	
25				3.59	3.90	3.48	2.62	2.01	2.19	2.21	
26				3.48	3.82	3.43	2.70	2.00	2.20	2.21	
27				3.57	3.78	3.39	2.59	1.90	2.15	2.22	
28				3.71	3.91	3.42	2.59	1.90	2.15	2.21	
29				3.89	4.01	3.33	2.50	1.93	2.14	2.23	
30				3.79	4.11	3.31	2.40	1.95	2.10	2.25	
31					4.15		2.32	1.99		2.25	

Mean daily discharge, in second-feet, of North Platte River at Camp Clarke, 1896–1900.

Day.	June.	July.	Aug.	Sept.	Oct.	Nov.	Day.	June.	July.	Aug.	Sept.	Oct.	Nov.
1896.							1896.						
1		2,886	1,316	854	875	1,046	17		1,046	706	796	1,023	
2		2,552	1,160	1,056	932	1,137	18		1,977	932	1,114	1,000	
3		2,295	1,160	738	875	1,137	19		1,685	835	796	1,046	
4		2,042	1,114	835	875	1,186	20		1,137	758	954	1,000	
5		1,878	1,092	796	932	1,212	21		1,186	895	977	1,046	931
6		1,655	1,114	816	914	1,338	22		1,160	1,069	932	1,023	
7		1,537	1,114	835	914	706	23		1,226		1,046	954	
8		1,566	1,160	895	954	1,046	24		1,566		1,160	977	
9		1,537	1,046	1,023	1,290	1,160	25		1,368	854	1,114	977	
10		1,508	954	1,186	1,069		26		1,342	816	954	954	
11		1,478	854	1,046	1,023		27	3,600	1,566	777	1,092	1,046	
12		1,160	816	932	1,046		28	4,100	1,114	777	875	1,046	
13		1,160	777	1,114	1,023		29	3,324	1,394	1,000	835	1,023	
14		1,137	706	895	1,046		30	3,102		835	835	1,264	
15		1,137	722	854	1,046		31		1,960	796		1,023	
16		977	628	816	1,046								

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1897.							
1	2,200	7,960	9,250	4,300	740	580	380
2	2,110	8,390	9,250	4,195	835	565	370
3	2,050	7,960	9,250	5,810	1,160	565	400
4	1,950	7,960	10,100	3,250	1,210	580	400
5	1,850	8,390	11,400	2,950	1,040	550	400
6	1,650	7,960	12,000	2,760	1,160	500	410
7	1,850	8,390	10,500	2,440	1,260	490	410
8	2,150	7,960	9,250	2,440		475	430
9	2,050	8,390	8,390	3,000	1,400	475	430
10	1,550	8,390	7,530	3,000	2,000	450	410
11	1,850	9,250	6,670	2,700	2,000	459	475
12	2,050	9,250	6,670	2,400	1,560	450	
13	1,420	8,820	7,100	2,400	1,650	490	465
14	1,850	8,390	7,100	2,040	1,620	475	450
15	1,850	7,960	7,530	1,850	1,420	515	450

Mean daily discharge, in second-feet, of North Platte River at Camp Clarke, etc.—Cont'd.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1897.							
16	1,900	7,530	7,100	1,560	1,270	515	465
17	1,850	6,670	7,100	1,350	1,160	530	465
18	2,000	7,100	7,530	1,710	1,135	500	475
19	2,400	7,100	7,530	2,600	1,000	540	465
20	4,195	7,960	7,530	1,650	835	515	515
21	5,380	8,390	6,670	1,420	720	490	580
22	5,810	7,960	6,670	1,480	.....	450	600
23	6,670	8,000	5,380	1,420	740	440	565
24	8,390	9,000	5,380	1,560	645	450	555
25	8,390	10,100	4,950	1,360	660	440	565
26	6,670	10,500	4,950	1,210	610	450	600
27	6,670	10,500	4,950	1,350	580	465	610
28	6,240	10,100	4,950	1,210	610	450	580
29	6,670	10,100	5,780	1,310	610	465	600
30	7,100	10,100	4,520	1,440	550	410	600
31	.....	10,100	.....	930	580	.....	600
1898.							
1	675	2,600	10,600	4,200	800	80	110
2	675	2,350	10,300	3,350	780	80	150
3	900	2,600	8,500	2,960	725	60	150
4	1,050	2,400	7,600	2,800	600	60	160
5	1,050	3,700	7,550	2,800	300	65	150
6	830	4,000	6,700	2,400	725	65	150
7	900	4,000	6,500	2,050	750	80	160
8	830	3,350	5,900	1,900	230	80	160
9	925	3,150	5,300	1,760	275	80	190
10	950	3,050	6,900	1,650	230	200	200
11	1,000	3,150	6,700	1,550	200	160	220
12	1,175	2,700	6,300	1,800	160	150	220
13	900	3,150	6,300	1,350	150	150	200
14	950	3,300	6,200	1,200	130	160	200
15	1,000	2,500	7,200	1,200	125	150	190
16	1,200	2,600	7,400	1,200	190	150	165
17	1,250	2,650	7,600	1,200	150	150	150
18	1,350	2,650	8,100	1,200	200	150	150
19	1,650	2,800	7,300	1,350	190	125	130
20	1,900	4,000	7,400	1,350	150	90	125
21	2,400	5,300	7,500	1,200	125	105	365
22	2,400	5,700	7,400	1,150	130	105	365
23	3,050	6,300	7,900	1,260	130	95	375
24	3,400	6,100	7,550	1,100	125	80	350
25	2,900	5,900	7,300	1,075	125	110	365
26	2,900	6,200	6,500	1,050	110	115	390
27	2,900	13,300	5,900	850	60	115	425
28	2,450	17,000	5,300	800	95	140	420
29	2,700	17,000	4,800	800	95	80	410
30	2,800	13,400	4,550	850	95	80	390
31	.....	11,300	.....	780	90	.....	425
1899.							
1	.....	10,150	14,713	20,125	3,841	1,077	1,329
2	.....	10,588	14,925	20,125	4,500	1,025	1,300
3	.....	7,145	13,895	20,250	5,335	725	1,217
4	.....	6,037	13,400	20,500	4,903	725	1,189
5	2,648	7,505	12,805	19,410	4,057	927	1,161
6	2,866	7,290	13,793	20,125	3,950	1,049	1,105
7	3,005	4,111	15,455	19,350	3,841	682	1,456
8	3,235	4,165	14,820	19,169	3,435	903	1,161
9	3,335	3,841	13,793	17,773	2,775	952	1,392
10	2,866	4,215	13,591	15,350	3,100	1,025	1,329
11	2,734	3,841	11,950	14,610	3,485	903	1,424
12	2,734	4,675	11,575	13,790	3,235	703	1,245
13	4,384	5,455	12,330	12,235	4,111	725	1,487
14	7,000	5,645	13,200	10,850	2,819	1,000	1,456
15	11,030	6,855	15,030	11,760	2,519	952	1,646
16	10,500	8,500	17,885	.....	3,005	1,000	1,392
17	9,560	10,413	18,585	.....	2,960	1,077	1,550
18	9,560	11,668	15,665	.....	2,775	1,105	1,392
19	9,810	12,914	13,591	10,065	2,476	1,217	1,300
20	10,040	19,050	.....	9,560	2,391	1,273	1,392

Mean daily discharge, in second-feet, of North Platte River at Camp Clarke, etc.—Cont'd.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1899.							
21	9,060	16,220	.....	8,582	2,027	1,245	1,894
22	8,265	17,773	18,234	8,342	2,110	1,189	.....
23	6,443	16,867	18,117	7,730	1,930	1,300	.....
24	5,907	16,430	18,585	6,715	1,823	1,858	.....
25	5,712	17,207	21,619	6,650	1,930	1,487	.....
26	5,647	14,818	23,560	5,712	1,551	1,245	.....
27	6,650	13,000	23,560	5,148	1,519	1,133	.....
28	9,225	12,044	22,900	5,271	1,551	1,392	.....
29	10,065	12,330	20,875	4,500	1,519	1,133	.....
30	10,850	13,200	20,750	3,950	1,189	1,245	.....
31	.....	14,000	.....	4,615	1,189	.....	.....
1900.							
1	.....	10,305	12,110	4,000	625	425	260
2	.....	8,370	12,315	3,960	771	210	200
3	.....	8,450	13,700	3,700	725	260	270
4	.....	10,200	14,050	3,420	900	260	270
5	.....	9,855	14,275	3,550	600	250	230
6	.....	9,820	14,200	2,700	620	270	310
7	.....	9,100	13,700	2,550	630	260	290
8	2,910	9,410	13,200	1,850	550	190	290
9	3,500	8,800	13,650	1,875	550	425	290
10	4,650	9,850	12,845	2,050	575	350	270
11	4,450	9,850	12,010	2,000	450	390	260
12	4,900	10,500	12,350	1,700	450	340	290
13	4,300	10,900	11,260	1,700	450	425	300
14	4,950	11,740	11,250	1,700	480	210	340
15	5,810	12,680	11,640	2,120	400	290	380
16	5,400	13,600	10,550	2,050	420	230	340
17	4,450	14,000	10,050	1,700	420	290	340
18	5,010	12,800	8,410	2,100	400	290	340
19	4,650	11,700	8,510	1,875	390	230	380
20	4,525	10,900	8,210	3,350	420	190	390
21	4,310	11,000	8,120	2,470	400	210	410
22	4,525	11,150	7,675	2,200	400	200	450
23	6,400	10,700	5,900	2,250	450	180	450
24	6,300	9,400	5,820	2,470	400	330	450
25	6,400	9,225	5,400	1,675	390	390	450
26	5,600	8,550	4,990	1,940	380	390	440
27	6,200	8,195	4,510	1,600	230	310	500
28	7,025	9,100	4,510	1,600	230	310	500
29	8,400	10,040	3,960	1,290	260	300	520
30	7,700	10,755	3,960	1,000	290	260	600
31	.....	11,700	.....	775	310	.....	520

Estimated monthly discharge of North Platte River at Camp Clarke, 1896–1900.

[Drainage area, 24,800 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
April.								
1897	8,390	1,570	3,649	217,100	0.147	0.16	13	1.21
1898	3,400	675	1,630	97,000	.066	.08	7	1.07
1899	11,030	2,650	6,659	396,000	.268	.30	38	.78
1900	8,400	2,910	5,328	317,000	.215	.23	5	4.45
May.								
1897	10,500	6,670	8,688	534,200	.350	.40	25	1.59
1898	17,000	2,350	5,403	332,200	.218	.25	6	4.37
1899	19,050	3,840	10,257	630,700	.412	.47	15	3.14
1900	14,000	8,190	10,379	638,200	.416	.48	70	.69
June.								
1897	12,000	4,520	7,491	440,400	.302	.33	28	1.18
1898	10,600	4,550	7,390	439,700	.298	.33	20	1.64
1899	23,560	11,580	16,400	975,900	.660	.73	45	1.63
1900	14,280	3,960	9,771	581,400	.394	.44	60	.73
July.								
1896	2,890	977	1,554	95,500	.062	.07	4	1.88
1897	5,810	930	2,147	132,000	.086	.10	7	1.51
1898	4,200	780	1,617	99,400	.065	.08	5	1.73
1899	20,500	3,950	12,230	752,000	.493	.56	37	1.49
1900	4,000	770	2,227	136,900	.090	.10	4	2.28
August.								
1896	1,320	628	924	56,700	.037	.04	4	.93
1897	2,000	580	1,066	65,500	.043	.05	3	1.77
1898	800	60	266	16,400	.011	.01	1	.75
1899	5,340	1,190	2,834	174,300	.114	.13	11	1.17
1900	900	230	471	29,000	.019	.02	4	.49
September.								
1896	1,190	738	939	55,900	.038	.04	3	1.52
1897	580	400	492	29,300	.020	.02	4	.45
1898	200	60	110	6,500	.004	.004	1	.42
1899	1,860	682	1,076	64,000	.043	.05	9	.54
1900	425	180	289	17,200	.012	.01	1	1.30
October.								
1896	1,290	875	1,008	62,000	.041	.05	9	.56
1897	600	370	484	29,800	.020	.02	4	.56
1898	425	110	245	15,100	.010	.01	1	.72
1899	1,890	1,100	1,372	84,300	.055	.06	5	1.13
1900	600	200	369	22,700	.015	.02	4	.55

NORTH PLATTE RIVER AT BRIDGEPORT.

The Bridgeport station was established May 4, 1902. It is located at the highway bridge on the public road about one-half mile north of Bridgeport, in sec. 28, T. 20 N., R. 50 W., and is shown on the Camp Clarke topographic atlas sheet.

The river is straight both above and below the gaging section for a considerable distance, the channel being narrowed by a dike built as a bridge approach. The bed is composed of shifting sand. There is one channel at ordinary stages, but at low water the stream flows in a large number of small, winding channels. The current is never sluggish, even at low stages. The range of gage heights is about 4 feet.

Discharge measurements are made from the upstream side of the highway bridge, which is supported by pile bents spaced about 20 feet apart.

The gage is of the wire and weight type and is fastened to the upstream hand rail of the bridge. The length of the wire from the index to the end of the weight is 12.80 feet. The gage is referred to three bench marks, as follows: (1) A 6 by 6 inch stone, marked U. S. C. & G. S., in the NE. ¼ sec. 32, T. 20 N., R. 50 W., 130 feet east of the east gate of the stock yards and 300 feet northwest of the northwest corner of the public school building; elevation, 9.94 feet above the zero of the gage. (2) A standard United States Geological Survey bench mark, set in a stone about 50 feet south and a little east of the northeast corner of lot 4, block 2, of Riverside addition to Bridgeport; elevation, 11.32 feet above the zero of the gage. (3) A spike in the top of the upstream end of the cap of the first bent at the right end of the bridge; elevation, 10.14 feet above the zero of the gage.

Discharge measurements of North Platte River at Bridgeport, 1901–1906.

Date.	Hydrographer.	Gage height.	Discharge.
1901.		*Feet.*	*Sec.-ft.*
July 27	R. H. Willis		800
August 28	do		125
1902.			
May 20	do	6.00	5,414
June 3	Frank Dobson	5.80	4,515
June 10	do	5.17	2,049
June 14	do	5.97	5,433
June 21	do	5.71	5,120
July 10	R. H. Willis	5.16	2,084
July 19	Frank Dobson	5.00	787
July 26	do	4.87	615
August 9	do	4.68	190
August 28	R. H. Willis	4.49	37
September 22	do	5.08	634
1903.			
March 31	J. C. Stevens	5.32	1,953
June 5	R. H. Willis	5.67	3,783
June 9	do	6.06	6,174
June 16	do	6.41	8,441
June 19	J. C. Stevens	6.40	10,462
July 4	R. H. Willis	5.77	5,547
July 7	J. C. Stevens	5.65	4,239
July 13	R. H. Willis	5.37	2,492
July 27	do	5.10	918
July 30	J. C. Stevens	4.98	824
August 4	R. H. Willis	4.95	699
August 13	J. C. Stevens	4.90	331
August 18	R. H. Willis	5.12	364
August 29	do	5.05	183
September 7	O. V. P. Stout	5.10	284
October 19	R. H. Willis	5.10	592
1904.			
April 23	J. C. Stevens	5.28	1,236
May 26	do	6.17	7,878
June 9	do	6.56	11,189
July 9	do	5.76	4,486
September 26	R. D. Hubbard	4.69	59
1905.			
March 29	H. C. Gardner	5.10	1,417
May 12	do	6.30	11,040
June 14	do	7.00	17,550
July 12	do	5.65	4,608
July 21	do	5.40	2,367
August 4	do	5.45	2,504
September 13	A. Dobson	4.91	366
1906.			
April 11	F. S. Dobson	5.75	3.448
June 27	Arthur Dobson	6.05	6.511
July 25	do	5.51	2,308
September 2	do	4.74	1,142
October 17	A. R. Wilson	4.81	822
December 7	do	5.55	2,191

Mean daily gage height, in feet, of North Platte River at Bridgeport, 1902–1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.												
1	.....	.....	.....	.....	.....	5.41	5.60	4.85	4.50	4.79	5.02	.....
2	.....	.....	.....	.....	.....	5.61	5.56	4.75	4.46	4.75	4.95	.....
3	.....	.....	.....	.....	.....	5.79	5.76	4.80	4.45	4.80	4.98	.....
4	.....	.....	.....	.....	5.50	5.93	5.40	4.78	4.44	4.80	4.88	.....
5	.....	.....	.....	.....	5.70	6.04	5.43	4.80	4.40	4.84	4.96	.....
6	.....	.....	.....	.....	5.60	5.99	5.32	4.79	4.40	4.82	5.00	.....
7	.....	.....	.....	.....	5.56	6.10	5.33	4.80	4.40	4.80	.....	.....
8	.....	.....	.....	.....	5.60	5.93	5.35	.....	4.40	4.82	.....	.....
9	.....	.....	.....	.....	5.68	5.89	5.27	4.75	4.48	4.85	.....	.....
10	.....	.....	.....	.....	.....	5.90	5.16	4.72	4.40	4.85	.....	.....

Mean daily gage height, in feet, of North Platte River at Bridgeport, 1902–1906—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.												
11						5.93	5.19	4.72	4.40	4.91		
12					5.76	5.92	5.10	4.70	4.40	4.95		
13						5.89	5.02	4.67	4.40	4.90		
14					5.80	6.00	5.04	5.05	4.38	4.91		
15					5.89	6.04	5.00	4.75	4.41	4.94		
16					5.86	6.00	5.20	4.68	4.40	4.95		
17					5.91	6.00	5.04	4.70	4.40	4.92		
18					5.99	5.85	5.01	4.65	4.40	4.95		
19					5.95	5.82	5.00	4.62		4.91		
20					6.00	5.82	4.89	4.61	4.46	4.92		
21					6.04	5.75	4.86	4.60				
22					6.10	5.68	4.80	4.59	4.95	4.94		
23					6.04	5.58	4.75	4.60	4.88	4.95		
24					6.04	5.48	4.77	4.62	4.78	4.95		
25					5.96	5.47	4.86	4.52	4.77	4.94		
26					5.86	5.26	4.90	4.52	4.95	4.95		
27					5.65	5.46	4.94	4.56	4.85	4.90		
28					5.56	5.60	4.79	4.60	4.82	4.91	5.00	
29					5.41	5.87	4.76		4.82	4.95		
30					5.45	5.85	4.85		4.79	4.94		
31					5.41		4.90			4.91		
1903.												
1				5.38	6.00	5.70	5.93	5.13	5.10	5.00	5.07	5.32
2				5.36	5.98	5.65	5.86	5.00	5.10	5.05	5.08	5.30
3				5.22	5.95	5.73	5.83	5.08	5.08	5.05	5.10	5.32
4				5.32	5.90	5.85	5.81	5.14	5.10	5.07	5.05	5.30
5				5.58	5.95	5.67	5.85	5.13	5.05	4.95	5.07	5.30
6				5.73	5.93	5.73	5.72	5.09	5.08	5.10	5.10	5.32
7				5.60	5.75	5.92	5.68	5.10	5.10	5.20	5.08	5.50
8				5.60	5.65	6.00	5.63	4.90	5.00	5.15	5.05	5.58
9				5.60	5.77	6.06	5.41	4.95	5.00	5.10	5.05	5.48
10				5.55	5.78	6.20	5.45	5.05	4.98	5.10	5.00	5.40
11				5.52	5.67	6.21	5.54	5.00	4.85	5.22	5.00	5.42
12				5.42	5.60	6.23	5.46	4.95	4.95	5.10	5.02	5.40
13				5.43	5.63	6.30	5.35	5.08	4.90	5.10	5.30	5.38
14				5.41	5.57	6.33	5.29	4.95	5.00	5.15	5.35	
15				5.46	5.70	6.38	5.31	4.90	5.15	5.10	5.30	
16				5.47	5.65	6.41	5.37	5.08	5.12	5.08	5.40	
17				5.50	5.80	6.35	5.45	5.00	4.93	5.05	5.40	
18				5.50	5.83	6.34	5.22	5.10	4.96	5.03	5.40	
19				5.83	5.75	6.39	5.17	5.15	5.00	5.08	5.40	
20				5.53	5.92	6.40	5.30	5.10	5.00	5.05	5.40	
21				5.55	6.05	6.36	5.17	5.08	5.00	5.05	5.35	5.32
22				5.60	6.05	6.33	5.13	5.00	5.10	5.10	5.30	5.35
23				5.58	6.10	6.45	5.12	4.98	5.20	5.12	5.35	5.32
24				5.57	6.15	6.37	4.99	5.30	5.18	5.10	5.37	5.54
25				5.60	5.95	6.37	5.06	5.10	5.18	5.08	5.30	5.50
26				5.80	5.87	6.31	5.27	5.10	5.10	5.05	5.37	5.60
27				5.97	5.85	6.27	5.22	5.20	5.15	5.05	5.35	5.65
28				5.85	5.80	6.16	5.22	5.00	5.07	5.07	5.37	5.75
29				5.85	5.93	6.10	5.11	5.05	5.07	5.08	5.37	5.80
30				5.80	5.90	5.97	5.19	5.08	5.05	5.07	5.37	5.67
31					5.72		5.12	5.10		5.08		5.65
1904.												
1	5.60				5.45	6.46	6.05	4.90	4.82	4.92	5.02	
2	5.55				5.43	6.46	5.92	4.82	4.75	4.85	5.00	
3	5.90				5.52	6.46	6.04	4.75	4.73	4.82	5.02	
4	5.80				5.60	6.55	5.92	4.74	4.72	4.72	5.00	
5	5.35				5.65	6.32	5.74	4.73	4.72	4.75	5.00	
6	5.40				6.05	6.29	5.76	4.79	4.70	4.75	4.95	
7	5.45				6.31	6.48	5.88	4.84	4.70	4.75	4.95	
8	5.42				6.25	6.66	5.76	4.75	4.67	4.75	5.15	
9	5.40				5.88	6.68	5.79	4.75	4.60	4.70	5.20	
10	5.42			5.20	5.82	6.56	5.86	4.72	4.62	4.75	5.00	
11	5.40			5.10	6.01	6.56	5.80	4.70	4.63	4.72	4.90	
12	5.40			5.05	5.74	6.59	5.56	4.68	4.63	4.75	4.92	
13	5.42			5.03	5.72	6.38	5.55	4.64	4.64	4.78	5.05	
14	5.48			5.03	5.72	6.42	5.48	4.64	4.65	4.80	5.20	
15	5.50			5.25	5.82	6.34	5.49	4.65	4.65	4.78	5.17	

Mean daily gage height, in feet, of North Platte River at Bridgeport, 1902–1906—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.												
16	5.42	.....	.....	4.98	5.74	6.34	5.40	4.75	4.65	4.80	5.15	.....
17	5.40	.....	.....	5.15	5.75	6.31	5.32	4.85	4.67	4.75	5.10	.....
18	5.42	.....	.....	5.05	5.80	6.38	5.31	4.95	4.67	4.80	5.12	.....
19	5.43	.....	.....	5.03	5.80	6.28	5.30	4.88	4.70	5.35	5.10	.....
20	5.50	.....	.....	5.05	5.86	6.38	5.25	4.72	4.68	5.30	5.12	.....
21	5.55	.....	.....	5.07	5.92	6.36	5.22	4.72	4.68	5.10	5.15	.....
22	5.42	.....	.....	5.35	5.95	6.26	5.21	4.75	4.70	5.05	5.08	.....
23	5.42	.....	.....	5.20	6.36	6.30	5.25	4.70	4.70	5.00	5.17	.....
24	.....	.....	.....	5.75	6.58	6.31	5.24	4.72	4.72	5.25	5.13	.....
25	.....	.....	.....	5.25	6.22	6.29	5.25	4.72	4.70	5.08	5.07	.....
26	.....	.....	.....	5.32	6.20	6.31	5.25	4.70	4.70	5.00	5.00	.....
27	.....	.....	.....	5.20	6.22	6.22	5.25	4.75	4.70	4.95	5.35	.....
28	.....	.....	.....	5.50	6.35	6.12	5.22	4.60	4.72	4.98	5.32	.....
29	.....	.....	.....	5.48	6.38	6.04	5.05	4.65	4.78	5.00	5.00	.....
30	.....	.....	.....	5.45	6.57	6.02	4.95	4.70	4.87	4.98	.....	.....
31	.....	.....	.....	.....	6.50	.....	5.04	4.75	.....	5.00	.....	.....
1905.												
1	.....	.....	.....	5.5	6.45	6.83	6.25	5.46	4.8	4.86	.....	.....
2	.....	.....	.....	5.7	6.43	6.81	6.25	5.54	4.84	4.9	.....	.....
3	.....	.....	.....	5.52	6.4	6.75	6.25	5.37	4.93	4.92	.....	.....
4	.....	.....	.....	5.3	6.4	6.65	6.35	5.44	4.87	4.94	.....	.....
5	.....	.....	.....	5.27	6.37	6.62	6.2	5.48	4.94	4.95	.....	.....
6	.....	.....	.....	5.27	6.5	6.55	6.0	5.36	4.9	4.93	.....	.....
7	.....	.....	.....	5.25	6.41	6.57	5.95	5.35	4.87	4.9	.....	.....
8	.....	.....	.....	5.32	6.43	6.78	5.88	5.37	4.9	4.9	.....	.....
9	.....	.....	.....	5.35	6.45	6.86	5.85	5.31	4.9	4.9	.....	.....
10	.....	.....	.....	5.32	6.4	6.8	5.8	5.3	4.96	4.93	.....	.....
11	.....	.....	.....	5.43	6.46	6.9	5.75	5.33	4.94	4.95	.....	.....
12	.....	.....	.....	5.36	6.33	6.9	5.68	5.21	4.93	4.97	.....	.....
13	.....	.....	.....	5.42	6.3	6.95	5.6	5.27	4.91	4.98	.....	.....
14	.....	.....	.....	5.35	6.25	6.98	5.5	5.16	4.95	5.23	.....	.....
15	.....	.....	.....	5.37	6.25	7.0	5.35	5.3	4.9	5.15	.....	.....
16	.....	.....	.....	5.3	6.3	6.95	5.43	5.39	4.87	5.1	.....	.....
17	.....	.....	.....	5.38	6.25	6.8	5.43	5.13	4.87	5.1	.....	.....
18	.....	.....	.....	5.62	6.28	6.8	5.4	5.05	4.89	5.08	.....	.....
19	.....	.....	.....	5.6	6.25	6.8	5.34	5.0	4.97	5.03	.....	.....
20	.....	.....	.....	5.9	6.28	6.7	5.25	4.96	5.0	5.02	.....	.....
21	.....	.....	.....	5.57	6.15	6.6	5.37	4.9	4.95	5.07	.....	.....
22	.....	.....	.....	5.62	6.26	6.65	5.37	4.98	4.9	5.05	.....	.....
23	.....	.....	.....	5.8	6.25	6.6	5.05	4.95	4.9	5.1	.....	.....
24	.....	.....	.....	6.0	6.6	6.6	5.32	4.9	4.9	5.08	.....	.....
25	.....	.....	.....	6.0	6.53	6.5	5.16	4.86	4.92	5.08	.....	.....
26	.....	.....	.....	6.02	6.5	6.35	5.13	5.06	4.87	5.06	.....	.....
27	.....	.....	.....	6.2	6.52	6.3	5.43	5.07	4.88	5.08	.....	.....
28	.....	.....	.....	6.2	6.6	6.25	5.42	4.9	4.87	5.0	.....	.....
29	.....	.....	5.1	6.2	6.55	6.2	5.38	4.88	4.86	5.1	.....	.....
30	.....	.....	5.25	6.4	6.57	6.15	5.54	4.9	4.88	5.08	.....	.....
31	.....	.....	5.27	.....	6.7	.....	5.43	4.88	.....	5.1	.....	.....
1906.												
1	.....	.....	.....	.....	6.42	7.10	6.20	5.18	4.65	4.76	4.75	.....
2	.....	.....	.....	.....	6.32	7.15	6.10	5.15	4.60	4.76	4.72	.....
3	.....	.....	.....	.....	6.22	7.20	6.00	5.15	4.62	4.72	4.72	.....
4	.....	.....	.....	.....	6.18	7.10	5.90	5.18	4.62	4.72	4.72	.....
5	.....	.....	.....	.....	6.10	7.05	5.80	5.15	4.60	4.70	4.70	.....
6	.....	.....	.....	.....	6.05	7.00	5.75	5.15	4.60	4.74	4.72	.....
7	.....	.....	.....	.....	6.08	6.90	5.70	5.12	4.60	4.73	4.70	.....
8	.....	.....	.....	6.08	6.08	6.85	5.60	5.15	4.62	4.75	4.70	.....
9	.....	.....	.....	5.98	6.00	6.70	5.50	5.16	4.62	4.76	4.70	.....
10	.....	.....	.....	5.88	6.10	6.65	5.90	5.18	4.64	4.75	4.72	.....
11	.....	.....	.....	5.85	6.15	6.65	5.80	5.15	4.62	4.77	.....	.....
12	.....	.....	.....	6.00	6.12	6.60	5.70	5.15	4.62	4.75	.....	.....
13	.....	.....	.....	6.95	6.08	6.60	5.75	5.15	4.60	4.75	.....	.....
14	.....	.....	.....	6.90	6.05	6.50	5.60	5.15	4.60	4.73	.....	.....
15	.....	.....	.....	6.00	6.00	6.40	5.75	5.10	4.62	4.72	.....	.....
16	.....	.....	.....	6.10	6.45	6.40	5.80	5.00	4.64	4.73	.....	.....
17	.....	.....	.....	6.12	6.48	6.45	5.90	4.95	4.60	4.73	.....	.....
18	.....	.....	.....	6.15	6.42	6.50	6.00	4.87	4.62	4.75	.....	.....
19	.....	.....	.....	6.12	6.45	6.55	5.95	4.85	4.64	4.75	.....	.....
20	.....	.....	.....	6.08	6.40	6.60	5.95	4.80	4.68	4.73	.....	.....

Mean daily gage height, in feet, of North Platte River, at Bridgeport, 1902–1906—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1906.												
21				6.00	6.55	6.75	5.90	4.86	4.70	4.75		
22				5.95	6.58	6.70	5.85	4.85	4.70	4.78		
23				5.90	6.60	6.60	5.80	4.90	4.70	4.80		
24				5.98	6.65	6.50	5.78	4.90	4.68	4.84		
25				6.08	6.70	6.40	5.60	4.85	4.65	4.82		
26				6.10	6.70	6.30	5.50	4.90	4.65	4.82		
27				6.15	6.75	6.28	5.50	4.85	4.68	4.82		
28				6.18	6.95	6.25	5.45	4.82	4.70	4.80		
29				6.22	7.20	6.20	5.30	4.80	4.70	4.80		
30				6.30	7.40	6.15	5.20	4.75	4.70	4.78		
31					7.10		5.20	4.70		4.75		

Mean daily discharge, in second-feet, of North Platte River at Bridgeport, 1902–1906.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1902.								
1			2,170	3,120	480	50	360	800
2			3,180	3,010	290	30	290	680
3			4,170	4,000	380	30	380	760
4		2,610	5,000	2,120	340	20	380	520
5		3,660	5,750	2,270	380	10	460	710
6		3,120	5,390	1,790	360	10	420	
7		3,010	6,200	1,830	380	10	380	
8		3,120	5,000	1,920		10	420	
9		3,550	4,730	1,610	290	40	480	
10			4,790	1,250	250	10	480	
11			5,000	1,350	250	10	590	
12		4,000	4,850	1,060	210	10	680	
13			4,730	840	180	10	560	
14		4,230	5,450	890	930	0	590	
15		4,730	5,750	790	290	10	660	
16		4,550	5,450	1,380	190	10	680	
17		4,860	5,450	890	210	10	620	
18		5,390	4,510	810	160	10	680	
19		5,120	4,350	790	130	0	590	
20		5,450	4,350	540	120	30	620	
21		5,750	3,945	520	110			
22		6,200	3,550	380	100	680	660	
23		5,750	3,020	290	110	520	680	
24		5,750	2,540	320	130	340	680	
25		5,190	2,460	520	60	310	660	
26		4,550	1,580	560	60	680	680	
27		3,390	2,410	640	90	480	560	
28		3,010	3,120	360	110	420	590	790
29		2,170	4,640	300		420	680	
30		2,390	4,510	480		360	660	
31		2,170		560			590	
1903.								
1	2,565	6,700	4,450	6,700	1,365	225	150	675
2	2,295	6,700	4,110	5,910	825	225	225	825
3	1,575	6,300	4,800	6,300	1,170	225	225	825
4	2,040	5,910	5,530	5,910	1,365	225	225	825
5	3,780	6,300	3,780	6,300	1,365	200	90	825
6	4,800	6,300	4,450	4,800	1,170	225	315	990
7	3,780	4,800	5,530	4,450	1,170	225	540	1,170
8	3,780	4,110	6,300	4,110	540	200	420	990
9	3,780	4,800	6,300	2,565	675	200	420	990
10	3,460	5,160	7,510	2,850	825	200	420	825
11	3,150	4,110	7,510	3,460	540	200	675	825
12	2,565	3,780	7,920	2,850	420	200	420	825
13	2,850	4,110	8,340	2,295	825	200	420	
14	2,565	3,460	8,760	2,040	420	200	540	
15	2,850	4,450	8,760	2,040	315	315	540	

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Mean daily discharge, in second-feet, of North Platte River at Bridgeport, 1902–1906—Con.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1903.								
16	2,850	4,110	8,760	2,295	675	225	540	.....
17	3,150	5,160	8,760	2,850	315	200	420	.....
18	3,150	5,530	9,190	1,575	420	200	540	.....
19	5,530	4,800	10,060	1,365	540	200	675	.....
20	3,460	5,910	10,060	2,040	315	200	540	.....
21	3,460	7,100	9,620	1,365	315	200	540	.....
22	3,780	7,100	9,620	1,365	150	225	675	.....
23	3,780	7,510	10,500	1,170	150	420	675	.....
24	3,460	7,920	9,620	825	825	420	675	.....
25	3,780	6,300	9,620	990	225	420	675	.....
26	5,160	5,530	9,190	1,800	225	225	540	.....
27	6,300	5,530	8,760	1,365	420	315	540	.....
28	5,530	5,160	7,920	1,365	90	225	540	.....
29	5,530	6,300	7,510	990	150	225	675	.....
30	5,160	5,910	6,700	2,850	225	225	540	.....
31	.....	4,450	.....	1,170	225	.....	675	.....
1904.								
1	.....	2,200	10,260	6,900	350	200	350	500
2	.....	2,200	10,260	5,640	275	150	275	500
3	.....	2,500	10,260	6,900	150	150	200	500
4	.....	3,200	11,100	5,640	150	100	100	500
5	.....	3,600	9,000	4,400	150	100	150	500
6	.....	6,900	9,000	4,400	200	100	150	425
7	.....	9,000	10,680	5,640	275	100	150	425
8	.....	8,580	11,940	4,400	150	75	150	850
9	.....	5,640	12,360	4,800	150	50	100	1,000
10	1,000	4,800	11,000	5,220	100	50	150	500
11	700	6,480	11,000	4,800	100	75	100	350
12	600	4,400	11,520	2,850	100	75	150	350
13	600	4,000	9,840	2,850	75	75	200	350
14	600	4,000	9,840	2,500	75	75	200	600
15	1,200	4,800	9,420	2,500	75	75	200	850
16	500	4,400	9,420	1,900	150	75	200	850
17	850	4,400	9,000	1,400	275	75	150	700
18	600	4,800	9,840	1,400	425	75	200	700
19	600	4,800	9,000	1,400	350	100	1,650	700
20	600	5,220	9,840	1,200	100	100	1,400	700
21	600	5,640	9,420	1,000	100	100	700	850
22	1,650	6,060	8,580	1,000	150	100	600	700
23	1,000	9,420	9,000	1,200	100	100	600	850
24	4,400	11,520	9,000	1,200	100	100	1,200	850
25	1,200	8,160	9,000	1,200	100	100	700	700
26	1,400	8,160	9,000	1,200	100	100	500	500
27	1,000	8,160	8,160	1,200	150	100	425	1,650
28	2,500	9,420	7,320	1,000	50	100	500	1,400
29	2,500	9,840	6,900	600	75	200	500	500
30	4,900	11,100	6,480	425	100	275	500	.....
31	.....	10,680	.....	600	100	.....	500	.....
1905.								
1	3,700	12,200	16,000	10,200	2,672	200	290	.....
2	5,250	12,000	15,800	10,200	3,192	260	350	.....
3	3,840	11,700	15,200	10,200	2,126	425	400	.....
4	2,400	11,700	14,200	11,200	2,548	305	450	.....
5	2,250	11,400	13,900	9,700	2,796	450	475	.....
6	2,250	12,700	13,200	7,800	2,068	350	425	.....
7	2,150	11,800	13,400	7,375	2,010	305	350	.....
8	2,520	12,000	15,500	6,780	2,126	350	350	.....
9	2,700	12,200	16,300	6,525	1,778	350	350	.....
10	2,520	11,700	15,700	6,100	1,720	500	425	.....
11	3,210	12,300	16,700	5,675	1,894	450	475	.....
12	2,760	11,000	16,700	4,600	1,315	425	525	.....
13	3,140	10,700	17,200	4,200	1,585	375	550	.....
14	2,700	10,200	17,500	3,400	1,134	475	1,405	.....
15	2,820	10,200	17,700	2,400	1,720	350	1,100	.....
16	2,400	10,700	17,200	2,900	2,242	305	930	.....
17	2,880	10,200	15,700	2,800	1,032	305	930	.....
18	4,570	10,500	15,700	2,600	765	335	864	.....
19	4,400	10,200	15,700	2,200	600	525	699	.....
20	6,950	10,500	14,700	1,700	500	600	666	.....

Mean daily discharge, in second-feet, of North Platte River at Bridgeport, 1902–1906—Con.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1905.								
21	4,190	9,225	13,700	2,400	350	475	831	.....
22	4,570	10,300	14,200	2,126	550	350	765	.....
23	6,100	10,200	13,700	765	475	350	930	.....
24	7,800	13,700	13,700	1,836	350	350	864	.....
25	7,800	13,000	12,700	1,134	290	400	864	.....
26	7,990	12,700	11,200	1,032	798	305	798	.....
27	9,700	12,900	10,700	2,486	831	320	864	.....
28	9,700	13,700	10,200	2,424	350	305	600	.....
29	9,700	13,200	9,700	2,184	320	290	930	.....
30	11,700	13,400	9,225	3,192	350	320	864	.....
31	.....	14,700	.....	2,486	320	.....	930	.....
1906.								
1	.....	9,400	16,600	7,800	1,120	800	850	560
2	.....	8,400	17,100	6,900	1,050	760	850	530
3	.....	7,500	17,600	6,000	1,100	800	760	530
4	.....	7,250	16,600	5,200	1,210	800	760	530
5	.....	6,550	16,100	4,400	1,150	750	720	500
6	.....	6,100	15,700	4,000	1,150	750	810	530
7	.....	6,400	14,600	3,650	1,180	750	780	400
8	6,000	6,400	14,200	3,000	1,260	800	830	400
9	5,200	5,700	12,600	2,400	1,400	840	750	400
10	4,400	6,500	12,100	5,200	1,500	800	740	400
11	4,150	7,000	12,100	4,400	1,450	800	790	.....
12	5,450	6,700	11,600	3,650	1,450	660	740	.....
13	14,500	6,400	11,600	4,050	1,500	660	740	.....
14	14,000	6,100	10,600	3,000	1,500	720	690	.....
15	5,450	5,820	9,600	4,050	1,430	760	680	.....
16	6,300	9,900	9,600	4,400	1,070	660	690	.....
17	6,450	10,200	10,200	5,200	1,000	720	690	.....
18	6,750	9,600	10,700	6,000	800	760	640	.....
19	6,450	9,900	11,200	5,600	810	850	640	.....
20	6,100	9,450	11,700	5,600	700	900	600	.....
21	5,450	10,900	13,200	5,200	900	800	640	.....
22	5,050	11,200	12,700	4,800	860	800	700	.....
23	4,750	11,400	11,700	4,400	1,090	740	750	.....
24	5,400	11,900	10,700	4,250	1,090	680	850	.....
25	6,300	12,400	9,800	3,000	1,030	680	780	.....
26	6,440	12,600	8,800	2,300	1,190	680	780	.....
27	6,900	13,000	8,600	2,300	1,120	740	780	.....
28	7,150	15,100	8,250	2,150	1,040	800	660	.....
29	7,500	17,300	7,800	2,450	1,060	800	660	.....
30	8,220	19,700	7,300	1,140	950	730	640	.....
31	.....	16,600	.....	1,140	920	.....	560	.....

Estimated monthly discharge of North Platte River at Bridgeport, 1902–1906.

[Drainage area, 24,800 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
April.								
1903	6,300	1,570	3,664	218,000	0.148	0.16	11	1.37
1904 [a]	4,400	536	1,393	58,000				.91
1905	11,700	2,150	4,822	286,900	.194	.22	6	3.42
1906	14,500	4,150	6,710	399,300	.275	.31	16	1.88
May.								
1902 [b]	6,200	2,170	4,149	255,000				1.86
1903	7,920	3,460	5,526	339,800	.223	.26	14	1.83
1904	11,350	2,250	6,313	388,200	.254	.29	10	2.78
1905	14,700	9,220	11,710	720,000	.472	.54	16	3.29
1906	19,700	5,700	9,790	602,000	.394	.45	17	2.61
June.								
1902	6,200	1,580	4,267	253,900	.172	.19	7	2.62
1903	10,500	3,780	7,665	456,100	.308	.34	23	1.45
1904	12,190	6,650	9,630	573,000	.389	.43	15	2.81
1905	17,700	9,220	14,430	858,600	.582	.65	51	1.28
1906	17,600	7,300	12,000	714,000	.484	.54	30	1.78
July.								
1902	4,000	290	1,200	73,800	.048	.05	3	1.44
1903	6,700	825	2,837	174,400	.112	.12	6	2.02
1904	6,900	470	2,940	180,800	.119	.13	8	1.52
1905	11,200	765	4,536	278,900	.183	.20	9	2.31
1906	7,800	1,140	4,120	253,000	.166	.18	13	1.37
August.								
1902	930	60	244	15,000	.010	.01	1	.90
1903	1,360	90	589	36,200	.024	.03	2	1.56
1904	470	50	157	9,600	.006	.01	2	.63
1905	3,190	290	1,316	80,900	.053	.06	5	1.17
1906	1,500	700	1,130	69,500	.045	.05	3	1.76
September.								
1902	680	0	162	9,600	.007	.01	.5	1.96
1903	420	200	240	14,300	.010	.01	.6	1.66
1904	312	50	108	6,400	.004	.004	.4	.93
1905	600	200	370	22,000	.015	.02	2	1.25
1906	900	660	760	45,200	.031	.03	2	1.64
October.								
1902	680	290	559	34,400	.022	.02	2	.85
1903	675	90	487	29,900	.020	.02	4	.52
1904	1,850	100	464	28,600	.019	.02	2	.86
1905	1,400	290	685	42,100	.028	.03	4	.80
1906	850	560	727	44,700	.029	.03	1	2.00
November.								
1903 [c]	1,170	675	883	21,000				.26
1904	1,850	360	846	48,700	.034	.04	200	.02
1906 [d]	560	400	478	9,500				.86

[a] April 10 to 30. [b] 25 days in May. [c] November 1 to 12. [d] November 1 to 10.

NORTH PLATTE RIVER AT NORTH PLATTE.

The station at North Platte, the lowest on North Platte River, was established October 5, 1894. It is 3½ miles above the junction of the North and South Platte, at a highway bridge about one-half mile north of the city of North Platte, in sec. 28, T. 14 N., R. 30 W., and is shown on the North Platte topographic atlas sheet.

The river is straight for a considerable distance above and below the station. The bed is composed of shifting sand, and the banks are low but not liable to overflow. The river flows in two channels. The

north channel is narrow and is dry, except in moderately high water. At low stages the water is confined to a few channels along the right bank of the main channel. During the winter months the river often freezes almost entirely solid, as it is very shallow, and attempts to obtain records of winter flow have been somewhat unsuccessful. The range of gage heights is about 5 feet. There is one small tributary, Birdwood Creek, which maintains a small flow of water at the gaging station during the months when the river itself would otherwise be entirely dry. The only obstructions in the channel are the piling bents and inclined ice guards. The water is never sluggish even at low stages.

Measurements are made from the highway bridge, which consists of 93 spans of 20 feet each, supported on pile bents.

The gage is a vertical staff, marked to tenths of a foot, spiked to a piling of the Union Pacific Railroad bridge, 2 miles below the highway bridge. The bench mark is the top of the east rail directly over the gage rod; elevation, 12 feet above the zero of the gage. It is customary to refer the elevation of the water surface at the gaging section, at the time of making measurements, to the top of the upstream end of the cap of the second bent from the right-bank end of the highway bridge.

Discharge measurements of North Platte River at North Platte, 1892–1906.

Date.	Hydrographer.	Gage height.	Discharge.
1892.		*Feet.*	*Sec.-ft.*
September 14	Cyrus C. Babb		770
November 2	do		1,070
November 22	do		1,370
1894.			
October 5	C. P. Ross		620
November 6	do		1,227
1895.			
March 27	do	2.25	2,329
April 29	do	2.85	5,695
May 28	do	2.90	6.320
June 8	do	4.00	16,261
September 14	O. V. P. Stout	1.30	200
1896.			
June 13	do	3.35	9,000
June 29	do	2.90	4,000
July 25	do	2.05	1,260
September 8	do	1.50	547
1897.			
April 5	C. P. Ross	2.70	4,038
April 12	do	2.80	2,961
April 26	do	3.45	10,328
May 17	do	3.50	13,486
May 29	do	4.05	20,796
May 29	do	4.05	20,796
June 10	do	3.95	17,172
June 19	do	3.35	11,393
June 29	do	3.05	6,518
July 10	do	2.25	4,112
July 24	do	2.05	2,940
August 7	do	2.40	3,118
August 21	do	2.15	2,306
September 4	do	1.65	679
September 18	do	1.70	744
1897.		*Feet.*	*Sec.-ft.*
October 6	C. P. Ross	1.50	486
October 18	do	1.90	1,343
November 11	do	1.90	1,511
1898.			
April 15	do	2.10	1,844
May 2	do	2.60	4,429
May 14	do	2.50	4,288
May 23	do	2.90	5,296
May 31	do	2.60	10,074
June 4	do	3.25	8,270
June 23	do	3.00	5,848
July 22	do	1.70	697
July 30	do	1.20	324
August 15	do	.80	241
August 23	do	1.00	197
September 2	A. B. McCoskey	.45	12
September 9	C. P. Ross	.90	219
September 27	do	1.20	364
October 11	do	1.30	306
October 26	do	1.65	801
November 7	do	1.80	1,014
1899.			
April 19	Glenn E. Smith	3.30	9,111
May 6	do	3.00	8,239
May 22	do	3.80	12,962
June 6	do	3.60	13,310
June 15	C. P. Ross	3.60	11,330
June 19	Glenn E. Smith	4.20	16,257
July 17	C. P. Ross	3.30	10,351
August 8	do	2.50	4,637
August 28	do	1.85	2,013
September 15	do	1.55	976
October 4	do	1.70	713
1900.			
December 20	Adna Dobson	2.30	1,223

Discharge measurements of North Platte River at North Platte, 1892–1906—Continued.

Date.	Hydrographer.	Gage height.	Discharge.
1901.		*Feet.*	*Sec.-ft.*
July 17	O. V. P. Stout	1.80	943
August 29	H. O. Smith	1.40	198
December 27	F. Dobson	Ice.	1,536
1902.			
April 9	B. E. Forbes	2.20	1,804
May 6	H. O. Smith	2.65	3,723
May 20	do	3.15	7,136
June 3	do	2.50	3,029
June 19	do	3.00	6,615
July 3	do	2.70	4,997
July 17	do	1.65	1,343
July 28	do	1.70	677
August 9	do	1.00	55
August 18	do	1.00	49
August 23	do	1.00	94
September 6	J. C. Stevens	1.00	20
September 24	H. O. Smith	2.30	1,818
November 29	do	2.40	822
1903.			
April 2	J. C. Stevens	2.30	2,143
May 8	do	2.85	5,004
June 13	do	2.90	6,490
June 29	do	3.25	9,114
July 8	do	2.80	4,768
July 31	do	1.85	787
August 14	do	1.80	791
September 17	W. C. Sturdevant	1.60	492
October 31	J. C. Stevens	2.00	1,145
1904.		*Feet.*	*Sec.-ft.*
March 26	J. C. Stevens	2.20	1,086
May 13	do	2.80	4,995
May 27	R. D. Hubbard	3.40	9,445
June 13	J. C. Stevens	3.85	14,619
July 26	do	2.05	1,488
September 28	R. D. Hubbard	1.57	422
1905.			
March 31	G. W. Bates	2.40	2,157
May 16	do	3.35	9,677
June 12	H. C. Gardner	3.95	17,570
June 20	do	3.75	16,010
July 13	do	2.75	5,878
July 22	do	2.40	3,513
August 5	do	2.20	2,564
September 20	F. S. Dobson	1.80	703
October 24	Dobson and Bates	1.98	1,056
September 9	H. C. Gardner	1.70	735
1906.			
February 22	F. S. Dobson	2.65	5,095
April 10	do	2.80	5,929
May 9	do	2.60	5,502
July 2	Arthur Dobson	2.85	6,334
August 1	do	2.00	1,530
September 7	do	1.75	1,035
November 3	do	2.52	3,134
November 13	A. R. Wilson	2.35	2,566

Mean daily gage height, in feet, of North Platte River at North Platte, 1895–1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1895.												
1			3.40	2.05	2.75	3.35	2.75	1.65	1.45	1.40	1.85	2.10
2			3.15	2.25	2.85	3.20	2.65	1.60	1.45	1.30	1.80	2.00
3			2.70	2.00	2.85	3.15	2.50	1.85	1.45	1.35	1.85	1.90
4			2.70	2.00	3.20	3.65	2.60	1.70	1.30	1.50	1.95	2.10
5			2.70	2.10	3.35	3.65	2.65	1.60	1.30	1.50	2.00	2.35
6			2.55	2.35	3.45	3.60	2.55	1.65	1.30	1.50	1.95	2.30
7			2.40	2.45	3.45	4.05	2.55	1.75	1.20	1.50	1.85	2.40
8			2.65	2.40	3.25	3.95	2.65	1.75	1.20	1.60	1.85	2.45
9			2.35	2.20	3.00	3.95	2.75	1.65	1.25	1.70	1.95	2.50
10			2.05	2.00	3.05	3.90	2.85	1.65	1.25	1.70	1.80	2.45
11			2.45	2.30	3.05	3.85	2.75	1.65	1.25	1.60	1.85	2.45
12			2.35	2.30	2.90	3.65	2.65	1.65	1.25	1.75	1.90	2.45
13			1.80	2.35	2.80	3.55	2.55	1.60	1.30	1.70	2.10	2.50
14			1.60	2.25	2.70	3.65	2.55	1.50	1.30	1.75	2.00	2.65
15			1.55	2.05	2.85	3.55	2.45	1.55	1.25	1.75	2.00	2.45
16			1.95	2.25	2.85	3.55	2.35	1.65	1.40	1.85	2.00	2.45
17			2.05	2.40	3.00	3.65	2.15	1.55	1.40	1.85	1.90	2.45
18			2.20	2.50	3.15	3.45	2.00	1.50	1.30	1.85	1.95	2.45
19			2.25	2.45	2.95	3.45	2.00	1.45	1.30	1.80	1.90	2.45
20			2.35	2.35	3.00	3.35	2.10	1.50	1.20	1.75	1.95	2.50
21			2.20	2.60	2.95	3.25	2.00	1.40	1.30	1.75	1.80	2.60
22			2.15	2.75	3.00	3.40	2.05	1.35	1.35	1.75	1.85	2.55
23			2.15	2.75	3.00	3.25	2.15	1.40	1.55	1.85	1.90	2.60
24			2.20	2.70	3.05	3.25	2.35	1.35	1.50	1.85	2.00	2.65
25		3.25	2.20	2.70	2.95	3.20	2.35	1.40	1.45	1.90	2.10	2.65
26			3.40	2.45	2.60	2.90	3.10	2.15	1.30	1.40	1.90	2.10	2.55
27			3.30	2.25	2.75	2.90	3.10	2.00	1.25	1.40	1.95	2.00	2.50
28			3.20	2.20	2.85	2.85	3.05	2.00	1.60	1.30	1.85	2.00	2.45
29				2.15	2.95	2.75	2.90	1.95	1.55	1.35	1.85	1.90	.....
30				2.05	2.95	3.05	2.85	1.90	1.50	1.45	1.75	2.00	.....
31				1.95	.....	3.35	.....	1.75	1.45	.....	1.90	.....	.....

Mean daily gage height, in feet, of North Platte River at North Platte, 1895–1906—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1896.												
1	2.50	2.85	.....	.....	2.70	2.75	2.55	2.20	1.50	1.90	2.45	2.40
2	2.50	2.90	.....	.....	2.75	2.90	2.55	2.15	1.75	1.80	2.50	2.40
3	2.50	2.80	.....	.....	2.65	2.75	2.45	2.25	1.65	1.75	2.35	2.40
4	2.50	2.80	.....	.....	2.85	2.55	2.35	2.30	1.65	1.70	2.20	2.30
5	2.60	2.65	.....	.....	2.95	3.85	2.25	2.05	1.60	1.75	2.15	2.30
6	2.60	2.50	.....	.....	3.15	4.00	2.20	2.15	1.60	1.70	1.90	2.30
7	2.60	2.45	.....	.....	3.05	3.85	2.15	2.25	1.50	1.85	1.80	2.40
8	2.60	2.05	.....	.....	3.15	3.70	2.00	2.05	1.50	1.90	1.70	2.45
9	2.65	2.00	.....	.....	3.00	3.55	2.00	1.80	1.60	1.85	1.85	2.55
10	2.75	2.05	.....	2.30	2.90	3.45	1.90	1.90	1.70	1.90	1.95	2.65
11	2.80	1.95	.....	2.45	2.90	3.35	1.80	1.70	1.80	1.80	2.05	2.65
12	2.70	2.45	.....	2.65	2.85	3.35	1.60	1.60	1.80	1.85	2.10	2.75
13	2.70	2.75	.....	2.80	2.95	3.35	1.50	1.60	1.90	1.85	2.20	2.75
14	2.70	2.60	.....	2.65	3.05	3.20	1.35	1.50	2.00	1.85	2.10	2.75
15	2.70	2.35	.....	2.55	3.25	3.05	1.10	1.45	2.00	1.85	2.15	2.75
16	2.70	2.35	.....	2.50	3.05	2.90	1.15	1.35	1.90	1.90	2.05	2.65
17	2.75	2.25	.....	2.60	3.05	2.85	1.05	1.45	1.80	1.90	2.25	2.70
18	2.70	2.15	.....	2.60	3.10	2.85	1.00	1.65	1.85	1.80	2.25	2.50
19	2.75	2.25	.....	2.50	3.00	3.00	1.15	1.80	1.90	1.80	2.35	2.55
20	2.75	2.45	.....	2.55	3.05	2.90	1.25	1.85	1.85	1.80	1.90	2.55
21	2.80	2.35	.....	2.70	3.05	2.85	1.50	2.00	1.85	1.80	2.00	2.55
22	2.80	2.40	.....	2.55	3.00	2.80	1.85	1.90	1.90	1.90	1.85	2.50
23	2.80	2.40	.....	2.65	2.90	2.70	2.20	1.80	1.80	2.00	1.95	2.60
24	2.80	2.45	.....	2.55	2.90	2.80	2.45	1.90	1.85	1.90	2.15	2.65
25	2.85	2.35	.....	2.70	2.85	2.95	2.05	1.75	1.90	1.90	2.25	2.75
26	2.90	2.30	.....	2.65	2.80	2.85	1.95	1.60	2.00	1.90	2.30	2.75
27	2.90	2.35	.....	2.55	2.70	2.80	1.85	1.50	2.00	1.90	2.40	2.70
28	2.90	2.30	.....	2.55	2.70	2.80	1.70	1.60	2.05	1.80	2.40	2.75
29	2.90	2.40	.....	2.65	2.55	2.90	2.00	1.55	2.05	1.95	2.40	2.85
30	2.90	.....	.....	2.65	2.55	2.55	1.95	1.50	2.00	1.95	2.40	2.85
31	2.85	.....	.....	.....	2.60	.....	2.15	1.60	.....	2.25	.....	2.85
1897.												
1	2.90	2.80	2.50	2.30	3.20	4.10	2.95	1.85	1.75	1.60	2.00	2.30
2	2.85	2.80	2.60	2.55	3.20	4.05	2.80	1.85	1.75	1.50	1.90	2.20
3	3.00	2.80	2.75	2.75	3.25	4.05	2.75	1.85	1.70	1.50	1.80	2.30
4	2.95	2.90	2.85	2.75	3.50	3.90	2.65	1.90	1.65	1.50	1.70	2.30
5	3.00	2.85	2.90	2.85	3.50	3.90	2.55	1.95	1.60	1.50	1.70	2.30
6	3.05	2.85	3.00	2.70	3.45	3.90	2.50	2.45	1.65	1.50	1.80	2.30
7	3.10	2.85	3.05	2.75	3.50	4.10	2.40	2.40	1.55	1.50	1.90	2.30
8	3.15	2.85	3.10	2.85	3.50	4.25	2.35	2.50	1.45	1.50	1.90	2.30
9	3.20	2.95	3.15	2.75	3.65	4.15	2.45	2.40	1.45	1.50	2.00	2.40
10	3.15	3.05	3.25	2.65	3.60	3.90	2.25	2.45	1.50	1.65	2.00	2.45
11	3.15	3.15	3.35	2.65	3.60	3.85	2.10	2.50	1.65	1.55	1.90	2.50
12	3.15	3.15	2.45	2.80	3 65	3.85	2.15	2.35	1.70	1.65	1.90	2.55
13	3.25	3.20	2.50	2.65	3.65	3.55	2.35	2.20	1.60	1.70	1.90	2.70
14	3.25	3.25	2.40	2.55	3.60	3.40	2.10	2.30	1.65	1.65	1.90	2.70
15	3.15	3.25	2.30	2.45	3.65	3.25	2.05	2.45	1.60	1.70	1.90	2.80
16	3.20	3.35	2.25	2.25	3.45	3.35	2.15	2.35	1.65	1.80	1.90	2.80
17	3.20	3.35	2.40	2.25	3.55	3.35	2.15	2.35	1.65	1.85	2.00	2.90
18	3.20	3.35	2.55	2.30	3.45	3.45	2.20	2.35	1.65	1.90	2.00	2.90
19	3.20	3.35	2.25	2.30	3.45	3.35	2.15	2.30	1.60	1.90	2.00	2.90
20	3.20	3.35	2.20	2.35	3.55	3.35	2.35	2.20	1.60	1.80	2.00	2.90
21	3.15	3.35	2.45	2.55	3.50	3.35	2.15	2.15	1.60	1.80	2.00	2.90
22	3.05	3.25	2.40	2.65	3.55	3.35	2.25	2.15	1.60	1.70	1.95	2.90
23	2.90	3.15	2.40	2.85	3.55	3.35	2.40	1.95	1.55	1.70	2.00	2.80
24	2.80	3.05	2.30	3.05	3.60	3.25	2.05	1.90	1.50	1.70	2.00	2.80
25	2.80	2.25	2.05	3.25	3.70	3.25	2.00	1.85	1.55	1.70	1.80	2.70
26	2.90	2.30	2.05	3.45	3.85	3.10	1.95	1.85	1.55	1.85	1.95	2.70
27	2.90	2.30	2.20	3.55	4.00	3.05	1.95	1.80	1.50	1.90	2.15	2.70
28	2.90	2.30	2.10	3.35	4.05	3.10	1.95	1.80	1.50	2.20	2.30	2.60
29	2.90	.....	2.05	3.25	4.05	3.05	1.95	1.75	1.50	2.25	2.30	2.70
30	2.90	.....	2.15	3.20	4.10	3.05	1.90	1.70	1.50	2.20	2.30	2.80
31	2.90	.....	2.20	.....	4.05	.....	1.85	1.70	.....	2.05	.....	2.80
1898.												
1	2.80	2.90	2.40	2.40	2.55	3.75	2.65	1.50	0.35	1.20	1.70	2.20
2	2.90	2.90	2.30	2.30	2.60	3.50	2.60	1.90	.45	1.10	1.70	2.20
3	2.90	2.80	2.15	2.25	2.70	3.35	2.60	1.95	.55	1.00	1.70	2.20
4	2.80	2.90	2.15	2.15	2.70	3.30	2.70	1.75	.55	1.10	1.70	2.30
5	2.90	2.90	2.10	2.30	2.70	3.25	2.55	1.45	.65	1.10	1.80	2.30

Mean daily gage height, in feet, of North Platte River at North Platte, 1895–1906—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1898.												
6	2.90	2.90	2.05	2.40	2.70	3.20	2.50	1.40	0.50	1.20	1.80	2.30
7	2.90	2.90	2.05	2.30	2.75	3.20	2.45	1.50	.60	1.20	1.80	2.30
8	3.00	3.00	2.15	2.35	2.70	3.10	2.25	1.40	.75	1.20	1.70	2.30
9	3.00	3.05	2.25	2.25	2.70	3.10	2.20	1.30	.90	1.35	1.80	2.30
10	2.90	3.00	2.25	2.05	2.70	3.10	2.50	1.20	1.20	1.30	1.65	2.30
11	2.90	3.05	2.25	2.15	2.60	3.10	2.30	1.15	1.35	1.30	1.70	2.50
12	2.80	3.20	2.25	2.25	2.60	3.10	3.40	1.10	1.65	1.35	1.80	2.50
13	2.85	3.20	2.20	2.30	2.55	3.05	2.10	1.00	1.50	1.30	1.80	2.50
14	2.90	3.25	2.15	2.20	2.50	3.25	2.00	.90	1.70	1.30	1.80	2.50
15	2.80	3.20	2.25	2.10	2.55	3.15	1.90	.80	1.80	1.30	1.70	2.50
16	2.85	3.05	2.15	2.20	2.65	3.05	1.80	.80	1.70	1.30	1.85	2.50
17	2.80	2.90	2.20	2.00	3.10	3.00	1.85	.80	1.65	1.30	1.80	2.50
18	2.90	2.85	2.10	2.05	2.90	3.05	1.80	.80	1.50	1.30	1.90	2.50
19	2.85	2.80	2.25	2.05	2.80	3.10	1.80	.75	1.40	1.40	2.10	2.50
20	2.80	2.80	2.25	2.15	2.80	3.15	1.70	.60	1.30	1.50	2.00	2.50
21	2.80	2.80	2.30	2.15	2.90	3.10	1.70	.60	1.25	1.50	1.85	2.60
22	2.80	2.70	2.15	2.15	2.85	3.00	1.70	.60	1.20	1.50	1.80	2.60
23	2.85	2.65	2.00	2.25	2.90	3.00	1.60	1.00	1.20	1.60	1.80	2.60
24	2.90	2.55	2.00	2.20	2.80	3.00	1.60	1.05	1.20	1.60	1.80	2.60
25	2.80	2.50	1.95	2.25	2.80	3.00	1.65	.85	1.20	1.60	1.80	2.60
26	2.90	2.45	1.90	2.35	2.90	2.90	1.60	.75	1.20	1.65	1.80	2.60
27	2.90	2.45	2.05	2.55	3.10	2.90	1.60	.70	1.20	1.70	1.80	2.70
28	2.90	2.35	2.25	2.55	3.10	2.85	1.45	.55	1.10	1.70	2.10	2.70
29	2.90	.....	2.45	2.55	3.00	2.70	1.30	.65	1.10	1.70	2.20	2.70
30	2.90	.....	2.35	2.55	3.95	2.75	1.20	.55	1.15	1.70	2.20	2.70
31	2.90	.....	2.30	.....	3.60	.....	1.40	.50	.....	1.70	.....	2.70
1899.												
1	2.70	3.00	3.00	2.30	3.50	3.55	4.10	2.60	1.90	1.55	1.90	2.10
2	2.70	3.00	3.00	2.10	3.50	3.70	4.20	2.70	1.80	1.50	2.00	2.10
3	2.70	3.00	3.00	2.80	3.40	3.80	4.15	2.70	1.80	1.60	2.00	2.05
4	2.70	3.00	3.00	2.70	3.25	3.80	4.10	2.80	1.80	1.70	2.05	2.05
5	2.70	3.00	3.00	2.60	3.15	3.70	4.10	2.80	1.65	1.70	2.10	2.30
6	2.70	3.00	3.00	2.80	3.00	3.60	4.10	2.70	1.65	1.70	2.15	2.50
7	2.70	3.00	3.00	2.85	3.00	3.65	4.00	2.65	1.70	1.70	2.10	2.50
8	2.70	3.00	3.00	2.55	3.25	3.80	4.00	2.50	1.70	1.60	2.10	2.50
9	2.70	3.00	3.00	2.50	3.15	3.90	4.00	2.50	1.60	1.60	2.10	2.40
10	2.70	3.00	3.10	2.50	2.80	3.90	4.00	2.40	1.55	1.60	2.10	2.40
11	2.70	3.00	3.10	2.50	2.75	3.85	3.90	2.30	1.60	1.60	2.10	2.40
12	2.70	3.00	3.10	2.60	2.60	3.75	3.65	2.30	1.60	1.70	2.10	2.40
13	2.70	3.00	3.10	2.65	2.60	3.65	3.60	2.35	1.60	1.70	2.00	2.40
14	2.70	3.00	3.10	2.50	2.50	3.55	3.60	2.50	1.60	1.65	2.00	2.40
15	2.70	3.00	3.10	2.45	2.60	3.60	3.55	2.50	1.55	1.80	2.05	2.40
16	2.70	3.00	3.10	2.50	2.65	3.70	3.40	2.40	1.50	1.80	2.10	2.40
17	2.70	3.00	3.00	3.25	2.85	3.95	3.30	2.35	1.50	1.80	2.05	2.40
18	2.70	3.00	2.80	3.30	3.05	4.00	3.20	2.40	1.50	1.80	2.00	2.40
19	2.80	3.00	2.80	3.35	3.05	4.20	3.25	2.30	1.50	1.80	2.10	2.40
20	2.80	3.00	2.80	3.40	3.40	4.15	3.30	2.30	1.50	1.80	2.10	2.40
21	2.80	3.00	2.50	3.30	3.60	3.95	3.30	2.30	1.60	1.80	2.20	2.40
22	2.90	3.00	2.80	3.10	3.75	3.85	3.20	2.00	1.60	1.80	2.20	2.40
23	2.80	3.00	2.80	3.10	3.75	3.90	3.15	2.00	1.50	1.80	2.10	2.40
24	2.80	3.00	3.05	3.10	3.80	3.85	3.00	1.90	1.50	1.80	2.10	2.45
25	3.00	3.00	2.90	3.00	3.70	4.15	2.95	1.90	1.50	1.80	2.10	2.55
26	3.00	3.00	2.60	2.90	3.80	4.30	2.80	1.90	1.60	1.90	2.10	2.70
27	3.00	3.00	2.60	3.00	3.85	4.45	2.80	1.90	1.60	2.00	2.10	2.70
28	3.00	3.00	2.55	3.00	3.85	4.40	2.85	1.85	1.55	2.00	2.20	2.70
29	3.00	.....	2.50	3.00	3.75	4.30	2.70	1.75	1.60	2.00	2.10	2.70
30	3.00	.....	2.55	3.10	3.50	4.25	2.70	1.65	1.60	2.00	2.10	2.70
31	3.00	.....	2.60	.....	3.50	.....	2.55	1.75	.....	1.95	.....	2.65
1900.												
1	2.40	2.00	2.70	2.30	3.20	3.45	2.85	1.85	0.80	1.40	1.80	2.10
2	2.35	2.05	2.85	2.30	3.15	3.50	2.60	1.75	.80	1.40	1.80	2.20
3	2.20	2.20	3.00	2.20	3.35	3.50	2.60	1.60	.80	1.40	1.80	2.20
4	2.35	2.20	3.10	2.25	3.30	3.65	2.60	1.45	.80	1.40	1.80	2.25
5	2.40	2.25	3.10	2.30	3.35	3.80	2.90	1.50	.80	1.30	1.70	2.10
6	2.50	2.35	3.10	2.40	3.50	3.85	2.80	1.80	.80	1.30	1.70	2.30
7	2.60	2.35	2.80	2.50	3.50	3.85	2.80	2.30	.80	1.30	1.75	2.35
8	2.70	2.25	2.80	2.60	3.40	3.90	2.65	1.95	.80	1.30	1.80	2.30
9	2.80	2.20	2.80	2.50	3.25	3.80	2.45	1.95	.80	1.30	1.80	2.30
10	2.80	2.30	2.80	2.50	3.20	3.75	2.20	1.65	.95	1.30	1.70	2.20

Mean daily gage height, in feet, of North Platte River at North Platte, 1895–1906—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1900.												
11	2.80	2.40	2.75	2.55	3.20	3.70	2.15	1.60	0.90	1.30	1.75	2.25
12	2.90	2.40	2.50	2.60	3.20	3.60	2.10	1.60	.90	1.40	1.85	2.30
13	2.90	2.30	2.30	2.65	3.25	3.50	2.20	1.50	.90	1.40	1.80	2.30
14	2.90	2.30	2.15	2.60	3.30	3.50	2.10	1.45	.80	1.40	1.85	2.30
15	2.95	2.60	2.00	2.70	3.30	3.55	2.10	1.30	.80	1.40	1.90	2.20
16	3.00	2.40	2.40	2.90	3.30	3.60	2.15	1.30	.90	1.40	1.85	2.20
17	3.00	2.30	2.80	2.90	3.30	3.60	2.10	1.25	.90	1.50	1.80	2.20
18	3.00	2.35	2.30	2.90	3.45	3.60	2.05	1.15	.95	1.50	1.75	2.20
19	2.85	2.40	2.10	2.80	3.60	3.45	1.90	1.10	.95	1.50	1.60	2.20
20	2.85	2.50	2.00	2.70	3.60	3.30	2.00	.95	.95	1.50	1.70	2.30
21	2.75	2.50	2.40	2.65	3.50	3.30	2.00	1.45	.90	1.50	1.95	2.30
22	2.60	2.65	2.50	2.70	3.50	3.20	2.00	1.50	.90	1.50	1.95	2.40
23	2.65	2.70	2.40	2.80	3.45	3.10	2.10	1.35	.90	1.50	2.00	2.00
24	2.70	2.80	2.50	2.90	3.40	3.10	2.35	1.50	.90	1.60	1.95	2.00
25	2.50	2.80	2.45	3.00	3.40	3.10	2.35	1.45	.90	1.70	2.20	2.40
26	2.55	2.70	2.40	3.10	3.35	3.00	2.50	1.40	.90	1.60	2.25	2.45
27	2.00	2.60	2.40	3.10	3.30	2.90	2.35	1.20	1.00	1.60	2.30	1.85
28	1.70	2.60	2.30	3.05	3.25	2.90	2.00	1.20	1.10	1.60	2.15	1.80
29	1.90	.....	2.30	2.90	3.20	2.80	2.00	1.00	1.10	1.65	2.00	1.60
30	2.00	.....	2.25	2.95	3.20	2.80	2.00	1.00	1.25	1.70	2.00	.....
31	2.00	.....	2.30	.....	3.40	.....	1.90	.90	.....	1.75	.....	.....
1901.												
1	2.10	2.70	3.15	2.60	2.30	3.35	2.70	1.10	1.95	1.60	2.00	.....
2	2.10	2.60	3.40	2.60	2.90	3.25	2.60	1.10	1.95	1.60	2.00	.....
3	2.20	2.50	3.15	2.60	3.05	3.20	2.60	1.00	1.85	1.60	2.00	.....
4	2.90	2.45	3.20	2.40	3.00	3.20	2.60	.90	1.95	1.65	2.00	.....
5	2.50	2.40	3.20	2.25	3.10	3.40	2.50	.80	2.00	1.70	2.00	.....
6	2.50	2.50	2.70	2.30	3.10	3.50	2.50	.80	2.00	1.75	2.00	.....
7	2.50	2.55	2.30	2.25	3.05	3.50	2.45	.75	2.00	1.95	1.95	.....
8	2.50	2.60	2.50	2.10	3.00	3.60	2.40	.80	2.05	1.85	2.00	.....
9	2.50	2.60	2.50	2.10	3.00	3.60	2.35	.95	2.00	1.80	2.00	.....
10	2.50	2.60	2.40	2.30	3.00	3.60	2.25	.85	1.95	2.00	2.00	.....
11	2.50	2.60	2.50	2.65	3.10	3.60	2.20	1.10	2.10	2.05	2.00	.....
12	2.50	2.50	2.30	2.80	3.00	3.90	2.20	1.40	2.15	2.00	2.10	.....
13	2.50	2.50	2.20	2.65	3.00	3.40	2.15	1.40	2.15	1.85	2.10	.....
14	2.50	2.45	2.15	2.50	3.00	3.45	2.00	1.25	2.00	1.90	2.10	.....
15	2.55	2.55	2.30	2.50	3.00	3.50	1.95	1.20	1.85	1.85	2.15	.....
16	2.60	2.80	2.20	2.40	3.00	3.50	1.80	1.30	1.75	1.90	2.20	.....
17	2.60	2.90	2.20	2.40	2.90	3.45	1.80	1.30	1.70	1.90	2.20	.....
18	2.60	2.90	2.20	2.35	2.90	3.35	1.80	1.30	1.75	1.90	2.20	.....
19	2.70	2.90	2.50	2.30	2.90	3.30	1.80	1.25	1.90	1.90	2.20	.....
20	2.70	2.85	2.15	2.30	2.95	3.60	1.80	1.20	1.90	1.90	2.20	.....
21	2.70	2.80	2.20	2.30	3.00	3.35	1.60	1.65	1.85	2.00	2.20	.....
22	2.85	2.90	2.20	2.20	3.05	3.20	1.35	1.70	1.70	2.00	2.20	.....
23	2.90	3.00	2.20	2.20	3.40	3.45	1.20	1.45	1.60	2.00	2.20	.....
24	3.00	3.00	2.20	2.15	3.45	3.25	1.10	1.40	1.60	2.00	2.20	.....
25	3.00	3.00	2.10	2.10	3.50	3.20	1.00	1.30	1.60	2.00	2.20	.....
26	3.00	2.90	2.10	2.10	3.60	3.05	1.50	1.25	1.60	2.00	2.20	.....
27	3.00	2.95	2.20	2.10	3.60	3.00	1.40	1.30	1.50	2.00	2.20	.....
28	2.95	3.00	2.00	2.15	3.70	2.90	1.25	1.35	1.50	2.00	2.20	.....
29	2.90	.....	2.00	2.30	3.65	2.80	.90	1.40	1.50	2.00	2.10	.....
30	2.80	.....	2.20	2.30	3.50	2.70	.80	1.40	1.35	2.00	2.10	.....
31	2.75	.....	3.20	.....	3.40	.....	1.15	1.70	.....	2.00	.....	.....
1902.												
1	.....	.....	.....	2.00	2.70	2.60	2.80	1.50	1.10	1.90	2.00	2.20
2	.....	.....	.....	2.25	2.70	2.60	2.80	1.35	1.05	1.90	2.00	2.25
3	.....	.....	.....	2.30	2.60	2.50	2.70	1.20	1.00	1.90	2.00	2.30
4	.....	.....	.....	2.40	2.60	2.50	2.60	1.10	1.00	1.95	2.00	2.30
5	.....	.....	.....	2.40	2.70	2.45	2.50	1.10	1.00	2.00	2.00	2.30
6	.....	.....	.....	2.40	2.65	2.65	2.50	1.15	1.00	1.95	2.00	2.30
7	.....	.....	.....	2.25	2.60	2.95	2.50	1.00	1.00	1.90	2.00	.....
8	.....	.....	.....	2.20	2.60	2.90	2.40	1.00	1.00	1.85	2.00	.....
9	.....	.....	.....	2.20	2.60	3.00	2.50	1.00	1.00	1.75	2.00	.....
10	.....	.....	.....	2.15	2.60	2.90	2.35	1.05	.95	1.70	2.00	.....
11	.....	.....	.....	2.10	2.60	2.75	2.30	1.00	1.00	2.05	2.00	.....
12	.....	.....	.....	2.00	2.75	3.05	2.20	.90	1.10	2.00	2.00	.....
13	.....	.....	.....	2.05	2.90	2.95	2.10	.90	1.15	2.00	2.00	.....
14	.....	.....	.....	2.15	2.90	3.00	2.00	1.05	1.10	2.00	2.00	.....
15	.....	.....	.....	2.30	3.00	3.00	2.00	1.05	1.20	2.00	2.10	.....

Mean daily gage height, in feet, of North Platte River at North Platte, 1895–1906—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.												
16	.....	.....	1.80	2.40	3.40	3.00	1.75	1.00	1.15	2.00	2.10	.....
17	.....	.....	2.05	2.40	3.20	2.95	1.50	.90	1.10	2.00	2.10	.....
18	.....	.....	2.20	2.35	3.05	3.00	1.60	1.00	1.20	1.95	2.10	.....
19	.....	.....	2.20	2.40	3.10	3.00	1.70	1.10	1.15	1.90	2.10	.....
20	.....	.....	2.25	2.40	3.15	3.00	1.70	1.10	1.10	1.90	2.10	.....
21	.....	.....	2.30	2.40	3.15	2.90	1.70	1.00	1.20	2.00	2.05	.....
22	.....	.....	2.30	2.55	3.10	2.90	1.60	1.00	1.55	2.00	2.00	.....
23	.....	.....	2.35	2.60	3.10	2.90	1.60	1.00	2.25	2.00	2.05	.....
24	.....	.....	2.55	2.60	3.10	2.80	1.50	1.05	2.30	2.00	2.10	.....
25	.....	.....	2.60	2.60	3.10	2.65	1.40	1.10	2.15	2.00	2.10	.....
26	.....	.....	2.65	2.50	3.05	2.60	1.40	1.00	1.95	2.00	2.20	.....
27	.....	.....	2.50	2.60	3.00	2.60	1.45	1.00	1.95	2.00	2.60	.....
28	.....	.....	2.45	2.60	2.90	2.50	1.65	1.10	2.00	2.00	2.50	.....
29	.....	.....	2.30	2.60	2.90	2.50	1.80	1.20	2.00	1.90	2.40	.....
30	.....	.....	2.05	2.60	2.90	2.70	1.65	1.10	1.90	1.90	2.20	.....
31	.....	.....	2.00	.....	2.80	.....	1.50	1.10	.....	2.00	.....	.....
1903.												
1	.....	.....	.....	2.40	2.70	2.70	3.15	2.00	1.75	1.85	2.00	2.40
2	.....	.....	.....	2.30	2.75	2.60	3.05	1.90	1.60	1.90	2.10	2.40
3	.....	.....	.....	2.35	2.85	2.55	3.10	1.85	1.55	1.90	2.10	2.25
4	.....	.....	.....	2.45	2.90	2.50	3.20	1.75	1.50	2.00	2.10	2.20
5	.....	.....	.....	2.50	2.90	2.45	3.10	1.65	1.50	2.00	2.10	2.05
6	.....	.....	.....	2.40	3.00	2.50	3.00	1.60	1.60	2.00	2.10	2.05
7	.....	.....	.....	2.40	2.90	2.50	2.85	1.50	1.60	2.00	2.05	1.85
8	.....	.....	.....	2.45	2.85	2.55	2.80	1.45	1.55	1.90	2.05	2.00
9	.....	.....	.....	2.70	2.75	2.60	2.75	1.45	1.60	1.95	2.10	2.10
10	.....	.....	.....	2.70	2.80	2.75	2.65	1.40	1.65	1.90	2.10	2.10
11	.....	.....	.....	2.65	2.75	2.85	2.60	1.85	1.55	1.90	2.10	2.30
12	.....	.....	.....	2.60	2.80	2.90	2.70	1.80	1.55	1.85	2.10	2.05
13	.....	.....	.....	2.55	2.65	2.90	2.55	1.80	1.40	1.95	2.10	2.20
14	.....	.....	.....	2.50	2.65	3.00	2.50	1.80	1.40	2.00	2.10	2.25
15	.....	.....	3.65	2.50	2.60	3.00	2.45	1.70	1.55	2.00	2.10	2.30
16	.....	.....	3.70	2.55	2.70	3.10	2.40	1.60	1.60	2.00	2.05	2.40
17	.....	.....	3.55	2.55	2.70	3.20	2.35	1.65	1.60	2.05	1.55	2.50
18	.....	.....	3.55	2.60	2.70	3.20	2.30	1.75	1.70	2.05	1.65	2.50
19	.....	.....	3.45	2.50	2.75	3.30	2.40	1.90	1.70	1.95	2.05	2.50
20	.....	.....	3.40	2.60	2.85	3.30	2.30	1.75	1.70	1.95	2.20	2.50
21	.....	.....	3.10	2.60	2.85	3.40	2.25	1.60	1.70	1.95	2.25	2.50
22	.....	.....	2.80	2.60	2.90	3.40	2.40	1.60	1.70	1.90	2.35	2.60
23	.....	.....	2.65	2.60	2.90	3.40	2.15	1.60	1.65	2.00	2.50	2.60
24	.....	.....	2.55	2.55	2.90	3.40	2.05	1.70	1.70	2.00	2.65	2.60
25	.....	.....	2.60	2.55	3.00	3.55	2.15	1.70	1.70	2.00	2.75	2.60
26	.....	.....	2.45	2.65	3.05	3.50	2.00	1.70	1.65	2.00	2.80	2.60
27	.....	.....	2.60	2.60	3.00	3.40	1.85	2.05	1.65	2.00	2.75	2.70
28	.....	.....	2.55	2.50	2.95	3.35	1.70	1.75	1.75	2.00	2.40	2.70
29	.....	.....	2.50	2.65	2.80	3.25	1.70	1.95	1.80	2.00	2.40	2.65
30	.....	.....	2.40	2.85	2.80	3.15	1.85	2.00	1.85	2.00	2.40	2.65
31	.....	.....	2.45	.....	2.80	.....	1.90	1.80	.....	2.00	.....	2.70
1904.												
1	2.70	.....	2.80	2.40	2.60	3.50	2.83	1.73	1.32	2.12	2.02	2.22
2	2.50	.....	2.50	2.30	2.60	3.55	2.85	1.75	1.78	2.08	1.98	2.25
3	2.45	.....	1.50	2.30	2.58	3.65	2.98	1.90	1.48	1.98	1.95	2.25
4	2.50	.....	1.60	2.30	2.75	3.57	2.88	1.95	1.62	1.92	1.95	2.08
5	2.65	.....	1.60	2.30	2.85	3.43	2.80	1.77	1.48	1.75	1.98	2.05
6	2.70	.....	2.20	2.30	2.78	3.33	2.95	2.20	1.35	1.75	2.00	2.10
7	2.70	.....	2.35	2.00	2.63	3.30	3.13	1.85	1.30	1.78	2.00	2.12
8	2.65	.....	2.40	2.50	2.63	3.28	2.97	1.80	1.18	1.70	1.98	2.20
9	2.75	.....	2.60	2.10	3.03	3.45	3.00	1.67	1.12	1.82	1.90	2.22
10	2.80	.....	2.55	2.25	3.03	3.57	2.80	1.60	1.05	1.80	1.90	2.30
11	2.80	.....	2.45	2.10	2.93	3.60	2.92	1.55	1.05	1.78	1.92	2.30
12	2.80	.....	2.30	1.95	2.83	3.55	2.80	1.43	1.08	1.78	2.00	2.30
13	2.80	.....	2.35	2.10	2.80	3.85	2.73	1.44	1.05	1.62	2.15	2.55
14	2.80	.....	2.50	2.15	2.78	3.92	2.70	1.35	1.05	1.62	2.08	2.60
15	2.80	.....	2.50	2.10	2.73	3.75	2.68	1.30	1.08	1.62	1.98	.....
16	2.90	.....	2.40	1.95	2.68	3.75	2.50	1.27	1.05	1.65	2.02	.....
17	2.90	.....	2.40	2.05	2.75	3.60	2.40	1.23	1.05	1.65	2.15	.....
18	2.90	.....	2.35	2.00	2.75	3.50	2.35	1.25	1.05	1.85	2.10	.....
19	2.85	.....	2.25	1.85	2.68	3.50	2.25	1.25	1.00	2.08	2.10	.....
20	2.70	.....	2.30	1.90	2.68	3.45	2.40	1.20	.95	2.02	2.02	.....

Mean daily gage height, in feet, of North Platte River at North Platte, 1895–1906—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.												
21	2.70	.....	2.30	1.95	2.73	3.45	2.27	1.15	1.08	1.98	2.00	.....
22	2.80	.....	2.35	2.05	2.80	3.40	2.20	1.12	1.08	1.90	2.00	.....
23	2.80	.....	2.50	1.95	2.80	3.45	2.22	1.10	1.15	1.82	2.05	.....
24	2.80	.....	2.40	1.95	2.85	3.38	2.25	1.05	1.08	1.92	2.12	.....
25	2.80	.....	2.20	1.90	2.85	3.33	2.10	1.10	1.08	2.10	2.15	.....
26	2.75	.....	2.20	2.20	3.58	3.25	2.05	1.10	1.08	2.10	2.10	.....
27	2.65	.....	2.30	2.30	3.35	3.15	2.00	1.10	1.15	2.08	2.08	.....
28	2.60	3.75	2.40	2.30	3.25	3.05	1.95	1.10	1.40	2.08	2.05	.....
29	2.70	3.30	2.20	2.35	3.25	3.05	2.02	1.20	1.48	2.08	2.00	.....
30	2.55	.....	2.25	2.45	3.30	3.05	1.80	1.18	1.80	2.10	2.05	.....
31	.....	.....	2.40	.....	3.30	.....	1.75	1.20	.....	2.05	.....	.....
1905.												
1	.....	.....	.....	2.58	3.18	3.65	3.4	2.52	1.6	1.48	.....	.....
2	.....	.....	.....	2.62	3.32	3.88	3.65	2.48	1.55	1.5	.....	.....
3	.....	.....	.....	2.65	3.45	3.88	3.68	2.45	1.5	1.55	.....	.....
4	.....	.....	.....	2.75	3.38	3.88	3.38	2.3	1.52	1.55	.....	.....
5	.....	.....	2.85	2.7	3.38	3.68	3.28	2.22	1.62	1.58	.....	.....
6	.....	.....	2.75	2.62	3.4	3.58	3.38	2.22	1.7	1.65	.....	.....
7	.....	.....	2.02	2.48	3.45	3.5	3.18	2.18	1.72	1.65	.....	.....
8	.....	.....	2.5	2.38	3.48	3.48	3.1	2.15	1.7	1.65	.....	.....
9	.....	.....	2.4	2.25	3.5	3.52	3.0	2.18	1.7	1.6	.....	.....
10	.....	.....	2.45	2.28	3.4	3.72	2.9	2.1	1.72	1.65	.....	.....
11	.....	.....	2.5	2.38	3.48	3.88	2.82	2.05	1.7	1.72	.....	.....
12	.....	.....	2.4	2.35	3.5	4.02	2.8	2.0	1.65	1.72	.....	.....
13	.....	.....	2.4	2.42	3.5	3.95	2.75	2.2	1.65	1.65	.....	.....
14	.....	.....	2.5	2.45	3.55	3.9	2.62	2.2	1.75	1.65	.....	.....
15	.....	.....	2.42	2.5	3.4	4.08	2.52	2.18	1.85	1.82	.....	.....
16	.....	.....	2.68	2.45	3.35	4.28	2.42	2.02	1.68	1.78	.....	.....
17	.....	.....	2.82	2.45	3.2	4.08	2.32	2.0	1.58	1.72	.....	.....
18	.....	.....	2.7	2.48	3.18	3.9	2.2	1.92	1.68	1.78	.....	.....
19	.....	.....	2.82	2.45	3.18	3.8	2.28	1.95	1.82	1.8	.....	.....
20	.....	.....	2.65	2.42	3.28	3.75	2.42	2.02	1.9	1.9	.....	.....
21	.....	.....	2.5	2.8	3.2	3.6	2.5	1.85	1.8	1.9	.....	.....
22	.....	.....	2.4	2.8	3.1	3.6	2.42	1.8	1.75	1.9	.....	.....
23	.....	.....	2.32	2.72	3.05	3.62	2.28	1.75	1.8	1.85	.....	.....
24	.....	.....	2.28	2.9	3.1	3.62	2.28	1.68	1.72	1.9	.....	.....
25	.....	.....	2.28	3.12	3.28	3.42	2.3	1.68	1.68	1.98	.....	.....
26	.....	.....	2.25	3.1	3.28	3.32	2.18	1.7	1.62	1.9	.....	.....
27	.....	.....	2.25	3.0	3.82	3.28	2.2	1.68	1.58	1.9	.....	.....
28	.....	.....	2.38	2.9	3.65	3.18	2.18	1.65	1.55	2.0	.....	.....
29	.....	.....	2.4	3.05	3.78	3.12	2.38	1.6	1.6	2.05	.....	.....
30	.....	.....	2.38	3.22	3.7	3.22	2.1	1.75	1.6	2.02	.....	.....
31	.....	.....	2.4	.....	3.65	.....	2.18	1.72	.....	2.0	.....	.....
1906.												
1	.....	.....	.....	.....	2.95	3.70	2.88	2.08	2.05	1.92	2.35	.....
2	.....	.....	.....	.....	2.90	3.75	2.88	2.05	2.05	1.95	2.32	.....
3	.....	.....	.....	.....	2.95	3.78	2.90	1.92	2.02	1.95	2.55	.....
4	.....	.....	.....	.....	2.88	3.78	2.82	1.85	2.00	1.90	2.50	.....
5	.....	.....	.....	.....	2.92	3.98	2.80	1.88	2.00	1.90	2.40	.....
6	.....	.....	.....	.....	2.88	3.85	2.70	2.20	1.88	1.88	2.38	.....
7	.....	.....	.....	.....	2.70	3.80	2.60	2.38	1.78	1.85	2.35	.....
8	.....	.....	.....	.....	2.62	3.35	2.50	2.10	1.72	1.82	2.32	.....
9	.....	.....	.....	.....	2.60	3.20	2.48	1.95	1.70	1.90	2.32	.....
10	.....	.....	.....	2.80	2.60	3.05	2.45	1.85	1.70	1.90	2.38	.....
11	.....	.....	.....	2.78	2.62	3.02	2.45	1.80	1.85	1.90	2.40	.....
12	.....	.....	.....	2.88	2.60	3.10	2.40	1.70	2.08	1.90	2.40	.....
13	.....	.....	.....	3.00	2.65	3.10	2.42	1.62	2.00	1.90	2.30	.....
14	.....	.....	.....	2.80	2.65	3.15	2.50	1.55	2.00	2.00	2.30	.....
15	.....	.....	.....	2.75	2.75	3.10	2.45	1.60	1.88	2.00	2.25	.....
16	.....	.....	.....	2.68	2.85	3.10	2.35	1.60	1.70	1.95	2.28	.....
17	.....	.....	.....	2.70	2.78	2.92	2.22	1.52	1.78	1.98	2.25	.....
18	.....	.....	.....	2.68	2.78	2.80	2.28	1.48	1.85	1.92	2.20	.....
19	.....	.....	.....	2.82	2.92	2.90	2.32	1.42	1.85	1.95	2.20	.....
20	.....	.....	.....	2.88	3.00	2.98	2.38	1.30	2.02	1.98	2.02	.....
21	.....	.....	.....	2.80	3.18	3.12	2.42	1.20	2.02	1.85	1.85	.....
22	.....	.....	.....	2.75	3.06	3.20	2.60	1.08	2.00	2.12	1.85	.....
23	.....	.....	.....	2.70	3.05	3.18	2.52	1.82	2.00	2.45	1.98	.....
24	.....	.....	.....	2.72	3.08	3.25	2.40	2.10	1.98	2.15	2.10	.....
25	.....	.....	.....	2.68	3.32	3.22	2.42	1.88	2.00	2.05	2.28	.....

Mean daily gage height, in feet, of North Platte River at North Platte, 1895–1906—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1906.												
26	.....	.....	.....	2.55	3.20	3.12	2.40	1.95	1.92	2.18	2.35	.....
27	.....	.....	.....	2.75	3.20	3.15	2.45	1.78	1.90	2.35	2.25	.....
28	.....	.....	.....	2.95	3.20	3.05	2.30	1.68	1.90	2.75	2.20	.....
29	.....	.....	.....	2.82	3.22	2.95	2.20	1.65	1.88	2.85	2.20	.....
30	.....	.....	.....	2.75	3.35	2.90	2.10	1.85	1.90	2.50	2.38	.....
31	.....	.....	.....	.....	3.52	.....	2.10	2.10	.....	2.38	.....	.....

Mean daily discharge, in second-feet, of North Platte River at North Platte, 1895–1906.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1895.										
1	10,180	1,723	5,191	9,735	5,191	628	323	272	1,095	.....
2	8,060	2,512	5,848	8,464	4,575	537	323	200	963	.....
3	4,878	1,551	5,848	8,060	3,725	963	323	231	1,095	.....
4	4,878	1,551	8,464	12,553	4,282	730	200	384	1,389	.....
5	4,878	1,905	9,735	12,553	4,575	537	200	384	1,551	.....
6	4,282	2,968	10,635	12,058	3,998	628	200	384	1,389	.....
7	3,210	3,463	10,635	16,875	3,998	842	150	384	1,095	.....
8	4,575	3,210	8,878	15,732	4,575	842	150	537	1,095	.....
9	2,968	2,300	6,908	15,732	5,191	628	175	730	1,389	.....
10	1,723	1,551	7,282	15,177	5,848	628	175	730	963	.....
11	3,463	2,735	7,282	14,632	5,191	628	175	537	1,095	.....
12	2,968	2,735	6,191	12,553	4,575	628	175	842	1,237	.....
13	963	2,968	5,541	11,573	3,998	537	200	730	1,905	.....
14	537	2,512	4,878	12,553	3,998	384	200	842	1,551	.....
15	455	1,723	5,848	11,573	3,463	455	175	842	1,551	.....
16	1,389	2,512	5,848	11,573	2,968	628	272	1,095	1,551	.....
17	1,725	3,210	6,908	12,550	2,098	455	272	1,095	1,237	.....
18	2,300	3,725	8,060	10,635	1,551	384	200	1,095	1,389	.....
19	2,512	3,463	6,544	10,635	1,551	323	200	963	1,237	.....
20	2,968	2,968	6,908	9,735	1,905	384	150	842	1,389	.....
21	2,300	4,282	6,544	8,878	1,551	272	200	842	963	.....
22	2,098	5,191	6,908	10,180	1,723	231	231	842	1,095	.....
23	2,098	5,191	6,908	8,878	2,098	272	455	1,095	1,237	.....
24	2,300	4,878	7,282	8,878	2,968	231	384	1,095	1,551	.....
25	2,300	4,878	6,544	8,464	2,968	272	323	1,237	1,905	.....
26	3,463	4,281	6,191	7,665	2,098	200	272	1,237	1,905	.....
27	2,512	5,191	6,191	7,665	1,551	175	272	1,389	1,551	.....
28	2,300	5,848	5,848	7,282	5,551	537	200	1,095	1,551	.....
29	2,098	6,544	5,191	6,191	1,389	455	231	1,095	1,237	.....
30	1,723	6,544	7,280	5,848	1,237	384	323	842	1,551	.....
31	1,389	.....	9,735	.....	842	323	.....	1,237	.....	.....
1896.										
1	.....	.....	3,225	3,392	2,680	1,600	550	1,240	3,460	.....
2	.....	.....	3,392	4,000	2,680	1,475	738	960	3,720	.....
3	.....	.....	3,048	3,392	2,335	1,730	637	840	2,960	.....
4	.....	.....	3,780	2,680	2,020	1,860	637	730	2,300	.....
5	.....	.....	4,555	14,613	1,730	1,240	600	840	2,090	.....
6	.....	.....	6,777	16,300	1,600	1,475	600	730	1,240	.....
7	.....	.....	5,655	14,613	1,475	1,730	550	1,090	960	.....
8	.....	.....	6,777	12,927	1,130	1,240	550	1,240	730	.....
9	.....	.....	5,111	11,241	1,130	800	600	1,090	1,090	.....
10	.....	1,860	4,000	10,117	950	950	675	1,240	1,390	.....
11	.....	2,335	4,000	9,000	800	675	800	960	1,720	.....
12	.....	3,048	3,780	9,000	600	600	800	1,090	1,900	.....
13	.....	3,560	4,555	9,000	550	600	950	1,090	2,300	.....
14	.....	3,048	5,655	7,333	460	550	1,130	1,090	1,900	.....
15	.....	2,680	7,888	5,655	320	520	1,130	1,090	2,090	.....
16	.....	2,490	5,655	4,000	350	460	950	1,240	1,720	.....
17	.....	2,870	5,655	3,780	280	520	800	1,240	2,510	.....
18	.....	2,870	6,222	3,780	250	637	875	960	2,510	.....
19	.....	2,490	5,111	5,111	350	800	950	960	2,960	.....
20	.....	2,680	5,655	4,000	405	875	875	960	1,240	.....
21	.....	3,225	5,655	3,780	575	1,130	875	960	1,550	.....
22	.....	2,680	5,111	3,560	875	950	950	1,240	1,090	.....
23	.....	3,048	4,000	3,225	1,600	800	800	1,550	1,390	.....
24	.....	2,680	4,000	3,560	2,335	950	875	1,240	2,090	.....
25	.....	3,225	3,780	4,555	1,240	738	950	1,240	2,510	.....

Mean daily discharge, in second-feet, of North Platte River at North Platte, etc.—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1896.										
26	.....	3,048	3,560	3,780	1,040	600	1,130	1,240	2,730	.....
27	.....	2,680	3,225	3,560	875	550	1,130	1,240	3,200	.....
28	.....	2,683	3,225	3,560	675	600	1,200	960	3,200	.....
29	.....	3,048	2,680	4,000	1,350	575	1,200	1,390	3,200	.....
30	.....	3,048	2,680	2,680	1,040	550	1,130	1,390	3,200	.....
31	.....	.....	2,870	.....	1,475	600	.....	2,510	.....	.....
1897.										
1	2,341	2,645	8,231	21,527	6,197	1,090	850	615	2,624	.....
2	3,689	3,515	7,812	20,296	5,716	1,090	850	486	1,510	.....
3	4,457	4,457	8,650	20,796	5,556	1,090	743	486	963	.....
4	5,296	4,457	11,854	18,603	5,235	1,510	679	486	743	.....
5	5,712	5,296	11,854	18,603	4,914	2,306	615	486	743	.....
6	6,554	4,038	10,328	18,603	4,754	4,593	679	486	963	.....
7	6,973	4,457	11,854	21,527	4,432	4,432	550	486	1,510	.....
8	7,392	5,296	11,854	23,720	4,272	4,754	422	486	1,510	.....
9	7,812	4,457	14,948	21,849	4,593	432	422	486	2,624	.....
10	8,650	3,863	14,217	17,172	4,112	593	486	679	2,624	.....
11	9,489	3,863	14,217	16,637	3,174	754	679	550	1,510	.....
12	3,167	4,896	14,948	16,637	3,409	272	743	679	1,510	.....
13	3,341	3,863	14,948	13,490	4,272	3,643	615	743	1,510	.....
14	2,993	3,515	14,217	11,916	3,174	4,112	679	679	1,510	.....
15	2,645	3,167	14,948	9,768	2,940	4,593	615	473	1,510	.....
16	2,471	2,471	10,328	11,393	3,409	4,272	679	963	1,510	.....
17	2,993	2,471	13,486	11,393	3,409	4,272	679	1,090	2,624	.....
18	3,515	2,645	10,328	12,442	3,643	4,272	743	1,343	2,624	.....
19	2,471	2,645	10,328	11,393	3,409	4,112	615	1,510	2,624	.....
20	2,296	2,819	13,486	11,390	4,272	3,643	615	963	2,624	.....
21	3,167	3,515	11,854	11,393	3,409	3,643	615	963	2,624	.....
22	3,167	3,863	13,486	11,393	3,878	4,309	615	743	2,306	.....
23	2,993	5,296	13,486	11,393	4,432	2,306	550	743	2,624	.....
24	2,645	6,973	14,217	9,768	2,940	1,510	486	743	2,624	.....
25	2,122	8,650	15,679	9,768	2,940	1,090	550	743	963	.....
26	1,774	10,328	17,872	7,331	2,306	1,090	550	1,090	2,306	.....
27	2,296	13,486	20,063	6,518	2,306	963	486	1,510	3,409	.....
28	1,948	9,489	20,796	7,331	2,306	963	486	3,643	4,112	.....
29	1,774	8,650	20,796	6,518	2,306	850	486	3,878	4,112	.....
30	2,122	8,231	21,527	6,518	1,510	743	486	3,643	4,112	.....
31	2,296	.....	20,796	.....	1,090	743	.....	2,940	.....	.....
1898.										
1	3,138	3,138	3,785	12,034	4,217	548	150	324	697	2,275
2	2,707	2,707	4,001	9,559	4,001	1,270	70	289	697	2,275
3	2,064	2,491	4,433	8,785	4,001	1,413	90	254	697	2,275
4	2,064	2,064	4,433	8,528	4,433	840	90	289	697	2,707
5	1,844	2,707	4,433	8,270	3,785	510	120	289	984	2,707
6	1,700	3,138	4,433	7,786	3,570	473	80	324	984	2,707
7	1,700	2,707	4,648	7,786	3,354	548	100	324	984	2,707
8	2,064	2,922	4,433	7,817	2,491	473	160	324	697	2,707
9	2,491	2,491	4,433	6,817	2,275	399	219	436	984	2,707
10	2,491	1,700	4,433	6,817	3,570	324	324	399	660	2,707
11	2,491	2,064	4,001	6,817	2,707	306	436	399	697	3,570
12	2,491	2,491	4,001	6,817	3,138	289	660	436	984	3,570
13	2,275	2,707	3,785	6,333	1,844	254	548	399	984	3,570
14	2,064	2,275	3,570	8,270	1,557	219	697	399	984	3,570
15	2,491	1,844	3,785	7,302	1,270	178	984	399	697	3,570
16	2,064	2,275	4,217	6,333	984	179	697	399	1,127	3,570
17	2,275	1,557	6,817	5,848	1,127	179	660	399	984	3,570
18	1,844	1,700	5,296	6,333	984	179	548	399	2,270	.....
19	2,491	1,700	4,864	6,817	984	160	473	473	1,844	.....
20	2,491	2,064	4,864	7,302	697	100	399	548	1,557	.....
21	2,707	2,064	5,296	6,817	697	100	362	548	1,127	.....
22	2,064	2,064	5,080	5,848	697	100	324	548	984	.....
23	1,557	2,491	5,296	5,842	715	254	324	622	984	.....
24	1,551	2,275	4,864	5,848	622	271	324	622	984	.....
25	1,413	2,491	4,864	5,848	660	199	324	622	984	.....
26	1,270	2,922	5,296	5,296	622	160	324	660	984	.....
27	1,700	3,785	6,817	5,296	622	140	324	697	984	.....
28	2,491	3,785	6,817	5,080	510	90	289	697	1,844	.....
29	3,354	3,785	5,848	4,433	399	120	289	697	1,557	.....
30	2,922	3,785	14,646	4,648	324	90	306	697	1,557	.....
31	2,707	.....	10,074	.....	473	80	.....	697	.....	.....

