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FLOODS IN OKLAHOMA
MAGNITUDE AND FREQUENCY

By A. O. Westfall and J. L. Patterson

Prepared in cooperation with the

STATE OF OKLAHOMA
DEPARTMENT OF HIGHWAYS

and

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Open-file report

1964

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Method for determining magnitude and frequency of floods from drainage areas exceeding about 50 square miles in Oklahoma.

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ABSTRACT

This report presents methods by which the magnitude and frequency of expected floods for most streams in Oklahoma can be determined. Flood data were used to define flood-frequency curves applicable to the State. Composite frequency curves were drawn showing the relation of mean annual floods to floods having recurrence intervals from 1.2 to 50 years. In some areas, it was found that the slope of the composite frequency curve varies with the drainage area. An adjustment curve was defined for use in conjunction with the composite curve for these areas. Other curves express the relation of the mean annual flood to drainage basin characteristics. By combining data from the composite and mean annual flood curves, flood-frequency curves can be drawn for streams in Oklahoma not materially affected by the works of man. Neither of the above two types of curves should be extrapolated beyond the range defined by base data. Frequency curves presented in this report were based on analysis of flood records collected at gaging stations having 5 or more years of record not materially affected by regulation or diversion.

INTRODUCTION

Knowledge of the magnitude and frequency of floods is necessary for the proper design of structures located on flood plains of streams. Where the failure of a structure may result in the loss of human life or great property damage, design is usually based on the maximum probable flood. However, in the design of structures such as bridges and highway fills, where inundation or loss of the structure would cause only temporary inconvenience or moderate property loss, economy will be achieved by designing for floods having an average frequency of occurrence comparable to the expected life of the structure. Similarly, some land uses require complete protection from flooding while other uses permit relatively frequent inundation.

The purpose of this report is to describe methods by which the magnitude and frequency of floods at most sites in Oklahoma can be determined. In addition to flood-frequency analysis, the accumulation of flood data in the report area is presented.

The frequency relations and much of the text in this report are abstracted from a comprehensive report by Patterson (1964). The comprehensive report describes the magnitude and frequency of floods in the Lower Mississippi River basin which includes all of Oklahoma.

Acknowledgments

This report was prepared in the Oklahoma City office of the U.S. Geological Survey under the general supervision of A. A. Fischback, Jr., District Engineer, in cooperation with the Department of Highways, State of Oklahoma, F. D. Lyons, Director.

Unless otherwise noted in the individual station manuscripts, the data were collected by the U.S. Geological Survey with the assistance of other agencies. The principal assistance has been furnished by the Oklahoma Water Resources Board, Frank Raab, Director.

DESCRIPTION OF THE AREA

Oklahoma has an area of 69,919 square miles and ranks 17th in size in the conterminous United States. It is bounded on the north by the 37th parallel and on the south by the Red River. The western boundary lies along the 100th meridian except in the extreme northwest corner where the Panhandle area extends westward to the 103rd meridian. The eastern boundary runs approximately north and south between the 94th and 95th meridians.

River Systems

Oklahoma lies entirely within the drainage basin of the Mississippi River. All surface drainage flows through two major river systems: the Arkansas in the north and east, and the Red in the south. Principal tributaries of the Arkansas River are the Verdigris, Neosho, Illinois, Cimarron, and Canadian Rivers. Principal tributaries of the Red River are the Washita, Muddy Boggy, Kiamichi, and Little Rivers.

In western Oklahoma the river channels tend to be broad, shallow, and sand-choked. Basins are relatively long and narrow. Many of the streams in this area are dry or nearly dry much of the year. In the more mountainous eastern sections of the State the river channels tend to be V-shaped and have steeper gradients, and the basins are more oval in form.

Topography

The terrain of Oklahoma is mostly rolling plains, sloping downward from northwest to southeast. The highest point in the State, 4,978 feet above mean sea level, is on Black Mesa in the northwestern corner of the Panhandle. The lowest altitude, about 300 feet above mean sea level, is found diagonally across and in the southeastern corner of the State. The trend of surface elevation to grade downward from northwest to southeast does not indicate the variation in topography that occurs regionally. The eastern part of the State is covered largely by the Ozark Plateau and Ouachita Mountains and shows considerable variation over relatively short distances.

These areas (together with the Wichita Mountains in the southwest and the Arbuckle Mountains in the south-central) are the rugged mountainous areas of the State. The remainder of the State is generally smooth to undulating in relief. The eastern part of the State not occupied by the mountainous areas is generally known as the sandstone hills region. This region merges gradually on the west into the red-bed plains. The red-bed plains are very extensive and cover most of the central and western part of the State except for local granitic outcrops in the southwest, the dune sand belts in the northwest, and the high plains region in the Panhandle.

Climate

The climate of Oklahoma is mostly continental in type, as is typical of all the central Great Plains region. Warm, moist air moving northward from the Gulf of Mexico exerts much influence at times, particularly over the southern and far eastern sections of the State. As a result, humidities and cloudiness are generally greater and precipitation considerably heavier in these areas. In the eastern section there are 10 to 15 more thunderstorms a year, on the average, than in the western section.

Average annual precipitation decreases sharply from east to west across the State. The amounts range from less than 16 inches in the extreme western part of the Panhandle to more than 50 inches in the Ouachita Mountains in the southeast. On the average, about 65 percent of the mean annual precipitation occurs during the months April to September.

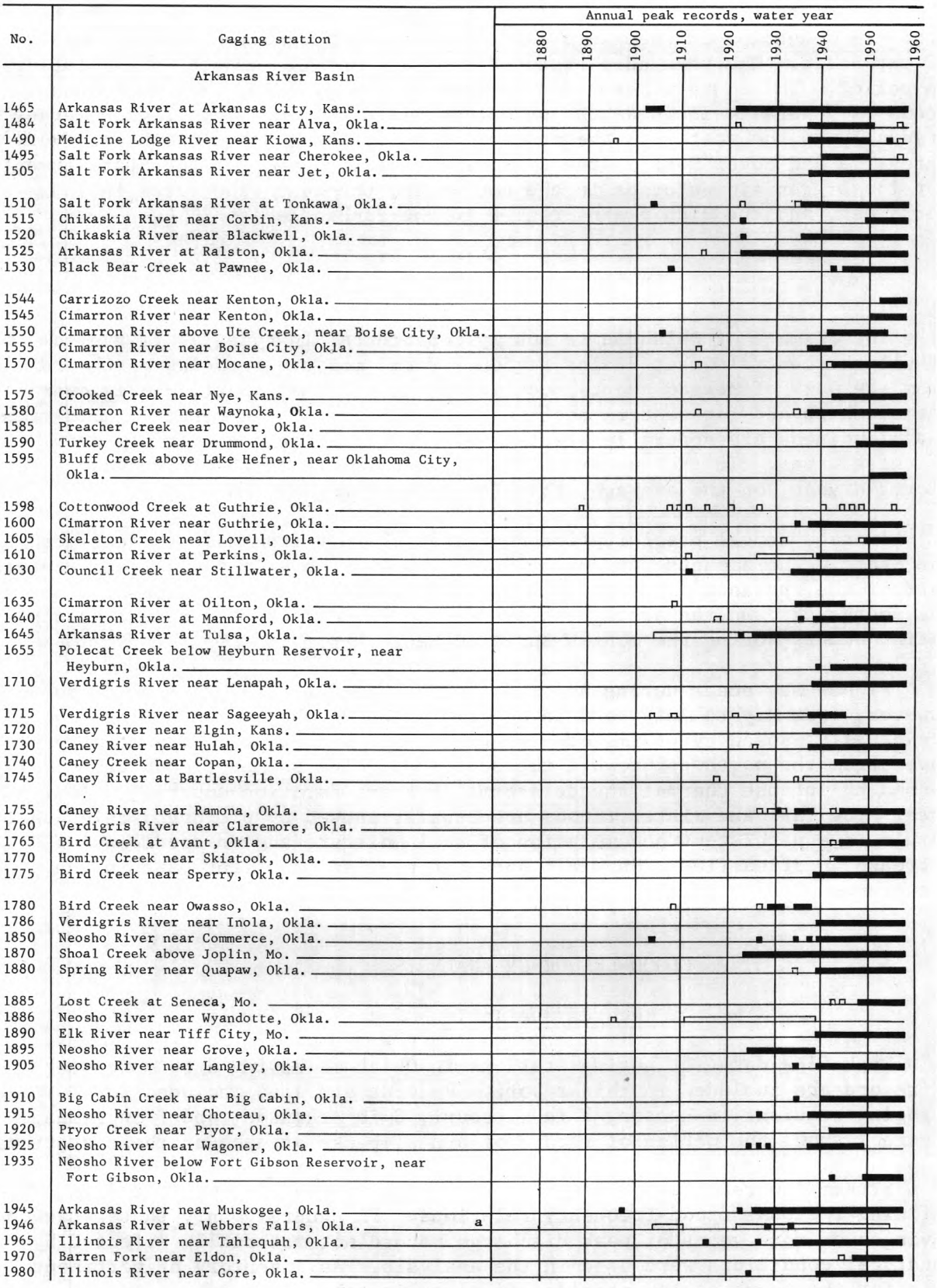
Floods may occur during any season. They occur with greatest frequency, however, from May to July, and in September and October. The spring floods are usually caused by storms occurring along a cold front that generally moves from the northwest toward the southeast. The summer floods are usually caused by intense thermal thunderstorms of short duration covering a limited area. The fall and winter floods are usually caused by prolonged rains that result in a persistent accumulation of soil moisture and an accompanying increase in streamflow. Snowfall does not play an important part in the occurrence of floods in Oklahoma.

FLOOD-FREQUENCY ANALYSIS

Records available

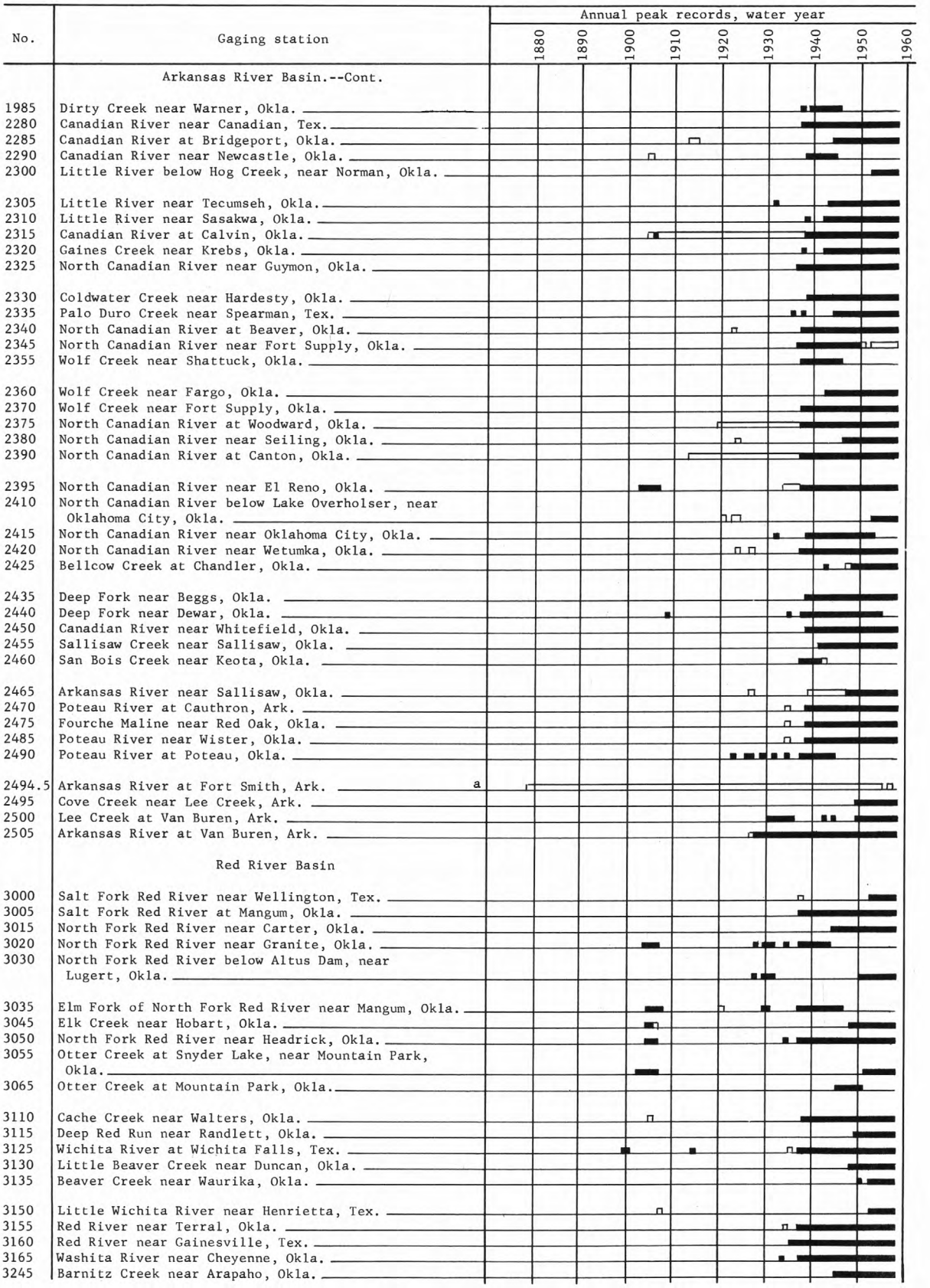
Peak-flow data for gaging stations in Oklahoma having 5 or more years of record are included in this report. Records are also included for 5 gaging stations in Kansas, 3 in Missouri, 8 in Arkansas, and 7 in Texas. Figure 1 shows the period of record of annual peaks at each of these stations.

Streamflow records for only 89 of the gaging stations were used in defining regional flood-frequency relations. In general, only those stations having 5 or more years of peak discharge record not materially affected by unnatural conditions were used in the analysis. An inventory of pertinent data for the above gaging stations is given in table 1.



See explanation of bar symbols at end of chart.

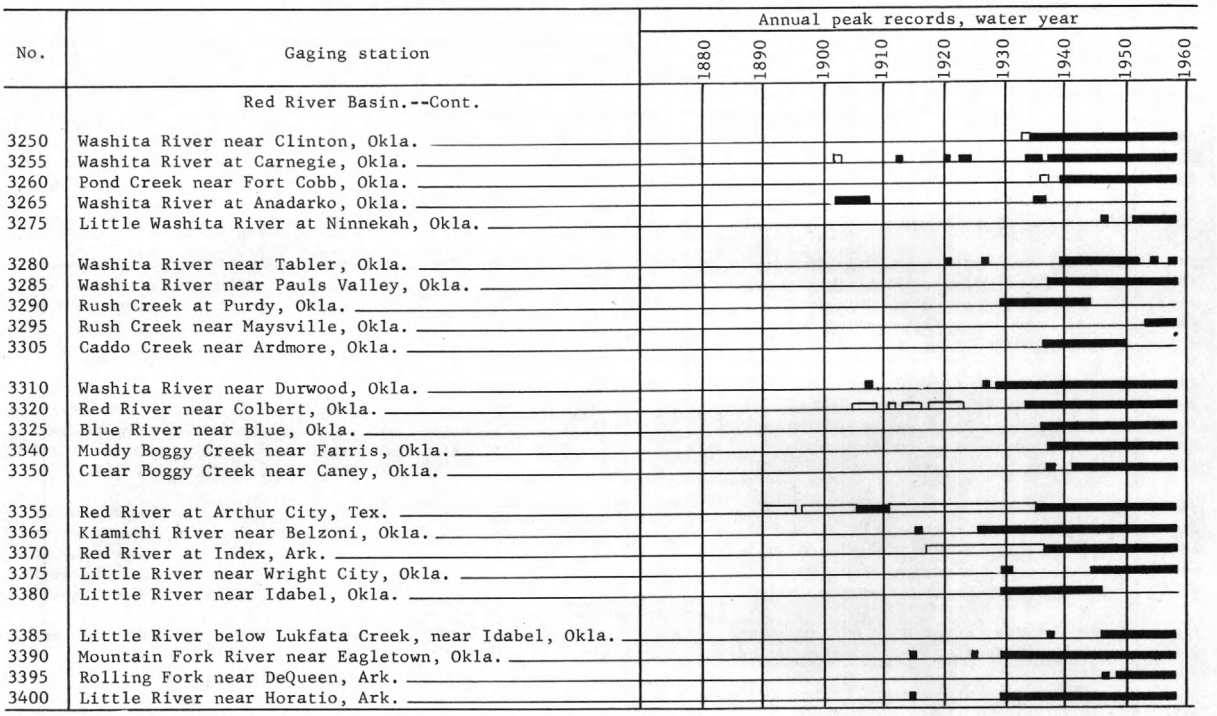
Figure 1.--Bar chart of period of record of annual peaks at gaging station.