Mean daily discharge, in second-feet, of North Platte River at North Platte, etc.—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1899.										
1	7,440	3,831	10,591	10,961	15,428	5,197	2,215	976	1,270	.....
2	7,440	3,023	10,591	12,146	16,257	5,757	1,845	850	1,557	.....
3	7,440	6,317	9,851	12,962	15,839	5,757	1,845	875	1,557	.....
4	7,440	5,757	8,837	12,962	15,428	6,317	1,845	713	1,700	.....
5	7,440	5,197	8,277	12,146	15,428	6,317	1,322	713	1,844	.....
6	7,440	6,317	7,437	11,330	15,428	8,557	1,322	713	2,059	.....
7	7,440	6,597	7,437	11,738	14,606	5,477	1,495	713	1,844	.....
8	7,440	4,917	8,837	12,962	14,606	4,637	1,495	622	1,844	.....
9	7,440	4,637	8,277	13,782	14,606	4,637	1,149	622	1,844	.....
10	8,000	4,637	6,317	13,782	14,606	4,235	1,019	622	1,844	.....
11	8,000	4,637	6,037	13,373	13,784	3,831	1,149	622	1,844	.....
12	8,000	5,197	5,197	12,554	11,738	3,831	1,149	713	1,844	.....
13	8,000	5,477	5,197	11,738	11,330	4,033	1,149	713	1,557	.....
14	8,000	4,637	4,637	10,961	11,330	4,637	1,149	667	1,557	.....
15	8,000	4,437	5,197	11,330	10,961	4,637	1,019	984	1,700	.....
16	8,000	4,637	5,477	12,146	9,851	4,235	889	984	1,844	.....
17	7,420	8,837	6,397	14,195	9,111	4,033	889	984	1,700	.....
18	6,320	9,111	7,717	14,606	8,557	4,235	889	984	1,557	.....
19	6,320	9,481	7,717	16,257	8,837	3,831	889	984	1,844	.....
20	6,320	9,851	9,851	15,838	9,111	3,831	889	984	1,844	.....
21	4,640	9,111	11,350	14,195	9,111	3,831	875	984	2,275	.....
22	6,320	7,997	12,554	13,373	8,557	2,619	875	984	2,275	.....
23	6,320	7,997	12,554	13,784	8,277	2,619	850	984	1,844	.....
24	7,720	7,997	12,967	13,373	7,437	2,215	850	984	1,844	.....
25	6,880	7,437	12,146	15,839	7,157	2,215	850	984	1,844	.....
26	5,200	6,877	12,962	17,072	6,317	2,215	875	1,270	1,844	.....
27	5,200	7,437	13,373	18,305	6,317	2,215	875	1,557	1,844	.....
28	4,920	7,437	13,373	17,894	6,597	2,030	976	1,557	2,275	.....
29	4,640	7,437	12,554	17,072	5,757	1,668	875	1,557	1,844	.....
30	4,920	7,997	10,591	16,661	5,757	1,322	875	1,557	1,844	.....
31	5,200	.....	10,591	.....	4,917	1,668	.....	413	.....	.....
1900.										
1	4,050	2,150	7,800	10,500	5,025	1,035	70	465	950	.....
2	5,025	2,150	7,350	11,100	3,440	875	70	465	950	.....
3	6,100	1,800	9,350	11,100	3,440	670	70	465	950	.....
4	6,900	1,975	8,800	13,500	3,440	515	70	465	950	.....
5	6,900	2,150	9,350	16,000	5,350	565	70	370	800	.....
6	6,900	2,520	11,100	16,850	4,700	950	70	370	800	.....
7	4,700	2,950	11,100	16,850	4,700	2,150	70	370	875	.....
8	4,700	3,440	9,900	17,700	3,745	1,220	70	370	950	.....
9	4,700	2,950	8,300	16,000	2,735	1,220	70	370	950	.....
10	4,375	2,950	7,800	15,150	1,800	735	125	370	800	.....
11	2,950	3,195	7,800	14,300	1,680	670	100	370	875	.....
12	2,150	3,440	7,800	12,700	1,560	670	100	370	1,035	.....
13	1,680	3,745	8,300	11,100	1,800	565	100	465	950	.....
14	1,320	3,440	8,800	11,100	1,560	515	70	465	1,035	.....
15	2,520	4,050	8,800	11,900	1,560	370	70	465	1,120	.....
16	4,700	5,350	8,800	12,700	1,680	370	100	465	1,035	.....
17	2,150	5,350	8,800	12,700	1,560	325	100	465	950	.....
18	1,516	5,350	10,500	12,700	1,440	245	125	565	875	.....
19	1,320	4,700	14,300	10,500	1,120	210	125	565	670	.....
20	2,520	4,050	14,300	8,800	1,320	125	125	565	800	.....
21	2,950	3,745	11,100	8,800	1,320	515	100	565	1,220	.....
22	2,520	4,050	11,100	7,800	1,320	565	100	565	1,220	.....
23	2,950	4,700	10,500	6,900	1,560	415	100	670	1,320	.....
24	2,735	5,350	9,900	6,900	2,335	565	100	800	1,220	.....
25	2,520	6,100	9,900	6,900	2,335	515	100	670	1,800	.....
26	2,520	6,900	9,350	6,100	2,950	465	100	670	1,975	.....
27	2,150	6,900	8,800	5,350	2,335	280	150	670	2,150	.....
28	2,150	6,500	8,300	5,350	1,320	280	210	670	1,680	.....
29	1,975	5,350	7,800	4,700	1,320	150	210	735	1,320	.....
30	2,150	5,725	7,800	4,700	1,320	150	325	800	1,320	.....
31	.....	.....	9,900	.....	1,120	100	.....	875	.....	.....
1901.										
1	.....	3,440	2,150	9,900	4,050	210	1,120	670	1,320	.....
2	.....	3,440	5,450	8,800	3,440	210	1,320	670	1,320	.....
3	.....	3,440	6,900	7,800	3,440	150	1,120	670	1,320	.....
4	.....	2,520	6,100	7,800	3,440	100	1,320	670	1,320	.....
5	.....	1,800	6,900	9,900	2,950	75	1,320	800	1,320	.....

Mean daily discharge, in second-feet, of North Platte River at North Platte, etc.—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1901.										
6	4,050	2,150	6,900	11,100	2,950	75	1,320	800	1,320	.....
7	2,150	2,150	6,900	11,100	2,950	50	1,320	1,120	1,320	.....
8	2,950	1 560	6,100	12,700	2,520	75	1,320	1,120	1,320	.....
9	2,950	1,560	6,100	12,700	2,520	100	1,320	950	1,320	.....
10	2,520	2,150	6,100	12,700	2,150	100	1,320	1,320	1,320	.....
11	2,950	3,440	6,900	12,700	1,800	210	1,560	1,320	1,320	.....
12	2,150	4,700	6,100	17,700	1,800	465	1,800	1,320	1,560	.....
13	1,800	4,050	6,100	9,900	1,800	465	1,800	950	1,560	.....
14	1,800	2,950	6,100	11,100	1,320	370	1,320	1,120	1,560	.....
15	2,150	2,950	6,100	11,100	1,320	280	1,120	1,120	1,560	.....
15	1,800	2,520	6,100	11,100	950	370	950	1,120	1,800	.....
17	1,800	2,520	5,450	11,100	943	370	800	1,120	1,800	.....
18	1,800	2,520	5,450	9,900	950	370	800	1,120	1,800	.....
19	2,950	2,150	5,450	8,800	950	370	1,120	1,120	1,800	.....
20	1,800	2,150	5,450	12,700	950	280	1,120	1.120	1,800	.....
21	1,800	2,150	6,100	9,900	670	670	1,120	1,320	1,800	.....
22	1,800	1,800	6,100	7,800	465	800	800	1,320	1,800	.....
23	1,800	1,800	9,900	9,900	280	565	670	1,320	1,800	.....
24	1,800	1,800	11,100	8,800	210	465	670	1,320	1,800	.....
25	1,560	1,560	11,100	7,800	150	370	670	1,320	1,800	.....
26	1,560	1,560	12,700	6,900	565	370	670	1,320	1,800	.....
27	1,800	1,560	12,700	6,100	465	370	565	1,320	1,800	.....
29	1,320	1,560	14,300	5,450	370	370	565	1,320	1,800	.....
29	1,320	2,150	14,300	4,700	100	465	565	1,320	1,560	.....
30	1,800	2,150	11,100	4,050	75	800	565	1,320	1,560	.....
31	7,800	.....	9,900	.....	210	800	.....	1,320	.....	.....
1902.										
1	.....	1,320	4,050	3,440	6,100	370	150	950	1,120	.....
2	.....	1,800	4,050	3,440	5,450	280	150	950	1,120	.....
3	.....	2,150	3,440	3,158	4,991	150	150	950	1,120	.....
4	.....	2,520	3,440	2,950	4,050	100	100	950	1,120	.....
5	.....	2,520	4,050	2,950	3,440	100	100	1,120	1,120	.....
6	.....	2,520	3,723	4,050	4,050	75	100	1,120	1,120	.....
7	.....	1,804	3,440	5,450	4,050	50	100	950	1,120	.....
8	.....	1,800	3,440	5,450	3,440	50	100	800	1,120	.....
9	.....	1.800	3,440	6,100	4,050	55	100	800	1,120	.....
10	.....	1,800	3,440	5,450	3,440	50	100	670	1,120	.....
11	.....	1,560	3,440	4,700	3,440	50	100	1,120	1,120	.....
12	.....	1,320	4,700	6,900	2,950	30	150	1,120	1,120	.....
13	.....	1,320	5,450	6,100	2,520	30	150	1,120	1,120	.....
14	.....	1,800	5,450	6,900	2,150	50	150	1,120	1,120	.....
15	.....	2,150	6,100	6,900	2,520	50	210	1,120	1,320	.....
16	950	2,520	9,900	6,900	1,320	50	210	1,120	1,320	.....
17	1,320	2,520	7,800	6,100	1,293	30	150	1,120	1,320	.....
18	1,800	2,520	6,900	6,900	1,120	49	210	1,120	1,320	.....
19	1,800	2,520	6,900	6,610	1,120	100	210	950	1,320	.....
20	2.150	2,520	7,136	6,900	950	100	150	950	1,120	.....
21	2,150	2,520	7,800	6,100	800	75	280	1,120	950	.....
22	2,150	2,950	6,900	6,100	670	75	565	1,120	800	.....
23	2,520	3,440	6,900	6,100	670	94	1,800	1,120	800	.....
24	3,440	3,440	6,900	5,450	565	100	1,783	1,120	800	.....
25	3,440	3,440	6,900	4,050	465	150	1,320	1,120	800	.....
26	4,050	2,950	6,100	4,050	370	100	1,320	1,120	950	.....
27	2,950	3,440	6,100	3,050	465	100	1,320	1,120	1,560	.....
28	2,950	3,440	5,450	3,440	694	150	1,120	1,120	1,120	.....
29	1,800	3,440	5,450	3,440	800	210	1,120	950	845	.....
30	1,320	3,440	5,450	4,050	800	150	950	950	.....	.....
31	1,320	.....	4,700	.....	370	150	.....	1,120	.....	.....
1903.										
1	.....	2,520	4,050	4,050	8,300	1,035	670	875	1,220	.....
2	.....	2,150	4,375	3,440	7,350	875	515	950	1,440	.....
3	.....	2,335	5,025	3,195	7,350	800	465	950	1,440	.....
4	.....	2,735	5,350	2,950	8,300	670	415	1,120	1,440	.....
5	.....	2,950	5,350	2,735	7,350	565	415	1,120	1,440	.....
6	.....	2,520	6,100	2,950	6,500	565	515	1,120	1,440	.....
7	.....	2,520	5,350	2,950	5,350	465	515	1,120	1,320	.....
8	.....	2,735	5,025	3,195	4,700	415	465	950	1,320	.....
9	.....	4,050	4,375	3,440	4,375	415	515	1,035	1,440	.....
10	.....	4,050	4,700	4,375	3,745	370	565	950	1,440	.....

Mean daily discharge, in second-feet, of North Platte River at North Platte, etc.—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1903.										
11	.....	3,745	4,375	5,025	3,440	875	465	950	1,440	.....
12	.....	3,440	4,700	5,350	4,050	800	465	875	1,440	.....
13	.....	3,195	3,745	5,350	3,195	800	325	1,035	1,440	.....
14	.....	2,950	3,745	6,100	2,950	800	325	1,120	1,440	.....
15	13,500	2,950	3,440	6,100	2,520	670	465	1,120	1,440	.....
16	14,300	3,195	4,050	6,900	2,335	565	515	1,120	1,320	.....
17	11,900	3,195	4,050	7,800	2,150	615	515	1,220	565	.....
18	11,900	3,440	4,050	7,800	1,975	735	615	1,220	670	.....
19	10,500	2,950	4,375	8,800	2,335	950	615	1,035	.....	.....
20	9,900	3,440	5,025	8,800	1,975	735	615	1,035	.....	.....
21	6,900	3,440	5,025	9,900	1,800	565	615	1,035	.....	.....
22	4,700	3,440	5,350	9,900	2,335	565	615	950	.....	.....
23	3,745	3,440	5,350	9,900	1,560	565	565	1,120	.....	.....
24	3,195	3,195	5,350	9,900	1,320	670	615	1,120	.....	.....
25	3,440	3,195	6,100	11,900	1,440	670	615	1,220	.....	.....
26	2,735	3,745	6,500	12,700	1,120	670	565	1,220	.....	.....
27	3,440	3,440	6,100	11,100	875	1,220	565	1,220	.....	.....
28	3,195	2,950	5,725	10,500	670	670	670	1,220	.....	.....
29	2,950	3,745	4,700	9,350	670	950	735	1,220	.....	.....
30	2,520	5,025	4,700	8,300	875	1,035	800	1,220	.....	.....
31	2,735	.....	4,700	.....	875	735	.....	1,220	.....	.....
1904.										
1	1,000	2,070	3,870	10,600	5,320	810	75	1,720	1,415	2,070
2	1,000	1,720	3,870	11,350	5,320	810	925	1,720	1,415	2,260
3	1,000	2,460	3,870	12,900	6,310	1,150	250	1,415	1,280	2,260
4	1,000	2,460	4,720	11,350	5,640	1,280	475	1,150	1,280	1,720
5	1,000	2,460	5,320	10,000	5,010	810	250	810	1,415	1,560
6	1,000	2,460	4,720	8,980	5,980	2,070	85	810	1,415	1,720
7	1,500	1,415	4,140	8,560	7,400	1,040	75	925	1,415	1,720
8	1,500	1,500	4,140	8,160	5,980	925	50	700	1,415	2,070
9	1,500	1,720	6,310	10,000	6,310	590	40	925	1,150	2,070
10	2,000	2,260	6,310	10,600	5,320	475	35	925	1,150	2,460
11	2,000	1,720	5,640	12,100	5,640	370	35	925	1,150	2,460
12	1,500	1,280	5,320	11,350	5,010	175	40	925	1,415	2,460
13	1,500	1,720	5,010	16,500	4,720	175	35	475	1,890	.....
14	1,500	1,890	5,010	17,500	4,420	85	35	475	1,720	.....
15	1,500	1,720	4,720	14,600	4,420	75	40	475	1,415	.....
16	1,500	1,280	4,420	14,600	3,360	65	35	590	1,415	.....
17	1,500	1,560	4,720	12,100	2,890	65	35	590	1,890	.....
18	1,500	1,415	4,720	10,600	2,680	65	35	1,040	1,720	.....
19	1,200	1,000	4,420	10,600	2,260	65	25	1,720	1,720	.....
20	1,200	1,150	4,420	10,000	2,890	50	20	1,415	1,415	.....
21	1,200	1,280	4,720	10,000	2,260	45	40	1,415	1,415	.....
22	1,200	1,560	5,010	9,400	2,070	40	40	1,150	1,415	.....
23	1,200	1,280	5,010	10,000	2,070	40	45	925	1,560	.....
24	1,200	1,280	5,320	9,400	2,260	35	40	1,150	1,720	.....
25	1,100	1,150	5,320	8,980	1,720	40	40	1,720	1,890	.....
26	1,150	2,070	11,350	8,160	1,560	40	40	1,720	1,720	.....
27	1,415	2,460	8,980	7,400	1,410	40	45	1,720	1,720	.....
28	1,720	2,460	8,160	6,660	1,280	40	100	1,720	1,560	.....
29	1,415	2,680	8,160	6,660	1,415	50	250	1,720	1,415	.....
30	1,415	3,130	8,560	6,660	925	50	925	1,720	1,560	.....
31	2,070	.....	8,560	.....	810	50	.....	1,560	.....	.....
1905.										
1	.....	3,172	7,848	13,355	11,870	4,330	530	200	.....	.....
2	.....	3,418	9,304	16,608	14,815	4,080	445	220	.....	.....
3	.....	3,610	10,800	16,608	15,184	3,900	360	250	.....	.....
4	.....	4,275	9,976	16,608	11,654	3,050	394	250	.....	.....
5	4,995	3,930	9,976	13,760	10,586	2,642	572	280	.....	.....
6	4,275	3,418	10,200	12,424	11,654	2,642	740	370	.....	.....
7	3,418	2,590	10,800	11,400	9,578	2,448	792	370	.....	.....
8	2,700	2,046	11,160	11,160	8,810	2,310	740	370	.....	.....
9	2,150	1,390	11,400	11,656	7,910	2,448	740	300	.....	.....
10	2,425	1,534	10,200	14,312	7,070	2,080	792	370	.....	.....
11	2,700	2,046	11,160	16,608	6,438	1,875	700	500	.....	.....
12	2,150	1,890	11,400	18,706	6,280	1,670	600	500	.....	.....
13	2,150	2,260	11,400	17,650	5,910	2,540	600	370	.....	.....
14	2,700	2,425	12,040	16,900	4,988	2,540	700	370	.....	.....
15	2,260	2,700	10,200	19,624	4,330	2,448	1,000	670	.....	.....

Mean daily discharge, in second-feet, of North Platte River at North Platte, etc.—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1905.										
16	3,802	2,425	9,640	23,010	3,720	1,752	600	600	.....	.....
17	4,770	2,425	8,040	20,326	3,160	1,670	370	470	.....	.....
18	3,930	2,590	7,848	17,970	2,540	1,382	530	580	.....	.....
19	4,770	2,425	7,848	16,690	2,948	1,490	800	620	.....	.....
20	3,610	2,260	8,872	16,060	3,720	1,752	950	850	.....	.....
21	2,700	4,620	8,040	14,200	4,200	1,155	700	850	.....	.....
22	2,150	4,620	7,080	14,200	3,720	1,000	600	850	.....	.....
23	1,734	4,068	6,635	14,446	2,948	870	700	700	.....	.....
24	1,534	5,370	7,080	14,446	2,948	698	530	850	.....	.....
25	1,534	7,272	8,872	12,098	3,050	698	470	1,060	.....	.....
26	1,390	7,080	8,872	11,006	2,448	740	360	830	.....	.....
27	1,390	6,190	15,732	10,586	2,540	698	320	830	.....	.....
28	2,046	5,370	13,355	9,578	2,448	635	260	1,100	.....	.....
29	2,150	6,635	15,158	9,002	3,490	530	330	1,270	.....	.....
30	2,046	8,248	14,030	9,974	2,080	870	330	1,160	.....	.....
31	2,150	.....	13,355	.....	2,448	792	.....	1,100	.....	.....
1906.										
1	.....	.....	7,490	15,400	6,910	1,900	2,080	1,200	2,400	.....
2	.....	.....	7,070	16,100	6,910	1,750	2,080	1,280	2,200	.....
3	.....	.....	7,490	16,400	7,070	1,320	1,940	1,220	3,340	.....
4	.....	.....	6,910	16,400	6,440	1,170	1,870	1,060	3,080	.....
5	.....	.....	7,240	19,000	6,280	1,230	1,870	1,060	2,570	.....
6	.....	.....	6,910	17,300	5,540	2,400	1,410	1,000	2,500	.....
7	.....	.....	5,540	16,200	4,850	3,320	1,120	920	2,370	.....
8	.....	.....	4,990	12,300	4,200	1,960	900	760	2,300	.....
9	.....	.....	4,850	9,770	4,080	1,380	840	980	2,300	.....
10	.....	6,280	4,850	8,360	3,900	1,060	840	980	2,570	.....
11	.....	6,130	4,990	8,090	3,900	1,000	1,280	980	2,660	.....
12	.....	6,910	4,850	8,810	3,600	740	2,200	980	2,860	.....
13	.....	7,910	5,200	8,810	3,720	570	1,770	950	2,350	.....
14	.....	6,280	5,200	9,290	4,200	445	1,770	260	2,320	.....
15	.....	5,910	5,910	8,810	3,900	530	1,340	1,260	2,080	.....
16	.....	5,400	6,680	8,810	3,320	530	780	1,080	2,230	.....
17	.....	5,540	6,130	7,240	2,640	394	1,160	1,200	2,080	.....
18	.....	5,400	6,130	6,280	2,950	330	1,170	940	1,880	.....
19	.....	6,440	7,240	7,070	3,160	260	1,170	1,020	1,880	.....
20	.....	6,910	7,910	7,740	3,490	170	1,750	1,120	1,230	.....
21	.....	6,280	9,580	9,000	3,720	100	1,750	760	750	.....
22	.....	5,910	8,360	9,770	4,850	50	1,670	1,600	750	.....
23	.....	5,540	8,360	9,580	4,330	1,140	1,560	3,000	1,100	.....
24	.....	5,690	8,630	10,300	3,600	2,200	1,480	1,630	1,500	.....
25	.....	5,400	11,000	9,970	3,720	1,340	1,550	1,260	2,230	.....
26	.....	4,520	9,770	9,000	3,600	1,600	1,260	1,760	2,550	.....
27	.....	5,910	9,770	9,290	3,900	1,040	1,200	2,480	2,080	.....
28	.....	7,490	9,770	8,360	3,050	740	1,120	4,600	1,880	.....
29	.....	6,440	9,970	7,490	2,540	740	1,060	5,300	1,880	.....
30	.....	5,910	11,300	7,070	2,080	1,300	1,120	3,130	2,710	.....
31	.....	.....	13,200	.....	2,080	2,300	.....	2,520	.....	.....

Estimated monthly discharge of North Platte River at North Platte, 1895–1906.

[Drainage area, 28,500 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
March.								
1895	10,180	455	3,005	184,800	0.105	0.13	24	0.55
1897	9,490	1,770	3,921	241,100	.138	.16	9	1.76
1898	3,350	1,270	2,226	136,900	.078	.09	11	.79
1899	8,000	4,640	6,814	419,000	.239	.28	17	1.64
1900	6,900	1,320	3,082	189,500	.108	.12	43	.29
1901	9,900	1,320	3,260	200,400	.114	.13	13	1.00
1902 [a]	4,050	950	2,257	71,600				1.12
1903 [b]	14,300	2,520	6,562	221,200				.98
1904	2,070	1,000	1,370	84,200	.048	.05	7	.75
1905	4,990	1,390	2,727	167,800	.096	.11	14	.77
April.								
1895	6,540	1,550	3,470	206,500	.122	.13	19	.69
1896 [c]	3,560	1,860	2,823	117,600				1.83
1897	13,490	2,470	5,110	304,100	.179	.20	14	1.41
1898	3,780	1,550	2,540	151,100	.089	.10	9	1.12
1899	9,850	3,020	6,509	387,300	.228	.26	33	.79
1900	6,900	1,800	4,108	244,000	.144	.16	4	4.34
1901	4,700	1,560	2,408	143,300	.084	.09	4	2.06
1902	3,440	1,320	2,443	145,400	.086	.10	8	1.26
1903	5,020	2,150	3,223	191,800	.113	.13	9	1.33
1904	3,360	1,030	1,938	115,300	.068	.08	8	.99
1905	8,250	1,390	3,743	222,700	.131	.15	4	3.45
1906	7,910	4,520	6,100	363,000	.214	.24	12	1.93
May.								
1895	10,630	4,880	7,033	432,400	.246	.29	17	1.71
1896	7,890	2,680	4,558	280,300	.160	.18	8	2.17
1897	21,530	7,810	13,981	859,700	.490	.56	41	1.37
1898	14,650	3,570	5,276	324,400	.185	.21	5	4.34
1899	13,370	4,640	9,196	565,400	.321	.37	12	3.18
1900	14,300	7,350	9,468	582,200	.331	.38	42	.91
1901	14,300	2,150	7,680	472,200	.269	.31	11	2.78
1902	9,900	3,440	5,450	335,100	.191	.22	9	2.47
1903	6,500	3,440	4,866	299,200	.171	.20	10	2.03
1904	11,370	3,770	5,644	347,000	.198	.23	8	2.87
1905	15,730	6,630	10,270	631,500	.360	.42	12	3.43
1906	13,200	4,850	7,530	463,000	.264	.30	12	2.63
June.								
1895	16,870	6,190	10,991	654,000	.385	.44	13	3.36
1896	16,300	2,680	6,334	376,900	.222	.24	9	2.65
1897	23,720	6,520	13,920	828,300	.488	.54	43	1.26
1898	12,030	4,430	6,878	409,300	.241	.27	15	1.75
1899	18,300	10,960	13,845	823,800	.486	.55	33	1.67
1900	17,700	4,700	10,858	548,100	.380	.42	52	.81
1901	17,700	4,050	9,733	579,100	.342	.38	14	2.66
1902	6,900	2,950	5,139	305,800	.180	.20	7	2.70
1903	12,700	2,730	6,825	406,100	.239	.27	16	1.71
1904	15,480	6,670	10,260	610,500	.360	.40	14	2.97
1905	23,010	9,000	14,700	874,700	.515	.58	27	2.11
1906	19,000	6,280	10,600	631,000	.372	.42	25	1.71
July.								
1895	5,850	842	3,137	192,900	.110	.13	10	1.26
1896	2,680	250	1,134	69,700	.040	.05	2	1.88
1897	6,200	1,090	3,688	226,800	.129	.15	10	1.55
1898	4,430	324	1,846	113,500	.065	.08	5	1.68
1899	16,260	4,920	10,743	660,600	.377	.44	28	1.55
1900	5,350	1,120	2,255	138,600	.079	.09	4	2.39
1901	4,050	75	1,508	92,700	.053	.06	8	.75
1902	6,100	370	2,229	137,000	.078	.09	5	1.75
1903	8,300	670	3,348	205,800	.117	.13	6	2.11
1904	7,260	800	3,681	226,300	.129	.15	8	1.86
1905	15,180	2,080	5,983	367,900	.210	.24	9	2.67
1906	7,070	2,070	4,150	255,000	.146	.17	14	1.25
August.								
1895	963	231	492	30,200	.017	.02	3	.77
1896	1,860	460	919	56,500	.032	.04	3	1.12
1897	4,750	743	2,876	176,800	.101	.12	6	1.96
1898	1,410	80	353	21,700	.012	.01	1	.83

[a] March 16 to 31. [b] March 15 to 31. [c] April 10 to 30.

Estimated monthly discharge of North Platte River at North Platte, 1895–1906—Cont'd.

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
August.								
1899	8,560	1,320	3,866	237,800	0.135	0.16	13	1.23
1900	2,150	100	581	35,700	.020	.02	3	.58
1901	800	50	346	21,300	.012	.01	1	1.17
1902	370	30	102	6,300	.004	.005	0.5	.99
1903	1,220	370	711	43,700	.025	.03	2	1.79
1904	2,070	32	399	24,500	.014	.02	2	.92
1905	4,330	530	1,862	114,500	.065	.08	6	1.25
1906	3,320	50	1,130	69,500	.040	.05	2	2.04
September.								
1895	455	150	241	14,300	.008	.01	4	.25
1896	1,130	550	857	51,000	.030	.03	6	.57
1897	850	422	609	36,200	.021	.02	5	.47
1898	984	70	352	20,900	.012	.01	1	.78
1899	2,210	850	1,148	68,300	.040	.04	8	.51
1900	325	70	111	6,600	.004	.004	0.3	1.19
1901	1,800	565	1,068	63,500	.037	.04	0.4	1.09
1902	1,800	100	481	28,600	.017	.02	9	2.10
1903	800	325	545	32,400	.019	.02	1	1.56
1904	910	20	159	9,500	.006	.01	0.5	1.09
1905	1,000	260	585	34,800	.021	.02	2	1.32
1906	2,200	780	1,470	87,500	.052	.06	3	1.98
October.								
1895	1,390	200	810	49,800	.028	.02	9	.23
1896	2,510	730	1,150	70,700	.040	.05	7	.70
1897	3,880	486	1,132	69,600	.040	.05	4	1.07
1898	697	254	471	29,000	.016	.02	3	.63
1899	1,560	413	964	59,300	.034	.04	3	1.22
1900	875	370	533	32,800	.019	.02	4	.54
1901	1,320	670	1,121	68,900	.039	.05	6	.87
1902	1,120	670	1,035	63,600	.036	.04	5	.90
1903	1,220	875	1,087	66,800	.038	.04	9	.51
1904	1,790	538	1,167	71,800	.041	.05	5	.99
1905	1,270	200	616	37,900	.022	.02	2	.82
1906	5,300	760	1,590	97,800	.056	.06	3	2.07
November.								
1895	1,900	963	1,357	80,700	.047	.06	9	.65
1896	3,720	730	2,166	128,900	.075	.08	18	.45
1897	4,110	743	2,152	128,000	.075	.08	14	.60
1898	2,270	660	1,088	64,700	.038	.04	5	.74
1899	2,280	1,270	1,813	107,900	.063	.07	16	.45
1900	2,150	670	1,114	66,500	.039	.04	20	.20
1901	1,800	1,320	1,576	93,800	.055	.07	28	.25
1902	1,560	800	1,104	65,700	.039	.04	28	.14
1903[a]	1,440	565	1,316	47,000				.26
1904	1,900	1,150	1,517	80,300	.053	.06	300	.02
1906	3,340	750	2,150	128,300	.075	.08	9	.87

[a] November 1 to 18.

SOUTH PLATTE DRAINAGE BASIN.

DESCRIPTION OF BASIN.

The headwaters of the South Platte have their sources in the mountainous region surrounding the large basin near the center of Colorado known as South Park, and in the long eastern slopes of the high mountains forming the Continental Divide. The general course of the stream is eastward to Lake George, thence through Platte Canyon northward to the junction with Cache la Poudre River near Greeley, Colo., and thence eastward until it joins the North Platte at the town of North Platte, Nebr.

The drainage basin, which is about 20,000 square miles in extent above Julesburg, Colo., is bisected in an irregular way by the channel of the South Platte. To the north and west lies the mountainous portion, which consists of a long, narrow strip lying in a north-south direction along the foothills from a point a short distance within Wyoming to Palmer Lake, Colo. This area produces at least 90 per cent of the total run-off of the basin. South and east of the river the basin lies entirely within the plains region.

The mountainous region consists of peaks and jagged masses of granite, with sedimentary rocks cut and gashed by stream channels along the foothills. The stream gradients are steep, and many of the streams consist of series of cascades and rapids. The soil cover as a whole is light, and except during spring freshets or heavy storms the streams are remarkably free from sediments in suspension. The forest cover of the mountains, consisting originally of coniferous trees, is rapidly disappearing, but through the occurrence of fires a foothold has been furnished for the deciduous aspen, which is gradually increasing its dominion. The South Platte, Plum Creek, and Medicine Bow national forests are in part comprised within this area.

The lower basin, somewhat broken and scarred along the foothills, gradually merges farther east into the undulating prairies so characteristic of the Great Plains east of the Rocky Mountains. The soils of the plains are the product of the disintegration of shales and sandstones and range from adobe clays to sandy loams. The controlling vegetation consists largely of native grasses, the only timber being a few bunches of scraggly cottonwoods along the stream channels and small patches of pine, cedar, and piñon along the higher portions.

Precipitation varies from 25 inches along the Continental Divide, where the greater part of it is snowfall, to 14 to 17 inches among the foothills. Evaporation records are meager.

In the mountainous region the flow of the South Platte and its tributaries is perennial; but in the plains area the volume is greatly diminished, owing to the fact that the normal waters are completely diverted for irrigation, the acreage capacity of the canals far exceeding the capacity of the river. At North Platte, Nebr., just above the mouth of the river, the stream channel is dry for the greater part of the year or consists of several small channels carrying a few second-feet of water.

The tributaries of the South Platte comprise, first, the small streams that rise on the eastern slopes of the Rocky Mountains, and, second, the plains streams. The mountain streams furnish a perennial supply of water, the amount of which, however, varies with the snowfall, being light during the latter part of the summer and in the fall and winter, and large during the spring floods. This water is almost entirely diverted for irrigation and does not reach the South Platte

except in times of heavy floods. The principal streams of this class are Bear, Clear, Boulder, St. Vrain, and Thompson creeks and Cache la Poudre River. The plains streams are all intermittent in their nature and furnish water only during storms or in the season of melting snow. The chief streams of this class are Cherry, Lone Tree, Kiowa, Boxelder, Bijou, Beaver, and Pawnee creeks.

The South Platte is subject to periodic floods, which occur in May and June, the magnitude varying from year to year with seasonal precipitation and temperature.

SOUTH PLATTE RIVER AT JULESBURG, COLO.

The station at Julesburg, Colo., was established April 2, 1902, and has been maintained continuously since that date. It is located at the highway bridge 1 mile southeast of Julesburg, in sec. 28, T. 12 N., R. 43 W., near the Nebraska-Colorado state line. One irrigation canal heads between the gaging station and the state line. In Nebraska, however, there are a number of important ditches.

The bed is composed of loose, shifting sand and is dotted with islands covered with undergrowth and other vegetation. The banks are low but seldom overflow. The channel is about 2,000 feet wide between banks.

The gage is a vertical staff spiked to a piling on the downstream side of the bridge 1,600 feet from the north end. The bench mark is a spike in the south face of the piling directly over the gage, marked "B. M."; elevation, 8.00 feet above the zero of the gage.

Discharge measurements of South Platte River at Julesburg, Colo., 1902–1906.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1902.		*Feet.*	*Sec.-ft.*	1904.		*Feet.*	*Sec.-ft.*
April 2	J. E. Field	1.30	35	April 16	T. W. Jenkins	1.10	12
October 10	S. G. Lees	1.58	133	April 30	do	1.42	65
November 8	R. W. Hawley	1.15	31	May 9	do	2.02	546
				May 27	do	1.76	228
1903.				June 3	do	2.60	1,542
April 1	J. C. Stevens	2.35	1,145	June 7	do	2.98	2,988
May 9	do	1.00	25				
September 22	E. C. Murphy	1.00	4	1905.			
April 17	M. C. Hinderlider	1.22	40	May 6	do	3.75	5,643
May 11	R. I. Meeker	1.09	36	May 10	M. C. Hinderlider	3.50	5,216
Do	do		42	May 20	T. W. Jenkins	3.27	4,130
July 23	M. C. Hinderlider	.95	1	May 25	do	3.48	4,748
June 13	do	1.00	11	May 27	do	3.99	7,405
December 23	do	2.68	526	October 4	M. C. Hinderlider	1.05	37
1904.				1906.			
March 8	do	1.35	88	February 24	do	1.90	918
March 16	T. W. Jenkins	1.18	19	March 30	do	2.20	1,200
March 26	do	1.18	23	June 23	do	1.48	71
April 2	do	1.17	15	November 6	R. I. Meeker	2.78	1,940
April 9	do	1.18	16				

Mean daily gage height, in feet, of South Platte River at Julesburg, Colo., 1902–1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.												
1				1.30	1.20	1.20	1.10	0.75	0.75	2.30	1.15	1.40
2				1.30	1.25	1.10	1.10	.75	.75	2.20	1.15	1.40
3				1.30	1.25	1.05	1.50	.75	.75	2.00	1.15	1.40
4				1.30	1.25	1.05	1.25	.80	.75	1.80	1.15	1.55
5				1.25	1.20	1.05	1.15	.80	.75	1.75	1.15	1.75
6				1.25	1.20	1.15	1.15	.80	.75	1.70	1.15	1.90
7				1.25	1.20	1.15	1.15	.75	.75	1.70	1.15	2.00
8				1.20	1.15	1.15	1.00	.75	.75	1.70	1.15	2.20
9				1.20	1.15	1.00	1.00	.75	.75	1.65	1.15	2.45
10				1.20	1.15	1.00	1.00	.75	.75	1.55	1.15	2.50
11				1.20	1.15	1.00	.90	.75	.75	1.50	1.15	2.50
12				1.20	1.30	1.60	.90	.75	.75	1.45	1.15	2.50
13				1.20	1.20	1.35	.90	.75	.75	1.40	1.15	2.60
14				1.45	1.20	1.25	.80	.75	.75	1.40	1.20	2.60
15				1.40	1.30	1.25	.80	.75	.75	1.35	1.20	2.60
16				1.30	1.25	1.20	.80	.75	.75	1.30	1.20	2.60
17				1.30	1.20	1.20	.80	.75	.75	1.25	1.20	2.60
18				1.25	1.15	1.10	.80	.70	.75	1.20	1.20	2.60
19				1.20	1.20	1.10	.80	.70	.75	1.20	1.20	2.70
20				1.20	1.30	1.10	.80	.70	.75	1.20	1.20	.....
21				1.25	1.20	1.10	.80	.80	1.20	1.20	1.20	2.75
22				1.30	1.15	1.00	.80	.80	1.90	1.25	1.20	2.80
23				1.40	1.15	1.00	.80	.80	1.90	1.25	1.20	2.80
24				1.30	1.10	.95	.80	.80	2.00	1.25	1.20	2.85
25				1.30	1.10	.95	.85	.80	2.00	1.20	1.20	2.90
26				1.25	1.25	.90	.85	.80	2.10	1.20	1.25	.....
27				1.20	1.25	1.00	1.75	.80	2.20	1.20	1.30	.....
28				1.20	1.25	1.10	1.00	.80	2.30	1.20	1.40	.....
29				1.20	1.20	1.10	.80	.75	2.30	1.20	1.40	.....
30				1.20	1.25	1.10	.80	.75	2.30	1.15	1.40	.....
31				.....	1.25	.....	.75	.75	.....	1.15	.....	.....
1903.												
1				2.30	1.00	1.00	1.00	.90	1.00	1.05	.....	1.70
2				2.30	1.00	1.05	.95	.90	1.00	1.05	.....	1.60
3				2.30	1.00	1.05	.95	.90	1.00	1.05	.....	1.55
4				2.30	1.00	1.05	.95	.90	1.00	1.05	.....	1.50
5				2.25	1.00	1.05	.95	.90	1.00	1.05	.....	1.45
6				2.15	1.00	1.05	.95	.90	1.00	1.05	.....	1.75
7				2.50	1.10	1.05	.95	.90	1.00	1.05	.....	1.80
8				2.00	.....	1.05	.95	.95	1.00	1.05	.....	1.90
9				2.00	.....	1.05	.95	.95	1.00	1.05	.....	1.10
10				1.95	1.00	1.10	.95	.95	1.00	1.05	1.05	2.00
11				1.85	1.50	1.05	.95	.95	1.00	1.05	1.05	2.10
12				1.80	1.00	1.05	.95	.95	1.00	1.05	1.05	2.15
13				1.50	1.00	1.00	.95	.95	1.00	1.05	1.05	2.15
14				1.50	1.00	1.00	.95	.95	1.00	1.05	1.05	2.15
15			3.30	1.30	1.00	1.00	.95	.95	1.00	1.05	1.05	2.20
16				1.20	1.00	1.00	.95	2.28	1.00	1.05	1.10	2.40
17				1.15	1.15	1.00	.95	1.73	1.05	1.05	1.10	2.40
18			2.65	1.15	1.10	1.00	.95	1.20	1.05	1.00	1.10	2.40
19			2.60	1.25	1.00	1.00	.95	1.10	1.05	1.00	1.10	2.45
20			2.55	1.30	1.00	1.00	.95	1.10	1.05	1.00	1.10	2.70
21			2.50	1.20	1.00	1.00	.95	1.05	1.05	1.00	1.10	2.70
22			2.50	1.10	1.00	1.00	.95	1.05	1.05	1.00	1.10	2.90
23			2.50	1.10	1.00	1.00	.95	2.20	1.05	1.00	1.10	2.70
24			2.65	1.00	1.00	1.00	.95	1.95	1.05	1.00	1.10	2.65
25			2.40	1.00	1.00	1.00	.90	1.35	1.05	1.00	1.60	2.60
26			2.40	.95	1.00	1.00	.90	1.10	1.05	1.00	1.90	2.50
27			2.30	.95	1.00	1.00	.90	1.05	1.05	1.00	1.85	2.40
28			2.30	.95	1.00	1.00	.90	1.05	1.05	1.00	1.85	2.40
29			2.30	1.00	1.10	1.00	.90	1.05	1.05	1.00	1.85	2.40
30			2.30	1.50	1.50	1.00	.90	1.00	1.05	1.00	1.75	2.40
31			2.30	.....	1.00	.....	.90	1.00	.....	1.00	.....	2.40
1904.												
1			1.90	1.15	1.40	2.00	2.10	1.30	1.30	1.60	1.40	1.65
2			1.75	1.15	1.30	2.61	1.85	1.30	1.30	1.60	1.35	1.65
3			1.65	1.15	1.30	2.50	1.85	2.15	1.25	1.55	1.35	1.60
4			1.55	1.15	1.30	2.20	1.75	1.40	1.25	1.50	1.30	1.60
5			1.60	1.20	1.40	2.00	1.65	1.35	1.20	1.50	1.30	1.75

Mean daily gage height, in feet, of South Platte River at Julesburg, Colo,, etc.—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.												
6	.....	.....	1.60	1.20	1.40	3.15	1.60	1.35	1.20	1.45	1.30	1.80
7	.....	.....	1.45	1.20	1.35	3.00	1.85	1.35	1.20	1.45	1.30	1.75
8	.....	.....	1.35	1.20	1.35	3.20	1.80	1.30	1.20	1.65	1.30	1.85
9	.....	.....	1.35	1.20	2.00	3.00	1.70	1.30	1.20	1.60	1.30	1.85
10	.....	.....	1.30	1.20	1.80	2.90	1.60	1.30	1.20	1.55	1.30	1.85
11	.....	.....	1.25	1.20	1.70	2.65	1.60	1.25	1.20	1.55	1.30	1.85
12	.....	.....	1.20	1.15	1.60	2.55	1.95	1.25	1.20	1.50	1.30	1.85
13	.....	.....	1.20	1.15	1.45	2.50	1.90	1.25	1.20	1.40	1.30	1.85
14	.....	.....	1.20	1.15	1.40	2.75	1.80	1.25	1.20	1.40	1.35	1.90
15	.....	.....	1.20	1.00	1.35	2.80	1.60	1.25	1.15	1.35	1.40	1.90
16	.....	.....	1.20	1.00	1.35	2.70	1.55	1.20	1.15	1.30	1.65	.....
17	.....	.....	1.20	1.00	1.30	2.70	1.50	1.20	1.15	1.30	1.60	.....
18	.....	.....	1.20	1.00	1.30	2.70	1.45	1.35	1.15	1.40	1.55	.....
19	.....	.....	1.20	1.00	1.30	2.70	1.45	1.30	1.15	1.45	1.55	.....
20	.....	.....	1.20	1.15	1.30	2.65	1.60	1.25	1.15	1.40	1.55	.....
21	.....	.....	1.20	1.20	1.30	2.60	1.60	1.25	1.15	1.35	1.55	.....
22	.....	.....	1.20	1.20	1.30	2.55	1.60	1.25	1.15	1.30	1.60	.....
23	.....	.....	1.20	1.20	1.30	2.50	1.60	1.20	1.15	1.30	1.60	.....
24	.....	.....	1.20	1.20	1.30	2.45	1.60	1.20	1.15	1.30	1.65	.....
25	.....	.....	1.20	1.25	1.30	2.40	1.60	1.20	1.15	1.30	1.80	.....
26	.....	.....	1.20	1.20	1.30	2.40	1.55	1.20	1.15	1.30	1.80	.....
27	.....	.....	1.20	1.15	1.75	2.35	1.50	1.20	1.15	1.30	1.80	.....
28	.....	.....	1.20	1.00	1.60	2.30	1.50	1.20	1.15	1.35	1.75	.....
29	.....	.....	1.20	1.20	1.60	2.25	1.45	1.20	1.15	1.55	1.75	.....
30	.....	.....	1.15	1.45	1.65	2.20	1.35	1.20	1.65	1.50	1.70	.....
31	.....	.....	1.15	.....	1.80	.....	1.30	1.20	.....	1.45	.....	.....
1905.												
1	2.55	.....	2.0	1.95	3.65	4.35	.75	1.63	1.2	1.05	1.5	1.65
2	2.6	.....	2.0	2.5	3.75	4.35	1.5	1.85	1.15	1.05	1.65	1.65
3	2.6	.....	2.0	1.95	3.85	4.0	1.4	2.05	1.15	1.05	1.85	1.65
4	2.6	.....	2.0	1.9	3.85	3.85	1.2	3.0	1.1	1.05	1.9	1.65
5	2.6	.....	2.0	1.95	3.8	3.8	.7	2.8	1.15	1.05	2.0	1.9
6	2.7	.....	2.15	1.95	3.75	3.85	.6	2.9	1.2	1.05	2.0	1.9
7	2.8	.....	2.05	2.5	3.7	3.9	.55	2.75	1.2	1.05	2.0	1.9
8	2.8	.....	2.1	2.5	3.75	4.0	.5	2.3	1.35	1.05	2.25	1.95
9	2.75	.....	2.15	2.5	3.75	4.5	.5	2.2	1.15	1.05	2.0	2.0
10	2.7	.....	2.0	2.1	3.6	4.0	.45	2.15	1.15	1.05	1.9	2.1
11	.....	.....	2.0	2.15	3.45	4.95	.4	2.5	1.1	1.05	1.9	2.1
12	.....	.....	2.5	2.25	3.35	4.95	.4	2.45	1.1	1.15	1.9	2.1
13	2.65	.....	1.95	2.25	3.45	4.0	2.0	2.35	1.1	1.25	2.0	2.1
14	2.65	.....	2.0	2.25	3.5	3.95	1.9	2.3	1.1	1.2	2.0	2.15
15	2.65	.....	2.5	2.5	3.5	3.55	1.8	2.0	1.1	1.25	1.9	2.2
16	2.65	.....	2.1	2.4	3.45	3.5	1.75	2.1	1.15	1.35	1.8	2.2
17	2.7	.....	2.5	2.5	3.35	3.3	1.9	2.15	1.2	1.25	1.75	2.1
18	2.8	.....	2.5	2.55	3.35	3.1	1.8	2.2	1.15	1.3	1.65	2.15
19	2.95	.....	2.2	2.4	3.4	3.0	1.85	2.25	1.15	1.35	1.7	2.2
20	3.15	.....	2.1	2.75	3.3	3.0	1.75	1.75	1.1	1.32	1.6	2.15
21	3.25	.....	2.0	2.7	3.45	2.85	1.7	1.65	1.1	1.35	1.65	2.25
22	.....	.....	1.9	2.65	3.45	2.4	2.0	1.6	1.1	1.4	1.6	2.2
23	.....	.....	1.95	2.7	3.45	1.0	1.95	1.45	1.1	1.4	1.75	2.2
24	.....	.....	1.95	3.5	3.5	.85	1.9	1.3	1.05	1.35	1.65	2.15
25	.....	.....	1.9	3.2	3.5	.95	1.85	1.2	1.05	1.5	1.65	2.0
26	.....	.....	1.9	3.1	4.0	1.0	1.7	1.15	1.05	1.5	1.65	2.1
27	.....	.....	1.9	3.5	4.0	.95	1.65	1.1	1.05	1.45	1.65	2.1
28	.....	.....	1.9	3.4	4.2	.95	1.6	1.1	1.05	1.5	1.65	2.2
29	.....	.....	1.9	3.6	4.3	.95	1.65	1.1	1.0	1.5	1.65	2.2
30	.....	.....	1.8	3.6	4.3	.9	1.75	1.12	1.15	1.5	1.65	2.2
31	.....	.....	1.95	.....	4.35	.....	1.7	1.12	.....	1.5	.....	2.25
1906.												
1	.....	1.9	.....	2.2	1.6	1.5	1.4	.....	.....	.....	2.6	.....
2	.....	1.9	.....	2.25	1.6	1.4	.....	1.2	1.3	1.45	.....	.....
3	.....	1.9	1.9	2.2	1.6	1.45	1.4	.....	.....	.....	.....	.....
4	.....	1.85	1.9	1.95	1.6	1.45	.....	1.2	1.3	1.35	2.6	.....
5	.....	1.85	1.9	2.0	1.7	1.4	1.4	.....	.....	.....	.....	.....
6	.....	.....	1.9	1.95	1.75	1.4	.....	1.2	1.1	1.45	2.6	.....
7	.....	.....	2.2	1.95	2.0	1.35	1.35	1.45	.....	.....	.....	.....
8	.....	1.9	2.75	1.85	2.2	1.35	.....	.....	1.15	1.95	2.6	.....
9	.....	1.9	2.85	1.9	2.05	1.3	1.3	1.45	.....	.....	.....	.....
10	.....	1.9	.....	1.9	2.05	1.35	.....	.....	1.15	1.95	2.6	.....

Mean daily gage height, in feet, of South Platte River at Julesburg, Colo., etc.—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1906.												
11	.....	1.9	2.7	1.9	2.05	1.3	1.4	1.25	.....	.....	2.5	.....
12	.....	2.2	.....	1.9	2.05	1.4	.....	.....	1.4	1.95	2.75	.....
13	.....	2.75	.....	2.5	2.0	1.35	1.35	1.25	.....	.....	.....	.....
14	.....	.....	.....	1.95	1.9	1.5	.....	.....	1.35	1.95	2.75	.....
15	.....	.....	.....	1.9	1.8	1.3	1.45	1.3	.....	.....	.....	.....
16	.....	.....	.....	1.8	1.75	1.3	.....	.....	1.35	1.95	2.75	.....
17	.....	.....	.....	1.9	1.6	1.3	1.35	1.3	.....	.....	.....	.....
18	.....	.....	.....	1.9	1.55	1.3	.....	.....	1.35	1.85	.....	.....
19	.....	.....	.....	1.95	1.5	1.3	1.35	1.2	1.35	.....	.....	.....
20	.....	.....	.....	1.9	1.4	1.25	.....	.....	1.35	1.95	.....	.....
21	.....	.....	.....	1.85	1.35	1.2	1.35	1.15	.....	.....	.....	.....
22	.....	.....	.....	1.8	1.35	1.3	.....	.....	1.35	1.95	.....	.....
23	.....	.....	.....	1.8	1.5	1.45	1.3	1.15	.....	.....	.....	.....
24	.....	1.9	.....	1.8	1.55	1.4	.....	.....	1.4	2.5	.....	.....
25	.....	1.9	.....	1.8	1.7	1.4	1.3	1.15	.....	.....	.....	.....
26	.....	1.9	.....	1.8	1.9	1.4	.....	.....	1.35	2.8	.....	.....
27	.....	1.85	2.25	1.8	1.9	1.4	1.35	1.15	.....	.....	.....	.....
28	.....	1.85	2.45	1.6	1.85	1.4	.....	.....	1.35	2.8	.....	.....
29	.....	.....	2.25	1.6	1.7	1.4	1.3	1.15	.....	.....	.....	.....
30	.....	.....	2.25	1.6	1.6	1.4	.....	.....	1.35	2.8	.....	.....
31	.....	.....	2.25	.....	1.55	.....	1.3	1.2	.....	.....	.....	.....

Mean daily discharge, in second-feet, of South Platte River at Julesburg, Colo., 1902–1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.												
1	.....	.....	.....	52	35	35	23	2	2	662	28	75
2	.....	.....	.....	52	43	23	23	2	2	573	28	75
3	.....	.....	.....	52	43	19	105	2	2	407	28	75
4	.....	.....	.....	52	43	19	43	4	2	258	28	123
5	.....	.....	.....	43	35	19	28	4	2	225	28	225
6	.....	.....	.....	43	35	28	28	4	2	195	28	330
7	.....	.....	.....	43	35	23	28	2	2	195	28	407
8	.....	.....	.....	35	28	28	15	2	2	195	28	573
9	.....	.....	.....	35	28	15	15	2	2	168	28	803
10	.....	.....	.....	35	28	15	15	2	2	123	28	852
11	.....	.....	.....	35	28	15	9	2	2	105	28	852
12	.....	.....	.....	35	52	144	9	2	2	89	28	852
13	.....	.....	.....	35	35	63	9	2	2	75	28	953
14	.....	.....	.....	89	35	43	4	2	2	75	35	953
15	.....	.....	.....	75	52	43	4	2	2	63	35	953
16	.....	.....	.....	52	43	35	4	2	2	52	35	953
17	.....	.....	.....	52	35	35	4	2	2	43	35	953
18	.....	.....	.....	43	28	23	4	0	2	35	35	953
19	.....	.....	.....	35	35	23	4	0	2	35	35	1,058
20	.....	.....	.....	35	52	23	4	0	2	35	35	1,085
21	.....	.....	.....	43	35	23	4	4	35	35	35	1,112
22	.....	.....	.....	52	28	15	4	4	330	43	35	1,167
23	.....	.....	.....	75	28	15	4	4	330	43	35	1,167
24	.....	.....	.....	52	23	12	4	4	407	43	35	1,223
25	.....	.....	.....	52	23	12	6	4	407	35	35	1,280
26	.....	.....	.....	43	43	9	6	4	488	35	43	.....
27	.....	.....	.....	35	43	15	225	4	573	35	52	.....
28	.....	.....	.....	35	43	23	15	4	662	35	75	.....
29	.....	.....	.....	35	35	23	4	2	662	35	75	.....
30	.....	.....	.....	35	43	23	4	2	662	28	75	.....
31	.....	.....	.....	.....	43	.....	2	2	.....	28	.....	.....
1903												
1	.....	.....	.....	1,089	9	9	9	1	9	22	a 9	.....
2	.....	.....	.....	1,089	9	22	3	1	9	22	9	.....
3	.....	.....	.....	1,089	9	22	3	1	9	22	9	.....
4	.....	.....	.....	1,089	9	22	3	1	9	22	9	.....
5	.....	.....	.....	1,043	9	22	3	1	9	22	22	.....

a November 1–9 estimated.

Mean daily discharge, in second-feet, of South Platte River at Julesburg, Colo., etc.—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1903.												
6				952	9	22	3	1	9	22	22	
7				1,271	42	22	3	1	9	22	22	
8				816	[a] 22	22	3	3	9	22	22	
9				816	[a] 22	22	3	3	9	22	22	
10				770	9	42	3	3	9	22	22	
11				679	361	22	3	3	9	22	22	
12				634	9	22	3	3	9	22	22	
13				361	9	9	3	3	9	22	22	
14				361	9	9	3	3	9	22	22	
15			[b]	180	9	9	3	3	9	22	22	
16				96	9	9	3	[c] 1,071	9	22	42	
17				66	66	9	3	570	22	22	42	
18				66	42	9	3	96	22	9	42	
19				138	9	9	3	42	22	9	42	
20				180	9	9	3	42	22	9	42	
21				96	9	9	3	22	22	9	42	
22				42	9	9	3	22	22	9	42	
23				42	9	9	3	998	22	9	42	
24				9	9	9	3	770	22	9	42	
25				9	9	9	1	225	22	9	[d]	
26				3	9	9	1	42	22	9		
27				3	9	9	1	22	22	9		
28				3	9	9	1	22	22	9		
29				9	42	9	1	22	22	9		
30				361	361	9	1	9	22	9		
31					9		1	9		9		
1904.												
1			360	15	60	465	590	35	35	140	60	165
2			230	15	35	1,576	315	35	35	140	45	165
3			165	15	35	1,315	315	660	25	115	45	140
4			115	15	35	735	230	60	25	95	35	140
5			140	20	60	465	165	45	20	95	35	230
6			140	20	60	3,780	140	45	20	75	35	270
7			75	20	45	3,060	315	45	20	75	35	230
8			45	20	45	4,040	270	35	20	165	35	315
9			45	20	465	3,060	195	35	20	140	35	315
10			35	20	270	2,620	140	35	20	115	35	315
11			25	20	195	1,680	140	25	20	115	35	315
12			20	15	140	1,430	410	25	20	95	35	315
13			20	15	75	1,315	360	25	20	60	35	315
14			20	15	60	2,000	270	25	20	60	45	360
15			20	4	45	2,200	140	25	15	45	60	360
16			20	4	45	1,830	115	20	15	35	165	
17			20	4	35	1,830	95	20	15	35	140	
18			20	4	35	1,830	75	45	15	60	115	
19			20	4	35	1,830	75	35	15	75	115	
20			20	15	35	1,680	140	25	15	60	115	
21			20	20	35	1,550	140	25	15	45	115	
22			20	20	35	1,430	140	25	15	35	140	
23			20	20	35	1,315	140	20	15	35	140	
24			20	20	35	1,205	140	20	15	35	165	
25			20	25	35	1,100	140	20	15	35	270	
26			20	20	35	1,100	115	20	15	35	270	
27			20	15	230	1,000	95	20	15	35	270	
28			20	4	140	905	95	20	15	45	230	
29			20	20	140	815	75	20	15	115	230	
30			15	75	165	735	45	20	165	95	195	
31			15		270		35	20		75		
1905.												
1	1,425		[e] 470	422	5,745	9,230	17	192	50	34	131	202
2	1,550		470	1,300	6,220	9,230	131	335	44	34	202	202
3	1,550		470	442	6,705	7,450	98	530	44	34	335	202
4	1,550		470	375	6,705	6,705	50	2,870	37	34	375	202
5	1,550		470	422	6,460	6,460	15	2,140	44	34	470	375

[a] Observer absent; gage height assumed.
[b] Ice, March 15–31.
[c] Heavy rain.
[d] Ice, November 25 to December 31.
[e] March 1–4, gage height estimated.

Mean daily discharge, in second-feet, of South Platte River at Julesburg, Colo., etc.—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1905.												
6	1,830	.....	660	422	6,220	6,705	12	2,490	50	34	470	375
7	2,140	.....	530	1,300	5,980	6,950	11	1,985	50	34	470	375
8	2,140	.....	590	1,300	6,220	7,450	10	890	84	34	810	422
9	1,985	.....	660	1,300	6,220	10,010	10	730	44	34	470	470
10	1,830	.....	470	590	5,510	7,450	9	660	44	34	375	590
11	.....	.....	470	660	4,810	12,385	9	1,300	37	34	375	590
12	.....	.....	1,300	810	4,355	12,385	9	1,190	37	44	375	590
13	1,690	.....	422	810	4,810	7,450	470	985	37	60	470	590
14	1,690	.....	470	810	5,040	7,200	375	890	37	50	470	660
15	1,690	.....	1,300	1,300	5,040	5,275	295	470	37	60	375	730
16	1,690	.....	590	1,080	4,810	5,040	262	590	44	84	295	730
17	1,830	.....	1,300	1,300	4,355	4,130	375	660	50	60	262	590
18	2,410	.....	1,300	1,425	4,355	3,270	295	730	44	70	202	660
19	2,680	.....	730	1,080	4,580	2,870	335	810	44	84	230	730
20	3,480	.....	590	1,985	4,130	2,870	262	262	37	76	175	660
21	3,910	.....	470	1,830	4,810	2,315	230	202	37	84	202	810
22	.....	.....	375	1,690	4,810	1,080	470	175	37	98	175	730
23	.....	.....	422	1,830	4,810	30	422	114	37	98	162	730
24	.....	.....	422	5,040	5,040	22	375	70	34	84	202	660
25	.....	.....	375	3,690	5,040	27	335	50	34	84	202	470
26	.....	.....	375	3,270	7,450	30	230	44	34	84	202	590
27	.....	.....	375	5,040	7,450	27	202	37	34	114	202	590
28	.....	.....	375	4,580	8,460	27	175	37	34	131	202	730
29	.....	.....	375	5,510	8,970	27	202	37	34	131	202	730
30	.....	.....	295	5,510	8,970	24	262	40	44	131	202	730
31	.....	.....	442	.....	9,230	.....	230	40	.....	131	.....	810
1906.[a]												
1	.....	920	.....	1,200	210	77	48	21	21	50	1,430	.....
2	.....	920	.....	1,300	210	48	48	14	28	62	1,430	.....
3	.....	920	920	1,200	210	62	48	14	28	50	1,430	.....
4	.....	870	920	700	210	62	48	14	28	28	1,430	.....
5	.....	870	920	780	250	48	48	14	18	50	1,430	.....
6	.....	870	920	700	290	48	43	14	7	62	1,430	.....
7	.....	920	1,350	700	570	38	38	62	8	211	1,430	.....
8	.....	920	2,800	560	880	38	33	62	10	360	1,430	.....
9	.....	920	3,120	630	640	28	28	62	10	360	1,430	.....
10	.....	920	.....	630	640	38	38	42	10	360	1,430	.....
11	.....	920	2,650	630	640	28	48	21	29	360	1,200	.....
12	.....	1,350	.....	580	640	48	43	21	48	360	1,850	.....
13	.....	2,800	.....	1,800	530	38	38	21	43	360	1,850	.....
14	.....	.....	.....	650	410	77	50	24	38	360	1,850	.....
15	.....	.....	.....	580	310	28	62	28	38	360	1,850	.....
16	.....	.....	.....	460	260	28	50	28	38	360	1,850	.....
17	.....	.....	.....	580	170	28	38	28	38	315	.....	.....
18	.....	.....	.....	580	140	28	38	21	38	270	.....	.....
19	.....	.....	.....	650	115	28	38	14	38	315	.....	.....
20	.....	.....	.....	540	75	21	38	12	38	360	.....	.....
21	.....	.....	.....	480	50	14	38	10	38	360	.....	.....
22	.....	.....	.....	420	50	28	33	10	38	360	.....	.....
23	.....	.....	.....	420	100	62	28	10	43	780	.....	.....
24	.....	920	.....	420	120	48	28	10	48	1,200	.....	.....
25	.....	920	.....	420	200	48	28	10	43	1,600	.....	.....
26	.....	920	.....	420	370	48	33	10	38	2,000	.....	.....
27	.....	870	1,300	420	370	48	38	10	38	2,000	.....	.....
28	.....	870	1,730	210	320	48	33	10	38	2,000	.....	.....
29	.....	.....	1,300	210	165	48	28	10	38	2,000	.....	.....
30	.....	.....	1,300	210	115	48	28	12	38	2,000	.....	.....
31	.....	.....	1,300	.....	95	.....	28	14	.....	1,720	.....	.....

[a] Approximate.

Estimated monthly discharge of South Platte River at Julesburg, Colo., 1902–1906.

[Drainage area, 20,600 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.	
	Maximum.	Minimum	Mean.		Second-feet per square mile.	Depth in inches.
January.						
1905 [a]	3,910	1,420	2,018	76,000	.....	.....
February.						
1906 [b]	2,800	870	1,030	36,800	0.050	0.03
March.						
1904	360	15	57	3,500	.003	.003
1905	1,300	295	581	35,700	.028	.03
1906 [c]	3,120	920	1,580	40,700	.077	.04
April.						
1902	89	35	46	2,700	.002	.002
1903	1,270	3	445	26,500	.022	.02
1904	75	4	17.3	1,000	.001	.001
1905	5,510	375	1,903	113,200	.092	.10
1906	1,800	210	636	37,800	.031	.03
May.						
1902	52	23	37	2,300	.002	.002
1903	361	9	38	2,300	.002	.002
1904	465	35	96	5,900	.005	.005
1905	9,230	4,130	5,913	363,600	.287	.33
1906	880	50	302	18,600	.015	.02
June.						
1902	144	9	28	1,700	.001	.002
1903	42	9	14	833	.001	.001
1904	4,040	465	1,663	99,000	.081	.09
1905	12,380	24	4,804	285,800	.233	.26
1906	77	15	42.6	2,530	.0021	.002
July.						
1902	225	2	19	1,200	.001	.001
1903	9	1	3	184	.0001	.0002
1904	590	35	182	11,200	.009	.01
1905	470	9	199	12,200	.010	.01
1906	62	28	38.9	2,390	.0019	.002
August.						
1902	4	0	3	184	.0001	.0001
1903	1,070	1	130	8,000	.006	.007
1904	660	20	49	3,000	.002	.003
1905	2,870	37	695	42,700	.034	.04
1906	62	10	21.1	1,300	.0010	.001
September.						
1902	662	2	153	9,100	.007	.008
1903	22	9	15	893	.001	.001
1904	165	15	23.7	1,400	.001	.001
1905	84	34	41.8	2,500	.002	.002
1906	48	7	30.5	1,810	.0015	.002
October.						
1902	662	28	129	7,900	.006	.007
1903	22	9	16	984	.001	.001
1904	165	35	77	4,700	.004	.004
1905	131	34	69	4,200	.003	.004
1906	2,000	38	679	41,800	.033	.04
November.						
1902	75	28	37	2,200	.002	.002
1903 [d]	42	9	27	1,300	.....	.....
1904	270	35	109	6,500	.005	.006
1905	810	131	310	18,450	.015	.02
1906	1,850	1,200	1,550	49,200	.075	.04
December.						
1902 [e]	.....	.....	761	37,700	.037	.03
1904 [f]	360	140	263	7,800	.....	.....
1905	810	202	565	34,740	.027	.03

[a] 19 days in January.
[b] 18 days in February.
[c] 13 days in March.
[d] November 1 to 24.
[e] December 1 to 25.
[f] December 1 to 15.

SOUTH PLATTE RIVER AT BIG SPRING.

The station established at Big Spring, September 5, 1902, was abandoned November 21, 1903, as more reliable records could be obtained at Julesburg, Colo., 10 miles above.

Except during the winter months and flood periods there is no surface flow at this point. The bed at such times is a field of drifting sand, partly grown up with weeds. Gage heights were taken to the water surface obtained by digging in the sand at the gage.

The gage was of the wire and weight type and was attached to the upstream girder of the pile bridge near the left bank. The bench mark was a standard United States Geological Survey bench mark, 200 feet north of the Union Pacific depot; elevation, 5.15 feet above the zero of the gage, or 3,370 feet above sea level.

Discharge measurements of South Platte River at Big Spring, 1902–3.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1902.		*Feet.*	*Sec.-ft.*	1903.		*Feet.*	*Sec.-ft.*
September 5	J. C. Stevens	1.00	0	April 1	J. C. Stevens	2.85	1,299
September 23	H. O. Smith	1.65	173	May 9	do	1.98	20
				July 8	do	1.80	Pools.
				July 28	do	1.80	2
				August 20	do	1.96	10

Mean daily gage height, in feet, of South Platte River at Big Spring, 1902–3.

Day.	Sept.	Oct.	Nov.	Day.	Sept.	Oct.	Nov.	Day.	Sept.	Oct.	Nov.
1902.				1902.				1902.			
1	.....	1.80	1.45	12	1.00	1.35	1.35	23	1.65	1.35	1.30
2	.....	1.80	1.45	13	1.00	1.35	1.30	24	1.50	1.25	1.30
3	.....	1.80	1.45	14	1.00	1.35	1.30	25	2.00	1.25	1.30
4	.....	1.80	1.45	15	1.00	1.30	1.30	26	2.40	1.20	1.35
5	1.00	1.60	1.40	16	1.00	1.35	1.30	27	2.15	1.25	1.35
6	1.05	1.60	1.30	17	1.10	1.35	1.30	28	1.90	1.25	1.30
7	1.00	1.60	1.25	18	1.10	1.25	1.30	29	1.80	1.25	1.45
8	1.00	1.50	1.25	19	1.15	1.25	1.30	30	1.80	1.25	.....
9	1.00	1.50	1.25	20	1.20	1.25	1.35	31	.....	1.35	.....
10	1.00	1.50	1.25	21	Pools.	1.20	1.30				
11	1.00	1.35	1.25	22	2.00	1.30	1.30				

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1903.									
1	.....	2.90	2.00	2.00	1.80	1.85	1.90	2.00	2.12
2	.....	2.95	2.00	2.00	1.75	1.85	1.85	2.00	2.15
3	3.75	2.65	2.00	2.00	1.85	1.80	1.85	2.00	.....
4	.....	2.65	2.00	2.00	1.85	1.75	1.85	2.05	2.15
5	.....	2.75	2.00	2.05	1.80	1.75	1.90	2.05	2.12
6	.....	2.60	2.00	2.00	1.75	1.70	1.90	2.10	2.12
7	.....	2.65	2.00	.....	1.85	1.70	1.90	2.05	2.12
8	.....	2.65	1.95	.....	1.80	1.75	1.90	2.00	2.11
9	.....	2.60	2.00	1.90	1.75	1.75	1.90	2.05	2.10
10	4.00	2.50	2.05	1.85	1.85	1.75	1.90	2.05	2.10
11	3.90	2.40	2.00	1.80	1.80	1.80	.....	2.05	2.15
12	3.90	2.40	2.00	1.80	1.80	1.80	1.90	2.10	2.10
13	3.75	2.40	1.75	1.80	1.80	1.75	1.90	2.10	2.12
14	3.55	2.00	1.80	1.80	1.90	1.75	1.90	2.13	2.13
15	3.25	2.30	1.75	1.80	1.80	1.70	1.90	2.11	2.10

Mean daily gage height, in feet, of South Platte River at Big Spring, 1902–3—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1903.									
16	3.25	2.00	1.75	1.80	1.80	1.85	1.90	2.10	2.10
17	2.80	2.00	1.80	1.80	1.80	2.45	1.90	2.10	.....
18	2.60	2.00	1.80	1.80	1.80	2.25	1.95	2.11	2.10
19	2.25	2.00	1.90	1.90	1.80	2.00	1.90	2.10	2.10
20	2.25	2.00	1.95	1.90	1.75	1.93	1.90	2.10	2.10
21	2.20	2.00	1.90	1.90	.....	1.85	.....	2.10	2.23
22	2.20	2.00	1.95	1.95	1.80	1.85	1.95	2.08	.....
23	2.20	2.00	1.95	1.95	1.80	2.25	1.95	2.07	.....
24	2.15	2.00	2.00	1.95	1.75	2.05	1.95	2.07	.....
25	2.15	2.75	2.00	1.90	1.75	2.00	1.95	2.11	.....
26	2.25	2.00	1.95	1.85	1.75	2.00	1.95	2.11	.....
27	2.20	2.00	1.95	1.85	1.80	2.13	1.95	2.15	.....
28	2.15	2.00	1.90	1.80	1.75	2.00	2.00	2.15	.....
29	2.20	3.20	2.00	1.80	1.75	2.00	2.00	2.16	.....
30	2.15	3.10	2.00	1.80	1.80	1.95	2.00	2.12	.....
31	2.15	.....	.....	.....	1.90	1.95	.....	2.12	.....

Mean daily discharge, in second-feet, of South Platte River at Big Spring, 1903.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1	.....	1,380	20	20	.....	0	5	20	70
2	.....	1,470	20	20	.....	0	0	20	110
3	.....	930	20	20	0	.....	0	20	.....
4	.....	930	20	20	0	.....	0	40	110
5	.....	1,110	20	40	.....	.....	5	40	70
6	.....	840	20	20	.....	.....	5	70	70
7	.....	930	20	.....	0	.....	5	40	70
8	.....	930	10	.....	.....	.....	5	20	70
9	.....	840	20	5	.....	.....	5	40	70
10	.....	660	40	0	0	.....	5	40	70
11	.....	480	20	.....	.....	.....	.....	40	110
12	.....	480	20	.....	.....	.....	5	70	70
13	.....	480	0	.....	.....	.....	5	70	70
14	.....	20	0	.....	5	.....	5	110	110
15	.....	310	0	.....	.....	.....	5	70	70
16	.....	20	0	.....	.....	0	5	70	70
17	1,200	20	0	.....	.....	570	5	70	.....
18	840	20	0	.....	.....	230	10	70	70
19	230	20	5	5	.....	20	5	70	70
20	230	20	10	5	.....	10	5	70	70
21	160	20	5	5	.....	0	.....	70	230
22	160	20	10	10	.....	0	10	70	.....
23	160	20	10	10	.....	230	10	40	.....
24	110	20	20	10	.....	40	10	40	.....
25	110	1,110	20	5	.....	20	10	70	.....
26	230	20	10	0	.....	20	10	70	.....
27	160	20	10	0	.....	110	10	110	.....
28	110	20	5	.....	.....	20	20	110	.....
29	160	1,920	20	.....	.....	20	20	110	.....
30	110	1,740	20	.....	.....	10	20	70	.....
31	110	.....	.....	.....	5	10	.....	70	.....

LOUP RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

The Loup and its tributaries, as a system, form the most important feeders of the Platte and merit special description.

The stream is formed by three main branches, the North, Middle, and South Loup, which drain a broad area comprising 13,540 square miles, lying in the heart of Nebraska. In a former geologic age the three streams emptied into the Platte as separate and distinct tributaries; later the Platte, while building its bed, obstructed the flow of these streams by throwing sand across their mouths, forcing them to shift their channels eastward and down the Platte Valley until they united.

The Loup proper is formed by the junction of the North and Middle Loup near the city of St. Paul, the Middle Loup receiving the South Loup above this junction. The principal tributaries are Beaver, Cedar, Calamus, and Dismal rivers.

The drainage area as a whole is generally rolling, with scattered high plains or table-lands. The immediate valleys are composed of alluvial deposits of loam, sand, and gravel. Beyond the valleys the area is composed of yellow clays and fine sandy loam in the lower portions; in the upper portions sand hills abound. The soil is generally fertile, and large quantities of hay, grains, etc., are grown.

The streams are subject to a succession of floods during the spring and early summer, caused by melting snows and heavy rainfall during the spring months. As a large part of the area is grass grown, the evaporation is considerable, averaging 5 feet.

The North and Middle Loup drain an area of sand hills in which there are numerous lakes ranging in size from small ponds to lakes several square miles in area. Among them may be mentioned Stevenson Lake, Moon Lake, Pelican Lake, and Soda Lake. The region abounds in springs caused by the percolation of the precipitation through the sandy soil to the impervious clays below. This fact, no doubt, accounts for the remarkable constancy of flow of these streams. A comparatively small amount of the water is diverted for irrigation, the ditches generally being small and covering moderate areas. A number of power plants are in operation, and some others of considerable extent have been proposed, particularly one near Columbus by which it is believed that about 20,000 continuous horsepower may be developed. The gaging stations that have been maintained on these rivers are listed on page 35.

LOUP RIVER AT COLUMBUS.

The station at Columbus was established October 13, 1894. It is about 75 yards above the Union Pacific Railroad bridge and about 6 miles above the mouth of the river, in sec. 23, T. 17 N., R. 1 W., and is shown on the David City topographic atlas sheet.

The river is straight for about 1,000 feet above and a considerable distance below the cable section. The bed consists entirely of shifting sand. The left bank is high; the right is low and overflows at high water. There is but one channel at all stages. At the cable section the channel is free from obstructions, but owing to the swiftness of the water over the shifting sand the velocity of the current varies within wide limits, and hence it has been impossible to develop good rating curves. (See pp. 10–15.) At the lower gaging section the water runs mostly in a deep channel near the right bank and is obstructed by the piling of an old bridge a short distance below the existing highway bridge. Gage heights vary from 3 to 12 feet, excessive floods being very rare. The high gage heights are usually caused by ice gorges. Fairly successful attempts have been made to obtain records of winter flow, measurements being made through holes cut in the ice.

Discharge measurements are made from a cable having a span of about 600 feet and marked at intervals of 12½ feet. Some trouble has been experienced on account of the ice damages to the cable. When the cable was not in repair, measurements were made from the highway bridge, although the conditions there are not favorable for good results. Some of the estimates given are revisions of estimates heretofore published. The indirect method at best is only one of approximation, and where the results obtained by its use were inconsistent with actual gagings a slightly different method of interpolation between these gagings has been used.

Two gages have been maintained. One is a vertical staff spiked to piling at the cable; the other is a standard weight and chain gage at the highway bridge 1½ miles below the cable. The two gages were set to read the same height, but this relation has not been stable. The upper gage was used for daily observations from October 13, 1894, to June 24, 1904; since the later date the lower one has been used. The gages are referred to bench marks as follows: (1) A standard United States Geological Survey bench mark, 72 feet east of the upper gage; elevation, 21.83 feet above the zero of the lower gage and 13.27 feet above the zero of the upper gage. (2) A cross cut on the upstream end of the cap of the first bent at the north end of the highway-bridge approach; elevation, 10.91 feet above the zero of the lower gage.

Discharge measurements of Loup River at Columbus, 1895–1906.

Date.	Hydrographer.	Gage height.	Discharge.
1895.		*Feet.*	*Sec.-ft.*
March 29	O. V. P. Stout	4.77	2,790
April 21	do	4.65	2,303
June 12	do	4.55	2,835
June 29	do	4.50	2,715
September 7	do	4.17	1,896
1896.			
March 15	do	3.88	1,550
May 3	Wm. Grant	5.12	4,256
June 4	O. V. P. Stout	4.76	3,222
June 24	do	4.10	3,206
July 22	E. T. Youngfelt	3.91	2,420
August 28	do	3.75	2,234
September 25	do	4.09	2,370
1897.			
March 19	Adna Dobson	5.22	6,307
March 23	do	4.85	3,869
April 27	do	4.53	2,972
April 27	do	4.53	3,103
May 25	do	4.77	2,572
May 25	do	4.77	2,410
June 17	O. V. P. Stout	4.72	2,818
July 16	do	4.01	2,513
July 29	do	3.87	1,660
August 17	do	4.27	1,783
August 29	do	4.21	1,436
October 7	Adna Dobson	4.19	1,926
October 30	do	4.70	4,580
November 21	do	4.40	3,006
1898.			
April 17	Glenn E. Smith	4.80	2,730
May 8	do	5.15	3,231
May 19	do	5.20	3,542
May 29	do	5.05	3,337
June 8	do	5.50	5,181
June 19	O. V. P. Stout	5.03	3,284
July 10	Glenn E. Smith	4.60	1,900
July 22	do	4.40	1,691
July 31	do	4.15	1,560
August 21	Adna Dobson	4.65	2,542
September 4	do	4.20	1,389
September 17	do	4.81	2,448
September 25	do	4.59	2,117
October 16	do	4.76	2,380
October 30	do	4.80	2,519
November 11	Glenn E. Smith	4.94	Ice.
November 20	do	4.90	2,862
1899.			
January 22	do	Frozen	2,726
April 9	do	4.95	3,004
April 23	do	5.00	2,699
May 7	do	5.05	3,057
May 23	do	5.54	4,073
June 4	do	4.86	2,628
June 18	do	4.75	1,921
June 29	do	5.80	7,728
July 9	do	5.40	3,435
July 23	do	4.25	1,792
August 6	do	4.93	3,251
August 20	do	4.61	2,267
September 3	do	4.40	1,902
September 17	do	4.40	1,840
October 5	do	4.60	2,402
October 15	do	4.80	1,983
1900.			
April 8	Adna Dobson	4.69	2,365
April 29	do	5.20	4,455
May 13	do	4.68	2,771
May 27	do	4.67	2,508
June 10	do	4.53	2,161
June 20	O. V. P. Stout	4.02	2,491
July 15	Adna Dobson	3.93	1,705
July 29	do	4.38	1,322
August 12	do	4.44	1,935
August 26	do	4.40	2,582
September 16	do	5.00	3,077
October 7	Adna Dobson	4.55	2,294
October 31	do	4.86	3,246
November 30	do	4.53	3,542
December 19	do	4.44	2,674
1901.			
March 31	do	4.65	3,134
April 21	do	4.85	3,242
May 10	do	4.85	2,615
June 7	do	4.70	2,023
June 18	do	5.80	4,061
July 14	O. V. P. Stout	3.97	1,211
August 11	do	4.52	1,710
October 6	Frank Dobson	4.65	2,354
November 2	do	5.30	3,294
December 1	do	4.55	2,579
1902.			
March 8	do	5.79	6,826
April 13	do	4.76	2,532
May 11	do	4.81	2,206
May 22	J. C. Stevens	5.56	4,039
June 1	do	4.85	2,585
July 11	do	5.59	6,586
August 10	do	6.10	7,685
August 26	do	5.55	6,901
September 11	do	4.48	2,514
October 5	do	5.05	3,156
1903.			
March 20	do	5.10	6,074
April 3	do	5.00	3,905
May 7	do	5.10	3,409
June 11	do	5.12	3,432
June 27	do	5.05	2,799
July 10	do	4.67	3,022
July 17	do	5.56	5,022
August 1	do	6.78	14,580
August 18	do	5.13	4,177
September 19	do	4.49	2,644
September 29	do	4.40	2,328
October 30	do	4.61	2,607
December 20	do	6.50	2,280
1904.			
March 25	do	4.75	3,099
May 8	do	5.31	3,483
June 18	do	4.85	3,442
June 25	do	5.46	4,630
July 29	do	4.82	3,376
July 29	do	4.82	2,896
July 31	do	4.77	2,778
July 31	do	4.80	2,826
July 31	do	4.80	2,492
July 31	do	4.80	2,734
July 31	do	4.77	2,723
July 31	do	4.77	2,737
September 2	O. H. Timmerman.	5.01	2,880
1905.			
March 17	H. C. Gardner	4.40	4,659
May 4	do	4.55	4,982
May 16	do	5.90	12,890
June 21	do	4.65	5,316
July 8	do	5.30	9,263
July 14	do	4.80	4,126
August 12	do	4.20	5,089
September 27	F. S. Dobson	4.03	3,153
October 13	do	4.18	4,113
1906.			
February 23	do	5.95	11,290
March 30	Geo. W. Bates	5.60	7,619
May 3	do	5.84	9,321
June 8	Arthur Dobson	4.39	2,755
July 13	do	4.25	2,248
August 28	do	4.65	2,813
September 29	do	4.49	2,686
October 27	do	4.63	3,758
November 24	do	4.70	2,751

Mean daily discharge, in second-feet, of Loup River at Columbus, 1895–1906.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1895.									
1	.....	3,070	2,840	4,330	2,822	1,525	3,011	2,239	2,562
2	.....	3,000	4,360	4,000	2,849	1,546	2,875	2,144	2,613
3	.....	2,670	4,420	9,080	2,613	1,546	2,410	2,004	2,664
4	.....	2,660	3,590	7,190	2,562	4,104	2,191	1,913	2,822
5	.....	2,700	3,290	5,580	2,588	1,588	2,191	2,312	2,928
6	.....	2,520	3,180	4,775	2,562	2,264	1,957	2,288	2,822
7	.....	2,675	2,930	3,800	2,434	1,957	1,913	2,433	2,875
8	.....	3,675	2,850	3,420	2,240	1,891	1,935	2,337	2,955
9	.....	3,450	2,750	3,010	2,288	1,846	2,027	2,288	3,011
10	.....	3,320	2,675	2,780	2,027	2,074	1,913	2,433	3,011
11	.....	3,150	2,690	2,900	2,074	2,562	1,891	2,488	3,067
12	.....	2,950	2,800	2,835	2,051	2,408	1,758	2,434	3,132
13	.....	2,780	2,740	3,176	1,980	1,891	1,736	2,485	3,178
14	.....	2,840	2,700	3,384	2,361	1,980	1,673	2,485	3,292
15	.....	2,625	2,600	2,205	2,562	2,743	1,736	2,562	3,378
16	.....	2,650	2,620	2,822	2,337	2,796	1,715	2,690	3,523
17	.....	2,875	2,710	3,205	2,191	2,280	1,957	2,536	3,643
18	.....	2,890	2,770	4,264	2,074	2,288	2,074	2,460	3,378
19	.....	2,725	2,820	4,296	2,004	2,191	2,121	2,485	3,095
20	.....	2,650	2,830	3,350	1,980	2,240	2,121	2,536	2,928
21	.....	2,303	2,730	3,039	1,824	2,191	2,822	2,485	2,822
22	.....	2,400	2,820	2,562	1,736	2,097	3,793	2,562	2,875
23	.....	2,500	2,850	3,011	1,758	2,434	3,465	2,113	2,690
24	.....	2,520	2,800	2,850	1,846	2,743	4,264	2,636	.....
25	.....	2,450	2,880	2,337	1,957	2,902	4,995	2,390	.....
26	.....	2,440	2,740	2,361	1,935	2,664	2,849	2,690	.....
27	.....	2,440	2,750	2,337	2,004	2,264	2,536	2,613	.....
28	.....	2,490	2,750	2,588	1,588	2,536	2,337	2,511	.....
29	.....	2,640	2,650	2,562	1,567	2,460	2,239	2,434	.....
30	.....	2,550	3,350	2,690	1,523	2,313	2,312	2,536	.....
31	.....	.....	3,470	.....	1,446	2,613	.....	3,613	.....
1896.									
1	.....	3,205	4,807	2,694	2,817	3,100	2,063	2,402	.....
2	.....	3,558	4,220	3,126	2,694	3,203	2,150	2,380	.....
3	.....	3,205	4,220	3,153	2,832	3,258	2,264	2,287	.....
4	.....	2,945	3,897	3,205	2,792	3,258	2,455	2,287	.....
5	.....	3,126	3,312	3,613	2,670	3,021	2,430	2,240	.....
6	.....	3,048	3,390	.....	2,597	2,868	2,287	2,287	.....
7	.....	3,126	3,048	.....	2,500	3,811	2,170	2,358	.....
8	.....	3,205	2,768	8,000	2,572	3,338	2,063	2,477	.....
9	.....	3,338	2,694	3,441	2,768	2,668	2,063	2,548	.....
10	.....	3,393	2,743	3,073	2,621	2,620	2,170	2,548	.....
11	.....	3,365	2,867	1,991	3,670	2,620	2,287	2,694	.....
12	.....	4,430	2,621	2,203	3,258	2,384	2,572	2,817	.....
13	.....	6,950	2,728	2,063	3,048	2,429	2,694	2,817	.....
14	.....	5,795	2,892	2,086	2,892	2,482	2,867	2,768	.....
15	.....	4,650	2,645	2,106	2,525	2,429	2,968	2,832	.....
16	.....	3,725	3,022	2,180	2,334	2,382	2,968	2,743	.....
17	.....	4,160	3,022	2,106	2,334	2,288	2,832	2,645	.....
18	.....	4,650	2,945	1,991	2,310	2,382	2,694	2,645	.....
19	.....	7,018	2,892	1,928	2,406	2,406	2,548	2,621	.....
20	.....	5,938	2,892	2,406	2,406	2,454	2,597	2,597	.....
21	.....	5,157	2,832	2,867	2,455	2,502	2,645	2,817	.....
22	.....	4,017	2,670	3,338	2,420	2,454	2,670	2,918	.....
23	.....	5,032	2,621	3,725	2,482	2,596	2,728	2,945	.....
24	.....	5,060	2,455	3,258	2,482	2,596	2,524	3,022	.....
25	.....	3,205	2,358	4,160	2,596	2,502	2,370	2,945	.....
26	.....	3,126	2,310	4,494	2,727	2,358	2,334	2,968	.....
27	.....	3,100	2,621	3,021	2,945	2,288	2,370	3,022	.....
28	.....	5,326	2,645	2,743	2,970	2,264	2,406	2,832	.....
29	.....	3,613	2,867	2,670	2,970	2,264	2,310	3,022	.....
30	.....	1,970	2,917	2,621	2,970	2,180	2,287	3,585	.....
31	.....	.....	2,621	.....	3,021	2,106	.....	3,613	.....
1897.									
1	.....	.....	2,750	1,975	11,825	1,600	1,350	1,600	.....
2	.....	.....	2,675	1,800	5,350	1,450	1,275	1,650	.....
3	.....	7,125	2,850	1,800	3,525	1,350	1,175	1,675	.....
4	.....	.....	2,850	2,675	3,300	1,275	1,175	1,675	.....
5	.....	.....	2,850	2,350	3,050	1,675	1,050	1,750	.....

Mean daily discharge, in second-feet, of Loup River at Columbus, 1895–1906—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1897.									
6	.....	.....	2,800	2,675	2,975	2,500	1,075	1,800	.....
7	.....	.....	2,750	2,500	2,025	2,225	1,150	1,900	.....
8	.....	3,950	2,775	2,500	1,750	2,400	1,000	1,925	.....
9	.....	3,650	2,775	2,500	1,650	3,025	1,075	1,975	.....
10	.....	3,450	2,875	2,425	1,850	3,050	1,350	2,075	.....
11	.....	3,075	2,675	2,425	2,075	3,275	1,525	2,350	.....
12	.....	2.775	2,675	2,600	2,375	2,725	1,625	2,725	.....
13	.....	3,825	2,575	2,800	2,300	2,500	1,650	2,825	.....
14	.....	4,100	2,525	2,775	2,225	2,375	1,625	2,850	.....
15	.....	3,625	2,525	2,850	2,975	2,125	1,625	2,950	.....
16	.....	3,500	2,500	2,850	2,650	1,950	1,550	3,125	.....
17	.....	3,675	2,425	2,850	2,050	1,800	1,700	3,375	.....
18	.....	4,075	2,375	2,775	2,050	1,600	1,550	4,700	.....
19	.....	3,250	2,350	3,150	1,850	1,500	1,475	4,800	.....
20	.....	3,225	2,225	3,000	2,250	1,450	1,450	4,375	.....
21	.....	3,275	2,250	2,575	2,325	1,425	1,425	4,325	.....
22	.....	3,950	2,300	2,350	2,150	1,275	1,450	4,250	.....
23	.....	3,800	2,500	2,200	2,075	1,325	1,475	4,200	.....
24	.....	3,575	2,575	2,175	2,050	1,300	1,550	4,500	.....
25	.....	3,550	2,000	2,275	1,975	1,275	1,600	4,250	.....
26	.....	3,375	2,225	2,525	1,975	1,325	1,625	4,200	.....
27	.....	3,050	2,100	9,550	1,850	1,200	1,600	4,800	.....
28	.....	2,725	2,300	4,000	1,650	1,100	1,550	10,400	.....
29	.....	2,675	2,175	3,600	1,625	1,275	1,550	4,875	.....
30	.....	3,040	2,025	4,250	1,600	1,300	1,550	4,750	.....
31	.....	.....	1,850	.....	1,725	1,425	.....	.....	.....
1898.									
1	.....	2,130	2,425	3,375	2,025	1,650	1,800	2,025	2,800
2	.....	2,730	2,425	3,300	2,025	1,725	1,715	2,075	2,675
3	.....	2,700	2,550	3,525	1,925	1,820	1,620	2,080	2,550
4	.....	2,730	3,075	3,900	1,975	2,600	1,600	2,225	2,450
5	.....	2,800	3,775	5,600	2,425	3,450	1,575	2,175	2,450
6	.....	2,850	3,625	6,675	2,530	1,725	1,520	2,200	2,550
7	.....	2,960	3,530	5,750	2,400	4,720	1,500	2,225	2,550
8	.....	2,850	3,400	5,600	2,400	3,500	1,500	2,200	2,675
9	.....	2,700	3,300	5,375	2,200	3,175	1,460	2,325	2,800
10	.....	2,820	3,175	5,000	2,025	2,900	1,600	2,375	2,800
11	.....	2,800	3,350	4,600	2,075	2,725	1,620	2,600	2,900
12	.....	2,960	3,425	4,325	2,050	2,625	1,700	2,900	2,825
13	.....	2,860	3,282	4,450	2,000	2,550	2,470	2,725	.....
14	.....	3,520	3,050	4,550	2,100	2,460	2,950	2,500	.....
15	.....	3,375	2,700	4,600	2,100	2,440	2,730	2,425	.....
16	.....	3,125	2,800	4,450	2,050	2,475	2,650	2,400	.....
17	.....	2,820	2,850	4,400	2,025	2,675	2,700	2,425	.....
18	.....	2,675	3,375	4,050	1,865	3,050	2,490	2,450	.....
19	.....	3,150	3,175	4,050	1,780	2,950	2,490	2,650	.....
20	.....	3,050	3,500	4,100	1,700	2,675	2,350	2,800	.....
21	.....	3,150	4,150	4,325	1,725	2,550	2,200	2,650	.....
22	.....	2,550	4,250	4,550	1,700	2,600	1,870	2,550	.....
23	.....	2,425	4,400	4,100	1,825	2,530	1,700	2,525	.....
24	.....	2,400	5,100	3,025	1,650	2,500	1,925	2,425	.....
25	.....	2,520	4,200	2,425	1,820	2,490	2,080	2,775	.....
26	.....	2,775	4,975	2,275	1,630	2,490	2,080	2,525	.....
27	.....	2,630	4,450	2,175	1,680	2,490	2,080	2,725	.....
28	.....	2,600	4,150	2,120	1,680	2,300	2,075	2,725	.....
29	.....	2,650	3,525	2,000	1,700	2,050	2,025	2,650	.....
30	.....	2,500	3,550	2,100	1,750	1,950	2,025	2,550	.....
31	.....	.....	3,250	.....	1,680	1,850	.....	2,900	.....
1899.									
1	.....	.....	3,586	.....	6,289	1,805	2,793	1,933	.....
2	.....	4,251	2,694	2,945	.....	1,702	2,945	1,933	.....
3	.....	4,871	1,911	.....	6,984	1,581	2,819	1,954	.....
4	.....	5,526	2,152	2,646	.....	1,682	2,819	1,954	.....
5	.....	5,195	2,646	.....	5,459	2,312	2,573	1,945	.....
6	.....	3,127	2,768	4,043	.....	3,258	2,335	1,911	.....
7	.....	2,869	3,047	.....	4,191	3,153	2,220	1,890	.....
8	.....	3,127	2,793	.....	.....	2,894	2,085	1,825	.....
9	.....	2,995	3,312	.....	.....	2,995	2,793	1,764	.....
10	.....	2,869	2,894	.....	1,188	2,869	2,549	1,682	.....