No.	Gaging station
	Arkansas River Basin.--Cont.
1985	Dirty Creek near Warner, Okla.
2280	Canadian River near Canadian, Tex.
2285	Canadian River at Bridgeport, Okla.
2290	Canadian River near Newcastle, Okla.
2300	Little River below Hog Creek, near Norman, Okla.
2305	Little River near Tecumseh, Okla.
2310	Little River near Sasakwa, Okla.
2315	Canadian River at Calvin, Okla.
2320	Gaines Creek near Krebs, Okla.
2325	North Canadian River near Guymon, Okla.
2330	Coldwater Creek near Hardesty, Okla.
2335	Palo Duro Creek near Spearman, Tex.
2340	North Canadian River at Beaver, Okla.
2345	North Canadian River near Fort Supply, Okla.
2355	Wolf Creek near Shattuck, Okla.
2360	Wolf Creek near Fargo, Okla.
2370	Wolf Creek near Fort Supply, Okla.
2375	North Canadian River at Woodward, Okla.
2380	North Canadian River near Seiling, Okla.
2390	North Canadian River at Canton, Okla.
2395	North Canadian River near El Reno, Okla.
2410	North Canadian River below Lake Overholser, near Oklahoma City, Okla.
2415	North Canadian River near Oklahoma City, Okla.
2420	North Canadian River near Wetumka, Okla.
2425	Bellcow Creek at Chandler, Okla.
2435	Deep Fork near Beggs, Okla.
2440	Deep Fork near Dewar, Okla.
2450	Canadian River near Whitefield, Okla.
2455	Sallisaw Creek near Sallisaw, Okla.
2460	San Bois Creek near Keota, Okla.
2465	Arkansas River near Sallisaw, Okla.
2470	Poteau River at Cauthron, Ark.
2475	Fourche Maline near Red Oak, Okla.
2485	Poteau River near Wister, Okla.
2490	Poteau River at Poteau, Okla.
2494.5	Arkansas River at Fort Smith, Ark. [a]
2495	Cove Creek near Lee Creek, Ark.
2500	Lee Creek at Van Buren, Ark.
2505	Arkansas River at Van Buren, Ark.
	Red River Basin
3000	Salt Fork Red River near Wellington, Tex.
3005	Salt Fork Red River at Mangum, Okla.
3015	North Fork Red River near Carter, Okla.
3020	North Fork Red River near Granite, Okla.
3030	North Fork Red River below Altus Dam, near Lugert, Okla.
3035	Elm Fork of North Fork Red River near Mangum, Okla.
3045	Elk Creek near Hobart, Okla.
3050	North Fork Red River near Headrick, Okla.
3055	Otter Creek at Snyder Lake, near Mountain Park, Okla.
3065	Otter Creek at Mountain Park, Okla.
3110	Cache Creek near Walters, Okla.
3115	Deep Red Run near Randlett, Okla.
3125	Wichita River at Wichita Falls, Tex.
3130	Little Beaver Creek near Duncan, Okla.
3135	Beaver Creek near Waurika, Okla.
3150	Little Wichita River near Henrietta, Tex.
3155	Red River near Terral, Okla.
3160	Red River near Gainesville, Tex.
3165	Washita River near Cheyenne, Okla.
3245	Barnitz Creek near Arapaho, Okla.

See explanation of bar symbols at end of chart.

Figure 1.--Bar chart of period of record of annual peaks at gaging station.--Continued



a 1833 (stage only)

Bar symbols

Peak stage and discharge

Peak stage only

Figure 1.--Bar chart of period of record of annual peaks at gaging station.--Continued

Table 1.--Inventory of data for gaging stations used to define regional flood-frequency relations.

No.	Gaging stations	Flood region and hydrologic area	Contributing drainage area (sq mi)	Period of known floods	Station $Q_{2.33}$ (cfs)	Areal $Q_{2.33}$ (cfs)	Maximum stage and discharge				
							Date	Gage height (ft)	Discharge		
									Cfs	Cfs per sq mi	Ratio to areal $Q_{2.33}$
1484	Salt Fork Arkansas River near Alva, Okla.	A2	1,009	1904-58	11,000	6,850	May 8, 1922	10.3	-	-	-
				1938-51			Oct. 23, 1941	9.08	27,000	26.8	3.9
1490	Medicine Lodge River near Kiowa, Kans.	A2	914	1938-50, 1955	7,000	6,450	Oct. 22, 1941	11.75	16,000	17.5	2.5
1495	Salt Fork Arkansas River near Cherokee, Okla.	A2	2,439	1941-50	11,200	12,200	Oct. 23, 1941	11.7	35,000	14.4	2.9
1510	Salt Fork Arkansas River at Tonkawa, Okla.	A2	a4,520	1904-58	17,700	18,200	June 10, 1923	26.8	-	-	-
				1904, 1936-58			May 20, 1948	22.82	40,800	9.03	2.2
1515	Chikaskia River near Corbin, Kans.	A4	794	1923-58	8,000	11,500	June 9, 1923	28.0	60,000	75.6	5.2
1520	Chikaskia River near Blackwell, Okla.	A4	1,859	1923-58	18,500	20,500	June 10, 1923	34	100,000	53.8	4.9
1530	Black Bear Creek at Pawnee, Okla.	A2	576	1908, 1943-58	5,060	4,800	May 19, 1943	28.19	17,800	30.9	3.7
1545	Cimarron River near Kenton, Okla.	A2	a1,038	1951-58	8,100	7,200	July 6, 1958	13.67	26,300	25.3	3.7
1550	Cimarron River above Ute Creek near Boise City, Okla.	A2	a1,879	1906, 1942-54	17,500	10,600	Apr. 20, 1942	20.1	80,000	42.6	7.5
1575	Crooked Creek near Nye, Kans.	A1	a813	1913-58	3,100	2,450	May 20, 1955	8.01	13,600	16.7	5.6
1580	Cimarron River near Waynoka, Okla.	A2	a8,504	1914-58	28,500	28,000	May 16, 1957	15.10	94,500	11.1	3.4
1585	Preacher Creek near Dover, Okla.	A2	14.5	1918-57	920	-	May 15, 1957	9.1	6,420	44.3	-
1590	Turkey Creek near Drummond, Okla.	A2	248	1948-58	2,760	2,750	May 16, 1957	21.61	18,800	75.8	6.8
1600	Cimarron River near Guthrie, Okla.	A2	a11,966	1914-57	34,000	34,800	May 17, 1957	18.58	158,000	13.2	4.5
1605	Skeleton Creek near Lovell, Okla.	A2	410	1912-58	3,960	3,800	May 16, 1957	34.58	75,200	183	19.8
1610	Cimarron River at Perkins, Okla.	A2	a12,926	1912-58	36,800	36,500	May 17, 1957	19.53	149,000	11.5	4.1
1630	Council Creek near Stillwater, Okla.	A3	31	1912-58	2,290	2,050	Aug. 14, 1942	17.54	18,000	581	8.8
1640	Cimarron River at Mannford, Okla.	A2	a13,923	1908-58	45,500	38,200	October 1908	25.7	-	-	-
				1936-55			Sept. 4, 1940	25.2	103,000	7.40	2.7
1655	Polecat Creek below Heyburn Reservoir, near Heyburn, Okla.	A3	123	1940-58	7,080	4,650	Sept. 4, 1940	31.5	26,000	211	5.6
1710	Verdigris River near Lenapah, Okla.	A5	3,639	1939-58	34,500	39,000	May 20, 1943	40.44	137,000	37.6	3.5
1720	Caney River near Elgin, Kans.	A5	445	1939-58	16,000	14,300	Apr. 10, 1944	29.80	35,500	79.8	2.5
1730	Caney River near Hulah, Okla.	A5	736	1926-58	20,000	18,000	1926	40.2	-	-	-
				1938-58			Apr. 10, 1944	39.45	51,000	69.3	2.8
1740	Caney Creek near Copan, Okla.	A5	424	1944-58	11,800	13,900	Apr. 10, 1944	30.58	36,400	85.8	2.6
1755	Caney River near Ramona, Okla.	A5	1,955	1927-58	16,000	28,500	May 21, 1943	b39.8	-	-	-
				1931, 1935-38, 1945-58			Oct. 3, 1945	30.12	38,500	19.7	1.4
1760	Verdigris River near Claremore, Okla.	A5	6,534	1935-58	44,000	53,000	May 21, 1943	55.05	182,000	27.9	3.4
1765	Bird Creek at Avant, Okla.	A3	364	1943-58	11,700	8,900	May 1948	29.6	-	-	-
				1945-58			June 12, 1957	29.0	25,400	69.8	2.9
1770	Hominy Creek near Skiatook, Okla.	A3	340	1943-58	8,560	8,500	July 10, 1949	35.06	14,200	41.8	1.7
1775	Bird Creek near Sperry, Okla.	A3	905	1915-58	15,100	15,500	May 18, 1943	31.68	86,500	95.6	5.6
1786	Verdigris River near Inola, Okla.	A5	7,911	1940-58	47,500	56,000	May 21, 1943	54.93	224,000	28.3	4.0
1850	Neosho River near Commerce, Okla.	A6	5,876	1904-58	33,000	30,500	July 15, 1951	c34.03	267,000	45.4	8.8
1870	Shoal Creek above Joplin, Mo.	A7	410	1924-58	10,600	10,500	May 18, 1943	16.8	62,100	151	5.9
1880	Spring River near Quapaw, Okla.	B7	2,510	1895-1958	35,500	40,800	May 19, 1943	43.4	190,000	75.7	4.7
1885	Lost Creek at Seneca, Mo.	B7	42	1943-58	1,750	1,860	1943, 1945	11.7	-	-	-
				1949-58			May 25, 1957	8.21	5,760	137	3.1
1890	Elk River near Tiff City, Mo.	B7	872	1940-58	19,500	18,500	Apr. 19, 1941	28.4	137,000	157	7.4
1895	Neosho River near Grove, Okla.	B	9,969	1925-39	76,000	-	Apr. 15, 1927	34.58	133,000	13.3	1.8
1910	Big Cabin Creek near Big Cabin, Okla.	A7	466	1893-1958	14,700	11,500	May 18, 1943	34.96	63,000	135	5.5

See footnotes at end of table.

Table 1.--Inventory of data for gaging stations used to define regional flood-frequency relations --Continued

No.	Gaging stations	Flood region and hydrologic area	Contributing drainage area (sq mi)	Period of known floods	Station $Q_{2.33}$ (cfs)	Areal $Q_{2.33}$ (cfs)	Maximum stage and discharge				
							Date	Gage height (ft)	Discharge		
									Cfs	Cfs per sq mi	Ratio to areal $Q_{2.33}$
1920	Pryor Creek near Pryor, Okla.	A7	229	1915-58	6,300	6,800	May 10, 1943	20.4	-	-	-
				1944-58			Apr. 14, 1945	19.6	17,500	76.4	2.6
1925	Neosho River near Wagoner, Okla.	B	12,307	1896-1949	100,000	-	May 21, 1943	45.2	400,000	32.5	4.0
1965	Illinois River near Tahlequah, Okla.	B8	959	1916-58	28,000	25,600	May 10, 1950	27.94	150,000	156	5.9
1970	Barren Fork at Eldon, Okla.	B8	307	1945-58	19,700	10,800	Apr. 15, 1945	23.8	-	-	-
				1948-58			Apr. 3, 1957	20.33	37,600	122	3.5
1980	Illinois River near Gore, Okla.	B8	1,626	1925, 1940-58	36,000	38,200	May 11, 1958	30.2	180,000	111	4.7
1985	Dirty Creek near Warner, Okla.	A8	227	1938-46	9,200	8,600	May 10, 1943	26.00	42,000	185	4.9
2300	Little River below Hog Creek, near Norman, Okla.	A3	257	1953-58	8,000	7,250	May 25, 1957	28.85	34,600	135	4.8
2305	Little River near Tecumseh, Okla.	A3	456	1932-58	11,400	10,200	June 1932	25.58	60,000	132	5.9
2310	Little River near Sasakwa, Okla.	A3	865	1939-58	18,100	15,100	May 11, 1950	33.48	44,600	51.6	3.0
2320	Gaines Creek near Krebs, Okla.	A3	588	1912-58	11,000	12,000	Feb. 18, 1938	31.9	70,000	119	5.8
2325	North Canadian River near Guymon, Okla.	A	a1,175	1937-58	11,400	-	Sept. 23, 1941	13.82	44,000	37.4	3.9
2330	Coldwater Creek near Hardesty, Okla.	A2	a767	1939-58	4,780	5,750	June 25, 1947	9.07	24,600	32.1	4.3
2335	Palo Duro Creek near Spearman, Tex.	A2	a440	1936-58	3,400	4,000	Sept. 4, 1938	22.5	34,000	77.3	8.5
2340	North Canadian River at Beaver, Okla.	A	a3,685	1923-43	11,800	-	Oct. 6, 1946	14.55	70,000	19.0	5.9
2345	North Canadian River near Fort Supply, Okla.	A	a5,068	1937-58	9,480	-	Oct. 9, 1946	11.83	50,000	9.87	5.3
2350	Wolf Creek at Lipscomb, Tex.	A2	a475	1938-44	5,700	4,200	Oct. 21, 1941	5.80	20,000	42.1	4.8
2355	Wolf Creek near Shattuck, Okla.	A2	a961	1938-46	7,360	6,700	Oct. 22, 1941	8.87	24,000	25.0	3.6
2360	Wolf Creek near Fargo, Okla.	A2	a1,386	1943-58	8,740	8,500	June 23, 1957	10.0	81,600	58.9	9.6
2375	North Canadian River at Woodward, Okla.	A	a6,777	1920-58	9,200	-	Oct. 12, 1923	10.9	-	-	-
				1938-58			May 18, 1951	-	43,000	6.34	4.7
2380	North Canadian River near Seiling, Okla.	A	a7,414	1923-58	8,740	-	Oct. 13, 1923	16.4	-	-	-
				1947-58			May 19, 1951	10.61	40,100	5.41	4.6
2390	North Canadian River at Canton, Okla.	A	a7,601	1914-58	6,900	-	Oct. 13, 1923	16.8	-	-	-
				1938-58			Oct. 12, 1946	12.83	24,800	3.26	3.6
2395	North Canadian River near El Reno, Okla.	A	a8,143	1903-7, 1934-58	4,780	-	Oct. 28, 1941	15.98	15,000	1.84	3.1
2420	North Canadian River near Wetumka, Okla.	A	a9,391	1923-58	16,100	-	October 1923	26.9	-	-	-
				1938-58			Apr. 15, 1945	26.40	66,000	7.03	4.1
2425	Bellcow Creek at Chandler, Okla.	A3	46	1948	2,300	2,540	June 24, 1948	15.20	-	-	-
				1943, 1949-55			May 23, 1952	11.80	2,910	63.3	1.1
2435	Deep Fork near Beggs, Okla.	A3	2,018	1939-58	16,700	25,000	May 11, 1943	34.55	66,800	33.1	2.7
2455	Sallisaw Creek near Sallisaw, Okla.	B9	182	1942-58	15,900	16,000	Apr. 15, 1945	11.25	110,000	604	6.9
2470	Poteau River at Cauthron, Ark.	C10	200	1935-58	12,700	11,500	June 1935	27.4	-	-	-
				1939-58			Jan. 24, 1949	23.34	31,000	155	2.7
2475	Fourche Maline near Red Oak, Okla.	C10	122	1935-58	7,540	8,400	June 1935	25.4	-	-	-
				1939-58			Apr. 25, 1942	22.34	26,300	216	3.1
2485	Poteau River near Wister, Okla.	C10	993	1915-58	33,100	31,800	June 1935	43.0	-	-	-
				1939-58			May 16, 1945	37.16	78,600	79.2	2.5
2495	Cove Creek near Lee Creek, Ark.	C9	36.9	1950-58	6,720	5,780	Apr. 3, 1957	13.50	20,500	556	3.5
2500	Lee Creek near Van Buren, Ark.	C9	427	1931-58	31,300	28,000	Apr. 15, 1945	35.0	112,000	262	4.0
3005	Salt Fork Red River at Mangum, Okla.	B4	a1,357	1938-58	17,500	16,000	June 16, 1938	14.7	-	-	-
							May 16, 1957	-	72,000	53.1	4.5
3015	North Fork Red River near Carter, Okla.	B2	a1,938	1945-58	10,200	11,000	May 17, 1957	11.95	25,300	13.1	2.3
3035	Elm Fork of North Fork Red River near Mangum, Okla.	B4	838	1905-47	11,800	12,500	1921	16.4	-	-	-
				1905-08, 1930-31,			May 12, 1947	13.52	30,600	36.5	2.4