Mean daily discharge, in second-feet, of Loup River at Columbus, 1895–1906—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1899.									
11	.....	3,100	2,743	3,727	.....	2,597	2,312	1,581	.....
12	.....	2,819	2,359	.....	1,000	2,970	2,085	1,445	.....
13	.....	2,549	2,453	.....	1,000	1,484	1,975	1,315	.....
14	.....	2,768	2,694	.....	1,000	1,278	1,847	1,581	.....
15	.....	3,258	3,530	.....	1,082	2,063	1,847	1,954	.....
16	.....	3,476	3,100	2,040	1,014	1,445	1,847	1,784	.....
17	.....	3,285	3,049	.....	1,315	1,825	1,847	1,954	.....
18	.....	3,100	2,549	1,804	1,334	1,868	1,847	1,911	.....
19	.....	2,793	2,646	.....	1,135	2,018	1,868	1,764	.....
20	.....	2,500	2,768	.....	1,170	2,265	1,868	1,620	.....
21	.....	2,476	3,670	2,743	1,260	2,719	1,868	1,682	.....
22	.....	2,453	4,871	.....	1,465	2,476	1,868	2,175	.....
23	.....	2,694	4,072	.....	1,784	2,622	1,890	2,018	.....
24	.....	2,453	3,699	3,985	1,682	2,743	1,890	2,085	.....
25	.....	2,336	.....	.....	1,702	2,768	1,890	2,040	.....
26	.....	2,476	.....	7,287	1,661	2,743	1,910	2,108	.....
27	.....	2,743	.....	.....	1,661	2,793	1,911	2,153	.....
28	.....	3,811	.....	7,713	1,682	2,768	1,911	2,085	.....
29	.....	4,131	3,869	.....	1,702	2,524	1,911	2,242	.....
30	.....	5,064	.....	.....	2,265	2,312	1,933	2,500	.....
31	.....	.....	.....	.....	2,040	2,549	.....	2,524	.....
1900.									
1	.....	2,380	4,130	2,920	2,320	2,230	2,575	2,900	2,875
2	.....	2,380	3,811	2,549	3,860	2,300	2,610	2,930	2,790
3	.....	2,380	3,642	2,085	2,460	2,090	2,650	3,010	2,650
4	.....	2,380	3,670	2,920	4,235	2,075	2,500	3,050	2,390
5	.....	2,380	3,699	2,970	3,410	2,075	2,600	3,100	2,400
6	.....	2,380	3,586	2,844	5,380	2,125	2,490	3,150	2,350
7	.....	2,380	3,670	2,670	3,860	1,610	2,440	3,300	2,300
8	.....	2,406	4,650	2,430	4,300	1,800	2,450	3,300	2,375
9	.....	2,430	4,557	2,197	4,550	3,175	2,400	3,352	2,450
10	.....	2,548	3,670	2,154	3,615	3,350	2,375	3,400	2,550
11	.....	2,546	3,503	3,375	3,490	3,050	7,600	3,350	2,750
12	.....	2,597	3,476	3,450	3,050	2,800	4,600	3,300	2,820
13	.....	2,894	5,729	3,535	2,900	2,900	5,510	3,250	2,975
14	.....	2,945	4,161	3,650	2,490	2,850	6,090	3,240	2,900
15	.....	2,945	3,985	4,060	2,370	3,419	5,510	3,175	2,940
16	.....	3,048	3,699	4,350	3,200	6,290	4,000	3,125	2,870
17	.....	3,153	3,614	14,300	4,150	6,700	3,150	3,020	3,150
18	.....	3,232	3,558	6,650	4,210	7,480	2,650	2,975	.....
19	.....	3,367	3,563	5,615	3,740	6,200	2,680	3,020	.....
20	.....	3,670	3,340	3,075	3,120	3,300	5,510	3,100	.....
21	.....	4,588	2,793	2,985	2,820	3,220	2,710	3,100	.....
22	.....	4,619	2,719	3,355	2,800	3,200	2,790	3,200	.....
23	.....	4,650	2,670	2,700	2,700	3,100	2,850	3,200	.....
24	.....	4,744	2,646	2,715	3,900	3,220	2,820	3,300	.....
25	.....	4,619	2,382	2,575	4,030	3,710	2,850	3,400	.....
26	.....	4,619	2,476	2,690	3,775	3,950	2,870	3,500	.....
27	.....	4,619	3,073	2,575	2,150	4,310	2,930	3,600	.....
28	.....	4,619	2,814	2,520	2,350	4,230	2,900	3,700	.....
29	.....	4,464	2,869	2,500	2,000	3,750	2,930	3,675	.....
30	.....	4,464	2,573	2,390	1,980	3,200	2,790	3,175	.....
31	.....	.....	10,550	.....	2,000	2,955	.....	3,020	.....
1901.									
1	.....	2,694	2,549	1,847	3,048	1,206	1,763	2,220	2,335
2	.....	2,646	2,500	1,825	2,970	1,082	1,763	2,336	3,294
3	.....	2,670	2,453	1,825	2,743	1,064	1,784	2,360	3,367
4	.....	2,919	2,406	2,018	2,793	1,047	1,932	2,358	3,126
5	.....	3,153	2,359	2,243	2,844	1,031	2,220	2,354	2,818
6	.....	3,394	2,573	2,023	2,406	1,064	2,453	2,324	2,670
7	.....	2,719	2,548	2,023	1,890	1,047	2,720	2,354	2,452
8	.....	2,597	2,621	2,023	1,784	1,031	2,844	2,336	2,242
9	.....	2,573	2,743	2,023	1,661	1,000	2,844	2,430	1,825
10	.....	2,819	2,615	1,975	1,523	1,000	3,258	2,647	1,743
11	.....	3,048	2,500	1,763	1,389	1,710	3,258	2,622	1,763
12	.....	3,285	2,476	1,743	1,426	1,484	4,251	2,600	1,800
13	.....	3,840	2,476	1,743	1,445	1,291	4,588	2,574	1,840
14	.....	4,101	2,243	1,723	1,211	1,582	4,744	2,550	1,997
15	.....	4,402	2,220	1,723	1,170	1,484	4,744	2,524	1,932

Mean daily discharge, in second-feet, of Loup River at Columbus, 1895–1906—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1901.									
16	.....	4,681	2,197	7,097	1,241	1,484	4,776	2,382	1,974
17	.....	4,342	1,975	7,097	1,223	1,484	4,161	2,242	2,017
18	.....	3,754	1,975	4,861	1,206	1,381	3,868	2,200	2,059
19	.....	3,727	1,954	5,195	1,188	1,311	3,339	2,062	2,101
20	.....	3,699	2,062	5,526	1,260	1,260	2,359	2,019	2,152
21	.....	3,242	2,152	5,902	1,911	1,260	2,359	1,975	2,196
22	.....	3,258	2,383	5,729	1,681	1,260	2,483	1,953	2,240
23	.....	3,100	2,243	5,593	1,485	1,323	2,483	1,921	2,285
24	2,995	3,048	2,359	5,293	1,260	1,523	2,406	1,898	2,332
25	2,995	2,768	2,476	4,681	1,064	2,152	2,172	1,997	2,382
26	2,995	3,258	2,573	4,402	1,000	1,825	1,975	1,997	2,429
27	2,743	2,719	2,573	3,985	1,000	1,794	1,975	1,975	2,477
28	2,743	3,179	2,312	3,783	1,014	1,640	1,975	1,953	2,646
29	2,743	3,153	2,312	3,232	1,000	1,640	1,975	1,930	2,696
30	2,621	2,844	2,063	3,126	1,153	1,640	2,106	2,040	2,869
31	3,134	.....	1,847	.....	1,315	1,640	.....	2,359	.....
1902.									
1	.....	2,382	2,298	2,585	7,363	3,530	6,040	3,152	2,477
2	.....	2,243	2,298	2,869	9,936	3,258	5,000	3,126	2,500
3	.....	2,130	2,265	3,047	10,895	2,970	3,476	3,100	2,500
4	.....	1,976	2,382	4,151	7,910	2,970	3,224	3,048	2,622
5	.....	2,175	2,500	5,425	7,990	2,695	2,995	2,819	2,622
6	.....	2,646	2,743	5,763	7,871	2,695	2,671	2,869	2,622
7	.....	2,382	2,970	5,936	8,152	2,573	2,743	2,869	2,743
8	6,826	2,382	2,719	3,047	7,830	2,463	2,406	2,743	2,869
9	6,760	2,382	2,573	2,793	7,517	4,043	2,382	2,500	2,869
10	4,101	2,382	2,464	2,585	9,892	1,685	2,335	2,500	2,869
11	3,232	2,359	2,203	2,359	6,586	3,698	2,514	2,995	2,500
12	2,945	2,405	2,203	2,265	5,326	3,125	2,382	4,712	2,265
13	3,178	2,532	2,382	2,298	4,526	3,100	2,265	4,402	2,155
14	3,355	2,405	2,824	2,211	5,146	3,073	2,220	4,101	2,155
15	3,285	2,405	3,367	2,265	5,277	3,073	2,063	3,811	2,155
16	3,258	2,265	3,367	2,500	4,712	3,125	1,911	3,530	2,040
17	2,995	2,265	3,340	2,479	4,657	3,203	1,693	3,250	2,155
18	2,970	2,265	4,493	2,500	4,712	4,402	2,062	2,995	2,265
19	2,660	2,243	5,129	3,421	4,691	6,255	2,265	2,743	2,383
20	2,621	2,221	5,763	4,650	4,372	6,183	2,597	2,743	2,500
21	2,645	2,221	7,443	3,503	4,043	6,255	2,909	2,743	2,500
22	2,645	2,311	4,039	3,394	3,727	6,005	5,867	2,743	2,500
23	2,693	2,358	3,869	2,768	3,558	6,075	6,909	2,743	2,525
24	2,719	2,334	3,755	3,047	3,394	5,867	3,586	2,743	2,622
25	2,945	2,311	3,503	2,824	3,690	6,724	3,530	2,743	2,622
26	3,152	2,464	4,372	2,621	3,718	6,901	3,530	2,743	2,622
27	3,285	3,206	2,695	3,179	3,586	6,541	4,402	2,743	2,622
28	3,312	3,047	2,597	3,258	3,727	6,614	3,783	2,522	2,622
29	3,366	2,793	2,500	3,840	3,699	6,901	3,476	2,622	2,622
30	2,793	2,793	2,429	3,927	3,699	6,725	3,312	2,500	.....
31	2,500	.....	2,524	.....	3,530	8,152	.....	2,500	.....
1903.									
1	.....	3,890	3,890	6,060	2,740	13,750	3,400	2,380	2,620
2	.....	3,550	3,890	5,180	2,260	12,750	3,130	2,380	2,620
3	.....	4,300	3,890	4,740	2,500	5,180	2,870	2,380	2,870
4	.....	3,890	3,890	4,520	15,750	3,890	2,620	2,500	2,870
5	.....	3,890	3,550	4,300	12,750	3,000	2,380	2,500	2,870
6	.....	3,710	3,550	3,890	6,750	2,740	2,380	2,620	2,870
7	.....	3,890	3,400	3,890	3,890	2,500	3,400	2,620	2,870
8	.....	3,890	3,550	3,890	3,710	2,260	3,130	2,620	2,870
9	.....	4,300	3,550	3,890	3,000	2,260	2,870	2,500	2,870
10	.....	4,520	3,550	3,710	3,000	2,260	2,870	2,500	2,740
11	.....	4,520	4,520	3,260	2,870	2,740	3,130	2,740	2,740
12	.....	4,090	6,500	3,000	2,260	3,260	3,130	2,740	2,740
13	8,250	3,710	5,840	2,870	2,150	5,180	3,130	3,130	2,740
14	7,400	4,520	4,740	2,620	2,150	10,750	3,550	3,710	2,870
15	6,500	4,740	3,710	2,620	5,180	8,750	3,260	3,550	2,870
16	6,500	4,090	3,710	2,500	6,750	3,890	3,000	3,260	3,130
17	6,750	3,890	3,710	2,500	4,960	4,090	2,740	3,260	3,710
18	6,500	4,300	3,260	2,260	3,710	3,550	2,500	3,000	4,520
19	6,280	4,300	3,260	2,150	3,260	3,260	2,740	3,000	4,960
20	6,060	4,740	2,870	2,150	3,130	2,740	2,620	3,000	4,960

Mean daily discharge, in second-feet, of Loup River at Columbus, 1895–1906—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1903.									
21	5,180	4,740	3,000	2,150	2,740	2,500	2,620	2,870	5,400
22	4,520	4,300	3,260	2,380	2,500	2,260	2,380	2,870	5,620
23	4,520	3,890	3,400	2,380	2,260	2,260	2,380	2,870	5,620
24	4,740	4,300	4,960	2,260	2,040	2,260	2,380	2,870	5,400
25	4,300	3,710	4,300	2,620	2,040	2,500	2,380	2,740	5,840
26	4,090	3,550	4,090	2,740	2,040	3,000	2,380	2,740	4,300
27	4,090	3,400	3,400	2,870	2,040	20,000	2,380	2,740	3,710
28	4,090	3,400	4,300	2,870	2,040	16,750	2,380	2,620	3,400
29	5,180	3,400	5,400	2,740	2,260	7,050	2,380	2,740	.....
30	5,180	3,400	5,620	2,620	5,180	5,620	2,380	2,620	.....
31	5,400	.....	6,060	.....	4,300	3,550	.....	2,620	.....
1904.									
1	.....	3,550	2,740	2,500	2,740	2,150	2,740	3,260	1,740
2	.....	3,400	2,500	2,740	2,740	2,150	2,870	4,090	1,740
3	.....	3,400	2,500	3,710	2,740	2,620	4,960	3,890	1,660
4	.....	3,260	2,620	3,890	2,870	3,000	3,400	3,710	1,740
5	.....	3,260	2,500	4,090	3,000	3,000	3,000	3,260	1,740
6	.....	3,400	2,620	3,890	6,060	3,000	2,150	2,620	1,510
7	.....	3,550	3,000	3,400	7,050	2,870	2,150	2,150	1,740
8	.....	4,300	3,400	3,400	9,250	3,000	2,150	2,150	1,930
9	.....	3,710	3,400	3,890	6,060	3,890	1,930	2,260	1,930
10	.....	3,550	3,260	20,000	11,750	3,710	1,820	2,870	2,040
11	.....	3,400	3,130	6,060	9,250	2,620	1,660	2,620	2,040
12	.....	3,400	3,130	5,400	4,520	2,380	1,820	3,000	2,040
13	5,400	3,260	3,130	4,960	3,000	2,150	1,820	2,740	2,040
14	5,400	3,000	3,130	7,400	2,620	2,040	1,820	2,500	1,930
15	5,180	3,000	3,130	5,400	2,380	1,820	3,260	2,500	2,040
16	4,300	3,000	3,000	4,520	2,150	1,820	2,040	2,380	2,040
17	3,890	3,000	2,870	3,890	2,380	1,930	1,930	2,260	2,040
18	3,710	3,000	2,870	3,400	10,250	2,150	1,740	3,260	2,150
19	3,550	3,000	2,870	3,400	3,550	2,380	1,930	9,750	2,040
20	3,400	3,130	3,000	3,000	3,550	2,500	1,820	7,800	2,260
21	3,260	3,260	3,000	3,130	3,550	2,740	2,040	3,000	2,150
22	3,260	3,260	3,000	2,620	6,500	2,150	2,260	2,500	2,150
23	3,260	3,260	3,000	2,150	2,740	1,740	2,760	2,500	2,150
24	3,260	3,400	3,000	2,380	2,500	2,660	2,040	1,930	2,500
25	3,130	4,300	4,750	4,300	2,500	1,660	2,260	1,820	1,820
26	3,130	4,090	6,500	4,520	2,740	1,660	2,260	1,660	1,820
27	3,130	3,550	3,130	3,890	2,620	1,660	2,260	1,740	.....
28	3,260	3,000	2,870	3,260	3,260	1,660	2,740	1,660	.....
29	3,260	2,870	1,930	3,000	2,620	1,660	3,000	1,740	.....
30	3,260	2,740	1,930	2,740	2,500	1,740	3,130	1,820	.....
31	3,550	.....	2,040	.....	2,820	3,260	.....	1,740	.....
1905.									
1	.....	3,950	5,400	8,700	19,020	6,700	5,000	3,180	3,670
2	.....	4,400	5,150	7,500	15,120	19,190	4,700	3,910	3,450
3	.....	4,900	5,900	10,500	18,050	13,600	4,420	3,750	3,210
4	.....	6,950	5,400	7,500	17,080	8,270	4,380	3,580	3,210
5	.....	5,400	6,150	5,900	12,600	7,000	5,300	3,200	3,900
6	.....	4,400	6,675	5,650	11,700	5,300	5,770	3,250	5,100
7	.....	3,500	6,400	4,175	12,300	5,700	7,000	3,300	4,380
8	.....	3,050	5,900	3,725	9,900	6,110	6,960	3,350	4,110
9	.....	3,500	6,150	4,650	8,370	5,720	5,300	3,880	4,110
10	.....	3,950	11,100	4,175	6,750	5,600	5,010	3,940	4,380
11	.....	3,950	7,500	5,400	6,050	5,750	4,700	4,000	4,380
12	.....	3,500	6,950	5,400	5,400	5,600	4,410	4,070	4,600
13	.....	3,500	12,300	5,150	4,270	5,550	4,600	4,350	4,600
14	.....	3,950	15,780	4,650	2,900	5,250	7,110	4,600	4,850
15	.....	4,400	19,350	4,900	5,220	5,450	10,250	4,600	4,380
16	.....	3,950	12,300	5,400	5,100	6,700	8,400	5,600	4,380
17	4,400	3,950	9,900	5,900	4,730	6,110	6,950	5,100	4,380
18	5,400	3,950	7,500	5,400	4,650	6,850	8,580	4,850	4,850
19	5,900	3,500	7,225	5,400	4,800	12,100	14,600	5,330	4,600
20	6,950	11,100	6,950	5,900	4,920	6,200	8,710	4,850	4,600
21	5,900	8,700	6,950	6,675	5,310	6,150	6,130	4,110	4,380
22	5,900	8,400	6,400	7,500	5,460	8,000	5,050	4,600	4,110
23	5,400	8,100	6,150	16,100	6,130	6,300	3,810	4,380	5,850
24	4,400	7,800	5,650	16,750	7,400	6,500	3,310	3,670	5,350
25	4,900	7,500	5,400	11,400	6,430	7,000	3,950	3,670	5,850

Mean daily discharge, in second-feel, of Loup River at Columbus, 1895–1906—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1905.									
26	4,900	7,225	6,950	8,700	25,800	6,110	2,400	3,670	5,100
27	5,400	7,225	7,225	7,225	15,450	6,050	3,150	3,670	5,600
28	4,400	7,225	8,100	19,350	9,450	5,230	3,000	3,900	5,100
29	3,950	6,950	19,680	20,000	8,430	5,170	3,050	4,380	2,600
30	3,500	5,900	14,150	13,820	7,320	5,100	3,120	3,900	2,600
31	3,950	.....	12,000	.....	4,970	5,050	.....	3,900	.....
1906.									
1	.....	.....	25,000	3,400	7,900	4,000	1,400	2,300	3,300
2	.....	.....	14,100	2,800	4,400	3,600	1,700	2,100	3,500
3	.....	.....	18,700	3,000	3,900	2,700	2,200	2,200	4,100
4	.....	.....	8,700	3,200	2,600	4,200	2,000	2,400	4,600
5	.....	.....	7,200	3,000	2,400	5,000	2,000	2,100	4,900
6	.....	.....	4,500	3,200	2,200	4,400	2,000	2,100	4,900
7	.....	.....	4,500	3,200	2,100	11,600	1,800	2,100	4,600
8	.....	3,650	4,300	2,800	2,100	9,000	1,800	1,900	3,400
9	.....	3,950	3,400	2,800	2,100	6,600	1,700	1,900	3,200
10	.....	3,500	1,900	2,600	1,900	6,200	1,100	2,000	3,600
11	.....	2,900	1,900	2,200	1,900	3,300	1,400	2,400	2,700
12	.....	2,500	1,500	2,000	1,700	2,700	1,700	2,400	2,000
13	.....	3,600	2,000	2,000	2,100	2,900	2,700	2,400	2,500
14	.....	6,600	1,800	2,200	2,800	2,900	7,400	2,500	2,400
15	.....	8,700	1,800	2,600	2,100	2,100	4,400	2,200	2,200
16	.....	4,000	1,800	2,600	2,200	1,900	3,500	2,900	2,200
17	.....	4,500	1,600	2,400	2,100	1,800	5,400	2,500	2,000
18	.....	4,200	1,600	2,600	2,200	1,600	3,700	3,100	2,400
19	.....	7,200	1,600	2,800	3,600	1,400	3,400	3,100	2,200
20	.....	7,200	1,600	2,400	2,800	1,300	2,200	3,500	2,200
21	.....	4,000	1,600	2,200	3,600	1,300	2,600	3,700	.....
22	.....	3,800	2,000	2,200	2,600	1,000	2,400	5,700	.....
23	.....	3,600	2,700	1,900	2,800	1,000	2,400	5,700	.....
24	.....	3,600	2,900	2,200	2,800	1,000	2,600	7,100	2,750
25	.....	3,400	5,400	2,800	2,400	1,000	2,600	5,600	2,750
26	.....	3,600	4,100	3,800	2,000	1,900	2,600	4,300	2,900
27	.....	8,100	4,500	4,800	3,600	2,800	2,500	3,600	3,100
28	.....	11,000	4,800	4,600	2,000	2,800	2,300	5,300	3,100
29	.....	8,700	3,600	4,800	3,200	1,700	2,300	3,400	3,100
30	.....	16,100	6,900	3,700	3,100	1,500	2,300	4,800	2,900
31	.....	.....	4,300	.....	2,900	1,500	.....	4,300	.....

Mean daily gage height, in feet, of Loup River at Columbus, 1894–1906.

Day.	Oct.	Nov.	Dec.	Day.	Oct.	Nov.	Dec.	Day.	Oct.	Nov.	Dec.
1894.				1894.				1894.			
1	.....	4.66	5.00	12	.....	4.82	4.80	23	4.65	4.85	4.72
2	.....	4.65	4.72	13	.....	4.65	4.82	24	4.65	4.80	4.71
3	.....	4.67	4.72	14	4.7	4.78	4.83	25	4.70	4.73	4.65
4	.....	4.75	4.76	15	4.65	4.74	4.75	26	4.65	4.67	4.54
5	.....	4.77	4.72	16	4.65	4.57	4.77	27	4.60	4.72	4.52
6	.....	4.73	4.71	17	4.60	4.73	4.81	28	4.65	4.68	4.78
7	.....	4.70	4.72	18	4.60	4.71	4.80	29	4.67	4.81	4.78
8	.....	4.72	4.67	19	4.60	5.00	4.83	30	5.00	4.78	4.94
9	.....	4.78	4.63	20	4.65	4.63	4.75	31	4.10	.....	5.4
10	.....	4.76	4.72	21	4.65	4.74	4.75				
11	.....	5.00	4.75	22	4.65	4.83	4.63				

Mean daily gage height, in feet, of Loup River at Columbus, 1894–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1895.												
1	5.10	6.10	6.75	4.95	4.80	5.27	4.55	4.01	4.62	4.31	4.46	5.10
2	5.23	6.10	5.69	4.92	5.44	5.15	4.56	4.01	4.56	4.28	4.47	5.33
3	5.31	6.15	4.75	4.75	5.47	7.10	4.47	4.01	4.38	4.21	4.49	5.47
4	5.21	6.24	3.89	4.74	5.18	6.42	4.45	4.98	4.30	4.18	4.56	5.43
5	5.32	6.21	3.95	4.77	5.15	5.78	4.46	4.03	4.29	4.35	4.59	5.27
6	5.15	6.15	4.73	4.67	4.95	5.43	4.45	4.33	4.20	4.34	4.56	5.15
7	5.50	6.13	4.85	4.77	4.80	5.01	4.40	4.20	4.18	4.40	4.57	5.16
8	4.95	6.13	4.87	5.31	4.76	4.79	4.32	4.17	4.19	4.36	4.60	5.20
9	5.70	6.13	5.23	5.20	4.68	4.64	4.35	4.15	4.23	4.34	4.62	5.29
10	5.23	6.13	5.15	5.14	4.63	4.55	4.23	4.25	4.17	4.40	4.62	5.44
11	5.32	6.10	4.89	5.50	4.64	4.59	4.24	4.44	4.16	4.42	4.64	5.56
12	5.83	6.20	4.87	4.95	4.69	4.56	4.24	4.38	4.11	4.40	4.65	5.60
13	6.50	6.26	4.73	4.86	4.65	4.70	4.21	4.17	4.10	4.42	4.68	5.71
14	6.50	6.30	3.10	4.90	4.62	4.75	4.36	4.21	4.07	4.42	4.72	5.66
15	6.10	6.35	3.15	4.78	4.56	4.69	4.45	4.53	4.10	4.45	4.76	5.63
16	6.35	6.42	3.18	4.80	4.57	4.55	4.37	4.53	4.09	4.50	4.80	5.66
17	6.55	6.48	3.75	5.94	4.60	4.69	4.30	4.34	4.20	4.44	4.84	5.37
18	7.01	6.32	4.73	4.95	4.62	5.04	4.25	4.34	4.25	4.41	4.75	5.36
19	6.85	6.39	5.85	4.86	4.65	5.04	4.22	4.30	4.26	4.42	4.65	5.25
20	6.63	6.63	5.33	4.82	4.64	4.74	4.21	4.32	4.27	4.44	4.58	5.12
21	6.53	6.65	4.75	4.66	4.58	4.63	4.13	4.30	4.55	4.43	4.55	5.04
22	7.00	6.98	4.78	4.67	4.62	4.45	4.10	4.25	4.89	4.45	4.57	4.98
23	6.81	7.15	4.63	4.69	4.63	4.61	4.11	4.41	4.78	4.47	4.50	4.98
24	6.76	7.10	4.65	4.69	4.59	4.56	4.15	4.52	5.04	4.48	3.68	4.81
25	6.64	7.30	4.62	4.65	4.63	4.36	4.17	4.58	5.26	4.50	3.32	4.65
26	6.59	7.33	4.66	4.63	4.54	4.37	4.19	4.48	4.55	4.50	3.45	4.50
27	6.35	7.45	4.65	4.62	4.54	4.36	4.22	4.33	4.44	4.48	3.63	4.45
28	6.23	8.68	4.65	4.64	4.53	4.46	4.03	4.43	4.36	4.43	4.21	4.49
29	6.22	.....	4.78	4.72	4.46	4.45	4.02	4.41	4.31	4.40	4.64	.....
30	6.15	.....	4.76	4.66	4.82	4.49	4.00	4.35	4.35	4.44	4.84	.....
31	6.10	.....	4.79	.....	4.88	.....	3.96	4.47	.....	4.47	.....	.....
1896.												
1	4.15	6.33	4.68	4.75	5.30	4.55	3.98	4.17	3.71	4.10	4.47	.....
2	4.16	6.47	4.55	4.88	5.11	4.72	3.94	4.21	3.76	4.09	4.31	.....
3	4.81	6.36	3.73	4.75	4.62	4.73	4.01	4.22	3.92	4.05	4.19	.....
4	5.18	6.37	3.45	4.65	5.00	4.75	3.99	4.22	3.92	4.05	4.02	.....
5	5.35	6.45	3.68	4.72	4.79	4.90	3.94	4.13	3.92	4.03	3.99	.....
6	5.51	6.35	4.12	4.69	4.83	9.40	3.92	4.08	3.86	4.05	4.01	.....
7	5.72	6.44	4.82	4.72	4.68	6.48	3.89	4.42	3.82	4.08	3.93	.....
8	5.90	6.44	5.10	4.75	4.58	4.98	3.92	4.24	3.78	4.13	3.98	.....
9	6.01	6.12	5.06	4.80	4.55	4.21	4.00	3.95	3.79	4.16	3.78	.....
10	6.20	6.23	5.27	4.82	4.57	3.98	3.95	3.96	3.85	4.15	4.80	.....
11	6.22	5.66	5.08	4.81	4.62	3.56	4.35	3.95	3.91	4.22	4.90	.....
12	6.38	5.64	5.02	5.18	4.52	3.63	4.21	3.85	4.04	4.27	4.82	.....
13	6.52	5.65	4.68	5.91	4.56	3.58	4.12	3.87	4.10	4.27	4.73	.....
14	6.68	5.54	4.35	5.60	4.63	3.59	4.08	3.89	4.18	4.26	3.79	.....
15	6.60	5.34	3.59	5.25	4.53	3.61	3.93	3.86	4.23	4.28	4.25	6.18
16	6.48	5.66	3.80	4.94	4.68	3.65	3.86	3.84	4.24	4.24	4.11	.....
17	6.45	5.65	3.35	5.09	4.69	3.62	3.85	3.80	4.20	4.20	4.12	5.85
18	6.57	5.66	4.65	5.25	4.65	3.56	3.86	3.84	4.15	4.20	3.95	.....
19	6.68	5.63	4.99	4.93	4.63	3.55	3.90	3.84	4.10	4.19	3.75	5.41
20	6.43	5.53	5.16	5.64	4.63	3.76	3.91	3.86	4.13	4.18	3.65	.....
21	6.30	5.44	5.17	5.42	4.61	3.96	3.93	3.88	4.16	4.27	3.45	.....
22	6.19	5.42	4.76	5.14	4.54	4.14	3.93	3.86	4.17	4.32	3.88	5.67
23	6.08	5.50	4.95	5.37	4.52	4.29	3.94	3.91	4.21	4.32	5.25	.....
24	6.46	5.28	5.02	5.38	4.45	4.12	3.94	3.91	4.15	4.35	5.05	.....
25	6.64	4.96	4.75	4.75	4.41	4.43	3.99	3.87	4.09	4.32	5.49	5.56
26	6.46	4.95	4.65	4.72	4.39	4.56	4.03	3.82	4.07	4.33	6.54	.....
27	6.43	4.93	4.74	4.72	4.52	4.03	4.12	3.77	4.10	4.35	5.46	.....
28	6.25	4.93	4.71	5.46	4.53	3.93	4.13	3.76	4.10	4.28	4.98	5.42
29	6.08	4.90	4.72	4.90	4.62	3.92	4.13	3.77	4.05	4.35	.....	.....
30	6.25	.....	4.75	4.23	4.63	3.90	4.12	3.75	4.05	4.56	.....	.....
31	6.24	.....	4.76	.....	4.52	.....	4.13	3.72	.....	4.57	.....	.....
1897.												
1	5.24	.....	.....	.....	4.46	4.52	7.71	3.89	4.24	4.16	.....	.....
2	.....	.....	7.53	.....	4.44	4.44	5.32	3.85	4.20	4.16	.....	.....
3	.....	.....	.....	5.83	4.52	4.41	4.69	3.81	4.15	4.17	.....	.....
4	.....	.....	.....	.....	4.54	4.80	4.60	3.79	4.15	4.16	.....	.....
5	4.96	.....	7.59	.....	4.56	4.64	4.48	4.02	4.13	4.16	.....	.....

Mean daily gage height, in feet, of Loup River at Columbus, 1894–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1897.												
6	.....	.....	.....	.....	4.57	4.78	4.22	4.42	4.09	4.16	.....	.....
7	.....	.....	.....	.....	4.57	4.70	4.02	4.31	4.12	4.17	.....	.....
8	5.18	.....	.....	4.88	4.60	4.68	3.84	4.39	4.03	4.18	.....	.....
9	.....	.....	7.68	4.77	4.62	4.68	3.78	4.71	4.07	4.16	.....	.....
10	.....	.....	.....	4.70	4.69	4.68	3.86	4.70	4.22	4.18	.....	.....
11	.....	.....	.....	4.56	4.63	4.63	3.92	4.81	4.31	4.29	.....	.....
12	7.18	.....	8.45	4.44	4.66	4.70	4.02	4.61	4.36	4.43	.....	.....
13	.....	.....	.....	4.84	4.63	4.77	3.96	4.54	4.36	4.46	.....	.....
14	.....	.....	.....	4.93	4.63	4.75	3.91	4.48	4.34	4.44	.....	.....
15	7.04	.....	.....	4.74	4.66	4.76	4.20	4.40	4.34	4.44	.....	.....
16	.....	.....	5.73	4.70	4.67	4.74	4.08	4.33	4.30	4.50	.....	.....
17	.....	.....	.....	4.77	4.66	4.72	3.92	4.28	4.37	4.58	.....	.....
18	.....	.....	.....	4.91	4.65	4.69	3.84	4.19	4.28	5.00	.....	.....
19	.....	.....	5.43	4.53	4.66	4.82	3.78	4.17	4.25	5.02	.....	.....
20	.....	6.45	.....	4.63	4.62	4.74	3.95	4.15	4.23	4.86	.....	.....
21	.....	.....	.....	4.61	4.64	4.54	4.00	4.15	4.20	4.82	.....	.....
22	.....	.....	.....	4.62	4.77	4.43	3.96	4.15	4.20	4.76	.....	.....
23	.....	6.45	4.85	4.86	4.78	4.35	3.95	4.15	4.21	4.72	.....	.....
24	.....	.....	.....	4.82	4.82	4.34	3.96	4.16	4.24	4.80	.....	.....
25	.....	.....	.....	4.72	4.77	4.34	3.95	4.15	4.26	4.68	.....	.....
26	.....	7.68	4.59	4.66	4.66	4.44	3.98	4.20	4.26	4.64	.....	.....
27	.....	.....	.....	4.54	4.60	4.70	3.93	4.15	4.22	4.81	.....	.....
28	.....	.....	.....	4.41	4.68	4.95	3.85	4.10	4.20	6.26	.....	.....
29	.....	.....	.....	4.40	4.62	4.79	3.85	4.20	4.18	4.80	.....	.....
30	.....	.....	4.76	4.54	4.55	5.00	3.86	4.23	4.16	4.75	.....	.....
31	.....	.....	.....	.....	4.47	.....	3.93	4.28	.....	.....	.....	.....
1898.												
1	.....	.....	.....	4.51	4.78	5.00	4.64	4.20	4.37	4.56	4.90	.....
2	.....	.....	.....	4.77	4.77	4.95	4.64	4.24	4.34	4.58	4.85	.....
3	.....	.....	.....	4.75	4.86	5.02	4.60	4.28	4.30	4.59	4.80	.....
4	.....	.....	.....	4.77	5.07	5.14	4.62	4.63	4.31	4.66	4.75	.....
5	.....	.....	.....	4.79	5.33	5.66	4.83	4.95	4.30	4.63	4.75	.....
6	.....	.....	.....	4.82	5.28	5.95	4.88	5.24	4.30	4.64	4.80	.....
7	.....	.....	.....	4.86	5.25	5.68	4.83	5.16	4.30	4.67	4.80	.....
8	.....	.....	.....	4.81	5.22	5.63	4.83	4.97	4.32	4.67	4.85	.....
9	.....	.....	.....	4.76	5.18	5.56	4.74	4.85	4.31	4.72	4.90	.....
10	.....	.....	.....	4.80	5.16	5.46	4.66	4.77	4.36	4.74	4.90	.....
11	.....	.....	.....	4.79	5.19	5.35	4.68	4.68	4.42	4.84	4.94	.....
12	.....	.....	.....	4.86	5.19	5.26	4.65	4.64	4.48	4.97	4.90	.....
13	.....	.....	.....	4.83	5.16	5.32	4.63	4.61	4.82	4.90	.....	.....
14	.....	.....	.....	5.06	5.07	5.36	4.67	4.58	5.03	4.82	.....	.....
15	.....	.....	.....	5.02	4.91	5.42	4.66	4.57	4.93	4.78	.....	.....
16	.....	.....	.....	4.93	4.95	5.36	4.65	4.59	4.89	4.76	.....	.....
17	.....	.....	.....	4.83	4.96	5.35	4.62	4.67	4.85	4.76	.....	.....
18	.....	.....	.....	4.77	5.15	5.30	4.54	4.83	4.81	4.77	.....	.....
19	.....	.....	.....	4.86	5.19	5.30	4.49	4.78	4.80	4.86	.....	.....
20	.....	.....	.....	4.93	5.18	5.33	4.44	4.66	4.73	4.92	.....	.....
21	.....	.....	.....	4.87	5.41	5.40	4.43	4.63	4.65	4.86	.....	.....
22	.....	.....	.....	4.75	5.44	5.50	4.41	4.65	4.49	4.82	.....	.....
23	.....	.....	.....	4.71	5.48	5.39	4.45	4.63	4.41	4.80	.....	.....
24	.....	.....	.....	4.73	5.68	5.00	4.35	4.62	4.50	4.85	.....	.....
25	.....	.....	.....	4.77	5.40	4.77	4.31	4.62	4.57	4.90	.....	.....
26	.....	.....	.....	4.85	5.64	4.71	4.30	4.63	4.58	4.80	.....	.....
27	.....	.....	.....	4.83	5.46	4.68	4.30	4.63	4.57	4.90	.....	.....
28	.....	.....	.....	4.83	5.34	4.67	4.28	4.56	4.56	4.90	.....	.....
29	.....	.....	.....	4.87	5.11	4.65	4.26	4.45	4.56	4.85	.....	.....
30	.....	.....	.....	4.81	5.10	4.66	4.26	4.41	4.56	4.80	.....	.....
31	.....	.....	.....	.....	4.98	.....	4.22	4.39	.....	4.95	.....	.....
1899.												
1	.....	.....	.....	.....	5.30	.....	5.50	4.30	4.80	4.40	.....	.....
2	.....	.....	.....	5.40	4.95	5.00	.....	4.25	4.85	4.40	.....	.....
3	.....	.....	.....	5.60	4.60	.....	5.90	4.20	4.80	4.40	.....	.....
4	.....	.....	.....	5.80	4.70	4.80	.....	4.25	4.80	4.40	.....	.....
5	.....	.....	.....	5.70	4.90	.....	5.70	4.55	4.70	4.45	.....	.....
6	.....	.....	.....	5.00	4.95	5.40	.....	4.93	4.60	4.40	.....	.....
7	.....	.....	.....	4.90	5.05	.....	5.60	4.90	4.55	4.40	.....	.....
8	.....	.....	.....	5.00	4.95	.....	.....	4.80	4.50	4.40	.....	.....
9	.....	.....	.....	4.95	5.15	.....	.....	4.85	4.80	4.40	.....	.....
10	.....	.....	.....	4.90	5.00	.....	4.40	4.80	4.70	4.40	.....	.....

Mean daily gage height, in feet, of Loup River at Columbus, 1894–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1899.												
11				5.00	4.95	5.40	.....	4.70	4.60	4.40	.....	.....
12				4.90	4.80	.....	4.00	4.85	4.50	4.40	.....	.....
13				4.80	4.85	.....	4.20	4.20	4.45	4.40	.....	.....
14				4.90	4.97	.....	4.21	4.10	4.40	4.50	.....	.....
15				5.10	5.30	.....	4.20	4.50	4.40	4.80	.....	.....
16				5.20	5.15	4.80	4.10	4.20	4.40	4.70	.....	.....
17				5.15	5.14	.....	4.20	4.40	4.40	4.75	.....	.....
18				5.10	4.95	4.70	4.15	4.40	4.40	4.70	.....	.....
19				5.00	5.00	.....	4.00	4.50	4.40	4.60	.....	.....
20				4.90	5.05	.....	3.98	4.61	4.40	4.50	.....	.....
21				4.90	5.40	4.95	4.00	4.80	4.40	4.50	.....	.....
22				4.90	5.80	.....	4.10	4.70	4.40	4.70	.....	.....
23				5.00	5.54	.....	4.25	4.75	4.40	4.60	.....	.....
24				4.90	5.40	5.10	4.20	4.80	4.40	4.60	.....	.....
25				4.85	.....	.....	4.21	4.81	4.40	4.55	.....	.....
26				4.90	.....	.....	4.20	4.80	4.40	4.55	.....	.....
27				5.00	.....	5.90	4.20	4.81	4.40	4.50	.....	.....
28				5.40	.....	.....	4.22	4.80	4.40	4.55	.....	.....
29				5.60	5.40	5.80	4.23	4.70	4.40	4.60	.....	.....
30				5.80	.....	.....	4.50	4.60	4.40	4.65	.....	.....
31				.....	.....	.....	4.40	4.70	.....	4.65	.....	.....
1900.												
1				4.75	5.10	4.85	3.78	4.43	4.15	4.45	4.70	.....
2				4.75	5.00	4.70	3.90	4.43	4.20	4.45	4.65	.....
3				4.75	4.95	4.50	3.87	4.32	4.23	4.48	4.60	.....
4				4.75	4.96	4.85	4.54	4.28	4.23	4.48	4.48	.....
5				4.75	4.98	4.87	4.28	4.25	4.25	4.50	4.48	.....
6				4.75	4.95	4.82	4.93	4.25	4.25	4.50	4.45	.....
7				4.75	4.98	4.75	4.46	3.98	4.25	4.55	4.40	.....
8				4.71	5.32	4.65	4.62	4.05	4.27	4.55	4.43	.....
9				4.70	5.30	4.55	4.70	4.63	4.27	4.58	4.45	.....
10				4.72	5.00	4.53	4.40	4.68	4.28	4.60	4.48	.....
11				4.74	4.95	4.65	4.35	4.55	5.98	4.58	4.55	.....
12				4.70	4.95	4.65	4.20	4.44	5.25	4.58	4.55	.....
13				4.80	5.68	4.62	4.15	4.48	5.45	4.58	4.59	.....
14				4.81	5.20	4.61	3.98	4.43	5.63	4.58	4.55	.....
15				4.80	5.14	4.65	3.93	4.63	5.48	4.57	4.55	.....
16				4.82	5.05	4.65	4.28	5.53	5.00	4.57	4.50	.....
17				4.85	5.03	6.28	4.73	5.83	4.70	4.56	4.58	.....
18				4.87	5.01	5.20	4.78	5.50	4.48	4.55	.....	.....
19				4.90	5.00	4.85	4.55	5.38	4.48	4.60	.....	.....
20				5.00	4.95	3.98	4.38	4.48	4.45	4.66	.....	.....
21				5.30	4.75	3.95	4.35	4.42	4.48	.....	.....	.....
22				5.30	4.72	4.10	4.43	4.38	4.48	.....	.....	.....
23				5.30	4.71	3.85	4.45	4.32	4.50	.....	.....	.....
24				5.32	4.70	3.87	4.98	4.35	4.48	.....	.....	.....
25				5.27	4.60	3.83	5.05	4.50	4.48	.....	.....	.....
26				5.26	4.65	3.88	5.00	4.57	4.48	.....	.....	.....
27				5.25	4.90	3.85	4.40	4.70	4.50	.....	.....	.....
28				5.25	4.80	3.83	4.50	4.68	4.48	5.00	.....	.....
29				5.20	4.82	3.83	4.38	4.53	4.48	5.00	.....	.....
30				5.20	4.70	3.80	4.35	4.35	4.40	4.81	.....	.....
31				.....	6.65	.....	4.35	4.28	.....	4.76	.....	.....
1901.												
1				4.50	4.70	4.60	5.05	4.15	4.50	4.60	4.90	.....
2				4.48	4.70	4.60	5.00	4.10	4.50	4.65	5.10	.....
3				4.50	4.70	4.60	4.90	4.10	4.50	4.65	5.30	.....
4				4.60	4.70	4.70	4.90	4.10	4.57	4.65	5.20	.....
5				4.70	4.70	4.80	4.90	4.10	4.70	4.65	5.10	.....
6				4.80	4.80	4.70	4.70	4.13	4.80	4.65	5.00	.....
7				4.55	4.80	4.70	4.45	4.12	4.90	4.65	4.90	.....
8				4.50	4.85	4.70	4.38	4.12	4.95	4.65	4.80	.....
9				4.50	4.90	4.70	4.30	4.10	4.95	4.70	4.60	.....
10				4.60	4.90	4.70	4.20	4.10	5.10	4.80	4.55	.....
11				4.70	4.80	4.60	4.10	4.52	5.10	4.80	4.55	.....
12				4.80	4.80	4.60	4.10	4.40	5.45	4.80	4.55	.....
13				5.00	4.80	4.60	4.10	4.30	5.55	4.80	4.55	.....
14				5.10	4.70	4.60	3.97	4.45	5.60	4.80	4.60	.....
15				5.20	4.70	4.60	3.95	4.40	5.60	4.80	4.60	.....

Mean daily gage height, in feet, of Loup River at Columbus, 1894–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1901.												
16	.....	.....	.....	5.30	4.70	6.45	4.00	4.40	5.60	4.75	4.55	.....
17	.....	.....	.....	5.20	4.60	6.45	4.00	4.40	5.40	4.70	4.55	.....
18	.....	.....	.....	5.00	4.60	5.80	4.00	4.35	5.30	4.70	4.55	.....
19	.....	.....	.....	5.00	4.60	5.90	4.00	4.30	5.10	4.65	4.55	.....
20	.....	.....	.....	5.00	4.65	6.00	4.05	4.27	4.70	4.65	4.55	.....
21	.....	.....	.....	4.85	4.70	6.10	4.40	4.27	4.70	4.65	4.55	.....
22	.....	.....	.....	4.85	4.80	6.05	4.30	4.27	4.70	4.65	4.55	.....
23	.....	.....	.....	4.80	4.75	6.00	4.20	4.30	4.70	4.65	4.55	.....
24	.....	.....	4.60	4.80	4.80	5.90	4.10	4.40	4.70	4.65	4.55	.....
25	.....	.....	4.60	4.70	4.85	5.70	4.00	4.70	4.60	4.70	4.55	.....
26	.....	.....	4.60	4.90	4.90	5.60	3.90	4.55	4.50	4.70	4.55	.....
27	.....	.....	4.50	4.70	4.90	5.45	3.85	4.50	4.50	4.70	4.55	.....
28	.....	.....	4.50	4.90	4.80	5.34	4.00	4.45	4.50	4.70	4.60	.....
29	.....	.....	4.50	4.90	4.80	5.15	3.95	4.45	4.50	4.70	4.60	.....
30	.....	.....	4.45	4.80	4.70	5.10	4.10	4.45	4.55	4.75	4.65	.....
31	.....	.....	4.50	.....	4.60	.....	4.20	4.45	.....	4.90	.....	.....
1902.												
1	.....	.....	.....	4.65	4.80	4.85	6.00	4.80	5.40	5.00	4.79	.....
2	.....	.....	.....	4.60	4.80	4.95	6.60	4.70	5.10	5.00	4.80	.....
3	.....	.....	.....	4.55	4.80	5.00	6.80	4.60	4.60	5.00	4.80	.....
4	.....	.....	.....	4.50	4.85	5.40	6.10	4.60	4.55	5.00	4.85	.....
5	.....	.....	.....	4.60	4.90	5.80	6.10	4.55	4.50	4.92	4.85	.....
6	.....	.....	.....	4.80	5.00	5.90	6.05	4.50	4.50	4.95	4.85	.....
7	.....	.....	.....	4.70	5.10	5.95	6.10	4.45	4.50	4.95	4.90	.....
8	.....	.....	5.79	4.70	5.00	5.00	6.00	4.40	4.45	4.90	4.95	.....
9	.....	.....	5.79	4.70	4.95	4.90	5.90	5.00	4.45	4.80	4.95	.....
10	.....	.....	5.00	4.70	4.90	4.85	6.45	6.10	4.45	4.80	4.95	.....
11	.....	.....	4.70	4.70	4.80	4.70	5.59	4.90	4.48	5.00	4.80	.....
12	.....	.....	4.60	4.73	4.80	4.65	5.25	4.70	4.45	5.60	4.70	.....
13	.....	.....	4.70	4.76	4.90	4.65	5.00	4.65	4.40	5.50	4.65	.....
14	.....	.....	4.80	4.75	5.10	4.60	5.50	4.62	4.40	5.40	4.65	.....
15	.....	.....	4.80	4.75	5.30	4.60	5.25	4.60	4.35	5.30	4.65	.....
16	.....	.....	4.80	4.70	5.30	4.70	5.10	4.60	4.30	5.20	4.60	.....
17	.....	.....	4.70	4.70	5.30	4.65	5.05	4.60	4.20	5.10	4.65	.....
18	.....	.....	4.70	4.70	5.70	4.65	5.10	5.00	4.40	5.00	4.70	.....
19	.....	.....	4.60	4.70	5.90	5.00	5.10	5.55	4.50	4.90	4.75	.....
20	.....	.....	4.60	4.70	6.10	5.40	5.00	5.50	4.65	4.90	4.80	.....
21	.....	.....	4.64	4.70	5.56	5.00	4.90	5.50	4.80	4.90	4.80	.....
22	.....	.....	4.65	4.75	5.55	4.95	4.80	5.40	5.80	4.90	4.80	.....
23	.....	.....	4.68	4.80	5.50	4.70	4.75	5.40	6.10	4.90	4.81	.....
24	.....	.....	4.70	4.80	5.40	4.80	4.70	5.30	5.10	4.90	4.85	.....
25	.....	.....	4.80	4.80	5.36	4.70	4.80	5.50	5.10	4.90	4.85	.....
26	.....	.....	4.90	4.85	5.15	4.60	4.85	5.55	5.10	4.90	4.85	.....
27	.....	.....	4.95	5.15	5.00	4.80	4.80	5.45	5.40	4.90	4.85	.....
28	.....	.....	4.97	5.10	4.95	4.80	4.85	5.50	5.20	4.85	4.85	.....
29	.....	.....	5.00	5.00	4.90	5.00	4.85	5.59	5.10	4.85	4.85	.....
30	.....	.....	4.80	4.90	4.85	5.00	4.85	5.80	5.05	4.80	.....	.....
31	.....	.....	4.70	.....	4.85	.....	4.80	5.95	.....	4.80	.....	.....
1903.												
1	.....	.....	.....	5.00	5.20	5.80	5.00	6.72	4.90	4.40	4.60	4.95
2	.....	.....	.....	4.90	5.20	5.60	4.80	6.60	4.80	4.45	4.60	4.95
3	.....	.....	.....	5.10	5.20	5.50	4.90	5.60	4.70	4.45	4.70	5.00
4	.....	.....	.....	5.00	5.20	5.45	7.00	5.30	4.60	4.50	4.70	5.00
5	.....	.....	.....	5.00	5.10	5.40	6.60	5.00	4.50	4.50	4.70	4.95
6	.....	.....	.....	4.95	5.10	5.30	5.65	4.90	4.50	4.55	4.70	.....
7	.....	.....	.....	5.00	5.10	5.30	5.00	4.80	4.90	4.55	4.70	.....
8	.....	.....	.....	5.00	5.15	5.30	4.95	4.70	4.80	4.55	4.70	.....
9	.....	.....	.....	5.10	5.15	5.30	4.70	4.70	4.70	4.50	4.70	.....
10	.....	.....	.....	5.20	5.15	5.25	4.70	4.70	4.70	4.50	4.65	.....
11	.....	.....	.....	5.20	5.40	5.12	4.70	4.90	4.75	4.60	4.65	.....
12	.....	.....	.....	5.10	5.90	5.00	4.50	5.10	4.75	4.60	4.65	.....
13	.....	.....	5.45	5.00	5.75	4.95	4.50	5.60	4.75	4.75	4.65	.....
14	.....	.....	5.35	5.20	5.50	4.85	4.55	6.40	4.90	4.95	4.70	.....
15	.....	.....	5.20	5.25	5.25	4.85	5.55	6.00	4.80	4.90	4.70	.....
16	.....	.....	5.20	5.10	5.25	4.85	5.95	5.10	4.70	4.80	4.80	.....
17	.....	.....	5.25	5.10	5.25	4.85	5.56	5.15	4.60	4.80	5.00	.....
18	.....	.....	5.22	5.20	5.10	4.75	5.25	5.00	4.50	4.70	5.20	.....
19	.....	.....	5.25	5.20	5.10	4.70	5.10	4.90	4.53	4.75	5.30	.....
20	.....	.....	5.10	5.30	4.95	4.70	5.05	4.70	4.50	4.75	5.30	.....

Mean daily gage height, in feet, of Loup River at Columbus, 1894–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1903.												
21	.....	.....	4.90	5.30	5.00	4.70	4.90	4.60	4.50	4.70	5.40	.....
22	.....	.....	4.78	5.20	5.10	4.80	4.80	4.50	4.40	4.70	5.45	.....
23	.....	.....	4.80	5.10	5.15	4.80	4.70	4.50	4.40	4.70	5.45	.....
24	.....	.....	4.90	5.20	5.55	4.80	4.60	4.50	4.40	4.68	5.40	.....
25	.....	.....	4.80	5.10	5.40	4.95	4.60	4.60	4.40	4.65	5.50	.....
26	.....	.....	4.80	5.05	5.35	5.00	4.60	4.80	4.40	4.65	5.15	.....
27	.....	.....	4.80	5.00	5.15	5.05	4.60	7.20	4.40	4.63	5.00	.....
28	.....	.....	4.85	5.00	5.40	5.05	4.60	6.80	4.40	4.62	4.90	.....
29	.....	.....	5.12	5.00	5.65	5.00	4.70	5.80	4.40	4.65	4.60	.....
30	.....	.....	5.15	5.00	5.70	4.95	5.60	5.50	4.40	4.61	4.70	.....
31	.....	.....	5.20	.....	5.80	.....	5.40	5.00	.....	4.60	.....	.....
1904.												
1	.....	.....	.....	4.95	4.95	4.70	4.90	4.52	4.90	5.10	4.45	.....
2	.....	.....	.....	4.90	4.90	4.80	4.90	4.48	5.00	5.35	4.45	.....
3	.....	.....	.....	4.92	4.90	5.10	4.90	4.71	5.60	5.30	4.40	.....
4	.....	.....	.....	4.90	4.95	5.15	4.95	4.84	5.20	5.25	4.45	.....
5	.....	.....	.....	4.90	4.95	5.20	5.00	4.87	5.00	5.10	4.45	.....
6	.....	.....	.....	4.95	4 98	5.15	5.78	4.85	4.65	4.85	4.30	.....
7	.....	.....	.....	5.00	.....	4.95	6.00	4.80	4.65	4.65	4.45	.....
8	.....	.....	.....	5.20	5.30	4.95	6.25	4.85	4.65	4.65	4.55	.....
9	.....	.....	.....	5.10	5.30	5.10	5.80	5.15	4.56	4.70	4.55	.....
10	.....	.....	.....	5.05	5.25	7.30	6.49	5.15	4.48	4.95	4.60	.....
11	.....	.....	.....	5.00	5.20	5.60	6.20	4.75	4.40	4.85	4.60	.....
12	.....	.....	.....	5.00	5.15	5.40	5.42	4.65	4.50	5.00	4.60	.....
13	.....	.....	5.35	4.95	5.15	5.30	4.96	4.55	4.50	4.90	4.60	.....
14	.....	.....	5.35	4.90	5.15	5.80	4.82	4.50	4.50	4.80	4.55	.....
15	.....	.....	5.30	4.90	5.15	5.40	4.72	4.42	5.10	4.80	4.60	.....
16	.....	.....	5.10	4.90	5.05	5.20	4.60	4.45	4.60	4.75	4.60	.....
17	.....	.....	5.00	4.90	5.00	5.00	4.75	4.50	4.55	4.70	4.60	.....
18	.....	.....	4.95	4.95	5.00	4.85	6.30	4.60	4.45	5.10	4.65	.....
19	.....	.....	4.90	4.95	5.00	4.90	5.11	4.72	4.55	6.30	4.60	.....
20	.....	.....	4.85	5.00	5.00	4.80	5.10	4.77	4.50	6.10	4.69	.....
21	.....	.....	4.80	5.05	5.00	4.90	5.10	4.85	4.60	5.00	4.65	.....
22	.....	.....	4.80	5.05	5.00	4.75	5.80	4.65	4.70	4.80	4.65	.....
23	.....	.....	4.80	5.10	4.98	4.60	4.80	4.45	4.70	4.80	4.65	.....
24	.....	.....	4.80	5.15	5.00	4.75	4.70	4.40	4.60	4.55	4.80	.....
25	.....	.....	4.75	5.40	.....	5.42	4.70	4.40	4.70	4.50	4.50	.....
26	.....	.....	4.75	5.35	5.90	5.45	4.75	4.40	4.70	4.40	4.50	.....
27	.....	.....	4.75	5.20	5.00	5.30	4.70	4.40	4.70	4.45	.....	.....
28	.....	.....	4.80	5.05	4.90	5.10	4.95	4.40	4.90	4.40	.....	.....
29	.....	.....	4.80	4.98	4.50	5.00	4.70	4.40	5.00	4.45	.....	.....
30	.....	.....	4.89	4.95	4.50	4.92	4.64	4.45	5.00	4.50	.....	.....
31	.....	.....	4.95	.....	4.50	.....	4.56	5.10	.....	4.45	.....	.....
1905.												
1	.....	.....	.....	4.3	4.6	5.2	6.85	4.8	4.4	4.25	4.2	.....
2	.....	.....	.....	4.4	4.55	5.0	6.25	6.8	4.35	4.4	4.15	.....
3	.....	.....	.....	4.5	4.7	5.5	6.7	5.9	4.3	4.35	4.1	.....
4	.....	.....	.....	4.9	4.6	5.0	6.55	5.0	4.3	4.3	4.1	.....
5	.....	.....	.....	4.6	4.75	4.7	5.85	4.75	4.5	4.2	4.25	.....
6	.....	.....	.....	4.4	4.85	4.65	5.7	4.4	4.6	4.2	4.5	.....
7	.....	.....	.....	4.2	4.8	4.35	5.8	4.45	4.85	4.2	4.35	.....
8	.....	.....	.....	4.1	4.7	4.25	5.4	4.5	4.85	4.2	4.3	4.5
9	.....	.....	.....	4.2	4.75	4.45	5.22	4.4	4.55	4.3	4.3	5.7
10	.....	.....	.....	4.3	5.6	4.35	5.0	4.35	4.5	4.3	4.35	5.7
11	.....	.....	.....	4.3	5.0	4.6	4.95	4.35	4.45	4.3	4.35	5.75
12	.....	.....	.....	4.2	4.9	4.6	4.9	4.3	4.4	4.3	4.4	5.7
13	.....	.....	.....	4.2	5.8	4.55	4.75	4.3	4.45	4.35	4.4	5.8
14	.....	.....	.....	4.3	6.35	4.45	4.5	4.25	4.95	4.4	4.45	6.5
15	.....	.....	.....	4.4	6.9	4.5	5.0	4.3	5.5	4.4	4.35	6.0
16	.....	.....	.....	4.3	5.8	4.6	4.95	4.55	5.1	4.6	4.35	5.95
17	.....	.....	4.4	4.3	5.4	4.7	4.85	4.45	4.95	4.5	4.35	5.85
18	.....	.....	4.6	4.3	5.0	4.6	4.8	4.6	5.25	4.45	4.45	.....
19	.....	.....	4.7	4.2	4.95	4.6	4.8	5.5	6.25	4.55	4.4	.....
20	.....	.....	4.9	5.6	4.9	4.7	4.8	4.5	5.3	4.45	4.4	.....
21	.....	.....	4.7	5.2	4.9	4.85	4.85	4.5	4.85	4.3	4.35	.....
22	.....	.....	4.7	5.15	4.8	5.0	4.85	4.85	4.65	4.4	4.3	.....
23	.....	.....	4.6	5.1	4.75	6.4	4.95	4.55	4.4	4.35	4.65	.....
24	.....	.....	4.4	5.05	4.65	6.5	5.15	4.6	4.3	4.2	4.55	.....
25	.....	.....	4.5	5.0	4.6	5.65	4.95	4.7	4.45	4.2	4.65	.....

Mean daily gage height, in feet, of Loup River at Columbus, 1894–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1905.												
26	.....	.....	4.5	4.95	4.9	5.2	7.95	4.55	4.1	4.2	4.5	.....
27	.....	.....	4.6	4.95	4.95	4.95	6.4	4.55	4.3	4.2	4.6	.....
28	.....	.....	4.4	4.95	5.1	6.9	5.4	4.4	4.25	4.25	4.5	.....
29	.....	.....	4.3	4.9	6.95	7.00	5.2	4.4	4.25	4.35	3.95	.....
30	.....	.....	4.2	4.7	6.1	6.05	4.95	4.4	4.25	4.25	5.45	.....
31	.....	.....	4.3	.....	5.75	.....	4.5	4.4	.....	4.25	.....	.....
1906.												
1	.....	.....	.....	.....	8.40	4.60	5.40	4.80	4.25	4.40	4.60	.....
2	.....	.....	.....	.....	6.55	4.40	4.75	4.70	4.30	4.35	4.65	.....
3	.....	.....	.....	.....	5.75	4.50	4.65	4.50	4.45	4.35	4.80	.....
4	.....	.....	.....	.....	5.75	4.50	4.35	4.85	4.40	4.40	4.90	.....
5	.....	.....	.....	.....	5.50	4.45	4.30	5.00	4.40	4.30	4.95	.....
6	.....	.....	.....	.....	5.00	4.50	4.25	4.90	4.40	4.30	4.95	.....
7	.....	.....	.....	.....	5.00	4.50	4.20	6.10	4.35	4.30	4.90	.....
8	.....	.....	.....	4.75	4.90	4.40	4.20	5.70	4.35	4.25	4.70	.....
9	.....	.....	.....	4.90	4.70	4.40	4.20	5.35	4.30	4.25	4.65	.....
10	.....	.....	.....	4.80	4.30	4.35	4.15	5.30	4.10	4.25	4.75	.....
11	.....	.....	.....	4.65	4.30	4.25	4.15	4.70	4.20	4.35	4.55	.....
12	.....	.....	.....	4.55	4.20	4.20	4.10	4.55	4.30	4.35	4.35	.....
13	.....	.....	.....	4.80	4.35	4.20	4.20	4.60	4.55	4.35	4.50	.....
14	.....	.....	.....	5.40	4.30	4.25	4.40	4.60	5.50	4.40	4.45	.....
15	.....	.....	.....	5.75	4.30	4.35	4.20	4.40	4.95	4.30	4.50	.....
16	.....	.....	.....	4.90	4.30	4.35	4.25	4.35	4.75	4.50	4.50	.....
17	.....	.....	.....	5.00	4.30	4.30	4.20	4.30	5.15	4.40	4.45	.....
18	.....	.....	.....	4.95	4.20	4.35	4.25	4.25	4.80	4.50	4.55	.....
19	.....	.....	.....	5.50	4.20	4.40	4.65	4.20	4.65	4.50	4.50	.....
20	.....	.....	.....	5.50	4.20	4.30	4.45	4.15	4.40	4.60	4.50	.....
21	.....	.....	.....	4.90	4.20	4.25	4.65	4.15	4.50	4.65	.....	.....
22	.....	.....	.....	4.85	4.30	4.25	4.40	4.05	4.45	5.05	.....	.....
23	.....	.....	.....	4.80	4.50	4.15	4.45	4.05	4.45	5.05	.....	.....
24	.....	.....	.....	4.80	4.55	4.25	4.45	4.05	4.50	5.30	4.70	.....
25	.....	.....	.....	4.75	5.10	4.40	4.35	4.10	4.50	5.00	4.70	.....
26	.....	.....	.....	4.80	4.75	.....	4.25	4.40	4.50	4.75	4.75	.....
27	.....	.....	.....	5.65	4.85	4.85	4.65	4.65	4.45	4.60	4.80	.....
28	.....	.....	.....	6.10	4.90	4.80	4.25	4.65	4.40	4.95	4.80	.....
29	.....	.....	.....	5.75	4.65	4.85	4.55	4.35	4.40	4.55	4.80	.....
30	.....	.....	.....	6.85	5.30	4.60	4.60	4.30	4.45	4.85	4.75	.....
31	.....	.....	.....	.....	4.80	.....	4.55	4.30	.....	4.75	.....	.....

Estimated monthly discharge of Loup River at Columbus, 1895–1906.

[Drainage area, 13,540 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
March.								
1902 [a]	6,830	2,500	3,343	159,200	.....	.....	.....	1.51
1903 [b]	8,250	4,090	5,554	209,300	.....	.....	.....	.72
1904 [b]	5,400	3,130	3,715	140,000	.....	.....	.....	.22
1905 [c]	6,950	3,500	5,017	149,300	.....	.....	.....	.93
April.								
1895	3,680	2,300	2,754	168,900	0.217	0.24	12	2.06
1896	7,020	1,970	4,081	242,800	.301	.35	6	4.84
1897	7,120	2,680	3,695	219,900	.273	.30	8	3.88
1898	3,520	2,130	2,794	166,300	.206	.23	14	1.66
1899	5,530	2,340	3,280	195,400	.242	.27	28	.98
1900	4,740	2,380	3,352	199,500	.248	.28	6	4.47
1901	4,680	2,570	3,254	193,600	.240	.27	14	1.92
1902	3,210	1,980	2,409	143,400	.178	.20	14	1.42
1903	4,740	3,400	4,027	239,600	.297	.33	21	1.56
1904	4,300	2,740	3,343	198,900	.247	.27	17	1.57
1905	11,100	3,050	5,492	326,800	.406	.45	11	4.15
1906	16,100	2,500	5,580	332,000	.413	.46	8	5.47

[a] 24 days. [b] March 13 to 31. [c] March 17 to 31.

Estimated monthly discharge of Loup River at Columbus, 1895–1906—Continued.

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
May.								
1895	4,420	2,600	2,966	182,400	0.219	0.25	10	2.48
1896	4,810	2,310	2,985	183,500	.221	.25	10	2.54
1897	2,880	1,850	2,496	153,500	.184	.21	17	1.26
1898	5,100	2,420	3,509	215,800	.259	.30	6	5.04
1899	4,870	1.910	3,035	186,600	.224	.25	9	2.91
1900	10,550	2,380	3,717	228,500	.274	.31	12	2.57
1901	2,740	1,850	2,346	144,200	.173	.20	12	1.61
1902	7,440	2,200	3,226	198,300	.238	.28	7	4.27
1903	6,500	2,870	4,085	251,200	.301	.34	6	5.46
1904	6,500	1,930	2,972	183,000	.219	.25	6	4.10
1905	19,680	5,150	8,665	522,800	.640	.74	11	6.54
1906	25,000	1,600	4,590	282,000	.340	.39	13	2.89
June.								
1895	9,080	2,340	3,591	213,700	.265	.30	6	4.76
1896	8,000	1,930	3,009	179,000	.228	.25	5	4.94
1897	9,550	1,800	2,891	172,000	.213	.24	5	4.11
1898	6,680	2,000	4,022	239,300	.297	.33	14	2.34
1899	7,710	1,800	3,893	231,600	.288	.33	8	3.92
1900	14,300	2,080	3,493	207,800	.258	.29	13	2.30
1901	7,100	1,720	3,467	206,300	.256	.29	6	4.92
1902	5,940	2,210	3,250	193,300	.240	.27	6	4.45
1903	6,060	2,150	3,188	189,700	.235	.26	16	1.68
1904	20,000	2,150	4,364	259,700	.322	.36	6	5.53
1905	20,000	3,720	8,117	483,000	.599	.67	11	6.07
1906	4,800	1,900	2,890	172,000	.214	.24	12	2.06
July.								
1895	2,850	1,450	2,122	130,500	.157	.18	18	.98
1896	3,670	2,310	2,712	166,700	.200	.23	6	4.12
1897	11,820	1,600	2,616	155,700	.193	.21	8	2.53
1898	2,530	1,620	1,946	119,700	.140	.16	6	2.88
1899	6,980	1,000	2,104	125,200	.155	.18	8	2.47
1900	5,380	1,980	3,265	200,800	.240	.28	5	5.55
1901	3,050	1,000	1,615	96,100	.112	.13	22	.90
1902	10,900	3,390	5,669	348,500	.420	.48	8	6.29
1903	15,750	2,040	3,549	211,200	.262	.29	4	6.88
1904	11,750	2,150	4,266	262,300	.314	.36	6	6.13
1905	25,800	2,900	9,067	557,500	.670	.77	17	4.58
1906	7,900	1,700	2,780	171,000	.206	.24	9	2.74
August.								
1895	4,100	1,520	2,289	140,700	.169	.20	8	2.49
1896	3,810	2,110	2,629	161,600	.197	.23	25	.89
1897	3,280	1,100	1,812	111,400	.134	.15	7	2.96
1898	4,720	1,650	2,655	163,300	.196	.23	8	2.84
1899	3,260	1,280	2,357	144,900	.174	.20	7	2.93
1900	7,480	1,610	3,462	212,900	.256	.30	8	3.67
1901	2,150	1,000	1,380	84,800	.100	.12	8	1.58
1902	8,150	1,680	4,767	293,100	.352	.40	11	3.77
1903	20,000	2,260	5,373	330,400	.397	.46	9	5.81
1904	3,890	1,660	2,347	144,300	.173	.20	8	2.41
1905	19,190	5,050	6,949	427,300	.513	.59	31	1.93
1906	11,600	1,000	3,120	192,000	.230	.27	13	3.52
September.								
1895	5,000	1,670	2,427	144,400	.179	.20	11	1.81
1896	2,970	2,060	2,460	146,400	.182	.20	10	2.10
1897	1,700	1,000	1,427	84,900	.105	.12	10	1.16
1898	2,950	1,460	2,003	119,200	.148	.17	13	1.35
1899	2,940	1,850	2,142	127,500	.158	.18	26	.70
1900	7,600	2,380	3,363	200,100	.249	.28	12	2.41
1901	4,780	1,760	2,853	169,800	.211	.23	5	4.89
1902	6,910	1,690	3,218	191,500	.238	.27	8	3.44
1903	3,550	2,380	2,763	164,400	.204	.23	26	.87
1904	4,960	1,660	2,375	141,300	.175	.20	9	2.24
1905	14,600	2,400	5,637	335,400	.416	.46	12	3.81
1906	7,400	1,100	2,600	155,000	.193	.22	7	2.94
October.								
1895	2,690	1,910	2,450	150,600	.181	.21	105	.20
1896	3,610	2,240	2,732	168,000	.202	.23	16	1.40
1897	10,400	1,600	3,422	210,400	.253	.29	10	3.02
1898	2,900	2,020	2,477	152,300	.193	.21	3	.83
1899	2,520	1,320	1,914	117,700	.141	.16	55	.29
1900	3,700	2,900	3,222	198,100	.238	.28	16	1.72

Estimated monthly discharge of Loup River near Columbus, 1895–1906—Continued.

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
October.								
1901	2,650	1,900	2,243	137,900	0.166	0.20	10	1.93
1902	4,710	2,500	3,011	185,100	.222	.25	13	1.95
1903	3,710	2,380	2,796	171,900	.206	.24	24	1.00
1904	9,750	1,660	2,941	180,800	.217	.25	8	3.08
1905	5,600	3,180	4,082	251,000	.301	.35	47	.74
1906	7,100	1,900	3,280	202,000	.243	.28	9	3.12
November.								
1895	3,640	2,560	3,010	179,100	.222	.25	30	.84
1898 [a]	2,900	2,450	2,668	64,000				.43
1900 [b]	3,150	2,300	2,679	90,000				.17
1901	3,370	1,740	2,335	138,900	.173	.19	32	.60
1902	2,870	2,040	2,501	148,800	.185	.21	87	.24
1903	5,840	2,620	3,665	218,100	.271	.30	59	.51
1904	2,500	1,510	1,961	116,600	.145	.16	229	.07
1905	5,850	2,600	4,389	261,200	.324	.36	31	1.16
1906	4,900	2,000	3,090	184,000	.229	.25	27	.93

[a] November 1 to 12, 1898. [b] November 1 to 17, 1900.

NORTH LOUP RIVER NEAR ST. PAUL.

Observations were begun at the St. Paul station on North Loup River May 4, 1895, but the records cover only the open seasons for the years 1895 to 1897, inclusive, 1899, and 1903. The station is 4 miles north of St. Paul, in sec. 22, T. 15 N., R. 10 W. The location is shown on the St. Paul topographic atlas sheet.

Discharge measurements were made from highway bridges. Refined measurements were not possible at this station on account of the shifting sandy bed and the varying angle which the thread of the current made with the bridge; neither was it practicable to obtain records of winter flow.

A different gage and a different section were used during each of the periods stated above, and the gage heights for one period are therefore not comparable with those of another. From 1895 to 1897 the gage was an inclined staff on the left bank at the lower side of an old wagon bridge. Its datum was 6.54 feet below a standard United States Geological Survey bench mark on the left bank 170 feet north of the gage. On April 18, 1899, a second inclined staff gage was installed on the left bank about 200 feet below the first one. The datum of this gage was 5.57 feet below the bench mark described above, or 0.97 foot higher than the datum of the gage used from 1895 to 1897. Between 1899 and 1903 the old wagon bridge was replaced by a steel structure one-fourth mile below, which was used for making measurements during 1903. On April 15 of that year a third gage was installed on the right bank 2 miles below the steel bridge. This gage was an inclined staff referred to one bench mark—a notch in an ash tree 30 feet south of the gage. Elevation 6.47 feet above the zero

of the gage. The gage was set to read the same as would have been recorded on the old rod of 1899 had it been in place 2 miles upstream; otherwise there is no relation between the gage heights in 1903 and those of former years.

Discharge measurements of North Loup River near St. Paul, 1895–1903.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1895.		*Feet.*	*Sec.-ft.*	1899.		*Feet.*	*Sec.-ft.*
May 4	O. V. P. Stout	3.27	1,520	April 18	Glenn E. Smith	1.81	16,780
June 28	do	3.21	1,127	May 5	do	1.77	11,380
September 6	do	3.04	816	May 18	do	1.65	8,770
				June 7	do	1.58	10,240
1896.				June 27	do	3.90	76,900
May 9	E. M. Carbin	3.40	1,138	July 20	do	1.35	811
June 11	O. V. P. Stout	2.30	1,337	August 8	do	1.70	10,260
July 9	E. T. Youngfeldt	2.10	1,120	August 23	do	1.47	920.5
April 21	do	2.05	880	September 7	do	1.70	917
September 23	do	2.15	935	September 19	do	1.50	796
				September 30	do	1.47	776
1897.							
April 20	Adna Dobson	2.89	1,281	1903.			
May 11	do	2.85	1,080	April 15	J. C. Stevens	1.44	1,042
May 28	do	2.76	1,064	May 14	do	1.70	1,223
June 19	O. V. P. Stout	2.94	933	June 2	do	1.94	1,845
July 17	do	2.66	615	July 16	do	1.65	1,017
July 28	do	2.85	708	August 11	do	1.44	961
August 18	do	2.82	659	September 19	E. C. Murphy	1.49	807
October 10	Adna Dobson	2.92	819	November 28	J. C. Stevens	1.60	1,785
October 31	do	3.17	1,525				

Mean daily gage height, in feet, of North Loup River near St. Paul, 1895–1903.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1895.												
1						3.25	3.11	3.00	3.10	3.15	3.10	
2						4.00	3.09	3.05	3.10	3.15	3.37	
3						3.85	3.14	3.07	3.05	3.18	3.20	
4						3.40	3.09	3.20	2.98	3.20	3.20	
5					3.27	3.35	3.07	3.12	3.00	3.20	3.20	
6					3.26	3.22	3.05	3.10	3.00	3.25	3.17	
7					3.24	3.25	3.12	3.07	3.02	3.20	3.19	
8					3.20	3.25	3.09	3.00	3.10	3.19	3.17	
9					3.15	3.30	3.10	3.30	3.10	3.18	3.15	
10					3.20	3.25	3.10	3.25	3.07	3.20	3.12	
11					3.30	3.25	3.10	3.07	3.07	3.20	3.10	
12					3.24	3.25	3.09	3.00	3.06	3.20	3.10	
13					3.20	3.22	3.13	3.30	3.00	3.20	3.07	
14					3.20	3.23	3.14	3.15	3.00	3.21	3.02	
15					3.20	3.20	3.14	3.10	3.12	3.20	3.05	
16					3.15	3.22	3.10	3.13	3.21	3.22	3.05	
17					3.15	3.35	3.07	3.10	3.12	3.23	3.00	
18					3.16	3.30	3.05	3.02	3.14	3.20	3.02	
19					3.10	3.10	3.04	3.00	3.07	3.20	3.00	
20					3.12	3.15	3.05	2.99	3.15	3.02	3.00	
21					3.10	3.10	3.00	3.00	3.12	3.09	2.95	
22					3.05	3.10	3.05	3.00	3.90	3.10	2.66	
23					3.06	3.12	3.05	3.35	3.35	3.10	2.50	
24					3.05	3.13	3.05	3.23	3.20	3.07	2.49	
25					3.08	3.10	3.00	3.00	3.20	3.08	2.45	
26					3.05	3.12	2.99	2.98	3.19	3.08	3.70	
27					3.06	3.18	2.97	2.96	3.17	3.05	3.85	
28					3.08	3.21	2.90	3.05	3.15	3.07	3.85	
29					3.06	3.15	2.95	3.00	3.11	3.05	3.85	
30					3.40	3.17	2.95	3.25	3.10	3.07	3.85	
31					3.30		2.97	3.10		3.05		

Mean daily gage height, in feet, of North Loup River near St. Paul, 1895–1903—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1896.												
1	.....	.....	.....	3.38	3.52	3.57	2.10	2.20	2.04	2.18	2.19	2.70
2	.....	.....	.....	3.40	3.50	3.50	2.07	2.10	2.02	2.20	2.20	.....
3	.....	.....	.....	3.33	3.43	3.40	2.09	2.07	2.01	2.14	2.17	3.08
4	.....	.....	.....	3.38	3.44	3.40	2.05	2.12	2.07	2.16	2.22	.....
5	.....	.....	.....	3.30	3.44	3.41	2.05	2.10	2.08	2.16	2.17	3.12
6	.....	.....	.....	3.35	3.40	4.65	2.04	2.08	2.10	2.15	2.15	.....
7	.....	.....	.....	3.40	3.38	3.35	2.07	2.05	2.14	2.15	2.18	3.15
8	.....	.....	.....	3.35	3.35	2.50	2.10	2.07	2.08	2.17	2.16	.....
9	.....	.....	.....	3.32	3.40	2.30	2.45	2.11	2.04	2.17	2.20	.....
10	.....	.....	.....	3.30	3.35	2.22	2.35	2.00	2.08	2.17	2.23	3.65
11	.....	.....	.....	3.30	3.32	2.30	2.20	1.99	2.05	2.17	2.21	.....
12	.....	.....	.....	3.80	3.34	2.25	2.12	2.05	2.12	2.20	2.20	3.72
13	.....	.....	.....	3.65	3.32	2.23	2.12	2.06	2.15	2.22	2.22	.....
14	.....	.....	.....	3.50	3.33	2.18	2.14	2.05	2.25	2.18	2.20	3.72
15	.....	.....	.....	3.53	3.32	2.15	2.10	2.07	2.23	2.18	2.18	3.75
16	.....	.....	.....	3.44	3.38	2.11	2.06	2.04	2.09	2.18	2.11	.....
17	.....	.....	.....	3.50	3.42	2.10	2.05	2.05	2.12	2.15	2.20	3.82
18	.....	.....	.....	4.10	3.35	2.09	2.08	2.08	2.18	2.14	2.17	.....
19	.....	.....	.....	3.65	3.31	2.22	2.11	2.01	2.25	2.20	2.20	3.80
20	.....	.....	.....	3.45	3.35	2.30	2.11	2.00	2.22	2.20	2.20	.....
21	.....	.....	.....	3.34	3.30	2.51	2.07	2.04	2.17	2.18	2.15	3.07
22	.....	.....	.....	3.34	3.32	2.80	2.05	2.07	2.11	2.15	2.30	.....
23	.....	.....	.....	3.37	3.34	2.56	2.07	2.05	2.08	2.17	2.09	3.18
24	.....	.....	.....	3.34	3.33	2.50	2.12	2.07	2.16	2.15	2.07	.....
25	.....	.....	.....	3.32	3.32	2.53	2.05	2.04	2.15	2.11	2.11	.....
26	.....	.....	.....	3.30	3.25	2.35	2.30	2.04	2.18	2.05	2.15	3.20
27	.....	.....	.....	3.28	3.75	2.35	2.07	2.04	2.15	2.10	2.17	.....
28	.....	.....	.....	3.40	3.27	2.28	2.15	2.07	2.15	2.17	2.14	3.20
29	.....	.....	3.40	3.65	3.20	2.18	2.00	2.08	2.11	2.50	2.12	.....
30	.....	.....	3.41	3.55	3.25	2.15	2.30	2.06	2.15	2.50	2.17	.....
31	.....	.....	3.40	.....	3.31	.....	2.28	2.07	.....	2.38	.....	3.75
1897.												
1	.....	.....	.....	2.86	2.95	2.65	3.80	2.78	2.75	2.91	.....	.....
2	3.85	3.70	3.70	3.04	2.93	2.70	3.48	2.75	2.75	2.90	.....	.....
3	.....	.....	.....	3.82	2.90	2.76	4.02	2.75	2.85	2.92	.....	.....
4	.....	3.72	3.78	3.90	2.94	2.84	3.12	2.75	2.79	2.85	.....	.....
5	3.80	.....	.....	2.80	2.92	2.82	3.13	2.81	2.80	2.85	.....	.....
6	.....	3.72	3.79	2.78	2.93	2.81	2.97	2.76	2.83	2.88	.....	.....
7	.....	.....	.....	2.70	2.95	2.79	2.95	3.12	2.84	2.88	.....	.....
8	4.00	3.75	.....	2.63	2.90	2.83	2.97	2.98	2.85	2.87	.....	.....
9	.....	.....	3.80	2.68	2.92	2.80	2.74	2.95	2.73	2.91	.....	.....
10	4.40	3.85	3.86	2.64	2.87	2.78	2.81	2.96	3.35	2.91	.....	.....
11	.....	.....	4.08	3.11	2.87	2.78	2.83	2.87	3.00	2.90	.....	.....
12	.....	3.88	4.22	3.12	2.85	2.77	2.81	2.84	2.97	2.88	.....	.....
13	4.70	.....	2.84	3.10	2.82	2.78	2.87	2.82	2.95	2.93	.....	.....
14	.....	3.90	2.82	3.07	2.88	2.90	2.83	2.85	2.92	2.95	.....	.....
15	4.50	.....	2.80	3.05	2.85	2.95	2.75	2.82	2.89	2.97	.....	.....
16	.....	3.92	2.83	2.96	2.85	2.95	2.67	2.82	2.89	3.04	.....	.....
17	.....	.....	.....	2.95	2.81	2.90	2.80	2.90	2.85	3.32	.....	.....
18	4.20	3.93	2.80	2.95	2.79	3.00	2.76	2.91	2.84	3.25	.....	.....
19	.....	.....	.....	3.04	2.76	2.94	2.89	2.85	2.84	3.01	.....	.....
20	.....	3.95	2.86	2.88	2.77	2.90	2.79	2.82	2.86	3.12	.....	.....
21	.....	.....	.....	2.93	2.76	3.70	2.77	2.83	2.86	3.05	.....	.....
22	.....	4.00	2.85	2.98	2.75	3.50	2.75	2.80	2.83	3.02	.....	.....
23	.....	.....	2.85	3.02	2.77	3.30	2.78	2.85	2.85	3.02	.....	.....
24	.....	3.62	.....	2.87	2.76	3.10	2.80	2.79	2.85	3.00	.....	.....
25	.....	.....	2.90	2.85	2.75	2.98	2.83	2.77	2.84	3.08	.....	.....
26	3.78	3.62	.....	2.77	2.75	2.71	2.80	2.75	2.87	3.05	.....	.....
27	.....	.....	3.12	2.79	2.75	.....	2.94	2.73	2.82	3.03	.....	.....
28	3.82	3.62	.....	2.83	2.70	3.89	2.81	2.75	2.83	3.00	.....	.....
29	.....	.....	.....	2.89	2.68	3.30	2.79	2.80	2.82	3.02	.....	.....
30	3.80	.....	.....	2.90	2.68	4.64	2.75	2.77	2.85	3.01	.....	.....
31	.....	.....	.....	.....	2.67	.....	2.74	2.73	.....	.....	.....	.....
1899.												
1	.....	.....	.....	.....	1.85	1.68	1.95	1.34	1.61	1.52	.....	.....
2	.....	.....	.....	.....	1.85	1.65	1.83	1.37	1.68	1.58	.....	.....
3	.....	.....	.....	.....	1.83	1.66	1.75	1.38	1.73	1.55	.....	.....
4	.....	.....	.....	.....	1.80	1.62	1.68	1.89	1.57	1.55	.....	.....
5	.....	.....	.....	.....	1.80	1.61	1.68	2.20	1.62	1.57	.....	.....

Mean daily gage height, in feet, of North Loup River near St. Paul, 1895–1903—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1899.												
6					1.75	1.60	1.59	2.08	1.70	1.52		
7					2.30	1.55	1.55	2.05	1.95	1.50		
8					2.32	1.57	1.55	2.01	1.98	1.50		
9					2.07	1.56	1.56	1.88	1.85	1.60		
10					2.00	1.52	1.57	1.80	1.80	1.63		
11					1.95	1.55	1.63	1.92	1.72	1.58		
12					1.83	1.53	1.53	1.74	1.68	1.53		
13					1.72	1.47	1.49	1.92	1.65	1.57		
14					1.72	1.42	1.45	1.86	1.62	1.55		
15					1.68	1.41	2.12	1.65	1.60	2.08		
16					1.71	1.45	2.27	1.65	1.63	2.03		
17					1.73	1.48	2.03	1.57	1.53	1.97		
18				1.81	1.70	1.50	1.92	1.48	1.55	1.69		
19				1.77	1.64	1.50	1.75	1.55	1.50	1.65		
20				1.82	1.68	1.50	1.35	1.57	1.50	1.65		
21				1.73	2.30	1.47	1.37	1.62	1.50	1.60		
22				1.75	2.08	1.50	1.28	1.58	1.51	1.58		
23				1.72	1.93	1.53	1.30	1.57	1.50	1.60		
24				1.80	1.90	2.30	1.28	1.54	1.55	1.60		
25				1.83	1.87	2.00	1.28	1.54	1.52	1.62		
26				1.78	1.85	1.80	1.33	1.55	1.50	1.60		
27				3.20	1.78	3.30	1.32	1.57	1.52	1.65		
28				2.78	1.75	2.54	1.25	1.53	1.55	1.63		
29				2.43	1.77	2.12	1.22	1.54	1.55	1.58		
30				1.87	1.73	2.03	1.33	1.57	1.58	1.57		
31					1.73		1.35	1.59		1.58		
1903.												
1					1.60	1.85	1.50	2.55	1.45	1.40	1.60	1.30
2					1.70	1.90	1.45	2.00	1.40	1.45	1.65	1.25
3					1.65	1.85	2.50	(a)	1.30	1.60	1.60	1.40
4					1.65	1.80	1.90	(a)	1.35	1.40	1.60	1.30
5					1.60	1.80	1.75	(a)	1.40	1.45	1.55	
6					1.65	1.75	1.55	(a)	1.60	1.45	1.50	
7					1.65	1.75	1.45	(a)	1.50	1.80	1.45	
8					1.65	1.70	1.40	(a)	1.60	1.55	1.60	
9					1.65	1.70	1.35	(a)	1.55	1.50	1.65	
10					2.43	1.70	1.35	(a)	1.50	1.40	1.65	
11					1.95	1.70	1.40	1.45	1.50	1.50	1.60	
12					1.90	1.65	1.45	1.50	1.60	1.50	1.60	
13					1.80	1.65	1.40	1.85	1.50	1.55	1.55	
14					1.70	1.65	1.85	1.65	1.50	1.65	1.55	
15				1.45	1.70	1.60	1.65	1.50	1.55	1.60	1.60	
16				1.45	1.70	1.55	1.65	1.45	1.55	1.55	1.55	
17				1.45	1.70	1.55	1.65	1.45	1.45	1.45	.70	
18				1.50	1.65	1.50	1.60	1.50	1.50	1.40	.80	
19				1.55	1.65	1.55	1.75	1.40	1.50	1.45	1.05	
20				1.55	1.60	1.50	1.60	1.50	1.55	1.45	1.30	
21				1.55	1.55	1.55	1.70	1.40	1.45	1.45	1.70	
22				1.60	1.55	1.60	1.60	1.35	1.40	1.50	1.80	
23				1.60	1.85	1.60	1.55	1.35	1.40	1.50	1.85	
24				1.60	1.60	1.60	1.50	2.50	1.35	1.50	1.60	
25				1.65	1.60	1.65	1.50	2.10	1.35	1.55	1.55	
26				1.55	1.80	1.65	1.45	2.65	1.35	1.50	1.55	
27				1.50	1.70	1.55	1.45	1.90	1.30	1.55	1.50	
28				1.60	1.60	1.50	1.40	1.60	1.35	1.60	1.60	
29				1.90	1.80	1.50	2.68	1.50	1.40	1.55	1.35	
30				1.65	2.00	1.45		1.50	1.50	1.55	1.35	
31					1.95			1.48		1.60		

[a] Sand on gage rod.

Mean daily discharge, in second-feet, of North Loup River near St. Paul, 1895–1903.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1895.								
1	.....	.....	1,453	1,017	702	987	1,137	987
2	.....	.....	1,456	958	842	987	1,137	1,857
3	.....	.....	3,766	1,107	900	842	1,231	1,293
4	.....	.....	1,952	958	1,293	648	1,293	1,293
5	.....	1,520	1,787	900	1,047	702	1,293	1,293
6	.....	1,486	1,357	842	987	758	1,453	1,200
7	.....	1,421	1,453	1,047	900	702	1,293	1,262
8	.....	1,293	1,453	958	702	987	1,262	1,200
9	.....	1,137	1,618	987	1,618	702	1,231	1,137
10	.....	1,293	1,453	987	1,453	900	1,293	1,047
11	.....	1,618	1,618	987	900	871	1,293	987
12	.....	1,421	1,618	958	702	702	1,293	987
13	.....	1,293	1,357	1,077	1,618	702	1,293	900
14	.....	1,293	1,387	1,107	1,137	648	1,325	758
15	.....	1,293	1,293	1,107	987	1,077	1,293	842
16	.....	1,137	1,357	987	1,077	1,351	1,351	842
17	.....	1,137	1,787	900	987	1,047	1,389	702
18	.....	1,168	1,618	842	758	1,107	1,293	758
19	.....	987	987	814	702	929	1,293	702
20	.....	1,047	1,137	842	675	1,137	1,040	702
21	.....	987	987	702	702	1,047	958	566
22	.....	842	987	842	702	3,991	987	.....
23	.....	871	1,047	842	1,787	1,787	987	.....
24	.....	842	1,077	842	1,389	1,293	900	.....
25	.....	929	987	702	702	1,293	928	.....
26	.....	842	1,047	675	648	1,262	928	.....
27	.....	871	1,230	620	593	1,200	842	.....
28	.....	929	1,325	437	842	1,137	900	.....
29	.....	871	1,137	566	702	1,017	842	.....
30	.....	1,962	1,200	566	1,453	987	900	.....
31	.....	1,618	.....	620	987	.....	842	.....
1896.								
1	1,076	1,521	1,698	1,138	1,072	860	949	.....
2	1,139	1,455	1,455	1,110	992	843	965	.....
3	930	1,233	1,139	1,120	957	835	915	.....
4	1,078	1,263	1,139	1,080	992	883	932	.....
5	844	1,263	1,170	1,080	974	890	932	.....
6	987	1,139	4,100	1,072	949	908	923	.....
7	1,139	1,047	2,825	1,100	915	932	923	.....
8	987	987	1,540	1,128	932	883	940	.....
9	909	1,139	1,340	1,460	957	851	940	.....
10	844	987	1,260	1,350	860	883	940	.....
11	844	901	1,337	1,200	850	860	940	.....
12	2,519	958	1,290	1,128	890	908	965	.....
13	1,962	901	1,270	1,120	900	932	983	.....
14	1,455	930	1,230	1,128	883	1,016	949	.....
15	1,553	901	1,200	1,090	900	1,000	949	.....
16	1,263	1,078	1,165	1,048	867	883	949	.....
17	1,455	1,203	1,155	1,032	875	908	923	.....
18	3,767	987	1,147	1,056	900	957	915	.....
19	1,962	873	1,257	1,072	843	1,016	965	.....
20	1,293	987	1,330	1,064	835	983	965	.....
21	958	844	1,540	1,032	867	940	949	.....
22	958	901	1,930	1,008	890	890	923	.....
23	1,048	958	1,590	1,016	875	867	940	.....
24	958	930	1,530	1,056	890	932	923	.....
25	901	901	1,560	991	867	923	888	.....
26	844	702	1,370	1,184	867	949	837	.....
27	779	2,327	1,370	983	867	923	880	.....
28	1,139	759	1,300	1,056	890	923	940	.....
29	1,962	570	1,212	923	900	890	1,220	.....
30	1,618	702	1,184	1,184	883	923	1,220	.....
31	.....	873	.....	1,155	890	.....	1,120	.....
1897.								
1	1,150	1,250	880	1,680	640	610	740	.....
2	1,460	1,220	905	1,360	620	610	740	.....
3	3,300	1,180	940	1,890	620	690	760	.....
4	3,530	1,210	990	1,030	620	650	720	.....
5	920	1,180	960	1,030	670	650	720	.....

Mean daily discharge, in second-feet, of North Loup River near St. Paul, 1895–1903—Con.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1897.								
6	920	1,180	930	890	630	680	740	.....
7	690	1,190	900	860	900	690	770	.....
8	460	1,140	920	800	790	690	770	.....
9	690	1,160	890	690	770	600	800	.....
10	460	1,100	860	740	780	1,100	820	.....
11	1,690	1,100	850	750	740	800	820	.....
12	1,690	1,080	840	740	690	780	820	.....
13	1,690	1,060	840	780	670	770	860	.....
14	1,690	1,110	930	740	690	740	900	.....
15	1,460	1,080	970	690	670	720	920	.....
16	1,460	1,080	960	620	570	720	1,000	.....
17	1,460	1,050	905	720	720	690	1,260	.....
18	1,150	1,030	990	680	730	690	1,210	.....
19	1,460	1,020	930	780	690	690	1,020	.....
20	1,280	1,030	900	700	670	700	1,130	.....
21	1,320	1,020	740	680	670	700	1,080	.....
22	1,360	1,020	1,430	650	650	680	1,080	.....
23	1,400	1,030	1,230	670	690	690	1,100	.....
24	1,230	1,030	1,050	680	640	690	1,100	.....
25	1,210	1,030	940	690	630	690	1,200	.....
26	1,130	1,040	720	670	610	710	1,210	.....
27	1,140	1,040	.....	770	590	670	1,230	.....
28	1,170	1,010	1,770	670	610	680	1,230	.....
29	1,210	970	1,200	650	650	670	1,290	.....
30	1,210	940	2,550	610	630	700	1,320	.....
31	.....	915	.....	620	590	.....	.....	.....
1899.								
1	.....	1,310	1,056	2,250	743	949	118	.....
2	.....	1,270	1,040	1,600	767	940	867	.....
3	.....	1,226	1,056	1,166	776	966	843	.....
4	.....	1,184	1,040	1,090	1,201	818	843	.....
5	.....	1,166	1,040	1,900	1,500	851	859	.....
6	.....	1,099	1,040	1,016	1,380	915	818	.....
7	.....	1,610	1,000	983	1,340	1,128	801	.....
8	.....	1,590	1,016	983	1,300	1,156	801	.....
9	.....	1,330	1,008	992	1,184	1,048	883	.....
10	.....	1,251	975	1,000	1,109	1,008	907	.....
11	.....	1,192	1,000	1,048	1,218	949	867	.....
12	.....	1,064	983	966	1,072	915	827	.....
13	.....	966	932	932	1,243	899	859	.....
14	.....	957	891	899	1,201	875	843	.....
15	.....	915	883	1,510	1,024	867	1,300	.....
16	.....	932	915	1,660	1,032	891	1,251	.....
17	.....	940	940	1,410	975	818	1,201	.....
18	1,680	915	957	1,300	907	835	958	.....
19	1,610	867	957	1,147	975	793	924	.....
20	1,630	907	949	810	1,000	793	924	.....
21	1,500	1,490	924	827	1,040	793	883	.....
22	1,490	1,280	949	750	1,008	801	867	.....
23	1,430	1,156	974	759	1,000	793	883	.....
24	1,470	1,146	1,700	736	975	835	883	.....
25	1,470	1,127	1,400	736	966	818	899	.....
26	1,380	1,127	1,200	767	958	801	883	.....
27	2,925	1,064	7,500	759	966	818	924	.....
28	2,356	1,064	5,050	701	915	843	907	.....
29	1,940	1,090	3,700	672	907	843	867	.....
30	1,350	1,071	2,900	743	915	867	859	.....
31	.....	1,080	.....	759	915	.....	867	.....
1903.								
1	.....	1,180	1,560	810	4,070	890	700	1,290
2	.....	1,420	1,700	750	2,270	810	810	1,420
3	.....	1,290	1,560	3,560	.....	700	1,070	1,290
4	.....	1,290	1,420	1,700	.....	750	750	1,290
5	.....	1,180	1,420	1,290	.....	810	810	1,180
6	.....	1,180	1,290	890	.....	1,180	810	1,070
7	.....	1,180	1,290	750	.....	980	1,560	1,070
8	.....	1,180	1,180	700	.....	1,180	980	1,420
9	.....	1,180	1,180	650	.....	1,070	890	1,560
10	.....	.....	1,180	650	.....	980	750	1,560

Mean daily discharge, in second-feet, of North Loup River near St. Paul, 1895–1903—Con.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1903.								
11	.....	1,980	1,180	700	980	980	890	1,420
12	.....	1,840	1,070	750	1,070	1,180	890	1,420
13	.....	1,420	1,070	700	1,980	810	980	1,290
14	.....	1,180	1,070	1,560	1,420	810	1,290	1,290
15	1,070	1,180	980	1,070	1,070	890	1,180	1,420
16	1,070	1,180	890	1,070	980	890	1,070	1,290
17	1,070	1,180	890	1,070	980	750	890	400
18	1,180	1,070	810	980	1,070	810	810	480
19	1,290	1,070	890	1,290	890	810	890	610
20	1,290	980	810	980	1,070	890	890	810
21	1,290	890	890	1,180	890	750	890	1,840
22	1,290	890	980	1,070	810	700	980	2,120
23	1,290	1,560	980	980	810	700	980	2,270
24	1,290	980	980	890	4,070	650	980	1,560
25	1,420	980	1,070	890	2,570	650	1,070	1,420
26	1,180	1,420	1,070	810	4,410	650	1,070	1,420
27	1,070	1,180	890	890	1,980	610	1,180	1,420
28	1,290	980	810	810	1,180	650	1,290	1,700
29	1,980	1,420	810	4,500	980	700	1,180	1,070
30	1,290	1,980	750	.....	980	810	1,180	1,070
31	.....	1,840	.....	.....	980	.....	1,290	.....

Estimated monthly discharge of North Loup River near St. Paul, 1895–1903.

[Drainage area, 4,020 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
April.								
1896	3,770	779	1,305	77,600	0.324	0.36	6	5.68
1897	3,530	575	1,329	79,100	.330	.37	8	4.63
1899 [a]	2,920	1,350	1,711	44,100	.....	.....	.....	1.00
1903 [b]	1,980	1,070	1,273	40,400	.....	.....	.....	2.03
May.								
1895	1,960	842	1,189	73,100	.295	.34	13	2.48
1896	2,330	570	1,040	63,900	.258	.30	10	3.02
1897	1,260	915	1,080	66,400	.269	.31	43	.72
1899	1,610	867	1,141	70,200	.283	.32	11	2.79
1903	1,980	890	1,276	75,900	.317	.35	5	6.56
June.								
1895	4,460	987	1,531	91,100	.380	.42	9	4.76
1896	4,100	1,139	1,494	88,900	.371	.41	6	6.65
1897	2,550	720	1,032	61,400	.256	.29	50	.57
1899	7,500	883	1,533	91,200	.380	.43	9	4.61
1903	1,700	750	1,089	64,800	.271	.30	14	2.14
July.								
1895	1,110	437	864	53,100	.215	.25	26	.98
1896	1,460	923	1,102	67,800	.274	.32	9	3.70
1897	1,890	610	824	50,700	.204	.23	14	1.60
1899	2,250	672	1,034	63,600	.256	.30	15	2.00
1903	4,500	650	1,170	72,000	.291	.34	5	7.22
August.								
1895	1,790	593	984	60,500	.244	.28	6	2.49
1896	1,070	835	904	55,600	.225	.26	31	.85
1897	900	610	675	41,500	.168	.19	7	2.63
1899	1,500	743	1,049	64,500	.261	.30	8	3.58
1903	4,410	810	1,631	100,300	.405	.47	8	6.12
September.								
1895	3,990	648	1,094	65,100	.272	.30	17	1.81
1896	1,020	835	913	54,300	.227	.25	12	2.07
1897	1,100	610	705	41,900	.175	.19	23	.84
1899	1,160	793	888	52,800	.221	.24	34	.70
1903	1,180	610	835	49,700	.208	.23	68	.34

[a] April 18 to 30.

[b] April 15 to 30.

Estimated monthly discharge of North Loup River near St. Paul, 1895–1903—Cont'd.

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
October.								
1895	1,450	842	1,146	70,500	0.285	0.33	165	0.20
1896	1,220	837	958	58,900	.238	.27	12	2.19
1897	1,320	720	979	60,200	.243	.28	6	4.56
1899	1,300	801	907	55,800	.225	.26	87	.30
1903	1,560	700	997	61,300	.248	.30	24	1.27
November.								
1895	1,860	566	1,015	60,400	.252	.28	32	.84
1903	2,270	400	1,316	78,300	.327	.36	60	.60

MIDDLE LOUP RIVER AT ST. PAUL.

Observations begun at St. Paul May 5, 1895, were suspended from time to time, and the records cover only the open seasons for the years 1895 to 1897, inclusive, 1899, and 1903. The station is located at the combination railroad and highway bridge 1 mile south of St. Paul, in sec. 10, T. 15 N., R. 10 W. The location is shown on the St. Paul topographic atlas sheet.

Refined measurements have not been possible at this station on account of the shifting sandy bed and the obstructions from old piling in the channel; neither has it been practicable to obtain records of winter flow.

Owing to the changeable nature of the river channel a number of gages have been necessary at this station. During the period from 1895 to 1897 the gage was an inclined staff on the right bank just below the bridge, with its datum 7.35 feet below a standard United States Geological Survey bench mark, 50 feet southeast of the right approach. On April 18, 1899, a second inclined staff was installed on the right bank 130 feet downstream from the bridge. The channel soon shifted to the opposite shore, and on June 7, 1899, a third inclined gage was installed on the left bank 200 feet downstream. The two later gages had the same datum, 7.54 feet below the standard bench mark described above. During 1903 a vertical staff gage was spiked to a downstream piling near the center of the bridge. Its datum was maintained the same as that of the two gages used during 1899, namely, 7.54 feet below the bench mark described. As the gages were located at different sections of the channel, no attempt has been made to refer the readings during the several periods to the same datum.

Discharge measurements of Middle Loup River at St. Paul, 1895–1903.

Date.	Hydrographer.	Gage height.	Discharge.
1895.		*Feet.*	*Sec.-ft.*
June 28	O. V. P. Stout	1.77	1,046
September 7	do	1.62	863
1896.			
May 8	E. N. Carbin	1.36	940
June 11	O. V. P. Stout	1.24	1,400
July 9	E. F. Youngfelt	1.42	1,332
August 21	do	1.42	984
September 23	do	1.53	1,015
1897.			
April 21	Adna Dobson	1.74	1,792
May 11	do	1.77	1,441
May 27	do	1.84	1,256
June 18	O. V. P. Stout	1.87	979
July 16	do	1.58	816
July 27	do	1.56	666
August 18	do	1.65	661
October 9	Adna Dobson	1.70	814
October 30	do	1.68	1,671
1899.		*Feet.*	*Sec.-ft.*
April 18	Glenn E. Smith	2.10	988
May 4	do	1.84	969
May 18	do	1.70	1,186
June 7	do	2.30	920
June 27	do	4.20	14,631
July 20	do	2.18	888
August 7	do	2.68	1,612
August 23	do	2.20	1,113
September 7	do	2.25	983
September 19	do	2.40	1,112
September 20	Adna Dobson	2.25	988
1903.			
April 7	J. C. Stevens		2,184
April 16	do	2.43	1,364
May 14	do	2.30	1,764
June 2	do	2.75	2,772
August 11	do	2.68	1,761
September 21	E. C. Murphy	2.41	1,170

Mean daily gage height, in feet, of Middle Loup River at St. Paul, 1895–1903.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1895.												
1						2.40	1.80	1.62	1.82	1.53	1.78	
2						2.39	1.77	1.61	1.75	1.52	1.72	
3						3.21	1.74	1.61	1.74	1.53	1.70	
4						2.78	1.74	1.60	1.70	1.58	1.70	
5					1.96	2.45	1.78	1.72	1.69	1.62	1.74	
6					1.93	2.15	1.72	1.61	1.65	1.65	1.70	
7					1.89	1.92	1.71	1.62	1.62	1.62	1.71	
8					1.81	1.81	1.70	1.64	1.58	1.62	1.65	
9					1.75	1.76	1.64	1.50	1.58	1.64	1.60	
10					1.75	1.81	1.63	1.51	1.56	1.55	1.51	
11					1.78	1.83	1.61	1.63	1.52	1.59	1.47	
12					1.79	1.85	1.59	1.61	1.50	1.58	1.46	
13					1.83	1.82	1.63	1.84	1.53	1.56	1.42	
14					1.84	1.81	1.75	1.81	1.52	1.62	1.75	
15					1.82	1.76	1.70	1.94	1.51	1.67	1.73	
16					1.80	1.78	1.65	1.93	1.60	1.67	1.57	
17					1.83	1.97	1.60	1.81	1.62	1.65	1.52	
18					1.82	2.07	1.50	1.71	1.63	1.61	1.35	
19					1.82	1.92	1.54	1.70	1.65	1.60	1.25	
20					1.86	1.89	1.55	1.71	1.59	1.58	1.30	
21					1.85	1.86	1.55	1.61	1.82	1.60	1.12	
22					1.85	1.78	1.60	1.62	1.87	1.63	1.11	
23					1.83	1.69	1.65	1.90	2.27	1.63	1.03	
24					1.83	1.70	1.73	1.90	1.72	1.46		
25					1.86	1.72	1.68	1.74	1.73	1.72	1.45	
26					1.87	1.65	1.67	1.84	1.67	1.72	1.60	
27					1.83	1.63	1.65	1.83	1.58	1.74	1.80	
28					1.77	1.77	1.60	1.84	1.55	1.80	2.15	
29					1.70	1.89	1.64	1.82	1.58	1.87	2.54	
30					1.94	1.83	1.61	1.91	1.53	1.68	2.86	
31					2.12		1.60	1.81		1.80		
1896.												
1				1.73	1.64	1.90	1.35	1.62	1.30	1.50	1.47	
2				1.63	1.53	1.78	1.30	1.58	1.31	1.55	1.22	
3				1.43	1.44	1.70	1.32	1.45	1.35	1.45	1.25	
4				1.42	1.52	1.72	1.33	1.40	1.40	1.42	1.22	
5				1.43	1.43	1.59	1.34	1.43	1.32	1.50	1.15	
6				1.33	1.33	1.54	1.31	1.39	1.45	1.52	1.30	
7				1.42	1.41	3.35	1.26	1.30	1.30	1.45	1.52	2.84
8				1.51	1.31	1.85	1.20	1.31	1.31	1.50	1.68	3.00
9				1.61	1.64	1.53	1.34	1.30	1.32	1.42	1.52	3.00
10				1.53	1.41	1.35	1.67	1.35	1.47	1.53	1.18	2.98

Mean daily gage height, in feet, of Middle Loup River at St. Paul, 1895–1903—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1896.												
11	.....	.....	.....	1.43	1.32	1.27	1.47	1.38	1.54	1.55	1.20	2.90
12	.....	.....	.....	1.82	1.42	1.27	1.38	1.36	1.50	1.50	1.24	2.88
13	.....	.....	.....	1.94	1.44	1.20	1.34	1.30	1.52	1.45	1.35	2.87
14	.....	.....	.....	1.83	1.50	1.20	1.29	1.34	1.65	1.50	1.48	2.87
15	.....	.....	.....	1.54	1.45	1.35	1.26	1.34	1.61	1.55	1.52	2.83
16	.....	.....	.....	1.62	1.69	1.38	1.27	1.35	1.55	1.43	1.57	2.83
17	.....	.....	.....	1.64	1.60	1.36	1.30	1.29	1.54	1.43	1.25	2.80
18	.....	.....	.....	2.11	1.57	1.34	1.33	1.35	1.50	1.45	1.55	.....
19	.....	.....	.....	2.40	1.51	1.39	1.32	1.34	1.55	1.50	1.62	.....
20	.....	.....	.....	1.84	1.54	1.35	1.33	1.40	1.60	1.53	1.15	1.95
21	.....	.....	.....	1.42	1.61	1.47	1.38	1.43	1.62	1.45	1.20	1.98
22	.....	.....	.....	1.32	1.44	1.45	1.36	1.44	1.55	1.51	1.35	2.00
23	.....	.....	.....	1.51	1.51	1.43	1.35	1.34	1.53	1.44	1.68	.....
24	.....	.....	.....	1.54	1.45	1.56	1.40	1.31	1.45	1.50	2.05	1.85
25	.....	.....	.....	1.63	1.51	1.60	1.40	1.35	1.50	1.43	2.21	1.76
26	.....	.....	.....	1.34	1.54	1.48	1.48	1.30	1.55	1.52	2.75	1.72
27	.....	.....	.....	1.53	1.53	1.41	1.53	1.25	1.55	1.50	2.80	.....
28	.....	.....	.....	1.60	1.40	1.40	1.50	1.30	1.61	1.45	2.60	1.57
29	.....	.....	1.70	1.90	1.54	1.33	1.42	1.34	1.65	1.75	.....	1.60
30	.....	.....	1.62	1.94	1.44	1.40	1.39	1.25	1.60	1.84	2.75	1.74
31	.....	.....	1.63	.....	1.63	.....	1.62	1.23	.....	1.53	.....	1.74
1897.												
1	1.50	2.40	.....	1.78	1.43	1.66	2.64	1.42	1.67	1.60	.....	.....
2	1.20	.....	2.26	1.95	1.50	1.69	2.60	1.48	1.60	1.58	.....	.....
3	.....	.....	3.59	2.40	1.54	1.94	2.17	1.50	1.55	1.65	.....	.....
4	.....	2.35	3.20	2.35	1.60	1.86	1.85	1.49	1.48	1.72	.....	.....
5	.....	.....	.....	1.80	1.65	1.86	1.75	1.67	1.50	1.76	.....	.....
6	2.00	.....	.....	1.95	1.68	1.67	1.68	1.75	1.62	1.68	.....	.....
7	2.20	.....	3.61	1.89	1.65	1.76	1.65	1.71	1.44	1.65	.....	.....
8	2.45	2.31	.....	1.78	1.70	1.75	1.58	1.95	1.38	1.67	.....	.....
9	2.57	.....	.....	1.63	1.78	1.74	1.55	1.92	1.43	1.64	.....	.....
10	.....	.....	3.00	1.66	1.75	1.79	1.69	2.25	1.74	1.78	.....	.....
11	2.89	.....	2.26	1.80	1.77	1.90	1.70	1.78	1.70	1.82	.....	.....
12	.....	2.33	1.45	2.25	1.72	1.85	1.78	1.85	1.73	1.80	.....	.....
13	2.88	.....	.....	2.03	1.78	1.77	1.72	1.77	1.76	1.68	.....	.....
14	2.87	.....	.....	2.25	1.76	1.80	1.55	1.75	1.71	1.80	.....	.....
15	2.70	.....	1.50	2.05	1.63	1.86	1.50	1.73	1.74	1.72	.....	.....
16	.....	2.30	.....	1.90	1.65	1.84	1.47	1.68	1.72	1.83	.....	.....
17	.....	.....	2.10	1.90	1.67	1.89	1.53	1.64	1.65	1.90	.....	.....
18	.....	2.38	2.10	1.65	1.77	1.87	1.60	1.60	1.63	1.90	.....	.....
19	2.47	.....	1.85	1.60	1.73	1.83	1.61	1.66	1.68	1.86	.....	.....
20	.....	2.74	1.86	1.63	1.68	1.68	1.72	1.63	1.65	1.80	.....	.....
21	.....	.....	.....	1.75	1.86	1.70	1.67	1.65	1.67	1.73	.....	.....
22	.....	.....	1.91	1.70	1.68	1.75	1.64	1.64	1.69	1.75	.....	.....
23	.....	.....	1.90	1.58	1.80	1.77	1.71	1.67	1.70	1.78	.....	.....
24	.....	2.15	.....	1.77	1.73	1.68	1.68	1.65	1.68	1.76	.....	.....
25	.....	.....	1.70	1.86	1.77	1.70	1.68	1.51	1.65	1.73	.....	.....
26	2.40	2.00	1.70	1.78	1.73	1.87	1.70	1.48	1.71	2.20	.....	.....
27	.....	.....	.....	1.80	1.83	1.92	1.58	1.50	1.64	2.55	.....	.....
28	.....	.....	.....	1.75	1.78	1.79	1.55	1.56	1.68	1.98	.....	.....
29	.....	.....	.....	1.88	1.75	1 77	1.67	1.64	1.50	1.80	.....	.....
30	.....	.....	.....	1.60	1.67	3.11	1.65	1.72	1.56	1.50	.....	.....
31	.....	.....	1.69	.....	1.68	.....	1.58	1.75	.....	1.77	.....	.....
1899.												
1	.....	.....	.....	.....	1.76	1.59	2.00	2.24	2.29	2.24	.....	.....
2	.....	.....	.....	.....	1.80	1.41	1.87	2.12	2.29	2.20	.....	.....
3	.....	.....	.....	.....	1.79	1.40	1.90	2.16	2.33	2.35	.....	.....
4	.....	.....	.....	.....	1.81	1.62	1.90	3.10	2.19	2.34	.....	.....
5	.....	.....	.....	.....	1.95	1.53	2.12	2.74	2.16	2.37	.....	.....
6	.....	.....	.....	.....	1.82	1.44	2.78	2.70	2.21	2.40	.....	.....
7	.....	.....	.....	.....	1.90	1.54	3.17	2.65	2.18	2.37	.....	.....
8	.....	.....	.....	.....	2.08	1.29	2.71	2.57	2.28	2.34	.....	.....
9	.....	.....	.....	.....	1.93	1.32	2.42	2.66	2.32	2.36	.....	.....
10	.....	.....	.....	.....	1.87	1.25	2.16	2.25	2.34	2.36	.....	.....
11	.....	.....	.....	.....	1.81	1.24	2.12	2.20	2.34	2.34	.....	.....
12	.....	.....	.....	.....	1.78	1.20	2.09	2.18	2.32	2.37	.....	.....
13	.....	.....	.....	.....	1.75	1.33	2.18	2.13	2.28	2.36	.....	.....
14	.....	.....	.....	.....	1.75	1.32	3.10	2.25	2.25	2.40	.....	.....
15	.....	.....	.....	.....	1.60	1.31	2.65	2.39	2.30	2.39	.....	.....

Mean daily gage height, in feet, of Middle Loup River at St. Paul, 1895–1903—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1899.												
16					1.62	1.32	2.55	2.36	2.30	2.49		
17					1.62	1.30	2.36	2.31	2.40	2.47		
18				2.10	1.72	1.28	2.20	2.30	2.38	2.49		
19				2.09	1.66	1.19	2.12	2.27	2.36	2.42		
20				2.12	1.70	1.15	2.12	2.21	2.30	2.40		
21				2.09	1.80	1.32	2.09	2.20	2.30	2.41		
22				2.10	2.15	1.34	2.11	2.15	2.30	2.42		
23				2.00	2.05	1.29	2.12	2.20	2.30	2.41		
24				2.00	1.70	1.29	2.15	2.20	2.27	2.40		
25				2.03	1.68	2.34	2.06	2.15	2.26	2.45		
26				2.00	1.60	4.17	2.02	2.19	2.24	2.42		
27				2.12	1.83	3.51	2.06	2.16	2.27	2.45		
28				2.39	1.92	3.30	2.30	2.12	2.26	2.44		
29				2.00	1.66	2.84	2.20	2.10	2.24	2.47		
30				1.74	1.49	2.35	2.10	2.13	2.22	2.49		
31					1.84		2.42	2.21		2.49		
1903.												
1					2.56	2.85	2.55	3.50	2.50	2.40	2.35	
2					2.55	2.80	2.55	3.50	2.40	2.53	2.55	
3					2.55	2.70	2.90	3.00	2.40	2.45	2.55	
4					2.48	2.60	3.88	2.65	2.40	2.50	2.30	
5					2.48	2.70	3.05	2.45	2.40	2.55	2.25	
6					2.50	2.60	2.70	2.30	2.50	2.60	2.20	
7					2.50	2.65	2.55	2.20	2.40	2.60	2.20	
8					2.55	2.62	2.45	2.20	2.50	2.60	2.20	
9					2.48	2.60	2.40	2.45	2.50	2.50	2.20	
10					2.45	2.55	2.45	2.40	2.55	2.40	2.20	
11					2.80	2.55	2.45	2.65	2.50	2.25	2.20	
12					2.74	2.55	2.35	2.82	2.40	2.25	2.20	
13					2.64	2.50	2.35	3.15	2.55	2.65	2.25	
14					2.30	2.50	2.72	2.87	2.60	2.50	2.25	
15					2.15	2.50	2.77	2.70	2.55	2.45	2.20	
16				2.55	2.35	2.55	2.65	2.75	2.50	2.40	2.30	
17				2.37	2.35	2.55	2.75	2.95	2.50	2.30	2.30	
18				2.37	2.35	2.50	2.65	2.60	2.50	2.25	1.70	
19				2.40	2.50	2.50	2.55	2.70	2.45	2.25	1.90	
20				2.58	2.40	2.50	2.55	2.50	2.40	2.20	2.00	
21				2.70	2.55	2.45	2.45	2.40	2.40	2.20	2.10	
22				2.51	2.40	2.58	2.40	2.40	2.40	2.20		
23				2.50	2.90	2.50	2.40	2.40	2.45	2.20		
24				2.50	2.87	2.72	2.40	2.40	2.45	2.20		
25				2.50	2.75	2.98	2.35	3.35	2.40	2.25		
26				2.50	2.85	2.80	2.30	3.75	2.40	2.25		
27				2.40	2.97	2.75	2.30	3.85	2.45	2.30		
28				2.42	2.70	2.65	2.30	3.60	2.40	2.20		
29				2.69	3.04	2.65	2.45	3.20	2.45	2.20		
30				2.58	3.93	2.65	2.77	2.90	2.45	2.25		
31					3.30		2.70	2.55		2.25		

Mean daily discharge, in second-feet, of Middle Loup River at St. Paul, 1895–1903.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1895.								
1			1,520	1,100	803	1,134	662	
2			2,200	1,050	785	1,018	644	
3			3,965	1,000	787	1,000	622	
4			2,987	1,000	771	933	740	
5		1,380	2,300	1,066	767	917	803	
6		1,325	1,723	967	787	850	850	
7		1,254	1,307	950	803	803	803	
8		1,117	1,117	993	835	740	803	
9		1,018	1,032	835	614	740	835	
10		1,018	1,117	820	630	707	695	
11		1,066	1,151	787	820	645	755	
12		1,083	1,185	755	787	614	740	
13		1,151	1,134	820	1,168	662	707	
14		1,168	1,117	1,018	1,117	645	803	
15		1,134	1,132	933	1,343	630	883	

Mean daily discharge, in second-feet, of Middle Loup River at St. Paul, 1895–1903—Con.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1895.								
16	.....	1,100	1,166	850	1,325	770	883	.....
17	.....	1,151	1,393	771	1,117	803	840	.....
18	.....	1,134	1,570	614	950	820	787	.....
19	.....	1,134	1,307	678	933	850	771	.....
20	.....	1,202	1,254	694	950	755	740	.....
21	.....	1,185	1,202	694	787	1,134	771	.....
22	.....	1,185	1,066	771	803	1,220	820	.....
23	.....	1,151	917	850	1,270	1,950	820	.....
24	.....	1,151	933	933	985	1,270	967	.....
25	.....	1,202	967	900	1,000	985	967	.....
26	.....	1,219	850	885	1,168	833	967	.....
27	.....	1,151	820	850	1,151	740	1,000	.....
28	.....	1,050	1,050	771	1,168	695	1,100	.....
29	.....	933	1,254	835	1,134	740	1,220	.....
30	.....	1,334	1,151	787	1,290	662	900	.....
31	.....	1,666	.....	771	1,117	.....	1,100	.....
1896.								
1	1,490	1,440	1,720	1,315	1,685	806	970	.....
2	1,360	1,300	1,550	1,240	1,550	806	1,022	.....
3	1,060	1,150	1,430	1,270	1,450	854	914	.....
4	1,020	1,230	1,460	1,270	1,200	914	880	.....
5	1,030	1,050	1,290	1,270	1,210	818	985	.....
6	900	900	1,215	1,195	1,125	962	1,010	.....
7	1,020	1,015	.....	1,080	955	782	930	.....
8	1,170	870	2,250	960	942	794	1,000	.....
9	1,310	1,360	1,775	1,332	900	806	914	.....
10	1,200	1,015	1,515	1,770	955	974	1,046	.....
11	1,050	890	1,400	1,420	980	1,058	1,082	.....
12	1,800	1,030	1,465	1,270	942	1,010	1,010	.....
13	1,700	1,060	1,300	1,300	840	1,034	974	.....
14	1,230	1,150	1,300	1,100	885	1,190	1,034	.....
15	1,310	1,080	1,560	1,040	870	1,142	1,110	.....
16	1,330	1,440	1,590	1,050	890	1,070	962	.....
17	1,060	1,300	1,540	1,110	810	1,058	974	.....
18	2,000	1,260	1,485	1,170	890	1,000	1,000	.....
19	2,430	1,165	1,560	1,160	870	1,058	1,070	.....
20	1,730	1,210	1,470	1,170	955	1,118	1,106	.....
21	1,070	1,310	1,660	1,260	984	1,130	1,010	.....
22	910	1,080	1,650	1,220	1,000	1,046	1,082	.....
23	1,170	1,170	1,580	1,210	880	1,015	1,000	.....
24	1,210	1,080	1,795	1,300	840	926	1,070	.....
25	1,340	1,170	1,820	1,300	880	985	985	.....
26	1,000	1,210	1,645	1,450	820	1,034	1,094	.....
27	1,190	1,200	1,505	1,540	760	1,034	1,070	.....
28	1,300	1,000	1,417	1,480	820	1,106	1,010	.....
29	1,860	1,215	1,315	1,320	855	1,154	1,370	.....
30	1,860	1,070	1,455	1,280	746	1,094	1,478	.....
31	.....	1,345	.....	1,670	720	.....	1,106	.....
1897.								
1	1,970	1,210	1,030	1,800	605	670	710	.....
2	2,500	1,270	1,040	1,740	625	650	705	.....
3	3,920	1,290	1,240	1,220	625	602	735	.....
4	3,600	1,350	1,140	955	620	615	765	.....
5	1,970	1,380	1,130	895	685	620	785	.....
6	2,000	1,410	960	866	700	855	770	.....
7	2,300	1,360	1,015	845	685	600	770	.....
8	1,970	1,410	1,000	815	755	585	790	.....
9	1,330	1,490	990	800	745	600	795	.....
10	1,600	1,440	1,005	865	885	690	870	.....
11	1,970	1,440	1,080	870	707	685	900	.....
12	3,270	1,360	1,020	915	720	700	900	.....
13	2,700	1,410	960	880	700	705	870	.....
14	3,400	1,360	960	800	690	695	960	.....
15	2,850	1,200	1,000	780	685	705	965	.....
16	2,300	1,200	970	815	670	700	1,040	.....
17	2,300	1,200	990	780	655	680	1,140	.....
18	1,500	1,300	970	790	645	675	1,170	.....
19	1,330	1,240	945	780	660	690	1,170	.....
20	1,800	1,180	860	805	650	685	1,150	.....

Mean daily discharge, in second-feet, of Middle Loup River at St. Paul, 1895–1903—Con.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1897.								
21	1,780	1,350	870	770	660	695	1,140	.....
22	1,780	1,150	895	745	655	705	1,200	.....
23	1,540	1,260	905	755	670	710	1,290	.....
24	1,760	1,180	860	735	660	705	1,340	.....
25	1,880	1,210	870	720	620	700	1,370	.....
26	1,720	1,160	970	715	610	720	2,130	.....
27	1,730	1,250	1,005	670	615	705	2,800	.....
28	1,620	1,190	920	660	605	720	1,960	.....
29	1,800	1,140	905	690	660	670	1,760	.....
30	1,420	1,060	2,600	685	685	695	1,440	.....
31	.....	1,055	.....	660	690	.....	1,840	.....
1899.								
1	.....	877	706	855	1,035	1,074	983	.....
2	.....	907	628	780	964	1,057	958	.....
3	.....	818	610	785	1,005	1,074	1,070	.....
4	.....	945	667	820	2,133	964	1,057	.....
5	.....	1,050	684	1,420	1,659	938	1,083	.....
6	.....	970	616	1,920	1,619	964	1,110	.....
7	.....	1,043	634	1,300	1,568	938	1,083	.....
8	.....	1,240	579	1,035	1,468	1,005	1,057	.....
9	.....	1,119	568	861	1,593	1,035	1,074	.....
10	.....	1,110	547	843	1,137	1,050	1,074	.....
11	.....	1,092	883	835	1,092	1,050	1,057	.....
12	.....	1,101	860	883	1,074	1,035	1,083	.....
13	.....	1,110	938	1,800	1,043	1,013	1,074	.....
14	.....	1,101	931	1,250	1,146	990	1,110	.....
15	.....	1,035	925	1,155	1,294	1,028	1,101	.....
16	.....	1,083	931	998	1,261	1,028	1,193	.....
17	.....	1,101	919	895	1,212	1,110	1,174	.....
18	990	1,203	913	856	1,203	1,092	1,193	.....
19	990	1,137	860	856	1,174	1,074	1,128	.....
20	1,020	1,137	843	843	1,119	1,028	1,110	.....
21	1,005	1,183	938	856	1,110	1,028	1,119	.....
22	1,020	1,518	951	865	1,065	1,028	1,128	.....
23	958	1,327	919	895	1,110	1,028	1,119	.....
24	971	958	919	847	1,119	1,005	1,110	.....
25	998	907	951	833	1,058	998	1,155	.....
26	976	834	1,400	856	1,083	983	1,128	.....
27	1,083	877	3,900	1,020	1,050	1,005	1,155	.....
28	1,372	938	2,610	958	1,013	998	1,146	.....
29	1,013	784	1,800	.....	983	983	1,174	.....
30	856	706	1,155	925	990	971	1,193	.....
31	.....	796	.....	1,184	1,035	.....	1,193	.....
1903.								
1	.....	1,970	3,500	1,550	8,300	1,430	1,250	1,160
2	.....	2,300	3,100	1,550	8,300	1,250	1,550	1,550
3	.....	2,300	2,300	3,500	4,300	1,250	1,340	1,550
4	.....	1,970	1,820	12,000	1,820	1,250	1,430	1,100
5	.....	1,970	2,300	4,700	1,340	1,250	1,550	1,050
6	.....	1,970	1,820	1,970	1,100	1,430	1,670	1,000
7	.....	2,300	1,820	1,550	1,000	1,250	1,670	1,000
8	.....	2,700	1,670	1,340	1,000	1,430	1,670	1,000
9	.....	2,300	1,670	1,250	1,340	1,430	1,430	1,000
10	.....	1,970	1,550	1,340	1,250	1,550	1,250	1,000
11	.....	5,100	1,550	1,340	1,820	1,430	1,050	1,000
12	.....	4,700	1,550	1,160	2,700	1,250	1,050	1,000
13	.....	3,500	1,430	1,160	5,500	1,550	1,820	1,050
14	.....	1,670	1,430	1,970	3,100	1,670	1,430	1,050
15	.....	1,250	1,430	2,300	1,970	1,550	1,340	1,000
16	1,550	1,670	1,550	1,820	2,300	1,430	1,250	1,100
17	1,160	1,670	1,550	2,300	3,900	1,430	1,100	1,100
18	1,160	1,670	1,430	1,820	1,670	1,430	1,050	845
19	1,250	1,970	1,430	1,550	1,970	1,340	1,050	870
20	1,820	1,670	1,430	1,550	1,430	1,250	1,000	890
21	2,300	2,300	1,340	1,340	1,250	1,160	1,000	930
22	1,550	1,550	1,670	1,250	1,250	1,160	1,000	.....
23	1,550	4,700	1,430	1,250	1,250	1,250	1,000	.....
24	1,670	4,300	1,970	1,250	1,250	1,250	1,000	.....
25	1,670	3,500	4,950	1,160	1,160	1,160	1,050	.....

Mean daily discharge, in second-feet, of Middle Loup River at St. Paul, 1895–1903—Con.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1903.								
26	1,670	3,900	2,700	1,100	10,500	1,160	1,050	.....
27	1,430	4,700	2,300	1,100	11,500	1,250	1,100	.....
28	1,550	2,700	1,820	1,100	9,100	1,160	1,000	.....
29	3,150	5,600	1,820	1,340	5,900	1,250	1,000	.....
30	2,300	12,400	1,820	2,300	3,500	1,250	1,050	.....
31	.....	7,200	.....	1,970	1,550	.....	1,050	.....

Estimated monthly discharge of Middle Loup River at St. Paul, 1895–1903.

[Drainage area, 6,850 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
April.								
1896	2,430	900	1,364	81,200	0.199	0.22	4	6.18
1897	3,600	1,330	2,000	119,000	.291	.32	7	4.89
1899[a]	1,370	856	1,019	60,600	.....	.....	.....	1.12
1903[b]	3,150	1,160	1,719	51,100	.....	.....	.....	1.48
May.								
1895	1,670	933	1,173	72,200	.171	.20	8	2.48
1896	1,440	870	1,154	71,000	.168	.19	6	3.12
1897	1,490	1,055	1,274	78,300	.195	.22	26	.83
1899	1,520	706	1,036	63,700	.150	.17	8	2.10
1903	12,400	1,250	3,209	197,300	.469	.54	7	7.41
June.								
1895	3,960	820	1,396	83,100	.204	.23	5	4.76
1896	2,250	1,220	1,542	88,700	.225	.24	5	4.77
1897	2,600	860	1,037	61,700	.151	.17	3	5.36
1899	14,000	547	1,444	85,900	.210	.23	4	5.57
1903	4,950	1,340	1,938	115,300	.283	.32	11	2.77
July.								
1895	1,100	614	861	52,900	.126	.14	14	.98
1896	1,770	960	1,271	78,100	.186	.21	6	3.43
1897	1,800	660	865	53,200	.130	.15	9	1.65
1899	1,920	780	1,007	61,900	.147	.16	5	3.31
1903	12,000	1,100	2,028	124,700	.296	.34	4	7.68
August.								
1895	1,340	614	973	59,800	.142	.16	6	2.49
1896	1,680	722	975	59,900	.142	.16	17	.92
1897	885	605	673	41,400	.098	.12	3	3.86
1899	2,130	964	1,207	74,200	.176	.21	7	3.16
1903	11,500	1,000	3,365	206,900	.491	.57	8	6.80
September.								
1895	1,950	614	877	52,200	.128	.14	8	1.81
1896	1,190	782	993	59,100	.145	.17	7	2.47
1897	855	585	675	40,200	.099	.11	7	1.51
1899	1,110	938	1,019	60,600	.148	.17	25	.69
1903	1,670	1,160	1,330	79,100	.194	.22	37	.60
October.								
1895	1,220	645	840	51,600	.123	.14	70	.20
1896	1,480	880	1,041	64,000	.152	.18	11	1.56
1897	2,800	705	1,169	71,900	.170	.20	5	4.40
1899	1,190	958	1,109	68,200	.162	.18	47	.38
1903	1,820	1,000	1,234	75,900	.180	.21	17	1.26

[a] April 18 to 30.

[b] April 16 to 30.

ELKHORN RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

Elkhorn River has its source in the sand hills of north-central Nebraska, flows southward, and debouches into Platte River near the Douglas-Sarpy county line. Its drainage area is comparatively broad and comprises over 6,000 square miles. The stream has little fall and meanders back and forth through its alluvial plain, traveling nearly 300 miles before it reaches the Platte.

Over almost its entire drainage area the surface formation consists of yellow clays and fine sandy loam—the loess—although its headwaters drain large tracts of sand hills. The soil throughout is very fertile and the valley has become famous for its production of hay. The annual precipitation, 70 per cent of which falls during the growing months, varies from 20 to 30 inches. Evaporation amounts to 4½ feet annually. Irrigation is practiced to some extent along the upper portions of the stream, a number of ditches being in operation, although abundant crops of hay and grain depending entirely on rainfall are raised on the rolling border lands. The middle and lower portions of the valley are found to be particularly favorable for the production of sugar beets.

The principal tributaries are the North Fork of the Elkhorn, joining the main stream at Norfolk, where a mill is operated by water power, and Logan Creek, draining the northeastern part of the State. Records of daily flow have been obtained at stations located at Norfolk, in Madison County, and at Arlington, in Washington County.

ELKHORN RIVER NEAR NORFOLK.

The station established July 16, 1896, near Norfolk was discontinued November 21, 1903. It was located at the Thirteenth Street Bridge, 2 miles south of Norfolk, in sec. 33, T. 24 N., R. 1 W.

Measurements were made from the highway bridge one-fourth mile above the gage. The results were not altogether satisfactory because the channel being composed of sand and silt changed with every freshet. No attempt was made to obtain records of winter flow, and it is doubtful if such records could have been made with any degree of success.

The gage was an inclined staff on the left bank about one-fourth mile downstream from the highway bridge and was referred to a standard United States Geological Survey bench mark 35 feet west of the gage.

Discharge measurements of Elkhorn River near Norfolk, 1896–1903.

Date.	Hydrographer.	Gage height.	Discharge.
1896.		*Feet.*	*Sec.-ft.*
July 16	O. V. P. Stout	0.98	191
August 27	do	.89	175
September 12	do	.86	176
1897.			
March 24	do	2.72	1,323
May 6	Adna Dobson	2.02	647
May 24	do	1.38	387
June 21	O. V. P. Stout	1.03	270
July 9	do	.90	212
July 30	do	.78	200
August 16	do	.89	220
September 2	do	.68	163
October 15	Adna Dobson	.79	168
1898.			
April 24	Glenn E. Smith	1.60	451
May 12	do	1.84	493
May 23	do	2.06	782
June 10	do	2.86	1,319
June 20	O. V. P. Stout	2.46	760
July 28	Glenn E. Smith	1.05	228
August 20	do	1.28	288
September 10	do	1.00	175
September 29	do	1.00	205
October 22	do	1.34	256
October 28	do	1.40	287
November 16	do	1.40	330
December 16	do	.....	216
December 27	do	.....	217
1899.			
January 26	do	.....	272
April 27	do	1.94	505
May 10	do	2.01	572
May 25	do	2.72	830
July 7	Glenn E. Smith	1.70	427
August 17	do	1.30	274
September 25	do	1.12	184
1900.			
April 20	O. V. P. Stout	2.43	568
May 4	do	3.65	1,207
May 27	do	2.03	463
Do	do	2.03	407
June 29	do	1.38	244
August 3	do	1.23	150
September 12	do	1.66	318
1901.			
March 21	Adna Dobson	2.30	466
May 13	C. B. Channel	2.55	550
June 27	O. V. P. Stout	6.69	3,445
July 31	do	1.36	215
December 30	B. E. Forbes	.....	252
1902.			
March 21	J. C. Stevens	2.39	570
April 13	do	2.22	534
May 12	do	2.16	483
June 16	do	2.54	551
July 3	do	4.36	1,376
July 26	do	2.45	475
August 22	do	1.78	296
September 29	do	5.65	2,497
November 14	do	2.34	502
1903.			
May 25	do	3.97	1,167
June 24	do	3.69	1,193
August 26	do	3.13	784
September 18	E. C. Murphy	2.37	389

Mean daily gage height, in feet, of Elkhorn River near Norfolk, 1896–1903.

Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1896.						
1	.....	1.80	0.75	0.92	1.34	.....
2	.....	1.57	.79	.92	1.34	.....
3	.....	1.29	.77	.94	1.30	.....
4	.....	1.17	.79	.95	1.30	.....
5	.....	1.11	.75	.96	1.29	.....
6	.....	1.05	.75	.95	1.28	.....
7	.....	1.03	.74	.94	1.28	.....
8	.....	1.02	.72	1.05	1.27	.....
9	.....	1.00	.75	1.05	1.25	.....
10	.....	.98	.84	1.05	2.05	1.90
11	.....	.98	.85	1.05	1.96	.....
12	.....	.90	.82	1.06	1.92	.....
13	.....	.91	.84	1.09	1.92	.....
14	.....	.89	.90	1.06	1.94	.....
15	.....	.93	.88	1.05	1.97	.....
16	0.98	.88	.87	1.05	2.12	.....

Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1896.						
17	0.95	0.93	0.90	1.04	2.18	.....
18	.93	.96	.92	1.05	2.32	.....
19	.94	.95	.93	1.07	2.11	.....
20	.89	.94	.94	1.05	1.98	1.55
21	.87	.99	.94	1.05	1.95	.....
22	.84	.95	.95	1.04	1.95	.....
23	1.06	.95	.92	1.04	1.96	.....
24	1.05	.90	.90	1.05	1.98	.....
25	1.03	.88	.89	1.04	1.98	.....
26	1.09	.84	.92	1.02	2.00	2.20
27	1.09	.82	.91	1.08	1.98	.....
28	1.05	.80	.95	1.02	1.96	.....
29	.99	.79	.95	1.05	1.92	.....
30	1.03	.80	.92	1.14	1.88	.....
31	1.36	.78	.....	1.30	.....	.....

Mean daily gage height, in feet, of Elkhorn River near Norfolk, 1896–1903—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1897.											
1					2.41	1.22	1.21	0.70	0.64	0.63	
2	2.90				2.30	1.33	1.21	.75	.67	.62	
3				4.06	2.22	1.34	1.12	.80	.63	.60	
4				5.95	2.15	1.29	1.08	.81	.61	.61	
5					2.05	1.26	1.02	.81	.62	.61	
6		2.86	3.01	5.66	2.01	1.26	.96	1.00	.58	.64	
7				6.43	1.93	1.24	.95	.91	.57	.64	
8				6.93	1.93	1.20	.89	1.06	.56	.70	
9	2.52			6.62	2.12	1.16	.88	1.06	.50	.67	
10				6.27	1.95	1.16	1.21	1.03	.65	.71	
11				5.50	1.86	1.15	1.36	.97	.65	.72	
12				5.26	1.80	1.12	1.10	.96	.64	.71	
13		2.99		4.90	1.78	1.11	1.02	.90	.64	.85	
14				4.52	1.74	1.11	1.00	.96	.64	.85	
15				4.28	1.73	1.12	.96	.95	.64	.77	
16	2.66			4.08	1.66	1.09	.91	.90	.73	.84	
17				3.99	1.65	1.16	.89	.81	.79	.94	
18				3.98	1.65	1.15	.86	.86	.78	9.71	
19				3.89	1.57		.82	.86	.77	1.02	
20		4.24	3.42	3.93	1.52	1.11	1.01	.81	.70	1.00	
21				3.87	1.48	1.03	1.02	.76	.77	.98	
22				3.72	1.47	1.03		.76	.70	.96	
23	2.04			3.56	1.47	1.04	.91	.76	.70	.94	
24				3.42	1.38	1.03	.90	.74	.76	.91	
25				3.26	1.35	1.00	.86	.75	.70	.94	
26				3.10	1.34	1.01	.86	.72	.69	.96	
27		3.22	2.24	2.94		1.00	.82	.70	.68	.99	
28				2.82	1.31	1.01	.81	.71	.64	1.06	
29				2.65	1.26	1.07	.76	.67	.66	1.07	
30	2.72			2.51	1.24	1.18	.76	.70	.63	1.09	
31					1.22		.76	.64		1.12	
1898.											
1				1.66	1.53	2.64	1.75	1.03	1.08	.93	1.37
2				1.65	1.53	2.53	1.73	1.03	1.00	.99	1.35
3				1.65	1.66	2.40	1.53	1.02	1.00	1.03	1.35
4				1.64	1.67	2.77	1.66	1.02	1.00	1.03	1.35
5				1.63	1.76	4.44	1.67	1.01	.98	1.04	1.35
6				1.63	1.82	4.70	1.66	1.02	.98	1.02	1.35
7				1.57	1.93	3.62	1.67	1.03	.97	1.02	1.35
8				1.58	1.87	3.36	1.71	1.33	.98	1.02	1.36
9				1.56	1.95	3.28	1.68	1.36	1.01	1.03	1.33
10				1.55	1.97	3.78	1.65	1.56	1.05	1.04	1.33
11				1.55	1.90	3.47	1.63	1.60	1.03	1.15	1.34
12				1.59	1.84	3.15	1.57	1.70	1.17	1.17	1.34
13				1.61	1.82	3.00	1.55	1.56	1.18	1.18	1.34
14				1.61	1.87	2.92	1.49	1.56	1.14	1.18	1.39
15				1.60	1.96	2.77	1.45	1.49	1.15	1.19	1.42
16				1.60	1.85	2.67	1.48	1.44	1.13	1.13	1.42
17				1.59	1.86	2.62	1.28	1.42	1.13	1.23	1.43
18				1.61	2.06	2.58	1.26	1.37	1.13	1.28	1.41
19				1.63	2.08	2.52	1.26	1.39	1.19	1.30	1.43
20				1.65	2.68	2.54	1.18	1.42	1.07	1.33	1.50
21				1.64	2.69	2.49	1.10	1.37	1.03	1.30	1.65
22				1.60	2.65	2.34	1.13	1.21	.96	1.32	1.72
23				1.60	2.56	2.25	1.10	1.22	.98	1.33	1.76
24				1.60	2.63	2.15	1.10	1.26	1.02	1.37	1.80
25				1.57	3.23	2.13	1.13	1.27	1.03	1.36	1.80
26				1.53	3.13	2.10	1.03	1.24	1.01	1.36	1.80
27				1.52	3.10	2.04	1.01	1.24	1.12	1.39	1.87
28				1.49	3.02	1.96	1.00	1.24	.97	1.38	1.87
29				1.47	2.99	1.91	.98	1.22	.97	1.38	1.87
30				1.52	2.89	1.85	1.03	1.16	.97	1.37	1.87
31					2.72		1.07	1.15		1.37	
1899.											
1					1.94	2.07	2.45	1.20	.97	1.13	
2					2.24	2.03	2.20	1.23	.97	1.19	
3					2.30	1.93	1.97	1.27	.76	1.23	
4					3.20	1.85	1.66	1.32	.70	1.26	
5					2.41	1.85	1.76	1.33	.67	1.22	

Mean daily gage height, in feet, of Elkhorn River near Norfolk, 1896–1903—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1899.											
6	.....	.....	.....	.....	2.31	1.87	1.74	1.33	1.06	1.23	.....
7	.....	.....	.....	1.90	2.24	2.45	1.68	1.36	1.08	1.22	.....
8	.....	.....	.....	1.87	2.16	2.22	1.71	1.35	1.12	1.27	.....
9	.....	.....	.....	1.90	2.06	1.92	1.67	1.45	1.15	1.28	.....
10	.....	.....	.....	1.93	2.00	1.82	1.73	1.27	1.13	1.25	.....
11	.....	.....	.....	2.00	1.92	1.75	1.73	1.28	1.13	1.20	.....
12	.....	.....	.....	2.01	1.83	1.74	1.78	1.48	1.10	1.20	.....
13	.....	.....	.....	2.05	1.78	1.64	1.69	1.48	1.06	1.29	.....
14	.....	.....	.....	2.05	1.73	1.63	1.65	1.33	1.02	1.27	.....
15	.....	.....	.....	2.03	1.77	1.64	1.56	1.34	1.06	1.33	.....
16	.....	.....	.....	1.98	1.77	1.65	1.51	1.33	1.11	1.30	.....
17	.....	.....	.....	1.98	1.74	1.60	1.48	1.38	1.09	1.32	.....
18	.....	.....	.....	1.97	1.70	1.53	1.45	1.26	1.11	1.31	.....
19	.....	.....	.....	1.99	1.80	1.57	1.43	1.25	1.04	1.32	.....
20	.....	.....	.....	1.90	3.50	1.57	1.45	1.23	1.03	1.34	.....
21	.....	.....	.....	1.97	3.58	1.57	1.38	1.25	1.02	1.33	.....
22	.....	.....	.....	1.89	3.34	1.53	1.34	1.23	1.03	1.33	.....
23	.....	.....	.....	1.85	2.63	1.45	1.26	1.17	1.04	1.33	.....
24	.....	.....	.....	1.84	2.65	1.55	1.21	1.17	1.17	1.31	.....
25	.....	.....	.....	1.84	2.75	2.07	1.23	1.14	1.11	1.36	.....
26	.....	.....	.....	1.87	2.80	1.75	1.23	1.13	1.10	1.31	.....
27	.....	.....	.....	1.93	2.85	2.65	1.24	1.12	1.12	1.34	.....
28	.....	.....	.....	1.95	2.75	3.75	1.24	.97	1.12	1.34	.....
29	.....	.....	.....	1.89	2.35	3.40	1.24	.95	1.13	1.31	.....
30	.....	.....	.....	1.73	2.20	3.02	1.21	.99	1.12	1.32	.....
31	.....	.....	.....	.....	2.07	.....	1.22	.97	.....	1.30	.....
1900.											
1	.....	.....	.....	1.89	3.56	2.09	1.34	1.28	1.35	1.32	1.86
2	.....	.....	.....	1.87	3.62	2.15	1.35	1.26	1.30	1.33	1.85
3	.....	.....	.....	1.80	3.62	2.20	1.34	1.24	1.29	1.35	1.82
4	.....	.....	.....	1.78	3.67	2.03	1.30	1.20	1.34	1.34	1.81
5	.....	.....	.....	1.78	3.65	1.99	1.33	1.21	1.35	1.34	1.82
6	.....	.....	.....	1.77	3.67	1.85	1.32	1.16	1.27	1.34	1.81
7	.....	.....	.....	1.76	3.58	1.87	1.23	1.16	1.25	1.36	1.81
8	.....	.....	.....	1.71	3.40	1.80	1.23	1.15	1.25	1.34	1.82
9	.....	.....	.....	1.83	3.24	1.60	1.25	1.14	1.24	1.34	1.82
10	.....	.....	.....	1.87	3.25	1.69	1.22	1.10	1.25	1.35	1.80
11	.....	.....	.....	1.79	2.95	1.99	1.10	1.04	1.55	1.35	1.82
12	.....	.....	.....	1.83	2.84	1.80	1.15	1.13	1.58	1.32	1.75
13	.....	.....	.....	1.80	2.76	1.61	1.13	1.14	1.52	1.31	1.74
14	.....	.....	.....	1.79	2.62	1.60	1.13	1.20	1.49	1.35	1.76
15	.....	.....	.....	1.84	2.59	1.53	1.62	1.30	1.47	1.35	1.76
16	.....	.....	.....	1.97	2.52	1.58	1.62	1.97	1.45	1.34	1.74
17	.....	.....	.....	2.57	2.52	1.57	1.55	1.67	1.42	1.35	1.75
18	.....	.....	.....	2.40	2.37	1.50	1.63	1.65	1.38	1.35	.....
19	.....	.....	.....	2.39	2.32	1.50	1.62	1.68	1.42	1.34	.....
20	.....	.....	.....	2.42	2.24	1.50	1.52	1.71	1.46	1.36	.....
21	.....	.....	.....	2.42	2.17	1.57	1.52	1.62	1.46	1.62	.....
22	.....	.....	.....	2.48	2.13	1.57	1.52	1.52	1.38	1.75	.....
23	.....	.....	.....	2.66	2.11	1.49	1.53	1.48	1.42	1.97	.....
24	.....	.....	.....	2.99	1.95	1.47	1.53	1.39	1.41	1.85	.....
25	.....	.....	.....	3.02	1.95	1.45	1.52	1.42	1.42	1.85	.....
26	.....	.....	.....	3.10	2.02	1.39	1.39	1.48	1.35	1.83	.....
27	.....	.....	.....	3.31	1.96	1.34	1.41	1.53	1.33	1.86	.....
28	.....	.....	.....	3.48	1.93	1.34	1.39	1.53	1.35	1.85	.....
29	.....	.....	.....	3.68	1.83	1.36	1.42	1.46	1.35	1.85	.....
30	.....	.....	.....	3.54	1.86	1.35	1.34	1.42	1.33	1.90	.....
31	.....	.....	.....	.....	1.85	.....	1.30	1.35	.....	1.91	.....
1901.											
1	.....	.....	.....	2.22	2.74	1.65	5.03	1.42	.90	1.81	1.81
2	.....	.....	.....	2.25	2.72	1.60	4.82	1.31	.89	1.80	1.80
3	.....	.....	.....	2.28	2.69	1.60	4.45	1.29	.89	1.77	1.82
4	.....	.....	.....	2.34	2.46	1.75	4.00	1.24	.87	1.76	1.84
5	.....	.....	.....	2.36	2.30	1.71	4.42	1.23	.87	1.75	1.85
6	.....	.....	.....	2.34	2.44	1.60	4.32	1.20	.85	1.75	1.87
7	.....	.....	.....	2.34	3.24	1.63	4.11	1.17	.85	1.75	1.88
8	.....	.....	.....	2.34	3.03	1.67	3.95	1.15	.92	1.76	1.93
9	.....	.....	.....	2.35	3.04	1.65	3.85	1.14	1.05	1.76	1.95
10	.....	.....	.....	2.36	2.84	1.85	3.65	1.12	1.06	1.76	1.93

Mean daily gage height, in feet, of Elkhorn River near Norfolk, 1896–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1901.											
11				2.37	2.73	1.76	3.42	1.10	1.25	1.75	1 92
12				2.42	2.64	1.80	3.05	1.03	1.53	1.76	1.90
13				2.46	2.55	1.85	2.79	1.00	1.83	1.78	1.87
14				2.64	2.63	2.05	2.65	.99	1.92	1.81	1.85
15				2.62	2.29	2.18	2.53	.95	1.97	1.83	1.85
16				2.74	2.29	3.06	2.40	.94	1.96	1.85	1.85
17				2.94	2.25	3.24	2.33	.89	1.85	1.85	1.87
18				3.04	2.20	3.42	2.14	1.14	1.81	1.85	1.87
19				3.04	2.20	4.05	1.95	1.12	1.80	1.86	1.87
20				3.06	2.11	4.80	1.90	1.10	1.88	1.87	1.87
21				3.06	2.02	5.18	1.90	1.00	1.87	1.87	1.88
22				3.27	2.00	5.02	1.85	.96	1.86	1.87	1.88
23				3.33	1.95	5.40	1.83	.95	1.85	1.87	1.90
24				3.23	1.85	5.62	1.80	.93	1.83	1.89	1.83
25				2.22	1.90	6.17	1.73	.92	1.82	1.87	1.83
26				3.22	1.85	6.53	1.70	.95	1.81	1.8	1.85
27				3.16	1.85	6.67	1.65	.97	1.83	1.8	1.85
28				3.16	1.85	6.67	1.62	.99	1.84	1.8	1.81
29				2.99	1.85	6.00	1.60	.95	.....	1.8	1.81
30				2.84	1.80	5.70	1.54	.92	.....	1.81	1.81
31				.....	1.75	.....	1.52	.91	.....	.....	.....
1902.											
1				2.95	2.55	2.50	1.90	1.90	2.35	5.92	2.88
2				3.25	2.60	2.35	3.11	1.90	2.70	5.76	2.71
3				3.45	2.60	2.20	4.48	1.85	2.50	5.52	2.69
4				3.20	2.55	2.10	4.00	1.85	2.40	5.35	2.65
5				3.20	2.55	2.95	3.55	1.83	2.10	4.73	2.65
6				2.97	2.50	3.07	3.05	1.81	1.90	4.60	2.59
7				2.90	2.50	2.50	2.90	1.80	1.95	4.39	2.58
8				2.85	2.45	2.55	2.72	1.79	1.97	4.26	2.58
9				2.80	2.40	2.50	2.80	1.77	1.95	4.17	2.47
10			2.55	2.70	2.30	2.40	2.85	1.75	1.99	4.06	2.47
11			2.60	2.50	2.25	2.35	2.85	1.75	2.00	4.01	2.43
12			2.62	2.32	2.20	2.20	2.90	1.73	2.01	4.26	2.30
13			2.75	2.20	2.20	2.10	2.90	1.70	2.00	4.10	2.21
14			2.72	2.15	2.15	2.40	3.40	1.68	1.98	3.88	2.10
15			2.72	2.15	2.10	2.40	4.00	1.65	1.93	3.66	2.15
16			.....	2.12	2.15	2.70	3.85	1.70	1.90	3.41	2.03
17			.....	2.13	2.20	2.80	3.55	1.70	1.85	3.01	1.99
18			.....	2.15	2.30	2.75	3.85	1.73	1.85	2.97	1.97
19			.....	2.13	2.60	2.70	3.00	1.75	1.84	3.72	1.97
20			2.65	2.10	2.80	2.61	3.40	1.75	2.00	3.65	2.03
21			2.52	2.15	2.85	2.50	3.25	1.78	2.35	3.49	2.03
22			2.45	2.10	2.80	2.30	3.05	1.80	2.45	3.42	2.09
23			2.42	2.10	2.75	2.22	2.90	1.85	2.37	3.39	2.13
24			2.38	2.01	2.75	2.12	2.85	2.00	2.65	3.29	1.12
25			2.40	2.00	2.70	1.95	2.60	2.63	2.83	3.22	1.22
26			2.40	2.20	2.60	1.85	2.49	2.78	3.10	3.16	1.26
27			2.40	2.35	2.61	1.82	2.40	2.90	3.47	3.06	.....
28			2.45	2.35	2.61	1.80	2.00	3.00	4.89	2.96	.....
29			2.38	2.45	2.60	1.75	2.19	2.60	5.69	2 95	.....
30			2.35	2.50	2.55	1.75	2.10	2.10	5.94	2.91	.....
31			2.30	.....	2.55	.....	2.00	2.10	.....	2.82	.....
1903.											
1				4.40	3.54	6.69	3.32	3.52	3.61	1.60	1.33
2				4.26	3.81	6.46	3.01	3.67	3.53	2.03	1.37
3				4.21	3.73	6.94	3.33	3.85	3.42	2.17	1.49
4				4.12	3.65	6.76	7.80	3.87	3.30	2.09	1.57
5				4.01	3.61	7.22	6.33	3.65	3.23	2.04	1.89
6				3.97	3.52	7.15	4.21	3.76	3.25	2.17	1.72
7				3.84	3.31	6.98	3.84	3.75	3.14	3.19	1.64
8				3.78	3.32	6.49	3.32	3.64	3.01	2.61	1.51
9			7.00	3.63	3.30	6.26	3.16	3.58	2.97	2.15	1.43
10			8.30	3.60	5.66	5.89	2.81	3.45	2.91	1.91	1.36
11			7.50	3.54	5.11	5.58	2.63	3.65	2 85	1.43	1.29
12			5.30	3.51	5.08	5.18	2.21	3.85	2.98	1.62	1.30
13			4.54	3.42	4.38	4.88	2.32	3.90	3.01	1.73	1.30
14			5.00	3.31	3.95	4.53	2.51	4.02	3.00	1.64	1.29
15			5.88	3.20	3.97	4.21	2.37	4.33	2.96	1.51	1.27

Mean daily gage height, in feet, of Elkhorn River near Norfolk, 1896–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1903.											
16			6.80	3.17	4.07	4.05	2.43	3.97	2.84	1.56	1.23
17			7.95	3.11	4.31	3.84	4.45	3.87	2.62	1.49	
18			7.75	3.04	4.01	3.62	3.71	3.72	2.42	1.47	
19			6.12	2.94	3.85	3.42	3.57	3.75	2.38	1.47	
20			5.87	2.91	3.77	3.21	3.21	3.80	2.27	1.47	
21			5.85	2.81	3.61	4.92	2.95	3.91	2.18	1.43	1.33
22			5.82	2.71	3.61	4.43	2.86	3.63	2.16	1.41	
23			5.80	2.63	3.73	4.21	2.73	3.54	2.15	1.39	
24			5.86	2.59	3.95	3.51	2.65	3.43	2.15	1.35	
25			5.71	2.55	3.97	3.33	2.54	3.43	2.13	1.31	
26			5.54	2.45	3.97	3.20	2.61	3.62	2.10	1.29	
27			5.29	2.42	4.50	3.03	2.72	3.83	1.98	1.36	
28			5.09	2.65	4.43	3.00	2.83	5.00	1.85	1.34	
29			4.97	3.15	6.55	2.94	2.89	4.38	1.78	1.37	
30			4.76	3.35	9.25	2.83	2.97	4.13	1.61	1.33	
31			4.50		7.68		2.99	3.94		1.30	

Mean daily discharge, in second-feet, of Elkhorn River near Norfolk, 1896–1903.

Day.	July.	Aug.	Sept.	Oct.	Nov.	Day.	July.	Aug.	Sept.	Oct.	Nov.
1896.						1896.					
1		570	158	182	313	17	186	183	179	210	
2		409	163	182	313	18	184	188	192	213	
3		294	161	185	298	19	185	186	183	220	
4		253	163	186	298	20	178	185	185	213	
5		233	158	188		21	174	193	185	213	
6		213	158	186		22	175	186	186	210	
7		206	157	185		23	216	186	182	210	
8		203	155	213		24	225	179	179	213	
9		197	158	213		25	206	176	178	210	
10		191	170	213		26	226	170	182	203	
11		191	172	213		27	226	167	180	223	
12		179	167	216		28	213	165	186	203	
13		180	170	226		29	194	163	186	213	
14		177	178	216		30	206	165	182	243	
15		186	176	213		31	321	162		298	
16	191	176	174	213							

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Day.	May.	June.	July.	Aug.	Sept.	Oct.
1897.							1897.						
1	940	330	320	165	150	145	17	500	310	220	195	190	235
2	840	370	325	180	160	145	18	500	305	210	210	190	245
3	780	370	290	195	150	140	19	460	310	200	210	185	260
4	740	355	285	215	160	140	20	440	275	260	195	170	255
5	680	340	260	215	145	140	21	430	265	260	180	185	250
6	660	340	240	255	135	140	22	420	265	230	180	170	240
7	620	340	240	230	130	150	23	420	270	230	180	170	235
8	620	320	220	275	130	170	24	390	265	225	180	180	230
9	720	310	220	275	115	160	25	385	255	210	180	170	235
10	630	310	325	265	155	170	26	370	260	210	170	165	240
11	590	305	380	245	155	170	27	370	255	200	170	160	250
12	560	290	290	240	150	170	28	350	280	195	170	150	275
13	560	290	260	225	150	210	29	340	280	180	160	155	280
14	540	290	255	240	150	210	30	320	320	180	170	145	285
15	530	290	240	240	150	185	31	330		180	150		295
16	500	285	230	225	175	205							

Mean daily discharge, in second-feet, of Elkhorn River near Norfolk, 1896–1903—Con.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1898.									
1	.....	500	410	860	435	215	195	185	.....
2	.....	495	405	800	430	215	175	200	.....
3	.....	495	460	730	350	210	170	185	.....
4	.....	490	460	1,060	400	210	170	210	.....
5	.....	490	490	.....	405	210	165	210	.....
6	.....	490	515	.....	405	210	165	210	.....
7	.....	465	565	.....	410	215	160	200	.....
8	.....	470	550	.....	430	310	165	195	.....
9	.....	460	565	.....	420	320	175	200	.....
10	.....	455	565	.....	405	390	185	200	.....
11	.....	455	530	.....	400	400	175	235	.....
12	.....	473	490	.....	380	440	210	245	.....
13	.....	480	480	.....	370	385	220	240	.....
14	.....	480	490	1,380	350	380	210	235	.....
15	.....	480	560	1,140	340	360	215	235	.....
16	.....	480	455	1,000	350	340	210	210	.....
17	.....	473	455	930	285	330	215	240	.....
18	.....	480	530	870	280	310	220	.....	.....
19	.....	485	525	805	280	320	235	.....	.....
20	.....	490	840	810	255	325	175	260	.....
21	.....	480	830	780	235	305	195	250	.....
22	.....	460	790	690	210	250	175	250	.....
23	.....	455	730	640	235	220	245	255	.....
24	.....	450	760	585	240	260	200	270	.....
25	.....	440	1,470	585	245	265	210	265	.....
26	.....	425	1,320	580	215	250	220	265	.....
27	.....	415	1,300	550	210	250	240	280	.....
28	.....	405	1,170	520	210	250	195	275	.....
29	.....	399	1,160	500	200	245	195	275	.....
30	.....	410	1,045	475	215	220	195	.....	.....
31	.....	.....	895	.....	230	220	.....	.....	.....
1899.									
1	.....	.....	515	469	820	243	158	180	.....
2	.....	.....	660	456	633	253	158	197	.....
3	.....	.....	562	419	532	266	105	206	.....
4	.....	.....	700	392	408	282	90	215	.....
5	.....	.....	788	392	448	286	80	203	.....
6	.....	.....	788	404	439	286	180	206	.....
7	.....	490	694	660	419	296	186	203	.....
8	.....	477	647	553	431	292	194	218	.....
9	.....	490	594	431	416	327	203	221	.....
10	.....	502	567	396	430	266	194	209	.....
11	.....	532	528	370	439	266	194	194	.....
12	.....	536	480	370	460	334	186	194	.....
13	.....	553	460	334	423	334	174	221	.....
14	.....	553	431	334	408	282	161	215	.....
15	.....	545	435	340	370	286	171	234	.....
16	.....	523	423	347	352	282	186	221	.....
17	.....	523	404	334	341	299	177	227	.....
18	.....	519	374	309	330	259	183	224	.....
19	.....	528	400	326	323	256	163	227	.....
20	.....	490	1,700	330	330	250	161	234	.....
21	.....	519	1,750	334	306	256	156	227	.....
22	.....	477	1,500	323	292	246	159	227	.....
23	.....	469	772	296	266	227	161	227	.....
24	.....	464	780	334	250	224	197	221	.....
25	.....	464	868	545	256	212	180	237	.....
26	.....	477	905	416	256	209	174	221	.....
27	.....	502	953	972	259	206	180	227	.....
28	.....	515	858	2,200	259	161	177	227	.....
29	.....	490	580	1,900	259	156	180	218	.....
30	.....	427	519	1,400	246	166	177	221	.....
31	.....	.....	464	.....	250	163	.....	215	.....
1900.									
1	.....	390	1,180	465	225	167	210	198	380
2	.....	380	1,210	492	230	160	195	200	375
3	.....	432	1,190	513	225	153	190	210	365
4	.....	343	1,210	445	213	143	204	205	362
5	.....	343	1,200	428	220	145	213	205	365

Mean daily discharge, in second-feet, of Elkhorn River near Norfolk, 1896–1903—Con.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1900.									
6	.....	340	1,280	370	215	135	190	205	362
7	.....	330	1,150	383	188	135	185	213	362
8	.....	318	2,400	358	188	130	185	205	365
9	.....	352	830	290	190	127	180	205	365
10	.....	367	840	320	180	117	185	210	360
11	.....	340	670	430	145	110	280	210	365
12	.....	350	624	358	160	127	290	198	340
13	.....	340	600	290	153	130	264	195	337
14	.....	330	545	290	150	150	250	210	343
15	.....	346	545	265	294	177	247	210	343
16	.....	390	526	283	294	400	238	205	337
17	.....	648	545	280	304	290	230	210	340
18	.....	565	490	257	294	283	220	210	.....
19	.....	560	485	257	290	293	230	205	.....
20	.....	568	465	257	256	310	242	213	.....
21	.....	563	445	280	250	280	242	292	.....
22	.....	580	440	283	250	248	220	340	.....
23	.....	650	440	257	250	204	230	425	.....
24	.....	840	380	250	250	214	228	375	.....
25	.....	850	385	246	248	220	230	375	.....
26	.....	910	383	230	177	240	210	368	.....
27	.....	1,080	400	220	210	260	200	380	.....
28	.....	1,280	395	223	200	260	210	375	.....
29	.....	1,570	360	230	210	240	210	375	.....
30	.....	1,210	370	230	285	230	200	395	.....
31	.....	.....	367	.....	173	204	.....	400	.....
1901.									
1	.....	431	640	282	2,003	231	150	322	322
2	.....	441	630	270	1,857	211	149	319	319
3	.....	452	617	270	1,608	207	149	312	324
4	.....	471	516	307	1,324	199	147	310	329
5	.....	479	457	297	1,590	197	147	308	332
6	.....	471	508	270	1,517	192	142	308	337
7	.....	471	881	277	1,390	187	142	308	339
8	.....	471	765	287	1,294	184	152	310	352
9	.....	475	767	282	1,235	182	169	310	357
10	.....	479	687	332	1,058	179	170	310	352
11	.....	482	635	309	983	176	201	308	349
12	.....	501	593	319	787	166	254	310	344
13	.....	516	550	332	663	162	327	315	337
14	.....	593	589	384	598	161	349	322	332
15	.....	584	454	419	544	156	362	326	332
16	.....	640	454	777	493	155	360	332	332
17	.....	729	441	881	468	149	332	332	337
18	.....	782	425	983	404	182	322	332	337
19	.....	782	425	1,383	357	179	319	334	337
20	.....	792	399	1,879	344	176	339	337	337
21	.....	792	375	2,164	344	162	337	337	339
22	.....	901	370	1,991	332	157	334	337	339
23	.....	933	357	2,300	326	156	332	337	344
24	.....	880	332	2,503	319	154	326	342	327
25	.....	875	344	2,997	302	152	324	337	327
26	.....	875	332	3,330	294	156	322	332	332
27	.....	841	332	3,435	282	158	326	326	332
28	.....	841	332	3,438	275	161	328	324	322
29	.....	758	332	2,831	270	156	332	322	322
30	.....	687	319	2,567	256	152	326	322	322
31	.....	.....	306	.....	215	151	.....	322	.....
1902.									
1	.....	855	663	580	287	321	454	2,408	701
2	.....	1,022	687	516	691	321	593	2,597	621
3	.....	1,028	687	457	1,462	309	548	2,381	616
4	.....	999	659	425	1,170	309	508	2,232	598
5	.....	999	668	782	909	304	381	1,787	598
6	.....	876	635	840	673	299	329	1,684	571
7	.....	840	630	566	607	299	341	1,544	566
8	.....	821	607	584	531	296	349	1,462	566
9	.....	797	584	557	571	292	344	1,408	520
10	553	749	540	512	598	287	354	1,342	520

Mean daily discharge, in second-feet, of Elkhorn River near Norfolk, 1896–1903—Con.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1902.									
11	575	659	516	489	593	287	357	1,312	504
12	584	575	497	435	630	282	360	1,462	457
13	644	527	497	403	635	272	357	1,384	428
14	630	508	475	497	882	270	352	1,234	397
15	630	508	457	497	1,234	263	341	1,105	411
16	.....	497	471	621	1,146	277	334	965	378
17	.....	497	489	663	977	277	321	758	367
18	.....	504	523	635	977	284	321	739	362
19	.....	497	659	603	701	290	319	1,146	362
20	598	482	749	557	954	290	360	1,105	378
21	630	501	773	504	825	296	461	1,011	378
22	598	482	744	438	729	301	497	971	394
23	584	479	720	438	653	314	471	954	405
24	571	447	715	378	640	352	589	898	.....
25	580	444	691	329	531	557	668	860	.....
26	580	516	640	301	489	626	797	830	.....
27	584	570	644	290	457	682	994	782	.....
28	607	570	640	282	344	729	1,886	734	.....
29	580	621	635	265	394	544	2,534	729	.....
30	566	644	607	259	370	378	2,750	710	.....
31	544	.....	607	.....	344	378	.....	668	.....
1903.									
1	.....	1,500	940	3,320	960	1,020	1,010	210	180
2	.....	1,420	1,090	3,120	800	1,100	960	300	190
3	.....	1,390	1,050	3,560	960	1,210	890	340	230
4	.....	1,340	1,000	3,410	5,000	1,220	825	320	240
5	.....	1,270	980	3,840	3,190	1,090	790	300	320
6	.....	1,250	930	3,860	1,480	1,150	790	340	280
7	.....	1,170	820	3,740	1,260	1,150	730	710	260
8	.....	1,080	820	3,200	950	1,080	670	460	230
9	3,680	990	810	3,000	860	1,050	640	330	210
10	4,500	970	2,350	2,680	690	960	610	270	200
11	4,000	940	1,920	2,410	610	1,080	580	180	190
12	2,140	920	1,710	2,080	440	1,200	640	210	190
13	1,600	870	1,430	1,870	480	1,230	640	230	190
14	1,920	820	1,180	1,640	550	1,290	640	240	190
15	2,640	760	1,190	1,440	490	1,480	610	190	190
16	3,470	750	1,250	1,350	510	1,260	550	200	180
17	4,200	720	1,390	1,230	1,620	1,200	460	210	.....
18	4,100	690	1,210	1,100	1,160	1,110	400	200	.....
19	2,850	640	1,120	990	1,070	1,130	390	200	.....
20	2,630	630	1,070	890	870	1,160	360	200	.....
21	2,620	580	990	1,970	740	1,220	340	200	200
22	2,590	540	980	1,640	700	1,060	330	190	.....
23	2,570	500	1,050	1,500	640	1,000	330	190	.....
24	2,620	490	1,180	1,090	600	940	330	180	.....
25	2,490	480	1,170	980	540	940	330	180	.....
26	2,340	440	1,160	910	580	1,050	320	180	.....
27	2,130	430	1,500	820	630	1,170	290	190	.....
28	1,980	510	1,460	800	670	1,920	260	180	.....
29	1,890	740	3,160	770	700	1,490	240	190	.....
30	1,740	840	8,000	720	740	1,330	210	180	.....
31	1,570	.....	5,000	.....	740	1,210	.....	180	.....

Estimated monthly discharge of Elkhorn River near Norfolk, 1896–1903.

[Drainage area, 2,470 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
March.								
1902 [a]	640	540	591	21,100				1.37
1903 [b]	4,500	1,570	2,707	123,500				1.25
April.								
1898	500	399	464	27,600	0.198	0.21	13	1.59
1899 [c]	553	427	503	29,900				1.01
1900	1,570	318	586	34,900	.237	.27	5	5.21
1901	933	431	648	38,600	.261	.29	14	2.06
1902	1,030	444	651	38,700	.263	.29	16	1.86
1903	1,500	430	856	50,900	.345	.39	17	2.35
May.								
1897	940	320	539	33,100	.218	.23	22	1.17
1898	1,470	405	704	43,300	.284	.33	7	4.97
1899	1,750	374	745	45,800	.301	.35	6	5.72
1900	2,400	360	721	44,300	.291	.33	11	3.05
1901	881	306	489	30,100	.197	.23	9	2.46
1902	773	471	616	37,900	.248	.29	11	2.71
1903	8,000	810	1,610	99,000	.610	.75	10	7.22
June.								
1897	370	255	302	18,000	.122	.14	4	3.65
1898		475	1,000	59,500	.404	.45	10	4.56
1899	2,200	296	550	32,700	.222	.24	5	4.67
1900	513	220	316	18,800	.128	.15	7	2.10
1901	3,440	270	1,271	75,600	.513	.57	7	8.37
1902	840	259	490	29,200	.198	.22	4	5.51
1903	3,860	720	1,998	118,900	.809	.90	31	2.88
July.								
1896 [d]	321	172	206	6,500				5.22
1897	380	180	244	15,000	.098	.12	4	2.74
1898	435	200	317	19,500	.128	.15	6	2.54
1899	820	246	376	23,100	.152	.17	6	2.66
1900	304	145	223	13,700	.090	.10	2	4.62
1901	2,000	215	765	47,000	.309	.35	60	.58
1902	1,460	287	710	43,600	.286	.33	5	6.61
1903	5,000	440	1,007	61,900	.406	.47	7	6.50
August.								
1896	570	162	210	12,900	.085	.10	8	1.25
1897	275	150	206	12,700	.083	.09	3	2.77
1898	440	210	285	17,500	.115	.14	6	2.42
1899	334	156	254	15,600	.103	.12	4	3.06
1900	400	110	203	12,500	.082	.09	2	3.53
1901	231	149	172	10,600	.070	.08	8	.96
1902	729	263	354	21,800	.143	.16	4	4.57
1903	1,920	940	1,177	72,400	.475	.55	10	5.52
September.								
1896	186	155	173	10,300	.070	.08	3	2.47
1897	190	115	158	9,400	.064	.07	3	2.09
1898	245	160	195	11,600	.079	.09	7	1.23
1899	203	80	168	10,000	.068	.08	8	1.04
1900	290	180	220	13,100	.089	.10	3	3.29
1901	362	142	269	16,000	.109	.12	2	7.62
1902	2,750	319	642	38,200	.260	.29	6	4.75
1903	1,010	210	539	32,100	.218	.24	21	1.14
October.								
1896	298	182	210	12,900	.085	.10	4	2.24
1897	295	140	209	12,800	.084	.09	3	3.04
1898	280	185	236	14,500	.095	.12	11	1.09
1899	237	180	217	13,300	.088	.10	14	.72
1900	425	195	265	16,300	.107	.13	4	3.12
1901	342	308	323	19,900	.130	.15	7	2.05
1902	2,600	668	1,265	77,800	.510	.59	7	.81
1903	710	180	248	15,200	.101	.12	7	1.80
November.								
1898 [e]	335	285	303	18,000				.35
1900 [f]	380	337	357	21,200				.19
1901	357	319	332	19,700	.134	.15	14	1.07
1902 [g]	701	362	482	22,000				.18
1903 [h]	320	180	229	7,300				1.09

[a] 18 days in March.
[b] March 9 to 31.
[c] April 7 to 30.
[d] July 16 to 31.
[e] November 1 to 19.
[f] November 1 to 17.
[g] November 1 to 23.
[h] November 1 to 16.

ELKHORN RIVER AT ARLINGTON.

The station at Arlington was established April 28, 1899, and discontinued November 21, 1903. It was located at the highway bridge 1 mile south of Arlington, in sec. 13, T. 17 N., R. 9 E., just below the Chicago and Northwestern Railway bridge. The location is shown on the Fremont topographic atlas sheet.

Results of measurements at this station are fairly satisfactory, although in times of flood the current was oblique to the bridge and eddies formed which resulted in a silting up of the channel. Observations of winter flow were not attempted, although such efforts would no doubt have been fairly successful.

The original inclined gage was located 200 feet downstream from the highway bridge, on the right bank. This rod was washed out on May 10, 1899, and on May 29 of the same year a similar gage was installed 25 feet farther upstream; the datum was not changed. This gage, which was used until the close of the season of 1903, was referred to two bench marks, as follows: (1) A spike in a pile 150 feet downstream from the bridge on the right bank; elevation, 6.36 feet above the zero of the gage. (2) A spike in a piling 140 feet downstream from the gage on the right bank and 20 feet from the water's edge; elevation, 9.12 feet above the zero of the gage.

Discharge measurements of Elkhorn River at Arlington, 1899–1903.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1899.		*Feet.*	*Sec.-ft.*	1901.		*Feet.*	*Sec.-ft.*
February 4	Glenn E. Smith	.....	3,370	June 24	O. V. P. Stout	6.76	3,989
February 17	do	.....	269	July 12	do	2.99	1,331
April 28	do	1.78	794	July 30	do	1.15	564
May 9	do	3.90	1,779	November 9	Frank Dobson	1.90	706
May 24	do	.....	1,626	June 17	O. V. P. Stout	2.37	905
May 29	do	4.24	2,462				
June 22	do	2.70	1,199	1902.			
July 8	do	2.23	1,016	March 19	B. E. Forbes	1.85	771
August 9	do	1.72	732	April 14	J. C. Stevens	2.15	924
August 18	do	1.40	606	June 17	do	1.85	743
September 15	do	.82	344	July 7	do	6.29	4,363
September 24	do	.75	340	July 29	do	3.57	1,402
October 13	do	.90	351	August 22	do	3.75	1,388
				September 10	do	2.10	805
1900.				October 4	do	4.79	2,676
April 19	O. V. P. Stout	2.06	685				
May 5	do	3.25	1,411	1903.			
Do	do	3.25	1,458	April 10	do	4.40	2,120
June 1	do	1.80	723	May 15	do	7.36	4,330
Do	do	1.80	693	June 3	do	10.30	8,431
June 28	do	1.25	465	June 22	do	5.40	2,136
Do	do	1.25	468	July 15	do	4.65	2,093
August 2	do	1.26	431	August 29	do	10.65	8,658
Do	do	1.26	452	September 16	do	7.70	4,883
August 14	do	1.16	415				
Do	do	1.16	441				
September 12	do	4.74	2,855				
November 14	Glenn E. Smith	2.05	838				
November 14	do	2.05	760				

Mean daily gage height, in feet, of Elkhorn River at Arlington, 1899–1903.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1899.										
1			1.84	3.81	2.68	1.32	0.87	0.68		
2			2.07	3.65	2.68	1.25	.89	.69		
3			1.86	3.63	3.19	1.17	.76	.68		
4			1.96	3.50	2.97	1.36	.73	.67		
5			2.30	3.41	2.81	1.50	.70	.68		
6			3.00	3.42	2.66	1.40	.72	.73		
7			4.37	3.54	2.38	1.56	.74	.74		
8			3.96	2.87	2.23	2.00	.75	.78		
9			3.91	2.58	2.23	1.70	.74	.79		
10				2.38	2.12	1.57	.79	.82		
11				2.35	2.13	1.66	.80	.86		
12				2.40	2.02	1.40	.82	.88		
13				5.35	2.10	1.41	.81	.90		
14				4.94	1.94	1.35	.84	.92		
15				4.55	1.86	1.42	.79	.93		
16				4.12	1.83	1.49	.75	.94		
17				4.30	1.76	1.48	.74	.92		
18				4.48	1.68	1.39	.73	.91		
19				3.67	1.64	1.27	.73	.92		
20				3.16	1.63	1.24	.65	.96		
21				2.67	1.57	1.09	.66	.98		
22				2.76	1.50	1.10	.69	1.02		
23				2.75	1.55	1.09	.72	1.04		
24				2.65	1.36	1.21	.75	1.10		
25				2.51	1.30	1.23	.76	1.12		
26				2.21	1.27	1.03	.70	1.11		
27				2.32	1.27	1.02	.69	1.12		
28		1.78		2.19	1.25	1.07	.66	1.13		
29		1.76	4.24	2.32	1.26	1.03	.64	1.12		
30		1.81	4.15	2.64	1.20	1.01	.65	1.13		
31			4.17		1.22	.85		1.11		
1900.										
1		1.76	3.59	1.81	.97	1.37	2.14	1.94	3.82	
2		1.75	3.51	1.87	.95	1.24	1.75	1.84	3.88	
3		1.76	3.40	1.75	.98	1.16	1.52	1.82	3.75	
4		1.74	3.33	1.93	.96	1.08	1.38	1.74	3.60	
5		1.67	3.24	1.88	1.18	1.06	1.31	1.70	3.40	
6		1.65	3.18	1.90	1.09	.99	1.27	1.65	3.15	
7		1.61	3.22	1.92	1.02	.93	1.25	1.60	2.80	
8		1.60	3.35	1.81	.99	.88	1.23	1.56	2.63	
9		1.56	3.56	1.68	.92	.82	1.25	1.53	2.39	
10		1.59	4.18	1.66	.88	.78	1.16	1.49	2.26	
11		1.57	4.00	1.62	.91	.80	1.54	1.47	2.21	
12		1.56	3.33	1.56	.85	.88	2.56	1.45	2.18	
13		1.56	2.98	1.63	.84	.92	5.80	1.42	2.14	
14		1.57	2.80	2.31	.76	1.18	5.70	1.39	2.07	
15		1.60	2.70	1.60	.76	5.41	1.36	2.02	1.64	
16		1.64	2.61	1.53	1.48	1.91	4.43	1.33	1.98	
17		1.72	2.55	1.72	1.24	1.72	4.00	1.30	1.90	
18		1.98	2.51	1.77	1.15	2.10	3.67	1.28	1.90	
19		2.05	2.35	1.58	1.30	2.95	3.48	1.29	1.91	
20		2.17	2.27	1.54	1.58	2.66	3.31	1.31	1.86	
21		2.46	2.19	1.50	1.56	2.37	3.26	1.32	1.79	
22		2.55	2.13	1.42	2.04	2.13	3.32	1.72	1.65	
23		2.56	1.85	1.34	2.47	2.26	3.30	1.91	1.59	
24		2.66	1.84	1.29	3.01	2.04	3.04	1.98	1.54	
25		2.67	1.77	1.25	2.72	1.96	2.89	2.06		
26		2.75	1.75	2.27	2.56	2.17	3.11	2.18		
27		2.75	1.88	1.36	2.35	2.12	2.66	2.26		
28		2.93	1.83	1.27	2.24	2.08	2.34	2.40		
29		3.33	1.73	1.18	1.75	2.02	2.09	5.43		
30		3.76	1.83	.98	1.56	1.95	2.01	4.48		
31			1.72		1.46	2.32		4.12		
1901.										
1		2.20	2.66	1.66	6.01	1.07	.39	1.50	1.51	
2		2.22	2.63	1.64	5.74	1.03	.41	1.54	1.44	
3		2.25	2.50	1.60	5.23	1.00	.44	1.53	1.58	
4		2.30	2.46	1.62	4.98	.99	.45	1.62	1.68	
5		2.40	2.57	1.88	4.76	.96	.38	1.63	1.72	

Mean daily gage height, in feet, of Elkhorn River at Arlington, 1899–1903—Continued.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1901.										
6	.....	2.45	2.82	1.60	4.23	0.94	0.48	1.53	1.78	.....
7	.....	2.46	3.85	1.51	4.03	.90	.40	1.41	1.86	.....
8	.....	2.49	3.95	1.60	3.78	.91	.65	1.39	1.82	.....
9	.....	2.45	4.07	1.66	3.57	.92	.76	1.37	1.90	.....
10	.....	2.44	3.81	2.10	3.37	.87	.91	1.39	1.92	.....
11	.....	2.42	3.88	2.28	3.16	.87	.92	1.48	1.94	.....
12	.....	2.38	4.00	2.22	3.02	.81	1.10	1.55	1.88	.....
13	.....	2.45	3.66	2.23	2.83	.74	1.36	1.58	1.87	.....
14	.....	2.45	3.22	2.15	2.67	.77	1.42	1.60	1.86	.....
15	.....	2.54	2.92	2.24	2.50	.74	1.49	1.61	1.79	.....
16	.....	2.68	2.75	2.37	2.35	.71	1.56	1.69	1.78	.....
17	.....	2.76	2.55	2.34	2.22	.68	1.64	1.74	1.74	.....
18	.....	2.78	2.45	3.26	2.10	.70	1.63	1.70	1.66	.....
19	.....	2.92	2.34	3.80	1.99	.68	1.75	1.63	1.64	.....
20	.....	3.01	2.25	5.28	1.78	.62	1.60	1.59	1.66	.....
21	.....	3.08	2.15	6.06	1.75	.64	1.50	1.56	1.65	.....
22	.....	3.07	2.08	6.67	1.70	.62	1.37	1.52	1.61	.....
23	.....	3.11	2.05	7.17	1.61	.78	1.31	1.53	1.64	.....
24	.....	3.06	1.98	6.74	1.55	.61	1.39	1.51	1.65	.....
25	.....	2.95	1.96	6.38	1.45	.58	1.40	1.45	1.62	.....
26	.....	2.87	1.92	6.05	1.40	.60	1.35	1.49	1.64	.....
27	.....	2.88	1.89	5.93	1.35	.54	1.34	1.51	1.60	.....
28	.....	2.77	1.85	5.98	1.38	.55	1.35	1.52	1.61	.....
29	.....	2.72	1.84	6.10	1.28	.51	1.40	1.45	1.58	.....
30	.....	2.68	1.75	6.09	1.15	.46	1.42	1.48	1.54	.....
31	.....	.....	1.70	.....	1.12	.42	.....	1.50	.....	.....
1902.										
1	.....	2.24	3.20	1.90	1.80	4.95	3.47	4.20	2.88	2.01
2	.....	2.39	3.23	1.88	1.99	4.15	3.12	5.15	2.86	2.10
3	.....	2.51	3.30	1.82	2.20	3.37	2.80	5.07	2.76	.....
4	.....	2.73	3.12	1.72	2.85	3.00	2.64	4.80	2.75	.....
5	.....	2.89	2.71	1.82	3.57	2.75	2.52	4.73	2.72	.....
6	.....	2.83	2.44	1.88	5.80	2.56	2.40	4.60	2.67	.....
7	.....	2.75	2.31	1.75	6.17	2.35	2.24	4.39	2.63	.....
8	.....	2.67	2.23	1.74	5.90	2.21	2.20	4.26	2.58	.....
9	.....	2.62	2.15	1.99	8.16	2.14	2.17	4.17	2.60	.....
10	3.74	2.50	2.14	2.85	9.10	2.00	2.00	4.06	2.58	.....
11	3.34	2.39	2.08	2.76	8.78	1.95	1.97	4.01	2.56	.....
12	3.17	2.32	2.00	2.60	7.65	1.82	1.94	4.54	2.62	.....
13	3.19	2.21	2.01	2.31	7.66	1.88	1.90	5.14	2.87	.....
14	3.36	2.12	2.02	2.14	7.41	1.81	1.80	5.10	3.30	.....
15	3.37	2.13	1.98	2.10	6.10	2.25	1.76	4.71	3.16	.....
16	3.02	2.12	1.88	1.93	5.85	4.97	1.72	4.28	2.88	.....
17	3.33	2.07	1.87	1.82	5.52	5.50	1.68	4.02	2.76	.....
18	.....	1.98	1.82	1.91	6.11	4.29	1.61	3.86	2.64	.....
19	.....	1.96	1.77	2.27	7.11	3.59	1.55	3.72	2.58	.....
20	2.25	1.91	1.75	2.44	7.15	3.03	1.54	3.65	2.55	.....
21	2.32	1.84	1.80	2.15	6.92	2.70	2.06	3.49	2.47	.....
22	2.71	1.80	1.85	1.92	6.50	3.80	2.60	3.42	2.50	.....
23	2.57	1.77	1.93	1.81	5.69	3.44	3.25	3.39	2.47	.....
24	2.42	1.79	1.98	1.75	4.71	3.90	3.59	3.29	2.46	.....
25	2.35	1.75	2.00	1.72	4.06	4.18	3.58	3.22	2.36	.....
26	2.36	1.82	1.95	1.61	4.30	4.57	3.40	3.16	2.32	.....
27	2.28	1.92	1.89	1.60	4.22	5.18	3.45	3.06	2.28	.....
28	2.22	1.95	1.92	1.58	3.86	5.23	3.57	2.96	2.26	.....
29	2.23	2.11	1.90	1.70	3.51	5.06	3.46	2.95	2.24	.....
30	2.21	2.65	1.94	1.74	3.12	5.57	3.92	2.91	2.14	.....
31	2.18	.....	1.90	.....	3.66	3.90	.....	2.82	.....	.....
1903.										
1	.....	6.11	3.44	10.25	4.74	3.35	9.93	3.22	3.15	.....
2	.....	5.87	4.00	10.40	4.43	4.15	9.30	3.43	3.28	.....
3	.....	5.70	4.37	10.33	4.23	5.54	8.18	4.87	3.50	.....
4	.....	5.48	4.80	10.05	5.39	7.87	7.50	4.50	3.86	.....
5	.....	5.26	4.96	9.76	7.29	8.40	6.98	3.75	4.10	.....
6	.....	5.08	4.85	9.47	7.82	8.10	6.52	3.42	3.96	.....
7	.....	4.87	.....	9.37	7.91	7.37	5.96	3.27	3.78	.....
8	.....	4.71	4.45	9.25	7.07	6.34	5.42	3.75	3.60	.....
9	.....	4.50	4.25	9.17	6.25	5.74	5.10	4.88	3.55	.....
10	.....	4.40	4.12	9.05	5.85	5.28	4.94	4.86	3.44	.....

Mean daily gage height, in feet, of Elkhorn River at Arlington, 1899–1903—Continued.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1903.										
11	.....	4.38	4.50	8.64	5.60	4.90	4.85	4.50	3.43	.....
12	.....	4.40	6.41	8.15	5.33	4.68	5.20	4.50	3.34	.....
13	.....	4.50	7.61	7.84	5.12	4.94	6.00	4.62	3.23	.....
14	.....	4.37	7.89	7.48	4.93	4.87	6.42	4.80	3.25	.....
15	.....	4.10	7.36	7.03	4.64	5.05	7.62	4.90	3.22	.....
16	.....	3.91	6.64	6.38	4.30	4.65	7.68	4.88	3.20	.....
17	.....	3.76	6.26	5.84	5.46	4.68	7.12	4.88	3.00	.....
18	.....	3.60	6.05	5.50	7.31	4.72	6.06	4.64	1.70	.....
19	.....	3.45	7.56	5.33	6.98	4.80	5.52	4.35	1.87	.....
20	.....	3.37	7.19	5.20	6.61	4.54	5.38	4.12	2.20	.....
21	.....	3.31	7.67	5.19	6.55	4.47	5.15	3.90	2.54	.....
22	.....	3.30	8.55	5.40	4.86	4.30	5.00	3.72	.....	.....
23	.....	3.18	9.45	5.17	4.35	4.00	4.62	3.57	.....	.....
24	.....	3.12	8.50	5.43	4.05	3.72	4.20	3.43	.....	.....
25	7.53	3.05	8.00	5.97	3.80	3.72	3.85	3.35	.....	.....
26	7.16	2.92	8.18	5.68	3.55	.....	3.65	3.30	.....	.....
27	7.02	2.80	8.85	5.40	3.38	9.65	3.43	3.26	.....	.....
28	6.93	2.82	8.40	5.22	3.22	10.42	3.32	3.12	.....	.....
29	6.85	2.88	8.25	5.06	3.25	10.65	3.22	3.12	.....	.....
30	6.72	3.13	9.20	4.87	3.24	10.63	3.20	3.18	.....	.....
31	6.53	.....	10.05	.....	3.16	10.23	.....	3.20	.....	.....

Mean daily discharge, in second-feet, of Elkhorn River at Arlington, 1899–1903.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1899.									
1	.....	.....	808	1,988	1,184	571	388	300	.....
2	.....	.....	882	1,828	1,184	542	392	300	.....
3	.....	.....	793	1,809	1,443	509	344	291	.....
4	.....	.....	820	1,692	1,313	575	329	284	.....
5	.....	.....	945	1,618	1,233	628	314	284	.....
6	.....	.....	1,411	1,626	1,177	586	318	295	.....
7	.....	.....	2,290	1,727	1,072	646	325	295	.....
8	.....	.....	1,838	1,273	1,017	811	325	310	.....
9	.....	.....	1,781	1,155	1,017	700	322	314	.....
10	.....	.....	.....	1,080	976	650	336	322	.....
11	.....	.....	.....	1,069	976	688	340	336	.....
12	.....	.....	.....	1,088	934	594	344	344	.....
13	.....	.....	.....	4,315	960	597	340	351	.....
14	.....	.....	.....	3,560	897	579	351	359	.....
15	.....	.....	.....	2,925	867	606	333	362	.....
16	.....	.....	.....	2,340	852	635	318	366	.....
17	.....	.....	.....	2,572	826	632	314	359	.....
18	.....	.....	.....	2,830	793	602	314	355	.....
19	.....	.....	.....	1,847	770	557	314	359	.....
20	.....	.....	.....	1,436	762	546	288	273	.....
21	.....	.....	.....	1,188	733	490	295	381	.....
22	.....	.....	.....	1,222	700	494	310	396	.....
23	.....	.....	.....	1,220	710	485	325	403	.....
24	.....	.....	.....	1,181	632	531	340	426	.....
25	.....	.....	.....	1,129	602	538	344	434	.....
26	.....	.....	.....	1,013	583	459	318	430	.....
27	.....	.....	.....	1,054	575	456	314	434	.....
28	.....	796	.....	1,006	564	471	300	437	.....
29	.....	789	2,480	1,054	564	456	288	434	.....
30	.....	804	2,365	1,173	538	445	288	437	.....
31	.....	.....	2,390	.....	538	384	.....	430	.....
1900.									
1	.....	559	1,673	692	384	498	808	723	1,855
2	.....	555	1,615	718	378	454	637	679	2,000
3	.....	559	1,542	667	387	429	548	670	1,837
4	.....	551	1,495	745	381	404	498	638	1,749
5	.....	526	1,435	722	448	398	474	621	1,574
6	.....	518	1,400	731	416	378	461	601	1,400
7	.....	504	1,428	740	395	361	454	582	1,184
8	.....	501	1,526	692	387	347	448	570	1,092
9	.....	484	1,698	637	367	332	454	559	967
10	.....	498	2,283	629	355	322	426	545	901

Mean daily discharge, in second-feet, of Elkhorn River at Arlington, 1899–1903—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1900.									
11	.....	491	2,105	613	364	327	555	537	881
12	.....	484	1,518	590	347	347	1,021	530	871
13	.....	484	1,286	617	344	358	4,160	519	858
14	.....	491	1,178	927	325	435	4,074	508	823
15	.....	501	1,120	605	325	705	3,683	498	794
16	.....	515	1,076	578	544	709	2,501	484	776
17	.....	544	1,044	654	461	629	2,077	477	740
18	.....	646	1,021	675	433	794	1,775	470	740
19	.....	676	937	597	480	1,250	1,615	474	745
20	.....	745	901	582	582	1,081	1,479	481	723
21	.....	896	863	567	570	927	1,442	484	692
22	.....	943	833	537	772	808	1,485	633	633
23	.....	958	705	508	983	871	1,463	714	609
24	.....	1,015	700	491	1,293	767	1,300	745	590
25	.....	1,026	671	474	1,120	831	1,208	780	.....
26	.....	1,075	662	480	1,032	828	1,342	843	.....
27	.....	1,081	718	512	922	806	1,076	881	.....
28	.....	1,190	696	480	866	780	906	953	.....
29	.....	1,447	658	451	646	753	790	3,656	.....
30	.....	1,811	700	390	570	723	755	2,522	.....
31	.....	.....	654	.....	533	896	.....	2,115	.....
1901.									
1	.....	833	1,069	596	3,825	533	307	613	563
2	.....	841	1,053	589	3,538	519	311	629	537
3	.....	856	983	574	3,018	508	318	621	590
4	.....	881	963	581	2,775	504	320	654	625
5	.....	932	1,019	687	2,554	494	300	658	642
6	.....	958	1,160	574	2,097	487	322	613	666
7	.....	963	1,927	541	1,951	474	300	567	696
8	.....	878	2,019	574	1,781	477	363	554	679
9	.....	958	2,133	596	1,640	480	395	544	706
10	.....	953	1,891	785	1,518	464	438	552	713
11	.....	943	1,953	870	1,400	464	441	586	726
12	.....	922	2,067	841	1,331	445	501	607	696
13	.....	958	1,756	847	1,238	419	593	621	692
14	.....	958	1,406	808	1,161	428	617	626	688
15	.....	1,005	1,220	853	1,064	419	645	630	658
16	.....	1,081	1,119	916	999	410	671	662	654
17	.....	1,126	1,009	905	942	398	705	679	638
18	.....	1,199	958	1,377	891	404	696	662	606
19	.....	1,220	901	1,706	848	398	745	629	594
20	.....	1,274	856	3,013	767	381	675	609	601
21	.....	1,317	807	3,181	763	387	629	597	597
22	.....	1,311	775	4,370	744	382	578	582	580
23	.....	1,335	762	4,745	713	429	556	582	594
24	.....	1,305	732	3,989	696	375	582	574	597
25	.....	1,237	721	3,630	662	365	586	551	586
26	.....	1,188	704	3,460	646	370	563	563	594
27	.....	1,194	691	3,373	633	350	559	570	574
28	.....	1,130	674	3,500	646	352	559	570	578
29	.....	1,103	670	3,789	596	327	578	545	566
30	.....	1,081	633	3,800	564	327	562	555	566
31	.....	.....	613	.....	544	317	.....	563	.....
1902.									
1	.....	968	1,518	776	585	2,653	1,400	2,096	1,196
2	.....	1,048	1,582	767	650	1,846	1,202	3,066	1,184
3	.....	1,115	1,640	740	740	1,250	1,037	2,936	1,126
4	.....	1,244	1,495	696	1,026	1,037	968	2,686	1,120
5	.....	1,342	1,236	740	1,442	896	922	2,619	1,103
6	.....	1,305	1,070	767	3,749	799	881	2,469	1,175
7	.....	1,256	999	709	4,203	705	818	2,253	1,053
8	.....	1,214	952	705	3,816	642	813	2,174	1,026
9	.....	1,184	912	813	7,586	570	818	2,086	1,037
10	2,029	1,115	906	1,280	9,568	552	758	1,982	1,036
11	1,673	1,053	876	1,220	8,917	529	740	1,982	1,015
12	1,534	1,015	838	1,126	6,462	487	722	2,512	1,048
13	1,550	958	843	968	6,654	497	700	3,199	1,190
14	1,689	912	847	886	6,206	471	654	3,162	1,463
15	1,698	917	828	862	4,105	629	633	2,809	1,367

Mean daily discharge, in second-feet, of Elkhorn River at Arlington, 1899–1903—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1902.									
16	1,421	912	776	780	3,762	2,522	613	2,344	1,196
17	1,664	886	771	731	3,324	3,114	593	2,086	1,126
18	.....	843	749	762	2,832	1,837	563	1,937	1,059
19	771	833	727	896	4,119	1,286	537	1,811	1,026
20	968	808	718	1,005	5,470	968	530	1,749	1,010
21	1,005	818	740	843	5,356	804	735	1,615	968
22	1,236	799	762	727	4,705	1,421	994	1,558	983
23	1,143	740	753	671	3,565	1,214	1,367	1,534	968
24	1,059	740	771	633	2,417	1,542	1,615	1,456	963
25	1,021	731	828	613	1,793	1,802	1,599	1,407	912
26	1,026	762	804	563	2,011	2,194	1,449	1,367	891
27	983	808	776	548	1,937	2,878	1,479	1,305	871
28	952	823	790	465	1,631	2,971	1,566	1,244	862
29	963	896	780	566	1,402	2,809	1,471	1,238	852
30	952	1,190	799	570	1,126	2,417	1,846	1,214	804
31	937	.....	780	.....	1,456	1,715	.....	1,161	.....
1903.									
1	.....	3,510	1,410	8,270	1,910	1,290	7,565	1,380	1,350
2	.....	3,295	1,745	8,510	1,745	1,810	6,670	1,530	1,440
3	.....	3,170	1,980	8,510	1,620	2,835	5,370	2,480	1,560
4	.....	3,000	2,295	7,665	2,440	4,850	4,650	2,225	1,780
5	.....	2,795	2,405	7,340	4,020	5,425	4,190	1,715	1,945
6	.....	2,675	2,330	6,865	4,505	5,110	3,765	1,500	1,845
7	.....	2,480	.....	6,670	4,650	4,370	3,295	1,410	1,745
8	.....	2,365	2,015	6,475	3,890	3,510	2,835	1,715	1,620
9	.....	2,225	1,875	6,235	3,255	3,000	2,595	2,515	1,590
10	.....	2,120	1,780	6,050	2,915	2,635	2,480	2,480	1,530
11	.....	2,120	2,050	5,535	2,755	2,330	2,405	2,225	1,530
12	.....	2,120	3,510	4,950	2,555	2,190	2,675	2,225	1,470
13	.....	2,190	4,555	4,600	2,405	2,405	3,380	2,295	1,410
14	.....	2,085	4,850	4,235	2,295	2,330	3,720	2,440	1,410
15	.....	1,910	4,325	3,765	2,085	2,480	4,800	2,515	1,380
16	.....	1,745	3,720	3,170	1,845	2,190	4,900	2,515	1,380
17	.....	1,650	3,380	2,635	2,675	2,225	4,325	2,515	1,260
18	.....	1,560	3,255	2,295	4,235	2,225	3,425	2,330	613
19	.....	1,470	4,555	2,155	3,975	2,295	2,955	2,120	675
20	.....	1,410	4,235	2,015	3,635	2,120	2,875	1,945	833
21	.....	1,380	4,695	2,015	3,595	2,050	2,675	1,810	1,010
22	.....	1,380	5,645	2,155	2,225	1,945	2,555	1,680	.....
23	.....	1,320	6,735	1,980	1,910	1,745	2,260	1,590	.....
24	.....	1,260	5,590	2,190	1,715	1,590	1,980	1,530	.....
25	4,800	1,202	5,110	2,555	1,560	1,590	1,780	1,470	.....
26	4,415	1,132	5,320	2,405	1,410	.....	1,650	1,440	.....
27	4,280	1,064	6,115	2,225	1,320	7,060	1,530	1,410	.....
28	4,235	1,064	5,590	2,120	1,202	8,185	1,440	1,320	.....
29	4,145	1,132	5,480	2,050	1,238	8,670	1,380	1,320	.....
30	4,020	1,260	6,605	1,945	1,238	8,590	1,380	1,380	.....
31	3,890	.....	7,665	.....	1,178	7,950	.....	1,380	.....

Estimated monthly discharge of Elkhorn River at Arlington, 1899–1903.

[Drainage area, 5,980 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
March.								
1902[a]	2,030	771	1,251	44,700	.....	.....	.....	1.24
1903[b]	4,800	3,890	4,255	59,100	.....	.....	.....	1.12
April.								
1900	1,810	484	742	44,200	0.124	0.13	3	4.84
1901	1,330	833	1,065	63,400	.178	.20	11	1.84
1902	1,342	731	974	57,900	.163	.18	11	1.71
1903	3,510	1,064	1,936	115,200	.324	.36	14	2.42
May.								
1899	2,480	793	1,567	96,300	.262	.30	5	6.02
1900	2,280	654	1,166	71,700	.195	.22	6	3.78
1901	2,130	613	1,136	69,800	.190	.22	9	2.53
1902	1,640	718	931	57,200	.156	.18	7	2.64
1903	7,660	1,410	4,027	239,600	.673	.75	9	8.15
June.								
1899	4,320	1,010	1,701	101,200	.285	.31	5	6.04
1900	927	390	610	36,300	.105	.11	6	1.88
1901	4,745	541	1,869	111,200	.313	.35	5	7.66
1902	1,220	465	781	46,500	.131	.14	2	5.80
1903	8,510	1,940	4,319	257,000	.722	.81	27	2.95
July.								
1899	1,440	538	871	53,600	.145	.17	6	2.74
1900	1,290	325	562	34,600	.094	.10	2	4.80
1901	3,820	544	1,372	84,400	.229	.27	28	.96
1902	9,570	585	3,633	223,400	.608	.69	10	6.93
1903	4,650	1,178	2,516	154,700	.421	.48	8	6.10
August.								
1899	811	384	563	34,600	.094	.11	2	4.74
1900	1,250	322	627	38,600	.105	.12	3	4.24
1901	533	317	421	25,900	.070	.08	8	1.00
1902	3,114	471	1,453	89,300	.242	.33	8	4.15
1903	8,670	1,290	3,567	212,200	.596	.66	10	6.91
September.								
1899	392	288	326	19,400	.055	.06	6	.94
1900	4,160	426	1,331	79,200	.222	.25	7	3.67
1901	745	300	515	30,600	.086	.10	1	7.61
1902	1,850	530	1,001	59,600	.167	.19	4	4.28
1903	7,560	1,380	3,250	193,400	.543	.61	39	1.58
October.								
1899	436	284	361	22,200	.060	.07	9	.74
1900	3,660	470	824	50,700	.137	.16	4	3.70
1901	679	544	599	36,800	.100	.12	6	1.98
1902	3,200	1,160	2,034	125,000	.340	.39	31	1.24
1903	2,510	1,320	1,884	115,800	.315	.36	19	1.87
November.								
1900	1,880	590	1,034	61,500	.172	.19	105	.18
1901	726	537	627	37,300	.105	.11	11	.99
1902	1,460	804	1,051	62,500	.176	.19	43	.44
1903	1,940	613	1,399	82,200	.234	.26	22	1.18

[a] 21 days in March.

[b] March 25 to 31.

MISCELLANEOUS MEASUREMENTS IN THE PLATTE BASIN.

The following discharge measurements have been made of streams in the Platte drainage basin.

Miscellaneous discharge measurements in the drainage basin of Platte River, 1894–1904.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Sec.-ft.
Beaver Creek	Genoa	Sept. 17, 1894	O. V. P. Stout	71
Do	....do	July 14, 1896	....do	110
Do	....do	Aug. 14, 1896	W. J. McEathron	111
Do	....do	June 21, 1898	O. V. P. Stout	150
Do	....do	Aug. 8, 1900	....do	50
Do	....do	July 12, 1901	....do	75
Do	....do	July 30, 1901	....do	86
Do	Albion	July 21, 1896	....do	47.4
Do	....do	Apr. 23, 1898	Glenn E. Smith	89
Do	....do	Dec. 3, 1901	B. E. Forbes	92
Do	Sec. 24, T. 17 N., R. 4 W.[a]	Aug. 8, 1900	O. V. P. Stout	7.2
Birdwood Creek	Sec. 34, T. 15 N., R. 33 W	Sept. 24, 1892		126
Do	Sec. 35, T. 15 N., R. 33 W	May 25, 1899	H. H. Pickens	183
Do	....do	Aug. 29, 1901	H. O. Smith	183
Do	Sec. 15, T. 15 N., R. 33 W.[b]	May 7, 1898	C. B. Channel	123
Do	....do	Oct. 30, 1901	B. E. Forbes	170
Do	....do	Apr. 23, 1903	H. O. Smith	162
Do	Sutherland	Sept. 9, 1896	O. V. P. Stout	[c]133
Blue Creek	Lown Bridge	Nov. 5, 1892		105
Do	NE. ¼ sec. 30, T. 16 N., R. 42 W.	Mar. 28, 1897	Adna Dobson	115
Do	Sec. 33, T. 17 N., R. 42 W	Aug. 31, 1898	A. B. McCoskey	81
Do	S. line sec. 18, T. 17 N., R. 42 W.	May 22, 1899	H. H. Pickens	90
Do	Sec. 19, T. 16 N., R. 42 W.[d]	July 26, 1900	E. D. Johnson	27.4
Do	....do.[e]	....do	....do	14.1
Do	....do	Aug. 18, 1902	H. O. Smith	50
Do	Sec. 6, T. 16 N., R. 42 W	July 17, 1902	....do	90
Do	Sec. 18, T. 16 N., R. 42 W	Aug. 31, 1904	....do	48
Bratt's ditch	Sutherland	Sept. 9, 1896	O. V. P. Stout	28.2
Buffalo Creek	Sec. 33, T. 9 N., R. 18 W	July 5, 1902	H. O. Smith	6.4
Do	Sec. 30, T. 10 N., R. 20 W	....do	....do	2
Calamus River	Burwell	July 10, 1896	O. V. P. Stout	368
Do	....do	Mar. 25, 1902	B. E. Forbes	411
Do	....do	May 17, 1898	Glenn E. Smith	372
Do	Sec. 8, T. 24 N., R. 19 W	Sept. 20, 1899	C. B. Channel	152
Cedar River	Fullerton	Sept. 15, 1894	O. V. P. Stout	210
Do	....do	July 11, 1896	....do	238
Do	....do	July 21, 1898	....do	277
Do	....do	Nov. 21, 1901	Adna Dobson	291
Do	....do	....do	B. E. Forbes	309
Do	Cedar Rapids	July 21, 1896	O. V. P. Stout	212
Do	Ericson	Mar. 16, 1895	W. J. McEathron	152
Do	....do	June 1, 1895	....do	214
Do	....do	Aug. —, 1895	....do	112
Do	....do.[f]	May 17, 1899	Glenn E. Smith	107
Do	....do.[g]		....do	113
Cedar River, Dry Brook.[h]	....do	May 17, 1899	Adna Dobson	5
Cedar Creek	Sec. 18, T. 14 N., R. 35 W	June 17, 1903	H. O. Smith	1.7
Clear Creek	Sec. 19, T. 16 N., R. 41 W	Nov. 23, 1896	Adna Dobson	12.8
Do	Sec. 32, T. 16 N., R. 41 W.[i]	May 19, 1899	H. H. Pickens	7.8
Do	Sec. 5, T. 14 N., R. 34 W	Dec. 16, 1899	C. B. Channel	3.4
Do	Sec. 29, T. 16 N., R. 41 W	Aug. 8, 1901	H. O. Smith	10.7
Coldwater Creek	Sec. 26, T. 18 N., R. 46 W	May 25, 1898	C. B. Channel	2.9
Coon Creek	Sec. 34, T. 15 N., R. 37 W	May 19, 1898	....do	.8
Dismal River	Dunning	Aug. 22, 1894	G. H. Lawrence	435
Do	....do	Aug. 23, 1895	O. V. P. Stout	29.4
Do	....do	Apr. 28, 1898	Glenn E. Smith	369
Do	....do	Nov. 1, 1898	....do	351
Do	....do	Apr. 21, 1899	A. B. McCoskey	334
Do	....do	Sept. 15, 1904	R. D. Hubbard	395
Elkhorn River	Arlington	Aug. —, 1894	A. Rosewater	214
Do	....do	May 26, 1898	Glenn E. Smith	1,808
Do	....do	Dec. 15, 1898	....do	422
Do	....do	May 26, 1904	J. C. Stevens	1,343
Do	....do	....do	....do	1,284
Do	Atkinson	Oct. 2, 1896	Adna Dobson	11.1
Do	....do	May 24, 1898	A. B. McCoskey	110

[a] Below diversion of Great Eastern canal.
[b] Above Beauchamp's ditch.
[c] Bratt's ditch diverting 28.2 second-feet.
[d] Above Graff's dam.
[e] Below head of Graff's ditch.
[f] Above dam.
[g] Below dam.
[h] At mouth.
[i] 700 yards below Barber & Marsh head-gate

Miscellaneous discharge measurements in the drainage basin of Platte River—Cont'd.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Sec.-ft.
Elkhorn River	Waterloo	Aug. 15, 1896	O. V. P. Stout	280
Do	do	July 23, 1896	do	5
Do	do	July 17, 1896	do	495
Do	O'Neill	June 23, 1897	do	20.6
Do	do	June 11, 1898	Glenn E. Smith	288
Do	do	Aug. 17, 1898	C. B. Channel	31.3
Do	Ewing	Sept. 3, 1897	O. V. P. Stout	9.8
Do	do	Aug. 18, 1898	C. B. Channel	54
Elkhorn River, North Fork.	Norfolk	July 16, 1896	O. V. P. Stout	70
Do	do	Mar. 24, 1897	Adna Dobson	701
Do	do	May 5, 1897	do	166
Do	do	May 24, 1897	do	77
Do	do	July 30, 1897	O. V. P. Stout	70
Do	do	June 20, 1898	do	162
Do	do	Apr. 27, 1899	Glenn E. Smith	122
Do	do	May 25, 1899	do	414
Do	do	Feb. 20, 1899	do	119
Do	do	Aug. 17, 1899	do	81
Do	do	Sept. 25, 1899	do	85
Do	Norfolk Junction Bridge	May 27, 1900	O. V. P. Stout	76
Do	do	Aug. 3, 1900	do	89
Do	do	May 13, 1901	C. B. Channel	550
Do	do	July 31, 1901	do	149
Do	do	Mar. 21, 1902	J. C. Stevens	118
Do	do	Apr. 13, 1902	do	150
Do	do	May 12, 1902	do	116
Do	do	June 16, 1902	do	137
Do	do	July 26, 1902	do	168
Do	do	Aug. 22, 1902	do	170
Do	do	Sept. 29, 1902	do	242
Do	do	Nov. 14, 1902	do	118
Do	do	Aug. 26, 1903	do	185
Do	do	June 24, 1903	do	386
Do	do	May 25, 1903	do	498
Elkhorn River, South Fork.	Ewing	Sept. 3, 1897	O. V. P. Stout	18.2
Enterprise canal	Sec. 24, T. 23 N., R. 57 W.	July 29, 1903	J. C. Stevens	41.9
Fremont Creek	W. line sec. 18, T. 13 N., R. 30 W.	Aug. 13, 1903	H. O. Smith	2.9
Glenwood Creek	Sec. 15, T. 18 N., R. 50 W.	June 10, 1904	R. H. Willis	6
Golden Creek	Sec. 25, T. 15 N., R. 39 W.	Aug. 19, 1902	H. O. Smith	.6
Goose Creek	Sec. 10, T. 22 N., R. 27 W.	Apr. 27, 1899	C. B. Channel	30.3
Do	Sec. 18, T. 25 N., R. 24 W.	Sept. 13, 1904	R. D. Hubbard	14.4
Horse Creek	At Mitchell flume	Oct. 16, 1892		86
Do	Nebr.-Wyo. state line	Oct. 15, 1897	A. B. McCoskey	10.5
Do	do	June 16, 1899	do	11.1
Lake Creek	NW. ¼ sec. 14, T. 14 N., R. 36 W.	June 17, 1903	H. O. Smith	2.4
Lawrence Fork	Sec. 36, T. 19 N., R. 52 W.	June 10, 1901	R. H. Willis	1.7
Do	do	July 22, 1902	F. Dobson	1.4
Do	Sec. 11, T. 18 N., R. 52 W.	do	R. H. Willis	1.6
Do	do	Aug. 20, 1903	H. O. Smith	2.8
Do	Sec. 1, T. 18 N., R. 52 W.	July 29, 1902	R. H. Willis	2.9
Do	do	Aug. 20, 1903	H. O. Smith	4
Do	Sec. 15, T. 18 N., R. 52 W.	July 31, 1902	R. H. Willis	2.2
Lodgepole Creek	Kimball	May 26, 1896	Adna Dobson	4.5
Do	do	Sept. 12, 1900	E. D. Johnson	4.9
Do	do	Sept. 15, 1900	do	1.1
Do	do	Sept. 18, 1900	do	4.3
Do	do	June 2, 1902	H. O. Smith	5.6
Do	do	June 15, 1904	do	2.1
Do	do	Sept. 6, 1904	do	13.4
Do	Sec. 34, T. 14 N., R. 49 W.	May 15, 1899	H. H. Pickens	11
Do	Bet. secs. 33 and 34, T. 15 N., R. 56 W.	Aug. 9, 1899	E. D. Johnson	7.4
Do	W. line T. 15 N., R. 55 W.	do	do	2.4
Do	do	Sept. 10, 1900	do	1.3
Do	Sec. 29, T. 15 N., R. 55 W.	Aug. 11, 1899	do	2
Do	do. [a]	May 25, 1903	H O. Smith	4.4
Do	do	May 4, 1904	do	20.5
Do	W. line sec. 29, T. 15 N., R. 55 W.	July 24, 1903	do	6.6
Do	do	Oct. 30, 1903	do	15.5
Do	do	Nov. 7, 1903	do	21.6
Do	do	Nov. 16, 1903	do	20.4
Do	Sec. 33, T. 15 N., R. 56 W. [b]	Aug. 10, 1899	E D. Johnson	6.5
Do	do	Apr. 28, 1904	H. O. Smith	14.4
Do	do	May 5, 1904	do	48.2

[a] Head of Bay State ditch.