Table 1.--Inventory of data for gaging stations used to define regional flood-frequency relations --Continued

No.	Gaging stations	Flood region and hydrologic area	Contributing drainage area (sq mi)	Period of known floods	Station Q2.33 (cfs)	Areal Q2.33 (cfs)	Maximum stage and discharge				
							Date	Gage height (ft)	Discharge		
									Cfs	Cfs per sq mi	Ratio to areal Q2.33
3045	Elk Creek near Hobart, Okla.	B2	549	1905-58	4,420	4,600	Oct. 4, 1955	30.75	22,400	40.8	4.9
3050	North Fork Red River near Headrick, Okla.	B2	a3,845	1905-7, 1935, 1938-58	14,400	16,500	d	16.1	85,000	22.1	5.2
3055	Otter Creek at Snyder Lake near Mountain Park, Okla.	B4	132	1903-7, 1952-58	3,860	2,760	June 6, 1953	19.50	14,200	108	5.1
3110	Cache Creek near Walters, Okla.	B4	675	1906-58	8,920	9,500	May 18, 1951	29.72	28,200	41.8	3.0
3115	Deep Red Run near Randlett, Okla.	B4	617	1950-58	7,180	8,800	May 18, 1951	e27.10	20,300	32.9	2.3
3130	Little Beaver Creek near Duncan, Okla.	A7	158	1949-58	12,000	5,130	May 25, 1957	19.74	47,500	301	9.3
3135	Beaver Creek near Waurika, Okla.	A7	563	1889-1958	12,000	13,300	May 18, 1951	-	65,300	116	4.9
3260	Pond Creek near Fort Cobb, Okla.	A4	319	1937-58	4,320	5,400	June 15, 1937	19.3	-	-	-
				1940-58			May 17, 1949	18.72	35,000	110	6.5
3290	Rush Creek at Purdy, Okla.	A7	145	1940-58	9,570	4,800	May 10, 1950	e27.0	36,000	207	6.2
3305	Caddo Creek near Ardmore, Okla.	C7	298	1937-50	8,190	8,200	Mar. 15, 1945	28.60	22,300	74.8	2.7
3325	Blue River near Blue, Okla.	C7	478	1937-58	10,300	11,700	Feb. 17, 1938	31.81	34,400	72.0	2.9
3340	Muddy Boggy Creek near Farris, Okla.	C7	1,087	1938-58	23,700	21,700	June 17, 1945	44.94	61,900	56.9	2.9
3350	Clear Boggy Creek near Caney, Okla.	C7	720	1938-58	17,900	15,900	February 1938	26.91	54,600	75.8	3.4
3365	Kiamichi River near Belzoni, Okla.	D10	1,423	1915-58	38,900	40,200	October 1915	44.2	72,000	50.6	1.8
3375	Little River near Wright City, Okla.	D9	645	1930-31, 1945-58	37,900	36,600	Sept. 16, 1950	45.77	75,400	117	2.1
3380	Little River near Idabel, Okla.	D10	1,173	1930-46	34,300	35,200	Feb. 18, 1938	39.3	86,000	73.3	2.5
3390	Mountain Fork River near Eagletown, Okla.	D9	787	1915-58	47,000	41,800	Aug. 18-19, 1915	26.4	92,500	118	2.2
3395	Rolling Fork near De Queen, Ark.	D9	181	1947-58	17,200	16,100	Aug. 27, 1947	25.6	110,000	608	6.8
3400	Little River near Horatio, Ark.	D10	2,674	1915-58	57,100	60,000	August 1915	38.0	124,000	46.4	2.1

a Does not include noncontributing drainage area.
b At site and datum used prior to Feb. 28, 1939.
c Occurred July 18, 1951.
d Sometime prior to 1927.
e Highest since 1908 when stage was higher.

Gaging-station records not used in the regional analysis fall in one of the following categories:

1. Peak discharge materially affected by regulation or diversion.

2. Only peak stages available.

3. Less than 25 percent difference between drainage areas for gaging stations on the same stream (this criteria not used on larger streams where 25 percent represents a relatively large area).

4. Large streams such as the Arkansas and the Red Rivers whose peak flow characteristics differ greatly from those of adjacent tributary streams.

Maximum stages and discharges, if known, are listed in table 2 for each of the remaining gaging stations not used to define regional flood-frequency relations. Similar data for miscellaneous sites are listed in table 3.

Method

Methods used in the preparation of this report have been developed by engineers of the U.S. Geological Survey and are based on a continuing study over a period of years. The procedures used in computing the flood-frequency data are outlined by Dalrymple (1960).

These procedures serve to define flood-frequency relations at a point on a stream (a gaging station) and, by combining a number of these point relations, define a regional frequency relation which can be applied over a broad area. Using data collected on many streams in Oklahoma having a wide range in drainage area, two basic relations were defined: (1) A curve showing the relation between the ratio of a given flood to the mean annual flood and the frequency of the given flood, and (2) a curve showing the relation between the mean annual flood and the drainage area.

Flood Frequency at a Gaging Station

Value

A flood-frequency curve based on records collected at one gaging station represents what has happened at that site during a specific number of years in the past. It might be a poor basis for predicting flood events if the past record is not typical. A frequency curve based on regional characteristics is more reliable than one based on flood experiences at a particular site. A regional frequency curve is derived from the frequency curves for the individual gaging stations. Stations on large streams with floodflow characteristics radically different from those of smaller tributary streams would not be included in regionalization of the records.

Table 2.--Maximum stages and discharges at gaging stations not used to define flood-frequency relations

No.	Gaging station	Flood region and hydrologic area	Contributing drainage area (sq mi)	Period of known floods	Maximum stage and discharge			
					Date	Gage height (ft)	Discharge	
							Cfs	Cfs per sq mi
1465	Arkansas River at Arkansas City, Kans.	-	a36,106	1877-1958	June 10, 1923	28.43	103,000	2.85
1505	Salt Fork Arkansas River near Jet, Okla.	A2	a3,194	1938-58	May 19, 1938	8.80	25,900	8.11
1525	Arkansas River at Ralston, Okla.	-	a46,850	1915-58	June 11, 1923	23.0	200,000	4.27
1544	Carrizozo Creek near Kenton, Okla.	A2	111	1953-58	July 6, 1958	12.22	15,600	141
1555	Cimarron River near Boise City, Okla.	A2	a2,023	1914-42	May 1914	17.23	-	
				1935-42	Apr. 20, 1942	11.90	80,000	39.5
1570	Cimarron River near Mocane, Okla.	A1	a4,305	1914-58	1914	13	-	
				1943-58	May 17, 1951	9.94	53,400	12.4
1595	Bluff Creek above Lake Hefner, near Oklahoma City, Okla.	A2	1.62	1951-58	June 16, 1955	4.95	1,070	660
1598	Cottonwood Creek at Guthrie, Okla.	A2	370	1889-1958	May 19, 1949	b929.6	-	
1635	Cimarron River at Oilton, Okla.	A2	a13,743	1908-45	October 1908	21.3	-	
				1935-45	June 21, 1935	16.8	72,300	5.26
1645	Arkansas River at Tulsa, Okla.	-	a62,074	1905-58	June 13, 1923	19.8	244,000	3.93
1715	Verdigris River near Sageeyah, Okla.	A5	4,402	1904-45	May 21, 1943	51.54	138,000	31.3
1745	Caney River at Bartlesville, Okla.	A5	1,392	1918-56	Oct. 3, 1926	41.80	-	
				1950-56	July 21, 1950	35.62	36,400	19.0
1780	Bird Creek near Owasso, Okla.	A3	1,022	1908-38	Oct. 25, 1908	34.0	-	
				1929-32, 1935-38	Mar. 29, 1938	c26.2	19,700	19.3
1886	Neosho River near Wyandotte, Okla.	B7	8,792	1895-1939	December 1895	34.0	-	
1905	Neosho River near Langley, Okla.	B	10,335	1895-1958	May 20, 1943	45.5	30,000	29.0
1915	Neosho River near Choteau, Okla.	B	11,546	1927-58	May 20, 1943	45.00	400,000	34.6
1935	Neosho River below Fort Gibson Reservoir, near Fort Gibson, Okla.	B	12,495	1943-58	May 1943	43.0	400,000	32.0
1945	Arkansas River near Muskogee, Okla.	-	a84,133	1833-1958	May 21, 1943	48.20	700,000	8.32
1946	Arkansas River at Webbers Falls, Okla.	-	a84,508	1833-1955	May 22, 1943	39.0	-	
2280	Canadian River near Canadian, Tex.	-	a18,178	1904-58	Oct. 2, 1904	20.6	-	
				1938-58	Sept. 23, 1941	9.80	122,000	6.71
2285	Canadian River at Bridgeport, Okla.	-	a20,428	1914-58	May 3, 1914	19.4	-	
				1945-58	June 23, 1948	14.60	150,000	7.34
2290	Canadian River near Newcastle, Okla.	-	a20,962	1904-58	Oct. 3, 1904	18.5	-	
				1939-45	May 4, 1941	9.2	200,000	9.54
2315	Canadian River at Calvin, Okla.	-	a23,151	1904-58	Aug. 7, 1906	21.0	-	
					May 11, 1950	-	174,000	7.52
2370	Wolf Creek near Fort Supply, Okla.	A2	a1,498	1938-58	June 24, 1939	-	14,200	9.48
					Aug. 8, 1940	5.80	-	
2410	North Canadian River below Lake Overholser, near Oklahoma City, Okla.	A	a8,323	1921-58	October 1923	30.9	-	
				1953-58	Oct. 5, 1955	12.44	5,790	.70
2415	North Canadian River near Oklahoma City, Okla.	A	a8,455	1932-53	June 3, 1932	-	100,000	11.8
2440	Deep Fork near Dewar, Okla.	A3	2,307	1908-55	October 1908	29.0	85,000	36.8
2450	Canadian River near Whitefield, Okla.	-	a37,876	1898-1958	May 10, 1943	25.5	281,000	7.42
2460	San Bois Creek near Keota, Okla.	B10	346	1938-42	Feb. 18, 1938	26.1	30,000	86.7
				1938-43	May 11, 1943	27.9	-	
2465	Arkansas River near Sallisaw, Okla.	-	a125,516	1927-58	May 11, 1943	37.90	-	
				1948-58	May 27, 1957	34.80	544,000	4.33
2490	Poteau River at Poteau, Okla.	C10	1,240	1923-45	June 18, 1935	39.0	100,000	80.6
2494.5	Arkansas River at Fort Smith, Ark.	-	a127,731	1833-1958	May 12, 1943	41.7	-	
2505	Arkansas River at Van Buren, Ark.	-	a128,162	1833-1958	May 12, 1943	-	850,000	6.63
					Apr. 16, 1945	38.10	-	

See footnotes at end of table.

Table 2.--Maximum stages and discharges at gaging stations not used to define flood-frequency relations --Continued

No.	Gaging station	Flood region and hydrologic area	Contributing drainage area (sq mi)	Period of known floods	Maximum stage and discharge			
					Date	Gage height (ft)	Discharge	
							Cfs	Cfs per sq mi
3000	Salt Fork Red River near Wellington, Tex.----------	B4	a1,013	1938-58	May 16, 1957	19.00	146,000	144
3020	North Fork Red River near Granite, Okla.----------	B2	a2,095	1904-7, 1928-32, 1935-44	May 18, 1935	9.8	28,000	13.4
3030	North Fork Red River below Altus Dam, near Lugert, Okla.---	B2	a2,116	1928-32, 1951-58	May 18, 1951	12.70	16,100	7.61
3065	Otter Creek at Mountain Park, Okla.----------	B4	164	1946-51	June 3, 1949	18.30	4,800	29.3
3125	Wichita River at Wichita Falls, Tex.----------	B4	3,140	1900-58	June 8, 1915	-	50,000	15.9
3150	Little Wichita River near Henrietta, Tex.----------	A2	1,037	1908-58	1908	21	-	
				1953-58	May 2, 1957	18.36	6,390	6.16
3155	Red River near Terral, Okla.----------	-	a22,787	1891-1958	June 8, 1941	28.12	197,000	8.65
3160	Red River near Gainesville, Tex.----------	-	a24,846	1936-58	May 21, 1951	26.53	-	
					June 9, 1941	-	168,000	6.76
3165	Washita River near Cheyenne, Okla.----------	-	794	1894-1958	Apr. 29, 1954	15.24	69,800	8.79
3245	Barnitz Creek near Arapaho, Okla.----------	A2	243	1946-58	Apr. 8, 1947	20.8	-	
					May 16, 1951	-	7,700	31.7
3250	Washita River near Clinton, Okla.----------	-	1,977	1934-58	Apr. 3-4, 1934	33.9	-	
				1935-58	May 16, 1951	31.09	66,800	33.8
3255	Washita River at Carnegie, Okla.----------	-	3,129	1903-58	May 23, 1903	29	-	
				1934-58	May 18, 1949	26.21	50,000	16.0
3265	Washita River at Anadarko, Okla.----------	-	3,656	1903-8, 1936-37	May 25, 1903	26.8	29,000	7.93
3275	Little Washita River at Ninnekah, Okla.----------	A7	277	1947-58	May 16, 1947	-	36,000	159
				1952-58	May 24, 1957	22.20	-	
3280	Washita River near Tabler, Okla.----------	-	4,706	1921-57	Apr. 7, 1927	29.9	53,600	11.4
3285	Washita River near Pauls Valley, Okla.----------	-	5,330	1908-58	May 18, 1957	27.34	35,800	6.72
3295	Rush Creek near Maysville, Okla.----------	A7	206	1954-58	May 18, 1957	23.62	38,500	187
3310	Washita River near Durwood, Okla.----------	-	7,202	1908-58	May 19, 1957	42.30	98,000	13.6
3320	Red River near Colbert, Okla.----------	-	a33,841	1837-1958	May 26, 1908	45.5	-	
				1924-58	May 21, 1935	31.8	201,000	5.94
3355	Red River at Arthur City, Tex.----------	-	a38,595	1891-1958	May 28, 1908	43.2	400,000	10.4
3370	Red River at Index, Ark.----------	-	a42,494	1918-58	Feb. 23, 1938	34.25	297,000	6.99
3385	Little River below Lukfata Creek, near Idabel, Okla.-------	-	1,226	1938-58	February 1938	39.7	86,000	70.1

a Does not include noncontributing drainage area.
b Elevation above mean sea level.
c Occurred on following day.

Table 3.--Peak discharge at miscellaneous sites.

Flood region hydrologic area	Stream and place of determination	Drainage area (sq mi)	Peak discharge		
			Date	Cfs	Cfs per sq mi
	Arkansas River Basin				
A3	Ranch Creek near Hallett	17.1	Sept. 4, 1940	32,400	1,890
A2	Cimarron River tributary (No. 3) near Kenton	4.9	July 6, 1958	2,410	492
A2	Carrizozo Creek tributary near Kenton	0.15	July 6, 1958	307	2,047
A2	Long Creek near Freedom	42	May 16, 1957	17,300	412
A2	Eagle Chief Creek near Carmen	306	May 16, 1957	31,800	104
A2	Kingfisher Creek near Kingfisher	322	June 23, 1948	55,000	171
A2	South Boggy Creek at Enid	3.66	May 16, 1957	3,750	1,020
A3	Lagoon Creek near Jennings	47	Sept. 4, 1940	43,600	928
A3	Polecat Creek near Sapulpa	325	May 9, 1943	61,000	188
A5	Panther Creek near Bartlesville	7.5	May 19, 1943	5,500	733
A6	Hudson Creek near Narcissa	13.4	May 18, 1943	15,000	1,120
B7	Spavinaw Creek near Spavinaw	400	Apr. 19, 1941	86,400	216
B7	Spring Creek near Locust Grove	116	May 17, 1943	26,000	224
A2	Deer Creek near Custer City	90.2	May 16, 1951	46,400	514
A2	Deer Creek tributary 1 near Custer City	6.74	May 16, 1951	7,030	1,040
A2	Little Deer Creek near Thomas	4.96	May 16, 1951	6,230	1,230
A2	Deer Creek at Hydro	280	June 22, 1948	31,000	111
A2	Deer Creek tributary near Hydro	4.46	June 22, 1948	8,500	1,910
A2	Lariat Creek tributary near Geary	0.84	June 22, 1948	22,100	2,500
A2	Lariat Creek near Geary	14.0	June 22, 1948	19,000	1,360
A2	Hackberry Creek near Hardesty	116	May 16, 1955	22,100	191
A2	Four Mile Creek near El Reno	8.51	Nov. 19, 1953	6,390	751
A3	East Fork Big Creek (Tiger Creek) near Bowlegs	0.89	Apr. 14, 1945	3,000	3,370
A3	Wewoka Creek at Lima	75	Apr. 14, 1945	88,000	1,170
A3	Coon Creek near Wewoka	10	Apr. 14, 1945	11,000	1,100
A3	Dry Creek near Davenport	144	May 1943	20,000	139
A3	Deep Fork near Stroud	1,093	May 18, 1943	42,000	38.4
	Red River Basin				
A7	Willow Creek at Duncan	3.87	May 10, 1950	5,890	1,520
A7	Cow Creek near Comanche	64.8	May 10, 1950	43,200	667
A7	Cow Creek at Waurika	191	May 19, 1955	29,500	154
A7	Walnut Creek near Lone Grove	133	May 17, 1957	63,000	474
A2	Rush Creek near Raydon	69.6	Apr. 29, 1954	53,700	772
A2	Dry Creek near Clinton	10.3	Oct. 4, 1955	8,170	793
A2	Beaver Creek tributary near Arapaho	0.81	May 16, 1951	1,590	1,960
A4	Rainy Mountain Creek near Mountain View	316	May 18, 1949	38,000	120

Types of Flood Series

Flood data for a gaging station can be analyzed either as an annual-flood series or as a partial-duration series. In the annual-flood series only the highest peak discharge in each water year (October 1 to September 30) is used. The partial-duration series includes all peaks above a selected base.

The annual-flood series was used in this analysis. Langbein (1949) has shown that the two series give essentially the same results for recurrence intervals of 10 years or more. The following table shows comparative values of recurrence intervals by the two series:

Recurrence interval, in years	
Annual-flood series	Partial-duration flood series
1.16	0.5
1.58	1.0
2.00	1.45
2.54	2.0
5.52	5.0
10.5	10
20.5	20
50.5	50
100.5	100

Values of recurrence intervals for partial-duration series can be computed from curves based on annual series by use of the relation expressed in the above table.

There is a distinction in meaning of "recurrence interval" between the two series. In the annual-flood series, the recurrence interval is the average interval of time within which the given flood will be equaled or exceeded once as an annual maximum. In the partial-duration series, the recurrence interval is the average interval of time within which the given flood will be equaled or exceeded once without regard to its relationship to the year or any other period of time.

Flood-Frequency Curves

Methods of plotting data and fitting frequency graphs at a gaging station have been explained in other publications, notably Dalrymple (1960) and Searcy (1955), and will not be covered in detail in this report.

Recurrence interval for each annual flood is computed by the formula $T = (n+1)/m$, where T is the recurrence interval in years, n is the number of years of record, and m is the order number, beginning with the largest flood as number 1.

Annual-flood data are plotted to a scale based on the theory of extreme values (Powell, 1943). This scale has the advantage of tending to make the frequency curve plot as a straight line for many gaging stations. After plotting the data, a curve is fitted to the points by inspection. Because most streamflow records are relatively short, this method is preferable to analytic curve fitting. Reliable historical data are used to aid in defining the upper end of the curve.

Regional Flood Frequency

A flood-frequency curve for a single site for a specific period of time cannot be used as a reliable means of defining frequency relations on nearby ungaged streams or at other points on the same stream. The use of such a frequency curve is questionable, even for the site for which it was drawn, since the period of peak-flow records may not be typical of a long-term period.

The disadvantages of areal application of individual flood-frequency curves led to the development of methods of combining flood data for individual sites and relating flood-frequency functions to measurable characteristics of drainage basins. In order to combine flood records at different sites, the records should be taken from a region having homogeneous floodflow characteristics and should represent the same period of time.

Flood-frequency curves are combined in two ways. First, the records are combined on the basis of similarity of slope of the individual frequency graphs. This step defines a composite dimensionless frequency curve representing the ratio of the flood of any frequency to an index flood (the mean annual flood). The second step is to define a curve of relation between the drainage basin characteristics and the mean annual flood to enable the mean annual flood to be predicted at any point in the area. A flood-frequency curve for any site, gaged or ungaged, can be drawn by use of the above set of curves.

Mean Annual Flood

The mean annual flood for a gaging station is, by definition, a flood having a recurrence interval of 2.33 years in the annual-flood series. The mean annual flood has been found to be a good index of the geographical variation of floodflow.

Adjustment to Base Period

In order that the mean annual floods at the various stations be comparable, records should be adjusted to the same time period. The period 1921-58 was selected as the reference period for this report. Most gaging-station records for the State do not extend over this period and it was necessary to adjust the mean annual flood for short-term stations on the basis of relations obtained from the stations having longer periods of record.

Test for Homogeneity

Before combining a group of station records, a homogeneity test is made to insure that all stations selected for a region have similar flood-frequency characteristics. The test is used to determine whether the slopes of the individual curves differ more than might be expected in random sampling.

The slope of the frequency curve used in the homogeneity test is expressed by the ratio of the 10-year flood to the mean annual flood. This ratio is used because both the 10-year and the mean annual floods can be determined with reasonable accuracy for gaging stations with relatively short periods of record.

Composite Frequency Curves

Oklahoma was divided into four homogeneous regions (A-D) on the basis of the homogeneity test. Regional boundaries are shown in figure 2. Records for stations in each of these regions were combined to give dimensionless composite frequency curves. These curves represent the ratio of the flood of any frequency to the mean annual flood and are shown in figure 3. Curves for all regions were adjusted to the period 1921-58. It will be noted, on figure 2, that parts of a region may be widely separated geographically. Initally, more than four regions were defined. A comparison of composite curves for regions initially defined indicated that some of the regions having practically identical curves could be combined.

Flood-frequency studies by some investigators indicate that the slope of a frequency curve is affected by the size of the drainage area, with curves for smaller drainage areas having steeper slopes than those for larger areas. This effect was investigated for each of the four frequency regions. The flood ratios for the various flood levels were plotted against the drainage area. The effect of the drainage area on the slope of the frequency curve proved to be significant only in region B.

A family of curves was drawn to show the adjustment which is applicable at the various flood levels for drainage areas greater than 100 square miles for region B. These curves are shown in figure 4.

Figure 2.--Map of Oklahoma showing flood-frequency regions and hydrologic areas.

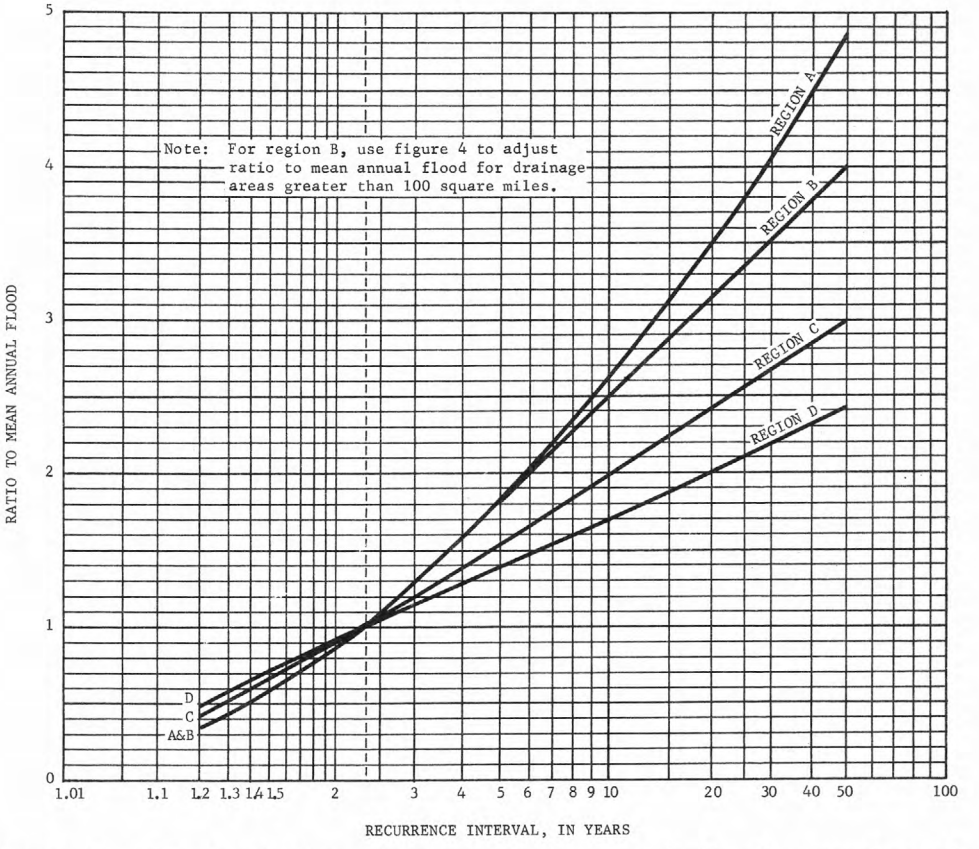


Figure 3.--Graph showing frequency of annual floods, regions A, B, C, and D, for period 1921-58.

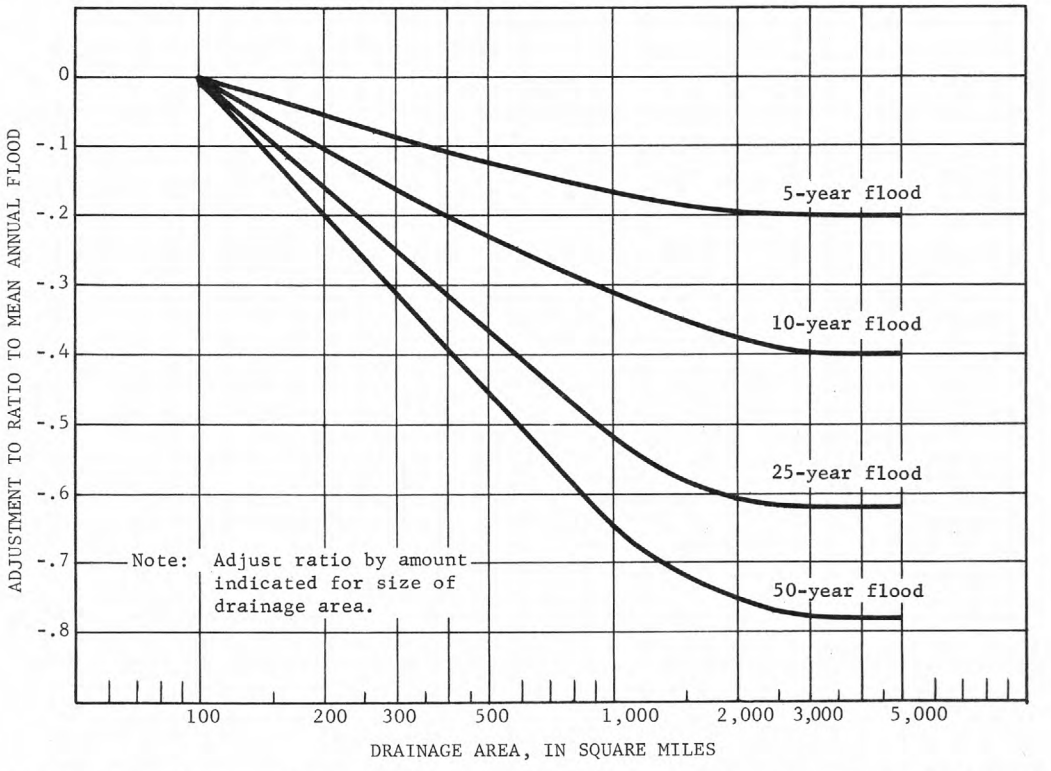


Figure 4.--Graph showing adjustment to ratio to mean annual flood for region B on basis of drainage area.