[b] One-half mile above Kinney ditch.

Miscellaneous discharge measurements in the drainage basin of Platte River—Cont'd.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Sec.-ft.
Lodgepole Creek	Sec. 33, T. 15 N., R. 57 W.[a]	Aug. 10, 1899	E. D. Johnson	15.6
Do	....do	Aug. 10, 1900	....do	12.3
Do	....do	June 2, 1903	H. O. Smith	12.8
Do	Sec. 33, T. 14 N., R. 49 W	May 15, 1900	E. D. Johnson	3.9
Do	....do	Aug. 14, 1900	....do	6.4
Do	Sec. 35, T. 14 N., R. 49 W.[b]	May 15, 1900	....do	6.3
Do	Sec. 14, T. 14 N., R. 51 W	May 17, 1900	....do	2.3
Do	....do	Aug. 17, 1900	....do	2.4
Do	....do	July 25, 1903	H. O. Smith	0
Do	Sec. 31, T. 14 N., R. 47 W	May 18, 1900	E. D. Johnson	2.6
Do	....do	Aug. 16, 1900	....do	2.5
Do	Sec. 3, T. 13 N., R. 46 W	May 21, 1900	....do	2.3
Do	Sec. 12, T. 12 N., R. 45 W	May 22, 1900	....do	1.3
Do	Sec. 23, T. 13 N., R. 45 W	May 23, 1900	....do	7.3
Do	Sec. 36, T. 15 N., R. 57 W	May 25, 1900	....do	4.8
Do	Sec. 2, T. 14 N., R. 58 W	May 26, 1900	....do	9.2
Do	....do	June 3, 1903	H. O. Smith	10.1
Do	Sec. 36, T. 13 N., R. 45 W	Aug. 7, 1900	E. D. Johnson	3.1
Do	Sec. 3, T. 14 N., R. 58 W	Aug. 8, 1900	....do	6.2
Do	Sec. 23, T. 15 N., R. 55 W	Aug. 9, 1900	....do	6.3
Do	Sec. 3, T. 12 N., R. 45 W	Aug. 10, 1900	....do	1.3
Do	Sec. 2, T. 13 N., R. 46 W	Aug. 22, 1900	....do	2.8
Do	Sec. 30, T. 15 N., R. 55 W.[c]	Sept. 10, 1900	....do	2.4
Do	....do.[d]	....do	....do	1.1
Do	Sec. 26, T. 13 N., R. 45 W.[e]	Oct. 3, 1900	....do	3.3
Do	Sec. 9, T. 14 N., R. 51 W	July 1, 1901	H. O. Smith	5.6
Do	....do	July 25, 1903	....do	3.8
Do	....do	Apr. 27, 1904	....do	6.6
Do	Sec. 29, T. 14 N., R. 48 W	July 2, 1901	....do	4
Do	Sec. 29, T. 14 N., R. 47 W	....do	....do	2.2
Do	Sec. 31, T. 14 N., R. 46 W	July 3, 1901	....do	3.4
Do	....do	Sept. 8, 1904	....do	3.3
Do	Sec. 12, T. 14 N., R. 59 W	July 30, 1901	....do	2.9
Do	Sec. 27, T. 15 N., R. 56 W	July 31, 1901	....do	6.2
Do	Sec. 36, T. 14 N., R. 47 W	Apr. 13, 1902	....do	4
Do	Sec. 35, T. 15 N., R. 55 W	Apr. 25, 1902	....do	12
Do	Sec. 25, T. 15 N., R. 56 W	July 2, 1902	....do	7.5
Do	....do	May 29, 1903	....do	31
Do	W. line sec. 25, T. 15 N., R. 56 W.	July 23, 1903	....do	7.4
Do	Sec. 31, T. 15 N., R. 56 W	July 2, 1902	....do	10.5
Do	....do	June 1, 1903	....do	12.5
Do	....do.[f]	July 23, 1903	....do	.5
Do	....do	Apr. 30, 1904	....do	12.4
Do	Sec. 26, T. 15 N., R. 55 W	Apr. 24, 1903	....do	12.6
Do	....do	July 24, 1903	....do	4.6
Do	Sec. 26, T. 15 N., R. 56 W	Apr. 25, 1903	....do	16.6
Do	Sec. 10, T. 14 N., R. 51 W	June 18, 1903	....do	5.4
Do	....do	July 25, 1903	....do	3.8
Do	....do	Apr. 27, 1904	....do	7.2
Do	Sec. 34, T. 15 N., R. 56 W	July 23, 1903	....do	7.5
Do	W. line sec. 30, T. 15 N., R. 54 W.	July 24, 1903	....do	0
Do	W. line sec. 3, T. 14 N., R. 52 W.	July 25, 1903	....do	3.2
Do	Center sec. 8, T. 14 N., R. 51 W.	....do	....do	3.5
Do	Sec. 15, T. 14 N., R. 51 W	....do	....do	2.9
Do	Sec. 8, T. 14 N., R. 51 W	Apr. 27, 1904	....do	8.6
Do	Sec. 8, T. 14 N., R. 58 W	May 3, 1904	....do	34.7
Do	Sec. 24, T. 15 N., R. 56 W	Sept. 8, 1904	....do	8.7
Do	Lodge Pole station	Oct. 8, 1900	E. D. Johnson	2.1
Do	Chappell	Oct. 18, 1900	....do	3.1
Do	Sidney	July 1, 1901	H. O. Smith	6.7
Do	Sec. 35, T. 15 N., R. 56 W	May 27, 1903	....do	31.3
Do	Sec. 31, T. 15 N., R. 57 W	June 1, 1903	....do	15.8
Do	Nebr.-Wyo. state line	May 2, 1904	....do	4.3
Do	1 mile east of state line	....do	....do	4.6
Lonergan Creek	Sec. 17, T. 15 N., R. 39 W	May 22, 1898	C. B. Channel	6.1
Do	Sec. 19, T. 15 N., R. 39 W	Aug. 18, 1902	H. O. Smith	2.5
Lookingglass Creek	Sec. 4, T. 17 N., R. 2 W.[g]	July —, 1896	W. J. McEathron	15
Loup River	Fullerton	Sept. 16, 1894	O. V. P. Stout	1,704
Do	....do	July 11, 1896	....do	2,900
Do	Sec. 13, T. 17 N., R. 2 W	Aug. 19, 1894	....do	1,335
Mathews Creek	Sec. 28, T. 15 N., R. 37 W	May 19, 1898	C. B. Channel	1.7
Middle Loup River	Gates	Aug. 25, 1894	G. W. Lawrence	850
Do	Sec. 33, T. 25 N., R. 33 W	Aug. 20, 1895	O. V. P. Stout	41.8

[a] Above Young ditch.
[b] One-half mile west of Jones dam.
[c] Above Polly ditch.
[d] At bridge below Polly ditch.
[e] Above Neuman dam.
[f] Below Kinney dam.
[g] Near mouth.

Miscellaneous discharge measurements in the drainage basin of Platte River—Cont'd.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Sec-ft.
Middle Loup River	Sec. 32, T. 19 N., R. 21 W	Oct. 11, 1904	Adna Dobson	878
Do	Mullen	Aug. 20, 1895	O. V. P. Stout	120
Do	Seneca	Aug. 21, 1895	do	216
Do	do	Aug. 30, 1896	do	212
Do	do	Apr. 28, 1898	Glenn E. Smith	222
Do	do	Nov. 1, 1898	do	198
Do	do	May 2, 1899	C. B. Channel	225
Do	do	May 24, 1904	R. D. Hubbard	205
Do	Thedford	Apr. 22, 1895	O. V. P. Stout	284
Do	do	May 24, 1904	R. D. Hubbard	271
Do	do	June 22, 1904	J. A. Green	232
Do	Dunning	Apr. 23, 1895	O. V. P. Stout	322
Do	do	do	do	615
Do	do	Aug. 30, 1896	do	323
Do	do	Apr. 28, 1898	Glenn E. Smith	410
Do	do	Nov. 1, 1898	do	433
Do	do	Apr. 21, 1899	A. B. McCoskey	438
Do	Loup City	Aug. 29, 1895	O. V. P. Stout	879
Do	Boelus	May 28, 1897	Adna Dobson	837
Do	Arcadia	Apr. 18, 1899	A. B. McCoskey	810
Do	do	June 10, 1904	R. D. Hubbard	2,162
Do	St. Paul	May 23, 1902	B. E. Forbes	1,538
Do	do	June 10, 1904	R. D. Hubbard	[a] 12,800
Mitchell canal	At flume over Horse Creek	Oct. 16, 1892		24
Mud Creek	Litchfield	July 25, 1904	J. A. Green	37
North Loup River	Moulton	Nov. 2, 1894	G. W. Lawrence	460
Do	Burwell	July 9, 1896	O. V. P. Stout	625
Do	do	May 16, 1899	Glenn E. Smith	984
Do	do	Mar. 25, 1902	B. E. Forbes	1,088
Do	Below mouth Wanaduza Creek.	July 24, 1897	O. V. P. Stout	130
Do	Brownlee	May 1, 1899	C. B. Channel	360
Do	do	Sept. 23, 1899	do	196
Do	do	June 20, 1904	R. D. Hubbard	147
Do	do	do	do	160
Do	Brewster	Sept. 21, 1899	C. B. Channel	362
Do	do	Sept. 14, 1904	R. D. Hubbard	467
Do	St. Paul	May 23, 1902	B. E. Forbes	1,186
Do	do	June 10, 1904	R. D. Hubbard	2,219
Do	Cascade	June 21, 1904	J. A. Green	227
North Platte River	Douglas, Wyo	June 3, 1891	Wyoming state engineer.	10,130
Do	do	Dec. 4, 1891	do	807
Do	do	Nov. 5, 1892	do	595
Do	Fairbanks, Wyo	Oct. 13, 1891	do	579
Do	Lewellen	Sept. 1, 1898	A. B. McCoskey	5
Do	do	Aug. 7, 1901	H. O. Smith	100
Do	do	Aug. 8, 1901	do	758
Do	do	Aug. 30, 1904	do	60
Do	do	May 22, 1899	H. H. Pickens	15,902
Do	Gering	Nov. 7, 1898	A. B. McCoskey	593
Do	do	June 14, 1895		11,350
Do	do	June 17, 1895		10,963
Do	do	June 14, 1899	A. B. McCoskey	16,105
Do	do	Sept. 26, 1900	do	333
Do	do	Nov. 5, 1900	do	625
Do	do	June 1, 1901	O. V. P. Stout	10,360
Do	Camp Clarke	June 27, 1901	R. H. Willis	5,800
Do	do	July 10, 1901	do	2,900
Do	Sec. 18, T. 14 N., R. 33 W	July 28, 1901	H. O. Smith	394
Do	do	Aug. 7, 1901	E. F. Seeberger	150
Do	Sec. 3, T. 23 N., R. 58 W	Aug. 26, 1902	F. Dobson	31
Do	do	Aug. 28, 1902	R. H. Willis	31
Do	do	Sept. 8, 1902	do	8
Do	do	Sept. 22, 1902	do	630
Do	Sec. 18, T. 14 N., R. 36 W	Aug. 28, 1904	H. O. Smith	30
Do	Sutherland	Aug. 27, 1904	do	27
Oak Creek	Sec. 17, T. 10 N., R. 6 E	May 10, 1899	McCoy and Pickens	27.5
Do	do	July 3, 1899	do	[b] 703
Do	Dannebrog	May 19, 1899	Glenn E. Smith	5
Pawnee Creek	Sec. 19, T. 13 N., R. 27 W.[c]	Apr. 25, 1898	C. B. Channel	4.9
Do	Sec. 12, T. 13 N., R. 28 W.[d]	do	do	4.7
Paxton Spring	Sec. 19, T. 15 N., R. 27 W	May 7, 1902	H. O. Smith	.8
Plain Creek	Sec. 27, T. 31 N., R. 34 W	Oct. 26, 1900	A. B. McCoskey	29
Platte River	Columbus	Sept. 17, 1894	O. V. P. Stout	0
Do	do	Oct. 6, 1894	do	0
Do	Fremont	Aug. 14, 1894	do	1.420
Do	do	Aug. —, 1894	A. Rosewater	1,209
Do	do	Aug. 13, 1900	O. V. P. Stout	2,300

[a] Flood; gage height, 3.60. [b] Flood. [c] Above Plummer's ditch. [d] Above Holcomb's ditch.

Miscellaneous discharge measurements in the drainage basin of Platte River—Cont'd.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Sec.-ft.
Platte River	Fremont	Aug. 11, 1901	O. V. P. Stout	1,152
Do	Kearney	June 29, 1896	do	0
Do	do	July 22, 1901	H. O. Smith	0
Do	do	Sept. 7, 1902	J. C. Stevens	0
Do	Grand Island	Sept. 7, 1898	O. V. P. Stout	0
Do	do	Sept. 15, 1898	do	12
Do	do	Nov. 2, 1898	Glenn E. Smith	0
Do	do	Oct. 1, 1903	J. C. Stevens	0
Do	do	Aug. 28, 1904	R. D. Hubbard	0
Do	Central City	Sept. 8, 1899	Glenn E. Smith	50
Do	Lexington	May 14, 1901	H. O. Smith	5,804
Do	do	May 24, 1901	do	10,167
Do	do	June 5, 1901	do	9,888
Do	do	June 18, 1901	do	12,406
Do	do	July 8, 1901	do	2,501
Do	do	July 20, 1901	do	0
Do	Ashland	Sept. 14, 1903	J. C. Stevens	10,974
Do	do	Aug. 31, 1903	do	38,631
Do	South Bend	May 5, 1903	do	13,179
Do	Valley	May 7, 1904	do	3,976
Do	Sec. 29, T. 12 N., R. 26 W.	Sept. 13, 1904	H. O. Smith	36
Prairie Creek	Sec. 26, T. 16 N., R. 5 W.	Nov. 21, 1901	B. E. Forbes	7
Pumpkinseed Creek	Sec. 12, T. 19 N., R. 50 W.	Oct. 8, 1892		32
Do	Sec. 25, T. 19 N., R. 51 W.	June 17, 1903	R. D. Hubbard	.6
Do	Sec. 13, T. 19 N., R. 50 W.	June 28, 1896	O. V. P. Stout	22.2
Do	Bet. secs. 25, 30, T. 19 N., R. 50 W.	June 17, 1903	R. D. Hubbard	4.4
Do	Sec. 25, T. 19 N., R. 51 W.	do	do	2.7
Do	Sec. 30, T. 19 N., R. 50 W.	do	do	3.4
Do	do	May 29, 1903	R. H. Willis	7.9
Do	Lot 1, sec. 7, T. 19 N., R. 55 W.	July 16, 1903	do	1.3
Do	Sec. 33, T. 19 N., R. 52 W.	June 16, 1904	H. O. Smith	11.4
Salt Creek	Lincoln	Feb. 5, 1897		38
Do	do	Aug. 17, 1900	Adna Dobson	[a] 5,807
Do	do	May 20, 1901	O. V. P. Stout	44
Do	do	July 7, 1902	Adna Dobson	[a] 5,438
Do	do	July 10, 1902	do	[a] 10,136
Do	do	Oct. 1, 1902	B. E. Forbes	92
Do	Ashland	Sept. 14, 1903	J. C. Stevens	932
Do	do	Aug. 31, 1903	do	216
Sand Creek	Sec. 14, T. 15 N., R. 40 W.	Aug. 19, 1902	H. O. Smith	1.3
Shell Creek	Platte Center	July 21, 1896	O. V. P. Stout	47
Do	do	July 23, 1896	do	15.3
Do	Schuyler	July 24, 1896	do	26.3
Skunk Creek	Sec. 1, T. 14 N., R. 37 W.	May 18, 1898	C. B. Channel	2
South Loup River	Callaway	Aug. 28, 1896	O. V. P. Stout	48
Do	do	Aug. 3, 1898	C. B. Channel	83
Do	do	July 26, 1904	J. A. Green	82
Do	Ravenna	Aug. 31, 1895	O. V. P. Stout	296
Do	do	Aug. 29, 1896	do	142
Do	Georgetown	Sept. 10, 1896	G. H. Lawrence	68
Do	Ravenna	Mar. 11, 1903	J. C. Stevens	1,723
Do	do	May 13, 1903	do	399
Do	Arnold	Aug. 4, 1898	C. B. Channel	31.5
Do	St. Michaels	May 28, 1897	Adna Dobson	220
Do	Sec. 27, T. 18 N., R. 26 W.	July 27, 1904	J. A. Green	9
Do	Sec. 31, T. 17 N., R. 24 W.	July 28, 1904	do	56
Do	Sec. 30, T. 15 N., R. 21 W.	do	do	103
South Platte River	North Platte	Nov. 2, 1892	U. S. Geol. Survey	460
Do	do	Nov. 22, 1892	do	645
Do	do	June 29, 1896	do	0
Do	do	May 14, 1897		1,949
Do	do	June 21, 1897		4,427
Do	do	Aug. 13, 1897		2,880
Do	do	June 19, 1899	Glenn E. Smith	0
Do	do	Apr. 19, 1899	do	883
Do	do	May 6, 1899	do	87
Do	do	May 22, 1899	do	88
Do	do	June 6, 1899	do	0
Do	do	Dec. 20, 1900	Adna Dobson	963
Do	do	July 17, 1901	O. V. P. Stout	0
Do	do	Apr. 9, 1902	H. O. Smith	0
Do	do	May 20, 1902	do	207
Do	do	Oct. 31, 1903	J. C. Stevens	0
Do	do	June 29, 1903	do	0
Do	do	May 8, 1903	do	50
Do	do	Apr. 2, 1903	do	909
Do	do	Mar. 26, 1904	do	0
Do	do	May 27, 1904	R. D. Hubbard	11

[a] Flood.

Miscellaneous discharge measurements in the drainage basin of Platte River—Cont'd.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Sec.-ft.
South Platte River	North Platte	June 13, 1904	J. C. Stevens	2,231
Do	do	Mar. 31, 1905		382
Do	do	June 14, 1905		7,614
Do	do	July 13, 1905		170
Do	Ogallala	Apr. 17, 1904	Adna Dobson	0
Do	Sutherland	May 23, 1899	H. H. Pickens	50
Do	Julesburg, Colo	Oct. 27, 1892	U. S. Geol. Survey	653
Do	do	Sept. 22, 1903	E. C. Murphy	4
Do	do	May 9, 1903	J. C. Stevens	25
Do	do	Apr. 1, 1903	do	1,145
Do	do	May 27, 1904	do	130
Spottedtail Creek	Sec. 2, T. 23 N., R. 56 W	Apr. 30, 1904	R. D. Hubbard	1
Spring Creek	Sec. 28, T. 16 N., R. 41 W	May 23, 1898	C. B. Channel	4.6
Do	Sec. 29, T. 16 N., R. 41 W	do	do	6.7
Do	Sec. 29, T. 15 N., R. 37 W	May 19, 1898	do	1.1
Do	Sec. 25, T. 10 N., R. 21 W	July 11, 1901	H. O. Smith	4.4
Do	Sec. 30, T. 10 N., R. 21 W	Aug. 18, 1902	do	1
Do	Sec. 36, T. 14 N., R. 47 W	Apr. 23, 1902	do	2.4
Do	Sec. 30, T. 15 N., R. 37 W	May 7, 1902	do	2.5
Union Creek	Madison	July 23, 1896	O. V. P. Stout	38.3
Victoria Creek	Sec. 1, T. 19 N., R. 21 W	July 28, 1896	Adna Dobson	5.2
Do	do	Oct. 11, 1904	do	2.6
Western ditch	W. line sec. 18, T. 12 N., R. 42 W.	May 9, 1903	J. C. Stevens	22.5
Do	W. line sec. 9, T. 12 N., R. 42 W.	do	do	21.5
White Horse Creek	Sec. 5, T. 14 N., R. 30 W. [a]	May 3, 1898	C. B. Channel	2.3
Whitetail Creek	Sec. 22, T. 15 N., R. 38 W. [b]	May 20, 1898	do	24.7
Do	Sec. 15, T. 15 N., R. 33 W. [c]	do	do	24.6
Do	Sec. 36, T. 15 N., R. 38 W. [d]	do	do	26.1
Do	South line sec. 36, T. 15 N., R. 38 W.	May 7, 1902	H. O. Smith	24.7
Do	North line sec. 36, T. 15 N., R. 38 W.	do	do	36
Do	NE. ¼ sec. 26, T. 15 N., R. 38 W.	do	do	33
Wood River	Glenwood	Aug. 8, 1898	C. B. Channel	5.8
Do	Sec. 12, T. 9 N., R. 16 W	Sept. 7, 1902	J. C. Stevens	27.3

[a] Above Lampluph Lake.
[b] Above Whitetail canal.
[c] Above Reed ditch.
[d] Above Holloway canal.

PRECIPITATION IN THE PLATTE DRAINAGE BASIN.

The following is a list of the precipitation stations in the Platte basin:

Rainfall stations in drainage basin of Platte River.

Station.	County.	Latitude.	Longitude.	Elevation.	Length of record.
		° ′	° ′	*Feet.*	*Years.*
Lincoln	Lancaster	40 43	96 45	1,189	23
Ashland	Saunders	41 02	96 20	1,120	15
Omaha	Douglas	41 16	95 56	1,103	36
Fremont	Dodge	41 25	96 27	1,203	23
Norfolk	Madison	41 59	97 23	1,532	22
Oakdale	Antelope	42 04	97 57	1,722	18
O'Neill	Holt	42 28	98 38	1,975	16
David City	Butler	41 15	97 06	1,607	17
Columbus	Platte	41 26	97 21	1,441	13
Genoa	Nance	41 26	97 43	1,584	31
Ericson	Wheeler	41 47	98 41	2,029	11
Palmer	Merrick	41 14	98 15	1,796	.....
St. Paul	Howard	41 13	98 27	1,813	11
North Loup	Valley	41 59	97 23	1,961	18
Ord	do	41 36	98 55	2,051	12
Burwell	Garfield	41 48	99 09	2,180	20
Loup	Sherman	41 17	98 57	2,067	12
Seneca	Thomas	42 02	100 50	2,971	6
Ravenna	Buffalo	41 02	98 54	2,028	17
Ansley	Custer	41 15	99 22	2,307	15
Callaway	do	41 18	99 54	2,555	12

Rainfall stations in drainage basin of Platte River—Continued.

Station.	County.	Latitude.	Longitude.	Elevation.	Length of record.
		° ′	° ′	*Feet.*	*Years.*
Broken Bow	Custer	41 24	99 37	2,477	12
Central City	Merrick	41 04	98 00	1,708	17
Marquette	Hamilton	40 58	98 00	1,830	25
Aurora	do	40 52	98 00	1,792	13
Grand Island	Hall	40 55	98 21	1,861	15
Hastings	Adams	40 35	98 23	1,932	14
Kearney	Buffalo	40 42	99 05	2,147	17
Lexington	Dawson	40 20	98 50	2,385	17
Gothenburg	do	40 57	100 10	2,557	12
North Platte	Lincoln	41 08	100 45	2,821	32
Camp Clarke[a]	Cheyenne	41 40	103 06	3,800	9
Alliance	Boxbutte	42 05	102 51	3,968	14
Gering	Scotts Bluff	41 49	103 38	3,902	15
Lusk (Wyo.)	Converse	42 46	104 28	5,007	17
Fort Laramie (Wyo.)	Laramie	42 12	104 31	4,270	30
Alcova (Wyo.)	Natrona	42 34	106 33	5,366	8
Lander (Colo.)	Fremont	42 50	108 45	5,372	15
Rawlins (Wyo.)	Carbon	41 45	107 24	6,744	7
Laramie (Wyo.)	Albany	41 19	105 35	7,188	16
Lodgepole	Cheyenne	41 10	102 38	3,820	12
Kimball	Kimball	41 13	103 40	4,697	18
Cheyenne (Wyo.)	Laramie	41 08	104 48	6,088	36
Fort Morgan (Colo.)	Morgan	40 15	103 47	4,000	13
Greeley (Colo.)	Weld	40 25	104 44	4,637	14
Moraine (Colo.)	Larimer	40 21	105 35	7,900	16
Boulder (Colo.)	Boulder	40 02	105 16	5,400	10
Denver (Colo.)	Arapahoe	39 45	105 00	5,272	34
Castle Rock (Colo.)	Douglas	39 22	104 52	.....	.....

[a] Now Bridgeport, for which place latitude, longitude, and elevation are given.

The following table gives records of precipitation at the stations named in the foregoing list:

Precipitation at stations in the drainage basin of Platte River, 1896–1906.

LINCOLN, LANCASTER COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.66	0.92	1.37	2.62	4.38	4.23	3.82	3.26	2.04	2.03	0.68	0.75	26.80
1896	.32	.27	1.28	4.57	10.11	3.05	5.63	3.39	4.57	3.02	1.48	.37	38.06
1897	.65	.90	1.48	6.15	2.22	2.17	2.54	2.69	1.71	2.77	.29	2.10	25.67
1898	.83	.99	1.40	3.88	4.33	3.99	3.93	3.45	2.32	1.55	.95	.48	28.10
1899	.11	.56	.70	1.49	2.29	8.39	1.47	2.66	.39	2.58	.58	1.31	22.53
1900	.13	.97	.67	4.33	4.50	2.50	6.66	9.07	1.92	2.45	.03	.49	33.72
1901	.22	.79	1.73	1.46	1.96	1.42	2.94	1.02	6.00	3.62	.41	.52	22.09
1902	1.02	.14	.37	.67	3.65	8.83	11.35	4.35	4.10	2.87	1.97	1.96	41.22
1903	.25	1.30	.47	3.50	.72	2.60	3.07	6.45	1.34	2.90	1.87	.07	34.66
1904	.60	.07	.97	5.11	4.20	4.40	5.12	2.39	2.96	1.33	.28	.29	27.72
1905	.93	.85	.59	2.71	5.11	3.43	3.25	6.45	6.91	2.56	2.52	.06	35.37
1906	.49	.86	3.67	3.51	1.53	3.60	6.85	2.74	7.60	2.12	.28	.83	34.08

ASHLAND, SAUNDERS COUNTY.

Normal	0.60	0.64	1.20	2.83	4.32	4.59	4.92	4.13	2.95	2.24	0.77	0.72	29.91
1896	.21	.30	.98	2.99	10.57	1.80	5.56	2.85	5.45	3.28	1.88	.35	36.20
1897	.32	.43	1.23	7.29	2.12	2.31	1.66	1.44	3.70	3.39	.25	1.13	25.27
1898	.13	.42	1.56	1.62	2.89	3.20	5.63	1.12	5.29	2.16	.71	.28	25.01
1899	.03	.80	.45	1.50	4.34	10.65	3.54	4.31	.58	2.47	.96	1.74	30.87
1900	.10	.62	.44	3.37	2.27	3.15	6.52	6.07	2.76	4.27	T.	.68	30.25
1901	.13	.42	1.56	1.62	2.80	3.20	5.63	1.12	5.29	2.16	.71	.28	25.01
1902	1.31	.02	.40	.94	3.22	8.72	13.86	5.41	2.70	2.67	1.49	1.79	42.53
1903	T.	1.60	.50	3.80	10.67	2.30	5.92	5.77	2.84	1.75	.50	T.	35.29
1904	.50	.05	.74	4.46	5.96	2.74	3.40	3.71	2.36	1.44	.27	.30	25.93
1905	.95	.70	.56	5.17	3.77	2.54	2.73	5.54	7.46	1.75	2.52	.14	33.83
1906	.48	1.05	2.00	3.74	1.90	5.93	4.68	3.09	6.84	2.05	.40	1.94	34.10

Precipitation at stations in the drainage basin of Platte River, 1896–1906—Continued.

OMAHA, DOUGLAS COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.69	0.79	1.50	3.13	4.37	5.67	4.75	3.34	2.91	2.47	1.06	1.01	31.69
1896.....	.33	.33	1.31	4.28	9.51	1.90	4.53	3.50	3.97	3.72	2.02	.50	34.90
1897.....	.87	.63	1.47	5.67	2.16	1.43	2.01	1.92	1.30	1.82	.14	1.79	21.30
1898.....	.31	.66	2.07	.89	2.13	5.31	2.98	.65	6.83	1.96	.56	.73	25.08
1899.....	.07	.71	.64	1.73	4.45	5.77	1.73	6.18	.53	2.26	1.38	1.29	26.74
1900.....	.15	.81	1.48	3.43	2.24	3.07	6.86	3.52	3.60	5.43	.15	.46	31.20
1901.....	.31	.66	2.07	.89	2.13	5.31	2.98	.65	6.83	1.96	.56	.73	25.08
1902.....	.71	.13	.70	.85	2.88	7.32	7.28	2.86	1.52	2.13	1.38	2.72	30.48
1903.....	.07	1.12	.58	2.01	8.32	1.31	2.67	12.50	2.50	1.19	1.01	.15	33.43
1904.....	.62	.10	1.32	3.20	4.86	3.11	3.15	4.45	2.60	1.40	.10	.57	25.48
1905.....	1.13	1.36	.70	3.43	3.40	1.70	2.36	3.03	5.94	3.97	2.72	.14	29.88
1906.....	.60	.71	1.75	3.67	2.50	5.30	2.85	2.03	4.84	1.56	.52	1.26	27.59

FREMONT, DODGE COUNTY.

Normal.....	0.92	0.87	1.66	2.90	4.47	5.06	4.36	3.87	2.81	2.31	0.92	0.98	31.13
1897.....	.92	.60	1.90	5.61	.86	2.68	1.23	2.27	.56	2.77	.22	2.05	21.67
1898.....	.40	.80	2.41	1.17	2.75	5.50	2.11	1.14	7.59	1.79	.75	.90	27.31
1899.....	.15	.81	.87	2.15	6.90	10.17	2.95	9.78	.61	.78	1.28	1.53	37.98
1900.....	.24	1.10	1.34	3.75	2.00	1.22	5.36	6.37	4.81	5.47	.13	.66	32.45
1901.....	.40	.80	2.41	1.17	2.75	5.50	2.11	1.14	7.59	1.79	.75	.90	27.31
1902.....	.85	.08	.86	1.27	2.36	6.68	7.90	2.89	2.90	2.53	1.25	2.20	31.77
1903.....	T.	.97	.73	2.64	10.94	3.15	4.87	11.08	2.89	2.08	1.46	.17	40.98
1904.....	.27	T.	.96	2.75	5.10	5.09	4.82	3.85	1.58	1.54	.20	.25	26.41
1905.....	1.60	.95	.93	4.48	4.80	3.93	1.83	3.45	7.63	2.59	3.22	.02	35.43
1906.....	.73	.90	2.07	6.18	4.63	5.62	5.11	4.66	5.80	2.61	.43	1.12	39.86

NORFOLK, MADISON COUNTY.

Normal.....	0.40	0.74	1.03	2.81	4.26	4.61	3.97	3.81	3.37	1.68	0.70	0.72	27.10
1896.....	.27	.02	.67	5.92	3.30	5.26	5.65	1.08	2.25	2.50	2.54	.15	29.61
1897.....	.70	.43	1.55	3.86	1.03	2.93	3.72	2.67	1.43	2.97	.26	2.10	23.65
1898.....	.69	.70	.72	1.49	3.53	6.04	1.60	2.01	1.46	.86	.31	.42	19.83
1899.....	.05	.95	.54	.48	8.30	4.41	2.16	2.98	.86	.95	.78	1.35	23.87
1900.....	.14	.95	1.28	4.84	2.81	2.47	4.12	3.90	4.78	3.26	.17	.17	28.89
1901.....	.05	.25	1.49	1.71	3.02	8.10	.67	.86	8.52	2.65	1.27	.59	29.18
1902.....	.91	.41	.94	1.66	3.25	7.11	8.58	5.18	3.93	1.06	.26	1.35	34.64
1903.....	.14	1.36	1.65	3.52	6.87	3.02	6.35	7.10	.96	2.42	1.09	.16	34.58
1904.....	.54	.21	.41	2.00	5.02	5.22	4.64	4.81	1.92	4.04	.12	.23	29.16
1905.....	.94	.72	.88	3.83	9.88	4.43	4.31	3.28	6.14	.82	2.45	T.	37.68
1906.....	.54	1.01	1.08	5.70	5.95	4.32	2.22	2.79	6.11	3.31	.72	1.25	35.00

OAKDALE, ANTELOPE COUNTY.

Normal.....	0.47	0.60	1.05	3.09	3.94	4.55	3.52	2.69	2.32	1.64	0.66	0.64	25.16
1896.....	.13	.05	1.14	6.94	2.51	4.50	6.17	1.12	1.76	2.39	2.66	.07	29.44
1897.....	1.61	.51	1.78	3.36	1.12	4.87	2.98	3.38	1.15	2.33	.64	1.44	25.17
1898.....	.55	.78	.69	1.88	5.75	4.82	2.15	2.92	.93	1.15	.53	.44	22.59
1899.....	.08	.47	.80	1.42	5.47	5.42	1.35	2.18	1.57	.88	.43	.74	20.81
1900.....	.13	.98	.77	5.32	3.82	2.05	4.80	3.61	3.14	2.88	.20	.10	27.87
1901.....	.09	.33	1.29	2.24	2.86	7.34	1.02	.80	6.83	1.78	1.05	.63	26.26
1902.....	.46	.25	1.23	2.07	2.56	5.29	6.29	3.28	3.74	.76	.09	1.08	27.10
1903.....	.06	.82	1.50	2.24	9.58	4.30	8.72	5.01	1.57	2.08	.66	.13	36.07
1904.....	.25	.30	.48	2.00	2.90	5.90	4.87	3.11	1.98	5.26	.15	.33	27.53
1905.....	.78	.58	.75	2.60	8.36	5.70	2.74	2.20	7.79	1.41	1.69	T.	34.60
1906.....	.47	.98	.99	4.90	2.16	3.91	1.49	3.53	5.12	3.25	.87	1.49	29.16

Precipitation at stations in the drainage basin of Platte River, 1896–1906—Continued.

O'NEILL, HOLT COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.40	0.62	1.24	3.37	2.89	4.28	2.95	2.77	2.39	1.34	0.51	0.69	23.52
1896	.32	.04	1.36	6.86	1.77	5.87	3.85	1.56	3.41	1.84	1.37	.10	28.35
1897	1.31	.48	1.69	4.85	1.35	3.15	1.51	2.26	3.70	3.84	.13	1.86	26.13
1898	.38	.42	.75	1.39	5.62	2.82	3.87	2.33	1.29	1.25	.20	.05	20.37
1899	.18	.13	.63	1.14	3.40	4.17	4.48	4.02	.70	.33	1.02	.15	20.35
1900	T.	.95	.75	5.47	2.57	1.78	4.93	3.07	1.94	3.21	.20	.54	25.35
1901	.06	1.10	1.45	2.23	1.49	9.68	.05	1.22	7.51	1.72	.90	.91	28.32
1902	.45	.40	1.94	1.84	2.32	4.12	4.95	5.25	6.57	.61	.18	2.10	30.73
1903	.35	1.32	.59	1.30	5.26	1.33	5.04	4.44	.90	.90	1.52	.....	.....
1904	.....	.70	.14	1.83	3.31	5.33	3.80	3.19	1.66	.....	.05	.36	.....
1905	.73	.30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

DAVID CITY, BUTLER COUNTY.

Normal	0.82	0.75	1.66	3.81	4.52	4.34	4.08	3.62	2.54	2.17	0.84	0.74	29.93
1896	.60	.25	2.70	10.25	7.60	2.80	6.90	1.45	4.25	3.30	2.60	.25	42.95
1897	.95	.50	1.75	6.60	2.65	2.00	1.90	3.30	1.10	4.10	.30	1.30	26.45
1898	.75	.50	.75	2.75	6.80	5.30	.70	2.80	2.20	1.65	.80	.40	25.40
1899	.40	.75	.45	.....	.....	6.05	4.50	6.45	1.10	2.05	1.00	1.80	.....
1900	.15	.80	1.30	6.00	3.00	1.50	5.00	9.60	4.40	3.65	.40	.35	36.15
1901	.55	1.20	3.10	2.10	2.40	4.25	2.90	1.65	5.20	1.20	T.	1.20	25.75
1902	.85	.35	.....	.....	.....	.....	.....	2.07	3.07	.....	.....	.....	.....
1903	.....	.....	.65	3.17	13.09	1.77	5.82	6.90	2.33	2.17	1.52	.02	.....
1904	.80	.05	1.33	2.90	5.68	3.27	5.20	2.22	1.81	2.47	.24	.18	26.15
1905	1.44	.86	1.56	4.77	7.88	5.02	3.03	4.86	6.29	1.44	2.36	.02	39.53
1906	.72	1.66	2.20	5.67	3.64	5.34	7.51	3.24	3.51	4.04	.61	1.11	39.25

COLUMBUS, PLATTE COUNTY.

Normal	0.32	0.58	0.96	3.07	3.70	4.05	3.30	3.55	3.14	2.01	0.69	0.55	26.40
1896	.44	T.	.48	6.78	5.50	4.42	4.12	2.32	2.37	2.25	2.23	.03	30.94
1897	.69	.66	1.90	5.10	1.12	3.15	2.67	3.11	2.22	3.85	.15	1.47	26.09
1898	.40	.48	.82	2.45	5.92	5.09	.82	3.86	2.41	1.52	.48	.11	24.36
1899	.01	.72	.87	.34	5.19	5.80	4.11	4.03	.93	.95	.60	1.12	24.61
1900	.01	.57	.71	4.65	1.97	2.34	3.61	7.40	7.95	3.99	.03	.10	33.33
1901	.12	.64	.83	1.66	1.74	3.34	1.33	.60	6.03	1.64	.78	.42	19.13
1902	.65	.14	.67	1.44	3.64	7.83	8.40	2.40	1.78	3.28	.47	.91	31.61
1903	T.	1.33	1.58	2.98	9.46	.84	6.28	8.33	2.65	.99	.90	.06	35.40
1904	.08	.02	.93	1.67	4.78	4.60	4.94	1.97	1.10	2.96	.09	.13	23.27
1905	1.16	.55	.64	3.91	8.61	3.90	2.62	2.84	6.87	1.14	2.33	.02	34.59
1906	.19	1.13	.99	3.96	3.94	2.65	3.02	3.07	3.88	3.75	.48	.94	28.00

GENOA, NANCE COUNTY.

Normal	0.71	0.74	1.21	3.03	4.35	4.40	3.95	3.03	3.14	1.77	0.78	0.80	28.01
1896	.46	.09	.56	7.57	4.09	5.47	3.27	1.41	2.40	2.03	2.41	.27	30.01
1897	1.36	.64	1.81	5.47	1.64	3.80	4.59	2.93	2.71	4.12	.34	1.44	30.85
1898	.58	.94	.82	2.78	4.58	3.91	1.36	3.98	2.02	1.13	.55	.15	22.80
1899	.07	.78	.59	1.08	5.54	4.25	1.71	4.62	.51	.87	.71	1.63	22.30
1900	.04	.58	.58	5.87	3.18	1.95	5.32	6.94	10.45	4.76	.22	.28	40.17
1901	.05	.58	1.05	2.64	1.68	4.85	.50	.61	7.65	2.89	1.30	.70	24.50
1902	.60	.40	1.04	.98	4.55	9.37	7.55	1.99	2.15	3.19	.32	.98	33.12
1903	T.	1.03	2.17	2.66	7.51	1.32	9.90	7.12	1.43	.66	1.34	T.	35.14
1904	.14	.02	.14	1.78	6.52	6.14	7.60	2.39	1.88	2.40	.11	.25	29.37
1905	.91	.69	1.34	4.39	11.45	2.44	3.64	1.15	6.12	.38	2.55	.04	35.10
1906	.49	1.01	2.06	7.17	1.99	2.65	2.20	3.45	3.98	3.20	.49	1.14	29.83

Precipitation at stations in the drainage basin of Platte River, 1896–1906—Continued.

ERICSON, WHEELER COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.60	0.77	1.13	3.08	2.24	3.63	3.47	2.47	2.30	1.78	0.48	0.59	22.40
1896	.50	T.	1.10	6.20	2.71	4.86	4.36	2.07	2.63	1.90	.60	.25	26.73
1897	1.00	.50	2.64	4.25	2.07	3.85	1.98	2.61	.87	3.84	.10	1.50	25.21
1898	.70	.40	.20	1.38	3.92	2.48	1.91	2.68	.91	.35	.53	.20	15.66
1899	T.	.60	.80	1.85	3.91	4.95	1.70	2.49	2.56	.20	.35	1.94	19.35
1900	T.	1.30	T.	3.89	2.63	1.94	4.30	4.87	1.95	2.07	.20	9.18	23.27
1901	.10	.90	1.63	1.64	1.34	5.06	.22	.97	6.53	2.92	1.00	.48	22.79
1902	.60	.90	2.30	2.00	4.45	4.05	8.35	3.95	4.00	1.10	.20	.90	32.80
1903	.30	1.70	.25	2.40	4.25	1.60	8.00	6.60	T.	2.10	.85	.10	28.15
1904	.85	.40	.20	1.60	2.76	4.20	6.73	1.42	1.10	4.70	.30	.60	24.86
1905	2.00	1.10	1.69	4.35	7.90	6.90	2.30	.20	5.70	.60	2.40	T.	35.14
1906	1.00	.22	1.20	6.75	3.50	1.25	1.22	2.28	5.38	.....	.47	2.10	.....

PALMER, MERRICK COUNTY.

Normal	0.65	0.72	1.48	2.71	3.69	4.09	3.76	3.22	2.40	1.47	0.60	0.60	25.39
1896	0	.60	.90	7.55	6.55	4.35	2.50	.45	2.05	2.50	1.30	.35	29.10
1897	1.10	.50	3.17	4.44	2.30	4.84	2.06	3.49	2.69	4.68	.08	2.00	31.35
1898	.40	.50	.85	1.98	3.38	8.12	.97	3.65	3.18	.66	.35	T.	24.04
1899	T.	.75	.....	.40	3.99	4.45	2.79	3.29	.52	.12	.50	1.00	.....
1900	T.	.65	.90	4.60	2.55	3.78	5.25	3.90	5.00	2.58	.10	.27	29.58
1901	.10	.70	1.90	2.35	.52	2.62	1.50	1.50	7.11	2.77	.70	.35	22.12
1902	.60	.20	1.50	.51	4.65	8.24	4.20	4.68	4.93	3.00	.35	.70	33.56
1903	.20	1.30	.66	2.25	8.85	1.95	7.53	11.55	1.46	.80	.85	.20	37.60
1904	.40	.10	.45	1.85	2.90	5.60	9.18	2.45	1.85	3.20	.30	.04	28.32
1905	1.30	.60	1.11	3.94	8.93	6.46	9.20	4.95	6.17	.20	1.80	.10	44.76
1906	.30	.40	2.00	8.02	1.80	6.65	3.95	2.50	3.20	3.20	T.	1.10	33.12

ST. PAUL, HOWARD COUNTY.

Normal	0.43	0.62	1.12	3.08	3.96	5.38	4.94	3.63	2.80	2.12	0.75	0.46	29.30
1896	.21	.05	.97	7.23	4.57	5.53	3.95	1.05	2.96	2.37	2.04	.10	31.04
1897	.96	.72	1.89	4.59	.50	5.06	1.75	3.23	1.41	5.35	.17	1.20	26.83
1898	.56	.56	.54	2.27	3.45	7.16	1.38	3.80	2.96	.45	.52	.12	23.77
1899	.16	.56	.61	.60	2.77	5.32	4.73	5.55	.74	.78	.71	1.26	23.79
1900	.04	.84	.26	3.75	1.51	4.38	5.19	4.01	3.55	2.82	.16	.34	26.85
1901	.13	.85	2.14	2.54	.86	4.17	.84	1.14	5.71	2.45	1.04	.23	22.10
1902	.70	.49	1.88	.65	5.65	10.30	5.54	5.38	3.87	3.26	.20	.83	38.75
1903	.11	1.32	1.70	2.16	7.44	3.06	6.85	10.04	.52	.79	1.01	.06	35.06
1904	.24	T.	.30	1.89	1.95	4.01	9.00	1.59	2.60	2.87	.10	.09	24.64
1905	1.14	.86	1.02	4.15	7.70	8.41	7.47	3.49	5.26	.96	1.74	T.	42.20
1906	.46	.53	1.38	6.17	5.01	1.93	3.68	2.24	2.39	3.08	.55	1.33	28.75

NORTH LOUP, VALLEY COUNTY.

Normal	0.66	0.62	1.08	3.22	3.21	4.58	4.07	2.70	2.14	1.77	0.58	0.50	25.12
1896	.24	T.	.83	7.25	3.44	8.00	4.32	.55	2.44	2.18	1.12	T.	30.37
1897	.80	.36	1.42	6.05	.72	7.87	1.19	2.54	1.00	4.65	.10	1.40	28.10
1898	.55	.40	.20	1.00	3.65	4.43	.99	1.97	1.78	.53	.70	.30	16.50
1899	.60	.50	.74	1.75	2.87	5.58	1.18	3.50	.89	.20	.65	1.52	19.92
1900	.02	1.60	.87	5.26	2.66	3.63	5.76	4.00	2.11	2.36	.25	.50	28.96
1901	.05	1.05	2.18	2.68	2.32	4.79	1.86	1.64	5.84	2.76	1.07	.36	26.60
1902	.80	.55	2.38	1.58	5.06	4.89	6.75	4.36	4.22	2.24	T.	.53	33.36
1903	.30	1.40	1.10	1.95	6.22	2.38	6.46	5.06	.71	1.17	.85	T.	27.60
1904	.17	.13	.63	1.19	3.15	2.81	4.74	1.08	2.85	4.92	.05	.05	21.77
1905	1.25	.79	1.28	4.59	7.04	10.17	8.80	2.10	4.23	.42	1.63	T.	42.30
1906	.67	.40	.69	6.41	1.33	1.46	4.61	3.98	3.12	2.82	1.09	1.32	27.90

Precipitation at stations in the drainage basin of Platte River, 1896–1906—Continued.

ORD, VALLEY COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.32	0.59	0.96	3.36	3.21	4.26	3.60	3.13	2.76	2.20	0.64	0.45	25.38
1896.....	.21	T.	1.29	4.37	2.38	8.37	2.74	.32	1.96	2.91	.99	T.	25.54
1897.....	.41	.42	1.57	4.63	1.05	4.90	1.71	3.33	.96	4.36	.10	.87	24.31
1898.....	.60	.34	.22	2.04	3.43	2.31	.91	2.04	2.75	.56	.27	.43	15.95
1899.....	T.	.33	.75	1.21	2.62	3.60	.84	2.03	.63	.20	.93	.56	13.70
1900.....	.03	1.40	.29	4.59	1.53	6.56	3.18	5.74	1 57	2.65	.13	.21	27.88
1901.....	.09	.81	2.29	3.03	2.30	5.52	1.76	1.31	5.92	2.61	.88	.55	27.07
1902.....	.....	.28	2.18	1.19	5.89	2.55	6.52	5.33	4.09	1..45	0	.99	.....
1903.....	.22	1.21	.26	1.84	5.52	2.14	8.19	4.21	.06	1.57	.35	0	25.57
1904.....	.18	0	.27	1.72	2.76	3.54	5.68	.84	1.80	4.80	0	.05	21.64
1905.....	1.45	.76	1.11	4.70	6.20	6.78	5.48	2.51	4.98	.80	1.10	0	35.87
1906.....	.32	.97	.99	7.95	1.64	.57	2.62	6.75	6.21	3.94	1.37	1.65	34.98

BURWELL, GARFIELD COUNTY.

Normal.....	0.49	0.74	0.98	2.65	2.46	4.41	3.53	2.96	1.96	1.58	0.41	0.50	22.57
1896.....	.35	.10	1.85	3.85	1.71	4.70	3.77	1.47	.92	1.29	.70	T.	20.71
1897.....	.50	.40	1.60	3.24	.60	2.44	1.87	1.41	T.	3.89	.20	1.55	17.70
1898.....	1.00	.30	T.	1.68	3.14	2.68	2.33	4.68	.86	.56	.30	.65	18.18
1899.....	T.	.60	.05	.42	2.97	3.93	1.27	3.26	.54	0	.66	.95	14.65
1900.....	T.	1.55	.31	5.39	.85	5.85	4.69	3.87	1.38	1.96	.25	T.	26.10
1901.....	.10	1.15	1.87	2.89	1.78	8.63	.87	2.05	9.08	1.76	.73	.95	31.80
1902.....	.60	.35	1.75	2.13	4.45	5.32	5.73	3.89	5.01	.87	.15	.95	31.14
1903.....	.20	1.70	.15	2.17	7.07	.96	7.36	5.18	.08	1.54	.20	.20	26.87
1904.....	.95	.10	.60	2.03	3.30	9.79	6.69	2.88	2.87	5.51	.05	T.	34.77
1905.....	1.30	1.20	.40	4.56	5.73	6.14	4.22	.17	5.87	.65	1.21	T.	31.45
1906.....	.50	.30	1.23	5.21	.....	3.10	1.95	3.25	3.50	4.45	1.35	.45	.....

LOUP, SHERMAN COUNTY.

Normal.....	0.23	0.38	1.05	3.47	3.64	6.08	5.32	3.98	3.36	2.36	0.61	0.48	30.95
1896.....	.26	T.	1.14	7.11	3.93	11.78	3.86	.80	2.98	1.82	.64	T.	34.42
1897.....	.42	.43	1.32	4.80	.65	7.17	.78	7.75	2.97	5.75	.25	1.35	23.64
1898.....	.50	.08	.03	2.48	2.30	3.91	1.93	2.74	3.23	.42	.40	T.	18.02
1899.....	T.	T.	.44	1.24	2.47	8.20	3.36	3.11	1.36	0	.66	1.00	21.84
1900.....	T.	.53	.44	4.20	2.13	4.14	8.51	4.11	2.81	2.57	.20	.17	29.81
1901.....	.25	.55	2.49	2.45	1.49	6.47	1.54	2.54	7.67	3.96	.95	.31	30.67
1902.....	.35	.45	2.37	.93	5.85	6.46	8.86	5.03	4.80	3.50	.17	1.00	39.77
1903.....	.20	.70	1.67	1.18	9.79	2.13	9.24	6.06	1.20	1.98	1.21	0	35.36
1904.....	T.	T.	.14	3.02	4.19	5.79	10.04	2.70	3.89	4.69	T.	.20	34.66
1905.....	.45	.40	.94	4.18	5.55	10.32	4.15	8.47	4.88	.73	1.55	0	41.62
1906.....	.25	.50	.60	6.55	1.60	.51	6.29	3.00	2.30	2.61	1.26	1.65	27.12

SENECA, THOMAS COUNTY.

Normal.....	0.28	0.39	0.65	2.34	.....	2.07	2.83	1.28	0.84	0.30	0.17	0.32	.....
1896.....	.20	.20	1.40	5.75	1.00	2.00	4.39	.20	1.48	.20	.40	.24	18.15
1897.....	.55	.40	1.59	3.93	.50	5.70	4.54	1.80	.89	.70	T.	1.20	21.80
1898.....	.52	0	.10	.50	8.25	.20	5.00	2.55	1.70	0	.15	.15	19.12
1899.....	.20	.20	.10	.....	.15	.80	.28	.25	0	0	.44	.62	.....
1900.....	T.	.75	.10	2.80	3.40	.55	4.25	.23	0	T.	T.	T.	12.08
1901.....	.05	.70	.65	.57	.15	.65	.52	.....	1.16	.....	0	.05	.....
1902.....	.50	.32	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1903.....	.....	1.10	.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1904.....	.....	.....	.....	.....	.....	.....	3.38	3.17	1.25	1.53	.01	T.	.....
1905.....	1.50	.....	.41	2.96	.....	3.27	.....	.04	.....	.....	.....	.....	.....

Precipitation at stations in the drainage basin of Platte River, 1896–1906—Continued.

RAVENNA, BUFFALO COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.65	0.88	1.67	2.72	3.58	3.85	4.02	3.23	2.23	1.78	0.62	0.64	25.67
1896.....	.35	.12	1.67	5.72	4.58	2.66	5.37	.89	3.25	1.45	1.30	.14	27.50
1897.....	.60	.88	1.61	5.21	1.94	5.82	1.73	6.54	1.63	4.96	.30	1.53	32.75
1898.....	.33	2.68	.23	2.23	3.15	3.25	2.19	1.72	3.10	.56	.69	.37	18.50
1899.....	.05	.89	.90	.86	1.93	8.91	2.11	5.33	45	.58	.94	1.14	24.09
1900.....	.01	1.40	.37	3.56	2.25	1.90	4.36	1.74	2.43	3.17	.30	.25	21.74
1901.....	.25	.90	3.42	2.71	1.39	3.63	2.37	2.88	6.76	1.67	.84	.33	27.15
1902.....	.80	.70	1.51	.46	6.82	3.89	8.96	3.42	5.35	3.95	.17	1.03	37.06
1903.....	.37	2.55	1.50	1.45	6.73	3.94	9.58	7.62	.51	1.87	.74	.03	36.89
1904.....	.16	.02	.80	2.05	2.50	2.79	7.48	4.50	2.34	4.47	.12	.14	27.45
1905.....	1.25	.98	.88	3.97	6.94	4.67	2.61	4.65	4.49	1.10	1.65	T.	33.28
1906.....	.51	.82	1.52	6.39	2.27	2.12	4.00	4.57	2.35	2.70	.85	1.60	29.70

ANSLEY, CUSTER COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.38	0.84	1.25	2.77	3.35	4.01	3.68	2.94	1.74	1.66	0.40	0.44	23.46
1896.....	.63	.03	1.95	4.66	3.52	2.92	1.85	.64	2.25	1.75	.80	.02	21.32
1897.....	.40	.47	1.46	5.00	1.54	4.57	.92	4.55	1.47	4.98	.35	1.52	27.13
1898.....	.35	.45	.10	2.69	3.87	3.49	1.42	2.12	1.64	1.08	.45	.20	17.86
1899.....	.04	.85	.55	2.20	2.12	5.67	4.86	3.23	.95	.44	.89	.99	22.79
1900.....	T.	1.25	.48	4.55	1.76	.88	3.82	5.24	2.91	1.27	.20	.57	22.93
1901.....	.30	1.50	3.46	2.93	1.45	8.08	.....	2.35	4.10	2.32	.52	.29	.....
1902.....	.52	.57	.88	1.03	4.41	4.08	5.64	3.12	3.19	2.24	T.	1.10	26.78
1903.....	.62	1.65	.41	1.20	9.64	2.90	6.45	6.61	.60	.83	.60	T.	31.51
1904.....	.14	.12	.40	1.84	5.83	3.95	6.60	4.33	2.40	3.98	.10	.15	29.84
1905.....	1.40	1.00	1.15	8.41	6.85	5.74	2.77	.....	.....	.....	.....	.....	.....

CALLAWAY, CUSTER COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.38	0.62	0.89	3.03	3.09	4.12	2.83	3.40	1.92	1.43	0.59	0.38	22.68
1896.....	.25	.05	1.33	5.69	1.53	3.58	1.93	1.95	2.20	1.00	.70	T.	19.71
1897.....	.35	.48	1.28	5.30	.30	4.95	.70	1.79	1.15	5.00	.30	.95	22.54
1898.....	.45	.15	.60	2.35	4.45	2.98	2.60	6.85	1.50	T.	.65	T.	22.58
1899.....	T.	.55	T.	.55	2.21	5.65	1.40	1.85	.75	.45	1.65	.63	15.69
1900.....	T.	1.57	.47	4.50	2.90	.95	3.50	4.70	1.90	1.25	.50	.35	22.59
1901.....	.17	1.01	3.13	3.35	2.15	8.30	1.33	3.85	6.65	1.90	1.15	.67	33.66
1902.....	.70	.35	1.30	.90	6.25	3.95	4.40	1.35	3.95	.95	.10	.95	25.15
1903.....	.45	1.53	.10	2.05	5.45	2.25	7.70	4.28	.30	1.10	.55	T.	25.76
1904.....	.64	T.	T.	.51	4.24	2.97	6.32	5.89	1.83	.....	.....	T.	.....
1905.....	1.35	.50	.61	3.50	7.70	6.21	3.10	.....	.....	.66	1.02	T.	.....
1906.....	.50	.34	1.00	8.88	1.06	1.32	2.50	3.72	4.17	4.73	1.10	.96	30.28

BROKEN BOW, CUSTER COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.17	0.47	0.89	3.84	3.45	4.62	4.16	2.96	2.26	2.05	0.57	0.33	25.87
1896.....	.07	.01	2.45	6.10	2.73	4.89	2.73	.....	2.14	2.35	.30	.20	.....
1897.....	.10	.55	1.60	5.40	.37	4.28	1.11	1.36	1.14	4.03	.40	1.15	21.49
1898.....	.70	.10	0	2.54	4.71	2.49	2.03	3.55	1.38	3.90	.22	T.	21.95
1899.....	T.	.22	.32	1.30	3.08	4.47	6.42	2.82	.60	.42	1.64	.66	21.95
1900.....	.05	1.13	.51	6.17	2.46	1.29	4.35	4.00	1.32	1.10	.32	T.	22.60
1901.....	.10	.50	1.88	2.45	1.71	9.26	1.15	1.03	4.83	1.60	.75	.10	25.36
1902.....	.32	.32	.76	1.11	5.59	2.76	6.98	2.75	3.93	1.41	0	.72	26.65
1903.....	.24	1.15	.35	.81	5.40	2.32	6.27	6.16	.50	.98	.40	T.	24.58
1904.....	.10	T.	.20	1.47	5.06	3.73	6.50	1.97	3.66	3.92	T.	T.	26.61
1905.....	.93	1.10	1.10	5.59	5.73	8.26	5.41	.94	3.14	1.13	.71	0	34.04
1906.....	55	.22	.62	9.35	2.23	1.77	5.89	4.06	2.55	3.75	1.60	1.03	33.62

Precipitation at stations in the drainage basin of Platte River, 1896–1906—Continued.

CENTRAL CITY, MERRICK COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.44	0.73	1.20	2.99	3.95	4.10	4.52	2.45	2.43	2.11	0.64	0.64	26.20
1896.....	.28	.02	1.30	9.55	5.80	4.72	3.20	1.12	2.37	2.40	2.10	.14	31.00
1897.....	.91	.60	1.35	6.10	1.75	3.75	2.38	2.07	2.96	3.97	.70	1.10	27.64
1898.....	.50	.30	.22	2.20	5.25	5.15	.40	2.30	2.07	.70	.31	.25	19.65
1899.....	T.	.75	.10	1.25	5.12	6.73	3.44	2.21	1.02	0	.98	1.35	22.95
1900.....	T.	.86	.60	5.43	2.05	3.71	3.70	3.96	6.26	5.65	T.	.20	32.42
1901.....	.50	1.00	2.40	3.10	.25	1.75	3.40	2.62	5.68	3.02	1.37	.....	.....
1902.....	.60	.05	1.10	.92	5.63	7.51	10.16	4.63	3.29	3.52	.45	.80	38.66
1903.....	T.	1.55	1.72	1.55	13.57	3.04	8.88	4.87	1.04	1.10	.72	.30	38.28
1904.....	.35	T.	.60	2.40	1.24	5.08	5.48	1.71	.35	3.61	.20	T.	21.02
1905.....	1.90	.50	.....	4.11	7.64	5.95	5.79	6.29	7.08	.78	2.14	T.	.....
1906.....	.95	1.50	2.65	10.13	4.88	6.43	4.31	2.14	2.24	3.74	.57	1.02	40.56

MARQUETTE, HAMILTON COUNTY.

Normal.....	0.60	0.73	1.04	2.94	3.98	4.38	4.13	2.92	2.49	2.27	0.70	0.63	27.83
1896.....	.20	.22	1.06	7.30	7.15	4.24	5.29	.90	2.22	2.76	1.65	.12	33.11
1897.....	1.53	.77	1.93	4.48	2.48	3.40	1.82	1.72	1.83	4.79	.75	1.45	26.95
1898.....	.47	.50	.50	2.12	3.85	6.46	.62	1.74	2.44	1.10	.90	.32	21.02
1899.....	.20	.35	.27	.65	4.37	4.08	2.99	2.56	1.16	.....	.84	1.26	.....
1900.....	T.	.55	.64	5.96	2.47	4.11	3.95	4.08	5.51	6.63	.15	.73	34.78
1901.....	.25	.80	2.50	2.45	.84	2.32	2.39	1.00	5.89	2.53	1.08	.36	22.41
1902.....	.70	.74	1.14	.87	5.14	7.57	11.05	3.17	4.35	4.46	.39	.95	40.53
1903.....	.15	1.45	1.18	1.63	10.65	2.14	6.44	7.39	1.60	1.74	1.00	T.	35.37
1904.....	.20	.04	.40	2.41	1.59	5.42	5.46	3.02	1.90	4.08	.20	.30	25.02
1905.....	1.15	.88	.76	5.50	6.51	7.32	5.59	6.32	7.11	1.10	2.19	.05	44.48
1906.....	.41	.62	1.65	6.57	2.58	4.20	4.71	1.76	3.41	3.65	.36	1.25	32.17

AURORA, HAMILTON COUNTY.

Normal.....	0.25	0.74	1.09	3.20	4.16	4.65	3.83	3.64	3.28	2.36	0.70	0.49	28.39
1896.....	.29	.07	.69	.98	5.68	3.40	5.81	2.06	3.10	2.82	1.70	T.	35.60
1897.....	.62	.80	2.31	3.79	2.09	5.35	1.07	2.95	2.07	5.58	.20	1.90	28.72
1898.....	.30	.70	.74	1.67	3.73	8.45	.69	1.84	3.02	1.53	.38	.32	23.37
1899.....	.05	.75	.20	1.08	3.53	4.66	.....	2.63	.90	1.00	.79	1.34	.....
1900.....	.03	1.32	.69	6.70	2.71	1.53	3.60	6.26	6.15	3.09	.13	.01	32.82
1901.....	.10	.82	2.18	2.62	.70	2.16	1.79	4.69	7.28	2.35	.84	.29	25.82
1902.....	.60	.87	1.42	1.76	5.95	6.85	5.96	2.08	5.68	4.96	.33	.80	32.26
1903.....	.10	.....	1.11	2.29	12.03	3.10	4.90	7.54	.69	1.80	1.30	.00	.....
1904.....	.17	T.	.45	3.03	1.55	3.65	3.82	5.83	3.00	4.10	.05	.02	25.73
1905.....	.70	.68	.35	4.33	4.94	5.29	6.53	3.56	5.35	.91	3.00	.10	35.74

GRAND ISLAND, HALL COUNTY.

Normal.....	0.47	0.78	1.31	3.36	4.65	4.66	4.00	3.56	2.61	2.69	0.78	0.73	29.60
1896.....	.14	.22	1.42	9.38	7.60	3.94	3.76	1.31	2.40	2.76	1.52	.14	34.56
1897.....	.70	.69	2.54	7.01	1.59	5.34	2.40	2.40	2.15	6.28	.65	1.71	33.46
1898.....	.35	.73	.77	2.81	4.28	4.73	1.39	3.47	3.72	1.32	.75	.44	24.76
1899.....	.12	.08	.99	1.00	4.99	7.02	2.48	3.78	.53	1.11	1.08	1.59	25.37
1900.....	0	1.05	.68	6.03	.84	4.18	4.02	4.23	1.18	5.88	.22	.41	32.32
1901.....	.17	.98	2.77	3.13	1.04	2.88	1.62	2.73	8.35	2.23	1.00	.29	27.19
1902.....	.77	.48	1.17	1.16	5.47	5.59	10.26	2.56	4.62	4.18	.22	1.07	38.55
1903.....	.20	2.09	1.39	1.86	12.27	3.11	9.31	6.25	1.27	1.79	1.29	.01	40.84
1904.....	.20	.01	.64	1.00	1.51	4.98	5.25	6.83	1.66	5.52	.20	.28	28.99
1905.....	1.64	1.55	.73	4.01	9.53	8.97	6.48	3.66	5.67	1.21	2.40	0	45.85
1906.....	.50	1.10	.....	4.88	4.02	3.94	5.50	3.43	2.39	3.26	.28	1.10	.....

Precipitation at stations in the drainage basin of Platte River, 1896–1906—Continued.

HASTINGS, ADAMS COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.42	1.11	1.22	3.46	4.00	4.45	3.83	3.41	2.66	2.25	0.66	0.52	27.99
1896	.30	T.	1.69	9.26	6.13	4.20	3.50	2.42	2.52	2.70	1.36	T.	34.00
1897	.27	.85	1.58	4.89	2.82	6.23	3.89	2.91	2.33	5.82	.60	1.39	33.58
1898	.30	.33	.25	4.26	3.75	3.00	.55	6.55	3.65	1.82	.39	.24	25.09
1899	.04	1.25	1.02	1.00	2.26	4.55	2.20	3.57	.86	.46	.64	1.02	18.87
1900	T.	1.30	.52	5.74	2.01	3.88	5.66	2.29	4.11	2.18	.04	.01	27.74
1901	.06	0	.95	3.47	1.25	5.49	3.25	1.33	6.87	1.60	.73	.28	22.88
1902	.72	.59	1.29	.42	7.57	6.74	10.62	2.39	3.80	3.87	.20	.80	39.01
1903	.20	2.50	.45	1.45	10.92	3.35	5.06	9.86	.60	1.31	1.12	T.	36.82
1904	.15	.05	.66	3.25	1.64	5.57	3.46	1.84	1.87	4.11	.12	.18	22.90
1905	1.25	1.50	.91	4.06	7.50	7.51	3.27	1.92	6.03	.60	2.35	.05	36.95
1906	.48	1.51	3.02	3.52	2.20	2.50	3.19	2.09	1.73	2.28	.15	.80	23.47

KEARNEY, BUFFALO COUNTY.

Normal	0.51	0.89	1.00	2.92	4.65	4.10	4.66	3.11	2.88	1.99	0.60	0.48	27.54
1896	.32	T.	2.10	4.96	6.90	3.26	3.49	3.49	1.98	1.25	1.55	.54	29.82
1897	.32	.99	1.08	6.52	1.18	3.29	4.01	1.60	2.51	5.70	.82	1.68	29.70
1898	.17	.25	.04	3.60	4.11	4.18	1.76	2.53	3.40	.65	.45	.10	21.24
1899	0	.60	.60	.25	4.77	7.93	4.90	5.10	.85	.45	1.20	1.00	27.65
1900	T.	.65	.40	4.92	2.03	1.70	3.32	2.94	2.10	3.70	T.	T.	21.76
1901	.10	.32	2.15	4.00	1.64	3.15	2.05	4.17	6.32	1.30	.82	.10	26.12
1902	.75	.60	2.09	.66	5.42	4.71	8.66	2.57	4.98	4.13	.03	.55	35.15
1903	.22	2.25	1.21	1.78	8.64	4.63	8.40	7.19	.52	1.04	.58	.02	36.48
1904	.21	.01	.14	2.51	2.78	6.69	4.73	3.54	2.01	3.86	3.19	.11	26.78
1905	.98	.87	.88	3.85	8.69	8.17	5.22	2.29	5.88	.78	1.45	0	39.06
1906	.72	.46	1.18	5.84	3.86	1.30	5.05	5.02	4.27	2.76	.....	.....	.....

LEXINGTON, DAWSON COUNTY.

Normal	0.64	0.93	1.28	2.62	3.17	3.73	3.19	3.06	2.44	1.48	0.56	0.68	23.78
1896	.38	.20	2.06	4.66	3.90	1.97	2.27	1.69	3.02	1.10	.28	.20	21.73
1897	.20	.81	1.59	4.24	.30	4.61	.72	1.57	1.60	4.13	.72	1.30	21.79
1898	.30	.30	.10	2.23	2.62	4.36	1.29	2.51	2.92	.73	.80	.35	18.51
1899	.05	1.25	1.40	.47	2.66	4.12	4.06	2.39	.65	.11	1.23	.95	19.34
1900	T.	1.55	.60	4.03	2.70	.94	3.56	2.51	2.71	.65	.20	.47	19.92
1901	.20	1.00	3.53	3.14	1.18	7.27	.87	2.99	5.64	1.55	.41	.65	28.43
1902	1.00	.80	.86	.72	5.72	2.98	6.28	3.39	2.64	3.66	.15	1.04	29.24
1903	.35	1.55	.83	1.15	5.80	3.18	9.24	5.42	.81	.88	.72	0	29.93
1904	.39	.15	.75	1.24	5.50	6.30	6.52	6.02	3.05	3.05	.05	.40	33.42
1905	1.20	1.00	.78	4.19	4.05	6.34	2.84	4.59	2.86	1.14	.60	0	29.59
1906	.50	.46	2.30	6.11	.97	1.25	2.04	4.37	2.25	3.26	.82	1.58	25.91

GOTHENBURG, DAWSON COUNTY.

Normal	0.47	0.99	0.97	2.75	3.36	4.55	2.87	3.39	2.15	1.63	0.73	0.40	24.26
1896	.36	.....	.....	6.81	2.21	3.06	2.39	1.55	1.84	1.85	1.05	T.	.....
1897	.44	.70	1.06	4.85	.55	4.45	.70	3.10	1.71	4.67	.70	1.50	24.43
1898	1.20	.40	.50	1.09	3.60	4.02	1.48	2.52	3.01	1.03	.90	.11	19.86
1899	.20	1.00	.50	.41	4.01	2.16	1.80	1.93	.60	.50	2.20	.60	15.91
1900	T.	1.70	.82	4.43	3.12	1.54	2.94	5.53	1.15	.35	.03	.30	21.91
1901	.40	.90	2.70	4.31	.....	7.57	.40	3.58	5.50	.84	.58	.25	.....
1902	.80	.85	1.88	.85	6.83	2.71	4.86	2.01	3.97	3.01	.04	1.10	28.90
1903	.40	2.20	.44	.92	3.93	3.38	6.59	5.09	.33	.55	.60	0	24.43
1904	.18	.05	.38	.65	4.23	8.68	5.16	5.10	3.44	2.85	.12	T.	30.84
1905	1.05	1.40	.88	3.11	4.94	8.60	4.84	2.54	2.38	.91	.95	0	31.60
1906	.37	.60	1.35	3.97	1.29	1.40	2.88	4.05	1.62	3.36	1.25	1.15	23.29

Precipitation at stations in the drainage basin of Platte River, 1896–1906—Continued.

NORTH PLATTE, LINCOLN COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.47	0.42	0.75	2.17	2.70	3.42	2.74	2.42	1.28	0.98	0.35	0.57	18.27
1896	.27	.06	.87	3.44	1.47	2.76	1.86	2.07	1.87	1.51	.16	.21	16.56
1897	.47	.46	.66	2.59	.11	1.72	1.85	3.05	.59	4.11	.85	.63	17.09
1898	.77	.19	.64	1.42	4.12	2.54	1.29	1.40	2.56	.07	.51	.03	15.54
1899	.11	.36	.83	.82	3.58	1.95	2.04	1.83	.28	.28	1.59	.32	13.99
1900	.06	.78	.26	3.34	.90	1.42	3.37	1.37	.25	.39	.09	.06	12.29
1901	.04	.44	1.53	2.53	1.83	3.69	.34	2.00	3.14	.41	.30	.19	16.44
1902	.40	.35	1.42	.92	7.98	3.46	4.56	1.74	3.34	1.34	T.	.78	26.27
1903	.27	1.29	.12	.95	3.74	3.99	2.93	3.58	.76	.44	.38	.01	18.36
1904	.32	.06	.52	1.52	3.63	4.43	4.90	3.25	2.40	1.92	.03	.19	23.17
1905	.90	.69	2.15	3.78	4.56	7.63	2.58	1.57	1.23	1.05	.67	T.	26.81
1906	.61	.80	2.22	2.89	2.82	.68	3.14	5.56	4.25	3.05	1.01	.96	27.99

CAMP CLARKE, CHEYENNE COUNTY.[a]

Normal	0.47	0.62	1.05	2.19	2.97	2.13	2.40	1.99	1.20	0.71	0.28	0.47	16.39
1898	1.20	T.	.75	1.07	4.22	1.68	2.13	1.01	.30	.07	.85	.35	13.63
1899	.80	.80	1.40	.53	2.75	1.53	2.26	2.12	T.	.24	.30	.15	13.38
1900	T.	1.20	.25	5.84	1.21	1.56	1.64	.84	.82	.58	.08	.68	14.70
1901	T.	1.20	1.25	3.54	2.63	2.06	1.31	2.21	2.70	.32	T.	1.18	18.40
1902	.30	.50	1.33	1.00	2.93	5.10	3.31	2.93	3.32	1.01	T.	.80	22.56
1903	.30	.77	.47	.55	1.76	1.00	1.93	3.15	1.23	.80	.11	T.	12.07
1904	.30	.05	T.	.67	2.74	2.40	2.56	.70	1.00	.32	T.	.20	10.94
1905	1.30	1.10	.81	4.74	5.59	2.72	3.87	1.65	1.24	.43	.22	0	23.67
1906	T.	T.	3.20	1.75	2.87	2.28	1.22	1.42	.98	2.50	.55	.20	16.97

ALLIANCE, BOXBUTTE COUNTY.

Normal	0.60	0.09	0.90	2.05	2.84	2.87	2.60	1.81	0.82	0.64	0.35	0.38	16.35
1896	.60	.69	2.10	.80	2.00	4.04	3.77	.26	1.41	.70	.39	0	16.11
1897	.43	.21	1.21	2.13	2.52	2.01	1.73	2.15	.06	.36	.64	1.10	14.55
1898	1.14	T.	.30	.53	4.81	1.10	4.76	.20	T.	T.	.60	0	13.44
1899	.43	.55	.88	.75	3.45	1.30	1.85	1.70	0	.50	T.	.25	11.66
1900	T.	1.15	.10	3.08	2.10	.45	2.70	1.05	1.00	.40	T.	.25	12.28
1901	T.	.70	.95	1.40	3.90	2.80	.20	1.70	.70	1.10	T.	.90	14.35
1902	.60	.50	1.41	2.30	1.20	4.45	1.60	2.00	2.55	.....	.....	1.55	.....
1903	.05	.....	.....	.82	2.60	1.40	4.45	3.35	1.21	.10	.05	.25	.....
1904	.18	.07	T.	1.00	2.36	4.28	3.27	1.80	1.37	.....	.0	T.	.....
1905	.80	.10	.10	3.83	5.34	3.69	4.74	.....	.....	.....	.30	T.	.....
1906	.15	T.	1.30	3.70	2.81	3.88	1.01	3.75	1.32	3.30	.95	.70	22.87

GERING, SCOTTS BLUFF COUNTY.

Normal	0.46	0.59	0.82	1.73	2.49	2.55	1.98	1.28	1.01	0.68	0.39	0.54	14.52
1896	.40	.36	1.50	.66	2.42	3.44	1.90	1.31	1.89	.33	.48	.....	14.69
1897	.19	.30	1.08	1.40	1.79	.67	2.76	1.96	.30	.10	.68	.40	11.63
1898	.....	.....	.30	1.80	4.90	1.38	1.65	.60	.28	.57	1.10	.....	.....
1899	.....	1.04	1.92	.41	7.72	1.77	1.90	2.24	.19	1.19	.10	.13	.....
1900	T.	1.78	.26	4.16	.67	.55	4.14	.67	1.50	1.01	.08	.37	15.19
1901	T.	.75	.76	2.31	1.75	4.01	1.20	1.64	2.32	.98	T.	1.54	17.26
1902	.15	.74	1.26	1.29	2.44	3.63	1.71	1.00	4.12	.66	.12	1.13	18.25
1903	.30	.89	.48	1.42	1.71	1.95	1.48	.....	.....	.....	.....	.05	.....
1904	.18	.25	.32	1.38	2.61	2.12	2.15	.54	.90	.73	.01	.11	11.30
1905	1.17	.65	.69	4.41	4.57	4.53	2.87	1.62	1.63	1.22	.14	T.	23.00
1906	T.	.12	2.05	2.80	3.95	3.33	1.42	.....	.....	.....	.....	.....	.....

[a] Record since 1902 obtained at Bridgeport.

Precipitation at stations in the drainage basin of Platte River, 1896–1906—Continued.

LUSK, CONVERSE COUNTY, WYO.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.53	0.55	1.22	1.45	2.56	2.54	1.66	1.03	0.67	0.65	0.32	0.40	13.58
1896	.....	.....	.....	.....	.....	.....	.....	.....	1.97	.87	.88	T.	.....
1897	.59	T.	1.61	1.01	.87	.79	1.05	2.32	.23	.21	.65	.24	10.07
1898	.70	.46	.92	1.02	4.17	2.09	.67	.51	.72	.54	.57	.78	13.15
1899	1.30	1.35	2.25	.25	4.22	2.76	.57	1.01	.67	2.42	.06	.26	17.12
1900	0	.15	0	3.46	.34	1.15	2.74	.06	1.21	.23	0	.....	.....
1901	0	.60	1.06	.....	2.98	3.70	.05	.95	.20	1.46	.08	1.10	.....
1902	.22	.80	.98	1.65	1.80	3.05	1.69	.45	.57	.70	T.	1.32	13.23
1903	.38	1.38	1.10	1.66	2.27	2.12	5.65	.57	1.15	0	.26	.38	16.92
1904	.20	.12	.53	1.22	2.71	5.83	.34	.05	.62	0	0	.30	11.89
1905	1.05	.77	.22	.77	4.40	2.82	3.01	3.08	0	.20	.35	.20	16.87
1906	.65	.42	2.70	.30	4.49	2.17	.61	4.35	1.85	1.20	.65	.40	19.79

FORT LARAMIE, LARAMIE COUNTY, WYO.

Normal	0.46	0.41	0.71	1.69	2.19	1.55	1.48	0.95	0.95	0.70	0.32	0.45	11.86
1896	1.29	.61	1.14	.97	2.63	2.34	1.41	1.00	1.75	.83	.73	0	14.69
1897	.29	.38	2.17	1.03	1.23	2.03	.99	2.06	1.14	1.02	.63	.78	13.75
1898	1.41	.26	.25	.75	4.60	1.29	1.61	1.13	.44	.44	.55	.25	12.96
1899	.85	.95	1.73	.91	4.29	1.94	1.84	1.38	.53	2.69	.12	.14	17.37
1900	0	.90	.30	7.48	.45	1.31	3.69	.34	2.12	.42	.24	.70	17.95
1901	T	.85	2.11	3.48	4.29	3.43	1.62	.57	.38	.31	.16	.12	18.32
1902	.19	.10	1.81	1.70	3.61	3.80	.71	T.	2.10	.60	.14	.68	15.44
1903	.02	.76	1.31	1.53	1.48	1.03	.92	2.73	1.57	.26	.57	.18	12.36
1904	.05	.22	.60	1.06	3.63	2.57	1.09	.13	1.19	.73	.05	.21	11.53
1905	1.22	.81	.49	4.91	3.72	2.32	3.19	1.49	1.10	1.32	.24	T.	20.81
1906	T.	.30	1.87	1.05	3.18	2.46	1.98	2.02	3.08	1.75	.94	.48	19.11

ALCOVA, NATRONA COUNTY, WYO.

Normal	0.44	0.13	0.81	1.34	2.00	0.97	1.31	0.50	1.00	0.86	0.11	0.62	10.09
1899	.70	.13	.....	.....	2.09	1.38	.60	.10	1.20	1.07	T.	.32	.....
1900	.07	.68	T.	3.01	.50	T.	1.85	T.	.94	.70	T.	.63	8.38
1901	.10	.91	.20	1.03	1.57	2.20	1.27	.35	T.	1.45	.50	1.37	11.95
1902	.41	T.	.57	.52	2.39	.90	1.35	.23	.78	.27	.08	1.07	8.57
1903	.92	.30	.62	1.22	1.42	1.53	.94	.62	1.59	1.37	T.	.20	8.73
1904	.27	.17	.87	.47	2.84	1.43	.36	.64	.57	1.90	0	.11	9.63
1905	.83	.27	.42	1.51	1.66	.65	1.71	.32	1.58	T.	.....	.....	.....
1906	.22	.11	1.99	1.64	3.57	.70	2.43	1.70	1.31	1.09	.20	.....	.....

LANDER, FREMONT COUNTY, COLO.

Normal	0.33	0.76	1.61	2.70	2.24	1.17	0.93	0.64	0.86	0.99	0.65	0.78	13.67
1896	.25	.20	1.62	1.60	2.13	.60	1.67	1.19	.93	.46	.42	0	11.07
1897	.23	1.11	1.38	1.14	1.25	.85	1.21	1.04	.15	1.12	.44	1.29	11.21
1898	.33	T.	2.73	1.08	6.02	3.02	.67	.62	.36	2.22	.25	.69	17.99
1899	.88	.57	1.65	.49	2.15	.82	.46	.08	.54	1.57	T.	.94	10.15
1900	T.	1.06	.31	7.19	.51	.39	.51	.25	2.05	.73	.33	.90	14.23
1901	.16	.94	.38	3.11	3.13	1.87	T.	.58	.13	.43	.22	1.87	12.82
1902	.18	.20	.79	1.43	1.23	.93	.29	.06	.75	1.10	.06	.25	7.25
1903	.25	.82	2.25	2.41	1.86	1.99	.21	.19	2.58	.57	.01	.94	14.08
1904	.56	.63	1.57	1.05	4.49	2.20	1.31	.24	.41	1.87	.01	.49	14.86
1905	.23	.24	1.07	2.55	3.13	.88	.47	.57	1.11	1.52	1.82	.55	14.14
1906	.63	.25	3.56	2.29	3.49	.14	1.01	1.26	.67	2.04	.41	.92	16.67

Precipitation at stations in the drainage basin of Platte River, 1896–1906—Continued.

RAWLINS, CARBON COUNTY, WYO.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.71	1.07	1.52	1.40	1.45	1.30	1.27	0.46	1.09	0.83	0.70	1.05	12.48
1898.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.60	.80	.....
1899.....	1.16	1.40	3.01	1.16	1.20	2.17	1.96	.43	.99	.64	.91	.93	15.96
1900.....	.13	1.02	.56	2.89	.17	.11	1.97	.07	.94	.28	.71	.30	9.15
1901.....	.25	2.07	1.67	.90	2.76	1.06	.46	.55	.11	.93	.25	.86	12.88
1902.....	.67	.49	1.19	.95	.89	1.10	.80	.10	1.85	1.75	.23	2.11	12.13
1903.....	1.33	.95	1.42	1.96	1.78	1.05	1.26	1.01	1.56	.55	.49	.29	13.65
1904.....	.....	.47	1.21	.52	1.91	2.33	1.28	.....	.....	.....	.....	.....	.....
1905.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1906.....	.42	.05	1.00	1.06	1.78	.....	.....	.95	.67	.90	.45	.57	.....

LARAMIE, ALBANY COUNTY, WYO.

Normal.....	0.26	0.32	0.88	1.18	1.44	1.16	1.37	1.01	1.02	0.83	0.25	0.32	10.04
1896.....	.44	.17	.59	3.53	2.37	2.72	.66	.89	1.16	.18	.09	T.	13.80
1897.....	.39	.35	4.23	.55	1.85	.72	1.29	1.11	.32	.55	.33	.77	12.46
1898.....	.05	.01	.40	1.26	1.88	.90	.65	1.16	T.	.48	.61	.23	7.63
1899.....	.95	1.13	1.11	1.75	.37	1.11	2.01	1.44	.17	1.13	.07	.61	11.85
1900.....	.01	.82	.58	2.91	.24	.35	1.25	.61	1.11	.61	.06	.03	8.58
1901.....	.04	.41	.05	.28	3.00	1.73	.32	1.11	.09	1.28	T.	.31	8.52
1902.....	T.	.26	.41	.80	.26	.60	1.49	.40	1.58	.74	.22	.89	7.65
1903.....	.11	.36	1.09	.73	1.63	1.00	1.31	.88	2.39	.50	.30	.07	10.37
1904.....	.25	.11	.36	.84	1.74	2.01	1.33	.93	1.35	.54	.04	.08	9.58
1905.....	.39	.42	.64	1.21	1.79	.36	1.79	.83	1.64	.53	.22	.03	9.85
1906.....	.58	.05	1.01	1.75	.91	1.71	1.75	.59	2.09	1.33	.41	.39	12.57

LODGEPOLE, CHEYENNE COUNTY.

Normal.....	0.34	0.66	1.05	1.78	2.12	2.04	2.32	1.83	0.91	0.51	0.17	0.52	14.11
1896.....	.20	.50	2.80	1.73	2.94	3.29	3.01	.96	1.32	.60	.50	T.	17.85
1897.....	.15	.40	2.25	2.10	3.38	1.42	2.15	3.61	T.	1.50	.20	.60	17.76
1898.....	.40	.10	.10	.10	3.55	T.	1.60	.....	2.25	.10	.70	.50	.....
1899.....	1.50	.70	.80	1.10	1.25	1.40	2.65	.55	0	T.	T.	.32	10.27
1900.....	T.	.90	T.	6.07	2.37	1.80	3.00	.....	T.	T.	.10	.30	.....
1901.....	T.	.80	2.80	2.50	3.50	3.70	.75	3.00	1.25	.25	T.	1.10	19.65
1902.....	.50	.30	.....	.75	1.20	.....	2.37	1.27	.....	.....	.....	1.70	.....
1903.....	T.	1.80	.52	.97	T.	.84	2.90	2.80	.55	T.	T.	.80	10.46
1904.....	T.	.20	T.	1.05	1.40	2.00	3.47	2.25	2.50	1.85	T.	.....	.....
1905.....	.60	.30	1.45	3.62	4.70	2.00	8.07	1.90	2.45	.....	.....	.....	.....
1906.....	.....	.....	.....	.....	.....	1.65	1.20	2.55	2.10	.....	.....	.30	.....

KIMBALL, KIMBALL COUNTY.

Normal.....	0.47	0.73	1.02	2.15	2.67	2.14	2.59	1.31	0.95	0.59	0.41	0.56	15.50
1896.....	.40	.66	1.02	1.75	2.26	1.48	2.43	2.22	1.66	.20	.30	0	14.38
1897.....	.20	.75	1.70	1.10	3.86	2.16	6.42	1.66	.44	.88	.60	1.15	20.92
1898.....	.65	.15	.75	1.32	6.49	2.61	2.26	.45	.60	.65	1.60	.55	18.08
1899.....	.65	.50	.68	.65	3.67	1.06	2.70	1.42	0	.58	T.	.30	12.21
1900.....	T.	1.30	.25	7.62	.77	.40	2.17	.27	1.56	.14	.20	.25	14.93
1901.....	T.	1.43	1.90	2.40	1.17	4.29	2.04	.72	1.38	.63	.05	1.55	17.56
1902.....	.20	.75	1.20	1.05	1.94	1.59	2.65	2.04	3.41	.25	.20	2.05	17.33
1903.....	.15	1.00	.50	1.25	1.56	1.38	3.66	2.69	1.05	.25	.15	T.	13.64
1904.....	.05	.49	.13	1.65	3.64	2.09	2.68	.61	1.08	.57	.15	.15	13.29
1905.....	.65	1.20	1.87	5.57	4.04	4.10	3.48	2.38	1.57	.73	T.	0	25.59
1906.....	.15	.20	2.00	2.52	3.86	1.88	2.36	2.06	1.01	1.86	.....	.....	.....

Precipitation at stations in the drainage basin of Platte River, 1896–1906—Continued.

CHEYENNE, LARAMIE COUNTY, WYO.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.37	0.40	0.70	1.39	2.25	1.53	1.79	1.56	0.88	0.72	0.33	0.28	12.20
1896.....	.68	.31	2.06	2.08	2.85	1.41	6.35	2.52	2.08	.28	.14	.03	20.79
1897.....	.27	.57	2.32	.60	3.07	1.60	3.77	1.66	.41	1.03	.68	1.27	17.25
1898.....	.48	.06	.39	.68	3.72	2.33	11.83	.90	.47	.25	1.58	.36	13.05
1899.....	1.23	1.63	1.89	.97	1.70	.74	3.28	1.15	.07	1.27	.07	.18	14.18
1900.....	.15	1.25	.72	7.66	.76	1.01	1.20	.70	2.19	.03	.09	.33	16.09
1901.....	.13	1.10	1.54	2.97	2.47	1.93	1.34	.83	.75	.31	T.	1.62	14.99
1902.....	.21	.55	2.11	1.49	2.51	1.55	1.49	.53	3.52	.52	.23	1.79	16.50
1903.....	.20	1.76	1.00	2.10	.46	1.42	.79	1.90	1.40	.34	.79	.09	12.25
1904.....	.35	.33	.45	1.80	6.66	1.78	2.00	.87	.83	.57	.02	.06	15.72
1905.....	.84	.69	1.27	6.45	4.04	1.90	2.97	1.93	1.06	1.40	.11	.02	22.68
1906.....	.21	.21	2.27	3.10	1.30	2.42	1.89	.49	1.86	2.33	1.42	.15	17.65

FORT MORGAN, MORGAN COUNTY, COLO.

Normal.....	0.15	0.85	0.49	1.97	1.86	1.38	1.70	1.47	0.83	0.69	0.29	0.25	11.39
1897.....	.....	.10	1.51	.06	1.47	3.28	.....	5.36	.....	1.96	.36	.19	.....
1898.....	0	.01	.02	.81	4.33	1.30	2.49	.33	.43	.71	.40	.11	10.94
1899.....	.56	.22	.47	.50	1.82	.07	2.77	.84	.....	.....	.....	.....	.....
1900.....	.....	.57	.62	9.98	1.06	.94	1.52	1.07	.55	0	T.	.11	.....
1901.....	.05	.39	1.07	4.10	.....	.....	T.	.96	.73	.....	.....	.27	.....
1902.....	T.	T.	.....	.....	.....	1.46	1.14	2.41	3.91	1.04	.40	.51	.....
1903.....	T.	.45	.27	.54	.88	2.85	2.22	.44	.65	.06	.23	.15	8.74
1904.....	.02	.58	.20	1.65	3.01	1.05	2.70	1.56	1.44	.40	.05	.10	12.76
1905.....	.38	.10	.....	.....	.....	.....	.....	.....	.....	1.62	T.	0	.....
1906.....	T.	.03	.....	2.09	2.38	.....	.....	.....	.79	2.21	.56	T.	.....

GREELEY, WELD COUNTY, COLO.

Normal.....	0.22	0.42	0.67	1.89	2.40	1.36	1.81	0.92	0.87	0.77	0.49	0.26	12.10
1896.....	.67	.18	.93	1.18	1.42	.46	4.82	2.15	.99	.63	.02	.07	13.52
1897.....	.06	.61	2.02	.81	3.20	2.47	2.98	1.75	.29	1.11	.40	.38	16.09
1898.....	.20	.33	.23	1.46	5.83	1.69	3.50	.83	.13	.78	.60	.37	15.95
1899.....	1.14	.69	.71	.70	1.15	.47	2.34	1.04	.30	1.85	T.	.40	10.79
1900.....	.16	.58	.62	6.22	.96	.31	1.28	T.	1.07	.11	.04	.16	11.51
1901.....	.22	.45	.95	2.12	2.38	2.45	.26	.47	1.06	.75	.05	1.06	12.22
1902.....	.12	.16	.16	.80	1.77	.62	.65	.48	4.13	.54	.73	.67	10.83
1903.....	.02	.68	.47	.56	.96	1.76	1.25	.93	.72	.51	.30	T.	8.16
1904.....	T.	.20	.38	1.70	3.66	1.74	3.77	.49	1.25	.46	T.	.04	13.69
1905.....	.17	.15	1.62	4.08	5.35	.55	1.81	.60	.17	1.47	.03	.00	16.00
1906.....	T.	.01	3.06	3.04	1.91	1.10	2.24	.70	.....	2.50	.93	.03	.....

MORAINE, LARIMER COUNTY, COLO.

Normal.....	0.59	1.28	1.62	2.26	2.50	1.34	1.95	1.62	1.25	1.21	0.62	0.63	16.87
1896.....	.53	.22	2.87	1.08	.62	.49	3.88	2.50	2.74	.75	.30	.30	17.28
1897.....	.61	1.68	1.86	1.29	2.30	1.79	2.52	2.43	.78	1.16	1.25	1.20	18.87
1898.....	.50	1.05	1.32	1.44	3.05	1.93	2.19	1.67	.40	.99	1.77	.55	16.86
1899.....	.77	2.32	2.98	1.39	.45	1.57	3.02	1.32	.15	1.96	0	.65	16.58
1900.....	.21	1.11	.30	7.74	1.30	.91	.36	.23	2.19	1.42	.47	.48	16.72
1901.....	.61	.72	1.06	2.36	3.32	1.52	1.43	2.65	.42	.38	.27	1.15	15.89
1902.....	.25	.04	1.39	.70	1.15	.55	1.45	.80	3.70	.30	.68	.73	11.74
1903.....	.12	.95	1.06	1.42	.20	3.25	1.05	.90	2.40	1.83	.64	.01	13.83
1904.....	T.	1.33	1.14	.40	5.66	1.80	.96	2.30	.....	.....	.....	.....	.....
1905.....	.....	1.17	1.97	7.10	1.14	.....	1.41	.21	.40	3.45	.05	.00	.....
1906.....	.55	.25	4.57	2.63	2.03	1.15	2.82	1.49	2.16	1.77	1.54	T.	20.96

Precipitation at stations in the drainage basin of Platte River, 1896–1906—Continued.

BOULDER, BOULDER COUNTY, COLO.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.40	0.74	1.65	3.11	2.88	1.84	1.54	1.22	1.54	1.49	0.50	0.75	17.66
1897					2.30	3.71	3.09	2.96	.86	1.66	.47	.70	
1898	.43	.55	.67	1.54	3.76	1.51	.97	1.52	1.12	.90	1.76	1.30	16.03
1899	.87	.98	2.79	1.23	.55	.58	2.18	1.87	.15	1.94	T.	.96	14.04
1900	.40	1.06	.75	9.18	1.84	.49	.48	.22	1.54	.13	.19	.61	16.89
1901	.53	.30	1.74	3.51	1.62	1.76	.46	1.69	.16	.65	T.	1.43	13.85
1902	.37	.48	1.48	1.01	2.32	1.46	1.26	.53	5.46	1.44	1.29	1.34	118.44
1903	.08	1.52	1.45	2.31	2.02	1.87	.95	1.46	1.31	3.43	.15	.16	16.71
1904	.09	.31	2.37	1.45	5.35	2.72	1.05	1.00	1.60	1.06	.08	.70	17.78
1905	.81	.70	1.85	6.65	4.78	.55	1.86	.22	1.64	2.54	.23	T.	21.83
1906	.22	.17	2.45	5.32	3.37	1.56	3.81	2.50	3.13	1.80	1.87	T.	26.20

DENVER, ARAPAHOE COUNTY, COLO.

Normal	0.56	0.52	0.96	2.04	2.83	1.40	1.71	1.49	0.78	0.91	0.63	0.66	14.49
1896	.25	.24	1.43	.93	1.27	.89	2.80	.97	1.87	.84	.10	.31	11.84
1897	.58	.82	.90	1.31	3.15	2.16	2.06	1.44	.44	1.64	.24	.63	15.37
1898	.20	.68	.28	1.20	4.88	.94	.67	.96	.28	1.05	.85	.99	12.98
1899	.65	.58	1.10	.75	.15	.47	1.92	1.78	.20	1.01	T.	.72	9.33
1900	.13	.55	.63	8.24	.53	1.87	1.30	.50	.87	.33	.37	.42	15.29
1901	.05	.06	.88	1.96	1.18	2.09	.01	1.30	.22	.46	T.	.89	9.10
1902	.17	.38	.63	.60	1.98	1.89	1.24	.76	3.70	.80	.61	.39	13.35
1903	.12	.42	.87	.81	.75	1.62	1.36	1.35	.56	1.34	.07	.23	9.50
1904	.04	.17	.94	.74	3.27	3.54	2.13	.60	1.77	.40	.04	.41	14.05
1905	.99	.35	3.07	4.95	2.65	.61	1.55	.67	.49	2.31	.04	T.	17.68
1906	.17	.06	1.88	3.67	1.45	1.51	1.21	.88	2.72	1.98	1.30	.01	16.84

CASTLE ROCK, DOUGLAS COUNTY, COLO.

Normal	0.49	0.79	1.08	2.14	2.60	2.12	2.77	2.34	0.91	1.22	0.50	0.72	17.68
1896	.65	.95	1.80	2.30	1.61	.70	3.67	3.57	2.80	1.62	.32	.45	20.44
1897	.47	1.20	2.50	1.37	2.44	3.12	3.59	8.10	.24	2.82	.57	1.23	27.56
1898	.63	.94	.40	1.76	4.48	1.82	4.20	1.49	1.35	1.17	1.00	.99	20.23
1899	.63	.67	.77	1.50	.53	1.10	4.48	2.39	T.	1.30	.17	1.16	14.70
1900	.10	.63	.62	7.90	.55	1.80	1.77	.24	.06	.40	.33	.30	14.70
1901	.25	.30	1.04	3.47	1.82	1.35	1.72	3.45	.50	.28	T.	.59	14.77
1902	.11	.39	1.09	1.10	2.70	1.50	1.46	1.29	3.17	.80	.70	1.36	15.67
1903	.62	1.32	.70	1.04	1.29	3.25	1.53	1.17	.98	1.25	.15	.47	13.77
1904	.16	.48	1.07	.73	5.94	4.97	3.60	2.95					
1905									.70			.05	
1906	.13	.10	2.03	4.30	.95	1.94	.35	.63	2.34	3.53	.51	0	16.87

KANSAS RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

The drainage basin of Kansas River lies south of that of the Platte, and includes two important streams and their tributaries in southern Nebraska, namely, Republican and Big Blue rivers.

Republican River rises in the eastern part of Colorado, flows eastward through the southern tier of counties in Nebraska to the town of Superior, where it bends southward, and unites with the Smoky Hill to form the Kansas at Junction City, Kans. Its drainage area, therefore, includes portions of Colorado, Kansas, and Nebraska.

The headwater region of the river is a comparatively high tableland, cut by canyons and dotted with hills and buttes. Throughout

Nebraska the drainage area is gently rolling or level, and most of the western part, except the immediate stream valley, is given over to cattle raising. The soil of the valley is very fertile and large quantities of alfalfa, hay, and grains are grown.

Rainfall over the area varies from 18 to 27 inches annually, and evaporation from 4½ feet in the eastern part to 5 feet in the western part. During the spring months the river is subject to excessive floods, many of which have caused considerable damage, particularly in Kansas. At some points in the western part of the area the entire flow of the stream is diverted for irrigation.

The principal tributaries of the Republican in Nebraska are Beaver Creek, Red Willow Creek, Frenchman River, and South Fork of the Republican.

Kansas River as such is a comparatively short stream. Its most important feeder below the junction of Smoky Hill and Republican rivers is the Big Blue, which rises in southeastern Nebraska, flows to the southeast and south into Kansas, and joins Kansas River at Manhattan. The principal tributary of the Big Blue is the Little Blue, which rises in southern Nebraska, flows southeastward, and unites with the main stream near Blue Rapids, Kans.

Gaging stations have been maintained in this basin in Nebraska at the following points:

Gaging stations in Republican River basin.

River.	Station.	County.	Established.	Discontinued.
Republican	Benkelman	Dundy	Nov. 1, 1894	(a)
Do	Bostwick	Nuckolls	June 6, 1904	
Do	Superior	do	June 20, 1906	Nov. 30, 1903
South Fork Republican	Benkelman	Dundy	Nov. 1, 1894	(a)
Frenchman	Wauneta	Chase	Aug. 8, 1895	Nov. 26, 1896
Do	Palisade	Hitchcock	Oct. 14, 1894	Nov. 28, 1896

a Observations suspended during the years 1896 to 1902, inclusive.

REPUBLICAN RIVER AT BENKELMAN.

The station established on November 1, 1894, at Benkelman was discontinued September 7, 1895. It was reestablished May 20, 1903, at a point some distance below the first station. Its present location is about one-half mile east of Benkelman, on the line between secs. 17 and 20, T. 1 N., R. 37 W., one-fourth mile above the mouth of the South Fork.

At the gaging section the channel is nearly straight. The bed is composed of shifting sand, and the banks are low but seldom overflow. The channel is slightly obstructed by the piling of the bridge, against which considerable débris lodges at times of high water. The current is never sluggish, even at low stages. It is impossible to obtain records of winter flow. The range of gage heights is about 4 feet.

Measurements are made from the upstream side of a pile bridge, the hand rail being marked at 5-foot intervals.

The gage is a vertical staff, 6 feet long, spiked to the downstream side of the second bent from the left end of the bridge. It is referred to bench marks as follows: (1) The top of the south end of the concrete foundation for the west upright bent of the elevated track in the Burlington and Missouri River Railroad yards; elevation, 16.14 feet above the zero of the gage. (2) The top of the upstream end of the first bent from the left end of the bridge; elevation, 6.88 feet above the zero of the gage.

Discharge measurements of Republican River at Benkelman, 1894–1906.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1894.		*Feet.*	*Sec.-ft.*	1905.		*Feet.*	*Sec.-ft.*
December 9	O. V. P. Stout	1.74	75	March 21	H. C. Gardner	1.20	171
				May 2	do	1.35	156
1895.				June 6	do	1.25	61
March 23	do	1.89	72	July 5	do	1.10	36
June 4	do	1.68	141	July 31	G. W. Bates	1.40	160
June 24	do	1.06	36	August 28	H. C. Gardner	.80	10
August 7	do	.96	64	September 28	F. S. Dobson	1.10	49
1903.				1906.			
May 20	J. C. Stevens	1.15	57	May 11	do	1.15	114
September 7	do	.80	33	June 19	Arthur Dobson	1.00	40
				August 25	do	1.12	64
1904.				September 22	do	1.15	74
April 3	do	1.10	112	November 30	do	1.10	122
April 18	Adna Dobson	1.02	32				
June 16	J. C. Stevens	1.10	87				
December 7	Jas. A. Green	1.50	136				

Mean daily gage height, in feet, of Republican River at Benkelman, 1894–1906.