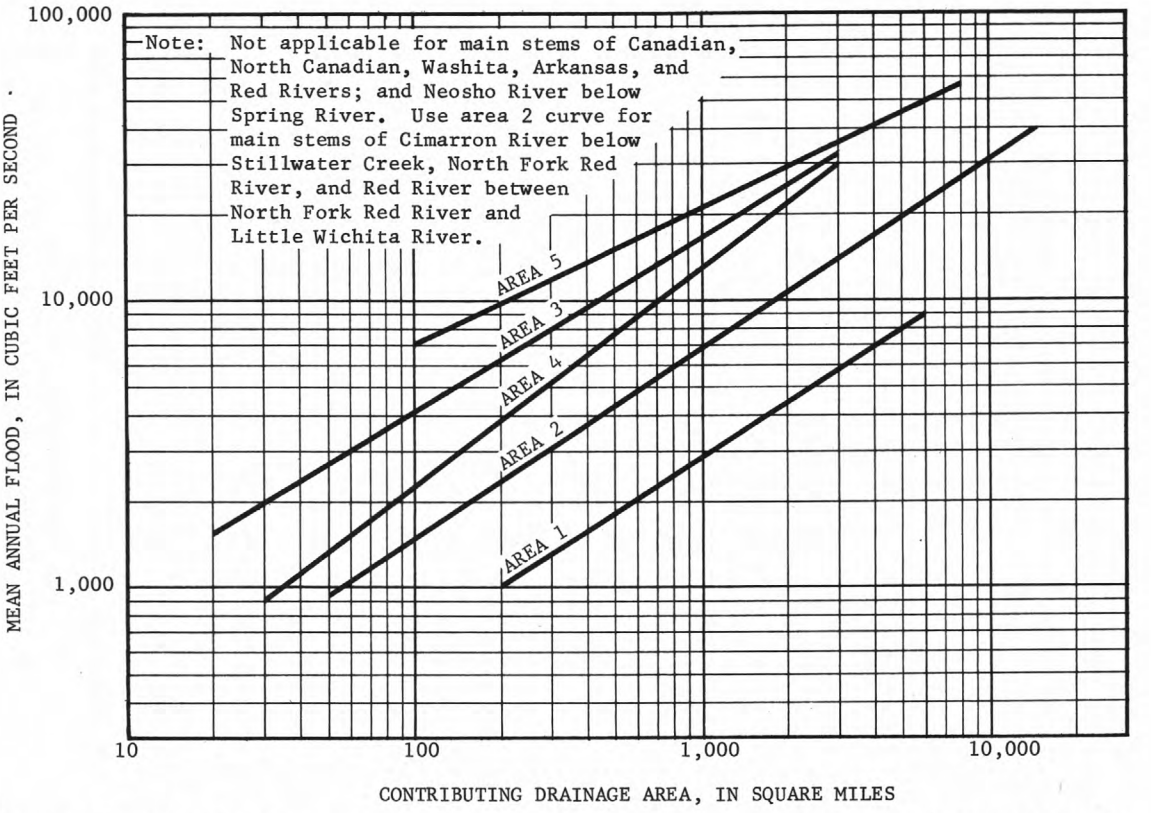


Figure 5.--Graph showing variation of mean annual flood with contributing drainage area in hydrologic areas 1-5.

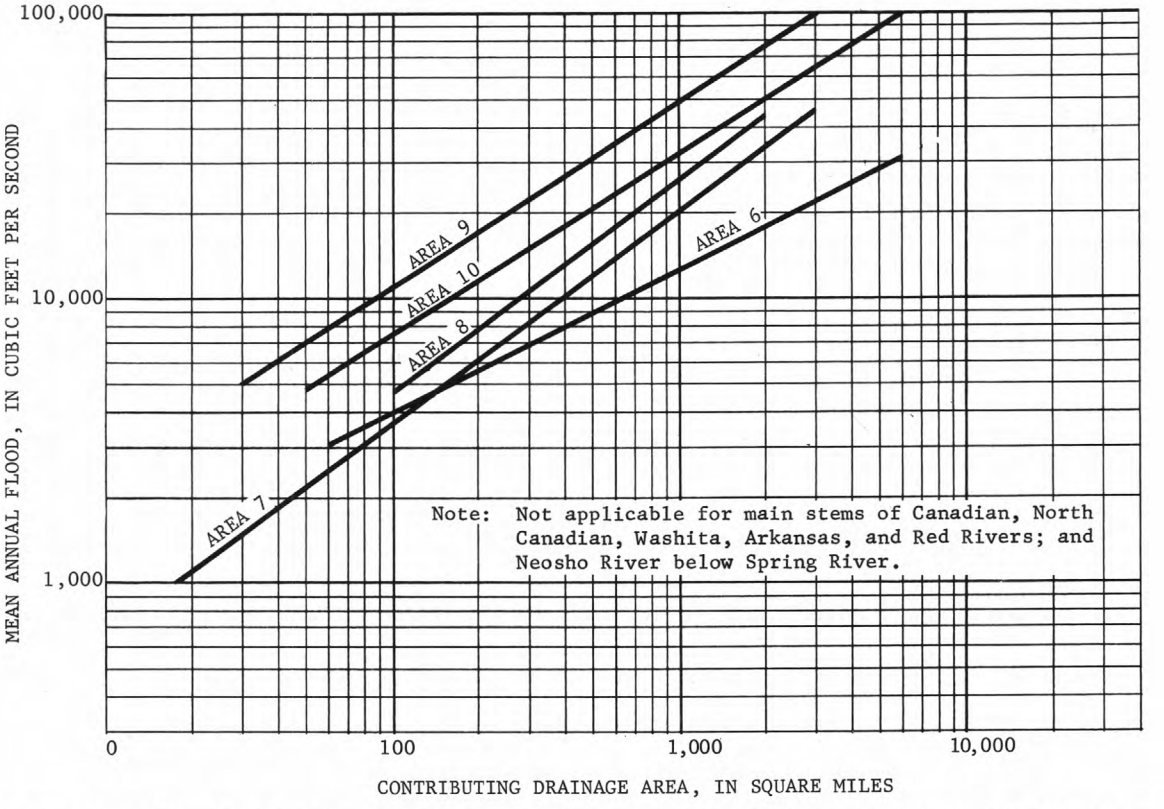


Figure 6.--Graph showing variation of mean annual flood with contributing drainage area in hydrologic areas 6-10.

Mean Annual Flood Relation

After deriving composite frequency curves that define dimensionless ratios to the mean annual flood for floods of other recurrence intervals, the task now remains of relating the mean annual flood to measurable characteristics of the drainage basin.

Excluding climatic factors, the more important physical characteristics of a drainage basin that affect the magnitude of the mean annual flood are size, topography, shape, and flood-water storage. The effect of topography may be measured in terms of land and stream slope and elevation. The most important and most readily measurable of these factors is drainage area size. A large part of Oklahoma is inadequately covered by reliable topographic maps, and slopes cannot be accurately determined. Storage undoubtedly has an important effect, but cannot be measured directly.

The mean annual flood was graphically correlated with the drainage area. On the basis of this correlation, the numbered hydrologic areas outlined on figure 2 were defined. Curves showing the relation of the mean annual flood to drainage area for each of these hydrologic areas are shown in figures 5 and 6.

An attempt was made to improve the correlation in the various hydrologic areas by using shape as a factor. Shape is represented as a ratio of drainage basin length to its width. A slight trend was noted in several areas but no material improvement was made. Thus, basin shape was not found to have a significant effect on flood frequencies in Oklahoma.

APPLICATION OF FLOOD-FREQUENCY DATA

Procedures for determining the magnitude of floods having recurrence intervals up to 50 years are outlined in this section. Mean annual flood curves shown in figures 5 and 6 indicate the range of drainage area sizes for which the mean annual flood is defined in each hydrologic area. For example, in figure 5, the mean annual flood is defined between 30 and 2,000 square miles in hydrologic area 4, whereas it is defined between 50 and 15,000 square miles in area 2. Neither the mean annual flood curves nor the ratio curves should be extrapolated beyond the limits shown.

Regional application

The magnitude of floods for selected recurrence intervals can be determined for most streams in Oklahoma by the following procedure:

1. Determine the size of the contributing drainage area above the site. Deduct noncontributing areas from the total area.
2. Determine the flood-frequency region and hydrologic area in which the site is located (fig. 2).

3. Determine the mean annual flood for the site from the appropriate hydrologic area curve (figs. 5 or 6).

4. Determine the ratio to mean annual flood for the selected recurrence interval (fig. 3). If the point of determination lies within region B and the drainage area is more than 100 square miles, adjust the ratio by use of figure 4.

5. Multiply the ratio to mean annual flood (step 4) by the mean annual flood (step 3).

A complete frequency curve for the site can be constructed by repeating steps 4 and 5 for several selected recurrence intervals.

Special Application

Some streams do not lend themselves readily to regional analysis. These are usually large streams that traverse more than one hydrologic area or flood-frequency region. They can be placed in two categories: (1) Those streams for which a composite frequency curve (fig. 3) is applicable whereas mean annual flood curves (figs. 5 and 6) are not, and (2) those for which neither composite frequency curves nor mean annual flood curves are applicable.

The first group includes the main stems of the North Canadian River and Neosho River below Spring River. Individual curves showing the variation of mean annual flood with drainage area were drawn for each stream and are shown in figures 7 and 8.

Flood magnitudes at sites below points indicated on these streams can be determined as outlined under Regional Application except that the value of the mean annual flood is determined from figures 7 or 8.

For the second group, families of curves were drawn showing the relation of selected flood frequencies to drainage area or, for the Arkansas and the Canadian Rivers, distance upstream from the mouth. The curves are shown in figures 9-12.

Streams included in this group are main stems of:

Arkansas River
Red River below Little Wichita River
Washita River
Canadian River

Flood magnitudes for selected recurrence intervals at sites on these rivers may be taken directly from the family of curves after first determining the drainage area above the site or the distance upstream from the mouth.

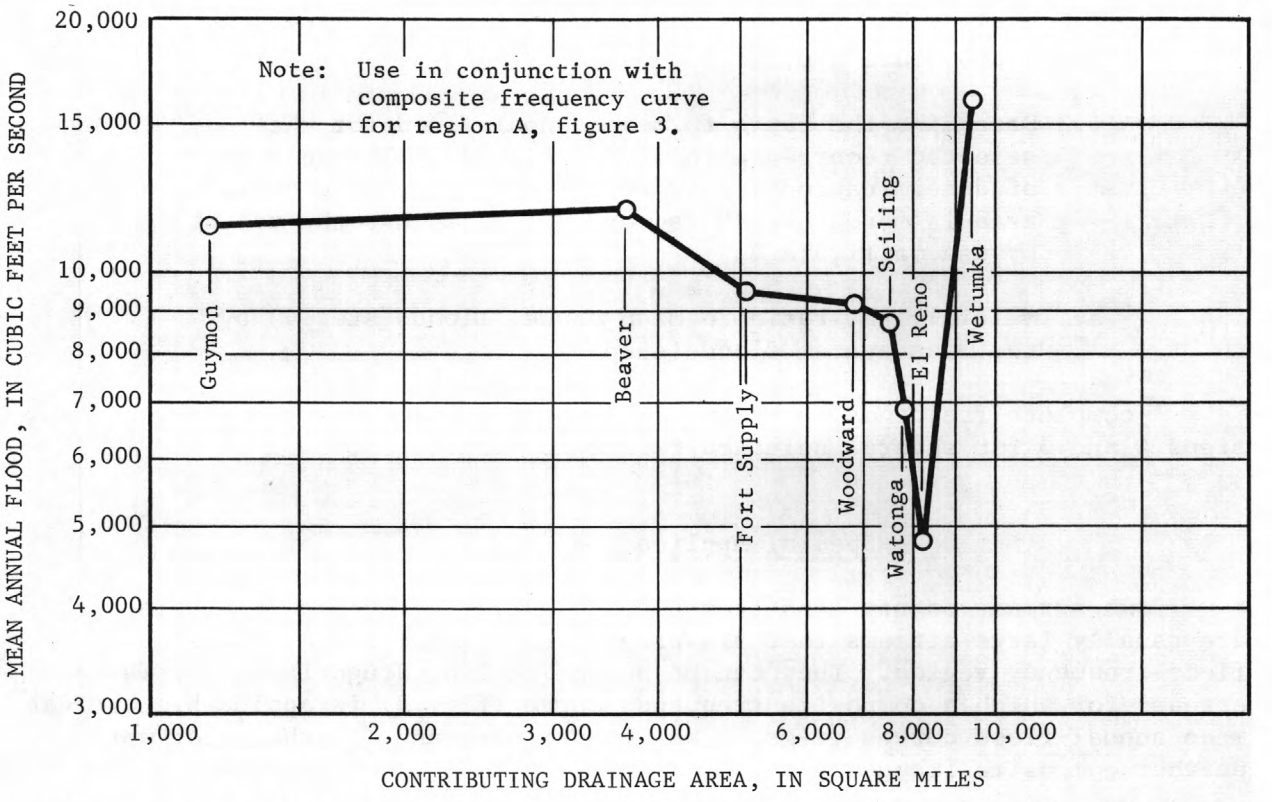


Figure 7.--Graph showing variation of mean annual flood with contributing drainage area on the main stem of the North Canadian River.

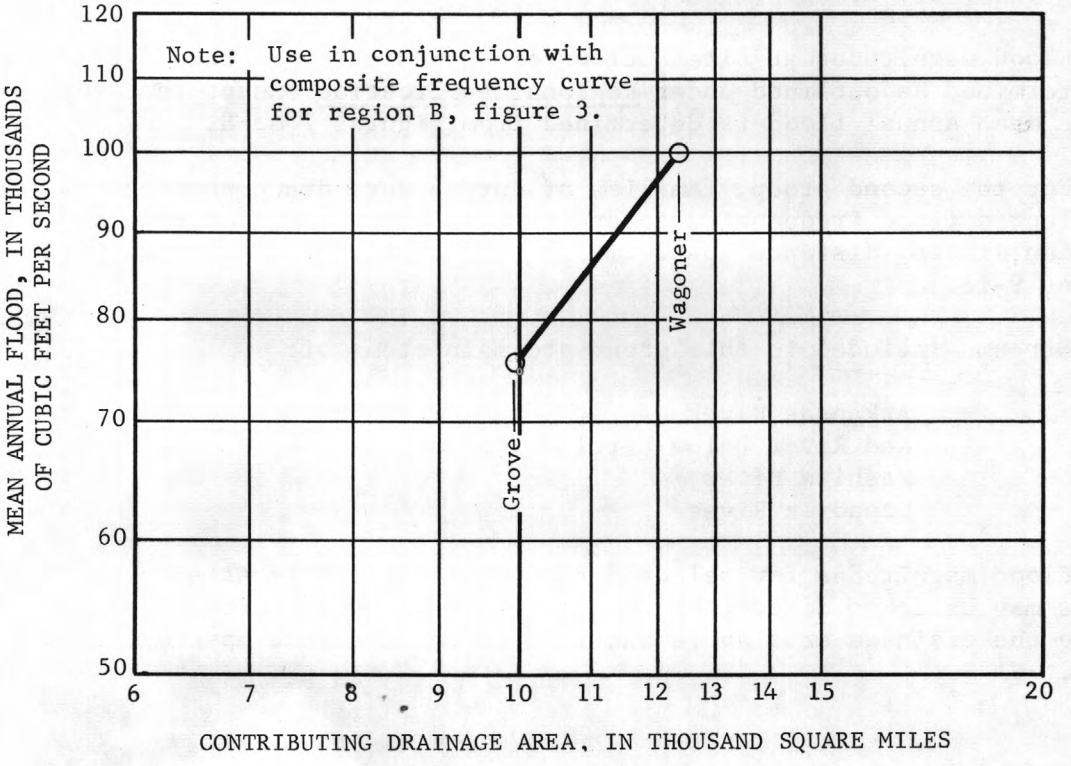


Figure 8.--Graph showing variation of mean annual flood with contributing drainage area on the main stem of the Neosho River below Spring River.