Day.	Nov.	Dec.	Day.	Nov.	Dec.	Day.	Nov.	Dec.	Day.	Nov.	Dec.
1894.			1894.			1894.			1894.		
1	1.72	1.92	9	1.72	1.80	17	2.04	1.85	25	1.73	1.87
2	1.72	1.91	10	1.73	1.84	18	1.77	1.85	26	1.73	2.07
3	1.72	1.90	11	1.72	2.80	19	1.77	1.82	27	1.75	1.97
4	1.72	1.85	12	1.72	2.75	20	1.75	1.81	28	1.84	1.97
5	1.73	1.80	13	1.71	2.70	21	1.72	1.75	29	1.95	1.97
6	1.76	1.83	14	1.71	2.65	22	1.72	1.80	30	1.93	1.97
7	1.75	1.80	15	1.72	2.00	23	1.72	1.95	31		1.97
8	1.74	1.82	16	2.01	1.90	24	1.73	1.92			

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1895.												
1	2.00	2.60	2.30	1.78	1.70	2.52	2.35	1.17				
2	2.50	2.60	1.92	1.78	1.63	2.30	1.80	1.10				
3	2.58	2.60	1.85	1.77	1.60	1.80	1.17	1.10				
4	2.60	2.60	1.60	1.80	1.60	1.68	1.17	1.04				
5	2.65	2.60	1.65	1.85	1.60	1.70	1.04	1.01				
6	2.65	2.65	1.70	1.95	1.54	1.65	1.04	.97				
7	2.65	2.65	1.78	2.00	1.50	1.62	.91	.96				
8	2.65	2.65	1.76	1.95	1.50	1.58	.91	.92				
9	2.68	2.65	1.80	1.95	1.46	1.60	.94	.66				
10	2.65	2.65	1.80	1.90	1.40	1.65	1.10	.61				
11	2.65	2.65	1.80	1.85	1.36	3.70	1.17	.60				
12	2.65	2.65	1.75	1.80	1.34	3.00	1.17	.61				
13	2.65	2.65	1.75	1.78	1.33	2.50	1.17	.60				
14	2.65	2.65	2.10	1.70	1.30	1.60	2.00	.92				
15	2.70	2.65	2.20	1.76	1.25	1.50	1.14	.83				

Mean daily gage height, in feet, of Republican River at Benkelman, 1894–1906—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1895.												
16	2.76	2.65	2.30	1.78	1.25	1.50	1.11	0.72	.....	.....	.....	.....
17	2.76	2.80	2.35	1.80	1.20	1.45	.91	.71	.....	.....	.....	.....
18	2.76	2.80	2.30	1.82	1.20	1.60	.88	.60	.....	.....	.....	.....
19	2.76	2.80	2.30	.74	1.21	1.40	.86	.57	.....	.....	.....	.....
20	2.76	3.00	2.10	1.76	1.20	1.20	.91	.73	.....	.....	.....	.....
21	2.76	3.05	2.00	1.78	1.25	1.20	1.17	.42	.....	.....	.....	.....
22	2.70	3.14	1.90	1.75	1.30	1.20	1.42	.60	.....	.....	.....	.....
23	2.70	3.15	1.92	1.70	1.30	1.08	1.29	.96	.....	.....	.....	.....
24	2.65	3.30	1.91	1.64	1.35	1.08	1.23	.60	.....	.....	.....	.....
25	2.60	3.25	1.90	1.64	1.30	1.09	1.23	.57	.....	.....	.....	.....
26	.....	3.15	1.90	1.63	1.30	1.08	1.10	.55	.....	.....	.....	.....
27	2.60	2.94	1.89	2.02	1.25	1.05	1.08	.38	.....	.....	.....	.....
28	2.60	2.63	1.85	1.95	1.22	1.05	1.04	.33	.....	.....	.....	.....
29	2.60	.....	1.83	1.90	1.22	1.08	1.01	.32	.....	.....	.....	.....
30	2.60	.....	1.80	1.75	2.00	1.08	.97	.42	.....	.....	.....	.....
31	2.60	.....	1.75	.....	2.20	.....	1.01	.17	.....	.....	.....	.....
1903.												
1	.....	.....	.....	.....	.....	1.15	.90	1.22	0.60	1.00	1.10	1.10
2	.....	.....	.....	.....	.....	1.20	.85	1.00	.60	1.05	1.10	1.15
3	.....	.....	.....	.....	.....	1.20	.75	.90	.60	1.00	1.15	1.10
4	.....	.....	.....	.....	.....	1.20	.95	.90	.60	1.00	1.10	1.00
5	.....	.....	.....	.....	.....	1.20	1.00	.80	.65	1.05	1.10	1.10
6	.....	.....	.....	.....	.....	1.20	.80	.70	.85	1.00	1.10	1.35
7	.....	.....	.....	.....	.....	1.50	.75	.70	.85	1.00	1.15	1.05
8	.....	.....	.....	.....	.....	1.45	.70	.70	.80	1.00	1.10	1.25
9	.....	.....	.....	.....	.....	1.35	.70	.70	.80	1.05	1.10	1.25
10	.....	.....	.....	.....	.....	1.30	.75	.80	.90	1.05	1.10	1.25
11	.....	.....	.....	.....	.....	1.35	1.98	.70	.90	1.05	1.05	1.05
12	.....	.....	.....	.....	.....	1.30	1.20	.75	.90	1.05	1.10	1.35
13	.....	.....	.....	.....	.....	1.30	.90	.75	.90	1.00	1.10	1.25
14	.....	.....	.....	.....	.....	1.30	.80	.70	.90	1.05	1.15	1.50
15	.....	.....	.....	.....	.....	1.25	1.10	.70	.90	1.00	1.10	1.50
16	.....	.....	.....	.....	.....	1.25	1.25	.70	.95	.95	1.15	1.50
17	.....	.....	.....	.....	.....	1.20	1.00	.90	.90	1.00	1.20	1.50
18	.....	.....	.....	.....	.....	1.20	1.00	.90	.95	1.00	1.15	1.60
19	.....	.....	.....	.....	.....	1.10	1.00	.85	.95	1.00	1.15	1.70
20	.....	.....	.....	.....	1.15	1.10	1.10	.85	.95	1.05	1.25	1.60
21	.....	.....	.....	.....	1.15	1.10	1.00	.80	1.00	1.05	1.60	1.70
22	.....	.....	.....	.....	1.00	1.00	.90	.75	1.00	1.05	1.60	1.50
23	.....	.....	.....	.....	1.00	1.00	.90	.75	1.00	1.05	1.20	1.50
24	.....	.....	.....	.....	1.05	1.00	.85	.75	1.00	1.05	1.10	1.40
25	.....	.....	.....	.....	1.00	1.00	.70	.70	1.00	1.00	1.15	1.40
26	.....	.....	.....	.....	1.25	1.05	.70	.75	.95	1.00	1.20	1.30
27	.....	.....	.....	.....	1.35	1.00	.65	.85	1.00	1.05	1.20	1.60
28	.....	.....	.....	.....	1.30	1.00	.60	.75	1.00	1.05	1.20	1.50
29	.....	.....	.....	.....	1.25	1.00	.60	.75	1.00	1.05	1.10	1.50
30	.....	.....	.....	.....	1.20	.95	.60	.70	1.00	1.10	1.05	1.40
31	.....	.....	.....	.....	1.25	.....	.65	.70	.....	1.10	.....	1.40
1904.												
1	1.30	.....	1.00	1.10	1.25	1.00	1.10	1.60	.80	1.15	1.20	1.20
2	1.40	.....	.95	1.10	1.30	1.10	1.15	1.40	.70	1.15	1.20	1.30
3	1.35	.....	1.10	1.10	1.10	1.25	1.10	1.00	.80	1.30	1.20	1.20
4	1.30	.....	.90	1.10	1.25	1.60	1.20	1.20	.70	1.70	1.20	.....
5	1.30	.....	.90	1.10	1.20	1.05	1.10	1.10	.70	1.00	1.20	.....
6	1.40	.....	1.05	1.10	1.20	1.10	1.05	.....	.75	1.00	1.20	.....
7	1.50	.....	.90	1.20	1.20	1.00	1.75	.....	.80	1.00	1.20	1.50
8	1.60	.....	.95	.....	1.00	1.00	.....	1.10	.90	1.00	1.15	.....
9	1.60	.....	1.10	1.10	1.00	1.10	1.25	1.05	.90	1.00	.....	.....
10	1.60	.....	1.05	1.05	1.05	1.40	1.20	1.00	.90	1.10	1.15	.....
11	1.50	.....	1.00	1.10	1.00	1.20	1.10	.90	.90	1.10	1.15	.....
12	1.45	.....	1.00	1.00	.95	1.20	1.00	1.10	.85	1.00	1.15	.....
13	1.30	.....	1.05	1.00	.90	1.40	1.00	.80	.85	1.05	1.20	.....
14	1.45	.....	1.00	1.00	.90	1.20	.90	.80	.85	1.00	1.15	.....
15	1.55	.....	1.10	1.00	1.05	1.20	1.00	.80	.80	1.05	1.25	.....
16	1.45	.....	1.00	1.05	1.00	1.10	.90	.80	.....	1.00	1.15	.....
17	1.45	.....	1.00	1.00	1.00	1.35	.85	.80	.90	1.05	1.20	.....
18	1.45	.....	.80	1.00	1.00	1.35	.80	.80	.85	.....	1.15	.....
19	1.30	.....	.95	1.00	1.00	1.10	.90	.90	.85	1.60	1.15	.....
20	1.30	.....	1.00	1.00	1.00	1.00	1.20	.90	.85	1.30	1.20	.....

Mean daily gage height, in feet, of Republican River at Benkelman, 1894–1906—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.												
21	0.90	.....	1.05	1.00	1.05	1.10	1.00	.....	0.85	1.30	1.15	.....
22	.90	.....	1.00	1.05	1.10	1.15	1.00	0.90	.85	1.20	1.20	.....
23	1.00	.....	1.05	1.00	1.20	1.25	.90	.85	.85	1.20	1.30	.....
24	.....	.....	1.05	.....	1.00	1.80	1.10	.80	.85	1.15	1.20	.....
25	.....	.....	1.05	1.20	1.00	1.20	.90	.80	.90	1.20	1.15	.....
26	.....	.....	1.00	1.20	1.00	1.15	.80	.80	.90	1.10	1.20	.....
27	.....	.....	1.05	1.10	1.05	1.15	.80	.80	.90	1.20	1.25	.....
28	.....	0.95	1.00	1.05	1.10	1.10	.80	.80	.....	1.20	.....	.....
29	.....	.95	1.05	1.00	1.00	1.15	.80	.80	1.10	1.20	.....	.....
30	.....	.....	1.10	1.30	1.00	1.15	.75	.80	1.10	1.20	1.30	.....
31	.....	.....	1.10	.....	1.00	.....	.75	.80	.....	1.20	.....	.....
1905.												
1	.....	.....	.....	1.45	1.3	1.4	1.3	1.2	.8	1.2	.....	.....
2	.....	.....	.....	1.5	1.25	1.35	1.4	1.1	.....	1.2	.....	.....
3	.....	.....	.....	1.35	1.3	1.25	1.25	1.2	.8	1.2	.....	.....
4	.....	.....	.....	1.2	1.3	1.2	1.15	1.15	.....	1.2	.....	.....
5	.....	.....	.....	1.3	1.3	1.25	1.1	1.05	.....	1.2	.....	.....
6	.....	.....	.....	1.25	1.3	1.2	1.1	1.2	1.05	1.2	.....	.....
7	.....	.....	.....	1.25	1.3	1.15	1.1	1.1	1.1	1.2	.....	.....
8	.....	.....	.....	1.3	1.4	1.1	1.18	1.05	1.05	1.15	.....	.....
9	.....	.....	.....	1.3	1.4	1.15	1.25	1.05	1.3	1.1	.....	.....
10	.....	.....	.....	1.35	1.4	1.3	1.25	1.05	1.3	1.2	.....	.....
11	.....	.....	.....	1.3	1.3	1.4	1.25	1.15	1.2	1.2	.....	.....
12	.....	.....	.....	1.3	1.3	1.35	1.1	1.25	1.1	1.2	.....	.....
13	.....	.....	.....	1.3	1.3	1.35	1.1	1.15	1.2	1.2	.....	.....
14	.....	.....	.....	1.3	1.25	1.2	1.05	1.05	1.2	1.2	.....	.....
15	.....	.....	.....	1.3	1.25	1.2	1.0	1.05	1.1	1.3	.....	.....
16	.....	.....	.....	1.3	1.25	1.25	1.0	1.05	1.2	1.2	.....	.....
17	.....	.....	.....	1.25	1.25	1.45	1.1	1.0	1.1	1.2	.....	.....
18	.....	.....	.....	1.25	1.3	1.35	1.05	1.0	1.2	1.2	.....	.....
19	.....	.....	1.4	1.25	1.4	1.25	1.0	.95	1.3	1.2	.....	.....
20	.....	.....	1.35	1.3	1.3	1.2	1.1	.95	1.3	1.2	.....	.....
21	.....	.....	1.2	1.35	1.35	1.2	1.15	.95	1.2	1.25	.....	.....
22	.....	.....	1.0	1.3	1.3	1.4	1.2	.95	1.2	1.3	.....	.....
23	.....	.....	1.1	1.52	1.3	1.2	1.15	.8	1.2	1.25	.....	.....
24	.....	.....	1.1	1.75	1.45	1.2	1.15	.8	1.1	1.25	.....	.....
25	.....	.....	1.05	1.5	1.45	1.15	1.1	.8	1.2	1.25	.....	.....
26	.....	.....	1.15	1.4	1.4	1.2	1.1	.85	1.2	1.25	.....	.....
27	.....	.....	1.2	1.3	1.4	1.2	1.1	.95	1.2	1.3	.....	.....
28	.....	.....	1.2	1.35	1.4	1.15	1.35	.8	1.2	1.35	.....	.....
29	.....	.....	1.1	1.4	1.6	1.15	1.35	.8	1.1	1.45	.....	.....
30	.....	.....	1.0	1.35	1.5	1.15	1.8	.78	1.1	1.55	.....	.....
31	.....	.....	1.25	.....	1.4	.....	1.3	.75	.....	1.6	.....	.....
1906.												
1	.....	.....	.....	1.15	1.20	1.10	.80	.90	.85	1.05	1.20	.....
2	.....	.....	.....	1.10	1.10	1.05	.85	.90	.90	1.05	1.30	.....
3	.....	.....	.....	1.10	1.10	1.05	.85	.90	.90	1.05	1.30	.....
4	.....	.....	.....	1.10	1.05	1.05	.....	.90	1.00	1.05	1.25	.....
5	.....	.....	.....	1.10	1.20	1.00	.80	1.00	.95	1.00	.....	.....
6	.....	.....	.....	1.05	1.20	.95	.80	1.10	.90	1.00	1.25	.....
7	.....	.....	.....	1.10	1.10	.90	.95	1.00	.90	1 05	1.20	.....
8	.....	.....	.....	1.10	1.25	.85	1.05	1.00	.85	1.05	1.20	.....
9	.....	.....	.....	1.10	1.25	.80	1.05	1.00	.85	1.05	.....	.....
10	.....	.....	.....	1.10	1.15	.80	1.05	1.00	.85	1.05	1.20	.....
11	.....	.....	.....	.....	1.15	.80	1.00	1.00	.....	1.10	1.20	.....
12	.....	.....	.....	.....	1.10	.80	1.00	1.00	.90	1.10	1.20	.....
13	.....	.....	.....	1.10	1.10	.80	.....	1.00	.90	.....	.....	.....
14	.....	.....	.....	1.15	1.10	.85	.80	.90	.....	.....	1.25	.....
15	.....	.....	.....	1.15	1.05	1.70	.80	.90	.....	1.05	1.25	.....
16	.....	.....	.....	1.15	1.05	.....	.80	.90	.90	1.15	1.25	.....
17	.....	.....	.....	.....	1.00	1.05	.80	.90	.95	1.20	1.30	.....
18	.....	.....	.....	1.20	1.00	1.00	.75	.80	1.00	1.05	1.20	.....
19	.....	.....	.....	1.20	.....	1.00	.70	.80	1.00	1.10	.....	.....
20	.....	.....	.....	1.20	.....	.85	.70	.80	1.10	1.10	.....	.....
21	.....	.....	.....	1.20	1.05	.80	.60	.80	1.10	.....	.....	.....
22	.....	.....	.....	1.20	1.05	.....	.50	.70	1.10	.....	.....	.....
23	.....	.....	.....	1.15	.....	1.00	.50	.....	1.10	.....	1.30	.....
24	.....	.....	.....	1.20	1.70	1.00	.70	1.10	1.10	.....	1.30	.....
25	.....	.....	.....	1.15	1.30	1.10	.50	1.12	1.25	1.20	1.30	.....

Mean daily gage height, in feet, of Republican River at Benkelman, 1894–1906—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1906.												
26	.....	.....	.....	1.10	1.10	.....	.....	.....	1.10	.....	1.10	.....
27	.....	.....	.....	1.90	1.10	.....	1.35	0 95	1.05	1.20	1.20	.....
28	.....	.....	.....	1.60	1.00	.....	1.05	.85	1.00	1.15	.....	.....
29	.....	.....	.....	1.60	1.05	0 85	.....	.85	1.00	1.15	1.10	.....
30	.....	.....	.....	.....	1.10	.80	.....	.....	1.00	1.15	1.10	.....
31	.....	.....	.....	.....	1.10	.....	.90	.90	.....	1.20	.....	.....

Mean daily discharge, in second-feet, of Republican River at Benkelman, 1895–1906.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Day.	Mar.	Apr.	May.	June.	July.	Aug.
1895.							1895.						
1	.....	54	42	383	348	102	17	162	57	.....	94	56	27
2	77	54	33	310	169	89	18	152	60	.....	122	51	15
3	65	52	29	170	102	89	19	152	48	.....	86	48	12
4	29	57	29	142	102	78	20	110	51	.....	55	56	30
5	35	65	29	147	78	73	21	91	54	.....	55	83	1
6	42	82	22	135	78	66	22	73	49	2	55	156	15
7	54	91	17	130	56	64	23	72	42	2	38	127	64
8	51	82	17	118	56	58	24	75	34	4	38	115	15
9	57	82	13	123	61	21	25	73	34	2	40	115	12
10	57	73	8	135	89	16	26	73	33	2	38	89	10
11	57	65	5	830	102	15	27	72	95	.....	34	86	.....
12	49	57	4	550	102	16	28	65	82	.....	34	78	.....
13	49	54	2	374	102	15	29	62	73	.....	38	73	.....
14	111	52	2	122	303	58	30	57	49	223	38	66	1
15	130	51	.....	103	96	44	31	49	.....	281	.....	73	.....
16	152	54	.....	103	91	29							

Day.	May	June.	July.	Aug.	Sept.	Oct.	Nov.	Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1903.								1903.							
1	.....	57	40	61	19	47	54	17	.....	61	47	40	40	47	61
2	.....	61	36	47	19	50	54	18	.....	61	47	40	43	47	57
3	.....	61	29	40	19	47	57	19	.....	54	47	36	43	47	57
4	.....	61	43	40	19	47	54	20	57	54	54	36	43	50	64
5	.....	61	47	33	23	50	54	21	57	54	47	33	47	50	.....
6	.....	61	33	26	36	47	54	22	47	47	40	29	47	50	.....
7	.....	81	29	26	36	47	57	23	47	47	40	29	47	50	.....
8	.....	78	26	26	33	47	54	24	50	47	36	29	47	50	.....
9	.....	71	26	26	33	50	54	25	47	47	26	26	47	47	.....
10	.....	68	29	33	40	50	54	26	64	50	26	29	43	47	.....
11	.....	71	112	26	40	50	50	27	71	47	23	36	47	50	.....
12	.....	68	61	29	40	50	54	28	68	47	19	29	47	50	.....
13	.....	68	40	29	40	47	54	29	64	47	19	29	47	50	.....
14	.....	68	33	26	40	50	57	30	61	43	19	26	47	54	.....
15	.....	64	54	26	40	47	54	31	64	.....	23	26	.....	54	.....
16	.....	64	64	26	43	43	57								

Day.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.											
1	.....	87	111	87	55	46	165	10	55	65	65
2	.....	76	111	99	76	55	111	0	55	65	87
3	.....	111	111	55	111	46	30	10	87	65	65
4	.....	65	111	87	211	65	65	0	195	65	.....
5	.....	65	111	76	65	46	46	0	30	65	.....
6	.....	99	111	76	76	38	46	5	30	65	.....
7	.....	65	124	76	55	211	46	10	30	65	136
8	.....	76	105	38	55	143	46	17	30	55	.....
9	.....	111	87	38	76	76	38	17	30	55	.....
10	.....	99	76	46	151	65	30	17	46	55	.....
11	.....	87	87	38	99	46	17	17	46	55	.....
12	.....	87	46	30	99	30	46	13	30	55	.....
13	.....	99	46	23	151	30	10	13	38	65	.....
14	.....	87	38	23	99	17	10	13	30	55	.....
15	.....	111	38	46	99	30	10	10	38	76	.....

Mean daily discharge, in second-feet, of Republican River at Benkelman, 1895–1906—Con.

Day.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.											
16		87	38	46	87	17	10	14	30	55	
17		87	30	46	137	13	10	17	38	65	
18		46	30	46	137	10	10	13	101	55	
19		76	30	46	65	17	17	13	165	55	
20		87	30	46	46	65	17	13	87	65	
21		99	30	55	35	30	17	13	87	55	
22		87	38	65	76	30	17	13	65	65	
23		99	30	87	87	17	13	13	65	87	
24		99	47	46	227	46	10	13	55	65	
25		99	65	46	65	17	10	17	65	55	
26		65	65	46	55	10	10	17	46	65	
27		99	46	55	55	10	10	17	65	76	
28	76	87	38	65	46	10	10	31	65	80	
29	76	99	30	46	55	10	10	46	65	83	
30		111	87	46	55	5	10	46	65	87	
31		111		46		5	10		65		
1905.											
1			242	145	117	74	98	8	72		
2			262	130	95	102	72	8	72		
3			205	138	68	65	98	8	72		
4			154	138	58	42	85	22	72		
5			175	138	68	27	62	30	72		
6			160	138	58	40	98	45	72		
7			160	138	42	40	72	55	72		
8			175	160	27	57	60	45	60		
9			175	160	42	77	60	105	50		
10			192	160	74	77	60	105	72		
11			175	127	102	77	83	78	72		
12			167	127	87	50	110	55	72		
13			167	120	90	50	83	78	72		
14			167	103	55	40	60	77	72		
15			167	103	55	35	57	53	103		
16			167	103	65	35	57	77	72		
17			150	103	118	54	47	53	72		
18			150	108	90	47	47	77	72		
19		237	142	138	65	32	37	103	72		
20		217	157	108	55	58	37	103	72		
21		165	175	122	55	72	37	77	85		
22		105	157	108	103	86	35	72	103		
23		130	270	97	55	72	10	72	85		
24		120	328	142	55	72	10	50	85		
25		115	230	142	42	67	10	72	85		
26		148	178	127	55	67	15	72	85		
27		165	145	127	55	67	35	72	103		
28		165	162	117	42	136	10	72	112		
29		122	178	182	42	136	10	50	142		
30		93	162	148	42	310	6	50	176		
31		170		117		125	3		195		
1906.											
1			115	130	78	10	24	17	57	122	
2			102	102	67	17	24	24	57	150	
3			102	102	67	17	24	24	57	150	
4			102	88	67	13	24	42	57	150	
5			102	130	56	10	42	32	47	150	
6			88	130	42	10	62	24	47	150	
7			102	102	36	32	42	24	67	135	
8			102	145	24	51	42	17	67	135	
9			102	145	17	51	42	17	67	135	
10			102	115	17	51	42	17	67	135	
11			102	115	14	42	42	20	78	135	
12			102	100	14	42	42	24	78	135	
13			102	100	14	26	42	24	74	142	
14			115	100	20	10	24	24	70	150	
15			115	113	263	10	24	24	67	150	
16			115	113	160	10	24	24	93	150	
17			122	67	57	10	24	32	105	167	
18			130	67	47	4	10	42	67	147	
19			130	74	47	2	10	42	78	163	
20			130	74	17	2	10	62	78	163	

Mean daily discharge, in second-feet, of Republican River at Benkelman, 1895–1906—Con.

Day.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1906.											
21			130	80	10	1	10	62	100	163	
22			130	75	26	0	2	62	100	163	
23			115	185	42	0	32	70	100	180	
24			130	295	42	2	62	70	100	180	
25			115	145	62	0	66	108	122	180	
26			102	87	40	64	48	70	122	117	
27			398	82	40	128	32	57	122	147	
28			275	59	40	51	17	47	105	132	
29			275	70	17	38	17	47	105	117	
30			200	82	10	37	20	47	105	117	
31				82		24	24		122		

Estimated monthly discharge of Republican River at Benkelman.

[Drainage area, 3,960 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
March.								
1895	162	29	78	4,640	0.020	0.02	13	0.15
1904	111	46	89	5,480	.022	.02	25	.08
1905	237	93	151	3,890	.038	.04	1.0	3.82
April.								
1895	95	33	59	3,520	.015	.02	.7	2.78
1904	124	30	65	3,870	.016	.02	.8	2.46
1905	328	142	183	10,900	.046	.05	1.3	3.76
1906	398	88	135	8,030	.034	.04	.9	4.15
May.								
1895	281	0	25	1,540	.006	.01	.4	2.58
1903 [a]	71	47	58	1,380				2.64
1904	99	23	54	3,310	.014	.02	.8	2.02
1905	182	97	129	7,930	.032	.04	1.2	3.20
1906	295	59	108	6,640	.027	.03	1.2	2.51
June.								
1895	830	34	155	9,220	.039	.04	1.1	3.62
1903	81	43	59	3,510	.015	.02	1.2	1.69
1904	227	46	91	5,430	.023	.03	.5	6.25
1905	118	27	66	3,920	.017	.02	.8	2.65
1906	263	10	48.4	2,880	.012	.01	.5	2.06
July.								
1895	656	41	120	7,380	.030	.04	.9	4.62
1903	112	19	39	2,400	.010	.01	.2	5.16
1904	211	5	40	2,520	.010	.01	.5	1.64
1905	310	27	73.8	4,540	.019	.02	.5	3.81
1906	128	0	24.7	1,520	.006	.01	.4	2.77
August.								
1895	102	0	34	2,090	.008	.01	1	1.02
1903	61	26	32	1,970	.008	.01	.7	1.48
1904	165	10	29	1,780	.007	.01	.8	1.21
1905	110	3	50.5	3,110	.013	.01	1.2	.84
1906	62	2	30.6	1,880	.007	.01	.5	2.14
September.								
1903	47	19	39	2,320	.010	.01	1.3	.78
1904	46	0	15	892	.004	.004	.1	2.67
1905	105	8	61.5	3,660	.015	.02	1.2	1.64
1906	108	17	39.9	2,370	.011	.01	.7	1.38
October.								
1903	54	43	49	3,010	.012	.01	3	.33
1904	195	30	61	3,750	.015	.02	1.5	1.30
1905	195	50	87	5,340	.022	.02	1.2	1.67
1906	122	47	83.3	5,120	.021	.02	1.1	1.81
November.								
1903 [b]	64	50	56	2,220				.25
1904	87	55	64	3,810	.016	.02	67	.03
1906	180	117	147	8,750	.037	.04	4.4	.90

[a] May 20 to 31.

[b] November 1 to 20.

REPUBLICAN RIVER AT BOSTWICK.

The station established June 6, 1904, at Bostwick replaced an old station at Superior established in 1895. It is located at a highway bridge 1 mile south of Bostwick, in sec. 23, T. 1 N., R. 8 W., and is shown on the Superior topographic atlas sheet.

At the gaging station the channel is straight and the bed is composed of shifting sand. The left bank is high, but the right bank is low and is subject to overflow at high stages. The channel is somewhat obstructed by ice breakers and piers. The water is never sluggish, even at low stages.

Measurements are made from a steel highway bridge.

The gage is of the standard weight and chain type, the length of the chain from the index to the end of the weight being 20.52 feet. It is referred to bench marks as follows: (1) The downstream opening in a cast-iron bearing shoe at the left end of the downstream truss; elevation, 15.75 feet above the zero of the gage. (2) The northeast cardinal point of the steel rim of the cover plate at the right pier of the truss described above; elevation, 15.89 feet above the zero of the gage.

As there are no tributaries or important diversions between the two points, the tables of discharge for Bostwick and Superior are presented as from one station.

REPUBLICAN RIVER AT SUPERIOR.

The station established June 20, 1896, at Superior was abandoned at the close of the open season of 1903, because, owing to the complicated conditions affecting the discharge of the river, the results were unsatisfactory. It was replaced by the station at Bostwick, 10 miles upstream. The location of the station—at the highway bridge 1 mile west of Superior—is shown on the Superior topographic atlas sheet.

The gage, which was of the inclined type, was installed on the left bank of the river 25 feet above the bridge. It was referred to a standard United States Geological Survey bench mark, 83 feet north of the upstream left pier; elevation, 4.88 feet above the zero of the gage. This bench mark was later destroyed as the result of repairs to the bridge.

The conditions at this station were complicated by a mill dam and race just below the gaging station, and the results of an attempt to utilize the diversion dam as a measuring weir were further complicated by the intermittent use of flash boards and by leakage through the dam. The gage above referred to was used during 1896 and 1897. On April 19, 1898, two other gages were installed, one a few feet above the dam, with its zero at the mean elevation of the crest, and the other in the mill race 50 yards below the head. The gage heights

in the mill race were found to be no index to the discharge, because the flow was entirely controlled by the mill one-half mile below. The observer was therefore instructed to supplement the gage readings by noting the time required for a float to pass over a 50-foot range in the midstream of the mill race. Measurements of discharge were made as before at the highway bridge above both dam and mill race. The discharge of the mill race was also measured in order that the net amount flowing over the dam could be determined as a more stable relation between gage heights, and the amount of water flowing at the dam was thereby obtained. These two gages were referred to two bench marks. The zero of the gage at the dam is 4.92 feet and the zero of the gage in the race is 6.92 feet below the Survey standard bench mark described above. The zero of the gage at the dam is also 9.07 feet below the top of an oak piling in line with the crest of the dam and east of the left retaining wall.

The procedure above outlined was continued during 1898. In 1899 and subsequent years, however, the gage in the mill race was not read, because when the mill was not running the channel of the race silted up so that the cross section area was greatly reduced. The observer was instructed to note, however, the depth of water in the midstream of the race. The ratio of such "center depths" to the "time in seconds" simultaneously observed for a float to pass over a 50-foot range in midstream was found to bear a close relation to the discharge in the mill race.

Discharge measurements of Republican River at Superior, 1896–1903.

Date.	Hydrographer.	River.		Date.	Hydrographer.	River.	
		Gage height.	Discharge.			Gage height.	Discharge.
1896.		*Feet.*	*Sec.-ft.*	1897.		*Feet.*	*Sec.-ft.*
June 20	O. V. P. Stout	0.92	700	April 24	Adna Dobson	0.99	887
July 17	E. T. Youngfeldt	.78	585	May 18	do	.45	337
August 24	do	.89	684	June 12	O. V. P. Stout	.72	716
September 21	do	.42	228	July 8	do	.87	766
October 25	R. A. Trail	.45	72	July 18	do	.32	222
December 23	E. T. Youngfeldt	.73	515	August 6	do	.49	372
				August 22	do	.05	195
1897.				September 25	Adna Dobson	.04	81
April 12	Adna Dobson	1.12	1,257	October 24	do	.02	184

Date.	Hydrographer.	River.		Mill race.	
		Gage height.	Discharge.	Gage height.	Discharge.
1898.		*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
April 20	Glenn E. Smith	0.79	626	2.79	87
May 10	do	1.16	1,337	3.39	65
May 27	do	1.05	1,030	3.12	50
June 17	do	1.40	1,573	3.60	52
June 27	O. V. P. Stout	.89	679	2.91	52
July 19	Glenn E. Smith	.60	416	2.50	85
August 6	do	.30	119	2.29	56
August 28	Adna Dobson	.15	76	2.35	11
September 13	Glenn E. Smith [a]	1.40	252	3.40	60
October 9	Adna Dobson [a]	1.18	143	3.40	8
November 5	Glenn E. Smith	.50	380	2.50	86

[a] Water surface raised by 12-inch flush boards placed on crest of dam.

Discharge measurements of Republican River at Superior, 1896–1903—Continued.

Date.	Hydrographer.	River.		Mill race.		
		Gage height.	Discharge.	Center depths.[a]	Time.[b]	Discharge.
1899.		*Feet.*	*Sec.-ft.*	*Feet.*	*Seconds.*	*Sec.-ft.*
January 24	Glenn E. Smith	Ice.	463			
February 14	do	Ice.	131			
April 10	do	0.98	728	2.98	52	49
May 1	do	.75	382	3.00	Dead.	0
May 13	do	.61	442	3.10	46	47
June 2	do	.51	291	2.60	44	55
June 16	do	.63	439	3.50	55	53
June 26	do	.42	204	3.40	45	59
July 6	do	.90	732	2.80	50	56
July 26	do	.23	135			
August 11	do	.40	215	2.70	40	56
September 6	do		0	2.60	45	50
September 29	do		0	1.20	25	25
October 17	do		0	1.50	35	50
1900.						
April 15	Adna Dobson	.91	989			
April 26	do	1.06	1,056	1.14	32	79
May 19	O. V. P. Stout	.63	457	2.60		113
June 1	Adna Dobson	.54	374	3.20	50	93
June 21	do	.43	312	3.10	70	58
August 16	O. V. P. Stout[c]	1.73	433			
September 30	Adna Dobson[c]	1.21	67			
October 23	do.[c]	1.31	118			
1901.						
April 14	O. V. P. Stout	1.57	1,189	3.7	96	21
May 29	Adna Dobson	.41	250	2.4	18	139
July 27	O. V. P. Stout	(*d*)	45			
September 10	do	2.28	2,237	5.0	245	17
November 15	Frank Dobson	.90	370	2.9	36	72
1902.						
March 16	do	.75	625	3.0	110	22
April 5	J. C. Stevens	.70	638	2.6	40	54
May 24	Frank Dobson	1.30	1,499	1.8		35
July 8	J. C. Stevens	6.00	12,494	(*e*)	(*e*)	(*e*)
July 30	do	1.25	1,562	1.9	18	119
August 12	do	.72	553	2.3	35	54
September 19	do	.39	154	2.4	720	3
1903.						
April 11	do	.80	950	3.7	33	87
May 19	do	1.35	2,198	3.4	14	244
June 4	do	1.76	2,896	3.6	30	85
June 23	do	1.05	1,008		40	78
July 14	do	3.20	7,662			
September 12	do	.42	364	2.8		158

[a] Depth of water in midstream at bridge.
[b] Time in seconds required for a float to pass over a 50-foot range in midstream.
[c] Water surface raised by 12-inch flash boards placed on crest of dam.
[d] No water at the gage rod.
[e] Mill race overgorged with flood waters running backward into the river.

Discharge measurements of Republican River at Bostwick, 1904–1906.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1904.		*Feet.*	*Sec.-ft.*	1905.		*Feet.*	*Sec.-ft.*
June 5	J. C. Stevens	2.10	884	July 26	H. C. Gardner	5.45	5,915
June 6	do	2.64	1,289	August 10	do	3.55	3,082
June 29	do	3.50	2,379	September 30	F. S. Dobson	1.32	648
July 8	R. D. Hubbard	3.05	1,799				
August 16	do	1.50	397	1906.			
December 8	J. A. Green	1.70	520	April 7	do	2.00	590
				May 19	do	1.66	832
1905.				June 13	Arthur Dobson	1.05	391
March 22	H. C. Gardner	2.45	1,181	July 19	do	.75	276
April 29	do	3.00	2,009	August 30	do	.84	267
June 7	do	2.55	1,045	October 13	do	.68	187
July 6	do	8.30	14,870				

Mean daily gage height, in feet, of Republican River at Superior, 1896–1903.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1896.												
1	.....	.....	.....	.....	.....	.....	0.89	1.09	0.44	0.35	0.51	.....
2	.....	.....	.....	.....	.....	.....	2.90	1.07	.41	.32	.44	.....
3	.....	.....	.....	.....	.....	.....	3.12	1.04	.48	.35	.56	0.70
4	.....	.....	.....	.....	.....	.....	.....	.67	.42	.36	.52	.....
5	.....	.....	.....	.....	.....	.....	2.33	.67	.34	.38	.50	.70
6	.....	.....	.....	.....	.....	.....	1.88	.67	.33	.36	.52	.....
7	.....	.....	.....	.....	.....	.....	1.65	1.35	.32	.33	.51	.64
8	.....	.....	.....	.....	.....	.....	1.76	.93	.31	.30	.61	.70
9	.....	.....	.....	.....	.....	.....	1.74	1.69	.32	.32	.60	.....
10	.....	.....	.....	.....	.....	.....	1.52	.67	.42	.30	.64	.....
11	.....	.....	.....	.....	.....	.....	1.38	.61	.50	.35	.59	.....
12	.....	.....	.....	.....	.....	.....	1.27	.52	.47	.30	.63	.71
13	.....	.....	.....	.....	.....	.....	1.10	.47	.45	.32	.64	.....
14	.....	.....	.....	.....	.....	.....	1.00	.42	.62	.30	.68	.70
15	.....	.....	.....	.....	.....	.....	.92	.41	.45	.30	.73	.....
16	.....	.....	.....	.....	.....	.....	.86	.36	.45	.32	.74	.....
17	.....	.....	.....	.....	.....	.....	.76	1.43	.43	.32	.72	.....
18	.....	.....	.....	.....	.....	.....	.78	1.47	.60	.31	.68	.....
19	.....	.....	.....	.....	.....	.....	.76	1.18	.46	.30	.58	.....
20	.....	.....	.....	.....	.....	0.92	.74	.82	.47	.32	.50	.85
21	.....	.....	.....	.....	.....	.81	.79	.79	.42	.35	.54	.73
22	.....	.....	.....	.....	.....	.72	.65	.98	.46	.42	.57	.73
23	.....	.....	.....	.....	.....	.76	.69	.90	.48	.36	.61	.73
24	.....	.....	.....	.....	.....	.64	.65	.84	.44	.34	.55	.73
25	.....	.....	.....	.....	.....	.65	.64	.82	.35	.36	1.10	.73
26	.....	.....	.....	.....	.....	1.25	.62	.73	.....	.34	1.25	.73
27	.....	.....	.....	.....	.....	.85	.57	.67	.42	.36	.65	.73
28	.....	.....	.....	.....	.....	.88	.56	.63	.40	.35	.66	.73
29	.....	.....	.....	.....	.....	.85	.59	.55	.45	.61	.....	.73
30	.....	.....	.....	.....	.....	.82	.63	.51	.44	.57	.70	.74
31	.....	.....	.....	.....	.....	.....	1.15	.46	.....	.55	.....	.....
1897.												
1	.....	1.01	.....	.....	0.87	.28	1.48	.08	.12	— .12	.....	.....
2	0.75	1.01	0.84	0.97	.77	.27	.75	.12	.06	— .34	.....	.....
3	.80	1.01	.....	.....	.69	.32	1.65	.08	.01	.00	.....	.....
4	.80	1.01	.....	1.00	.67	.32	1.39	.07	—.06	— .35	.....	.....
5	.80	1.01	.....	1.67	.64	.27	1.35	.12	.04	— .30	.....	.....
6	.80	1.01	.70	1.50	.66	.36	2.15	.48	.03	— .58	.....	.....
7	.80	1.01	.70	1.05	.63	.54	1.64	.20	.01	— .30	.....	.....
8	.80	1.01	.....	1.18	.60	.40	1.80	.57	—.20	— .52	.....	.....
9	.80	1.01	.....	1.12	.77	.34	1.48	.56	—.25	— .71	.....	.....
10	.80	1.01	.64	1.08	.80	.31	1.06	.45	—.16	— .50	.....	.....
11	.80	1.01	.....	1.09	.66	.92	.94	.45	—.02	— .35	.....	.....
12	.80	1.01	.....	1.12	.62	.74	.70	.56	.20	— .30	.....	.....
13	.80	1.01	.....	1.14	.60	.54	.51	.54	.60	— .53	.....	.....
14	.80	.....	.....	1.07	.54	.71	.39	.55	.00	— .58	.....	.....
15	.80	1.01	.71	1.09	.52	.48	.34	.10	.01	— .90	.....	.....
16	.80	.....	.....	1.62	.50	.76	.28	.14	.36	+ .04	.....	.....
17	.....	.....	.55	1.31	.48	.79	.28	.14	.26	1.22	.....	.....
18	.....	.....	.....	1.14	.45	.74	.32	.18	.26	1.30	.....	.....
19	.....	1.00	.....	1.08	.42	.66	.25	.21	.15	1.25	.....	.....
20	.90	.....	.61	1.05	.38	.68	.34	.31	.10	1.19	.....	.....
21	.....	.60	.....	1.03	.35	.58	.30	.24	.05	1.11	.....	.....
22	.....	.....	.86	1.02	.37	.47	.22	.30	.04	1.10	.....	.....
23	1.01	.....	.65	.92	1.10	.43	.66	.27	—.05	1.11	.....	.....
24	1.01	.....	.....	1.00	.63	.48	.69	.57	.01	— .05	.....	.....
25	1.01	1.22	.....	.98	.61	.33	.15	.50	.02	—1.06	.....	.....
26	1.01	.....	.....	.88	.57	2.42	.23	.39	—.35	1.08	.....	.....
27	1.01	.....	.64	.82	.63	4.38	.16	.31	—.12	2.45	.....	.....
28	1.01	.....	.....	1.32	.42	1.87	.84	.26	—.09	2.32	.....	.....
29	1.01	.....	.....	1.20	.40	1.78	.30	.23	—.06	1.53	.....	.....
30	1.01	.....	.....	.98	.32	1.72	.17	.14	—.05	1.45	.....	.....
31	1.01	.....	.81	.....	.27	.....	.14	.11	.....	.....	.....	.....
1898.												
1	.....	.....	.....	.....	.69	1.21	.70	.30	.09	1.27	.47	.....
2	.....	.....	.....	.....	1.23	1.06	.73	.34	(a)	1.34	.49	.....
3	.....	.....	.....	.....	.85	1.04	.68	.31	(a)	1.21	.50	.....
4	.....	.....	.....	.....	.86	1.02	.51	.30	2.00	1.21	.54	.....
5	.....	.....	.....	.....	.90	1.04	.61	.30	(a)	1.22	.50	.....

a Water below gage.

Mean daily gage height, in feet, of Republican River at Superior, 1896–1903—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1898.												
6					1.00	1.19	0.61	0.30	0.59	1.21	0.59	
7					1.04	1.03	.60	.24	.53	1.24	.53	
8					1.14	1.44	.60	.34	.52	1.28	.52	
9					1.02	1.26	.72	.26	.53	1.31	.53	
10					1.16	1.27	1.24	.24	.09	1.39	.51	
11					1.03	1.70	1.04	.21	[a]1.17	1.40	.52	
12					.99	1.41	.72	.17	1.35	[b]1.45	.59	
13					1.14	1.34	.74	.18	1.42	.43	.64	
14					1.22	1.38	.99	.34	1.35	.41	.59	
15					.93	1.38	.87	.20	1.34	.40	.60	
16					.99	1.36	.74	.21	1.24	.49	.60	
17					.96	1.40	.73	.21	1.25	.53	.65	
18					.98	1.26	.67	.17	1.35	.43	.63	
19					.95	1.47	.61	.18	1.30	.45	.63	
20				0.77	1.04	1.29	.55	.05	1.30	.43	.72	
21				.77	1.33	1.20	.51	.16	1.65	.42		
22				1.02	1.42	1.11	.60	(a)	1.59	.44		
23				1.63	1.24	1.18	.50	(a)	1.55	.54		
24				1.00	1.00	1.07	.50	.55	1.40	.44		
25				.81	.98	.99	.40	.40	1.47	.43		
26				.76	1.07	.88	.50	.31	1.35	.47		
27				.74	.99	.89	.41	.29	1.32	.39		
28				.74	1.05	.84	.40	.35	1.32	.49		
29				.68	1.50	.80	.40	.28	1.31	.47		
30				.71	1.39	.74	.32	(a)	1.29	.59		
31					1.13		.41	(a)		.49		
1899.												
1				.97	.74	.45	1.05	.91	.12	(a)		
2				1.00	.70	.51	.90	.95	.09	(a)		
3				.95	.73	.60	.80	.82	.20	(a)		
4				.94	1.18	.60	.80	.68	(a)	(a)		
5				1.00	.68	.47	.79	.60	(a)	(a)		
6				.98	.64	.45	.90	.45	(a)	(a)		
7				1.04	.50	.47	.93	.52	(a)	(a)		
8				.97	.61	.45	.89	.42	(a)	(a)		
9				1.00	.68	.40	.63	.41	(a)	(a)		
10				.97	.63	.40	.51	.41	(a)	(a)		
11				.94	.63	.41	.45	.40	(a)	(a)		
12				.89	.60	.35	.42	.41	(a)	(a)		
13				.90	.61	.33	.52	.50	(a)	(a)		
14				.90	.67	.70	.47	.60	(a)	(a)		
15				.88	.63	.53	.42	.44	(a)	(a)		
16				.74	.69	.63	.45	.39	(a)	(a)		
17				.83	.65	.42	.45	.62	(a)	(a)		
18				.83	.64	.41	.46	.52	(a)	(a)		
19			1.13	.82	.65	.12	.39	.42	(a)	(a)		
20			.94	.77	.93	.35	.40	.41	(a)	(a)		
21			.89	.82	1.50	.35	.49	.27	1.25	(a)		
22			.99	.73	1.02	.32	.42	.35	(a)	(a)		
23			.99	.63	.80	.60	.35	.31	(a)	(a)		
24			.96	.75	.74	.63	.20	.20	(a)	(a)		
25			.92	.70	.70	.39	.26	.30	(a)	(a)		
26			.94	.73	.80	.42	.26	.45	(a)	(a)		
27			.93	.75	.73	2.60	.25	.72	(a)	(a)		
28			.95	.75	.66	2.05	.26	.33	(a)	(a)		
29			.92	.79	.65	1.31	1.22	.21	(a)	(a)		
30			.91	.70	.63	1.22	.69	.33	(a)	(a)		
31			.96		.54		.45	.20		(a)		
1900.												
1				.74	.94	.73	.41	1.14	(a)	.94	.83	
2				.73	.92	.52	.39	1.35	(a)	.82	.98	
3				.65	.90	.52	.30	— .25	(a)	.65	1.09	
4				.65	.89	.49	.18	— .42	(a)	.99	1.23	
5				.65	.84	.49	.21	1.29	(a)	.15	1.10	
6				.64	.97	.48	.20	1.22	(a)	.15	1.12	
7				.64	1.13	.43	.09	— .67	(a)	.01	1.15	
8				.67	2.11	.39	.21	.01	(a)	.39	1.11	
9				.62	1.61	.35	.09	— .08	(a)	.44	1.31	
10				.64	1.25	.25	.39	—1.50	(a)	(a)	1.35	

[a] Water below gage. [b] Flashboards 1 foot high on dam from September 11 to October 12, 1898.

Mean daily gage height, in feet, of Republican River at Superior, 1896–1903—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1900.												
11	.....	.....	.....	0.64	1.10	0.53	0.24	(a)	1.72	0.03	1.29	.....
12	.....	.....	.....	.66	1.02	.73	.19	(a)	2.62	.....	1.31	.....
13	.....	.....	.....	.80	.92	.79	.07	(a)	1.67	.22	1.30	.....
14	.....	.....	.....	.75	.90	.58	—.50	(a)	1.40	(a)	1.21	.....
15	.....	.....	.....	.91	.82	.51	—.58	0.21	1.30	.41	1.24	.....
16	.....	.....	.....	1.00	.77	.65	.51	2.25	1.32	.25	1.29	.....
17	.....	.....	.....	1.10	.74	.41	.73	1.52	1.16	(a)	1.20	.....
18	.....	.....	.....	1.04	.66	.42	.90	1.40	1.22	.13	1.32	.....
19	.....	.....	.....	.98	.63	.42	1.05	1.42	1.19	.28	1.22	.....
20	.....	.....	.....	.98	.59	.41	1.23	1.24	1.17	.07	1.25	.....
21	.....	.....	.....	1.20	.62	.43	1.20	1.23	1.13	1.37	.....	.....
22	.....	.....	.....	1.09	.62	.52	1.22	1.20	1.05	1.28	.....	.....
23	.....	.....	.....	1.00	.59	.57	1.14	1.20	1.21	1.31	1.20	.....
24	.....	.....	.....	1.41	.63	.41	1.21	1.15	1.02	1.26	1.32	.....
25	.....	.....	.....	1.01	.70	.53	1.14	1.03	.82	1.22	.....	.....
26	.....	.....	.....	1.06	.63	.53	1.18	.91	(a)	1.30	.....	.....
27	.....	.....	.....	1.11	.59	.54	1.09	.90	.23	1.15	.....	.....
28	.....	.....	.....	1.17	.49	.50	.72	.99	.32	1.25	.....	.....
29	.....	.....	.....	1.13	.49	.43	1.63	.10	.39	1.12	.....	.....
30	.....	.....	.....	1.00	.58	.38	1.46	(a)	.83	1.06	.....	.....
31	.....	.....	.....	.....	.49	.....	1.30	(a)	.....	.87	.....	.....
1901.												
1	.....	.....	.....	1.21	1.21	.47	.38	(a)	(a)	1.15	1.10	.....
2	.....	.....	.....	1.21	1.12	.53	.51	(a)	(a)	1.83	1.50	.....
3	.....	.....	.....	1.24	1.11	.52	.43	(a)	(a)	1.50	.91	.....
4	.....	.....	.....	1.32	1.12	.42	.45	(a)	(a)	1.00	.90	.....
5	.....	.....	.....	1.30	.98	.40	.32	(a)	(a)	1.13	1.00	.....
6	.....	.....	.....	1.47	1.12	.40	.32	(a)	2.12	1.00	.84	.....
7	.....	.....	.....	1.46	1.09	.42	.35	(a)	1.91	1.00	.82	.....
8	.....	.....	.....	1.43	1.05	.47	.31	(a)	2.02	1.08	1.00	.....
9	.....	.....	.....	1.47	.85	.50	(a)	(a)	2.41	1.10	.85	.....
10	.....	.....	.....	1.48	.81	.45	(a)	(a)	2.25	.93	.80	.....
11	.....	.....	.....	1.50	.91	.40	(a)	1.42	3.10	.93	.93	.....
12	.....	.....	.....	1.52	.99	.39	(a)	1.38	3.45	.93	.90	.....
13	.....	.....	.....	1.52	.85	.39	(a)	.30	2.75	.95	.98	.....
14	.....	.....	.....	1.57	.90	.49	(a)	.30	2.10	.90	.98	.....
15	.....	.....	.....	1.73	.88	.82	(a)	(a)	2.58	.92	.90	.....
16	.....	.....	.....	1.79	.90	.25	(a)	(a)	2.19	.90	.88	.....
17	.....	.....	.....	1.71	.72	.36	(a)	(a)	2.01	.93	.80	.....
18	.....	.....	.....	1.65	.75	.50	(a)	(a)	1.08	.90	.97	.....
19	.....	.....	.....	1.68	1.01	.69	(a)	(a)	1.07	.92	.93	.....
20	.....	.....	.....	1.69	.70	.75	(a)	(a)	1.07	.80	.94	.....
21	.....	.....	.....	1.61	.82	1.09	(a)	(a)	1.05	.88	1.00	.....
22	.....	.....	.....	1.51	.61	1.00	(a)	(a)	1.05	.90	.93	.....
23	.....	.....	.....	1.42	.82	1.05	(a)	(a)	1.04	.78	1.00	.....
24	.....	.....	.....	1.35	.65	1.12	(a)	(a)	1.03	.88	.80	.....
25	.....	.....	.....	1.31	.65	.97	(a)	(a)	1.02	.90	1.00	.....
26	.....	.....	.....	1.28	.69	.88	(a)	(a)	1.02	.78	1.00	.....
27	.....	.....	.....	1.31	.62	.78	(a)	(a)	1.02	.76	.98	.....
28	.....	.....	.....	1.30	.45	.73	(a)	(a)	1.01	.80	1.03	.....
29	.....	.....	.....	1.27	.41	.69	(a)	(a)	1.40	.90	.98	.....
30	.....	.....	.....	1.25	.59	.65	(a)	(a)	1.20	1.10	.95	.....
31	.....	.....	.....	.....	.59	.....	(a)	(a)	.....	.98	.....	.....
1902.												
1	.....	.....	.....	.80	.56	1.10	1.98	1.42	.70	1.00	.60	.....
2	.....	.....	.....	.80	.50	1.00	2.32	1.20	.68	.98	.60	.....
3	.....	.....	.....	.71	.70	1.05	2.05	1.05	.65	1.05	.59	.....
4	.....	.....	.....	.73	.46	1.32	1.30	1.18	.61	1.19	.55	.....
5	.....	.....	.....	.70	.49	.95	2.40	.95	.60	1.35	.56	.....
6	.....	.....	.....	.70	.53	1.95	(b)	.92	.58	1.00	.63	.....
7	.....	.....	.....	.62	.90	1.90	(b)	.90	.52	.98	.60	.....
8	.....	.....	.....	.56	1.02	1.92	(b)	.82	.53	.90	.61	.....
9	.....	.....	0.90	.55	1.15	1.48	(b)	.80	.45	.89	.62	.....
10	.....	.....	.85	.58	.85	1.30	3.50	.70	.42	.82	.70	.....
11	.....	.....	.80	.68	.75	1.42	2.55	.81	.48	.88	.71	.....
12	.....	.....	.80	.78	.69	1.00	1.88	.70	.40	1.05	.73	.....
13	.....	.....	.80	.68	.86	.95	1.92	.62	.32	1.45	.74	.....
14	.....	.....	.83	.60	.80	.88	1.72	.80	.31	1.00	.78	.....
15	.....	.....	.75	.60	.78	1.05	1.42	.78	.40	.85	.71	.....

a Water below gage.

b Flood; water over top of gage.

Mean daily gage height, in feet, of Republican River at Superior, 1896–1903—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.												
16	.....	.....	0.75	0.62	0.70	0.82	1.30	0.65	0.41	0.82	0.78	.....
17	.....	.....	.70	.68	.70	.70	1.15	.60	.32	.99	.74	.....
18	.....	.....	.85	.65	.75	.85	1.68	.55	.48	.90	.79	.....
19	.....	.....	.80	.62	1.85	1.38	1.80	.52	.34	.91	.75	.....
20	.....	.....	.64	.70	1.69	1.20	1.10	.51	.35	.83	.74	.....
21	.....	.....	.60	.65	1.53	1.20	1.05	.50	.40	.78	.71	.....
22	.....	.....	.75	.63	1.42	1.08	1.00	.52	1.85	.70	.71	.....
23	.....	.....	.78	.67	1.20	.95	.92	.68	3.60	.71	.67	.....
24	.....	.....	.75	.65	1.30	.90	1.02	.50	2.32	.72	.80	.....
25	.....	.....	.68	.62	1.56	.82	1.08	.50	1.86	.70	.80	.....
26	.....	.....	.80	.58	1.95	.76	(a)	.50	1.78	.73	.70	.....
27	.....	.....	.81	.60	1.95	.68	3.25	.60	1.35	.75	.90	.....
28	.....	.....	.97	.56	1.65	.65	3.00	.58	1.10	.75	.70	.....
29	.....	.....	.52	.56	1.75	.78	1.60	.59	1.05	.72	.80	.....
30	.....	.....	.83	.52	1.25	1.10	1.20	.67	1.02	.71	.....	.....
31	.....	.....	.81	.....	1.20	.....	1.70	.62	.....	.72	.....	.....
1903.												
1	.....	.....	.....	1.18	.80	2.60	1.05	2.10	.90	.39	.70	.....
2	.....	.....	.....	1.12	.86	2.10	.96	2.08	.75	.38	.79	....
3	.....	.....	.....	1.11	.96	1.89	.92	1.70	.61	.38	.62	.....
4	.....	.....	.....	1.11	.80	1.76	.88	1.88	.65	.19	.69	....
5	.....	.....	.....	1.00	.95	1.58	.80	1.28	.62	.40	.60	.....
6	.....	.....	.....	1.03	.99	1.45	.79	1.10	.56	.42	.60	.....
7	.....	.....	.....	1.01	1.09	1.33	1.55	1.03	.52	.40	.62	.....
8	.....	.....	.....	1.00	2.02	1.44	1.30	.95	.50	.34	.70	.....
9	.....	.....	.....	.97	2.08	1.41	1.13	.85	.48	.40	.61	.....
10	.....	.....	.....	.95	2.59	1.20	.99	.83	.49	.35	.57	.....
11	.....	.....	.....	.80	3.20	1.19	1.80	.78	.46	.45	.64	.....
12	.....	.....	.....	.86	2.75	1.21	2.41	.89	.42	.46	.62	.....
13	.....	.....	.....	.81	2.60	1.13	2.76	1.12	.40	.50	.12	.....
14	.....	.....	3.10	.80	2.32	1.03	3.18	1.84	.39	.51	.02	.....
15	.....	.....	2.81	.90	2.08	1.07	2.90	1.20	.38	.50	.02	.....
16	.....	.....	2.21	.88	1.99	1.04	2.78	1.10	.40	.47	.50	.....
17	.....	.....	2.08	.92	1.68	1.00	1.76	.92	.40	.49	.02	.....
18	.....	.....	1.98	.90	1.42	.99	1.42	.89	.40	.55	.42	.....
19	.....	.....	1.95	.75	1.41	.96	2.10	1.02	.38	.49	.40	.....
20	.....	.....	1.88	.83	1.33	.91	1.75	1.02	.43	.50	.40	.....
21	.....	.....	1.60	.85	1.20	.96	1.47	1.09	.41	.50	.46	.....
22	.....	.....	1.59	.87	1.54	.94	1.30	1.05	.36	.51	.60	.....
23	.....	.....	1.42	.80	1.41	1.09	1.11	.81	.40	.49	.72	.....
24	.....	.....	1.44	.78	1.30	1.08	1.00	.82	.42	.50	.62	.....
25	.....	.....	1.35	.83	3.48	1.16	.91	.75	.36	.53	.60	.....
26	.....	.....	1.30	.81	2.80	1.29	.88	.73	.31	.50	.63	.....
27	.....	.....	1.29	.72	2.32	1.76	.87	.78	.47	.50	.70	.....
28	.....	.....	1.28	.76	1.96	1.58	.80	1.42	.37	.51	.80	.....
29	.....	.....	1.18	.88	3.88	1.41	.80	1.90	.38	.50	.79	.....
30	.....	.....	1.20	.92	3.76	1.19	.78	1.46	.40	.53	.75	.....
31	.....	.....	1.21	.....	2.88	.....	.76	1.20	.....	.52	.....	.....

a Flood; water over top of gage.

Mean daily gage height, in feet, of Republican River at Bostwick, 1904–1906.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.										
1	.....	.....	.....	.....	2.90	1.45	1.40	1.40	1.60	1.70
2	.....	.....	.....	.....	2.70	1.40	1.25	1.35	1.70	.....
3	.....	.....	.....	.....	2.65	1.40	1.20	1.30	1.75	.....
4	.....	.....	.....	.....	3.70	1.45	1.30	1.35	1.70	.....
5	.....	.....	.....	.....	6.10	1.50	1.40	1.40	1.70	.....
6	.....	.....	.....	2.40	6.25	1.75	1.25	1.35	1.70	.....
7	.....	.....	.....	2.20	3.70	1.70	1.30	1.35	1.65	.....
8	.....	.....	.....	1.50	3.05	2.30	1.25	1.30	1.65	.....
9	.....	.....	.....	2.10	3.07	2.20	1.15	1.35	1.70	.....
10	.....	.....	.....	2.15	3.90	1.90	1.25	1.30	1.65	.....
11	.....	.....	.....	2.00	3.40	1.70	1.25	1.35	1.65	.....
12	.....	.....	.....	2.00	3.10	1.60	1.20	1.40	1.65	.....
13	.....	.....	.....	1.95	3.25	1.60	1.20	1.35	1.65	.....
14	.....	.....	.....	1.90	3.10	1.55	1.10	1.45	1.70	.....
15	.....	.....	.....	3.10	2.75	1.50	1.05	1.40	1.65	.....

Mean daily gage height, in feet, of Republican River at Bostwick, 1904–1906—Continued.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.										
16				2.95	2.55	1.45	1.00	1.50	1.70	
17				2.40	2.30	1.45	1.00	1.45	1.70	
18				2.45	2.15	1.60	.95	1.40	1.70	
19				2.75	2.05	1.50	.90	1.45	1.65	
20				2.45	2.00	2.30	1.00	2.00	1.70	
21				2.75	2.00	1.85	.95	2.40	1.70	
22				2.50	1.95	1.70	1.00	2.30	1.70	
23				2.55	1.90	1.45	1.00	2.30	1.65	
24				3.68	1.85	1.45	.95	2.25	1.70	
25				4.10	1.80	1.40	1.00	2.15	1.70	
26				4.90	1.75	1.35	.95	2.10	1.70	
27				4.80	1.70	1.40	1.00	2.05	1.70	
28				3.85	1.65	1.35	1.15	1.95	1.70	
29				3.50	1.50	1.25	1.20	1.80	1.70	
30				3.10	1.50	1.40	1.30	1.70	1.70	
31					1.45	1.50		1.65		
1905.										
1		2.15	2.75	3.3	6.25	6.35	1.2	1.25		
2		2.15	2.55	3.3	8.7	6.45	1.2	1.15		
3		2.2	2.5	4.1	9.3	6.9	1.9	1.15		
4		2.15	2.45	3.7	10.4	7.3	1.9	1.15		
5		2.15	2.45	2.9	9.5	5.65	1.9	1.1		
6		2.15	2.35	2.65	7.65	5.3	1.9	1.1		
7		2.5	2.35	2.55	5.5	5.5	1.5	1.1		
8		2.4	2.35	2.35	4.75	4.65	1.3	1.1		
9		2.35	2.4	2.25	4.5	4.05	1.3	1.05		
10		2.25	2.45	2.35	4.6	3.8	1.9	1.0		
11		2.2	6.1	2.4	4.1	3.5	1.3	1.0		
12		2.2	2.7	2.5	3.6	3.05	1.3	1.0		
13		2.1	3.0	4.0	3.35	2.8	1.1	.95		
14		2.1	3.05	3.0	3.05	2.5	1.1	.95		
15		2.1	3.15	2.7	2.9	2.35	1.1	.95		
16		2.05	5.4	4.15	2.85	2.5	1.2	1.0		
17		2.1	4.1	4.55	2.8	2.65	1.1	.95		
18		2.05	3.15	5.5	2.7	2.85	1.3	1.0		
19		2.05	2.95	3.85	2.65	2.55	1.2	1.0		
20		2.0	2.7	3.5	4.1	2.15	1.4	1.05		
21		2.25	2.5	3.0	2.5	2.0	1.45	1.05		
22	2.45	2.05	2.45	2.85	2.4	1.85	1.4	1.05		
23	2.5	2.2	2.35	5.2	2.35	1.75	1.35	1.1		
24	2.45	2.45	2.45	5.75	2.25	1.7	1.45	1.1		
25	2.4	2.6	2.35	6.05	2.15	1.65	1.6	1.1		
26	2.4	2.95	2.25	5.85	5.7	1.65	1.55	1.1		
27	2.4	2.8	2.45	5.5	3.65	1.6	1.55	1.1		
28	2.3	3.1	2.25	4.15	3.5	1.5	1.5	1.1		
29	2.3	3.0	5.4	3.85	5.4	1.3	1.4	1.1		
30	2.25	2.9	3.9	4.15	4.65	1.3	1.35	1.1		
31	2.2		3.7		4.9	1.3		1.1		
1906.										
1			3.90	1.55		1.15	.80	.65	1.40	
2			4.95	1.50		1.10	.80	.65	1.40	
3			4.15	1.50		1.30	.75	.60	1.35	
4			3.85	1.50		1.65	.75	.60	1.35	
5			2.75	1.45		1.45	.70	.60	1.40	
6			2.55	1.45		1.35	.65	.70	1.40	
7			2.45	1.35		1.25	.60	.75	1.40	
8		2.15	2.65	1.30	1.15	1.15	.55	.80	1.40	
9		2.05	2.55	1.25	1.05	1.15	.65	.75	1.40	
10		1.95	2.45	1.25	1.00	2.10	.65	.70	1.40	
11		1.95	2.30	1.15	.90	2.45	.90	.65	1.40	
12		1.90	2.20	1.10	1.60	2.15	1.10	.65	1.40	
13		2.15	2.10	1.05	.95	1.65	.75	.70	1.40	
14		2.50	2.05	1.05	.90	1.50	.95	.70	1.40	
15		2.35	2.00	1.00	.90	1.40	1.15	.75	1.40	
16		2.15	1.95	1.00	.80	1.35	.85	.75	1.35	
17		2.05	1.90	1.00	.75	1.20	.85	.80	1.35	
18		2.00	1.85	.95	.70	1.15	.80	.80	1.40	
19		1.95	1.80	.90	.70	1.05	.80	.85	1.40	
20		1.95	1.65	.90	.80	1.00	.85	.90	1.35	

Mean daily gage height, in feet, of Republican River at Bostwick, 1904–1906—Continued.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1906.										
21	.....	1.95	1.60	0.85	1.25	0.90	0.80	1.00	1.35	.....
22	.....	1.90	3.80	.85	2.95	.90	.80	1.35	1.30	.....
23	.....	1.90	2.60	.80	2.95	.90	.80	1.45	1.30	.....
24	.....	1.90	2.15	.80	2.60	1.10	.80	1.40	1.25	.....
25	.....	1.85	1.80	.80	2.25	1.10	.75	1.35	1.30	.....
26	.....	1.85	1.75	.85	2.15	.95	.75	1.45	1.35	.....
27	.....	2.00	1.55	.95	2.10	.90	.75	1.60	1.35	.....
28	.....	2.25	1.55	1.35	1.85	.85	.70	1.50	1.40	.....
29	.....	2.35	1.65	1.55	1.40	.85	.70	1.50	1.40	.....
30	.....	3.15	1.60	1.15	1.30	.85	.....	1.45	1.40	.....
31	.....	.....	1.55	.....	1.25	.80	.....	1.45	.....	.....

Daily center depth, in feet, of mill race on Republican River at Superior, 1898–1903.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1898.									
1	.....	.....	2.68	3.20	2.81	2.29	0.92	3.50	2.44
2	.....	.....	3.57	3.07	2.61	2.34	1.53	3.40	2.52
3	.....	.....	2.90	3.21	2.30	2.31	1.49	3.20	2.51
4	.....	.....	2.95	2.95	2.22	2.28	2.70	3.20	2.53
5	.....	.....	2.99	3.10	2.60	2.30	.....	3.22	2.50
6	.....	.....	3.03	3.24	2.60	2.29	.....	3.21	2.67
7	.....	.....	3.23	3.12	2.60	2.30	.....	3.25	2.52
8	.....	.....	3.29	3.69	2.55	2.33	1.60	3.29	2.53
9	.....	.....	3.17	3.42	2.70	2.26	.....	3.41	2.52
10	.....	.....	3.39	3.58	2.38	2.23	1.95	3.41	2.53
11	.....	.....	3.22	4.11	2.14	2.21	3.18	3.40	2.52
12	.....	.....	3.18	3.64	2.72	2.17	3.38	3.50	2.60
13	.....	.....	3.11	3.40	2.70	2.14	3.43	2.43	2.72
14	.....	.....	3.18	3.50	2.00	2.35	3.35	2.39	2.61
15	.....	.....	3.15	3.59	2.90	2.16	3.34	2.42	2.64
16	.....	.....	3.20	3.57	2.71	2.21	3.25	2.50	2.66
17	.....	.....	3.17	3.60	2.87	2.20	3.25	2.54	2.70
18	.....	.....	3.11	3.35	2.62	2.12	3.40	2.46	2.68
19	.....	.....	3.25	3.70	2.59	2.18	3.30	2.41	2.67
20	.....	2.79	3.18	3.32	2.50	2.05	3.35	2.41	2.81
21	.....	2.79	3.65	3.18	2.49	2.17	3.63	2.40	.....
22	.....	3.37	3.89	3.00	2.45	1.70	4.69	2.40	.....
23	.....	3.66	3.47	3.33	2.40	1.61	3.58	2.60	.....
24	.....	3.17	3.08	3.12	2.50	2.55	3.50	2.41	.....
25	.....	2.79	3.19	3.03	2.38	2.41	3.50	2.40	.....
26	.....	2.69	3.12	2.55	2.51	2.29	3.39	2.43	.....
27	.....	2.67	3.20	2.91	2.07	2.28	3.36	2.10	.....
28	.....	2.65	3.12	2.87	2.38	2.35	3.32	2.50	.....
29	.....	2.69	3.87	2.80	2.40	2.31	3.31	2.44	.....
30	.....	2.70	3.60	2.77	2.31	1.11	3.30	2.60	.....
31	.....	.....	3.29	.....	2.44	1.62	.....	2.49	.....
1900.									
1	.....	3.65	3.60	4.53	4.28	5.00	2.00	3.41	3.50
2	.....	3.59	3.75	3.85	4.30	5.35	.65	3.22	3.53
3	.....	3.78	3.89	4.04	4.33	2.50	.54	3.14	3.53
4	.....	3.60	3.84	4.12	4.27	2.25	.52	3.27	3.60
5	.....	3.57	3.54	4.12	4.15	5.21	.53	2.60	3.60
6	.....	3.59	3.57	4.11	4.04	5.09	.53	2.71	3.61
7	.....	3.70	4.00	4.11	3.62	3.29	.50	2.53	3.66
8	.....	3.97	4.31	4.10	4.07	3.85	.45	2.88	3.59
9	.....	3.59	4.21	4.02	3.94	3.53	.40	2.95	3.88
10	.....	3.89	2.99	3.70	4.28	1.33	.53	2.55	3.75
11	.....	3.87	2.70	4.27	3.93	1.00	3.25	2.68	3.83
12	.....	3.82	2.76	4.47	3.90	1.11	6.55	2.63	3.70
13	.....	3.99	1.47	4.00	3.87	1.05	4.23	2.82	3.75
14	.....	3.76	1.52	4.00	3.36	1.12	4.82	2.20	3.69
15	.....	3.00	1.33	3.83	3.06	3.93	4.52	3.12	3.97
16	.....	4.20	1.53	4.39	4.48	5.25	3.93	3.02	3.80
17	.....	4.27	2.00	4.30	4.58	5.15	3.62	2.63	3.82
18	.....	3.18	2.87	4.32	4.76	5.00	3.52	2.83	3.82
19	.....	3.03	2.60	4.30	4.90	4.98	3.57	2.86	3.72
20	.....	2.89	3.02	4.06	5.13	5.00	3.57	2.63	3.69

Daily center depth, in feet, of mill race on Republican River at Superior—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1900.									
21	.....	3.37	3.57	3.10	5.10	4.85	3.52	3.99	3.30
22	.....	3.15	3.59	3.40	5.11	4.58	3.48	3.92	3.68
23	.....	3.00	3.80	3.38	5.00	4.82	3.58	3.99	3.50
24	.....	3.89	3.95	3.90	5.02	4.87	3.52	3.92	3.95
25	.....	2.29	3.85	4.20	5.12	4.72	3.32	3.95	.....
26	.....	2.80	4.02	4.34	4.92	4.52	2.52	3.89	.....
27	.....	2.78	2.63	4.54	4.90	4.68	2.80	3.78	.....
28	.....	3.20	4.02	4.40	4.60	4.55	2.80	4.02	.....
29	.....	3.30	3.58	4.38	5.27	3.65	3.00	3.80	.....
30	.....	3.60	4.33	4.12	5.40	3.12	3.14	3.62	.....
31	.....	.....	4.05	.....	5.00	3.22	.....	3.55	.....
1901.									
1	.....	3.42	.....	2.82	1.82	1.40	.95	1.10	1.10
2	.....	3.57	.....	2.90	2.22	.61	.90	1.04	1.40
3	.....	3.52	.....	2.92	2.32	.60	1.30	1.02	.62
4	.....	3.57	.....	2.73	2.22	.60	.90	1.00	.64
5	.....	3.58	2.52	2.70	2.12	.61	.90	1.10	.94
6	.....	3.75	3.12	2.82	2.13	.52	4.82	1.00	.62
7	.....	3.75	3.09	2.73	2.20	.50	4.19	1.10	.60
8	.....	3.62	3.11	2.80	2.12	.68	4.40	1.08	.94
9	.....	3.73	2.58	2.72	1.65	.60	4.95	.95	.84
10	.....	3.74	2.42	2.69	1.50	.69	5.00	.95	.53
11	.....	3.80	3.17	2.62	1.18	3.82	6.00	.90	.98
12	.....	3.82	3.29	2.60	.93	3.78	5.65	.96	.90
13	.....	3.67	3.29	2.62	.86	3.70	5.12	.93	.93
14	.....	3.80	3.30	2.71	1.20	3.71	4.80	.90	.90
15	.....	3.99	3.45	3.11	.92	2.13	5.00	.80	.90
16	.....	3.98	2.82	2.40	.58	1.30	4.50	.86	.85
17	.....	3.98	2.90	2.70	.50	1.40	2.19	.88	.50
18	.....	4.02	2.82	3.01	.45	.75	1.90	.86	.90
19	.....	3.76	3.51	2.98	.57	.68	1.85	.82	.90
20	.....	3.91	2.50	3.01	.55	.72	1.80	.60	.90
21	.....	3.78	3.20	3.56	.40	1.11	1.60	.86	.95
22	.....	3.71	2.72	1.00	.33	1.21	1.55	.98	.90
23	.....	3.51	2.50	3.25	.30	1.00	1.45	.75	.98
24	.....	3.40	3.00	3.35	.40	1.72	1.40	.83	.53
25	.....	3.40	2.98	3.17	.30	.80	1.25	.90	1.00
26	.....	3.32	3.02	3.01	.45	.60	1.28	.76	.98
27	.....	3.40	3.00	2.80	.50	.59	1.23	.48	.91
28	.....	.....	2.58	2.63	.55	.55	1.12	.73	1.03
29	.....	.....	2.47	2.35	.40	.48	1.40	.84	.93
30	.....	.....	3.10	2.41	.52	.61	1.25	1.10	.94
31	.....	.....	2.32	.....	2.45	1.11	.....	.92	.....
1903.									
1	.....	4.01	4.13	5.34	3.13	4.75	2.25	4.01	4.50
2	.....	3.85	4.02	4.39	3.00	4.15	2.55	4.00	4.42
3	.....	4.20	4.10	3.83	3.00	3.82	2.22	4.00	4.22
4	.....	3.65	4.01	3.60	2.75	3.80	2.18	3.90	4.43
5	.....	3.62	4.24	3.20	3.10	3.15	2.05	4.15	4.29
6	.....	3.70	4.18	3.08	2.95	2.86	1.89	4.27	4.38
7	.....	3.75	4.19	2.05	4.00	3.00	1.52	4.12	4.30
8	3.20	3.72	5.95	3.70	3.60	2.90	3.40	4.02	4.40
9	7.45	3.70	6.75	3.75	3.32	2.52	3.35	4.12	4.42
10	7.30	3.68	5.80	3.55	3.14	2.48	2.88	3.95	4.27
11	7.65	3.70	6.84	3.40	3.12	2.43	2.96	4.22	4.36
12	7.60	3.85	5.40	3.20	4.96	2.51	2.80	4.03	4.29
13	7.50	3.50	5.00	3.25	5.10	2.80	3.00	4.10	3.72
14	3.60	3.52	4.21	2.60	5.40	3.00	3.32	4.25	3.82
15	3.00	3.58	3.79	3.80	4.95	2.71	3.40	4.12	3.84
16	2.20	3.50	3.72	3.70	4.67	2.55	3.32	4.02	4.06
17	2.05	3.62	2.89	3.20	3.40	2.35	2.52	4.15	3.84
18	1.78	3.50	3.15	3.38	2.90	2.35	3.63	4.25	.....
19	1.63	3.10	3.55	3.81	3.85	2.50	3.70	4.23	4.08
20	1.40	4.00	3.52	3.25	3.05	2.58	3.93	4.26	3.98
21	1.48	4.01	3.56	3.40	2.65	2.61	3.91	4.23	4.05
22	1.38	3.98	3.83	3.48	2.58	2.60	3.90	4.24	4.25
23	2.30	3.95	3.79	3.88	2.42	2.35	3.95	4.15	4.55
24	3.30	3.90	3.65	3.64	1.75	2.38	3.91	4.20	4.42
25	3.20	4.10	7.70	3.70	2.45	2.30	4.00	4.30	4.38

Daily center depth, in feet, of mill race on Republican River at Superior—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1903.									
26	3.10	4.06	6.45	3.92	2.85	2.22	3.86	4.15	4.35
27	3.09	3.94	5.36	4.45	3.40	2.25	4.16	4.15	4.37
28	3.05	3.80	4.80	4.02	3.12	2.90	4.00	4.21	4.42
29	3.02	4.10	6.80	3.50	2.90	3.65	4.03	4.20	4.46
30	4.20	4.15	7.20	3.30	2.82	3.04	4.02	4.25	.....
31	4.23	.....	6.10	.....	2.85	2.60	.....	4.28	.....

Mean daily discharge, in second-feet, of Republican River at Superior, 1896–1903.

Day.	June.	July.	Aug.	Sept.	Oct.	Nov.	Day.	June.	July.	Aug.	Sept.	Oct.	Nov.
1896.							1896.						
1	.....	685	928	282	223	333	17	.....	551	1,395	275	204	512
2	.....	4,300	903	261	204	282	18	.....	570	1,466	406	197	476
3	.....	4,850	864	311	223	373	19	.....	552	1,042	296	191	390
4	.....	.....	467	268	229	342	20	720	532	611	303	204	325
5	.....	3,025	467	216	241	325	21	600	580	580	268	223	357
6	.....	2,147	467	210	229	342	22	530	450	790	296	268	382
7	.....	1,750	1,279	204	210	333	23	551	484	695	311	229	415
8	.....	1,940	730	197	191	415	24	441	450	632	282	217	365
9	.....	1,904	1,816	204	204	406	25	450	441	611	223	229	941
10	.....	1,525	467	268	191	441	26	1,052	423	522	.....	217	1,137
11	.....	1,325	415	325	223	398	27	642	382	467	268	229	450
12	.....	1,165	341	304	193	432	28	673	374	432	254	223	459
13	.....	941	304	289	204	441	29	642	398	365	289	415	.....
14	.....	813	268	423	191	476	30	610	432	333	282	382	493
15	.....	720	261	289	191	442	31	.....	1,004	296	.....	365	.....
16	.....	652	228	289	204	532							

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1897.									
1	.....	.....	665	190	2,360	94	110	.....	.....
2	.....	820	575	180	555	110	85	.....	.....
3	.....	.....	500	220	2,660	94	64	60	.....
4	.....	880	480	220	2,060	90	.....	.....	.....
5	.....	.....	457	180	1,800	100	75	.....	.....
6	.....	.....	475	241	4,310	330	74	.....	.....
7	.....	990	445	370	2,660	1,460	64	.....	.....
8	.....	1,388	420	270	3,000	395	.....	.....	.....
9	.....	1,190	575	230	2,360	390	.....	.....	.....
10	.....	1,074	600	212	1,010	310	.....	.....	.....
11	.....	1,095	470	750	770	305	.....	.....	.....
12	.....	1,190	440	550	506	390	70	.....	.....
13	.....	1,252	420	550	350	375	85	.....	.....
14	.....	1,050	370	370	265	380	60	.....	.....
15	516	1,095	360	220	230	101	64	.....	.....
16	.....	.....	341	270	190	119	241	75	.....
17	385	.....	330	370	190	119	180	.....	.....
18	.....	1,252	305	750	220	140	180	.....	.....
19	.....	1,074	280	750	170	155	125	.....	.....
20	425	990	255	490	230	212	1,330	1,142	.....
21	.....	945	230	405	206	171	82	1,160	.....
22	650	920	250	320	160	206	75	1,130	.....
23	465	740	1,130	290	140	190	.....	1,160	.....
24	.....	880	445	330	165	395	64	.....	.....
25	.....	840	425	226	120	341	70	1,010	.....
26	.....	675	395	.....	165	265	.....	1,070	.....
27	457	620	445	.....	165	212	.....	.....	.....
28	.....	.....	280	.....	640	180	.....	.....	.....
29	.....	.....	270	.....	206	165	.....	.....	.....
30	.....	800	220	.....	131	119	82	.....	.....
31	610	.....	180	.....	119	105	.....	.....	.....

Mean daily discharge, in second-feet, of Republican River at Superior, 1896–1903—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1898.									
1			500	1,295	511	210		200	320
2			1,310	1,030	540	230		230	330
3			700	1,000	495	215		165	340
4			710	960	345	210		165	370
5			765	1,000	430	210		170	340
6			930	1,240	430	210	410	165	340
7			995	980	420	185	360	185	360
8			1,100	1,720	420	185	305	200	350
9			960	1,380	530	195	360	145	360
10			1,210	1,325	1,345	185	345	195	345
11			980	2,300	1,000	165	350	270	350
12			910	1,625	530	150	410	300	410
13			1,170	1,530	560	155	285	290	415
14			1,310	1,610	910	230	240	280	410
15			740	1,565	725	100	230	270	420
16			910	1,575	560	165	185	330	420
17			870	1,600	540	165	190		470
18			890	1,380	480	150	240		450
19			845	1,600	430	160	210		450
20		590	1,000	1,430	380		210		
21		580	1,465	1,275	345	145	470		
22		940	1,445	1,040	420		410		
23			1,350	1,240	340		380	325	
24		885	930	1,045	340	380	270	295	
25		430	890	910	270	270	275	290	
26		580	1,050	710	295	215	240	295	
27		560	910	750	280	205	220	265	
28		560	1,015	685	270	180	220	330	
29		490	1,870	630	270	200	215	320	
30		520	1,630	560	220		205	365	
31			1,170		230			330	
1899.									
1		737	388	236	906	812	102	27	
2		727	363	274	738	868	78	42	
3		692	396	346	608	650	90	27	
4		682	995	311	574	475	52	54	
5		780	383	268	590	397	49	38	
6		753	366	256	743	320	29	37	
7		842	331	268	837	345	34	52	
8		759	394	262	793	247	43	48	
9		747	417	238	490	238	38	61	
10		728	416	245	412	245	37	61	
11		698	452	228	355	207	66	25	
12		618	442	213	327	231	56	24	
13		623	452	209	355	242	58	45	
14		607	457	493	342	350	61	37	
15		606	451	348	302	247	41	32	
16		480	499	428	319	229	49	78	
17		532	453	266	318	378	6	50	
18		529	418	238	304	306	58	68	
19		522	407	158	287	230	45	74	
20		470	735	152	293	212	47	53	
21		478	1,800	162	371	160	16	101	
22		412	873	141	320	154	49	25	
23		414	587	306	285	156	48	101	
24		425	517	364	215	136	41	40	
25		375	465	241	234	188	45	65	
26		407	544	201	209	258	71	63	
27		434	436	4,036	214	421	60	90	
28		412	410	2,570	238	193	62	78	
29		470	361	1,304	1,384	150	25		
30		385	334	1,174	501	187	31	54	
31			292		316	146		81	
1900.									
1		703	850	532	250	82	49	90	87
2		718	812	367	240	158	12	55	90
3		648	785	408	267	102	10	77	83
4		621	757	306	133	81	8	44	52
5		618	717	349	223	100	10	60	49

Mean daily discharge, in second-feet, of Republican River at Superior, 1896–1903—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1900.									
6		630	935	345	216	134	9	53	52
7		628	1,073	307	184	47	12	32	36
8		580	2,945	290	132	45	10	45	60
9		565	2,066	256	179	83	8	26	80
10		630	1,306	250	294	267	10	27	90
11		634	1,080	390	225	51	463	36	89
12		665	847	605	180	39	2,010	35	119
13		856	670	674	139	24	450	54	115
14		759	630	457	73	44	244	40	87
15		980	566	390	67	.....	195	42	95
16		1,120	520	430	94	1,278	120	60	162
17		1,370	508	365	102	311	120	43	92
18		1,226	460	340	77	130	140	62	96
19		1,015	438	349	90	195	120	38	102
20		970	418	322	164	177	105	60	112
21		1,396	401	326	142	147	72	130	50
22		1,140	401	410	95	148	54	139	61
23		972	390	450	103	137	73	148	63
24		1,671	419	390	123	118	55	109	160
25		920	470	439	88	71	63	83	.....
26		1,035	421	442	137	36	75	140	.....
27		1,087	404	461	87	100	31	80	.....
28		1,150	370	418	77	63	37	50	.....
29		1,080	365	369	349	50	75	100	.....
30		895	320	315	210	36	34	80	.....
31		.....	342	.....	192	27	.....	89	.....
1901.									
1		650	622	167	154	30	15	515	527
2		637	560	136	154	15	15	1,490	1,030
3		668	530	129	140	10	15	980	377
4		771	527	144	108	5	10	430	370
5		774	552	161	109	5	25	495	442
6		956	555	190	124	5	2,032	375	336
7		900	516	124	89	5	1,657	435	324
8		903	490	133	80	5	1,826	507	442
9		951	469	147	36	5	2,575	525	341
10		974	416	148	31	5	2,237	384	312
11		1,019	393	135	30	856	4,123	384	391
12		1,660	363	138	30	812	4,941	384	370
13		1,045	347	143	20	114	3,247	398	427
14		1,189	325	157	10	112	1,957	363	427
15		1,347	331	301	7	28	2,827	377	370
16		1,507	364	153	5	22	2,115	363	358
17		1,416	390	117	5	18	1,784	384	312
18		1,349	395	170	5	16	462	363	419
19		1,284	379	184	5	10	453	377	391
20		1,296	267	215	5	8	453	305	398
21		1,155	302	465	5	5	433	351	442
22		1,025	272	370	5	5	415	363	391
23		885	265	415	5	5	406	295	442
24		870	239	480	5	5	397	351	312
25		741	206	347	5	10	408	363	442
26		726	206	336	5	10	388	295	442
27		756	216	295	5	10	388	285	427
28		680	218	265	5	10	379	305	469
29		644	250	225	5	10	815	363	427
30		655	146	181	5	10	565	525	406
31		.....	159	.....	119	20	.....	420	.....
1902.									
1		730	400	1,095	3,430	1,920	680	890	635
2		710	335	960	4,525	1,500	520	865	610
3		600	555	1,030	3,690	1,200	570	1,050	635
4		665	470	1,530	1,895	1,490	560	1,370	620
5		620	525	880	4,960	1,050	400	1,775	620
6		590	445	3,235	.....	790	440	1,050	635
7		500	775	3,125	.....	785	370	1,050	660
8		570	950	3,225	12,490	650	315	890	660
9	760	590	1,220	2,230	.....	645	270	890	635
10	740	620	730	1,800	10,460	690	225	845	710

Mean daily discharge, in second-feet, of Republican River at Superior, 1896–1903—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1902.									
11	670	595	570	2,000	5,380	790	260	940	660
12	680	740	510	1,180	3,000	620	240	1,205	460
13	630	570	690	1,110	3,000	480	320	1,995	720
14	690	555	660	835	2,515	690	170	1,125	530
15	670	510	675	1,160	1,750	670	185	830	560
16	650	500	530	690	1,520	600	165	770	570
17	530	580	525	760	1,260	485	155	1,050	510
18	690	520	630	860	2,515	480	255	890	570
19	680	485	2,810	1,920	2,865	385	190	915	510
20	505	570	2,500	1,530	1,265	345	240	830	520
21	455	510	2,120	1,550	1,315	335	225	820	500
22	570	530	1,750	1,315	1,235	335	2,760	735	535
23	630	510	1,290	1,090	1,065	520	10,875	910	685
24	620	510	1,600	990	970	435	4,380	910	970
25	550	485	2,095	830	1,125	330	2,780	860	970
26	655	545	3,115	755	.....	345	2,705	760	620
27	670	460	3,105	690	9,060	450	1,700	650	690
28	920	445	2,365	645	7,065	435	1,310	590	460
29	330	445	2,540	820	2,380	440	1,030	530	570
30	715	390	1,420	320	1,490	540	970	520	.....
31	830	.....	1,425	.....	2,670	455	.....	530	.....
1903.									
1	.....	1,260	845	6,455	910	3,285	700	305	460
2	.....	1,095	935	4,340	760	3,245	520	305	690
3	.....	1,085	1,055	3,610	700	2,165	400	325	520
4	.....	1,065	845	3,115	785	2,695	470	265	525
5	.....	1,055	1,095	2,690	660	1,270	420	295	435
6	.....	1,035	1,150	2,290	630	885	410	295	450
7	.....	935	1,470	2,055	1,900	825	345	285	450
8	.....	950	3,905	2,310	1,360	690	475	245	460
9	.....	1,010	4,530	2,205	1,075	565	525	285	425
10	.....	1,015	6,580	1,600	755	570	455	260	385
11	.....	785	9,515	1,595	2,400	525	410	250	480
12	.....	825	7,095	1,640	4,295	630	365	320	440
13	.....	765	6,400	1,560	5,960	915	320	355	140
14	7,750	765	5,050	1,350	7,825	2,630	480	350	130
15	6,345	930	4,255	1,265	6,455	1,175	405	355	135
16	3,895	935	3,895	1,260	6,040	1,005	355	340	505
17	3,555	895	3,010	1,065	2,285	730	315	355	145
18	3,240	910	2,325	1,075	1,455	695	405	320	220
19	3,085	870	2,155	1,000	3,255	840	445	355	295
20	2,940	705	2,040	915	2,280	835	335	350	315
21	2,140	835	1,690	970	1,575	995	315	350	335
22	2,150	915	2,545	835	1,260	920	405	345	415
23	1,700	840	2,165	1,075	910	590	335	365	535
24	1,770	845	1,890	1,065	770	565	300	355	435
25	1,555	900	11,320	1,170	670	520	305	320	435
26	1,455	765	7,305	1,465	740	520	320	365	480
27	1,470	710	5,160	2,545	640	570	275	355	540
28	1,475	785	3,765	2,165	520	1,580	270	350	645
29	1,380	1,025	14,100	1,690	520	2,840	310	345	570
30	1,295	1,015	13,190	1,260	525	1,680	315	390	510
31	1,260	.....	7,950	.....	465	1,175	.....	355	.....

Mean daily discharge, in second-feet, of Republican River at Bostwick, 1904–1906.

Day.	June.	July.	Aug.	Sept.	Oct.	Nov.	Day.	June.	July.	Aug.	Sept.	Oct.	Nov.
1904.							1904.						
1	.....	1,635	365	335	335	465	17	1,115	1,020	365	110	365	535
2	.....	1,415	335	245	305	535	18	1,165	885	465	85	335	535
3	.....	1,360	335	215	275	570	19	1,470	800	.....	60	365	500
4	.....	2,670	365	275	305	535	20	1,165	760	1,020	110	760	535
5	.....	7,130	400	335	335	535	21	1,470	760	640	85	1,115	535
6	1,115	7,480	570	245	305	535	22	1,210	720	570	110	1,020	535
7	930	2,670	535	275	305	500	23	1,260	720	365	110	1,020	500
8	430	1,810	1,020	245	275	500	24	2,640	640	365	85	975	535
9	845	1,835	930	185	305	535	25	3,260	605	335	110	885	535
10	885	2,965	680	245	275	500	26	4,630	570	305	85	845	535
11	760	2,250	535	245	305	500	27	4,450	535	335	110	800	535
12	760	1,870	465	215	335	500	28	2,890	500	305	185	720	535
13	720	2,055	465	215	305	500	29	2,385	400	245	215	605	535
14	680	1,870	430	160	365	535	30	1,870	400	335	275	535	535
15	1,870	1,470	400	135	335	500	31	.....	365	400	.....	500	.....
16	1,690	1,260	365	110	400	535							

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1905.									
1	.....	888	1,470	2,120	7,480	8,170	560	595	.....
2	.....	888	1,260	2,120	14,020	8,440	560	530	.....
3	.....	930	1,210	3,265	19,100	9,760	1,090	530	.....
4	.....	888	1,162	2,670	24,500	11,060	1,090	530	.....
5	.....	888	1,162	1,635	20,000	6,515	1,090	500	.....
6	.....	888	1,068	1,362	12,310	5,800	1,090	500	.....
7	.....	1,210	1,068	1,260	6,200	6,200	770	500	.....
8	.....	1,115	1,068	1,068	4,770	4,595	630	500	.....
9	.....	1,068	1,115	975	4,340	3,615	630	470	.....
10	.....	975	1,162	1,068	4,510	3,250	1,090	440	.....
11	.....	930	7,130	1,115	3,690	2,830	630	440	.....
12	.....	930	1,415	1,210	2,970	2,260	630	440	.....
13	.....	845	1,750	3,115	2,635	1,970	500	410	.....
14	.....	845	1,810	1,750	2,260	1,650	500	410	.....
15	.....	845	1,932	1,415	2,080	1,500	500	410	.....
16	.....	802	5,610	3,342	2,025	1,650	560	440	.....
17	.....	845	3,265	4,005	1,970	1,805	500	410	.....
18	.....	802	1,932	5,820	1,860	2,025	630	440	.....
19	.....	802	1,692	2,890	1,805	1,700	560	440	.....
20	.....	760	1,415	2,385	3,690	1,315	700	470	.....
21	.....	975	1,210	1,750	1,650	1,180	735	470	.....
22	1,162	802	1,162	1,580	1,550	1,050	700	470	.....
23	1,210	930	1,068	5,210	1,500	970	665	500	.....
24	1,162	1,162	1,162	6,350	1,405	930	735	500	.....
25	1,115	1,310	1,068	7,015	1,315	890	850	500	.....
26	1,115	1,692	975	6,570	6,620	890	810	500	.....
27	1,115	1,525	1,162	5,820	3,040	850	810	500	.....
28	1,020	1,870	975	3,342	2,830	770	770	500	.....
29	1,020	1,750	5,610	2,890	6,000	630	700	500	.....
30	975	1,635	2,965	3,342	4,595	630	665	500	.....
31	930	.....	2,670	.....	5,040	630	.....	500	.....
1906.									
1	.....	.....	3,390	750	.....	460	260	190	630
2	.....	.....	5,130	710	.....	430	260	190	630
3	.....	.....	3,770	710	.....	560	235	170	595
4	.....	.....	3,320	710	.....	830	235	170	595
5	.....	.....	1,920	670	.....	670	210	170	630
6	.....	.....	1,700	670	.....	595	190	210	630
7	.....	590	1,590	595	.....	525	170	235	630
8	.....	705	1,800	560	460	460	150	260	630
9	.....	628	1,700	525	400	460	190	235	630
10	.....	552	1,590	525	370	1,240	190	210	630
11	.....	552	1,440	460	310	1,590	310	190	630
12	.....	515	1,340	430	790	1,290	430	190	630
13	.....	705	1,240	400	340	830	235	210	630
14	.....	1,010	1,190	400	310	710	340	210	630
15	.....	875	1,140	370	310	630	460	235	630

Mean daily discharge, in second-feet, of Republican River at Bostwick, 1904–1906—Con.

Day.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
1006.									
16	.....	705	1,100	370	260	595	285	235	595
17	.....	628	1,050	370	235	490	285	260	595
18	.....	590	1,000	340	210	460	260	260	630
19	.....	552	960	310	210	400	260	285	630
20	.....	552	830	310	260	370	285	310	595
21	.....	552	790	285	525	310	260	370	595
22	.....	515	3,250	285	2,140	310	260	595	560
23	.....	515	1,750	260	2,140	310	260	670	560
24	.....	515	1,290	260	1,750	430	260	630	525
25	.....	480	960	260	1,390	430	235	595	560
26	.....	480	915	285	1,290	340	235	670	595
27	.....	590	750	340	1,240	310	235	790	595
28	.....	788	750	595	1,000	285	210	710	630
29	.....	875	830	750	630	285	210	710	630
30	.....	1,690	790	460	560	285	190	670	630
31	.....	.....	750	.....	525	260	.....	670	.....

Estimated monthly discharge of Republican River at Superior (1896–1903) and Bostwick (1904–1906).

[Drainage area, 22,300 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
March.								
1897	650	385	510	31,300	0.023	0.03	1.9	1.55
1899[a]	956	601	706	43,400	.....	.....	.....	.86
1902[b]	920	330	675	29,400	.....	.....	.....	1.16
1903[c]	7,750	1,260	2,692	96,100	.....	.....	.....	.39
1905[d]	1,210	930	1,082	21,500	.....	.....	.....	1.76
April.								
1897	1,390	620	946	56,300	.042	.05	1.3	3.95
1899	842	375	578	34,400	.026	.03	4.6	.65
1900	1,670	565	909	54,100	.041	.04	.9	4.45
1901	1,510	637	961	57,100	.043	.05	1.5	3.28
1902	740	390	555	33,000	.025	.02	2.3	.86
1903	1,260	705	918	54,600	.041	.05	3.6	1.38
1905	1,870	760	1,060	63,100	.047	.05	1.4	3.70
1906[e]	1,690	480	673	32,000	.....	.....	.....	4.92
May.								
1897	1,130	180	420	25,800	.019	.02	1.6	1.22
1898	1,870	500	1,053	64,800	.047	.06	1.3	4.72
1899	1,800	292	511	31,400	.023	.03	1.0	2.94
1900	2,940	320	735	45,200	.033	.03	2.0	1.50
1901	622	146	364	22,400	.016	.02	2.1	.96
1902	2,810	335	1,269	78,000	.057	.07	1.3	5.52
1903	14,100	845	4,491	276,100	.201	.23	3.2	7.14
1905	7,130	975	1,927	118,500	.086	.10	2.2	4.56
1906	5,130	750	1,610	99,000	.072	.08	4.3	1.87
June.								
1896[f]	1,052	441	627	13,700	.....	.....	.....	3.55
1897[g]	750	180	359	17,100	.....	.....	.....	4.58
1898	2,300	560	1,235	73,500	.055	.06	1.8	3.35
1899	4,040	141	531	31,600	.024	.02	.5	3.74
1900	674	250	392	23,300	.017	.02	.8	2.42
1901	480	117	219	13,000	.010	.01	.3	3.13
1902	3,240	320	1,372	81,600	.061	.07	1.5	4.67
1903	6,460	835	1,921	114,300	.086	.10	5.4	1.85
1904	4,630	430	1,667	99,200	.074	.08	1.4	5.48
1905	7,010	975	2,949	175,500	.132	.15	3.2	4.63
1906	750	260	466	27,700	.021	.02	1.0	2.02

[a] March 19 to 31.
[b] March 9 to 31.
[c] March 14 to 31.
[d] March 22 to 31.
[e] April 7 to 30.
[f] June 20 to 30.
[g] June 1 to 24.

Estimated monthly discharge of Republican River at Superior (1896–1903) and Bostwick (1904–1906)—Continued.

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
July.								
1896	4,850	374	1,179	70,200	0.053	0.06	2.2	2.69
1897	4,310	119	922	56,700	.041	.05	2.4	2.12
1898	1,340	220	479	29,400	.021	.02	.9	2.17
1899	1,380	209	458	28,200	.020	.02	.5	3.67
1900	349	67	159	9,800	.007	.01	.3	3.05
1901	154	5	44	2,600	.002	.002	.2	1.10
1902	12,490	970	3,080	189,400	.138	.16	2.9	5.41
1903	7,820	465	1,948	119,800	.087	.10	2.1	4.67
1904	7,480	365	1,656	101,800	.073	.08	2.7	3.23
1905	24,500	1,315	5,734	352,600	.256	.30	4.6	6.53
1906 [a]	2,140	210	736	35,000				2.99
August.								
1896	1,810	228	659	40,500	.029	.03	1.1	2.64
1897	1,460	94	259	15,900	.011	.01	.3	3.05
1898	380	100	195	12,000	.009	.01	.7	1.55
1899	868	136	303	18,600	.014	.02	1.1	1.79
1900	1,280	24	149	9,200	.007	.01	.4	2.28
1901	856	5	70	4,300	.003	.003	.1	3.35
1902	1,920	330	674	41,400	.030	.03	1.3	2.35
1903	3,280	520	1,230	75,600	.055	.06	1.7	3.61
1904	1,020	245	475	22,800	.021	.02	.9	2.82
1905	11,060	630	3,082	189,500	.138	.16	8.1	1.98
1906	1,590	260	553	34,000	.025	.03	1.0	2.89
September.								
1896	423	197	279	16,000	.012	.01	.5	1.87
1897	1,330	60	149	8,900	.007	.01	.7	1.40
1898	470	185	289	17,200	.013	.01	.2	4.13
1899	102	6	50	3,000	.002	.002	.9	.22
1900	2,010	8	156	9,300	.007	.01	.7	1.54
1901	4,990	10	1,246	74,100	.055	.06	1.5	3.97
1902	10,880	155	1,175	70,000	.052	.06	1.5	4.01
1903	700	270	389	23,100	.017	.02	3.8	.53
1904	335	60	180	10,700	.008	.01	.4	1.83
1905	1,090	500	725	43,100	.032	.04	1.5	2.45
1906	460	150	253	15,100	.011	.01	.5	2.04
October.								
1896	415	191	230	14,100	.010	.01	.8	1.44
1898	365	145	264	16,200	.012	.01	1.1	.88
1899	101	24	53	3,300	.002	.002	.5	.42
1900	148	26	69	4,200	.003	.003	.3	.87
1901	1,490	285	443	27,200	.020	.02	2.7	.75
1902	1,990	520	937	57,600	.042	.05	2.3	2.22
1903	390	245	326	20,000	.015	.02	1.6	1.08
1904	1,110	275	513	31,500	.023	.03	1.1	2.61
1905	595	410	479	29,400	.021	.02	2.0	1.03
1906	790	170	371	22,800	.017	.02	.8	2.53
November.								
1896	1,140	282	449	25,800	.020	.02	3.7	.59
1898 [b]	470	320	382	22,700				.55
1900 [c]	162	36	87	5,200				.24
1901	1,030	312	419	24,900	.019	.02	7.5	.28
1902	970	460	622	37,000	.028	.03	22.4	.14
1903	690	130	417	24,800	.019	.02	3.0	.70
1904	570	465	523	31,100	.023	.03	43.0	.07
1906	630	525	610	36,300	.027	.03	4.5	.67

[a] July 8 to 31. [b] November 1 to 19. [c] November 1 to 24.

SOUTH FORK OF REPUBLICAN RIVER NEAR BENKELMAN.

A station was established on the South Fork of the Republican about three-fourths of a mile east of Benkelman, November 1, 1894, discontinued September 5, 1895, and reestablished May 20, 1903. It

is located at the highway bridge, on the line between secs. 17 and 20, T. 1 N., R. 37 W.

At the gaging section the river is straight and the bed is composed of shifting sand. The banks are low, but seldom overflow. The channel is somewhat obstructed by piling of the bridge. The water is never sluggish, even at low stages. The range of gage heights is about 4 feet.

Measurements are made from a pile bridge, the upstream hand rail of which is marked at 5-foot intervals.

The gage is a vertical staff, 5½ feet long, spiked to the upstream side of the first bent in the channel from the right bank of the stream. It is referred to bench marks as follows: (1) The top of the south end of the concrete foundation for the first upright bent of the elevated track in the Burlington and Missouri River Railroad yards, the same as bench mark No. 1 for Republican River at this point; elevation, 18.29 feet above the zero of the gage. (2) The top of the upstream end of the first bent from the left end of the bridge; elevation, 6.62 feet above the zero of the gage.

Discharge measurements of South Fork of Republican River near Benkelman, 1894–1906.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1894.		*Feet.*	*Sec.-ft.*	1904.		*Feet.*	*Sec.-ft.*
December 9	O. V. P. Stout	.....	1	June 16	J. C. Stevens	1.70	145
				December 7	Jas. A. Green	1.32	32
1895.							
March 23	....do	1.89	.....	1905.			
June 4	....do	.....	348	March 21	H. C. Gardner	1.77	140
June 24	....do	1.50	75	May 2	....do	1.65	111
July 3	....do	2.60	278	June 6	....do	1.30	34
August 7	....do	1.75	22	July 5	....do	1.40	51
				July 31	G. W. Bates	1.45	72
1903.				August 28	H. C. Gardner	.....	0
May 20	J. C. Stevens	1.15	58	September 28	F. S. Dobson	1.20	21
September 7	....do	0.76	2				
				1906.			
1904.				May 11	....do	1.50	75
April 3	....do	1.70	142	June 19	Arthur Dobson	1.00	0
April 18	Adna Dobson	1.10	14	August 25	....do	.....	0
June 16	J. C. Stevens	1.70	142	November 30	....do	1.48	45

Mean daily gage height, in feet, of South Fork of Republican River near Benkelman, 1894–1906.

Day.	Nov.	Dec.	Day.	Nov.	Dec.	Day.	Nov.	Dec.	Day	Nov.	Dec.
1894.			1894.			1894.			1894.		
1	0.97	1.06	9	1.06	.....	17	1.08	1.07	25	1.07	1.54
2	1.06	1.06	10	1.06	.....	18	1.08	1.08	26	1.06	1.31
3	1.06	1.06	11	1.06	.....	19	1.07	1.26	27	1.06	1.12
4	1.05	1.06	12	1.06	.....	20	1.08	1.24	28	1.07	1.09
5	1.05	1.06	13	1.06	.....	21	1.08	1.54	29	1.06	1.09
6	1.05	1.06	14	1.06	.....	22	1.07	1.52	30	1.06	1.09
7	1.06	1.06	15	1.06	.....	23	1.07	1.51	31	.....	1.08
8	1.06	1.06	16	1.08	1.07	24	1.08	1.43			

Mean daily gage height, in feet, of South Fork of Republican River near Benkelman, 1894–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1895.												
1	1.06	1.42	2.42	1.87	1.65	1.88	1.34	1.90	.....	.....	.....	.....
2	1.06	1.54	2.13	1.92	1.63	.....	3.12	1.90	.....	.....	.....	.....
3	1.06	1.56	2.12	1.86	1.56	.....	2.70	1.89	.....	.....	.....	.....
4	1.06	1.68	2.12	1.83	1.45	.....	2.30	1.89	.....	.....	.....	.....
5	1.06	1.74	2.09	1.78	1.43	.....	2.01	1.89	.....	.....	.....	.....
6	1.23	0.00	2.07	1.79	1.42	.....	1.90	1.88	.....	.....	.....	.....
7	1.25	1.97	1.97	2.17	1.41	.....	1.80	1.75	.....	.....	.....	.....
8	1.26	1.86	1.96	2.06	1.40	.....	1.89	1.68	.....	.....	.....	.....
9	1.56	1.64	1.94	1.99	1.39	.....	1.80	1.68	.....	.....	.....	.....
10	1.58	1.59	1.89	1.89	1.40	.....	1.80	1.65	.....	.....	.....	.....
11	1.63	1.39	2.11	1.86	1.39	.....	1.89	1.03	.....	.....	.....	.....
12	1.60	1.36	1.94	1.79	1.36	.....	1.89	1.60	.....	.....	.....	.....
13	1.74	1.32	1.63	1.74	1.39	.....	2.00	1.58	.....	.....	.....	.....
14	1.73	1.26	1.64	1.70	1.36	.....	3.12	1.55	.....	.....	.....	.....
15	1.76	1.23	1.66	1.72	1.37	.....	2.88	1.55	.....	.....	.....	.....
16	1.76	1.23	1.68	1.82	1.36	.....	2.30	1.55	.....	.....	.....	.....
17	1.79	1.25	1.95	1.88	1.37	.....	2.20	1.54	.....	.....	.....	.....
18	1.85	1.29	2.12	1.84	1.37	.....	2.10	1.54	.....	.....	.....	.....
19	1.82	1.29	2.09	1.77	1.37	.....	2.01	1.54	.....	.....	.....	.....
20	2.00	2.13	2.05	1.75	1.36	.....	2.12	1.54	.....	.....	.....	.....
21	2.06	2.14	1.99	1.71	1.35	[a]1.50	2.20	1.58	.....	.....	.....	.....
22	2.09	2.24	1.98	1.71	1.35	1.50	2.30	1.50	.....	.....	.....	.....
23	2.19	2.29	1.89	1.70	1.35	1.45	2.60	1.50	.....	.....	.....	.....
24	2.04	2.34	1.89	1.74	1.36	1.50	2.30	1.50	.....	.....	.....	.....
25	1.68	2.37	1.90	1.68	1.37	1.45	2.30	.....	.....	.....	.....	.....
26	1.68	2.39	1.87	1.61	1.39	1.45	2.05	.....	.....	.....	.....	.....
27	1.67	2.54	1.83	1.58	1.37	1.45	2.04	.....	.....	.....	.....	.....
28	1.61	2.68	1.83	1.70	1.37	1.40	2.00	.....	.....	.....	.....	.....
29	1.59	.....	1.78	1.88	1.37	1.40	1.90	.....	.....	.....	.....	.....
30	1.54	.....	1.69	1.76	1.55	1.40	1.89	.....	.....	.....	.....	.....
31	1.44	.....	1.73	.....	2.27	.....	1.89	.....	.....	.....	.....	.....
1903.												
1	.....	.....	.....	.....	.....	1.05	.80	.98	0.80	0.90	1.20	1.20
2	.....	.....	.....	.....	.....	1.05	.80	1.30	.80	.90	1.15	1.20
3	.....	.....	.....	.....	.....	1.05	.80	1.10	.80	.90	1.15	1.15
4	.....	.....	.....	.....	.....	1.05	.85	1.00	.80	1.00	1.15	1.05
5	.....	.....	.....	.....	.....	1.05	.90	.95	.80	.90	1.10	1.10
6	.....	.....	.....	.....	.....	1.05	.80	.90	.80	.90	1.15	1.10
7	.....	.....	.....	.....	.....	1.20	.80	.90	.80	.90	1.10	1.20
8	.....	.....	.....	.....	.....	1.20	.80	.90	.80	1.00	1.15	1.30
9	.....	.....	.....	.....	.....	1.20	.80	.85	(a)	1.00	1.15	1.30
10	.....	.....	.....	.....	.....	1.20	.80	1.00	(a)	1.00	1.15	1.40
11	.....	.....	.....	.....	.....	1.20	.80	.85	(a)	1.00	1.15	1.30
12	.....	.....	.....	.....	.....	1.15	.95	.80	(a)	1.00	1.20	1.10
13	.....	.....	.....	.....	.....	1.10	1.00	.80	(a)	1.00	1.15	1.15
14	.....	.....	.....	.....	.....	1.05	.80	1.00	.85	1.05	1.15	1.25
15	.....	.....	.....	.....	.....	1.05	1.00	1.00	.85	1.05	1.15	1.30
16	.....	.....	.....	.....	.....	1.00	1.00	1.10	.85	1.00	1.10	1.30
17	.....	.....	.....	.....	.....	1.00	.95	1.00	.85	1.05	1.20	1.40
18	.....	.....	.....	.....	.....	1.00	.90	1.00	.85	1.05	1.20	1.40
19	.....	.....	.....	.....	.....	1.00	.90	1.00	.85	1.05	1.10	1.40
20	.....	.....	.....	.....	1.15	.95	.95	1.00	.85	1.00	1.15	1.45
21	.....	.....	.....	.....	1.15	.95	.90	.90	.85	1.05	1.10	1.40
22	.....	.....	.....	.....	1.10	.90	.90	.90	.85	1.05	1.30	1.35
23	.....	.....	.....	.....	1.10	.90	.85	.85	.85	1.05	1.40	1.25
24	.....	.....	.....	.....	1.10	.90	.80	.80	.90	1.10	1.30	1.70
25	.....	.....	.....	.....	1.05	.90	.80	.85	.90	1.10	1.20	1.70
26	.....	.....	.....	.....	1.15	.90	.80	.80	.80	1.10	1.20	1.40
27	.....	.....	.....	.....	1.05	.85	.80	.80	.90	1.10	1.25	1.40
28	.....	.....	.....	.....	1.05	.80	.80	.80	.90	1.10	1.25	1.50
29	.....	.....	.....	.....	1.00	.80	.80	.80	.90	1.10	1.20	1.50
30	.....	.....	.....	.....	1.05	.80	.80	.80	.90	1.10	1.10	1.40
31	.....	.....	.....	.....	1.10	.....	.80	.80	.....	1.10	.....	1.40
1904.												
1	1.30	.....	1.35	1.20	1.50	1.50	1.35	1.00	1.05	1.30	1.50	1.30
2	1.50	.....	1.40	1.15	1.55	1.55	1.40	1.50	1.05	1.25	1.50	1.30
3	1.40	.....	1.30	1.20	1.50	1.60	1.50	1.00	1.05	1.25	1.50	1.30
4	1.30	.....	1.40	1.20	1.50	1.40	1.55	1.20	1.00	1.30	1.50	.....
5	1.30	.....	1.55	1.20	1.70	1.60	1.40	1.10	1.00	1.30	1.50	.....

[a] On June 21 a new gage rod was erected to replace the one washed out June 1.

Mean daily gage height, in feet, of South Fork of Republican River near Benkelman, 1894–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.												
6	1.40	.....	1.50	1.20	1.50	1.55	1.50	.....	1.00	1.25	1.50	.....
7	1.40	.....	1.35	1.00	1.50	1.50	1.30	.....	1.00	1.30	1.50	1.32
8	1.40	.....	1.40	.....	1.50	1.45	.....	1.00	1.00	1.40	1.45	.....
9	1.40	.....	1.40	1.00	1.40	1.60	1.60	1.50	1.00	1.30	.....	.....
10	1.40	.....	1.40	1.05	1.45	1.75	1.55	1.40	1.00	1.40	1.40	.....
11	1.55	.....	1.30	1.10	1.40	2.15	1.50	1.30	1.00	1.40	1.50	.....
12	1.60	.....	1.40	1.10	1.35	1.80	1.20	1.10	1.00	1.30	1.50	.....
13	1.40	.....	1.40	1.15	1.40	1.80	1.30	1.10	1.00	1.30	1.50	.....
14	1.30	.....	1.40	1.00	1.40	1.80	1.30	1.10	1.00	1.25	1.50	.....
15	1.40	.....	1.40	.95	1.40	1.80	1.10	1.10	1.00	1.25	1.45	.....
16	1.40	.....	1.40	1.00	1.40	1.60	1.10	1.10	.....	1.25	1.45	.....
17	1.45	.....	1.40	.95	1.40	1.80	1.05	1.05	1.00	1.30	1.50	.....
18	1.50	.....	1.40	.90	1.40	1.80	1.00	1.10	.85	.....	1.45	.....
19	1.40	.....	1.40	.95	1.40	2.30	1.05	1.10	.85	1.70	1.45	.....
20	1.50	.....	1.40	.95	1.30	1.30	1.10	1.00	.85	1.70	1.45	.....
21	1.40	.....	1.40	.95	1.40	1.50	.90	.....	.85	1.60	1.45	.....
22	1.40	.....	1.40	1.05	1.50	1.55	.90	1.15	.85	1.50	1.50	.....
23	1.35	.....	1.30	1.00	1.50	1.70	.90	1.10	.85	1.50	1.40	.....
24	.....	.....	1.25	.....	2.00	2.00	1.10	1.05	.85	1.50	1.45	.....
25	.....	.....	1.30	1.20	1.70	1.45	1.10	1.05	1.00	1.35	1.45	.....
26	.....	.....	1.20	1.20	1.60	1.45	1.00	1.05	1.00	1.40	1.45	.....
27	.....	.....	1.25	1.30	1.80	1.40	.80	1.05	1.00	1.35	1.45	.....
28	.....	1.40	1.35	1.20	1.60	1.40	.80	1.05	.....	1.50	.....	.....
29	.....	1.40	1.30	1.20	1.50	1.30	.80	1.05	1.30	1.50	.....	.....
30	.....	.....	1.25	1.40	1.50	1.30	.85	1.05	1.30	1.55	1.40	.....
31	.....	.....	1.25	.....	1.45	.....	.85	1.05	.....	1.50	.....	.....
1905.												
1	.....	.....	.....	1.85	1.7	1.65	1.6	1.6	.....	.....	.....	.....
2	.....	.....	.....	1.9	1.65	1.55	1.55	1.5	.....	.....	.....	.....
3	.....	.....	.....	2.05	1.65	1.5	1.6	1.5	.....	.....	.....	.....
4	.....	.....	.....	1.95	1.7	1.45	1.5	1.5	.....	.....	.....	.....
5	.....	.....	.....	1.9	1.7	1.35	1.4	1.4	1.35	.....	.....	.....
6	.....	.....	.....	1.8	1.6	1.35	1.4	1.35	.....	.....	.....	.....
7	.....	.....	.....	1.75	1.6	1.3	1.4	1.3	.....	.....	.....	.....
8	.....	.....	.....	1.75	1.6	1.25	1.35	1.25	.....	.....	.....	.....
9	.....	.....	.....	1.75	1.65	1.35	1.35	1.25	.....	.....	.....	.....
10	.....	.....	.....	1.75	1.7	1.85	1.25	1.2	1.45	.....	.....	.....
11	.....	.....	.....	1.75	1.7	1.6	1.2	1.25	.....	.....	.....	.....
12	.....	.....	.....	1.55	1.7	1.55	1.2	1.25	.....	.....	.....	.....
13	.....	.....	.....	1.5	1.5	1.35	1.15	1.3	.....	.....	.....	.....
14	.....	.....	.....	1.4	1.55	1.35	1.1	.....	.....	.....	.....	.....
15	.....	.....	.....	1.4	1.55	1.3	1.0	.....	.....	.....	.....	.....
16	.....	.....	.....	1.4	1.55	1.35	1.1	.....	.....	.....	.....	.....
17	.....	.....	2.1	1.5	1.5	2.2	1.0	.....	.....	.....	.....	.....
18	.....	.....	1.95	1.45	1.45	1.7	1.1	1.55	.....	.....	.....	.....
19	.....	.....	2.1	1.45	1.6	1.6	1.0	.....	1.5	.....	.....	.....
20	.....	.....	1.95	1.55	1.7	1.55	1.0	.....	1.5	.....	.....	.....
21	.....	.....	1.85	1.6	1.4	1.2	1.1	.....	.....	.....	.....	.....
22	.....	.....	1.8	1.5	1.75	1.55	1.15	.....	.....	.....	.....	.....
23	.....	.....	1.8	1.8	1.45	1.45	1.1	.....	.....	.....	.....	.....
24	.....	.....	1.8	2.1	1.45	1.45	1.1	.....	.....	.....	.....	.....
25	.....	.....	1.75	2.25	1.45	1.35	1.1	.....	.....	1.35	.....	.....
26	.....	.....	1.7	2.05	1.65	1.35	1.1	.....	.....	1.35	.....	.....
27	.....	.....	1.6	2.05	1.65	1.35	1.05	.....	.....	1.4	.....	.....
28	.....	.....	1.7	2.0	1.6	1.25	1.1	.....	.....	1.45	.....	.....
29	.....	.....	1.7	1.8	1.75	1.25	1.2	.....	.....	1.5	.....	.....
30	.....	.....	1.7	1.75	1.65	1.25	1.8	.....	.....	1.55	.....	.....
31	.....	.....	1.78	.....	1.75	.....	1.7	.....	.....	1.6	.....	.....
1906.												
1	.....	.....	.....	1.75	2.00	1.40	.95	1.00	.90	1.00	1.45	.....
2	.....	.....	.....	1.70	1.95	1.40	.95	1.00	.90	1.00	1.50	.....
3	.....	.....	.....	1.70	1.95	1.35	.95	1.00	.90	1.00	1.50	.....
4	.....	.....	.....	1.70	1.95	1.30	.....	1.00	.90	1.00	1.50	.....
5	.....	.....	.....	1.60	1.90	1.25	.95	1.00	.90	1.00	.....	.....
6	.....	.....	.....	1.60	1.80	1.20	.95	1.00	.90	1.00	1.50	.....
7	.....	.....	.....	1.65	1.70	1.15	.95	1.00	.95	.95	1.45	.....
8	.....	.....	.....	1.60	1.70	1.10	.95	1.00	.95	1.00	1.45	.....
9	.....	.....	.....	1.60	1.70	1.05	.95	1.00	.95	.95	.....	.....
10	.....	.....	.....	1.55	1.60	1.05	.95	1.00	.95	1.00	1.50	.....

Mean daily gage height, in feet, of South Fork of Republican River near Benkelman, 1894–1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1906.												
11	.....	.....	.....	.....	1.50	1.00	0.95	1.00	0.95	1.00	1.50	.....
12	.....	.....	.....	.....	1.50	1.00	.95	.90	.90	1.00	1.40	.....
13	.....	.....	.....	1.60	1.50	1.00	.....	.90	.90	.....	.....	.....
14	.....	.....	.....	1.60	1.50	1.00	.95	.90	.....	.....	1.45	.....
15	.....	.....	.....	1.60	1.50	1.00	.95	.90	.....	1.00	1.45	.....
16	.....	.....	.....	1.50	1.50	.....	.95	.90	.95	1.20	1.45	.....
17	.....	.....	.....	.....	1.45	1.00	.95	.90	.95	1.20	1.50	.....
18	.....	.....	.....	1.60	1.40	1.00	.90	.90	1.00	1.20	1.50	.....
19	.....	.....	.....	1.60	.....	1.00	.90	.90	1.00	1.25	.....	.....
20	.....	.....	.....	1.70	.....	1.00	.90	1.00	1.00	1.25	.....	.....
21	.....	.....	.....	1.70	1.50	.95	.90	.90	.95	.....	.....	.....
22	.....	.....	.....	1.70	1.45	.....	.90	.90	1.00	.....	.....	.....
23	.....	.....	.....	1.65	.....	1.00	.90	.....	.95	1.60	1.60	.....
24	.....	.....	.....	1.65	1.60	1.00	.90	1.00	1.00	1.50	1.50	.....
25	.....	.....	.....	1.70	1.60	1.00	.90	.....	1.00	1.60	1.50	.....
26	.....	.....	.....	1.60	1.50	.....	.....	.....	1.00	.....	1.55	.....
27	.....	.....	.....	2.30	1.50	.....	1.90	.95	1.00	1.60	1.55	.....
28	.....	.....	.....	2.30	1.50	.....	1.20	.95	1.00	1.55	.....	.....
29	.....	.....	.....	2.20	1.45	1.00	.....	.90	1.00	1.55	1.55	.....
30	.....	.....	.....	.....	1.40	.95	.....	.90	.95	1.55	1.50	.....
31	.....	.....	.....	.....	1.40	.....	1.10	.95	.....	1.50	.....	.....

Mean daily discharge, in second-feet, of South Fork of Republican River near Benkelman, 1903–1906.

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1903.								1903.							
1	.....	43	7	36	7	22	65	17	.....	36	29	36	15	43	65
2	.....	43	7	79	7	22	57	18	.....	36	22	36	15	43	65
3	.....	43	7	50	7	22	57	19	.....	36	22	36	15	43	50
4	.....	43	15	36	7	36	57	20	57	29	29	36	15	36	57
5	.....	43	22	29	7	22	50	21	57	29	22	22	15	43	.....
6	.....	43	7	22	7	22	57	22	50	22	22	22	15	43	.....
7	.....	65	7	22	7	22	50	23	50	22	15	15	15	43	.....
8	.....	65	7	22	7	36	57	24	50	22	7	7	22	50	.....
9	.....	65	7	15	.....	36	57	25	43	22	7	15	22	50	.....
10	.....	65	7	36	.....	36	57	26	57	22	7	7	7	50	.....
11	.....	65	7	15	.....	36	57	27	43	15	7	7	22	50	.....
12	.....	57	29	7	.....	36	65	28	43	7	7	7	22	50	.....
13	.....	50	36	7	.....	36	57	29	36	7	7	7	22	50	.....
14	.....	43	7	36	15	43	57	30	43	7	7	7	22	50	.....
15	.....	43	36	36	15	43	57	31	50	.....	7	7	.....	50	.....
16	.....	36	36	50	15	36	50								

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.										
1	57	31	89	89	57	11	15	47	66	31
2	66	25	102	102	66	89	15	39	66	31
3	47	31	89	115	89	11	15	39	66	31
4	66	31	89	66	102	31	11	47	66	.....
5	102	31	145	115	66	19	11	47	66	.....
6	89	31	89	102	89	16	11	39	66	.....
7	57	11	89	89	47	14	11	47	66	32
8	89	11	89	78	81	11	11	66	57	.....
9	66	11	66	115	115	89	11	47	52	.....
10	66	15	78	161	102	66	11	66	47	.....
11	47	19	66	323	89	47	11	66	66	.....
12	66	19	57	178	31	19	11	47	66	.....
13	66	15	66	178	47	19	11	47	66	.....
14	66	11	66	178	47	19	11	39	66	.....
15	66	8	66	178	19	19	11	39	57	.....
16	66	11	66	115	19	19	11	39	57	.....
17	66	8	66	178	15	15	11	31	66	.....
18	66	6	66	178	11	19	5	73	57	.....
19	66	8	66	397	15	19	5	115	57	.....
20	66	8	47	47	11	11	5	115	57	.....

Mean daily discharge, in second-feet, of South Fork of Republican River near Benkelman, 1903–1906—Continued.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.										
21	66	8	66	89	6	18	5	89	57	.....
22	66	15	89	102	6	25	5	66	66	.....
23	47	11	89	145	6	19	5	66	47	.....
24	39	21	255	255	19	15	5	66	57	.....
25	47	31	145	78	19	15	11	39	57	.....
26	31	31	115	78	19	15	11	47	57	.....
27	39	47	178	66	5	15	11	39	57	.....
28	57	31	115	66	5	15	29	66	54	.....
29	47	31	89	47	5	15	47	66	50	.....
30	39	66	89	47	5	15	47	78	47	.....
31	39	.....	78	.....	5	15	.....	66	.....	.....

Day.	April.	May.	June.	July.	August.
1905.					
1	167	123	109	96	96
2	183	109	84	84	73
3	232	109	73	96	73
4	199	123	62	73	73
5	183	123	43	52	52
6	152	96	43	52	43
7	137	96	35	52	35
8	137	96	28	43	28
9	137	109	43	35	28
10	137	123	167	28	21
11	137	123	96	21	28
12	84	123	84	21	35
13	73	73	43	15	35
14	52	84	43	10	.....
15	52	84	35	5	.....
16	52	84	43	10	.....

Day.	March.	April.	May.	June.	July.
1905.					
17	249	73	73	283	5
18	199	62	62	123	10
19	249	62	96	96	5
20	199	84	123	84	5
21	167	96	52	21	10
22	152	73	137	84	15
23	152	152	62	62	10
24	152	249	62	62	10
25	137	300	62	43	10
26	123	232	109	43	10
27	96	232	109	43	7
28	123	215	96	28	10
29	123	152	137	28	21
30	123	137	109	28	152
31	140	.....	137	.....	123

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1906.								
1	137	215	52	0	0	0	0	42
2	123	199	52	0	0	0	0	48
3	123	199	43	0	0	0	0	48
4	123	199	35	0	0	0	0	48
5	96	183	28	0	0	0	0	48
6	96	152	21	0	0	0	0	48
7	109	123	15	0	0	0	0	42
8	96	123	10	0	0	0	0	42
9	96	123	5	0	0	0	0	45
10	84	96	5	0	0	0	0	48
11	88	73	.5	0	0	0	0	48
12	92	73	.5	0	0	0	0	36
13	96	73	.5	0	0	0	0	39
14	96	73	.5	0	0	0	0	42
15	96	73	.5	0	0	0	0	42
16	73	73	.5	0	0	0	17	42
17	84	62	.5	0	0	0	17	48
18	96	52	.5	0	0	0	17	48
19	96	62	.5	0	0	0	21	50
20	123	62	.5	0	0	0	21	53
21	123	73	0	0	0	0	34	55
22	123	62	0	0	0	0	47	58
23	109	79	0	0	0	0	61	61
24	109	96	0	0	0	0	48	48
25	123	96	0	0	0	0	61	48
26	96	73	0	92	0	0	61	54
27	317	73	0	183	0	0	61	54
28	317	73	0	21	0	0	54	54
29	283	62	0	18	0	0	54	54
30	249	52	0	14	0	0	54	48
31	.....	52	.....	10	0	.....	48	.....

Estimated monthly discharge of South Fork of Republican River near Benkelman, 1903–1906.

[Drainage area, 5,910 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
March.								
1904	102	31	60	3,690	0.011	0.01	4.0	0.25
1905 [a]	249	96	159	4,730				2.77
April.								
1904	66	6	21	1,260	.004	.004	.1	4.00
1905	300	52	141	8,390	.024	.03	.8	3.72
1906	317	73	129	7,680	.022	.02	.5	3.72
May.								
1903 [b]	57	36	48	1,140				1.00
1904	255	47	92	5,680	.016	.02	.5	4.26
1905	137	52	100	6,150	.017	.02	.6	3.22
1906	215	52	99	6,100	.017	.02	2.1	.95
June.								
1903	65	7	37	2,200	.006	.01	.5	2.10
1904	397	47	132	7,850	.022	.02	.4	4.50
1905	283	21	68	4,080	.012	.01	.3	3.57
1906	52	0	9	537	.002	.002	.1	1.44
July.								
1903	36	7	15	922	.002	.002	.1	2.65
1904	115	5	39	2,420	.007	.01	.6	1.65
1905	152	5	35	2,180	.006	.01	.3	3.89
1906	183	0	10.9	670	.002	.002	.1	3.27
August.								
1903	79	7	25	1,540	.004	.005	.2	3.12
1904	89	11	24	1,480	.004	.005	.4	1.28
1905 [c]	96	21	48	1,230				1.40
1906	0	0	0	0	0	0	0	2.36
September.								
1903 [d]	22	7	15	655				.35
1904	47	5	13	774	.002	.002	2.0	.10
1906	0	0	0	0	0	0	0	2.36
October.								
1903	50	22	39	2,400	.006	.01	10.0	.10
1904	66	47	59	3,530	.010	.01	.9	1.07
1906	61	0	21.8	1,340	.004	.004	.3	1.23
November.								
1903 [e]	65	50	57	2,260				.36
1904	66	47	59	3,530	.010	.01		0
1906	61	36	48	2,860	.081	.01	3.0	.33

[a] March 17 to 31.
[b] May 20 to 31.
[c] August 1 to 13.
[d] September 1 to 8 and 14 to 30.
[e] November 1 to 20.

FRENCHMAN RIVER AT WAUNETA.

A station established about 100 yards below Wauneta mill and Wauneta Falls, August 8, 1895, was maintained until September 26, 1896.

The bed of the stream at this point is composed of sand and silt, and is continually shifting.

Measurements were made from a highway bridge or by wading.

The gage was a vertical staff attached to the upright piling of the south bent of the bridge. It was referred to bench marks, as follows: (1) The stone doorstep of a concrete house below the gage on the

right bank; elevation, 20.99 feet above the zero of the gage. (2) The top of a stake at the northwest corner of the lot in which the concrete house stands; elevation, 20.33 feet above the zero of the gage.

The estimates of discharge are not as satisfactory as could be desired, owing to the changeable character of the bed and banks.

Discharge measurements of Frenchman River at Wauneta, 1895–96.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1895.		*Feet.*	*Sec.-ft.*	1896.		*Feet.*	*Sec.-ft.*
August 9	O. V. P. Stout	1.40	61	May 15	C. E. Crownover	2.20	85
September 10	do	.92	56	June 18	O. V. P. Stout	1.84	48
				July 14	E. T. Youngfeldt	2.15	91
				August 12	O. V. P. Stout	1.90	46
				September 16	E. T. Youngfeldt	2.07	85
				October 17	C. E. Crownover	2.00	62

Mean daily gage height, in feet, of Frenchman River at Wauneta, 1895–96.

Day.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Aug.	Sept.	Oct.	Nov.	Dec.
1895.						1895.					
1		0.82	1.14	1.06	1.04	17	1.28	0.94	1.08	1.06	1.10
2		.84	1.12	1.06	1.08	18	1.22	.96	1.08	1.06	1.10
3		.84	1.12	1.06	1.06	19	1.20	1.00	1.08	1.06	1.10
4		.84	1.16	1.06	1.08	20	1.16	.98	1.08	1.06	1.10
5		.84	1.16	1.06	1.12	21	1.14	.98	1.10	1.06	1.10
6		1.88	1.22	1.06	1.16	22	1.12	1.00	1.08	1.06	1.10
7		.90	1.20	1.06	1.16	23	1.10	1.04	1.08	1.06	1.10
8		.92	1.18	1.06	1.24	24	1.10	1.10	1.08	1.06	1.10
9		.92	1.16	1.06	1.28	25	1.08	1.10	1.08	1.08	1.10
10		.92	1.16	1.06	1.16	26	1.08	1.08	1.08	1.10	1.16
11	1.68	.92	1.14	1.06	1.12	27	1.10	1.08	1.06	1.32	1.16
12	1.66	.92	1.14	1.06	1.12	28	1.14	1.08	1.06	1.24	1.16
13	1.42	.94	1.12	1.06	1.12	29	1.16	1.14	1.06	1.16	1.12
14	1.40	1.94	1.12	1.06	1.12	30	1.16	1.16	1.06	1.08	1.10
15	1.36	.94	1.12	1.06	1.12	31	1.18		1.06		1.10
16	1.30	.94	1.10	1.06	1.12						

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1896.									
1	1.10	1.16	1.12	1.16	2.00	1.16			1.08
2	1.08	1.16	1.12	1.14	1.18	1.14			1.08
3	1.08	1.16	1.14	1.12	1.16	1.14			1.07
4	1.08	1.14	1.14	1.12	1.16	1.14			1.07
5	1.12	1.14	1.16	1.12	1.18	1.12			1.07
6	1.16	1.16	1.16	1.14	1.18	1.12			1.08
7	1.16	1.14	1.16	1.14	1.16	1.12			1.08
8	1.16	1.16	1.16	1.14	1.16	1.12			1.07
9	1.16	1.14	1.14	1.12	1.16	1.10			1.08
10	1.16	1.16	1.14	1.12	1.14	1.10			1.09
11	1.16	1.16	1.14	1.12	1.14	1.08			1.09
12	1.16	1.16	1.12	1.12	1.14	1.08			2.00
13	1.16	1.16	1.12	1.12	1.14	1.04			2.01
14	1.14	1.16	1.00	1.12	1.12	0	2.16		2.01
15	1.14	1.16	1.14	1.14	1.12	.10			2.02
16	1.12	1.16	1.14	1.14	1.12	.12		2.00	2.02
17	1.12	1.16	1.12	1.16	1.12	.14		2.00	2.02
18	1.12	1.12	1.12	1.16	1.12	.16		1.09	2.01
19	1.12	1.12	1.12	1.16	1.10	.16		2.02	2.02
20	1.16	1.14	1.12	1.16	1.10	.08		2.00	2.02
21	1.16	1.14	1.12	1.16	1.12	.16		1.09	2.01
22	1.16	1.16	1.14	1.16	1.12	1.14		1.09	2.01
23	1.14	1.16	1.14	1.14	1.12	1.16		1.08	2.01
24	1.12	1.16	1.14	1.14	1.12	1.16		1.08	2.01
25	1.12	1.16	1.12	1.14	1.12	1.14		1.09	2.01

Mean daily gage height, in feet, of Frenchman River at Wauneta, 1895–96—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1896.									
26	1.14	1.14	1.12	1.14	1.12	1.14	.....	1.09	2.02
27	1.14	1.12	1.14	1.12	1.12	.....	.....	1.08	.....
28	1.14	1.12	1.14	1.12	1.10	.....	.....	1.08	.....
29	1.14	1.12	1.14	1.18	1.10	.....	.....	1.07	.....
30	1.14	.....	1.16	2.00	1.12	.....	.....	1.09	.....
31	1.16	.....	1.16	.....	1.18	.....	.....	1.09	.....

Mean daily discharge, in second-feet, of Frenchman River at Wauneta, 1896.

Day.	Aug.	Sept.	Day.	Aug.	Sept.	Day.	Aug.	Sept.	Day.	Aug.	Sept.
1	.....	86	9	.....	86	17	68	73	25	88	7)
2	.....	86	10	.....	88	18	88	71	26	88	73
3	.....	84	11	.....	88	19	73	73	27	86	.....
4	.....	84	12	.....	68	20	68	73	28	86	.....
5	.....	84	13	.....	71	21	88	71	29	84	.....
6	.....	86	14	.....	71	22	88	71	30	88	.....
7	.....	86	15	.....	73	23	86	71	31	88	.....
8	.....	84	16	68	73	24	86	71			

FRENCHMAN RIVER AT PALISADE.

A station established just above the Burlington and Missouri River Railroad bridge at Palisade, October 14, 1894, was maintained until September 28, 1896.

The bed of the stream at this point is composed of loose, shifting sand, and reliable estimates of daily discharge can not be made without considerable expense.

Discharge measurements were made from the railroad bridge or by wading.

The gage was an inclined staff on the right bank immediately above the railroad bridge. The bench mark was the top of the second thread on the bottom of the east side of the north pile of the second bent from the right end of the bridge; elevation, 7.89 feet above the zero of the gage.

During the season of 1896 special effort was made to obtain sufficient data to afford reliable estimates of the daily discharge. Two supplementary gages were installed and the observer was instructed to make frequent soundings. The upstream gage was 325 feet above the main gage and the downstream gage 300 feet below the main gage. It was thus possible to obtain slopes of the water surface at the time of making soundings and current-meter measurements, and the resulting estimates are fairly reliable. The fall of the water table so obtained in a distance of 625 feet is shown in a table following. The gage heights are those observed on the main gage.

Heights on supplementary gages, Frenchman River at Palisade, 1896.

[Referred to original zero of main gage.]

Day.	Downstream gage.	Upstream gage.	Difference.	Day.	Downstream gage.	Upstream gage.	Difference.	Day.	Downstream gage.	Upstream gage.	Difference.
June 18	1.85	1.11	0.74	July 16	1.99	1.21	0.78	Aug. 25	1.87	1.08	0.79
June 23	2.11	1.35	.76	July 18	1.91	1.13	.78	Aug. 28	1.87	1.06	.81
June 25	2.10	1.35	.75	July 21	1.89	1.11	.78	Aug. 31	1.87	1.09	.78
June 27	2.06	1.34	.72	July 23	1.89	1.13	.76	Sept. 4	1.83	1.17	.66
July 1	2.14	1.40	.74	July 25	1.87	1.12	.75	Sept. 9	1.89	1.13	.76
July 3	2.13	1.39	.74	July 28	1.89	1.13	.76	Sept. 12	1.84	1.10	.74
July 5	2.13	1.38	.74	July 30	1.89	1.15	.74	Sept. 14	1.99	1.17	.82
July 7	2.03	1.27	.76	Aug. 1	1.89	1.14	.75	Sept. 20	1.98	1.19	.79
July 9	1.97	1.15	.82	Aug. 4	1.89	1.13	.76	Sept. 29	2.00	1.23	.77
July 11	1.94	1.17	.77	Aug. 6	1.89	1.13	.76				
July 14	1.96	1.19	.77	Aug. 8	1.88	1.12	.76				

Discharge measurements of Frenchman River at Palisade, 1894–1896.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1894.		*Feet.*	*Sec.-ft.*	1896.		*Feet.*	*Sec.-ft.*
December 8	O. V. P. Stout	1.87	116	May 15	C. E. Crownover	1.55	103
				June 18	O. V. P. Stout	1.35	50
1895.				July 15	E. T. Youngfeldt	1.46	93
March 22	do	1.52	100	August 13	O. V. P. Stout	1.36	64
June 5	do	1.76	154	September 16	E. T. Youngfeldt	1.51	85
July 4	do	1.61	74	October 17	C. E. Crownover	1.50	82
August 9	do	1.50	68				
August 10	do	1.50	72				

Mean daily gage height, in feet, of Frenchman River at Palisade, 1894–1896.

Day.	Oct.	Nov.	Dec.	Day.	Oct.	Nov.	Dec.	Day.	Oct.	Nov.	Dec.
1894.				1894.				1894.			
1	.....	1.86	1.78	12	.....	1.82	1.84	23	1.81	1.84	1.73
2	.....	1.85	1.80	13	.....	1.80	1.85	24	1.84	1.85	1.73
3	.....	1.84	1.82	14	1.82	1.82	2.28	25	1.85	1.81	1.72
4	.....	1.85	1.84	15	1.83	1.81	1.90	26	1.85	1.80	2.22
5	.....	1.85	1.81	16	1.85	1.85	1.88	27	1.86	1.81	2.18
6	.....	1.83	1.80	17	1.84	1.81	1.80	28	1.90	1.81	1.89
7	.....	1.82	1.81	18	1.85	1.83	1.77	29	1.89	1.83	2.13
8	.....	1.83	1.83	19	1.82	1.85	1.79	30	1.89	1.85	2.20
9	.....	1.83	1.83	20	1.81	1.81	1.72	31	1.88	.....	2.25
10	.....	1.81	1.84	21	1.80	1.83	1.71				
11	.....	1.81	1.83	22	1.82	1.83	1.75				

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1895.											
1	2.31	2.50	1.60	1.55	1.63	1.75	1.65	1.55	1.49	1.60	.....
2	2.35	2.58	1.58	1.59	1.72	1.90	1.65	1.58	1.49	.....	1.64
3	2.38	2.58	1.55	1.58	1.63	1.80	1.63	1.63	1.50	.....	.....
4	2.40	2.59	1.60	1.59	1.66	1.70	1.61	1.60	1.51	.....	.....
5	2.42	2.60	1.60	1.60	1.66	1.72	1.60	1.55	1.52	1.61	1.60
6	2.36	2.55	1.60	1.70	1.73	1.75	1.60	1.55	1.50	.....	.....
7	2.38	2.50	1.55	1.75	1.70	1.73	1.81	1.55	1.50	.....	.....
8	2.40	2.45	1.52	1.75	1.68	1.68	1.75	1.53	1.50	1.62	.....
9	2.42	2.50	1.53	1.77	1.67	1.68	1.57	1.55	1.50	.....	1.60
10	2.45	2.62	1.53	1.75	1.65	1.70	1.60	1.50	1.50	.....	.....
11	2.45	2.72	1.55	1.74	1.65	1.93	1.65	1.51	1.51	.....	.....
12	2.46	2.82	1.53	1.73	1.66	1.72	1.65	1.50	1.50	1.62	1.60
13	2.42	2.83	1.54	1.74	1.66	1.68	1.65	2.05	1.49	.....	.....
14	2.48	2.84	2.00	1.73	1.66	1.67	2.69	1.90	1.50	.....	.....
15	2.48	2.85	1.90	1.72	1.64	1.67	1.95	1.55	1.50	1.62	.....

Mean daily gage height, in feet, of Frenchman River at Palisade, 1894–1896—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
1895.											
16	2.48	2.89	1.94	1.72	1.63	1.68	1.85	1.55	1.50	.....	1.60
17	2.50	2.90	1.72	1.71	1.64	1.70	1.75	1.55	1.51	.....	.....
18	2.50	2.90	1.60	1.72	1.64	1.68	1.70	1.54	1.53	.....	.....
19	2.48	2.90	1.56	1.72	1.65	1.67	1.66	1.52	1.52	1.63	1.60
20	2.45	2.90	1.56	1.74	1.68	1.65	1.63	1.52	1.53	.....	.....
21	2.33	2.95	1.55	1.75	1.66	1.68	1.64	1.47	1.55	.....	.....
22	2.26	2.95	1.55	1.77	1.64	1.66	2.56	1.48	1.56	1.65	.....
23	2.20	2.94	1.52	1.70	1.64	1.65	2.45	1.50	1.57	.....	2.00
24	1.93	2.92	1.52	1.68	1.64	1.63	1.87	1.50	1.58	.....	.....
25	1.98	2.75	1.51	1.70	1.66	1.64	1.80	1.50	1.57	.....	.....
26	1.90	2.68	1.50	1.68	1.60	1.60	1.72	1.51	1.57	1.68	2.20
27	2.08	1.58	1.52	1.62	1.60	1.57	1.70	1.50	1.55	.....	.....
28	2.30	1.58	1.52	1.62	1.62	1.62	1.55	1.65	1.50	1.56	.....
29	2.28	.....	1.53	1.60	1.57	1.59	1.61	1.49	1.58	1.66	.....
30	2.35	.....	1.52	1.66	1.62	1.63	1.60	1.50	1.59	.....	1.90
31	2.43	.....	1.53	1.78	.....	.....	1.57	1.50	.....	.....	.....
1896.											
1	.....	.....	.....	1.63	1.86	1.55	1.70	1.42	1.48	1.48	1.65
2	.....	.....	.....	1.63	1.75	1.54	1.70	1.41	1.46	1.50	1.58
3	.....	.....	.....	1.63	1.75	1.54	1.68	1.40	1.46	1.52	1.58
4	.....	.....	.....	1.64	1.73	1.55	1.69	1.40	1.50	1.54	1.56
5	.....	.....	.....	1.64	1.75	1.53	1.67	1.40	1.45	1.54	1.56
6	.....	.....	.....	1.65	1.69	1.53	1.64	1.39	1.48	1.53	1.58
7	.....	.....	.....	1.64	1.67	1.51	1.60	1.40	1.50	1.50	1 60
8	.....	.....	.....	1.64	1.64	1.50	1.52	1.39	1.45	1.48	1.65
9	.....	.....	.....	1.65	1.64	1.50	1.46	1.39	1.45	1.48	1.65
10	.....	.....	.....	1.66	1.64	1.50	1.44	1.38	1.48	1.45	1.63
11	.....	.....	.....	1.65	1.65	1.49	1.43	1.37	1.48	1.45	1.65
12	.....	.....	.....	1.65	1.58	1.48	1.43	1.36	1.45	1.48	1.63
13	.....	.....	.....	1.61	1.55	1.48	1.44	1.36	1.50	1.48	1.60
14	.....	.....	.....	1.63	1.55	1.46	1.45	1.35	1.50	1.45	1.60
15	.....	.....	.....	1.63	1.54	1.44	1.46	1.36	1.50	1.48	1.60
16	.....	.....	.....	1.62	1.65	1.42	1.80	1.36	1.48	1.50	1.58
17	.....	.....	.....	1.73	1.63	1.41	1.47	1.50	1.50	1.50	1.58
18	.....	.....	.....	1.69	1.64	1.34	1.46	1.48	1.50	1.50	1.68
19	.....	.....	.....	1.65	1.62	1.35	1.45	1.46	1.48	1.53	1.63
20	.....	.....	.....	1.67	1.60	1.36	1.45	1.48	1.48	1.52	1.65
21	.....	.....	.....	1.66	1.56	1.48	1.44	1.51	1.48	1.52	1.65
22	.....	.....	.....	1.67	1.58	1.44	1.43	1.56	1.50	1.50	1.65
23	.....	.....	.....	1.67	1.61	1.80	1.44	1.50	1.48	1.50	1.65
24	.....	.....	.....	1.63	1.60	1.62	1.45	1.48	1.50	1.50	1.63
25	.....	.....	.....	1.64	1.58	1.67	1.45	1.50	1.50	1.48	1.63
26	.....	.....	.....	1.64	1.58	1.68	1.46	1.50	1.54	1.48	1.63
27	.....	.....	.....	1.65	1.58	1.66	1.47	1.48	1.50	1.45	1.60
28	.....	.....	.....	1.65	1.58	1.55	1.46	1.45	1.50	1.45	1.65
29	.....	.....	.....	1.68	1.58	1.56	1.45	1.42	1.50	1.48	.....
30	.....	.....	.....	1.70	1.55	3.00	1.44	1.48	1.48	1.65	.....
31	.....	.....	.....	.....	1.65	.....	1.42	1.45	.....	1.64	.....

Mean daily discharge, in second-feet, of Frenchman River at Palisade, 1894–1896.

Day.	Oct.	Nov.	Dec.	Day.	Oct.	Nov.	Dec.	Day.	Oct.	Nov.	Dec.
1894.				1894.				1894.			
1	.....	113	91	11	.....	99	104	21	96	104	83
2	.....	110	96	12	.....	102	107	22	102	104	83
3	.....	107	102	13	.....	96	110	23	99	107	78
4	.....	110	107	14	102	102	110	24	107	110	78
5	.....	110	99	15	104	99	125	25	110	99	75
6	.....	104	96	16	110	110	118	26	110	96	.....
7	.....	102	99	17	107	99	96	27	113	99	.....
8	.....	104	104	18	110	104	88	28	125	96	.....
9	.....	104	104	19	102	110	93	29	122	122	.....
10	.....	99	107	20	99	99	75	30	122	110	.....
								31	118	.....	.....

Mean daily discharge, in second-feet, of Frenchman River at Palisade, 1894–1896—Cont'd.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1895.								
1	118	107	123	600	94	85	68	101
2	112	105	144	215	94	95	68	.....
3	107	112	123	171	84	130	71	.....
4	118	115	130	130	74	101	74	.....
5	118	118	130	138	69	85	77	104
6	118	140	146	150	69	85	71	.....
7	107	150	140	142	79	85	71	.....
8	100	150	134	122	142	79	71	107
9	102	156	132	122	54	85	71	.....
10	102	150	128	130	69	71	71	.....
11	107	147	128	229	94	74	74	.....
12	102	146	130	128	94	74	71	107
13	104	147	130	109	84	437	68	.....
14	104	146	130	104	580	216	71	.....
15	104	144	125	104	239	85	71	107
16	104	144	123	109	195	85	71	.....
17	104	142	125	118	154	85	74	.....
18	104	144	125	109	135	82	79	.....
19	109	146	128	104	121	77	77	111
20	109	147	134	94	111	77	79	.....
21	107	150	130	109	113	64	85	.....
22	102	156	125	99	580	66	88	117
23	100	140	125	94	513	71	91	.....
24	100	134	125	84	203	71	95	.....
25	99	140	130	89	174	71	91	.....
26	98	134	118	69	143	74	91	128
27	100	122	118	58	135	71	85	.....
28	100	122	137	50	117	71	88	.....
29	102	118	111	65	104	68	95	121
30	100	130	111	84	101	71	98	.....
31	102	.....	158	.....	91	71	.....	.....

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Day.	May.	June.	July.	Aug.	Sept.	Oct.
1896.							1896.						
1	200	92	110	79	81	81	17	112	60	93	83	83	83
2	140	89	110	76	78	83	18	113	50	90	81	83	83
3	140	89	109	75	78	86	19	110	51	89	78	81	87
4	130	89	112	75	83	89	20	107	53	89	81	81	86
5	140	86	109	74	86	89	21	100	71	86	85	81	89
6	120	85	107	72	81	87	22	103	66	85	92	83	83
7	120	82	103	74	83	83	23	105	116	86	83	81	83
8	116	79	92	71	76	81	24	104	93	86	81	83	83
9	116	79	85	71	76	81	25	100	101	86	83	83	81
10	116	78	83	69	81	76	26	100	103	87	83	89	81
11	118	76	83	66	81	76	27	98	93	87	81	83	76
12	108	74	85	64	76	81	28	98	87	86	76	83	76
13	104	74	87	64	83	81	29	97	89	85	72	83	81
14	104	69	90	62	83	76	30	92	800	82	81	81	.....
15	103	65	92	64	83	81	31	105	.....	79	76	.....	.....
16	116	61	105	64	81	83							

Estimated monthly discharge of Frenchman River at Palisade, 1894–1896.

[Drainage area, 1,030 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
1894.								
October 14-31.	125	97	109	3,890				0.30
November...	122	97	73	6,250	0.101	0.11	100	.11
December....	125	73	97	5,960	.094	.11	73	.15
1895.								
March.....	118	98	105	6,460	.102	.12	27	.45
April.....	156	107	137	8,150	.133	.15	12	1.20
May.....	158	111	129	7,930	.125	.14	7	2.09
June.....	600	50	132	7,850	.128	.14	3	4.24
July.....	580	54	158	9,720	.153	.18	5	3.96
August.....	437	64	96	5,900	.092	.11	3	3.95
September...	98	68	78	4,640	.076	.08	6	1.40
October.....	128	101	111	6,820	.108	.12	80	.15
1896.								
May.....	200	92	114	7,010	.111	.13	5	2.77
June.....	800	50	104	6,190	.100	.11	4	3.08
July.....	145	80	94	5,780	.091	.10	10	1.00
August.....	92	63	76	4,670	.073	.08	3	2.67
September...	89	76	82	4,880	.079	.09	5	1.95
October.....	89	76	82	5,040	.079	.09	5	1.80

MISCELLANEOUS MEASUREMENTS IN KANSAS RIVER BASIN.

The following discharge measurements have been made in the basin of Kansas River at points other than the regular gaging stations in Nebraska:

Miscellaneous discharge measurements in Kansas River drainage basin, 1895–1904.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Sec.-feet.
Beaver Creek.....	Geneva.....	July 23, 1901	O. V. P. Stout.....	75
Do.....	.....do.....	Aug. 30, 1901	.....do.....	86
Blue River, Big.....	Beatrice.....	Aug. 21, 1897	.....do.....	20.3
Do.....	.....do.....	July 4, 1898	.....do.....	285
Do.....	Seward[a].....	July 1, 1898	.....do.....	42.7
Do.....	.....do.....	Apr. 5, 1902	J. C. Stevens.....	50
Do.....	Milford[b].....	July 1, 1898	O. V. P. Stout.....	53.4
Do.....	Crete[b].....	July 2, 1898	.....do.....	127
Do.....	.....do.....	Apr. 18, 1902	J. C. Stevens.....	143
Do.....	.....do.....	.....do.....	.....do.....	132
Do.....	.....do.....	May 30, 1903	.....do.....	[c]13,380
Do.....	De Witt[d].....	July 2, 1898	O. V. P. Stout.....	202
Do.....	De Witt.....	June 7, 1900	.....do.....	235
Do.....	.....do.....	May 30, 1903	J. C. Stevens.....	11,300
Do.....	Blue Springs.....	June 7, 1900	O. V. P. Stout.....	262
Do.....	Wilbur.....	.....do.....	.....do.....	190
Do.....	Wymore.....	July 12, 1901	.....do.....	235
Do.....	.....do.....	Sept. 16, 1902	J. C. Stevens.....	234
Do.....	.....do.....	Sept. 11, 1903	.....do.....	567
Do.....	.....do.....	June 4, 1904	.....do.....	664
Do.....	.....do.....	June 28, 1904	.....do.....	453
Do.....	Oak.....	July 14, 1904	J. A. Green.....	517
Blue River, Little.....	Ayr.....	Aug. 23, 1900	J. C. Stevens.....	1.7
Do.....	W. line sec. 18, T. 5 N., R. 10 W.	.....do.....	.....do.....	1.6
Buffalo Creek.....	Moore's ranch.....	June 17, 1896	E. T. Youngfelt.....	7.9
Do.....	Sec. 7, T. 1 N., R. 40 W.....	Nov. 22, 1900	W. A. Channel.....	9.9
Center Creek.....	Sec. 36, T. 2 N., R. 15 W.....	June 10, 1902	H. O. Smith.....	7.6
Do.....	Sec. 7, T. 1 N., R. 5 W.....	.....do.....	.....do.....	7.7

[a] Below dam, mill not running. [b] Below mill. [c] Flood. [d] 1,000 feet below mill.

Miscellaneous discharge measurements in Kansas River drainage basin, 1895–1904—Con.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Sec.-feet.
Cook Creek	Sec. 2, T. 2 N., R. 18 W	Sept. 24, 1901	H. O. Smith	0.9
Crooked Creek	Sec. 1, T. 1 N., R 11 W	July 2, 1902	B. E. Forbes	[a] 175
Culbertson canal	Sec. 31, T. 5 N., R. 33 W	June 19, 1896	O. V. P. Stout	61
Dundy County Irrigation ditch.	Sec. 24, T. 1 N., R. 39 W	June 16, 1896	do	6.2
Flag Creek	Sec. 3, T. 2 N., R. 19 W. [b]	Sept 24, 1901	H. O. Smith	1.5
Do	Sec. 3, T. 3 N., R. 19 W. [c]	do	do	.6
Do	Sec. 15, T. 2 N., R. 19 W. [d]	do	do	.5
Flowing well	Sec. 13, T. 6 N., R. 40 W	July 24, 1901	do	.5
Frenchman River	Culbertson	Nov. 25, 1892		177
Do	do	Mar. 22, 1895	O. V. P. Stout	120
Do	do	June 19, 1896	E. T. Youngfelt	13.4
Do	do	Sept. 16, 1899	A. B. McCoskey	29.7
Do	do	Aug. 17, 1900	O. V. P. Stout	84
Do	do	July 23, 1901	H. O. Smith	62
Do	do	Apr. 25, 1902	F. Dobson	92
Do	do	Sept. 18, 1902	J. C. Stevens	66
Do	do	Aug. 5, 1903	H. O. Smith	71
Do	do	Aug. 29, 1903	do	57
Do	Wauneta	Apr. 14, 1897	Adna Dobson	128
Do	do	Sept. 19, 1899	A. B. McCoskey	63
Do	do	July 27, 1900	do	74
Do	do	June 21, 1901	H. O. Smith	113
Do	Palisade	July 2, 1897	O. V. P. Stout	63
Do	do	July 19, 1897	do	73
Do	do	July 7, 1898	Glenn E. Smith	92
Do	do	do	do	33
Do	do	May 29, 1899	H. H. Pickens	97
Do	do	Sept. 16, 1899	A. B. McCoskey	66
Do	do	July 27, 1900	do	91
Do	do	June 21, 1901	H. O. Smith	176
Do	do	June 30, 1904	J. A. Green	240
Do	Maranville	July 8, 1899	E. D. Johnson	19
Do	Enders	June 13, 1902	H. O. Smith	60
Do	Champion	June 29, 1904	J. A. Green	45
Do	Head of Krotter ditch	Aug. 5, 1903	H. O. Smith	66
Do	Sec. 33, T. 4 N., R. 32 W	June 19, 1896	O. V. P. Stout	26.3
Do	Sec. 17, T. 6 N., R. 40 W. [e]	July 9, 1899	E. D. Johnson	16.6
Do	Sec. 24, T. 6 N., R. 40 W. [f]	July 10, 1899	do	21
Do	Sec. 17, T. 6 N., R. 40 W. [g]	July 26, 1900	A. B. McCoskey	[h] 3.4
Do	Sec. 12, T. 6 N., R. 41 W. [i]	do	do	[h] 8
Do	do. [i]	Sept. 29, 1900	E. D. Johnson	6.2
Do	Sec. 24, T. 6 N., R. 40 W	May 31, 1901	H. O. Smith	11.6
Do	do. [j]	July 26, 1900	A. B. McCoskey	[h] 14
Do	do	June 18, 1901	H. O. Smith	14.8
Do	Sec. 17, T. 6 N., R. 40 W	May 31, 1901	do	10.6
Do	do	June 18, 1901	do	18
Do	Sec. 18, T. 3 N., R. 31 W	July 26, 1900	Adna Dobson	79
Do	do	July 29, 1900	do	79
Do	W. line sec. 3, T. 5 N., R. 38 W.	June 3, 1899	H. H. Pickens	29.5
Do	Sec. 21, T. 6 N., R. 39 W	June 18, 1901	H. O. Smith	47.3
Do	Sec. 5, T. 5 N., R. 36 W	June 21, 1901	do	93
Do	Sec 18, T. 16 N., R. 49 W	June 28, 1904	J. A. Green	10
Graff ditch	Near head	July 26, 1900	E. D. Johnson	13.3
Horse Creek	Sec. 23, T. 1 N., R. 39 W. [k]	June 16, 1896	E. T. Youngfelt	.2
Do	Sec. 11, T. 1 N., R. 39 W	Nov. 22, 1900	W. A. Channel	1.2
Indian Creek	Sec. 26, T. 2 N., R. 36 W. [l]	June 25, 1896	E. T. Youngfelt	.1
Do	Line bet. secs. 10, 11, T. 2 N., R. 37 W.	Nov. 14, 1900	W A Channel	1.3
Lost Creek	Sec. 10, T. 1 N., R. 15 W	June 10, 1902	H. O. Smith	.7
Medicine Creek	Cambridge	June 28, 1900	Adna Dobson	24.5
Do	Curtis	July 11, 1904	J. A. Green	66
Methodist Creek	Sec. 2, T. 1 N., R. 18 W	Sept. 24, 1901	H. O. Smith	2.6
Mill race	Naponee	July 7, 1904	J. A. Green	24
Muddy Creek	Sec. 8, T. 4 N., R. 23 W	June 28, 1900	Adna Dobson	3.7
Neighbor ditch	Sec. 24, T. 1 N., R. 39 W	June 16, 1896	O. V. P. Stout	1.1
Naponee	Naponee	do	do	19
Porter's ditch	Haigler	June 17, 1896	do	9
Republican River	Culbertson	Nov. 25, 1892	U. S. G. S	209
Do	do	May 16, 1896	C. E. Crownover	78
Do	do	June 19, 1896	O. V. P. Stout	6.5
Do	do	Sept. 10, 1896	do	0
Do	do	June 25, 1898	do	91
Do	do	May 29, 1899	do	0
Do	do	Sept. 19, 1899	A. B. McCoskey	0

[a] Flood.
[b] Above dam.
[c] Below dam.
[d] Two miles below dam.
[e] Below head of Inman ditch.
[f] Below head of Wirsig ditch.
[g] Head of Maranville ditch.
[h] Ditch diverting all water.
[i] Head of Inman ditch.
[j] Head of Wirsig ditch.
[k] At Burlington and Missouri Railway crossing.
[l] Near mouth.

Miscellaneous discharge measurements in Kansas River drainage basin, 1895–1904—Con.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Sec.-feet.
Republican River	Culbertson	Sept. 29, 1900	O. V. P. Stout	0
Do	do	July 20, 1901	do	0
Do	do	Sept. 18, 1902	J. C. Stevens	41
Do	do	Apr. 25, 1902	F. Dobson	204
Do	do	Aug. 29, 1903	H. O. Smith	0
Do	Oxford	June 3, 1895	O. V. P. Stout	[a] 16,000
Do	do	Sept. 12, 1895	do	55
Do	do	May 17, 1896	C. E. Crownover	255
Do	do	June 20, 1896	O. V. P. Stout	109
Do	do	June 24, 1898	do	385
Do	do	Sept. 6, 1899	Glenn E. Smith	0
Do	do	July 18, 1900	E. D. Johnson	14.3
Do	do	July 22, 1901	H. O. Smith	0
Do	do	Sept. 17, 1902	J. C. Stevens	37
Do	do	Apr. 27, 1902	F. Dobson	255
Do	do	May 19, 1903	J. C. Stevens	556
Do	Sec. 24, T. 1 N., R. 39 W	June 20, 1896	O. V. P. Stout	88
Do	Sec. 19, T. 1 N., R. 39 W	Aug. 25, 1896	do	5
Do	Sec. 22, T. 3 N., R. 31 W	June 22, 1901	H. O. Smith	0
Do	Benkelman	June 16, 1896	O. V. P. Stout	29.3
Do	do	Aug. 25, 1896	do	0
Do	do	Aug. 18, 1900	do	41.7
Do	do	June 12, 1902	H. O. Smith	35
Do	do	Sept. 17, 1902	J. C. Stevens	45
Do	McCook	Apr. 13, 1897	Adna Dobson	745
Do	do	July 19, 1897	O. V. P. Stout	0
Do	do	Sept. 19, 1899	A. B. McCoskey	12.3
Do	do	July 27, 1900	do	104
Do	do	July 20, 1901	O. V. P. Stout	0
Do	do	Sept. 17, 1902	J. C. Stevens	29
Do	do	Apr. 27, 1902	F. Dobson	137
Do	do	July 1, 1904	J. A. Green	443
Do	Orleans	Sept. 6, 1899	A. B. McCoskey	.3
Do	Head of Meeker canal	Sept. 19, 1899	E. D. Johnson	17.5
Do	Cambridge	June 28, 1900	Adna Dobson	72
Do	Edison	July 18, 1900	E. D. Johnson	16.6
Do	Ives	Apr. 26, 1902	F. Dobson	39
Do	Stratton	do	do	85
Do	Franklin	June 10, 1902	H. O. Smith	743
Do	Wray (Colo.)	May 21, 1903	J. C. Stevens	34.7
Do	Warwick (Kans.)	June 5, 1904	do	741
Do	Naponee	July 7, 1904	J. A. Green	1,264
Do	Haigler[b]	Oct. 16, 1896	E. T. Youngfelt	6
Do	do.[c]	June 17, 1896	O. V. P. Stout	8.2
Do	do	do	do	23.9
Do	do	do	E. T. Youngfelt	14.9
Do	do	July 16, 1896	O. V. P. Stout	9.8
Do	do	do	E. T. Youngfelt	6.2
Do	do	Aug. 25, 1896	O. V. P. Stout	10
Do	do	Sept. 18, 1896	do	24.5
Do	do	Apr. 26, 1902	F. Dobson	52
Do	do	May 21, 1903	J. C. Stevens	16
Republican River, Arickaree Fork.	do	June 17, 1896	O. V. P. Stout	15.1
Do	do	July 16, 1896	do	3.6
Republican River, South Fork.	Benkelman	June 16, 1896	E. T. Youngfelt	3.2
Do	3,000 feet west of, above	do	do	1.4
Do	Benkelman	Aug. 18, 1900	O. V. P. Stout	3
Do	Kans.-Nebr. state line	June 12, 1902	H. O. Smith	32.8
Rock Creek	Ives[d]	June 16, 1896	O. V. P. Stout	12.1
Do	do	Aug. 25, 1896	E. T. Youngfelt	12.2
Do	do	Apr. 26, 1902	F. Dobson	9.9
Do	Sec 21, T. 1 N., R. 39 W	Nov. 22, 1900	W. A. Channel	8.8
Sappa Creek	Stamford	July 6, 1904	J. A. Green	36
Stinking Water	Palisade[e]	June 19, 1896	O. V. P. Stout	12.2
Do	do[f]	Sept. 17, 1896	E. T. Youngfelt	20
Do	Palisade	July 7, 1898	Glenn E. Smith	23.6
Do	do	June 30, 1904	J. A. Green	79
Do	do	do	do	63
Thompson Creek	Sec. 4, T. 2 N., R. 13 W	Sept. 8, 1899	E. D. Johnson	3.4
Turkey Creek	Sec. 30, T. 4 N., R. 21 W	Sept. 6, 1899	do	2.3
Do	Naponee	Aug. 24, 1900	O. V. P. Stout	7
Do	do	July 7, 1904	J. A. Green	.9
—— (No name)	Sec. 25, T. 2 N., R. 19 W	Sept. 24, 1901	H. O. Smith	1.4
Do	Sec. 31, T. 2 N., R. 18 W	do	do	.3
Do	Sec. 32, T. 2 N., R. 18 W	do	do	.6

[a] Flood.
[b] Above mouth of Arickaree.
[c] Below mouth of Arickaree.
[d] Burlington and Missouri Railway crossing.
[e] Above Palisade mill.
[f] Below Palisade mill.

PRECIPITATION IN THE REPUBLICAN BASIN.

The following is a list of the precipitation stations in the Republican basin:

Rainfall stations in Republican River basin.

Station.	County.	Latitude.	Longitude.	Elevation.	Length of record.
		° ′	° ′	*Feet.*	*Years.*
Superior	Nuckolls	40 02	98 02	1,570	22
Red Cloud	Webster	40 05	98 37	1,687	15
Franklin	Franklin	40 06	98 56	1,817	18
Republican	Harlan	40 04	99 15	1,939	12
Minden	Kearney	40 29	98 57	2,162	29
Holdrege	Phelps	40 26	99 22	2,324	16
Norton (Kans.)	Norton	39 50	99 51	2,284	4
Beaver City	Furnas	40 08	99 50	2,147	15
Wilsonville	do	40 06	100 07	2,298	12
Oberlin (Kans.)	Decatur	39 49	100 34	2,539	14
Curtis	Frontier	40 38	100 32	2,553	11
Culbertson	Hitchcock	40 12	100 48	2,565	19
Stratton	do	40 09	101 13	2,793	11
Hayes Center	Hayes	40 31	101 01	.....	13
Imperial	Chase	40 32	101 38	3,278	16
Wallace	Lincoln	40 51	101 10	3,116	16
Madrid [a]	Perkins	40 52	101 33	3,405	14
Benkelman	Dundy	40 03	101 32	2,968	12
Haigler	do	40 01	101 56	3,256	14
Wray (Colo.)	Yuma	40 06	102 13	3,512	13
Yuma (Colo.)	do	40 07	102 44	4,138	16
Leroy (Colo.)	Logan	40 32	103 00	4,380	18

[a] Now Grant, for which place latitude, longitude, and elevation are given.

The subjoined table shows the precipitation at the stations named in the foregoing list:

Precipitation at stations in drainage basin of Republican River, 1896–1906.

SUPERIOR, NUCKOLLS COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.56	0.77	1.10	3.08	3.94	4.23	4.93	2.75	2.31	2.16	0.78	0.55	27.16
1896	.42	.14	1.80	5.86	9.09	2.72	5.05	6.46	4.88	3.98	1.43	.00	41.83
1897	.35	.25	1.30	5.64	1.71	8.39	3.90	1.39	2.08	4.87	.75	1.00	31.63
1898	1.00	.80	.55	2.70	4.96	3.79	1.15	.87	4.00	.80	.80	.60	22.02
1899	.00	1.60	1.00	1.55	3.10	5.61	5.20	2.05	T.	3.90	.62	1.15	25.78
1900	T.	1.35	.60	7.60	2.20	3.75	2.20	2.70	2.90	2.50	.20	.45	26.45
1901	1.00	.80	1.75	2.95	.75	2.10	2.20	1.35	1.95	1.45	.18	.16	16.64
1902	.90	.80	.62	.15	4.61	8.69	10.45	5.14	4.52	3.52	.68	.80	40.88
1903	.20	1.40	.20	1.70	13.11	2.25	7.56	2.17	.60	3.87	1.49	T.	34.55
1904	.15	T.	1.39	2.62	2.10	6.46	5.52	2.13	1.75	1.20	T.	.20	23.52
1905	1.20	1.10	.88	3.62	3.34	4.10	5.98	1.94	1.27	.30	1.95	.05	26.54
1906	.40	.31	1.87	4.44	3.30	2.52	1.66	2.07	2.52	2.46	.05	.68	22.28

RED CLOUD, WEBSTER COUNTY.

Normal	0.33	0.59	0.77	2.27	3.32	4.75	4.30	2.73	2.77	1.81	0.59	0.51	24.74
1896	.57	.10	1.55	6.63	5.60	2.67	2.44	5.60	2.60	2.50	1.80	.00	32.06
1897	.40	.36	.93	4.97	1.63	10.93	4.32	1.06	1.44	5.21	.60	1.00	32.85
1898	.45	.15	.25	3.20	3.25	1.30	1.63	.28	4.75	.84	.93	.73	17.76
1899	.04	.90	.95	.63	2.57	7.05	5.01	2.29	.09	1.88	1.04	1.17	23.62
1900	T.	.70	1.03	4.45	2.22	.61	2.98	1.34	3.92	1.86	.30	.48	19.89
1901	.49	.90	2.48	2.14	1.25	4.41	2.30	3.68	4.28	1.60	.09	.15	23.77
1902	.50	.70	.89	.71	3.80	7.75	13.52	1.99	5.75	2.91	.72	.67	39.91
1903	.30	1.32	.33	1.85	10.85	2.16	2.80	6.76	.28	2.67	1.18	T.	30.50
1904	.07	.10	.85	2.71	2.83	4.21	6.30	3.45	2.30	1.76	.05	.15	24.78
1905	.....	.65	.....	4.03	5.33	5.34	7.91	2.08	2.96	.12	2.20	.....	.....
1906	.85	.51	.....	4.52	.....	1.50	4.42	.....	2.40	2.48	.50	.91	.....

Precipitation at stations in drainage basin of Republican River, 1896–1906—Continued.

FRANKLIN, FRANKLIN COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.42	0.63	0.84	2.52	3.86	3.63	3.80	2.78	2.79	1.92	0.57	0.42	24.08
1896.....	.70	.00	.85	6.87	4.28	.....	.....	.....	2.00	1.23	.70	.00	.....
1897.....	.60	.55	.61	.....	1.13	5.50	2.45	3.53	2.46	5.99	.44	1.40	.....
1898.....	.30	.30	.05	4.46	4.39	3.59	1.14	.30	4.12	2.10	.....	.....	.....
1899.....	.00	.75	.90	1.25	5.96	5.61	3.70	2.65	.....	.....	.....	.....	.....
1900.....	.00	1.42	.39	5.57	2.83	1.84	1.95	1.62	5.08	2.14	.60	.....	.....
1901.....	.40	1.00	1.58	2.76	1.56	1.02	2.12	2.01	4.70	1.15	.45	.....	.....
1902.....	.60	.....	1.15	.20	3.92	6.95	6.21	.....	7.40	3.06	T.	.85	.....
1903.....	.20	1.50	.....	2.57	9.98	1.25	3.59	5.17	.20	2.13	1.13	.00	.....
1904.....	.10	.15	.35	2.57	4.43	.....	.....	.....	.....	3.17	.02	.02	.....
1905.....	1.00	.65	.20	3.27	3.83	4.88	9.41	1.78	2.46	.59	2.70	.00	30.77
1906.....	.38	.53	2.30	3.87	.....	1.93	2.17	1.92	1.14	2.67	.10	.75	.....

REPUBLICAN, HARLAN COUNTY.

Normal.....	0.21	0.56	0.77	3.27	3.22	3.39	3.71	2.92	2.66	1.74	0.70	0.29	23.44
1896.....	.25	.00	1.04	7.17	2.75	2.25	5.70	3.68	1.50	1.04	1.45	T.	26.83
1897.....	.40	.60	.70	4.04	1.40	3.56	2.21	6.41	1.23	3.76	.30	.95	25.56
1898.....	.10	.25	.08	4.68	5.03	4.00	1.80	1.39	5.40	.....	.85	.05	.....
1899.....	.20	.30	.15	1.35	3.18	5.37	3.03	.70	.25	.30	1.58	.62	17.03
1900.....	.00	.77	.80	4.47	.45	1.65	2.80	.52	3.35	1.79	.30	.05	16.95
1901.....	.30	.30	1.76	3.81	.65	1.80	.20	2.91	6.74	1.45	.....	.10	.....
1902.....	.35	.52	1.40	.45	4.85	3.98	8.91	1.54	5.41	2.24	.....	.95	.....
1903.....	.25	2.00	.....	.....	.....	1.94	6.00	4.51	.62	1.20	.80	T.	.....
1904.....	.05	.02	.20	1.80	5.56	3.91	3.14	6.06	1.62	3.66	.00	.00	26.02
1905.....	.70	1.70	.35	3.20	5.10	9.60	4.32	3.70	.....	.45	.....	.00	.....
1906.....	.55	.29	1.80	.....	.....	.....	.40	5.50	2.00	3.10	.....	.50	.....

MINDEN, KEARNEY COUNTY.

Normal.....	0.84	1.08	1.45	3.60	5.12	5.07	4.76	3.59	2.74	2.07	0.90	0.67	31.29
1896.....	.75	.15	1.72	10.82	6.28	2.61	3.54	2.61	2.63	1.87	1.77	.09	34.84
1897.....	.80	1.25	1.93	4.48	2.11	4.99	3.05	2.27	1.04	7.34	.97	1.61	31.84
1898.....	.31	.44	.32	4.02	5.34	4.44	1.50	4.23	4.39	1.04	.87	.30	27.20
1899.....	.03	.98	1.11	1.23	2.83	9.61	3.39	2.89	.90	.45	1.15	1.00	25.57
1900.....	.05	1.67	1.35	3.96	4.09	1.84	1.92	2.89	4.16	3.41	.97	.77	27.08
1901.....	.34	1.68	2.51	3.61	.83	3.80	1.37	3.22	7.67	1.34	.79	.18	27.34
1902.....	.64	.56	1.77	.55	8.73	6.33	7.58	2.96	5.16	2.94	.12	.91	38.25
1903.....	.33	2.61	1.17	1.83	9.57	2.67	8.26	8.16	.73	1.77	.91	.01	38.02
1904.....	.06	.11	.47	1.87	2.55	6.43	4.10	2.74	1.48	4.64	.11	.20	24.67
1905.....	.99	1.06	.78	3.89	7.19	4.86	6.26	2.72	4.07	.57	2.36	.03	34.78
1906.....	.40	1.02	1.80	4.28	.78	2.40	3.35	2.91	1.74	2.95	.62	.92	23.17

HOLDREGE, PHELPS COUNTY.

Normal.....	0.40	0.86	1.14	3.58	5.01	3.98	3.38	2.78	2.40	1.84	0.60	0.52	26.49
1896.....	.00	T.	1.20	7.50	5.55	4.70	3.10	3.10	2.75	.70	1.35	T.	29.95
1897.....	.70	1.01	2.30	5.80	2.80	3.45	3.85	.95	2.30	4.35	.27	1.00	28.78
1898.....	.80	.25	.03	3.35	4.96	3.85	1.85	1.83	5.05	.73	.10	T.	22.80
1899.....	T.	.30	.20	T.	7.25	.....	3.60	.....	.70	.00	1.50	.95	.....
1900.....	T.	1.61	.....	5.84	2.74	1.94	3.85	2.62	2.40	3.30	.35	.20	.....
1901.....	.20	.70	4.25	6.01	.65	.85	.50	3.25	4.21	.75	.70	.30	22.37
1902.....	.50	.20	1.40	.75	10.08	7.18	4.68	2.85	.....	3.66	T.	1.20	.....
1903.....	.20	2.30	.....	1.83	12.36	2.48	7.15	4.90	.40	2.10	.....	T.	.....
1904.....	.18	.10	.07	1.93	3.90	.....	2.82	3.47	1.63	3.43	.10	.20	.....
1905.....	.80	1.70	.20	4.80	6.86	11.83	6.21	2.26	3.60	.10	1.85	.00	40.21
1906.....	.30	.70	1.85	7.90	1.40	.92	4.30	4.46	2.87	3.90	1.04	1.12	30.76

Precipitation at stations in drainage basin of Republican River, 1896–1906—Continued.

NORTON, NORTON COUNTY, KANS.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
1896	0.45	T.	0.10	1.61	0.70	1.64	0.90	0.22	2.01	0.75	0.24	0.68	9.30
1897	.80	1.55	.10	3.49	.....	.....	.....	.....	.....	.....	.....	.....	.....
1898	.19	.01	.16	3.62	5.60	.....	4.98	1.87	.....	.....	.....	.....	.....
1903	.....	.....	.....	.....	.....	.....	.....	4.45	.45	1.29	.25	T.	.....
1904	.02	T.	.50	3.02	3.41	5.11	3.92	2.61	1.45	3.65	.35	.35	24.39
1905	.85	1.23	.59	2.30	6.18	3.10	7.31	.41	1.90	.56	1.58	T.	26.01
1906	.45	.12	2.22	5.18	6.65	1.32	3.54	1.80	.50	3.27	.42	.....	.....

BEAVER CITY, FURNAS COUNTY.

Normal	0.26	0.63	0.80	2.71	3.13	4.03	4.33	2.34	2.03	1.27	0.62	0.43	22.58
1896	.56	.06	.56	4.98	2.68	5.83	3.28	2.54	2.15	.87	.33	.14	23.98
1897	.28	.38	1.30	5.30	.85	3.54	3.13	1.50	2.16	4.81	.39	1.09	24.73
1898	.18	.02	.16	2.27	3.69	3.73	1.60	2.23	5.51	.32	.58	.06	20.35
1899	.10	.32	.60	.50	1.28	2.86	3.94	1.45	.43	.02	2.07	.66	14.23
1900	T.	1.41	.62	4.87	1.01	2.26	2.12	.67	1.67	.62	.20	.28	15.73
1901	.20	.67	2.46	3.52	.77	.95	1.30	4.96	3.57	.89	.41	.11	19.81
1902	.60	.35	.49	.62	5.82	4.26	6.82	1.53	2.57	2.06	.04	.79	25.95
1903	.25	1.85	.93	2.16	11.05	1.85	6.29	3.39	.24	.90	.71	.01	29.63
1904	.01	.05	.27	2.02	3.53	4.04	.83	2.02	2.06	3.83	.10	.19	18.95
1905	.63	.67	.70	2.90	4.94	8.09	13.90	2.89	2.57	.79	1.42	.00	39.50
1906	.33	.66	1.28	5.51	.71	1.79	4.32	2.51	1.54	3.58	.80	1.19	24.22

WILSONVILLE, FURNAS COUNTY.

Normal	0.21	0.65	0.76	3.51	3.75	3.48	3.01	2.64	1.94	1.27	0.51	0.33	22.06
1896	.35	.05	.35	6.70	3.25	3.60	1.62	3.27	2.07	1.19	.27	.00	22.72
1897	.38	.45	.....	6.61	1.26	2.97	1.05	4.63	2.70	3.90	.55	1.30	.....
1898	.15	.15	T.	2.35	4.82	4.05	1.92	2.61	4.25	.35	.35	.00	21.00
1899	.30	.40	.40	.40	1.95	3.00	6.10	1.45	.00	.00	2.00	.50	16.50
1900	T.	1.00	.80	5.95	1.20	1.70	3.07	.70	1.26	.26	.05	T.	15.99
1901	.36	.70	3.87	3.35	.63	1.90	.76	3.44	3.92	.72	.66	.32	20.63
1902	.....	.....	.59	1.04	6.44	3.93	4.31	3.16	2.20	2.56	T.	.48	.....
1903	.20	2.10	.32	2.15	11.60	1.45	2.15	2.78	.68	.35	.60	T.	24.38
1904	T.	.20	.51	2.67	2.74	7.07	5.68	2.02	1.05	2.98	.08	.40	25.40
1905	.71	.95	1.22	3.75	5.56	3.36	8.22	1.75	.....	.....	.....	.00	.....
1906	.30	.20	2.10	5.10	1.75	3.00	2.20	.....	.....	2.65	.35	.....	.....

OBERLIN, DECATUR COUNTY, KANS.

Normal	0.46	0.97	0.87	2.71	3.62	2.64	3.76	3.00	1.98	2.22	0.64	0.63	23.80
1896	.40	.20	.90	6 01	4.47	5.36	2.82	2.88	1.60	1.75	.50	.10	25.49
1897	.40	1.10	3.30	6.70	.28	5.00	2.65	4.75	2.94	5.07	.50	1.80	34.49
1898	.48	.00	.40	2.18	5.03	3.43	5.30	1.35	5.61	1.70	1.00	.40	26.88
1899	.85	.40	.85	1.15	3.15	2.37	3.61	2.49	.26	.00	2.45	.25	17.83
1900	T.	1.60	1.00	4.50	1.10	1.73	2.58	1.70	1.93	.00	.10	.30	16.54
1901	.20	1.00	3.05	3.95	1.00	3.45	.37	5.31	5.37	.50	.25	.70	25.15
1902	.85	.65	1.60	1.35	4.89	3.43	5.43	2.25	1.60	2.36	.00	1.35	25.76
1903	.20	2.80	.70	1.30	6.45	1.46	3.75	2.55	.70	.47	.75	.00	21.13
1904	.00	.00	.25	4 10	4.49	5.54	2.36	5.85	2.05	2.41	.20	.65	27.90
1905	.95	.60	1.28	3.13	2.83	2 96	6.67	2.46	2.65	.80	.65	.00	24.98
1906	.60	.....	2.35	3 48	.70	2.14	1.71	2.90	1.73	3.40	.....	.....	.....

Precipitation at stations in drainage basin of Republican River, 1896–1906—Continued.

CURTIS, FRONTIER COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.28	0.91	1.51	2.35	2.63	4.34	3.11	2.79	1.84	1.41	0.65	0.39	22.21
1896.....	.31	.12	2.20	5.85	2.55	5.03	3.89	2.71	1.67	3.00	.60	.52	28.45
1897.....	T.	.50	2.58	5.10	.43	4.08	.60	3.26	1.27	4.73	1.60	1.10	25.25
1898.....	.60	.20	.25	2.32	5.34	3.27	2.56	1.67	3.70	.33	.63	.16	21.03
1899.....	.....	.30	1.16	.26	2.72	3.24	5.70	2.55	.55	.15	2.65	.....	.....
1900.....	.00	2.40	1.65	3.13	.27	2.47	3.20	5.79	1.04	T.	.20	.....	.....
1901.....	.00	.80	4.27	2.64	1.11	5.37	.20	2.01	4.44	.60	.35	.20	21.99
1902.....	1.00	.60	2.00	1.05	4.81	2.98	4.65	2.35	2.80	2.45	.....	1.20	.....
1903.....	.30	2.60	.60	1.10	4.78	4.04	6.28	.....	.....	.....	.40	.10	.....
1904.....	.05	.10	.40	.83	3.38	6.53	3.48	4.32	1.69	2.41	T.	.28	23.47
1905.....	1.10	.60	1.15	3.78	5.73	8.95	7.26	1.75	4.52	1.48	.87	.00	37.19
1906.....	.45	.60	.....	.....	.....	.....	1.34	.....	.....	.....	.....	.....	.....

CULBERTSON, HITCHCOCK COUNTY.

Normal.....	0.38	0.61	1.11	2.46	2.75	3.47	3.02	2.67	1.54	1.17	0.39	0.37	19.94
1896.....	.56	.00	.57	4.38	2.77	3.08	.53	2.67	1.95	1.80	.10	T.	18.41
1897.....	.71	.77	1.90	4.73	.75	8.67	1.29	2.95	1.13	4.84	.38	.85	28.97
1898.....	.40	.00	.24	2.10	3.84	3.48	1.44	1.34	3.90	2.52	.37	.07	19.70
1899.....	.50	1.07	.94	.45	1.93	3.61	3.95	3.24	.03	.23	1.65	.11	17.71
1900.....	.02	1.72	.78	3.25	1.03	1.72	4.20	1.00	.70	.49	.15	.41	15.47
1901.....	.20	.35	3.23	2.26	.63	1.90	.25	2.71	4.13	.45	.31	.41	16.83
1902.....	.35	.25	1.25	1.03	4.27	4.19	4.90	1.13	3.47	2.07	.10	.80	23.81
1903.....	.30	1.70	.58	.90	6.73	1.75	4.05	2.69	.77	.12	.77	.09	20.45
1904.....	.09	.12	.55	.99	4.80	5.76	1.60	2.44	1.98	1.41	.05	.27	20.06
1905.....	.48	.50	1.51	3.04	4.15	4.35	5.09	1.53	2.83	1.80	.83	.00	26.11
1906.....	.32	.40	1.53	3.48	1.14	1.01	2.38	2.60	.87	2.74	.48	.84	17.79

STRATTON, HITCHCOCK COUNTY.

Normal.....	0.31	0.75	1.20	2.39	2.97	3.59	2.76	2.24	2.08	1.34	0.60	0.35	20.58
1896.....	.42	.05	.50	3.85	1.96	2.80	1.07	1.45	1.20	1.25	.08	.10	14.73
1897.....	.59	.52	2.22	2.50	.45	3.29	1.45	2.97	.90	4.35	.24	.64	20.12
1898.....	.17	.00	.24	3.23	4.53	2.86	2.52	.71	4.48	.85	.29	.18	20.06
1899.....	.49	.36	.90	.42	1.61	3.02	2.64	2.04	.20	.07	2.54	.14	14.43
1900.....	.00	1.25	.38	3.82	.77	4.34	3.30	1.59	.37	.10	.30	.20	16.42
1901.....	.20	.90	4.46	3.00	.76	4.45	2.15	4.02	3.05	.57	.66	.73	24.95
1902.....	.31	.38	.74	1.02	5.31	3.35	4.63	2.26	4.77	1.60	.17	1.30	25.84
1903.....	.28	2.90	.45	.80	6.00	1.16	2.26	2.96	.76	.25	.91	.01	18 74
1904.....	.12	.15	.48	1.50	4.08	5.74	2.69	2.18	1.89	2.96	.02	.21	22 02
1905.....	.50	.95	1.68	3.80	4.23	4.87	4.85	2.24	3.16	1.45	.80	.00	28.53
1906.....	.30	.40	1.83	2.93	1.90	.78	1.73	3.67	.74	1.37	1.25	.40	17.30

HAYES CENTER, HAYES COUNTY.

Normal.....	0.49	1.18	1.45	2.81	3.22	3.33	2.70	2.75	1.98	1.48	0.56	0.35	21.30
1896.....	.75	.....	1.20	3.43	1.56	3.31	2.12	2.54	1.63	1.45	.25	.30	.....
1897.....	.20	.34	1.86	3.36	.37	4.36	2.09	2.32	1.19	3.22	.30	.50	20.11
1898.....	.45	.25	.40	3.65	3.25	3.85	1.85	1.24	3.65	.....	.60	T.	.....
1899.....	.50	1.28	1.33	.34	3.24	1.52	3 36	2.18	.12	T.	2.10	.11	16.08
1900.....	.02	1.67	.46	3.07	1.78	1.32	4 24	3.96	.05	T.	.15	.20	16.92
1901.....	.10	.80	2.35	3.04	.75	3.80	.58	3.35	3.42	.59	.00	.35	19.13
1902.....	.20	.46	1.33	.96	6.02	3.72	2.05	2.39	5.00	1.85	T.	1.45	25.43
1903.....	.28	3.83	T.	1.42	5.48	.94	4 15	2.74	.64	.80	.44	.10	20.82
1904.....	.22	.20	.50	1.14	4.78	5.80	2.95	3.51	1.57	2.22	.07	.15	23.11
1905.....	1.00	1.50	2.52	4.46	4.92	4.87	5.39	2.50	1.95	2.75	1.00	.00	32.86
1906.....	.60	.40	4.42	7.75	3.15	1.70	.77	3.31	.78	2.45	.70	.90	26.93

Precipitation at stations in drainage basin of Republican River, 1896–1906—Continued.

IMPERIAL, CHASE COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.41	0.83	1.49	2.60	3.00	3.55	3.07	2.51	1.65	1.05	0.44	0.53	20.93
1896.....	.50	.20	1.10	4.30	1.34	4.60	3.15	1.45	1.40	1.00	.20	.35	19.59
1897.....	.50	.70	2.05	2.55	1.95	2.38	1.23	6.03	.51	3.87	.52	.70	22.99
1898.....	.50	.22	.56	1.82	7.29	3.55	3.37	.88	4.02	.30	.86	.92	24.29
1899.....	1.00	.92	1.90	.64	2.44	4.22	3.12	.93	.18	.19	1.94	.08	17.56
1900.....	.07	2.24	1.08	3.96	1.47	2.43	4.87	3.47	.13	T.	.22	.15	20.09
1901.....	T.	.34	2.43	4.42	1.26	3.57	1.50	2.76	1.83	1.00	T.	.85	19.96
1902.....	.41	.42	1.65	.97	3.58	4.67	3.86	1.42	4.24	1.25	.12	1.84	24.43
1903.....	.22	2.75	.30	.70	3.17	1.33	4.87	2.67	.02	.30	.59	T.	16.92
1904.....	.06	.02	.13	2.71	4.57	8.18	3.62	2.12	1.57	2.03	.10	.36	25.47
1905.....	.84	.93	3.82	3.55	5.65	4.78	6.38	2.52	2.75	1.58	.50	.05	33.35
1906.....	.65	.52	3.38	5.97	2.43	1.54	2.67	2.67	2.80	2.47	.78	.45	26.33

WALLACE, LINCOLN COUNTY.

Normal.....	0.52	0.62	1.05	1.91	2.46	3.18	2.50	1.57	0.75	0.43	0.13	0.27	15.39
1896.....	.50	.20	2.60	4.59	.80	3.38	6.06	1.86	.96	.70	.10	.50	22.25
1897.....	.23	.50	1.35	2.23	T.	1.46	.86	1.62	.12	.60	.50	.70	10.17
1898.....	1.05	.10	.30	.55	4.80	2.26	.....	.....	.....	.....	.....	.02	.....
1899.....	.76	.80	.91	.10	4.65	2.63	2.95	.60	.20	.15	.00	.20	13.95
1900.....	.00	1.17	.....	2.47	1.55	2.24	3.05	1.24	.00	.00	.10	.15	.....
1901.....	.04	.35	2.25	1.45	1.61	4.33	.00	.54	2.45	.00	.00	.30	.....
1902.....	.42	.65	1.05	1.98	3.10	3.62	1.75	2.00	3.25	1.25	.00	.80	19.87
1903.....	.20	1.10	T.	.30	3.69	1.30	3.76	3.24	.30	.30	.40	.00	14.59
1904.....	.45	.30	.20	1.65	4.20	4.13	2.41	1.42	1.60	.....	.00	.....	.....
1905.....	.....	.80	2.95	2.80	4.92	5.10	4.75	2.05	1.05	.....	.25	.00	.....
1906.....	.60	.....	.....	4.25	.....	2.20	.....	.....	.....	.....	.....	.....	.....

MADRID, PERKINS COUNTY.

Normal.....	0.35	0.79	0.85	1.67	2.36	3.31	1.95	1.76	0.60	0.56	0.37	0.41	14.98
1896.....	.50	.20	1.90	4.13	1.78	3.75	.90	2.10	.95	.80	.10	.40	17.51
1897.....	T.	.20	1.36	2.19	.88	1.52	1.30	2.19	.22	2.63	T.	.95	13.44
1898.....	.75	.20	.30	.64	4.08	1.78	.63	1.50	2.75	T.	.80	.20	13.63
1899.....	.60	.60	1.10	.30	2.75	1.73	2.95	.99	.00	.14	.88	.10	12.14
1900.....	.02	1.30	.20	2.15	1.75	3.75	2.25	2.03	T.	.10	.00	.00	13.55
1901.....	.20	.70	1.90	2.80	2.18	4.38	.31	2.14	1.07	.26	.00	.30	16.24
1902.....	.50	.30	1.00	1.15	4.25	3.15	3.50	.....	.....	.75	.20	.90	.....
1903.....	.20	2.10	.10	.....	3.82	1.47	4.06	2.03	.00	.....	.36	.30	.....
1904.....	T.	.20	.25	1.64	.....	3.49	3.71	.....	.....	.....	.....	.....	.....
1905.....	.17	.51	2.40	3.61	4.04	5.03	4.28	3.49	2.26	.96	.41	.00	27.16
1906.....	.15	1.20	2.54	3.43	3.02	3.51	2.67	2.76	1.78	1.80	.43	.41	23.70

BENKELMAN, DUNDY COUNTY.

Normal.....	0.26	0.72	0.88	2.37	2.90	3.58	2.48	2.36	2.16	0.65	0.37	0.34	19.07
1896.....	.22	.10	.70	3.53	2.82	2.78	.62	1.47	.75	.80	T.	.15	13.24
1897.....	.08	.57	1.18	1.12	.25	3.66	2.03	3.78	1.65	2.60	.15	.45	17.52
1898.....	.20	T.	.40	3.47	5.31	3.26	2.85	.90	3.20	1.13	T.	T.	20.72
1899.....	.40	.40	.87	.20	1.25	.90	2.42	2.73	T.	T.	1.75	.30	11.12
1900.....	T.	1.00	.20	3.43	.74	4.88	2.29	2.31	.06	T.	.15	.18	15.24
1901.....	.10	.40	4.25	3.05	1.25	6.27	.....	4.95	8.70	.45	.15	.80	.....
1902.....	.25	.38	1.00	1.01	7.77	2.70	4.00	1.93	3.70	.....	.00	1.50	.....
1903.....	.50	2.95	.08	.85	4.97	2.34	1.96	2.28	1.10	.24	.61	.10	17.98
1904.....	.29	.39	.05	2.29	2.12	4.46	2.69	2.03	2.45	.....	T.	.01	.....
1905.....	.40	.....	.....	2.39	3.20	3.10	4.00	.....	.....	.....	.....	T.	.....
1906.....	.60	.....	2.30	.....	.....	.....	.58	.....	1.05	.....	.....	.19	.....

Precipitation at stations in drainage basin of Republican River, 1896–1906—Continued.

HAIGLER, DUNDY COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.17	0.37	0.62	2.04	2.41	2.81	2.50	2.30	1.04	0.59	0.30	0.27	15.42
1896.....	.42	.10	.85	2.67	3.14	3.75	1.70	.94	.85	.60	.02	.52	15.56
1897.....	T.	T.	.70	2.58	1.62	4.56	.97	4.15	.51	1.80	.40	.20	17.49
1898.....	.00	T.	.70	3.08	3.38	4.18	1.20	1.75	3.20	.80	T.	T.	18.29
1899.....	.30	T.	.52	.87	2.13	3.23	2.87	1.31	.00	.00	1.70	.50	13.43
1900.....	T.	.70	.25	6.05	.60	3.23	2.55	4.54	.00	T.	.05	.30	18.27
1901.....	.05	.30	1.55	3.55	.25	1.71	1.66	5.69	1.80	T.	.00	.50	17.06
1902.....	.20	.10	1.12	.65	5.68	2.16	2.20	2.32	2.61	2.36	T.	.50	19.90
1903.....	.20	.....	.....	.....	2.98	1.76	.....	.....	.82	.32	.....	.10	.....
1904.....	.02	.06	.10	.....	.....	.....	1.46	1.18	3.13	1.35	.02	.03	.....
1905.....	.56	.37	2.30	2.48	.....	.....	.....	.....	.....	.....	.27	.00	.....
1906.....	.23	.25	1.55	3.10	1.50	2.50	4.55	2.50	1.60	1.00	.05	T.	18.83

WRAY, YUMA COUNTY, COLO.

Normal.....	0.35	0.59	1.07	2.49	2.73	3.29	2.52	1.89	1.42	0.74	0.26	0.33	17.68
1890.....	.....	.....	T.	T.	4.44	1.42	.62	.25	1.09	.45	.25	T.	.....
1891.....	1.80	.50	1.90	4.68	2.02	4.55	2.52	.45	1.24	0	.20	.83	20.69
1893.....	.....	.....	.....	.03	2.12	1.00	.....	.....	.....	.....	.....	.....	.....
1895.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	T.	.12	.32	.....
1896.....	.47	.02	.66	4.83	1.64	3.77	1.13	1.47	1.01	1.37	.06	.20	16.63
1897.....	.28	.26	1.79	1.64	3.34	4.79	1.79	2.27	.73	2.92	.07	.31	20.19
1898.....	.06	.07	.83	1.73	5.47	2.98	1.88	2.56	2.33	.25	.26	.29	18.71
1899.....	.63	.07	.50	.62	1.96	1.83	2.18	1.38	.08	T.	1.16	.33	10.74
1900.....	.16	.90	.33	6.00	.61	2.35	4.57	2.60	.15	.03	.20	.34	18.24
1901.....	T.	1.37	2.51	4.02	.28	3.40	2.05	5.36	2.11	.43	T.	.91	22.44
1902.....	.20	.74	1.05	.74	7.00	5.69	3.33	2.71	3.73	1.05	.16	.59	26.99
1903.....	.25	1.98	.16	.54	1.95	1.55	5.16	1.48	.69	.34	.25	T.	14.35
1904.....	T.	.58	.04	2.46	2.02	6.25	2.00	1.26	1.74	1.19	.05	.20	17.79
1905.....	.04	.05	3.10	5.12	2.59	3.19	2.98	.93	2.19	1.64	.60	T.	22.43
1906.....	.55	.62	1.88	4.82	3.20	2.57	1.62	3.57	1.71	1.43	.83	.29	23.09

YUMA, YUMA COUNTY, COLO.

Normal.....	0.54	0.86	1.41	2.31	2.54	2.79	2.48	2.15	0.93	0.63	0.33	0.53	17.50
1891.....	2.35	.50	3.63	2.90	4.21	5.23	2.98	.75	.64	.05	.13	1.25	24.62
1892.....	.80	1.55	.80	3.20	3.46	1.20	4.44	1.50	.35	1.00	T.	.62	18.92
1893.....	T.	.90	.70	.38	2.57	1.30	2.10	.95	T.	.40	.41	.55	10.26
1894.....	.50	.90	1.10	.68	.04	1.85	.80	.70	2.85	0	22	.70	10.34
1895.....	1.20	1.70	.50	1.10	2.76	2.73	3.22	1.77	.55	.10	.60	.10	16.33
1896.....	.60	.20	1.25	1.82	2.06	3.98	2.59	1.04	1.02	.78	.30	.20	15.84
1897.....	.37	.40	2.80	.80	1.62	4.44	1.78	2.44	T.	2.55	.10	1.00	18.30
1898.....	.30	.20	.31	1.55	5.80	2.70	1.86	3.62	1.00	1.50	1.45	1.10	20.39
1899.....	1.38	.60	1.18	.97	1.23	3.03	2.63	2.22	.17	.03	.90	.27	14.61
1900.....	.14	1.55	.61	8.67	1.39	.72	1.81	2.22	.16	.03	.17	.51	17.98
1901.....	T.	1.11	2.44	3.90	.31	3.51	1.61	6.53	.36	.39	T.	.57	20.73
1902.....	.07	.56	.95	.67	3.76	1.91	2.70	3.33	1.68	.78	.20	.73	17.34
1903.....	.14	1.88	.20	.40	1.00	2.10	2.65	3.12	.35	.10	.36	.09	12.39
1904.....	T.	.70	.25	3.37	4.26	4.98	1.65	1.28	2.92	1.07	T.	.27	20.75
1905.....	.31	.13	4.47	4.27	3.64	2.16	4.45	.73	1.91	1.64	.05	0	23.76
1906.....	.38	.51	2.36	4.45	2.01	1.98	2.44	1.23	1.19	2.92	1.17	.12	20.76

Precipitation at stations in drainage basin of Republican River, 1896–1906—Continued.

LEROY, LOGAN COUNTY, COLO.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal.....	0.42	0.75	1.04	2.47	2.54	2.19	1.95	1.94	0.95	0.78	0.27	0.42	15.72
1889.....	.....	.....	.....	4.40	2.09	3.38	.36	2.56	.83	.37	.60	.10	.....
1890.....	.30	.48	.01	2.80	1.03	1.96	.47	1.41	T.	.98	.48	.01	9.93
1891.....	1.70	1.00	1.99	1.35	5.02	4.84	4.69	2.89	.67	.14	.37	.94	25.60
1892.....	.89	2.24	.80	4.02	2.53	1.48	3.07	1.83	.84	1.66	.10	.65	20.11
1893.....	.05	1.20	.87	.46	2.73	1.25	1.75	.61	.41	.41	.48	.94	11.16
1894.....	.35	.46	.95	.98	.17	.75	1.16	.47	1.06	.08	.26	.65	7.34
1895.....	.73	.88	.40	2.43	2.05	2.94	2.56	.79	.42	.11	.47	.12	13.90
1896.....	.53	.24	1.20	1.91	2.36	3.77	1.33	.87	.86	.90	.20	.01	14.18
1897.....	.60	.72	1.66	1.77	3.08	2.24	1.39	2.79	.41	2.61	.40	.81	18.48
1898.....	.38	.26	.67	1.07	4.60	1.31	2.83	1.13	1.27	.54	.65	.27	14.95
1899.....	.50	.33	1.21	1.57	2.93	.28	2.17	2.38	.88	.30	.23	.44	13.22
1900.....	.10	.96	.12	7.27	2.10	.78	1.68	.99	.35	.07	.12	.20	14.74
1901.....	.06	.49	1.60	2.92	.72	2.52	.97	4.03	.27	.47	T.	.89	14.94
1902.....	.12	.72	1.23	1.28	3.16	1.82	.98	3.70	3.46	.78	.09	.99	18.33
1903.....	.18	1.50	.26	1.12	.80	1.07	1.71	3.44	.62	.29	.06	.03	11.08
1904.....	.10	.26	.35	1.99	3.97	4.39	3.46	1.17	2.96	1.55	.04	.05	20.29
1905.....	.17	.30	3.28	4.70	3.88	2.48	2.56	1.96	.78	1.93	.12	.02	22.18
1906.....	.23	.43	1.38	4.53	1.96	1.35	1.88	2.83	2.70	2.69	1.29	.53	21.80

NIOBRARA RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

Niobrara River rises in the mountains of eastern Wyoming, flows eastward across northern Nebraska, and unites with the Missouri in Knox County, at the city of Niobrara. Its drainage area, comprising about 9,000 square miles, is comparatively narrow in its upper portion, but broadens considerably as the river approaches the Missouri. Near the headwaters the flood plain is about 400 feet above North Platte River.

In its middle course the river runs in a canyon 100 to 300 feet deep (Pl. III), beyond which are high, rolling or broken table-lands, cut by deep canyons of the numerous tributary streams. Bordering the table-lands are rolling sand hills which cover large portions of Sheridan, Cherry, Brown, Rock, and Holt counties. Formerly these sand hills were migratory, being blown hither and thither by winds; but in recent years, owing, perhaps, partly to increased rainfall and partly to a diminution in the herds of cattle which roam over these lands, they have become overgrown with a comparatively luxuriant growth of grasses that render them more permanent and provide excellent range.

Geologically, the valley from Valentine westward exhibits a comparatively narrow strip of calcareous grit and gray sand with beds of pipy concretions, popularly called magnesia. From Valentine eastward this formation gives place to slate-colored clays and soft shales,

A

B

CANYONS OF NIOBRARA RIVER.

A. RESERVOIR AND POWER PLANT ON MINNECHADUZA CREEK.

B. NIOBRARA RIVER AND "CHALK BLUFFS."

with some chalky limestone and shale beds near the mouth of the river (Pl. IV, *B*). Outside of this strip, particularly on the south, are the sand hills mentioned above.