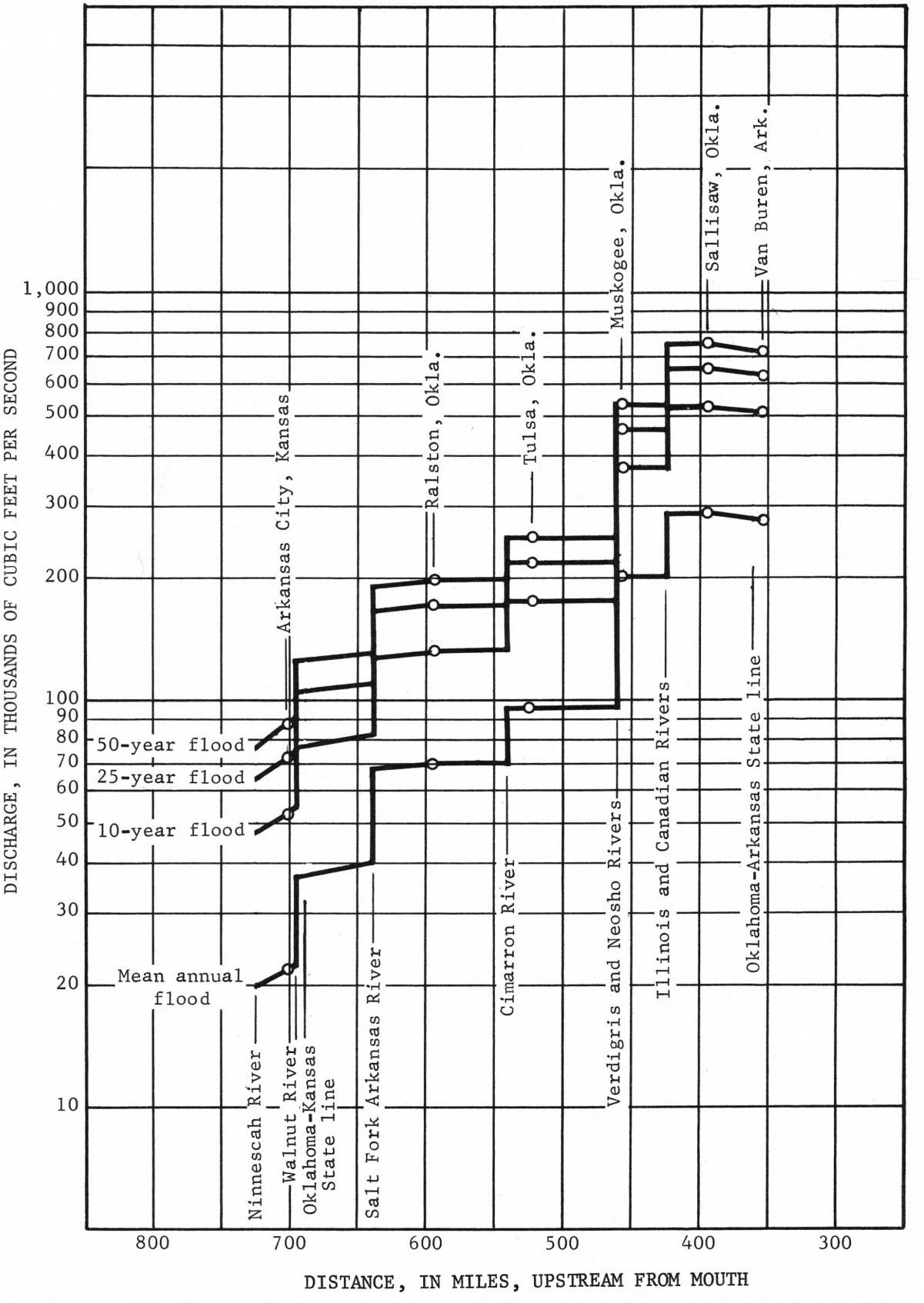


Figure 9.--Graph showing relation of selected flood frequencies to miles upstream from mouth, Arkansas River main stem.

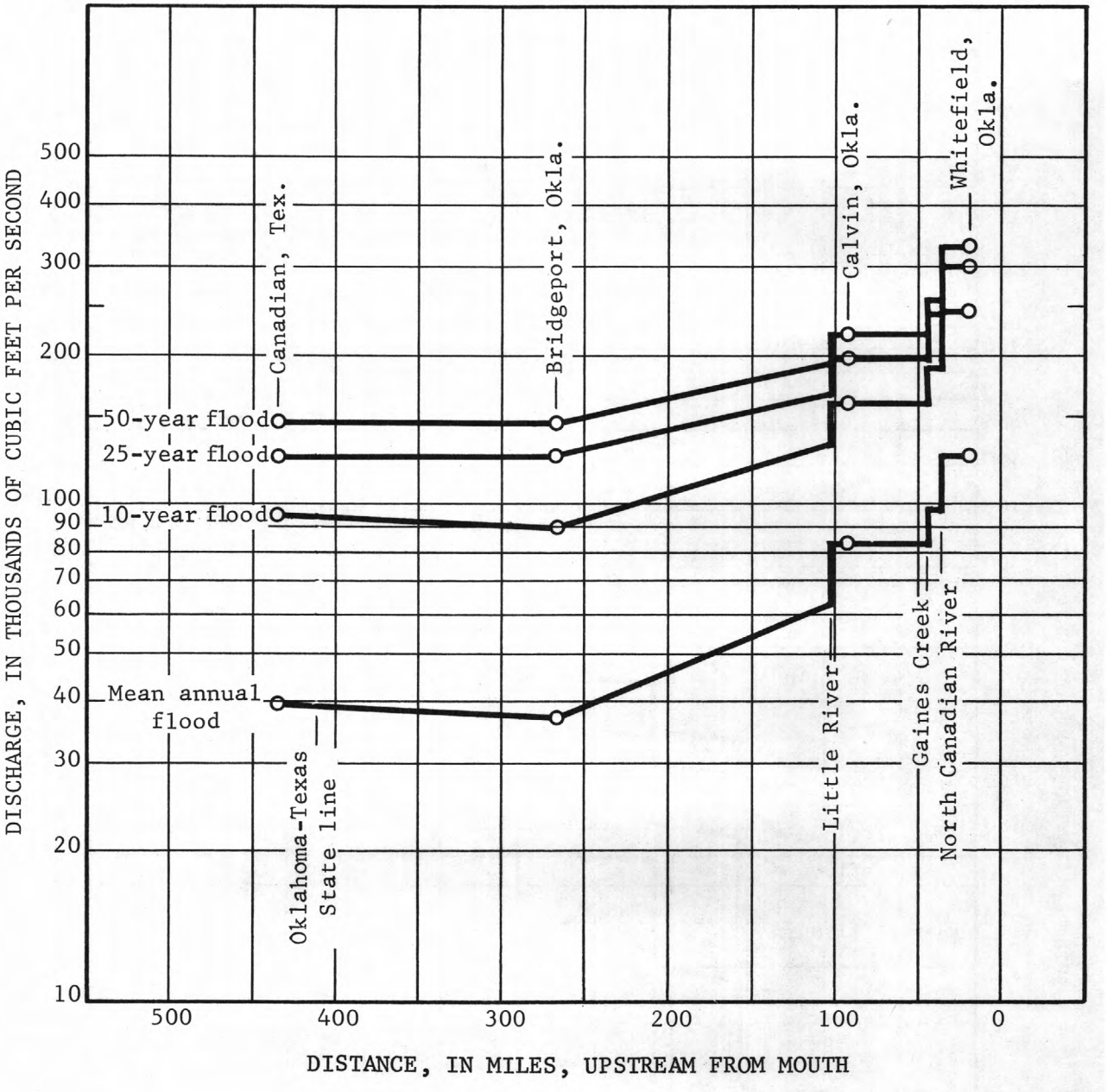


Figure 10.--Graph showing relation of selected flood frequencies to miles upstream from mouth, Canadian River main stem.

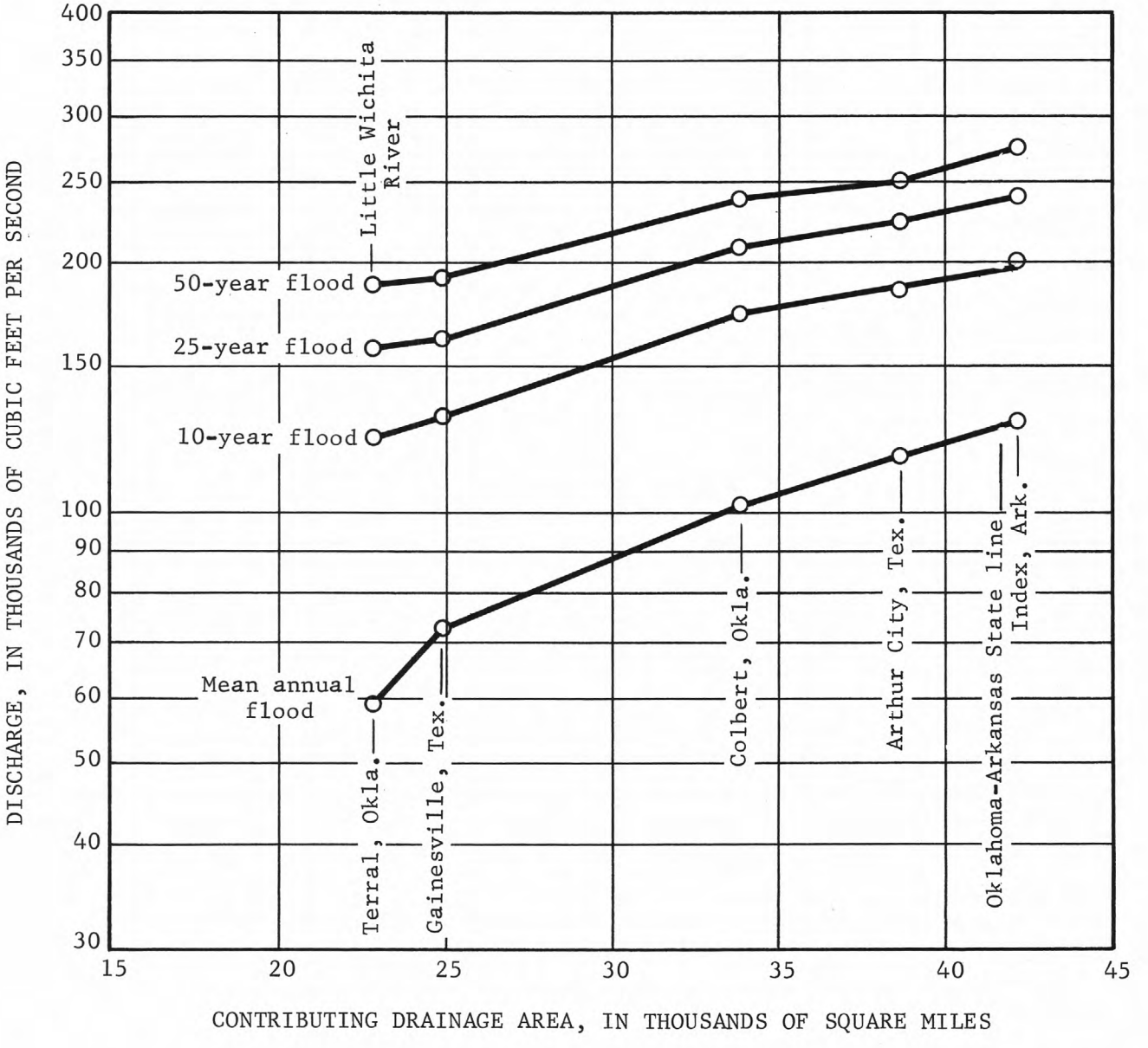


Figure 11.--Graph showing relation of selected flood frequencies to drainage area, Red River main stem below Little Wichita River.

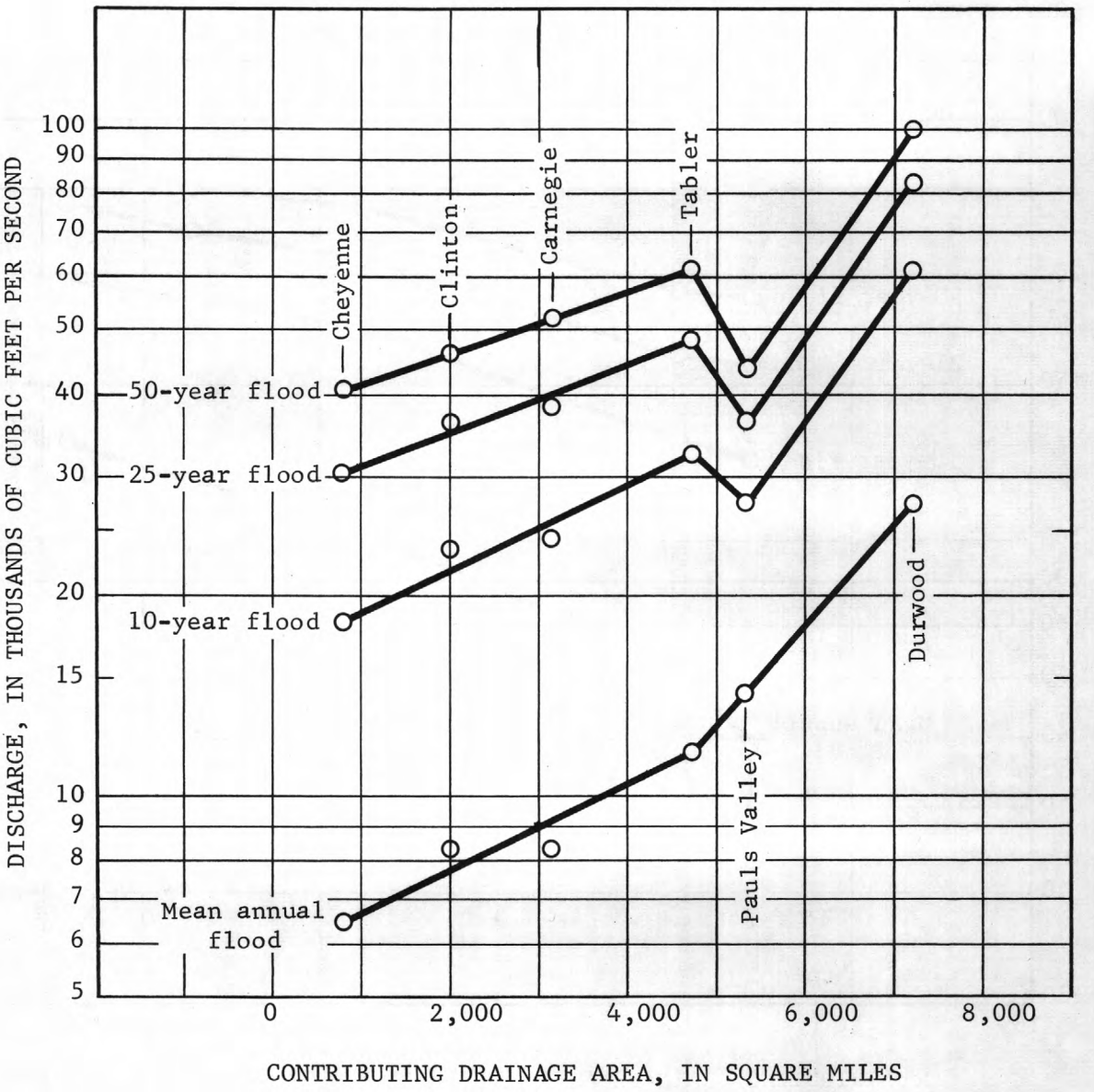


Figure 12.--Graph showing relation of selected flood frequencies to drainage area, Washita River main stem.

MAXIMUM FLOODS KNOWN

Maximum known flood stages and discharges and other station data are tabulated in the tables of peak stages and discharges. The maximums may or may not have occurred during the period when a gage was in operation. A comparison of the maximum known floods in each combination of hydrologic areas and flood-frequency regions, with the corresponding flood having a recurrence interval of 50 years, is shown in figures 13 to 16.

Peak discharges exceeding previous maximum known have occurred at some stations since the cutoff date of this report (1958). These peaks are listed in table 4 and are plotted on the appropriate figures.