The soil throughout the region is predominantly sandy, and trees are rare, though a few cedars cling to the sides of the canyons of the main stream and its tributaries. The Niobrara National Forest, which lies between Niobrara and Snake rivers, consists almost wholly of sand hills, except along the borders. No forests of any extent exist at present. The greater part of the drainage area of this stream is given over to range land for cattle. Between the sand hills and lying in a generally east-west direction are extensive hay flats, and on the firmer soils considerable farming is done. The annual precipitation is small, but as the greater part of it falls during the growing months, comparatively large quantities of corn, wheat, melons, etc., are produced. In the eastern part of the drainage area, through Boyd, Keyapaha, and the northern parts of Brown, Rock, and Holt counties, the country is largely given to farming, and nearly all the crops characteristic of the more eastern portions of the State are successfully grown. Numerous groves have been planted, and natural timber is abundant along this portion of the stream and its tributaries.

Precipitation varies from 15 to 18 inches annually in the upper part of the drainage area, from 18 to 21 inches in the middle part, and from 21 to 24 inches along the lower course of the stream. Evaporation amounts to 6, 5, and 4½ feet in the upper, middle, and lower areas, respectively. About 70 per cent of the precipitation falls in the months from April to August, inclusive, and about one-half of the remainder is snowfall.

The chief tributaries of the Niobrara are Verdigris, Keyapaha, and Snake rivers and Minnechaduza Creek. The drainage area of the Snake is similar in most respects to that of the western portion of the Niobrara. Little damage is done by floods, for the sand hills that form a large portion of the drainage area act as storage reservoirs for the rain and snowfall, feeding it to the stream in the form of spring water, and thus equalizing the flow and producing a constancy of discharge that is almost phenomenal. The sand-hill lakes so numerous in the southern part of this drainage area, of which Red Deer Lake is typical, are described on pages 231–232.

At present the waters of the Niobrara are almost wholly undeveloped. Irrigation is restricted to the low, narrow flood plain at the bottom of the canyon, and the ditches are small and rude. A dam on Minnechaduza Creek at Valentine forms an artificial lake, and a power plant has been installed for lighting and furnishing the city with water (Pl. IV, *A*). Along the lower course of the Niobrara

a number of small mills are in operation, obtaining their power from small tributaries. On Snake River possibilities for power development are remarkable, but long transmission lines would be required to make these of practical value. (See Pls. V and VI.)

More detailed information concerning the characteristics of the Niobrara drainage area is given in a report on a reconnaissance of Niobrara River and its tributaries by the author of this paper, published in the Third Annual Report of the United States Reclamation Service, pages 326 et seq., and in a preliminary report on the geology and water resources of Nebraska west of the one hundred and third meridian by N. H. Darton, published in the Nineteenth Annual Report of the United States Geological Survey, part 4, pages 719 et seq.

The following table shows the stations maintained in this drainage basin:

Gaging stations in Niobrara River drainage basin.

Stream.	Station.	Established.	Discontinued.
Niobrara	Valentine	July 22, 1897	
Do.	Niobrara	May 11, 1902	Oct. 25, 1902
Red Deer Lake	Woodlake	Aug. 12, 1904	Oct. 31, 1905

NIOBRARA RIVER NEAR VALENTINE.

The station known as Fort Niobrara station was established July 22, 1897. June 26, 1901, it was moved about 3 miles farther upstream to the Borman Bridge, in sec. 4, T. 34 N., R. 28 W., about 3 miles southeast of the town of Valentine.

At the gaging station the stream lies on an easy curve. The banks are heavily wooded and high and are not liable to overflow. The bed is composed of cobblestones and sand, which at times of high water scours out, leaving the rocks comparatively bare. The shifting of the sand renders the development of a good rating curve a difficult matter, and the method of applying a rating table indirectly has been largely used. There are no natural obstructions in the stream and the current is always swift. The range of gage heights seldom exceeds 2 feet except after a "cloud-burst," when the very lowest bottom land has been flooded for a few hours. The river seldom freezes completely over, and during 1904 and 1905 records of gage heights were obtained throughout the winter.

Discharge measurements are made from a single-span steel bridge.

The gage is of the wire and weight type, and is located about 1,000 feet upstream from the bridge on the left bank. The length of the wire is 9.90 feet. The gage is referred to bench marks as follows:

FALLS OF SNAKE RIVER.

(1) The head of a nail driven in the stump of a boxelder tree—one of a clump of four—just east of Mr. Borman's house; elevation 17.26 feet above the zero of the gage. (2) A 2- by 6-inch pine head block, on which the gate of Borman's fence rests when closed; elevation 16.19 feet above the zero of the gage. As a check, the elevation of the water surface at the time of making the measurements is referred to the bottom of the upstream end of the second floor beam from the end of the bridge on the left bank.

Discharge measurements of Niobrara River near Valentine, 1897–1906.

Date.	Hydrographer.	Gage height.	Discharge.
1897.[a]		*Feet.*	*Sec.-ft.*
June 24	O. V. P. Stout	0.59	925
July 22	do	.48	883
August 15	do	.38	703
September 5	do	.46	730
October 16	Adna Dobson	.21	845
1898.[a]			
April 25	Glenn E. Smith	.05	987
May 13	do	.23	1,588
May 24	do	.10	1,156
June 12	do	.05	876
July 27	do	.35	690
August 21	do	.39	677
September 7	do	.32	748
September 26	do	.28	840
October 16	do	.18	867
October 29	do	.12	960
November 17	do	.5	960
December 17	do	Ice.	843
December 28	do	Ice.	964
1899.[a]			
January 27	do	Ice.	623
March 15	do	Ice.	726
Do	do	Ice.	[b] 650
April 25	do	1.15	952
May 11	do	1.18	867
May 26	do	1.44	1,031
June 23	do	1.24	733
July 16	do	1.52	788
August 13	do	1.30	718
August 30	do	1.35	700
September 13	do	1.15	695
September 26	do	1.05	732
October 7	do	1.15	776
October 20	do	.80	849
1901.			
June 26	O. V. P. Stout	1.46	724
August 1	do	1.45	951
May 12	C. B. Channel	.....	628
November 14	B. E. Forbes	1.54	818
1902.			
March 22	J. C. Stevens	1.66	971
April 12	do	1.50	785
1902.			
June 15	J. C. Stevens	1.30	585
July 4	do	1.60	800
July 20	do	1.40	727
August 20	do	1.40	681
September 26	do	1.55	733
November 13	do	1.60	764
1903.			
April 26	do	1.55	766
May 26	do	1.55	878
May 26	do	1.55	894
June 25	do	1.40	714
August 25	do	1.30	602
September 17	E. C. Murphy	1.38	709
Do	do	1.38	715
December 23	J. C. Stevens	1.75	706
1904.			
April 17	do	1.57	683
Do	do	1.57	640
July 11	do	1.44	761
Do	do	1.47	760
Do	do	1.48	756
Do	do	1.51	752
Do	do	1.53	801
August 11	do	1.26	584
August 24	do	1.30	638
1905.			
March 13	E. L. Thomas	1.64	910
May 31	H. C. Gardner	1.85	1,142
June 29	do	1.80	1,111
July 19	G. W. Bates	1.50	818
August 15	H. C. Gardner	1.65	978
October 15	do	1.55	834
November 15	G. W. Bates	1.65	886
December 27	do	1.75	940
1906.			
March 14	Geo. W. Bates	1.55	[c] 483
April 18	do	1.10	1,121
May 1	do	1.75	998
May 11	do	1.65	819
June 30	F. S. Dobson	1.35	627
September 21	Adna Dobson	1.45	813
December 17	Geo. W. Bates	1.70	776

[a] Measurements during 1897, 1898, and 1899, made at Fort Niobrara, 3 miles below present station.
[b] Measurement made 3 miles below Fort Niobrara Bridge.
[c] Slush ice running and edges frozen.

Mean daily gage height, in feet, of Niobrara River near Valentine, 1897–1906.

Day.	July.	Aug.	Sept.	Oct.	Day.	July.	Aug.	Sept.	Oct.
1897.					1897.				
1	.....	0.33	0.41	0.42	17	.....	0.39	0.41	0.17
2	.....	.30	.38	.40	18	.....	.32	.37	.20
3	.....	.45	.36	.40	19	.....	.31	.39	.15
4	.....	.41	.41	.40	20	.....	.31	.36	.14
5	.....	.50	.46	.40	21	.....	.39	.38	.12
6	.....	.50	.41	.38	22	0.51	.39	.45	.19
7	.....	.46	.39	.35	23	.46	.38	.45	.22
8	.....	.47	.34	.30	24	.50	.34	.46	.23
9	.....	.40	.45	.31	25	.44	.31	.48	.28
10	.....	.50	.47	.32	26	.41	.32	.....	.37
11	.....	.34	.45	.32	27	.44	.32	.....	.29
12	.....	.40	.45	.26	28	.44	.32	.....	.22
13	.....	.36	.49	.27	29	.44	.31	.45	.15
14	.....	.37	.50	.23	30	.40	.32	.44	.12
15	.....	.36	.42	.21	31	.40	.39	.....	.....
16	.....	.29	.45	.20					

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1899.							1899.						
1	.....	1.13	1.31	1.21	1.31	1.24	17	.....	1.12	1.41	1.51	1.41	1.24
2	.....	1.11	1.31	1.41	1.34	1.24	18	.....	1.14	1.41	1.44	1.44	1.21
3	.....	1.12	1.34	1.34	1.51	1.31	19	.....	1.21	1.34	1.41	1.41	1.14
4	.....	1.12	1.31	1.23	1.41	1.31	20	.....	1.22	1.24	1.41	1.34	1.14
5	.....	1.14	1.31	1.24	1.34	1.24	21	.....	1.23	1.23	1.41	1.32	1.24
6	.....	1.21	1.21	1.34	1.34	1.21	22	.....	1.24	1.23	1.31	1.34	1.21
7	.....	1.13	1.14	1.41	1.31	1.21	23	.....	1.34	1.22	1.31	1.34	1.11
8	.....	1.24	1.12	1.41	1.31	1.21	24	.....	1.44	1.22	1.31	1.34	1.11
9	.....	1.31	1.12	1.41	1.41	1.24	25	.....	1.34	1.51	1.24	1.24	1.14
10	.....	1.14	1.12	1.42	1.34	1.21	26	1.14	1.44	1.21	1.21	1.24	1.12
11	.....	1.14	1.24	1.44	1.31	1.21	27	1.14	1.41	1.31	1.24	1.24	1.14
12	.....	1.14	1.44	1.44	1.34	1.14	28	1.21	1.42	1.34	1.24	1.24	1.11
13	.....	1.14	1.34	1.51	1.41	1.14	29	1.21	1.41	1.34	1.31	1.31	1.11
14	.....	1.14	1.21	1.42	1.21	1.14	30	1.13	1.42	1.41	1.31	1.31	1.11
15	.....	1.14	1.21	1.51	1.31	1.24	31	.....	1.31	.....	1.31	1.21	.....
16	.....	1.11	1.24	1.54	1.41	1.21							

Day.	June.	July.	Aug.	Sept.	Oct.	Nov.	Day.	June.	July.	Aug.	Sept.	Oct.	Nov.
1901.							1901.						
1	.....	1.61	1.35	1.55	1.38	1.53	17	.....	1.22	1.32	1.45	1.45	1.67
2	.....	1.35	1.40	1.50	1.46	1.49	18	.....	1.20	1.30	1.36	1.49	1.63
3	.....	1.37	1.40	1.47	1.48	1.47	19	.....	1.40	1.27	1.42	1.55	1.65
4	.....	1.32	1.38	1.75	1.46	1.46	20	.....	1.35	1.25	1.38	1.54	1.70
5	.....	1.30	1.30	1.62	1.40	1.53	21	.....	1.25	1.40	1.33	1.49	1.63
6	.....	1.28	1.32	1.42	1.43	1.49	22	.....	1.22	1.35	1.45	1.48	1.68
7	.....	1.24	1.28	2.68	1.52	1.51	23	.....	1.18	1.29	1.36	1.46	1.65
8	.....	1.25	1.25	1.80	1.55	1.50	24	.....	1.15	1.40	1.45	1.52	1.66
9	.....	1.40	1.29	1.65	1.63	1.55	25	.....	1.25	1.35	1.43	1.45	1.65
10	.....	1.30	1.35	1.53	1.90	1.50	26	.....	1.30	1.45	1.35	1.50	1.66
11	.....	1.35	1.40	1.60	1.70	1.68	27	1.45	1.40	1.38	1.43	1.45	1.64
12	.....	1.30	1.25	1.58	1.68	1.70	28	1.38	1.35	1.39	1.48	1.45	1.65
13	.....	1.20	1.28	1.53	1.65	1.63	29	1.37	1.30	1.38	1.45	1.51	1.69
14	.....	1.21	1.40	1.58	1.55	1.54	30	1.36	1.33	1.40	1.40	1.52	1.70
15	.....	1.20	1.30	1.50	1.52	1.70	31	.....	1.30	1.55	.....	1.54	.....
16	.....	1.18	1.35	1.52	1.53	1.68							

DAM SITE ON SNAKE RIVER.

Mean daily gage height, in feet, of Niobrara River near Valentine, 1897–1906—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.												
1	.....	.....	.....	1.58	1.63	1.50	3.10	1.31	1.40	1.43	1.58	1.55
2	.....	.....	.....	1.61	1.65	1.42	1.95	1.32	1.38	1.47	1.64	1.46
3	.....	.....	.....	1.64	1.60	1.44	1.73	1.38	1.30	1.42	1.53	1.16
4	.....	.....	.....	1.70	1.58	1.45	1.56	1.31	1.27	1.44	1.50	1.40
5	.....	.....	.....	1.68	1.65	1.54	1.58	1.42	1.28	1.47	1.57	1.48
6	.....	.....	.....	1.75	1.53	1.55	1.38	1.38	1.30	1.45	1.55	1.55
7	.....	.....	.....	1.50	1.47	1.44	1.25	1.31	1.27	1.44	1.54	.....
8	.....	.....	.....	1.58	1.56	1.58	1.90	1.43	1.41	1.45	1.58	.....
9	.....	.....	.....	1.54	1.60	1.42	1.38	1.48	1.28	1.46	1.54	.....
10	.....	.....	1.78	1.55	1.54	1.40	1.32	1.40	1.26	1.51	1.52	.....
11	.....	.....	1.80	1.44	1.52	1.42	1.32	1.24	1.33	1.53	1.50	.....
12	.....	.....	1.75	1.54	1.64	1.50	1.36	1.20	1.32	1.55	1.56	.....
13	.....	.....	1.79	1.58	1.57	1.48	1.27	1.36	1.29	1.52	1.60	.....
14	.....	.....	1.67	1.60	1.55	1.40	1.32	1.38	1.37	1.49	1.58	.....
15	.....	.....	1.65	1.54	1.63	1.28	1.26	1.39	1.33	1.48	1.56	.....
16	.....	.....	1.40	1.64	1.47	1.42	1.25	1.38	1.35	1.55	1.62	.....
17	.....	.....	1.33	1.72	1.52	1.47	1.26	1.44	1.34	1.52	1.56	.....
18	.....	.....	1.60	1.66	1.49	1.34	1.40	1.37	1.45	1.48	1.61	.....
19	.....	.....	1.95	1.58	1.83	1.52	1.42	1.38	1.40	1.50	1.54	.....
20	.....	.....	1.85	1.56	1.78	1.47	1.40	1.34	1.48	1.49	1.57	.....
21	.....	.....	2.05	1.47	1.51	1.36	1.34	1.45	1.45	1.48	1.50	.....
22	.....	.....	1.66	1.74	1.45	1.80	1.32	1.43	1.47	1.51	1.56	.....
23	.....	.....	1.75	1.69	1.51	1.32	1.37	1.34	1.33	1.55	1.52	.....
24	.....	.....	1.98	1.52	1.46	1.36	1.41	1.43	1.37	1.50	1.53	.....
25	.....	.....	1.90	1.80	1.44	1.33	1.32	1.62	1.48	1.51	1.60	.....
26	.....	.....	1.96	1.75	1.42	1.34	1.38	1.45	1.59	1.56	1.51	.....
27	.....	.....	1.93	1.54	1.48	1.37	1.35	1.31	1.53	1.53	1.56	.....
28	.....	.....	1.89	1.72	1.37	1.46	1.32	1.38	1.45	1.52	1.53	.....
29	.....	.....	1.83	1.58	1.40	1.95	1.34	1.40	1.57	1.51	1.46	.....
30	.....	.....	1.97	1.65	1.33	2.10	1.45	1.43	1.42	1.54	1.48	.....
31	.....	.....	1.85	.....	1.42	.....	1.36	1.52	.....	1.50	.....	.....
1903.												
1	.....	.....	1.18	1.90	1.50	1.50	1.40	1.56	1.30	1.38	1.52	1.58
2	.....	.....	1.67	1.94	1.52	1.43	1.37	1.95	1.33	1.41	1.50	1.62
3	.....	.....	1.90	1.92	1.50	1.42	1.35	3.20	1.31	1.45	1.51	1.57
4	.....	.....	1.75	1.80	1.55	1.47	1.37	1.60	1.37	1.38	1.55	1.60
5	.....	.....	1.80	1.85	1.55	1.43	1.30	1.51	1.29	1.42	1.46	.....
6	.....	.....	1.78	1.65	1.57	1.40	1.33	1.25	1.32	1.41	1.50	1.55
7	.....	.....	1.90	1.63	1.62	1.38	1.30	1.26	1.35	1.40	1.50	1.60
8	.....	.....	1.95	1.65	1.60	1.44	1.30	1.27	1.33	1.32	1.50	1.62
9	.....	.....	1.98	1.68	1.61	1.48	1.29	1.20	1.31	1.34	1.52	1.68
10	.....	.....	2.10	1.85	1.72	1.39	1.31	1.22	1.32	1.35	1.50	1.62
11	.....	.....	2.05	1.70	1.68	1.41	1.33	1.24	1.29	1.44	1.52	1.61
12	.....	.....	2.13	1.58	1.55	1.31	1.35	1.28	1.32	1.50	1.56	1.60
13	.....	.....	2.15	1.62	1.53	1.28	1.32	1.30	1.33	1.42	1.58	1.51
14	.....	.....	2.10	1.60	1.48	1.30	1.38	1.42	1.35	1.43	1.55	1.41
15	.....	1.26	2.05	1.52	1.47	1.32	1.40	1.35	1.43	1.45	1.60	1.45
16	.....	1.22	1.98	1.57	1.45	1.30	1.37	1.40	1.40	1.51	.....	1.65
17	.....	1.13	2.02	1.60	1.50	1.34	2.12	1.39	1.38	1.40	.....	1.80
18	.....	1.56	2.05	1.68	1.51	1.30	3.37	1.35	1.37	1.41	.....	1.82
19	.....	1.66	2.03	1.90	1.48	1.42	2.00	1.33	1.35	1.39	.....	1.88
20	.....	1.75	1.78	1.87	1.45	1.35	1.55	1.34	1.38	1.42	.....	1.82
21	.....	1.84	1.85	1.75	1.47	1.52	1.41	1.33	1.41	1.45	.....	1.89
22	.....	1.95	1.72	1.70	1.45	1.35	1.35	1.34	1.45	1.48	1.80	1.78
23	.....	1.70	1.80	1.72	1.40	1.48	1.34	1.31	1.34	1.48	1.75	1.80
24	.....	1.83	1.75	1.58	1.42	1.40	1.32	1.32	1.35	1.47	1.65	1.79
25	.....	1.76	1.78	1.63	1.38	1.40	1.33	1.29	1.42	1.45	1.62	1.90
26	.....	1.98	1.96	1.55	1.57	1.35	1.35	1.35	1.40	1.40	1.60	2.00
27	.....	1.95	1.95	1.53	1.40	1.36	1.30	1.45	1.34	1.45	1.62	1.80
28	.....	1.42	1.90	1.65	1.40	1.40	1.25	1.37	1.36	1.48	1.63	1.75
29	.....	.....	1.88	1.60	1.50	1.35	1.30	1.33	1.40	1.49	1.57	1.74
30	.....	.....	1.85	1.57	1.41	1.33	1.36	1.27	1.45	1.47	1.52	1.72
31	.....	.....	1.88	.....	1.42	.....	1.47	1.31	.....	1.48	.....	1.73
1904.												
1	1.65	2.30	2.05	1.56	1.55	1.86	1.35	1.30	1.54	1.51	1.55	1.54
2	1.74	2.25	1.90	1.53	1.60	1.78	1.35	1.60	1.36	1.50	1.52	1.51
3	1.63	2.35	1.55	1.55	1.55	2.05	1.37	1.33	1.37	1.55	1.53	1.50
4	1.67	2.15	1.80	1.57	1.75	1.85	1.40	1.40	1.49	1.53	1.55	1.58
5	1.68	2.25	1.75	1.60	1.70	1.58	1.92	1.38	1.50	1.52	1.54	1.51

Mean daily gage height, in feet, of Niobrara River near Valentine, 1897–1906—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.												
6	1.75	2.40	2.02	1.56	1.65	1.55	1.50	1.40	1.38	1.45	1.57	1.56
7	1.80	1.95	1.87	1.58	1.57	1.55	1.80	1.32	1.40	1.36	1.55	1.65
8	1.80	1.82	1.80	1.60	1.72	1.85	1.53	1.30	1.39	1.38	1.52	1.64
9	1.76	1.80	1.70	1.56	1.60	2.30	1.42	1.31	1.37	1.42	1.56	1.60
10	1.73	1.95	1.78	1.60	1.50	1.60	1.40	1.30	1.34	1.47	1.60	1.66
11	1.70	1.83	1.67	1.60	1.52	1.61	1.55	1.25	1.36	1.48	1.58	1.61
12	1.74	1.96	1.65	1.55	1.72	1.57	1.47	1.29	1.35	1.45	1.55	1.55
13	1.73	2.36	1.60	1.56	1.60	1.55	1.45	1.30	1.35	1.46	1.54	1.56
14	1.74	2.32	1.62	1.60	1.55	1.45	1.42	1.35	1.25	1.43	1.52	1.67
15	1.75	1.96	1.58	1.58	1.51	1.54	1.42	1.24	1.30	1.41	1.55	1.60
16	1.71	2.00	1.60	1.58	1.52	1.50	1.31	1.30	1.26	1.48	1.53	1.71
17	1.70	2.28	1.60	1.58	1.49	1.42	1.32	1.35	1.28	1.43	1.52	1.65
18	1.75	2.20	1.57	1.55	1.51	1.40	1.30	1.33	1.30	1.62	1.56	1.72
19	1.66	2.25	1.55	1.50	1.48	1.47	1.31	1.44	1.36	1.63	1.57	1.57
20	1.61	2.32	1.55	1.49	1.50	1.70	1.26	1.40	1.35	1.55	1.52	1.64
21	1.56	2.31	1.58	1.53	1.52	1.46	1.37	1.36	1.26	1.54	1.58	1.72
22	1.60	2.40	1.50	1.62	1.50	1.42	1.32	1.34	1.30	1.56	1.51	1.78
23	1.61	2.42	1.41	1.55	1.52	1.45	1.30	1.30	1.32	1.54	1.54	1.74
24	1.40	2.20	1.52	1.63	1.50	1.35	1.23	1.31	1.33	1.54	1.53	1.77
25	.95	2.15	1.53	1.60	1.51	1.51	1.32	1.27	1.36	1.53	1.48	1.72
26	1.45	2.20	1.39	1.58	1.45	1.41	1.27	1.25	1.35	1.51	1.54	1.10
27	1.72	2.23	1.52	1.61	1.47	1.35	1.34	1.26	1.37	1.50	1.53	1.40
28	2.15	2.32	1.58	1.50	1.45	1.36	1.37	1.35	1.42	1.55	1.60	1.85
29	2.25	2.15	1.60	1.57	1.45	1.38	1.30	1.35	1.40	1.57	1.54	1.75
30	2.20	.....	1.55	1.50	1.46	1.36	1.35	1.32	1.45	1.58	1.56	1.30
31	2.55	.....	1.62	.....	1.48	.....	1.32	1.34	.....	1.54	.....	2.20
1905.												
1	2.15	2.78	2.3	1.65	1.53	1.76	1.76	1.88	1.48	1.45	1.57	1.95
2	1.9	2.8	2.15	1.8	1.55	1.75	3.15	1.82	1.5	1.43	1.6	1.35
3	2.15	3.35	2.0	1.78	1.62	1.86	2.8	1.75	1.45	1.47	1.56	1.23
4	2.03	3.6	1.78	1.8	2.03	1.68	2.4	1.7	1.44	1.45	1.59	1.37
5	2.05	3.77	1.75	1.71	1.8	1.65	2.32	1.67	1.48	1.5	1.62	2.18
6	2.02	3.9	1.8	1.65	1.75	1.5	2.15	1.68	1.45	1.52	1.57	2.2
7	2.0	3.85	1.78	1.6	1.68	1.48	2.05	1.65	1.49	1.49	1.59	2.1
8	2.03	3.7	1.75	1.62	1.65	1.5	1.82	1.67	1.53	1.55	1.61	2.15
9	1.9	3.6	1.7	1.6	1.6	1.55	1.93	1.66	1.55	1.57	1.59	2.2
10	2.07	3.67	1.64	1.82	1.63	1.75	1.85	1.58	1.5	1.53	1.58	2.03
11	2.45	3.95	1.62	1.68	1.7	1.7	1.8	1.55	1.47	1.45	1.61	2.98
12	3.2	4.0	1.6	1.57	1.63	1.55	1.68	1.55	1.45	1.44	1.6	1.0
13	3.6	3.9	1.64	1.55	1.55	1.58	1.65	1.58	1.42	1.45	1.59	2.9
14	3.15	3.9	1.60	1.62	1.64	1.56	1.6	1.72	1.5	1.5	1.63	1.9
15	3.9	3.65	1.63	1.7	1.6	1.55	1.62	1.64	1.49	1.55	1.64	1.92
16	3.85	3.6	1.67	1.66	1.65	1.6	1.65	1.6	1.52	1.48	1.6	1.88
17	3.15	3.35	1.66	1.65	1.53	1.57	1.68	1.55	1.47	1.48	1.63	1.75
18	3.2	3.55	1.73	1.6	1.5	1.93	1.57	1.53	1.55	1.49	1.65	1.76
19	2.77	3.38	1.7	1.57	1.53	1.75	2.48	1.51	1.48	1.55	1.65	1.78
20	2.5	3.16	1.62	1.55	1.52	1.95	2.15	1.48	1.45	1.5	1.66	1.75
21	2.2	3.1	1.65	1.53	1.52	1.6	1.95	1.5	1.45	1.52	1.67	1.75
22	2.38	3.18	1.63	1.54	1.53	1.77	1.76	1.53	1.47	1.5	1.7	1.69
23	2.33	2.85	1.7	1.53	1.5	1.63	1.75	1.5	1.5	1.48	1.72	1.0
24	2.45	2.74	1.68	1.67	1.48	1.78	1.6	1.5	1.45	1.49	1.74	1.65
25	2.83	2.6	1.65	1.68	1.52	2.04	1.73	1.45	1.42	1.5	1.73	1.63
26	2.25	3.0	1.6	1.73	1.53	1.8	1.62	1.42	1.5	1.5	1.7	1.75
27	2.33	2.7	1.62	1.6	1.78	2.5	1.6	1.45	1.52	1.53	1.75	1.72
28	2.57	2.48	1.75	1.6	1.65	1.95	1.6	1.43	1.45	1.54	1.77	1.65
29	2.85	.....	1.65	1.55	2.2	1.72	1.61	1.49	1.5	1.58	1.56	1.58
30	1.9	.....	1.58	1.5	1.95	1.85	1.87	1.45	1.47	1.56	1.35	1.7
31	2.0	.....	1.61	.....	1.85	.....	1.8	1.48	.....	1.59	.....	1.56
1906.												
1	1.75	1.97	1.9	2.60	1.90	1.45	1.35	1.25	1.35	1.25	1.70	.....
2	1.70	1.92	.....	2.35	2.00	1.50	1.35	1.25	1.30	1.40	1.70	.....
3	1.76	1.95	.....	2.15	1.90	1.50	1.35	1.25	1.30	1.35	1.75	.....
4	1.80	1.90	2.55	2.12	1.90	1.60	1.35	1.60	1.25	1.30	1.75	.....
5	1.82	1.62	2.8	2.07	1.85	1.55	1.40	1.45	1.25	1.30	1.65	.....
6	1.85	1.5	2.55	1.96	1.90	1.55	1.35	1.50	1.25	1.25	1.68	.....
7	1.78	1.75	2.2	1.95	1.75	1.45	1.40	1.60	1.30	1.35	1.60	.....
8	1.55	1.83	2.5	2.10	1.65	1.40	1.30	1.50	1.30	1.35	1.60	.....
9	1.60	1.78	2.25	2.12	1.65	1.30	1.25	1.45	1.30	1.30	1.55	.....
10	1.68	1.85	2.05	2.07	1.60	1.30	1.30	1.55	1.25	1.30	1.55	.....

Mean daily gage height, in feet, of Niobrara River near Valentine, 1897–1906—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1906.												
11	1.63	1.87	1.75	1.98	1.65	1.45	1.55	1.50	1.55	1.25	1.50	.....
12	1.82	1.95	1.32	2.08	1.55	1.40	1.40	1.40	1.35	1.30	1.50	.....
13	1.93	1.75	1.35	2.30	1.60	1.35	1.35	1.45	1.35	1.35	1.55	.....
14	1.85	1.70	1.65	2.32	1.55	1.35	1.40	1.40	1.30	1.35	1.55	.....
15	1.87	1.75	1.6	2.07	1.55	1.40	1.40	1.35	1.40	1.40	1.60	.....
16	1.8	1.95	1.85	2.12	1.50	1.35	1.35	1.30	1.35	1.35	1.60	.....
17	1.85	2.08	1.9	2.05	1.55	1.40	1.35	1.30	1.30	1.45	1.45	.....
18	1.85	2.03	1.95	2.06	1.40	1.35	1.35	1.30	1.30	1.40	1.50	.....
19	1.90	2.15	1.95	2.02	1.40	1.40	1.30	1.25	1.40	1.40	1.40	.....
20	1.85	2.0	1.95	2.05	1.40	1.30	1.30	1.25	1.40	1.70	1.30	.....
21	1.65	1.95	2.12	1.90	1.45	1.30	1.30	1.30	1.45	1.60	1.45	.....
22	1.70	1.9	2.07	1.95	1.45	1.35	1.30	1.30	1.40	1.55	1.50	.....
23	2.45	2.0	2.0	1.95	1.50	1.35	1.30	1.50	1.30	1.50	1.55	.....
24	2.20	1.9	2.1	1.90	1.50	1.40	1.25	1.55	1.30	1.75	1.70	.....
25	2.20	1.85	2.0	1.85	1.55	1.40	1.25	1.50	1.40	1.50	1.65	.....
26	2.15	1.95	2.08	1.85	1.95	1.45	1.25	1.40	1.35	1.65	1.60	.....
27	2.18	1.85	2.15	1.80	1.60	1.45	1.30	1.30	1.30	1.70	1.55	.....
28	2.10	1.92	2.2	1.80	1.50	1.40	1.25	1.35	1.30	1.75	1.60	.....
29	2.10	.....	2.25	1.75	1.60	1.40	1.25	1.30	1.30	1.85	1.70	.....
30	2.05	.....	2.25	1.75	1.55	1.35	1.25	1.30	1.30	1.80	1.65	.....
31	1.95	.....	2.18	.....	1.50	.....	1.25	1.30	.....	1.70	.....	.....

Mean daily discharge, in second-feet, of Niobrara River near Valentine, 1901–1906.

Day.	July.	Aug.	Sept.	Oct.	Nov.	Day.	July.	Aug.	Sept.	Oct.	Nov.
1901.						1901.					
1	865	805	805	655	805	17	525	580	700	700	930
2	620	655	750	700	750	18	525	580	620	750	930
3	620	655	700	750	700	19	655	555	655	805	930
4	580	655	1,080	700	700	20	620	555	655	805	1,000
5	580	580	865	655	805	21	555	655	620	750	930
6	580	580	655	700	750	22	525	620	700	750	1,000
7	555	580	4,330	750	750	23	525	580	620	700	930
8	555	555	1,155	805	750	24	510	655	700	750	930
9	655	580	930	930	805	25	555	620	700	700	930
10	580	620	805	1,330	750	26	580	700	620	750	930
11	620	655	865	1,000	1,000	27	655	655	700	700	930
12	580	555	865	1,000	1,000	28	620	655	750	700	930
13	525	580	805	930	930	29	580	655	700	750	1,000
14	525	655	865	805	805	30	620	655	655	750	1,000
15	525	580	750	750	1,000	31	580	700	.....	805	.....
16	525	620	750	805	1,000						

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.												
1	.....	.....	.....	865	930	750	4,260	580	655	700	865	805
2	.....	.....	.....	865	930	655	1,425	580	655	700	930	700
3	.....	.....	.....	930	865	700	1,075	655	580	655	805	805
4	.....	.....	.....	1,000	865	700	805	580	550	700	750	505
5	.....	.....	.....	1,000	930	805	865	655	580	700	805	655
6	.....	.....	.....	1,075	805	805	655	655	580	700	805	750
7	.....	.....	.....	750	700	700	550	580	550	700	805	750
8	.....	.....	.....	865	805	865	1,330	700	655	700	865	.....
9	.....	.....	.....	805	865	655	655	750	580	700	805	.....
10	.....	.....	1,155	805	805	655	580	655	550	750	750	.....
11	.....	.....	1,155	700	750	655	580	550	615	805	750	.....
12	.....	.....	1,075	805	930	750	615	525	580	805	805	.....
13	.....	.....	1,155	865	805	750	550	615	580	750	865	.....
14	.....	.....	930	865	805	655	580	655	615	750	865	.....
15	.....	.....	930	805	930	580	550	655	615	750	805	.....
16	.....	.....	655	930	700	655	550	655	615	805	865	.....
17	.....	.....	615	1,000	750	700	550	700	615	750	805	.....
18	.....	.....	865	930	750	615	655	615	700	750	865	.....
19	.....	.....	1,425	865	1,240	750	655	655	655	750	805	.....
20	.....	.....	1,240	805	1,155	700	655	615	750	750	805	.....

Mean daily discharge, in second-feet, of Niobrara River near Valentine, 1901–1906—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1902.												
21	.....	.....	1,630	700	750	615	615	700	700	750	750	.....
22	.....	.....	970	1,075	700	580	580	700	700	750	805	.....
23	.....	.....	1,075	1,000	750	580	615	615	615	805	750	.....
24	.....	.....	1,525	750	700	615	655	700	615	750	805	.....
25	.....	.....	1,330	1,155	700	615	580	865	750	750	865	.....
26	.....	.....	1,425	1,075	655	615	655	700	865	805	750	.....
27	.....	.....	1,330	805	750	615	615	580	805	805	805	.....
28	.....	.....	1,330	1,000	615	700	580	655	700	750	805	.....
29	.....	.....	1,240	865	655	1,425	615	655	800	750	700	.....
30	.....	.....	1,425	930	615	1,740	700	700	655	805	750	.....
31	.....	.....	1,240	.....	655	.....	615	750	.....	750	.....	.....
1903.												
1	.....	.....	525	1,330	750	805	700	805	580	655	750	755
2	.....	.....	930	1,425	750	750	655	1,425	615	655	750	750
3	.....	.....	1,330	1,330	750	700	655	6,800	580	700	750	700
4	.....	.....	1,075	1,155	805	750	655	865	615	655	805	750
5	.....	.....	1,155	1,240	805	750	615	750	580	655	700	.....
6	.....	.....	1,155	930	805	700	655	550	580	655	750	700
7	.....	.....	1,330	930	865	700	615	550	615	655	750	750
8	.....	.....	1,425	930	865	750	615	550	615	580	750	655
9	.....	.....	1,525	1,000	865	805	615	525	580	615	750	750
10	.....	.....	1,740	1,240	1,000	700	615	525	580	615	750	655
11	.....	.....	1,630	1,000	1,075	700	655	550	580	700	750	655
12	.....	.....	1,860	865	865	615	655	580	580	750	805	655
13	.....	.....	1,860	865	865	615	615	580	615	655	865	580
14	.....	.....	1,740	865	805	615	700	655	615	700	805	525
15	.....	550	1,630	750	750	615	700	615	700	700	(a)	550
16	.....	525	1,525	805	750	615	655	655	700	750	(a)	655
17	.....	505	1,525	865	805	655	1,860	655	700	655	(a)	750
18	.....	805	1,630	1,000	805	615	7,000	615	655	655	(a)	750
19	.....	930	1,630	1,240	805	700	1,525	615	655	655	(a)	865
20	.....	1,075	1,155	1,155	750	655	805	615	700	655	(a)	750
21	.....	1,240	1,240	1,000	750	805	655	615	700	700	(a)	865
22	.....	1,425	1,000	930	750	655	615	615	750	750	750	750
23	.....	1,000	1,155	930	700	805	615	580	655	750	700	750
24	.....	1,240	1,075	805	700	700	580	580	655	700	615	750
25	.....	1,075	1,155	865	700	700	615	580	700	700	580	865
26	.....	1,525	1,425	750	865	655	615	615	655	655	655	1,000
27	.....	1,425	1,425	750	700	655	580	700	615	700	655	750
28	.....	655	1,330	865	700	700	550	615	615	750	700	700
29	.....	.....	1,330	805	805	655	580	615	655	750	615	700
30	.....	.....	1,240	750	700	615	615	550	700	700	655	655
31	.....	.....	1,330	.....	700	.....	700	580	.....	750	.....	700
1904.												
1	615	600	600	655	700	1,155	615	615	805	750	805	805
2	700	600	865	655	750	1,075	615	930	615	750	750	750
3	615	600	550	655	700	1,525	615	655	615	805	805	750
4	615	600	750	655	930	1,155	655	700	750	805	805	865
5	655	600	700	700	865	805	1,330	700	750	750	805	865
6	700	600	1,000	655	805	750	750	700	655	700	805	805
7	750	600	865	700	700	750	1,155	615	655	615	805	865
8	750	750	805	700	865	1,155	805	615	655	655	750	930
9	700	750	615	655	750	2,115	655	615	615	655	805	865
10	700	930	865	700	655	805	655	615	615	700	865	930
11	655	805	700	700	655	805	805	580	615	750	865	865
12	700	930	700	655	865	750	700	615	615	700	805	805
13	700	600	655	655	750	750	700	615	615	700	805	805
14	700	600	655	700	700	655	655	655	550	700	750	930
15	700	600	700	700	655	750	655	580	580	655	805	865
16	655	600	700	700	655	700	580	615	550	750	805	800
17	655	600	700	700	655	615	580	700	580	700	750	800
18	700	600	655	655	655	615	580	700	580	865	805	800
19	615	600	655	615	655	655	580	750	615	930	805	800
20	580	600	655	615	655	930	550	700	615	805	750	800
21	550	600	700	655	655	655	615	655	550	805	865	800
22	580	600	615	700	655	615	580	655	580	805	750	800
23	580	600	550	655	655	655	580	615	580	805	805	800
24	490	600	615	750	655	615	550	615	615	805	805	800
25	450	600	655	700	655	750	580	580	615	805	750	800

a Ice November 15 to 21.

Mean daily discharge, in second-feet, of Niobrara River near Valentine, 1901–1906—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.												
26	505	600	550	700	655	655	580	580	615	750	805	800
27	655	600	615	700	655	615	655	580	615	750	805	800
28	600	600	700	615	655	615	655	615	655	805	865	800
29	600	600	700	655	655	655	615	615	655	805	805	800
30	600	.....	655	655	655	615	655	580	700	865	805	800
31	600	.....	700	.....	700	.....	615	615	.....	805	.....	800
1905.												
1	.....	.....	.....	905	740	1,005	1,065	1,375	760	725	820	.....
2	.....	.....	.....	1,125	760	990	3,420	1,270	785	705	855	.....
3	.....	.....	.....	1,095	835	1,160	2,845	1,150	730	745	805	.....
4	.....	.....	.....	1,125	1,480	895	2,165	1,070	720	725	835	.....
5	.....	.....	1,070	985	1,090	860	2,044	1,025	760	780	870	.....
6	.....	.....	1,150	900	1,015	695	1,755	1,040	730	800	810	.....
7	.....	.....	1,120	835	910	680	1,600	990	770	765	830	.....
8	.....	.....	1,070	860	870	700	1,210	1,015	815	835	850	.....
9	.....	.....	995	835	810	750	1,400	1,005	840	855	825	.....
10	.....	.....	910	1,150	845	1,005	1,280	990	780	810	815	.....
11	.....	.....	880	935	935	935	1,200	850	750	725	845	.....
12	.....	.....	860	795	845	750	1,020	850	730	715	830	.....
13	.....	.....	910	775	750	785	980	885	700	725	815	.....
14	.....	.....	860	855	855	765	915	1,085	780	775	865	.....
15	.....	.....	895	960	805	755	950	930	770	834	880	.....
16	.....	.....	950	905	865	815	1,000	905	805	750	825	.....
17	.....	.....	935	890	730	780	1,055	845	750	750	860	.....
18	.....	.....	1,035	825	700	1,310	900	820	840	760	880	.....
19	.....	.....	990	790	725	1,020	2,420	795	760	825	880	.....
20	.....	.....	880	770	715	1,345	1,855	765	725	765	890	.....
21	.....	.....	915	745	715	820	1,515	785	725	785	900	.....
22	.....	.....	890	755	725	1,055	1,190	820	750	760	940	.....
23	.....	.....	985	745	695	860	1,170	785	780	740	965	.....
24	.....	.....	955	910	675	1,075	940	785	725	750	995	.....
25	.....	.....	910	925	710	1,515	1,135	730	700	755	980	.....
26	.....	.....	845	995	720	1,110	965	700	780	755	935	.....
27	.....	.....	870	820	1,035	2,300	935	730	800	785	1,005	.....
28	.....	.....	1,055	820	855	1,365	935	710	725	795	1,030	.....
29	.....	.....	910	760	1,740	990	1,005	770	780	840	760	.....
30	.....	.....	820	710	1,310	1,200	1,365	730	745	815	575	.....
31	.....	.....	855	.....	1,140	.....	1,240	760	.....	845	.....	.....
1906.												
1	930	1,060	835	1,710	1,180	672	632	595	700	573	985	.....
2	875	1,000	1,080	1,350	1,300	720	632	595	660	685	985	.....
3	940	1,040	1,340	1,120	1,170	720	632	565	660	645	1,040	.....
4	985	985	1,590	1,080	1,160	815	632	907	625	608	1,040	.....
5	997	685	1,950	1,030	1,100	770	675	1,060	625	608	930	.....
6	1,040	595	1,590	905	1,140	770	635	810	625	573	980	.....
7	950	805	1,120	900	957	682	675	915	665	645	870	.....
8	705	890	1,520	1,070	840	645	600	810	665	645	870	.....
9	750	725	1,180	1,100	835	575	573	760	665	608	820	.....
10	828	890	940	1,050	780	577	607	865	625	608	820	.....
11	778	895	630	945	820	690	820	815	910	573	770	.....
12	970	985	390	1,060	725	648	685	720	710	608	770	.....
13	1,100	770	400	1,350	775	662	645	765	710	645	820	.....
14	1,000	725	562	1,370	730	616	685	725	670	645	820	.....
15	1,030	755	510	1,070	735	655	685	685	760	685	870	.....
16	930	965	680	1,130	690	620	645	642	715	645	870	.....
17	990	1,120	720	1,060	735	655	652	642	675	730	730	.....
18	990	1,060	790	1,070	655	620	652	647	675	685	770	.....
19	1,050	1,180	790	1,020	620	657	615	610	765	685	685	.....
20	978	995	800	1,060	620	585	615	610	765	985	607	.....
21	768	940	985	925	660	585	620	647	810	870	730	.....
22	815	885	945	1,000	660	620	620	650	685	820	770	.....
23	1,750	970	860	1,020	795	620	620	830	607	770	820	.....
24	1,400	860	995	990	705	662	585	880	607	1,040	985	.....
25	1,400	810	875	950	750	662	590	830	685	770	930	.....
26	1,330	915	990	980	1,200	705	590	740	645	930	870	.....
27	1,370	785	1,060	940	805	705	625	655	607	985	820	.....
28	1,240	855	1,140	960	710	666	590	695	607	1,040	870	.....
29	1,240	.....	1,200	930	810	666	595	655	607	1,160	985	.....
30	1,180	.....	1,220	960	760	630	595	660	607	1,100	930	.....
31	1,060	.....	1,130	.....	715	.....	595	660	.....	985	.....	.....

Estimated monthly discharge of Niobrara River near Valentine, 1901–1906.

[Drainage area, 6,070 square miles.]

Month and year.	Discharge in second-feet.			Total in acre-feet.	Run-off.			Rainfall (inches).
	Maximum.	Minimum.	Mean.		Second-feet per square mile.	Depth in inches.	Per cent of rainfall.	
January.								
1904	750	450	634	39,000	0.104	0.12	20	0.60
1906	1,750	705	1,040	64,000	.171	.20	37	.54
February.								
1903 [a]	1,520	505	998	27,700	.....	.....	.....	1.31
1904	930	600	640	36,800	.105	.11	46	.24
1906	1,180	595	898	49,900	.148	.15	34	.44
March.								
1902	1,630	615	1,169	71,900	.192	.22	12	1.84
1903	1,860	525	1,357	83,400	.224	.26	32	.81
1904	1,000	550	692	82,500	.144	.13	46	.28
1905	1,150	820	945	58,100	.156	.18	16	1.09
1906	1,950	390	994	61,200	.164	.19	12	1.55
April.								
1902	1,150	700	896	53,300	.148	.17	16	1.08
1903	1,425	750	979	58,200	.161	.18	10	1.72
1904	750	615	674	40,100	.111	.12	17	.70
1905	1,150	710	883	52,500	.145	.16	6	2.90
1906	1,710	900	1,070	63,700	.176	.20	10	2.10
May.								
1902	1,240	615	802	49,300	.132	.15	6	2.60
1903	1,070	700	794	48,800	.131	.15	5	3.27
1904	930	655	705	43,300	.116	.13	5	2.67
1905	1,740	675	890	54,700	.147	.17	3	5.24
1906	1,300	620	843	51,800	.139	.16	5	3.22
June.								
1901 [b]	700	620	659	6,500	.....	.....	.....	7.02
1902	1,740	580	740	44,000	.122	.13	3	3.73
1903	805	615	692	41,200	.114	.13	8	1.66
1904	2,110	615	832	49,500	.137	.15	3	5.08
1905	2,300	680	1,010	60,100	.166	.18	3	5.79
1906	815	575	662	39,400	.109	.12	5	2.22
July.								
1901	865	510	585	36,000	.096	.11	7	1.49
1902	4,260	550	805	49,500	.133	.15	7	2.26
1903	7,000	550	912	56,100	.150	.17	3	5.74
1904	1,330	550	675	41,500	.111	.13	4	3.00
1905	3,420	900	1,402	86,200	.231	.27	6	4.51
1906	820	573	633	38,900	.104	.12	8	1.47
August.								
1901	805	555	624	38,400	.103	.12	5	2.44
1902	865	525	653	40,100	.106	.13	5	2.77
1903	6,800	525	843	51,800	.139	.16	6	2.81
1904	930	580	644	39,600	.106	.12	5	2.56
1905	1,370	700	902	55,500	.149	.17	10	1.69
1906	1,060	595	731	44.900	.120	.14	4	3.58
September.								
1901	4,330	620	879	52,300	.145	.16	5	3.38
1902	865	550	649	38,600	.107	.12	9	1.34
1903	750	580	638	38,000	.105	.12	8	1.52
1904	805	550	627	37,300	.103	.12	6	1.93
1905	840	700	760	45,200	.125	.14	14	.97
1906	910	607	678	40,300	.112	.12	4	3.02
October.								
1901	1,330	655	788	48,400	.130	.15	6	2.31
1902	805	655	745	45,800	.123	.14	17	.80
1903	750	580	685	42,100	.113	.13	21	.63
1904	930	615	760	46,700	.125	.14	11	1.28
1905	855	705	774	47,600	.128	.15	13	1.16
1906	1,160	573	760	46,700	.125	.13	4	2.99
November.								
1901	1,000	700	887	52,800	.146	.16	540	.03
1902	930	700	807	48,000	.133	.15	37	.41
1903	865	580	724	43,100	.119	.13	147	.09
1904	865	750	800	47,600	.132	.15	184	.08
1905	1,030	575	866	51,500	.143	.16	32	.50
1906	1,040	607	859	51,100	.142	.16	27	.60
December.								
1903	1,000	525	723	43,000	.119	.13	56	.23
1904	930	750	823	50,600	.136	.16	67	.24

[a] February 15 to 28.

[b] June 26 to 30.

NIOBRARA RIVER AT NIOBRARA.

A station was established May 11, 1902, near the mouth of Niobrara River, at a wooden highway bridge 1 mile southwest of the city of Niobrara, below all tributaries. It was abandoned October 25, 1902.

The river has here two channels about one-fourth mile apart. The bed of the stream is sandy and the cross section is continually changing. Velocities were high and accurate measurements could not be made.

The gage was of the wire and weight type, the length of the wire from the index to the end of the weight being 19 feet. The bench mark was the top of the face plate on the upstream pier at the left end of the bridge; elevation, 12.49 feet above the zero of the gage.

Discharge measurements of Niobrara River at Niobrara, 1902.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Second-feet.*
May 11	J. C. Stevens	2.55	1,637
July 6	do	2.85	2,021
July 25	do	2.00	1,401
August 21	do	2.10	1,106
September 28	do	1.90	2,201

Mean daily gage height, in feet, of Niobrara River at Niobrara, 1902.

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Day.	May.	June.	July.	Aug.	Sept.	Oct.
1	.....	2.60	2.70	2.70	2.60	2.40	17	2.57	2.75	2.60	2.75	2.30	2.10
2	.....	2.50	2.90	2.65	2.50	2.40	18	2.67	2.70	2.60	2.80	2.20	1.90
3	.....	2.50	2.95	2.65	2.50	2.40	19	2.80	2.65	2.65	2.85	2.20	1.90
4	.....	2.55	2.90	2.60	2.50	2.30	20	2.90	2.65	2.60	2.75	2.50	2.00
5	.....	2.70	2.90	2.60	2.45	2.30	21	3.00	2.75	2.60	2.70	2.90	2.00
6	.....	2.60	2.80	2.55	2.45	2.30	22	2.90	2.80	2.60	2.80	2.80	1.90
7	.....	2.60	2.70	2.55	2.50	2.25	23	2.57	2.80	2.55	2.70	2.80	1.90
8	.....	2.55	2.70	2.55	2.45	2.20	24	2.45	2.60	2.60	2.60	2.60	1.90
9	.....	2.70	2.75	2.60	2.40	2.20	25	2.40	2.60	2.65	2.75	2.60	1.90
10	.....	2.60	2.67	2.60	2.45	2.20	26	2.50	2.70	2.75	2.90	2.50	.....
11	2.55	2.50	2.60	2.70	2.40	2.10	27	2.50	2.85	2.70	2.75	2.50	.....
12	2.57	2.75	2.60	2.60	2.35	2.10	28	2.60	2.70	2.70	2.65	2.50	.....
13	2.57	2.60	2.60	2.55	2.40	2.10	29	2.55	2.80	2.70	2.60	2.45	.....
14	2.70	2.60	2.65	2.50	2.35	2.10	30	2.50	2.75	2.70	2.55	2.40	.....
15	2.70	2.60	2.60	2.70	2.30	2.05	31	2.45	.....	2.70	2.60	.....	.....
16	2.75	2.65	2.60	2.70	2.20	2.00							

LAKES IN CHERRY AND ADJOINING COUNTIES.

Throughout the southern part of the Niobrara drainage basin, in Cherry, Brown, and Sheridan counties, are numerous lakes which form the headwaters of small tributary streams. The country in which they are found consists almost entirely of characteristic sand hills, and the lakes are simply water-filled depressions in the valleys, the bottoms of which are below the general level of the water table of the district. They range in size from small ponds to lakes several square miles in area and are generally shallow, with beds and banks

entirely of sand; in many of them rushes and aquatic plants grow thickly. In dry weather large quantities of wild hay are cut on the borders and even from the beds of the shallower lakes.

These lakes are subject to a periodic rise, beginning in April or May and due probably to the precipitation, which at certain seasons of the year is considerably greater than at others. In order to determine the extent of these fluctuations, their possible effects on the streams of which the lakes are the source, and the amount of "lag" between the rises and the seasons of heavier rainfall, a gaging station was maintained on Red Deer Lake, chosen as fairly representative of the type, from August 12, 1904, to October 31, 1905.

The lake is located in secs. 16, 17, 20, and 21, T. 30 N., R. 27 W., about 16 miles south of Woodlake post-office and about 30 miles south of Valentine.

The lake covers about 1 square mile of surface and is merely a valley or flat in the sand hills, filled with water. The depth varies from 1 foot to 15 feet, the average being probably about 8 feet. The bed is entirely of sand, and the margin is thickly grown with rushes and other aquatic plants.

The gage consists of a staff fastened to a post at the end of the boat landing 200 yards south of Cochran's ranch house near the east end of the lake. The bench mark is a group of three spikes driven horizontally near the base of a cottonwood tree 12 inches in diameter, located 40 feet south and 20 feet east of the southwest corner post of the large windmill tower just west of Cochran's house; elevation, 9.61 feet above the zero of the gage.

Weekly gage height, in feet, of Red Deer Lake near Woodlake, 1904–5.

Day.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Aug.	Sept.	Oct.	Nov.	Dec.
1904.						1904.					
1						17		3.50			4.34
2		4.6				18					
3					4.32	19	4.5			4.33	
4				4.32		20					
5						21			4.35		
6						22					
7			4.33			23		4.31			
8						24					4.32
9						25				4.32	
10		4.42			4.34	26					
11						27	4.32				
12				4.33		28			4.32		
13						29					
14			4.31			30		4.36			4.38
15						31					
16											

Weekly gage height, in feet, of Red Deer Lake near Woodlake, 1904–5—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1905.										
1				4.39			4.75			
2									4.3	
3		4.46	4.36			4.55				
5					4.49			4.71		
6	4.4									
7				4.43						4.16
8							4.82			
9									4.32	
10			4.29			4.62				
11		4.5								
12								4.59		
13					4.52					
14	4.41						4.72			4.23
15				4.4						
16									4.3	
17		4.49	4.35			4.6				
19								4.5		
20	4.4				4.41					
21				4.36						
22							4.68			4.24
23									4.3	
24						4.7				
25		4.44	4.3							
26								4.4		
27					4.52					
28	4.41									
29				4.4			4.65			4.3
30									4.2	

MISCELLANEOUS MEASUREMENTS IN THE NIOBRARA BASIN.

The following discharge measurements have been made in the Niobrara basin at points other than the regular gaging stations in Nebraska:

Miscellaneous discharge measurements in Niobrara River basin, 1896–1905.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Sec.-feet.
Antelope Creek	Sec. 12, T. 32 N., R. 40 W	June 2, 1898	A. B. McCoskey	3.1
Ash Creek	Sec. 10, T. 31 N., R. 17 W.[a]	June 20, 1898	C. B. Channel	2.2
Baker Creek	N. line Sec. 19, T. 31 N., R. 13 W.	June 19, 1899	do	.4
Bear Creek	Sec. 31, T. 34 N., R. 34 W	Aug. 19, 1904	J. C. Stevens	2
Beaver Creek	Ravenna	Mar. 11, 1903	do	984
Do	Sec. 19, T. 32 N., R. 16 W	Apr. 27, 1905		20
Boardman Creek	Sec. 13, T. 30 N., R. 31 W	July 24, 1897	O. V. P. Stout	[b] 1
Do	Sec. 6, T. 29 N., R. 33 W	May 20, 1898	A. B. McCoskey	[b] 40
Do	Sec. 13, T. 30 N., R. 31 W	June 3, 1899	C. B. Channel	16.4
Do	Sec. 1, T. 30 N., R. 31 W	Aug. 16, 1904	J. C. Stevens	7.3
Bone Creek	Ainsworth	June 12, 1898	C. B. Channel	3.9
Do	Long Pine	Sept. 8, 1898		13.8
Do	do	Sept. 10, 1898	Glenn E. Smith	14
Do	Sec. 16, T. 31 N., R. 21 W	June 17, 1899	C. B. Channel	12.5
Buck Creek	Sec. 14, T. 31 N., R. 41 W	Sept. 1, 1898	A. B. McCoskey	[b] 4
Burton Creek	Sec. 28, T. 35 N., R. 19 W	Sept. 17, 1898	C. B. Channel	5.5
Bush Creek	Sec. 23, T. 33 N., R. 13 W	Aug. 14, 1902	P. T. Francis	25
Cedar Creek	Sec. 33, T. 34 N., R. 25 W.[c]	July 9, 1899	C. B. Channel	7.4
Cottonwood Creek, Big	Sec. 21, T. 35 N., R. 22 W	June 12, 1899	do	1.2
Crooked Creek	Sec. 20, T. 34 N., R. 19 W	June 18, 1898	do	.7
Do	Sec. 19, T. 34 N., R. 19 W	June 13, 1899	do	1.2
Deer Creek	Sec. 22, T. 30 N., R. 43 W	June 1, 1898	A. B. McCoskey	12
Do	Sec. 55, T. 30 N., R. 43 W	Aug. 23, 1904	J. C. Stevens	7.3
Eagle Creek, North Fork.	Sec. 26, T. 31 N., R. 13 W	Apr. 26, 1905		8.1
Eagle Creek, South Fork.	Sec. 9, T. 30 N., R. 13 W	do		25

[a] Above Spragg's dam. [b] Estimated. [c] At Bruce's mill.

Miscellaneous discharge measurements in Niobrara River basin, 1896–1905—Continued.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Sec.-feet.
Elk Creek	Bassett	Sept. 9, 1898	Glenn E. Smith	2
Fairfield Creek	Sec. 31, T. 33 N., R. 23 W.	June 11, 1898	C. B. Channel	23.5
Do	do	Aug. 13, 1904	J. C. Stevens	21.5
Gordon Creek	Sec. 15, T. 32 N., R. 29 W.	July 23, 1897	O. V. P. Stout	3.5
Holt Creek	Sec. 19, T. 35 N., R. 20 W.[a]	June 12, 1899	C. B. Channel	3.6
Horsehead Creek	Sec. 16, T. 33 N., R. 24 W.	June 9, 1899	do	1.2
Keyapaha River	Sec. 28, T. 35 N., R. 19 W.[b]	June 17, 1898	do	62
Do	Sec. 24, T. 35 N., R. 20 W.	June 13, 1899	do	39
Do	Butte	July 13, 1904	J. C. Stevens	204
Do	Sec. 24, T. 34 N., R. 16 W.	Oct. 23, 1904	Adna Dobson	78
Do	Butte	July 18, 1905		136
Long Pine Creek	Long Pine	Oct. 3, 1896	Adna Dobson	47.1
Do	do	June 20, 1898	C. B. Channel	50.4
Do	do	Aug. 21, 1898	Glenn E. Smith	44.3
Do	do	Sept. 8, 1898	do	138
Do	do	Aug. 9, 1902	B. E. Forbes	49.7
Do	do	Oct. 6, 1903	Adna Dobson	38.7
Do	do	do	do	55
Do	Sec. 5, T. 31 N., R. 20 W.[c]	June 15, 1899	C. B. Channel	5.9
Middle Creek, East	Sec. 32, T. 33 N., R. 23 W.	June 10, 1899	do	.3
Middle Creek, West	do	do	do	1.5
Mill race	Butte[d]	July 13, 1904	J. C. Stevens	53
Minnechaduza Creek	Fort Niobrara	May 26, 1896	Adna Dobson	[e]4.5
Do	do	Oct. 4, 1896		[e]45.2
Do	Valentine	June 24, 1897	O. V. P. Stout	[f]21.2
Do	do	May 13, 1898	Glenn E. Smith	[f]23.2
Do	do	May 18, 1898	A. B. McCoskey	[f]106
Do	do	May 24, 1898	Glenn E. Smith	[f]90
Do	do	June 6, 1898	C. B. Channel	[f]33.9
Do	do	June 12, 1898	Glenn E. Smith	[f]52
Do	do	July 27, 1898	do	[f]15.3
Do	do	Aug. 21, 1898	do	[f]18.2
Do	do	Sept. 7, 1898	do	[f]18.8
Do	do	Sept. 27, 1898	do	[f]22.1
Do	do	Oct. 15, 1898	do	[f]22.5
Do	do	Oct. 29, 1898	do	[f]27
Do	do	Nov. 17, 1898	do	[f]21
Do	do	Dec. 17, 1898	do	[f]23
Do	do	Dec. 28, 1898	do	[f]39
Do	do	Jan. 27, 1899	do	[f]26.2
Do	do	Feb. 21, 1899	do	[f]45
Do	do	Mar. 15, 1899	do	[f]25.7
Do	do	Apr. 26, 1899	do	[f]32.6
Do	do	May 11, 1899	do	[f]35
Do	do	May 26, 1899	do	[f]65
Do	do	June 26, 1899	do	[f]23
Do	do	Aug. 13, 1899	do	[f]19
Do	do	Sept. 13, 1899	do	[f]23.5
Do	do	Sept. 26, 1899	do	[f]26.5
Do	do	Aug. 1, 1901	O. V. P. Stout	[f]27.3
Do	do	Nov. 14, 1901	B. E. Forbes	[f]26.6
Do	do	Mar. 22, 1902	J. C. Stevens	[f]38.1
Do	do	Apr. 12, 1902	do	[f]38.3
Do	do	June 5, 1902	do	[f]23.1
Do	do	July 4, 1902	do	[f]27.4
Do	do	July 20, 1902	do	[f]22.7
Do	do	Aug. 20, 1902	do	[f]23.8
Do	do	Aug. 25, 1903	do	[f]27
Do	do	May 26, 1903	do	[f]33.1
Do	do	Apr. 26, 1903	do	[f]47.6
Do	do	Aug. 24, 1904	do	[f]21
Do	Sec. 29, T. 35, N., R. 30 W.	Apr. 11, 1902	do	14.9
Do	Sec. 2, T. 34 N., R. 30 W.	do	do	17.3
Do	Sec. 8, T. 34 N., R. 29 W.	do	do	26
Do	Sec. 30, T. 34 N., R. 28 W.	do	do	33.8
Newman Creek	Sec. 17, T. 33 N., R. 24 W.[g]	June 9, 1899	C. B. Channel	.7
Niobrara River	Marsland	June 23, 1896	E. T. Youngfelt	4
Do	do.[h]	Oct. 31, 1898	Glenn E. Smith	23.2
Do	do	May 29, 1899	C. B. Channel	36.2
Do	do.[h]	Sept. 7, 1900	T. J. O'Keefe	11.2
Do	Valentine	Oct. 4, 1896	Adna Dobson	71.2
Do	Niobrara	June 22, 1897	O. V. P. Stout	759
Do	do	Apr. 6, 1901	do	1,591
Do	do	Apr. 7, 1901	do	2,115
Do	do	Aug. 27, 1901	do	990
Do	do	May 11, 1902	J. C. Stevens	1,637
Do	do	July 6, 1902	do	2,021

[a] Head of Webster ditch.
[b] At mouth Burton Creek.
[c] Below Miller's mill.
[d] Electric power plant.
[e] Below dam and power house.
[f] Above backwater from dam.
[g] Head of Newman ditch.
[h] At Gregg's bridge.

Miscellaneous discharge measurements in Niobrara River basin, 1896–1905—Continued.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Sec.-feet.
Niobrara River	Niobrara City	July 25, 1902	J. C. Stevens	1,401
Do	do	Aug. 21, 1902	do	1,106
Do	do	Sept. 28, 1902	do	2,201
Do	Belle	Oct. 23, 1897	A. B. McCoskey	11.9
Do	Lavaca	June 25, 1897	O. V. P. Stout	105
Do	do	Apr. 26, 1898	Glenn E. Smith	210
Do	do	June 2, 1898	A. B. McCoskey	152
Do	do	Oct. 30, 1898	Glenn E. Smith	203
Do	Dunlap	May 30, 1898	A. B. McCoskey	75
Do	do	Aug. 7, 1900	do	14.1
Do	Butte	July 13, 1904	J. C. Stevens	2,808
Do	Fort Niobrara	Mar. 22, 1902	do	1,226
Do	do	Apr. 12, 1902	do	877
Do	do	June 15, 1902	do	588
Do	do	July 4, 1902	do	714
Do	do	July 20, 1902	do	705
Do	Nebr.–Wyo. state line	Oct. 20, 1897	A. B. McCoskey	3.5
Do	Dawes County	May 4, 1887		98
Do	Sec. 23, T. 29 N., R. 56 W.	Oct. 21, 1897	A. B. McCoskey	16.3
Do	Sec. 31, T. 29 N., R. 56 W.	Oct. 22, 1897	do	9.2
Do	O. Harris's, T. 28 N., R. 54 W.	Oct. 23, 1897	do	13.4
Do	Sec. 11, T. 28 N., R. 53 W.	Oct. 25, 1897	do	17.1
Do	do	Sept. 6, 1900	T. J. O'Keefe	10.8
Do	Sec. 10, T. 28 N., R. 52 W.	Oct. 25, 1897	A. B. McCoskey	16.8
Do	Sec. 13, T. 31 N., R. 41 W.	Apr. 26, 1897	Engineers Golden Irrigation district.	190
Do	do	Apr. 27, 1897	do	195
Do	Sec. 27, T. 30 N., R. 57 W. *a*	Oct. 20, 1897	A. B. McCoskey	5.1
Do	Sec. 33, T. 30 N., R. 56 W. *b*	Oct. 21, 1897	do	6.3
Do	Sec. 9, T. 29 N., R. 56 W. *c*	do	do	7.3
Do	Sec. 22, T. 29 N., R. 48 W.	May 31, 1898	do	56
Do	Sec. 11, T. 32 N., R. 22 W.	June 13, 1898	C. B. Channel	959
Do	Sec. 25, T. 29 N., R. 50 W. *d*	May 29, 1898	do	47.9
Do	Sec. 12, T. 28 N., R. 54 W.	May 28, 1899	do	33
Do	Sec. 6, T. 28 N., R. 55 W.	Aug. 3, 1899	A. B. McCoskey	13.9
Do	do	Aug. 16, 1899	do	10.6
Do	Sec. 19, T. 33 N., R. 27 W.	Mar. 5, 1899	Glenn E. Smith	650
Do	Sec. 32, T. 30 N., R. 56 W.	May 27, 1899	C. B. Channel	13.6
Do	Sec. 26, T. 29 N., R. 41 W. *e*	Aug. 7, 1900	A. B. McCoskey	14.5
Do	Sec. 29, T. 29 N., R. 47 W. *f*	do	do	4
Do	Sec. 6, T. 28 N., R. 51 W.	July 18, 1900	do	7
Do	W. line sec. 26, T. 29 N., R. 46 W.	June 3, 1902	Adna Dobson	25.4
Do	Sec. 31, T. 33 N., R. 23 W.	Aug. 13, 1904	J. C. Stevens	752
Do	Sec. 26, T. 34 N., R. 26 W.	Aug. 14, 1904	do	679
Do	Sec. 10, T. 33 N., R. 34 W.	Aug. 18, 1904	do	221
Do	Sec. 11, T. 33 N., R. 36 W.	Aug. 20, 1904	do	200
Do	Sec. 27, T. 33 N., R. 37 W.	do	do	180
Do	Sec. 34, T. 33 N., R. 38 W.	Aug. 21, 1904	do	117
Do	Sec. 24, T. 31 N., R. 42 W.	Aug. 22, 1904	do	54
Do	Sec. 18, T. 30 N., R. 43 W.	Aug. 23, 1904	do	27
Pine Creek	Sec. 35, T. 30 N., R. 44 W.	Oct. 1, 1898	A. B. McCoskey	24.5
Do	Sec. 22, T. 30 N., R. 44 W.	Aug. 23, 1904	J. C. Stevens	12.8
Plum Creek	Sec. 13, T. 32 N., R. 22 W. *g*	June 13, 1898	C. B. Channel	101
Do	Johnstown	Sept. 8, 1898	Glenn E. Smith	10
Do	Sec. 35, T. 32 N., R. 23 W.	June 10, 1899	C. B. Channel	81
Do	Sec. 27, T. 31 N., R. 24 W. *h*	Oct. 26, 1900	A. B. McCoskey	28.8
Do	Sec. 7, T. 31 N., R. 23 W.	Aug. 13, 1904	J. C. Stevens	80
Pole Creek	Sec. 28, T. 32 N., R. 40 W.	Oct. 2, 1898	A. B. McCoskey	*i* 2
Rock Spring Creek	Sec. 12, T. 32 N., R. 22 W. *j*	June 14, 1898	C. B. Channel	2.3
Rock Creek	Sec. 4, T. 31 N., R. 18 W.	June 20, 1898	do	2.1
Do	Sec. 28, T. 32 N., R. 18 W.	do	do	4.4
Rush Creek	Sec. 32, T. 31 N. R. 42 W.	Aug. 22, 1904	J. C. Stevens	.6
Sandy Creek	Sec. 3, T. 31 N., R. 15 W.	June 17, 1899	C. B. Channel	8.3
Shobe Branch	Sec. 32, T. 33 N., R. 11 W.	June 20, 1899	do	1.7
Snake River	Sec. 30, T. 31 N., R. 30 W.	Mar. 16, 1897	Engineers Golden Irrigation district.	.222
Do	Sec. 2, T. 30 N., R. 31 W.	Mar. 22, 1897	do	250
Do	do	Apr. 13, 1897	do	225
Do	Sec. 30, T. 31 N., R. 30 W.	do	do	240
Do	Sec. 2, T. 32 N., R. 30 W. *g*	July 23, 1897	O. V. P. Stout	280
Do	Sec. 1, T. 30 N., R. 31 W. *k*	July 24, 1897	do	215
Do	Sec. 15, T. 32 N., R. 30 W.	Aug. 16, 1904	J. C. Stevens	279
Do	Sec. 10, T. 30 N., R. 31 W.	do	do	204
Do	Sec. 2, T. 30 N., R. 32 W.	Aug. 17, 1904	do	194
Do	Sec. 16, T. 31 N., R. 30 W.	Oct. 27, 1904	do	245

a Above Warneke's ditch.
b Above Baurrett's ditch.
c Above Earnest dam.
d Head of Hatch & Cross ditch.
e Head of Mirage canal.
f Head of Hay Spring canal.
g At mouth.
h Hoef's mill.
i Estimated.
j Above Moore's ditch.
k At mouth Boardman Creek.

Miscellaneous discharge measurements in Niobrara River basin, 1896–1905—Continued.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Sec.-feet.
Spring Creek	Mills	June 16, 1898	C. B. Channel	7.3
Do	Sec. 35, T. 34 N., R. 19 W.[a]	June 13, 1899	do	5.2
Do	Sec. 29, T. 32 N., R. 20 W.[b]	June 15, 1899	do	.3
Verdigris Creek	Sec. 6, T. 31 N., R. 6 W.[c]	Apr. 7, 1901	O. V. P. Stout	105
West Middle Creek	Sec. 29, T. 33 N., R. 23 W.[d]	June 11, 1898	H. O. Smith	1.8
Do	NE ¼ NW ¼ Sec. 29, T. 33 N., R. 23 W.	do	do	.9
White Clay Creek	Sec. 2, T. 33 N., R. 45, W.	May 20, 1899	do	5.3
Do	Sec. 36, T. 35 N., R. 45, W.	June 19, 1904	G. W. Bates	11
Wooden Spring Branch	Sec. 25, T. 35 N., R. 29, W.	June 13, 1899	C. B. Channel	2.1

[a] Head Townsend ditch. [b] Head Opperman ditch. [c] At mouth. [d] Above Allen's ditch.

PRECIPITATION IN THE NIOBRARA BASIN.

The following is a list of the precipitation stations in the drainage basin of Niobrara River:

Rainfall stations in Niobrara basin.

Station.	County.	Latitude.	Longitude.	Elevation.	Length of record.
		° ′	° ′		*Years.*
Santee	Knox	42 29	97 43		19
Lynch	Boyd	42 51	98 24		14
Agee	Holt	42 37	98 34		15
Kirkwood	Rock	42 43	99 18		11
Springview	Keyapaha	42 49	99 45		16
Valentine	Cherry	42 50	100 32	2,598	18
Kennedy	do	42 30	100 53	2,700	16
Hay Springs	Sheridan	42 40	102 38	3,821	19
Fort Robinson	Dawes	42 39	103 24	3,764	22

The subjoined table shows the precipitation at the stations named in the foregoing list:

Precipitation at stations in drainage basin of Niobrara River, 1896–1906.

SANTEE, KNOX COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.55	0.68	1.17	2.74	3.43	4.00	3.46	2.86	2.29	1.83	0.80	0.56	24.37
1896	.07	.11	1.23	5.59	4.21	4.25	3.97	1.76	2.40	3.31	2.00	.05	28.95
1897	1.37	.44	1.33	4.32	.86	2.19	2.71	1.28	1.66	2.09	.52	1.43	20.20
1898	.66	.99	.60	1.10	4.56	2.41	6.16	2.47	.82	3.83	.32	.27	24.19
1899	.16	.95	1.16	2.31	2.47	3.97	2.56	4.80	T.	.49	1.21	.78	20.86
1900	T.	.59	1.60	4.42	2.76	1.30	7.72	1.72	2.44	3.15	.24	.05	25.99
1901	.08	.61	.62	1.77	2.19	9.09	.52	2.44	7.04	1.66	.82	1.13	27.97
1902	.73	.67	1.18	.86	1.35	6.31	5.31	5.73	5.94	.48	.20	2.14	30.90
1903	.12	1.74	1.10	1.26	9.70	2.80	5.26	4.52	1.26	1.68	.89	.19	30.52
1904	.56	.34	.50	2.63	3.71	3.77	3.86	5.05	.76	4.26	.38	.65	26.47
1905	.86	.25	3.34	1.91	4.65	4.71	5.40	4.70	5.36	1.83	2.00	.00	35.01
1906	.60	.64	1.29	2.99	3.53	3.41	2.39	4.60	3.00	4.61	1.19	1.17	29.42

Precipitation at stations in drainage basin of Niobrara River, 1896–1906—Continued.

LYNCH, BOYD COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.28	0.54	1.04	3.09	2.88	3.67	4.02	3.14	2.10	1.18	0.59	0.48	23.01
1896	.16	.03	1.13	6.45	1.89	5.86	4.76	1.25	2.17	1.93	1.47	.05	27.15
1897	.74	.48	1.73	5.90	1.34	3.09	3.51	1.31	2.25	2.58	.57	1.10	24.60
1898	.36	.60	.52	1.61	6.05	1.91	4.85	2.03	.67	.79	.08	.07	19.54
1899	.16	.38	.59	1.54	3.96	3.23	3.37	9.25	.17	.76	1.18	.14	24.73
1900	T.	.25	.77	4.41	2.00	1.18	6.53	3.39	2.85	2.10	.10	.26	23.84
1901	.13	.60	.97	1.33	2.16	10.64	2.01	3.21	4.86	.90	.41	.60	27.82
1902	.50	.80	1.79	1.82	1.57	1.71	4.36	6.50	2.98	.32	.11	1.99	24.45
1903	.13	1.84	.70	1.20	7.25	3.11	7.31	3.67	1.96	1.27	1.04	.30	29.78
1904	.53	.50	.48	1.57	3.11	5.46	5.04	1.15	1.36	3.40	.00	.....	.....
1905	1.30	.16	2.80	2.56	5.79	4.57	3.23	2.06	1.92	2.09	1.89	.00	28.37
1906	.60	.....	1.70	3.76	2.28	.80	1.48	2.92	3.34	4.04	.70	.34	.....

AGEE, HOLT COUNTY.

Normal	0.45	0.65	1.05	3.08	3.13	4.18	3.05	2.99	2.33	1.60	0.67	0.74	23.92
1896	.11	.11	1.03	5.50	1.35	4.35	6.33	1.12	2.73	2.27	2.00	T.	26.90
1897	1.37	1.16	1.34	4.08	2.31	3.94	1.74	.43	2.68	2.88	.22	2.15	24.30
1898	.65	.63	.41	1.99	5.46	2.51	3.05	2.72	1.47	2.06	.53	.35	21.83
1899	.27	.13	1.02	1.50	3.00	4.40	4.32	6.95	.10	.59	1.10	.10	23.48
1900	.04	1.04	.93	5.90	.....	.....	6.96	2.69	2.76	3.95	.18	.17	.....
1901	.11	.45	.89	1.86	2.05	13.27	1.15	2.17	5.75	1.70	.88	.91	31.19
1902	.75	.68	2.03	1.37	1.60	3.32	3.31	8.67	6.92	.99	.15	3.95	33.74
1903	.15	.95	.50	1.31	7.38	1.63	4.82	2.65	1.13	1.30	.77	.40	22.99
1904	.59	.54	.13	1.57	2.73	.....	.....	.....	1.26	3.47	.30	.49	.....
1905	1.47	.57	3.69	2.62	8.30	3.58	3.51	.....	.....	2.21	1.95	T.	.....
1906	.67	.10	1.55	4.30	.....	.78	.54	.....	3.97	.....	.....	.....	.....

KIRKWOOD, ROCK COUNTY.

Normal	0.58	0.59	1.10	2.49	4.04	3.62	3.89	3.76	2.34	2.02	0.64	0.59	25.66
1896	.50	.05	2.25	3.62	.56	5.24	3.08	1.02	3.24	1.49	1.50	.08	22.63
1897	.90	.92	.99	2.69	1.50	4.33	3.33	1.41	1.60	4.68	.52	1.07	23.94
1898	.60	.74	.72	1.52	6.26	3.30	4.31	1.87	.49	.19	.35	.24	20.59
1899	.42	.44	.88	.71	3.63	3.19	4.10	6.58	.30	1.69	.67	.15	22.76
1900	T.	.75	.58	5.35	1.97	3.35	6.78	3.17	.72	3.93	.10	.33	27.03
1901	.17	.95	1.02	2.54	.98	11.20	.97	2.24	6.68	2.00	.59	1.17	30.51
1902	.60	.32	.60	1.27	2.69	1.65	3.11	8.74	4.64	.66	.36	2.70	27.34
1903	.18	1.00	.67	2.01	6.66	2.44	9.15	3.66	1.49	1.17	.35	.12	28.93
1904	.71	.48	.20	1.14	3.10	4.23	4.70	5.29	1.42	2.22	.10	.15	23.74
1905	1.20	.50	2.49	2.08	4.48	6.49	2.03	1.93	2.03	2.01	.93	.00	26.17
1906	1.05	.35	1.65	4.42	2.44	1.97	1.20	5.46	3.08	2.22	1.00	1.05	25.89

SPRINGVIEW, KEYAPAHA COUNTY.

Normal	0.49	0.50	0.98	2.68	2.82	3.69	2.84	2.98	1.55	1.19	0.41	0.65	20.73
1896	.25	.04	1.01	4.47	.92	6.05	3.41	1.27	2.10	1.12	.92	T.	21.56
1897	1.15	.39	.50	1.31	2.11	1.90	1.12	2.14	2.01	2.75	.30	.....	.....
1898	.15	.12	.32	.70	5.85	2.90	2.14	1.91	.52	.....	.30	1.00	.....
1899	.95	.25	.81	.96	4.21	2.84	2.61	3.68	.30	.09	.30	.....	.....
1900	.....	.20	.20	5.45	2.71	2.37	7.34	4.63	.28	.85	T.	T.	.....
1901	.10	1.10	1.19	2.56	1.69	8.84	.92	2.72	5.21	1.72	T.	.90	26.95
1902	.....	.....	.....	1.20	2.64	1.40	2.00	5.45	1.99	.52	.....	3.60	.....
1903	.20	1.50	.44	1.55	3.68	1.68	6.33	4.02	2.93	.52	.05	.05	22.95
1904	.40	.25	.21	1.20	1.64	4.25	5.54	2.12	1.10	1.91	T.	.15	18.77
1905	1.40	.....	1.32	1.69	4.43	8.85	3.53	1.37	1.32	1.81	.45	.00	.....
1906	.40	.....	1.95	3.80	2.21	1.23	.37	6.38	3.24	2.86	.25	.....	.....

Precipitation at stations in drainage basin of Niobrara River, 1896–1906—Continued.

VALENTINE, CHERRY COUNTY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Normal	0.60	0.74	1.49	2.84	2.82	3.45	2.50	2.05	0.98	0.90	0.41	0.37	19.15
1896	.....	.....	1.81	3.06	.67	4.48	4.25	.77	2.73	.35	2.57	.40	.....
1897	1.22	1.94	1.50	2.19	3.71	1.69	4.71	2.09	.67	2.01	.93	1.06	23.69
1898	.44	.28	.57	1.33	5.98	2.11	2.28	3.62	.64	.09	.54	.37	18.25
1899	.47	.45	1.28	.74	2.84	2.69	1.34	2.59	.10	.98	.14	.40	14.02
1900	.04	.26	.47	4.70	1.23	1.24	7.97	4.67	.86	.38	.26	.15	22.23
1901	.04	1.19	1.70	1.46	.90	7.85	2.38	2.49	4.06	1.79	.05	.93	24.84
1902	.34	.20	1.07	.77	2.17	1.89	1.79	2.93	.25	.39	.53	1.28	13.61
1903	.22	.73	.28	1.81	2.41	1.43	3.95	4.21	1.70	.22	.04	.15	17.15
1904	.53	.22	.64	.40	2.93	4.67	6.08	3.08	1.17	.54	.19	.16	20.61
1905	1.01	.51	1.18	2.77	5.12	8.18	4.31	.85	1.45	1.61	1.35	.03	28.37
1906	.52	.33	2.50	2.68	4.14	1.56	1.88	5.02	3.17	3.42	.92	.40	26.54

KENNEDY, CHERRY COUNTY.

Normal	0.69	0.78	1.49	2.49	3.10	4.42	3.47	2.63	1.42	1.04	0.56	0.69	22.98
1896	.28	T.	1.95	2.82	1.31	3.91	4.89	.25	2.76	1.45	1.01	.30	20.93
1897	1.00	.36	1.63	1.80	1.76	3.80	3.63	3.61	.63	1.49	1.74	2.40	23.85
1898	1.52	T.	.64	1.38	8.63	1.91	3.70	2.31	.71	.30	.70	.40	22.20
1899	.55	.75	2.27	.41	1.73	3.47	3.18	5.19	.00	.30	.12	.88	18.85
1900	.15	1.08	.72	4.35	3.80	2.25	9.90	4.28	.38	.87	.20	.55	28.53
1901	T.	1.15	1.45	2.94	1.57	10.45	.39	2.80	6.99	.....	.....	.....	.....
1902	.60	.....	1.27	.88	3.65	4.04	3.66	4.66	1.89	1.39	.70	2.80	.....
1903	.70	2.72	.30	1.65	4.48	2.35	5.38	2.29	1.30	.48	T.	.40	22.05
1904	1.20	.15	.26	.15	3.56	7.58	2.84	3.03	1.92	.94	.05	.25	21.93
1905	1.83	.40	1.44	3.36	5.30	7.52	7.58	2.11	.85	.80	.....	.00	.....
1906	1.30	.25	2.50	2.75	3.32	.79	2.35	4.82	3.21	3.35	.95	1.40	26.99

HAY SPRINGS, SHERIDAN COUNTY.

Normal	0.70	0.73	1.58	2.18	3.21	3.25	2.71	1.94	1.07	1.26	0.60	0.73	19.95
1896	.49	.81	2.30	3.22	1.79	4.85	1.64	.86	1.73	.80	1.37	.....	.....
1897	2.45	.50	2.68	1.65	2.27	1.52	3.62	3.10	.18	1.20	1.60	1.12	21.89
1898	.40	.55	.88	1.11	6.91	.43	2.74	.31	1.31	.25	.48	.62	15.99
1899	.41	.50	2.94	1.56	2.82	1.97	1.60	1.47	.41	.78	.53	.85	15.84
1900	.29	.20	.59	3.91	.59	3.82	3.19	1.22	2.39	1.22	T.	.65	18.07
1901	T.	.92	2.09	2.90	3.99	5.13	1.66	3.30	.85	3.04	T.	.98	24.86
1902	.20	2.01	3.09	1.26	2.00	5.25	1.71	1.98	1.62	.78	.15	1.98	22.03
1903	.48	1.20	.92	2.19	3.91	2.16	8.92	2.22	1.92	.98	.21	T.	25.11
1904	.49	.13	.12	.85	2.26	3.68	2.16	1.92	3.14	3.17	.....	.....	.....
1905	1.00	.35	2.56	3.07	5.04	4.85	4.81	1.78	.63	.92	.70	.20	25.91
1906	.35	.91	1.70	3.08	3.02	2.47	2.08	3.42	2.37	2.40	.41	1.05	23.26

FORT ROBINSON, DAWES COUNTY.

Normal	0.68	0.66	1.22	1.72	2.64	2.82	2.09	1.61	1.03	1.33	0.40	0.70	16.79
1896	1.30	.50	1.50	.65	2.05	1.30	.80	.50	2.20	1.20	.60	.00	12.60
1897	1.90	T.	.50	.40	.65	1.49	3.60	T.	T.	T.	.65	1.30	10.49
1898	1.70	.20	1.30	.50	4.07	2.09	2.19	.05	.76	.33	.46	.51	14.16
1899	.27	.56	1.76	1.30	3.00	1.80	.97	1.55	.50	1.70	.25	.69	14.35
1900	.17	1.14	.27	4.10	.95	1.05	3.45	1.95	4.00	1.50	.15	.90	19.63
1901	.10	1.16	1.40	2.50	2.82	4.66	1.52	1.16	1.44	2.11	.05	.89	19.81
1902	.69	.65	1.91	1.40	2.56	3.74	1.88	1.52	1.61	.65	.25	2.65	19.51
1903	.60	.60	1.75	1.21	2.29	.71	4.70	2.53	1.17	.85	.10	.38	16.89
1904	.20	.47	.10	1.38	1.95	4.40	.93	2.21	1.50	.46	T.	.32	13.92
1905	1.13	.02	.38	.....	4.11	2.44	3.92	2.23	.39	1.15	.25	.20	.....
1906	.37	.99	1.80	2.30	3.94	2.83	1.10	3.23	3.48	2.79	.32	.37	23.52

WHITE RIVER AND HAT CREEK DRAINAGE BASINS.

DESCRIPTION OF BASINS.

The headwaters of White River and Hat Creek lie in Dawes and Sioux counties, in the northwestern part of Nebraska, at an elevation of about 4,800 feet above sea level, and both streams unite with the rivers to which they are tributary in South Dakota, Hat Creek joining the Cheyenne and White River the Missouri. Both drain areas of exceedingly rough, broken country, comprising what are popularly known as the Badlands. The characteristic formation of this region is a soft shale or slate-colored clay which has been carved by erosion into many fantastic shapes, giving rise to such local names as Big Badlands, Good Badlands, Toadstool Park, etc. The streams furnish considerable water for irrigation, but most of the ditches are small and operated by individual farmers. The principal crops are grain and hay for the herds of cattle that range the district.

Only one gaging station has been maintained in this basin in Nebraska—that on White River near Crawford during the season of 1897.

WHITE RIVER NEAR CRAWFORD.

A station was established June 26, 1897, and discontinued in the fall of the same year. It was located 6 miles southwest of Crawford, in the canal of the Crawford Water Power and Irrigation Company, into which the entire flow of White River was diverted. The gage was a vertical staff fastened to a stop gate in the canal.

Discharge measurements of White River near Crawford, 1897.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
June 16	O. V. P. Stout	0.42	14.4	September 20	A. B. McCoskey	0.62	10.4
July 21	do	.62	14.2	September 21	do	.64	11
August 14	do	.60	12.1	October 15	do	.89	15
September 6	do	.40	8.9	November 5	do	.92	16

Mean daily gage height, in feet, of White River near Crawford, 1897

Day.	July.	Aug.	Sept.	Oct.	Day.	July.	Aug.	Sept.	Oct.
1	.....	0.40	0.40	0.71	17	0.30	0.60	0.70	0.90
2	.....	.40	.40	.70	18	.55	.60	.62	.89
3	.....	.60	.40	.70	19	.80	.60	.68	.87
4	.....	.70	.40	.75	20	.70	.50	.60	.89
5	.....	.70	.40	.73	21	.60	.50	.63	.90
6	.....	.70	.43	.76	22	.55	.55	.68	.90
7	.....	.60	.40	.77	23	.55	.50	.65	.88
8	.....	.60	.43	.76	24	.50	.50	.68	.88
9	.....	.70	.50	.68	25	.65	.50	.69	.82
10	.....	.70	.63	.73	26	.55	.40	.70	.82
11	.....	.70	.65	.75	27	55	.45	.69	.82
12	.....	.60	.70	.82	28	.65	.40	.69	.91
13	0.40	.55	.65	.86	29	.50	.40	.69	.91
14	.30	.60	.63	.82	30	.50	.45	.70	.91
15	.40	.60	.63	.84	31	.45	.45	.....	.....
16	.35	.60	.60	.84					

MISCELLANEOUS MEASUREMENTS IN WHITE RIVER AND HAT CREEK BASINS.

The following discharge measurements have been made in the drainage basins of White River and Hat Creek:

Miscellaneous discharge measurements in White River and Hat Creek basins, 1896–1902.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Second-feet.
Ash Creek	Sec. 12, T. 32 N., R. 51 W.	Sept. 21, 1898	A. B. McCoskey	0.5
Do	Sec. 13, T. 32 N., R. 51 W.	May 15, 1899	C. B. Channel	.5
Do	Sec. 6, T. 32 N., R. 50 W. *a*	do	do	.8
Ash Creek, East Branch	Sec. 30, T. 32 N., R. 50 W. *b*	June 25, 1896	E. T. Youngfelt	1.1
Do	Sec. 30, T. 32 N., R. 50 W. *c*	May 15, 1899	C. B. Channel	3.3
Do	Sec. 33, T. 32 N., R. 50 W. *d*	Aug. 18, 1899	A. B. McCoskey	.3
Do	Sec. 30, T. 32 N., R. 50 W. *e*	June 22, 1900	T. J. O'Keefe	.2
Do	Sec. 31, T. 32 N., R. 50 W. *c*	July 17, 1900	A. B. McCoskey	.4
Do	Sec. 30, T. 32 N., R. 50 W. *e*	Aug. 20, 1900	T. J. O'Keefe	0
Ash Creek, West Branch.	N. line sec. 25, T. 32 N., R. 51 W.	June 25, 1896	E. T. Youngfelt	1.7
Do	Sec. 2, T. 32 N., R. 51 W. *f*	Aug. 18, 1897	A. B. McCoskey	1.0
Do	Sec. 25, T. 32 N., R. 51 W.	May 15, 1899	C. B. Channel	.2
Do	Sec. 24, T. 32 N., R. 51 W. *e*	June 22, 1900	T. J. O'Keefe	.1
Do	do	Aug. 20, 1900	do	0
Do	Sec. 35, T. 32 N., R. 51 W. *g*	July 17, 1900	A. B. McCoskey	1.0
Beaver Creek	Sec. 20, T. 44 N., R. 46 W.	May 22, 1899	C. B. Channel	9
Boggy Creek	Line bet. secs. 17, 18, T. 32 N., R. 54 W.	May 8, 1897	A. B. McCoskey	.1
Do	N. line sec. 31, T. 33 N., R. 54 W.	do	do	.3
Do	do	May 24, 1899	do	.1
Bordeaux Creek, Big	Sec. 25, T. 33 N., R. 48 W.	Sept. 22, 1898	do	1.9
Chadron Creek	Sec. 18, T. 32 N., R. 48 W. *h*	Sept. 14, 1897	do	1.6
Do	do. *h*	May 17, 1899	C. B. Channel	2.2
Do	Sec. 18, T. 32 N., R. 48 W. *i*	Sept. 14, 1897	A. B. McCoskey	1.2
Do	do. *i*	May 17, 1899	C. B. Channel	2.2
Do	Sec. 36, T. 33 N., R. 49 W.	Sept. 23, 1898	A. B. McCoskey	1.2
Do	do	May 17, 1899	C. B. Channel	8.7
Cottonwood Creek, Big.	Sec. 20, T. 33 N., R. 51 W. *j*	June 25, 1896	E. T. Youngfelt	.2
Cottonwood Creek, Little.	Sec. 7, T. 32 N., R. 51 W.	June 25, 1896	do	.1
Do	W. line sec. 7, T. 32 N., R. 51 W.	May 15, 1899	C. B. Channel	.3
Do	Below mouth Spring Creek	May 16, 1899	do	.4
Dead Horse Creek	Sec. 31, T. 33 N., R. 50 W.	Sept. 21, 1898	A. B. McCoskey	*k* .3
Do	Sec. 7, T. 32 N., R. 49 W.	Sept. 23, 1898	do	*k* .6
Do	N. line sec. 31, T. 33 N., R. 49 W.	May 17, 1899	C. B. Channel	3.5
Do	Sec. 32, T. 33 N., R. 49 W. *l*	do	do	4
Deadman Creek	Sec. 19, T. 30 N., R. 52 W. *m*	Oct. 2, 1900	T. J. O'Keefe	1.8
Do	Sec. 1, T. 30 N., R. 53 W. *n*	do	do	1.1
Fort Robinson ditch	Fort Robinson	June 24, 1896	E. T. Youngfelt	.8
Do	do	Apr. 27, 1898	Glenn E. Smith	2
Hat Creek, East	Sec. 23, T. 32 N., R. 55 W.	July 10, 1897	A. B. McCoskey	.3
Do	Sec. 10, T. 32 N., R. 55 W. *o*	do	do	1
Hat Creek, West	Sec. 10, T. 32 N., R. 55 W. *p*	do	do	.5
Do	Sec. 10, T. 32 N., R. 55 W. *q*	do	do	1.6
Do	Sec. 16, T. 32 N., R. 55 W. *r*	July 16, 1897	do	.7
Do	Sec. 23, T. 33 N., R. 55 W.	Sept. 30, 1898	do	1.4
Do	Sec. 26, T. 33 N., R. 55 W. *s*	May 24, 1899	do	3.6
Indian Creek	N. line sec, 33, T. 32 N., R. 50 W.	Aug. 18, 1899	do	.5
Jim Creek	Sec. 14, T. 33 N., R. 57 W. *t*	July 22, 1897	do	.2
Monroe Creek	Sec. 27, T. 33 N., R. 56 W. *u*	July 20, 1897	do	.2
Do	Sec. 33, T. 33 N., R. 56 W. *v*	July 21, 1897	do	1
Do	Sec. 14, T. 33 N., R. 56 W.	Sept. 30, 1898	do	*k* .3
Do	Sec. 33, T. 33 N., R. 56 W. *v*	Sept. 24, 1900	T. J. O'Keefe	.8

a At mouth.
b One-half mile above mouth.
c Head Tomlin ditch.
d Head Sheldon ditch.
e One-fourth mile above fork.
f Head Mace ditch.
g Above Broadhurst dam.
h Above Chadron W. W.
i Below Chadron W. W.
j Six miles west of Whitney.
k Estimated.
l At Slattery dam.
m Head of Phillips ditch.
n Head of P. R. ditch.
o Near mouth.
p Above mouth of East Hat.
q Below confluence.
r Head of Steel ditch.
s Above Coffee ditch.
t Above Woodruff dam.
u Head of Schilt ditch.
v Head of Wilcox ditch.

Miscellaneous discharge measurements in White River and Hat Creek basins, 1896–1902—Continued.

Stream.	Locality.	Date.	Hydrographer.	Discharge.
				Second-feet.
Soldier Creek	Fort Robinson	June 24, 1896	E. T. Youngfelt	3.2
Do	Sec. 5, T. 31 N., R. 53 W.	Aug. 14, 1897	O. V. P. Stout	2.3
Do	Fort Robinson	Apr. 27, 1898	Glenn E. Smith	3.6
Do	do	Aug. 22, 1900	T. J. O'Keefe	1.8
Do	do	Sept. 22, 1900	do	2.5
Do	do	Oct. 31, 1898	Glenn E. Smith	4
Sowbelly Creek	Sec. 7, T. 32 N., R. 55 W. *a*	July 16, 1897	A. B. McCoskey	1.4
Do	Bodarc	July 14, 1897	do	1.5
Do	Bridge S. of Gilchrist	July 24, 1897	do	.1
Do	Sec. 19, T. 33 N., R. 55 W.	Sept 30, 1898	do	*b* 1
Do	N. line sec. 19, T. 32 N., R. 55 W.	Aug. 1, 1899	do	1.4
Do	Sec. 24, T. 32 N., R. 56 W. *c*	Sept. 24, 1900	T. J. O'Keefe	3.2
Spring Creek	Sec. 7, T. 32 N., R. 51 W. *d*	May 16, 1899	C. B. Channel	.3
Squaw Creek	Sec. 1, T. 31 N., R. 52 W.	June 24, 1896	E. T. Youngfelt	.6
Do	Sec. 15, T. 33 N., R. 57 W.	July 22, 1897	A. B. McCoskey	.1
Do	Sec. 28, T. 31 N., R. 51 W.	May 11, 1899	C. B. Channel	1.2
Do	Sec. 18, T. 31 N., R. 51 W.	do	do	.3
Do	Sec. 19, T. 31 N., R. 51 W. *e*	do	do	.8
Do	Sec. 36, T. 32 N., R. 52 W. *f*	May 12, 1899	do	.7
Trunk Butte Creek	N. line sec. 36, T. 33 N., R. 50 W.	May 17, 1899	do	1.4
Do	do	Aug. 18, 1899	A. B. McCoskey	.3
Warbonnet Creek	Sec. 21, T. 33 N., R. 56 W.	July 23, 1897	do	.5
Do	do	Sept. 29, 1898	do	1.2
Do	do	May 25, 1899	do	2.5
Do	do	Sept. 25, 1900	T. J. O'Keefe	.8
Warbonnet, Middle Branch.	Sec. 31, T. 33 N., R. 56 W. *g*	July 21, 1898	A. B. McCoskey	.3
Warbonnet, Spring Branch.	Sec. 32, T. 33 N., R. 56 W. *h*	do	do	.3
White Clay Creek	N. line sec. 2, T. 31 N., R. 52 W.	June 24, 1896	E. T. Youngfelt	4
Do	Sec. 1, T. 31 N., R. 52 W.	June 24, 1886		4
Do	Sec. 2, T. 31 N., R. 52 W.	Sept. 21, 1898		.8
Do	Sec. 32, T. 15 N., R. 51 W.	May 11, 1899	C. B. Channel	.7
Do	Sec. 1, T. 31 N., R. 52 W.	Aug. 23, 1900	T. J. O'Keefe	1.5
White River	Sec. 23, T. 31 N., R. 53 W.	June 24, 1896	E. T. Youngfelt	23.3
Do	Sec. 23, T. 31 N., R. 53 W. *i*	Aug. 14, 1897	O. V. P. Stout	11.9 / 8.0 / *j* 19.9
Do	Bridge below Crawford	do	do	
Do	Crawford	June 24, 1896	E. T. Youngfelt	30.7
Do	Whitney	June 25, 1896	do	27.2
Do	do	Sept. 21, 1898	A. B. McCoskey	*b* 8
Do	do	May 15, 1899	C. B. Channel	10.4
Do	do	Sept. 3, 1900	T. J. O'Keefe	5
Do	Crawford	Oct. 31, 1898	Glenn E. Smith	13
Do	do	July 11, 1901	B. E. Forbes	11.5
Do	do	Aug. 24, 1903	J. C. Stevens	14
Do	do	May 27, 1903	do	18.9
Do	do	Apr. 27, 1903	do	31
Do	1 mile below mouth of Kyle Creek.	Aug. 11, 1897	A. B. McCoskey	6.6
Do	Bridge below Crawford	Sept. 9, 1897	do	7
Do	do	Sept. 20, 1898	do	7.7
Do	do	May 17, 1899	do	18.7
Do	do	May 22, 1899	do	45.89
Do	do	Aug. 19, 1899	do	16.2
Do	do	July 16, 1900	do	28.3
Do	do	Sept. 1, 1900	T. J. O'Keefe	13.5
Do	6 miles W. of Crawford	Oct. 31, 1898	Glenn E. Smith	21
Do	At Andrew's siding	May 26, 1899	C. B. Channel	4.9
Do	Sec. 33, T. 31 N., R. 53 W. *k*	Aug. 13, 1897	A. B. McCoskey	5.7
Do	Sec. 23, T. 31 N., R. 53 W. *i*	Sept. 24, 1898	do	13.1
Do	do *i*	July 16, 1900	do	15.48
Do	do *i*	Aug. 22, 1900	T. J. O'Keefe	14
Do	do	July 24, 1903	C. Spearman	16.3
Do	Sec. 31, T. 31 N., R. 54 W.	May 19, 1899	A. B. McCoskey	4.4
Do	Sec. 34, T. 32 N., R. 52 W.	June 2, 1902	Adna Dobson	65
Do	Sec. 25, T. 32 N., R. 52 W.	Aug. 20, 1902	B. E. Forbes	10.4

a Above head of Shaefer ditch.
b Estimated.
c Head of Nutto's ditch.
d At mouth.
e Head of Daniel & Stetson ditch.
f Head of Cooper ditch.
g Head of Garton ditch.
h Head of Biehle ditch.
i Head of Crawford ditch.
j Discharge at Crawford. (See note at end of this table.)
k Railroad bridge above Glen.

Miscellaneous discharge measurements in White River and Hat Creek basins 1896–1906—Continued.

Stream.	Locality.	Date.	Hydrographer.	Discharge.	
				Second-feet.	
White River	Sec. 23, T. 31 N., R. 53 W.[a]	Sept. 20, 1897	A. B. McCoskey	10.44	[b]17.97
Do	Bridge below Crawford	do	do	7.53	
Do	Sec. 23, T. 31 N., R. 53 W.[a]	Oct. 18, 1897	do	15.25	[b]25.38
Do	Bridge below Crawford	do	do	10.13	
Do	Sec. 23, T. 31 N., R. 53 W.[a]	Nov. 5, 1897	do	15.87	[b]26.45
Do	Bridge below Crawford	do	do	10.58	
Do	Sec. 23, T. 31 N., R. 53 W.[a]	Apr. 27, 1898	Glenn E. Smith	18.3	[b]29.4
Do	Bridge below Crawford	do	do	11.1	
Do	Sec. 23, T. 31 N., R. 53 W.[a]	May 19, 1899	A. B. McCoskey	16.7	[b]34.75
Do	Bridge below Crawford	do	do	18.05	

[a] Head of Crawford ditch.

[b] Discharge at Crawford. When these measurements were taken the water was all diverted into the Crawford ditch. The gagings at the bridge below Crawford show only water accumulated between the two points, from Soldier Creek, seepage, springs, etc. The actual discharge of the stream at Crawford, with the Crawford ditch closed, would be a little less than the sum of the discharges at the two points on the same date.

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