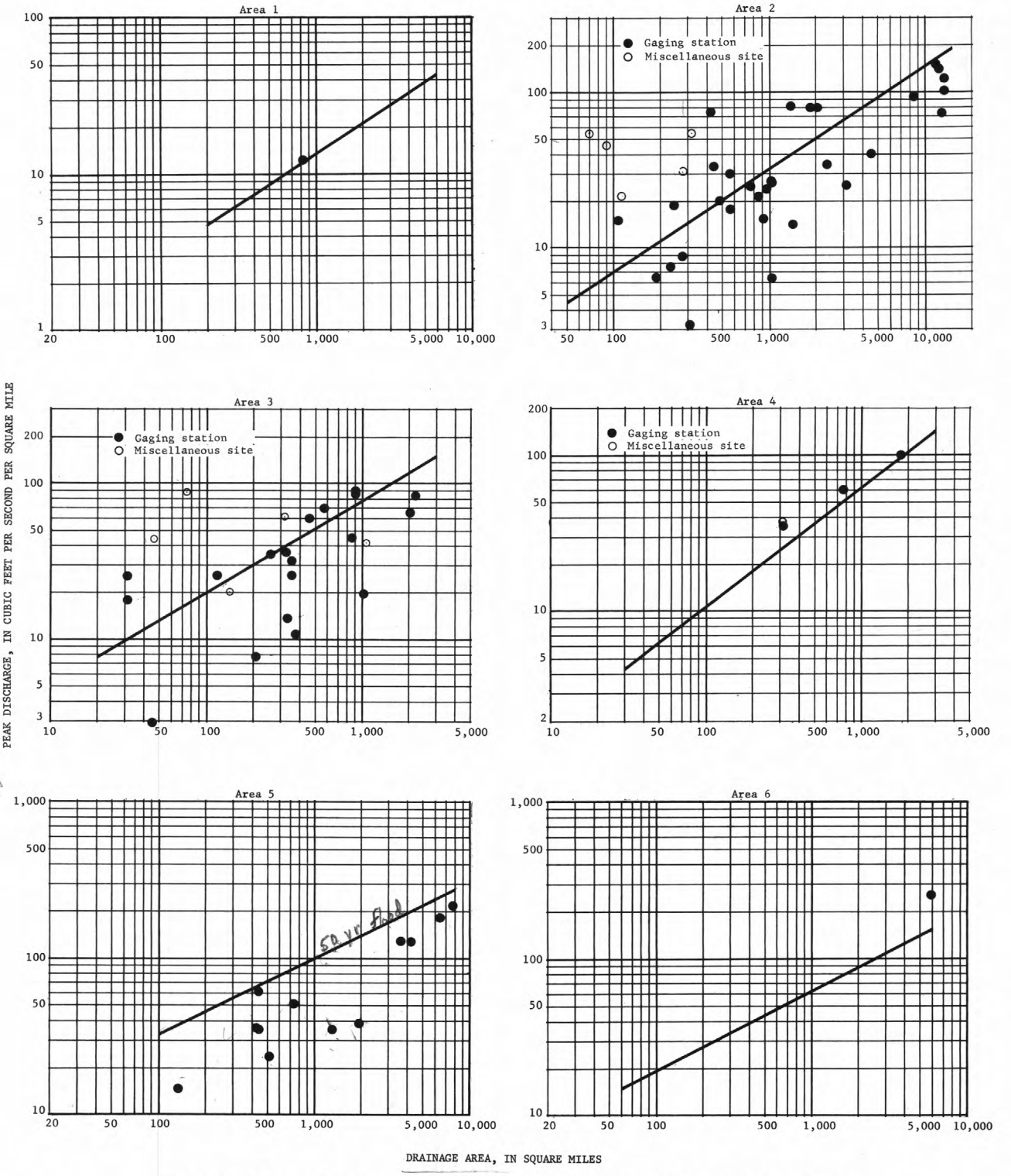


Figure 13.--Graphs showing relation of maximum floods to 50-year floods in region A.

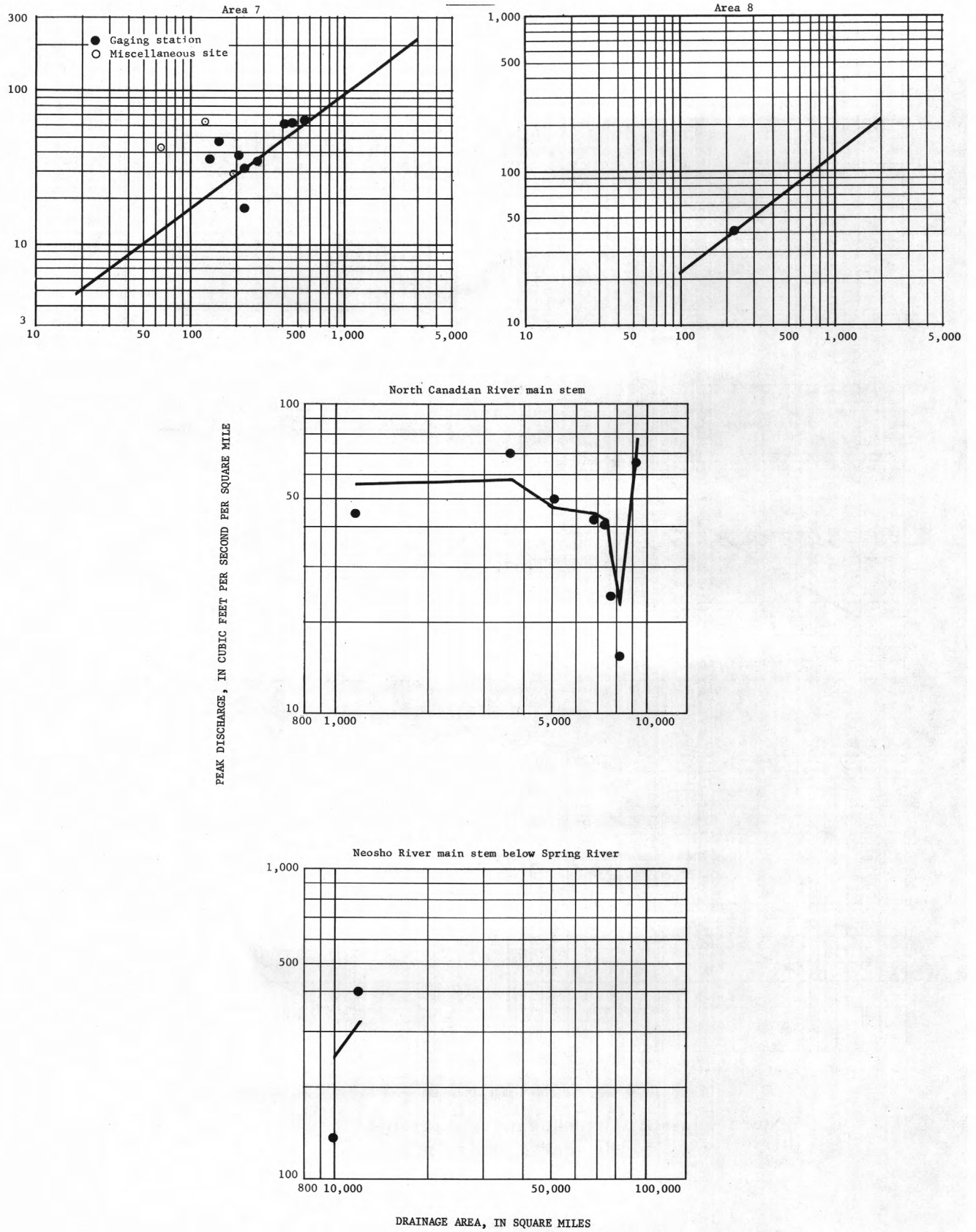


Figure 14.--Graphs showing relation of maximum floods to 50-year floods in regions A and B.

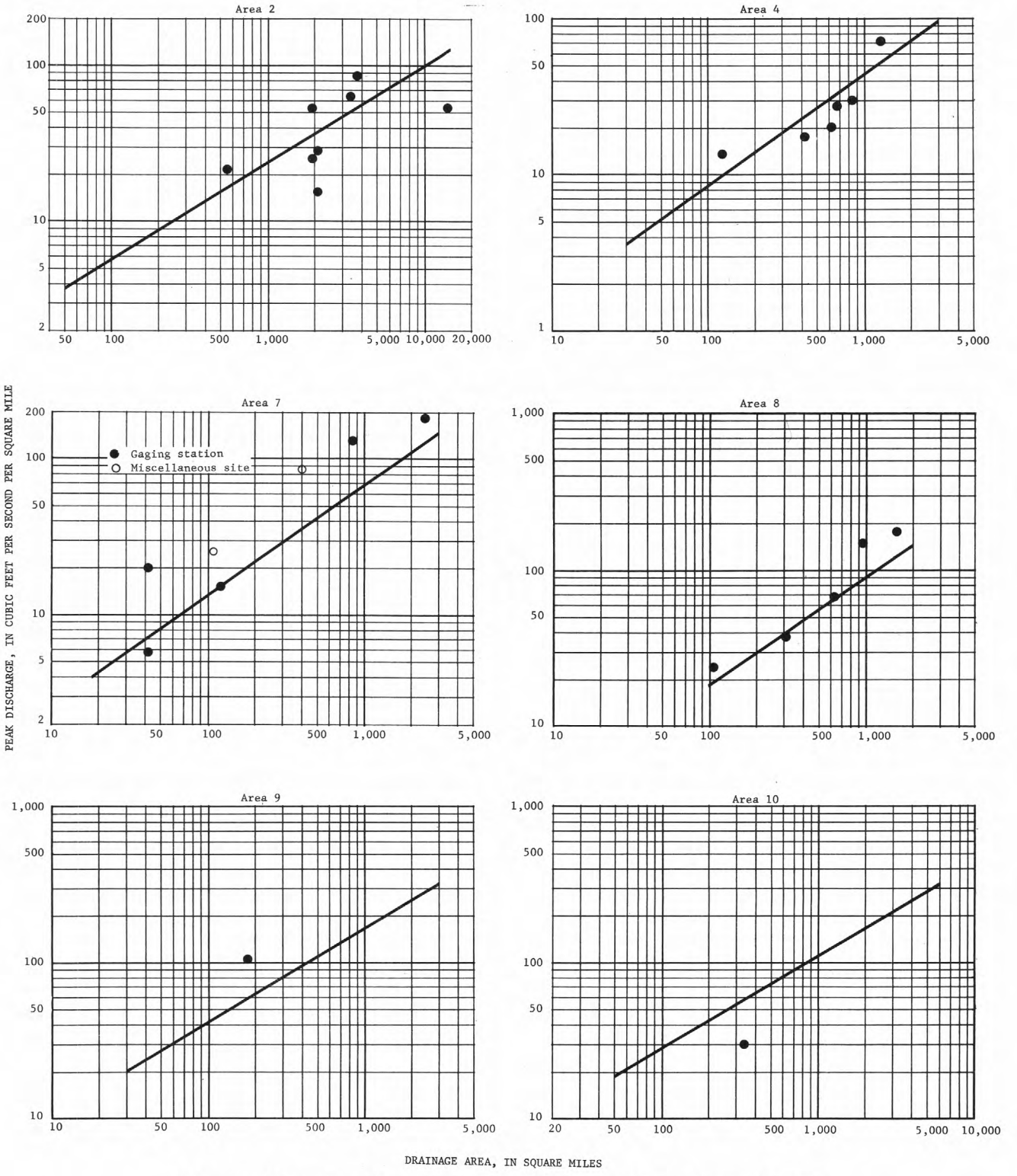


Figure 15.--Graphs showing relation of maximum floods to 50-year floods in region B.

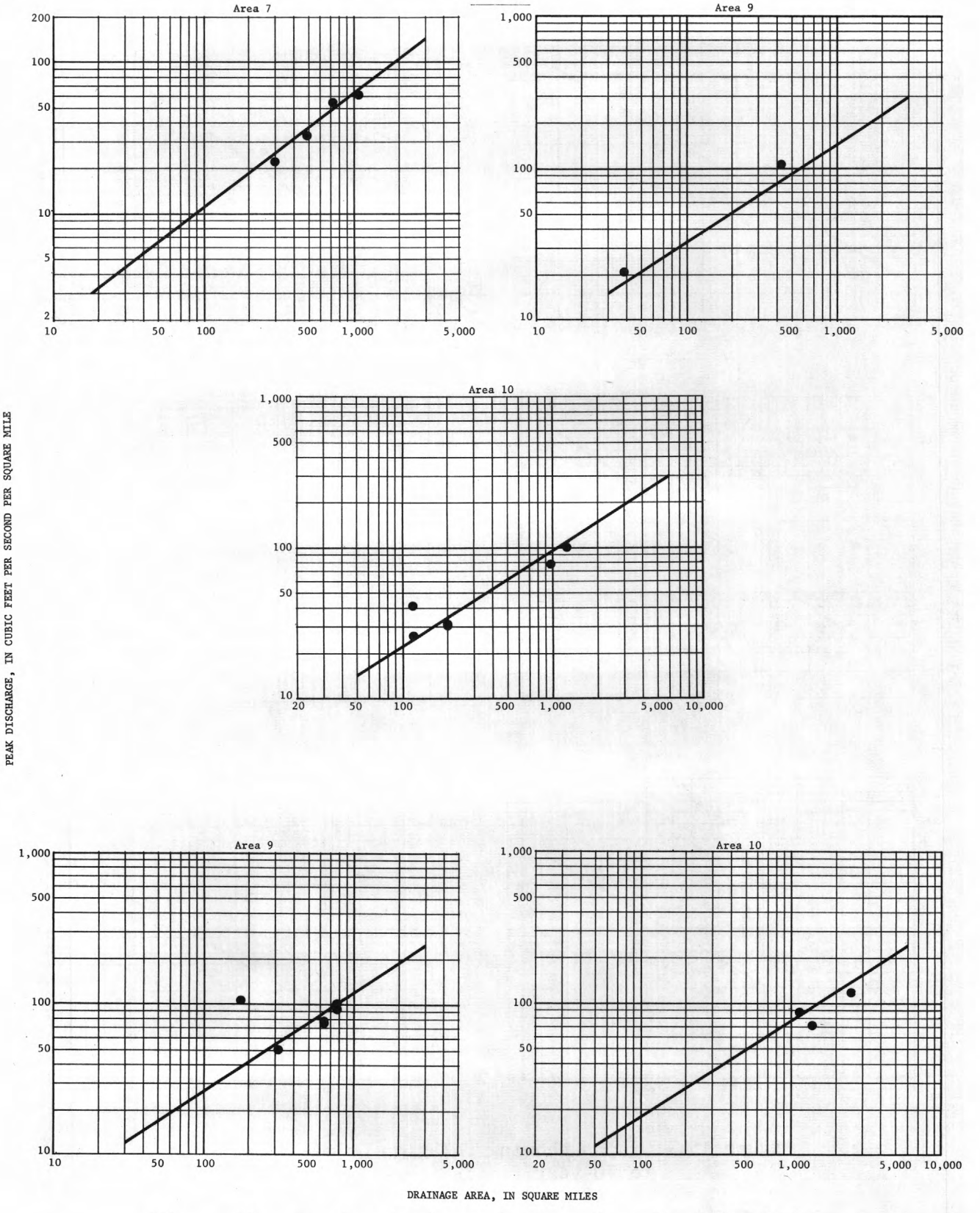


Figure 16.--Graphs showing relation of maximum floods to 50-year floods in regions C and D.

Table 4.--New maximum flood discharges since October 1, 1958

No.	Gaging station	Flood region and hydrologic area	Contributing drainage area (sq mi)	Maximum stage and discharge			
				Date	Gage height (ft)	Discharge	
						Cfs	Cfs per sq mi
	Arkansas River Basin						
a1483.5	Salt Fork Arkansas River near Winchester, Okla.	A2	856	Aug. 19, 1961	13.95	22,000	25.7
1530	Black Bear Creek at Pawnee, Okla.	A2	576	Oct. 3, 1959	31.43	30,200	52.4
a1584	Salt Creek near Okeene, Okla.	A2	196	Nov. 2, 1961	14.59	6,490	33.1
1630	Council Creek near Stillwater, Okla.	A3	31	Oct. 2, 1959	18.9	25,000	806
1640	Cimarron River at Mannford, Okla.	A2	13,923	Oct. 3, 1959	27.37	131,000	9.41
1645	Arkansas River at Tulsa, Okla.	-	62,074	Oct. 5, 1959	22.00	246,000	3.96
1720	Caney River near Elgin, Kans.	A5	445	Sept. 13, 1961	34.70	62,000	139
a1742	Caney Creek below Cotton Creek, near Copan, Okla.	A5	502	May 9, 1961	24.94	23,700	47.2
a1746	Sand Creek at Okesa, Okla.	A5	139	Sept. 13, 1961	27.7	14,700	106
1765	Bird Creek at Avant, Okla.	A3	364	Oct. 2, 1959	31.40	32,400	89.0
1770	Hominy Creek near Skiatook, Okla.	A3	340	Oct. 3, 1959	38.82	35,600	105
1775	Bird Creek near Sperry, Okla.	A3	905	Oct. 3, 1959	32.60	90,000	99.4
a1912	Spavinaw Creek near Row, Okla.	B7	128	May 19, 1961	11.04	15,000	117
1920	Pryor Creek near Pryor, Okla.	A7	229	Oct. 3, 1959	23.10	32,000	140
a1955	Illinois River near Watts, Okla.	B8	635	July 25, 1960	25.96	68,000	107
a1960	Flint Creek near Kansas, Okla.	B8	110	Aug. 14, 1961	15.66	23,600	215
a2284	Deer Creek at Hydro, Okla.	A2	274	Nov. 2, 1961	13.54	8,940	32.6
a2308	Salt Creek near Dewright, Okla.	A3	210	May 19, 1960	15.38	7,900	37.6
a2421	Wewoka Creek near Wetumka, Okla.	A3	396	May 19, 1960	21.28	11,300	28.5
2470	Poteau River at Cauthron, Ark.	C10	200	May 20, 1960	23.76	32,200	161
2475	Fourche Maline near Red Oak, Okla.	C10	122	May 19, 1960	24.79	41,500	340
	Red River Basin						
a2995.7	Red River near Quanah, Tex.	B2	3,550	June 7, 1960	16.00	64,000	18.0
3015	North Fork Red River near Carter, Okla.	B2	1,938	May 26, 1959	13.42	53,400	27.6
a3034	Elm Fork of North Fork Red River near Carl, Okla.	B4	416	Apr. 27, 1962	11.45	17,900	43.0
a3085	Red River near Burkburnett, Tex.	B2	14,634	Oct. 19, 1960	11.88	53,500	3.66
3375	Little River near Wright City, Okla.	D9	645	May 6, 1961	b45.77	78,200	121
a3379	Glover Creek near Glover, Okla.	D9	315	May 1961	28.84	50,000	159
3390	Mountain Fork River near Eagletown, Okla.	D9	787	May 20, 1960	26.73	101,000	128
	Crest-stage gages						
c1885	Lost Creek at Seneca, Mo.	B7	42	Oct. 2, 1959	12.98	20,000	476

a Station established after October 1, 1958.
b Occurred on Sept. 16, 1950.
c Operated as continuous-record gaging station prior to October 1, 1959.

USE OF FLOOD-FREQUENCY CURVES

On page 20 a step-by-step procedure was given for obtaining the magnitude of floods having recurrence intervals up to 50 years. The following examples may help the reader in the proper application of the curves:

Example 1. Assume that it is desired to determine the magnitude of the 50-year flood for Wolf Creek near Fort Supply.

1. The drainage area above the site is 1,739 square miles, of which 241 square miles is noncontributing.

2. The site is in region A and area 2 (fig. 2).

3. The mean annual flood for 1,498 square miles in area 2 is 9,000 cfs (fig. 5).

4. The ratio of the 50-year flood to the mean annual flood in region A is 4.84 (fig. 3).

5. The magnitude of the 50-year flood is 9,000 x 4.84 = 43,600 cfs.

Example 2. Assume that it is desired to determine the magnitude of the 25-year flood for Cache Creek near Walters.

1. The drainage area above the site is 675 square miles.

2. The site is in region B and area 4 (fig. 2).

3. The mean annual flood for 675 square miles in area 4 is 10,000 cfs (fig. 5).

4. The ratio of the 25-year flood to the mean annual flood in region B is 3.35 (fig. 3). The drainage area is greater than 100 square miles, therefore, this ratio must be reduced as shown by figure 4. The adjustment is determined as -0.43 for the 25-year flood and a drainage area of 675 square miles. The adjusted ratio is then 3.35 - 0.43 = 2.92.

5. The magnitude of the 25-year flood is 10,000 x 2.92 = 29,200 cfs.

Example 3. Assume that it is desired to determine the 50-year flood for North Canadian River near Seiling.

1. The drainage area above the site is 12,261 square miles, of which 4,847 square miles is noncontributing.

2. The site is in region A (fig. 2).

3. The mean annual flood for 7,414 square miles on the North Canadian River mainstem is 8,700 cfs (fig. 7).

4. The ratio of the 50-year flood to the mean annual flood in region A is 4.84 (fig. 3).

5. The magnitude of the 50-year flood is 8,700 x 4.84 = 42,100 cfs.

Example 4. Assume that it is desired to determine the magnitude of the 25-year flood for Arkansas River near Haskell, under natural conditions.

1. The distance upstream from the mouth of the river is 484 miles as published by the Corps of Engineers.

2. The magnitude of the 25-year flood at a distance of 484 miles upstream from the mouth is 220,000 cfs (fig. 9).

Some adjustment must be made for regulation.

SUMMARY

Methods outlined in this report can be used to predict the most probable value of flood magnitude for selected recurrence intervals expected to occur over a long period of time. This study does not indicate that a flood having a specific recurrence interval will occur on schedule at regular time intervals and cannot be used to predict the date of occurrence. It is possible that several major floods may occur within a period of a few years. On the other hand, several years may pass without experiencing a major flood.

Flood-frequency relations defined in this report are based on natural flow of streams in the report area and are not applicable for streams whose floodflows are materially altered by man-made changes. Curves presented are based on all known flood data through the 1958 water year. Extrapolation beyond the limits indicated by these curves is not advised. Composite frequency curves (fig. 3) should not be used for recurrence intervals greater than 50 years nor should curves showing relation of drainage area to mean annual flood be extended above or below the limits shown.

There is a need for better definition of frequency relations for drainage areas of less than 50 square miles. Recognizing this deficiency, a program has been initiated to collect flood data on many of the smaller drainage areas in Oklahoma. When a sufficient number of years have elapsed and additional data have been collected, a restudy should be made for the purpose of extending the curves of relation between mean annual flood and drainage area to include the smaller areas.

GAGING-STATION RECORDS

This section contains a description of all gaging stations for which flood data are included in this report. A tabulation of all floods above a selected base is shown for most stations. For some stations only the annual flood is listed.

Station records are presented in downstream order corresponding to the system used in U.S. Geological Survey water-supply papers since 1951. Reference numbers used are permanent numbers assigned by the Geological Survey and are the same as those used since 1958 in surface-water reports. As all gaging stations are in Part 7, the prefix 7 has been omitted. The location and reference number of all gaging stations for which flood records are included in this report are shown in figure 17.

The peaks are arranged by water year unless otherwise noted. The water year begins October 1 and ends September 30 and is identified by the calendar year in which it ends. Thus, a peak which occurs in December 1942 would be listed in the 1943 water year.

Both peak stages and discharges are usually listed. In rare instances, only peak discharges are shown. Frequently only peak stages are shown for stations where the stage-discharge relation has not been defined. The date indicates the day on which the peak discharge occurred. If the peak stage occurred on a different date, this fact is indicated by a footnote.

Peak discharges, unless otherwise noted, are the instantaneous peaks in cubic feet per second (cfs). In some instances, usually for records furnished by other agencies, only maximum daily discharges are available and are so listed with appropriate footnotes.

Underlining in the tables of peak stages and discharges have the following significance:

1. Line in "water year" column means a discontinuous record.

2. Line beginning at "date" column and continuing through "discharge" column means a change in site and datum.

3. Line in "date" and "discharge" column means a change in site without a change in datum.

4. Line in "gage height" column means a change in datum only.

5. No underlines are used for changes in site or datum if records have been adjusted to present conditions.

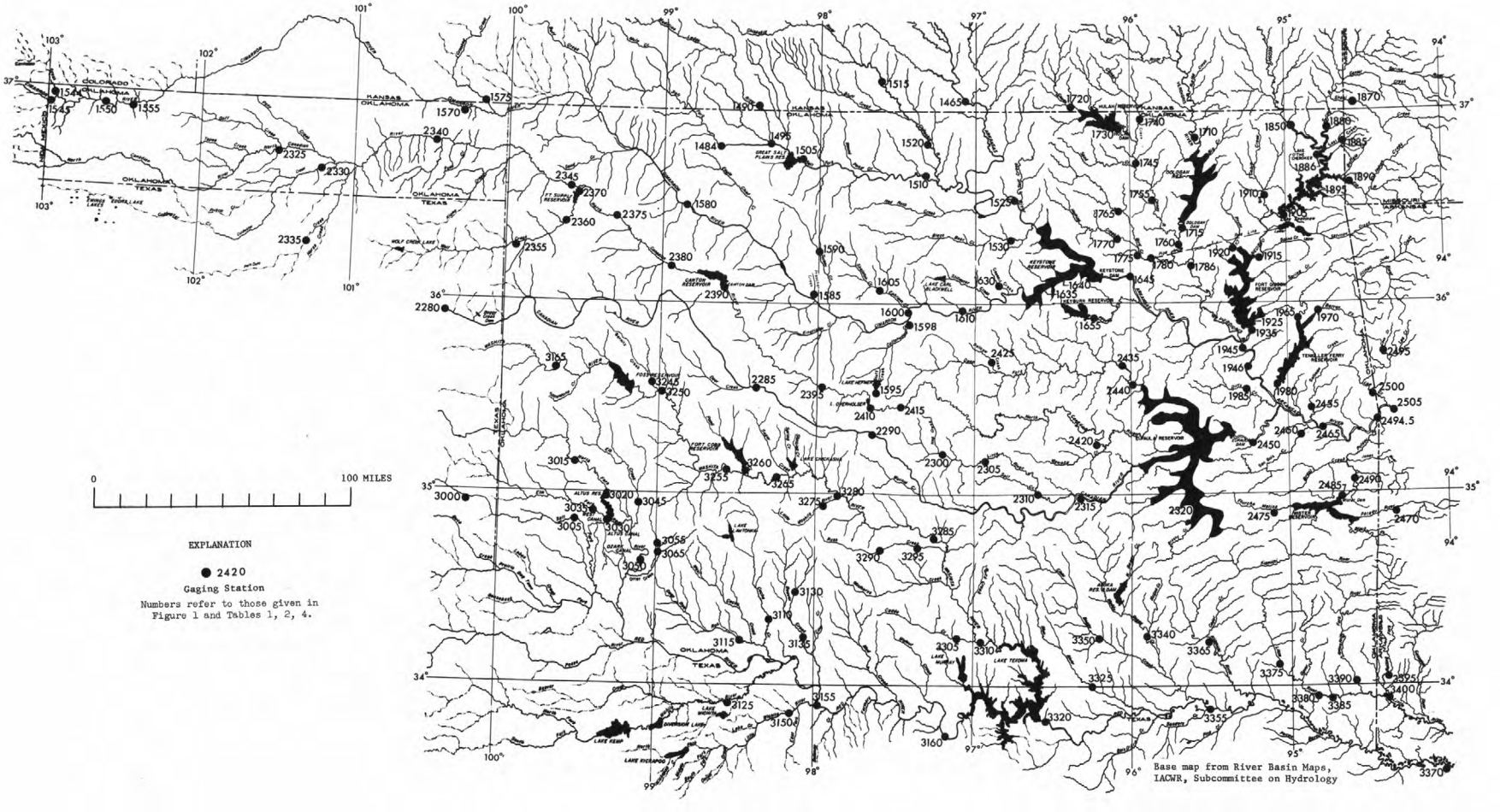


Figure 17.--Map showing location of gaging stations for which flood records are tabulated in this report.

Depressions or closed basins in some parts of the Interior Plains region do not permit direct surface runoff to defined streams during all seasons. These depressions may be at any stage of capacity at the start of a storm, and may or may not contribute to direct surface runoff. Such areas have been deducted from the total drainage area above a gaging station to determine the area which contributes directly to surface runoff. Both total and contributing areas are shown in the "Drainage area" paragraph of the station description. The contributing drainage area is used in flood-frequency analysis. The bankfull stage has been noted in the station description for most stations. This is the stage at which one or both banks are overtopped in the vicinity of the gage and is sometimes referred to as flood stage.

Gaging-station records of less than 5 years in length, or records on irrigation or diversion ditches, are not included in this report.

An explanation of methods used in computing streamflow data is given in each of the annual series of reports of the U.S. Geological Survey entitled, "Surface Water Records of Oklahoma." Additional information can be found in standard texts and in Corbett and others (1943).

1465. Arkansas River at Arkansas City, Kans.
(Published as "near Arkansas City" 1903-4)

Location.--Lat 37°03'30", long 97°03'24", in NE¼ sec.35, T.34 S., R.3 E., at bridge on U. S. Highway 166, 0.1 mile downstream from St. Louis and San Francisco Railway Co. bridge, 0.5 mile west of Arkansas City, 5.4 miles upstream from Walnut River, and at mile 701.4.

Drainage area.--43,713 sq mi, of which about 36,106 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Sept. 29, 1929; recording thereafter. Prior to July 31, 1906, at site 0.5 mile upstream at different datum. Sept. 10, 1921, to Aug. 28, 1956, at site 0.5 mile upstream at datum 2.97 ft higher (gage heights adjusted to present datum). Datum of present gage is 1,050.04 ft above mean sea level (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 65,000 cfs and extended to 103,000 cfs by logarithmic plotting. Shifts in relation occur.

Historical data.--Flood of June 10, 1923, "according to the recollection of old residents, exceeded the flood of 1877" as reported in U. S. Weather Bureau Climatological Data of June 1923.

Remarks.--Peak discharges not appreciably affected by diversions for irrigation or by storage in John Martin Reservoir, which began January 1943. Base for partial-duration series, 6,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1903	May 25, 1903	9.2	10,100	1929	June 8, 1929	18.4	15,800
	June 3, 1903	11.3	16,700		June 24, 1929	19.6	20,200
	June 16, 1903	9.1	9,760		July 10, 1929	16.2	9,200
	June 23, 1903	8.1	6,920		July 16, 1929	16.8	10,800
1904	June 5, 1904	13.4	24,800	1930	May 11, 1930	16.84	11,700
	July 10, 1904	15.2	40,300				
				1931	June 16, 1931	15.17	7,800
1905	May 3, 1905	9.4	9,900				
	May 26, 1905	8.5	7,960	1932	June 21, 1932	15.19	7,340
	June 2, 1905	9.4	9,900				
	July 5, 1905	8.2	7,330	1933	Aug. 21, 1933	17.25	11,700
					Aug. 29, 1933	18.14	14,600
1906	Sept.21, 1906	-	5,000		Sept. 3,4, 1933	18.81	16,800
1922	Mar. 17, 1922	19.2	16,400	1934	Apr. 7. 1934	11.74	1,880
	Apr. 11, 1922	20.8	22,600				
	May 12, 1922	16.1	7,630	1935	May 15, 1935	15.48	7,270
	May 22, 1922	16.2	7,800		May 23, 1935	19.94	21,400
	July 14, 1922	22.1	28,600		May 31, 1935	21.14	28,300
	July 19, 1922	18.7	14,800		June 5, 1935	20.42	23,200
					June 12, 1935	15.63	7,510
1923	May 25, 1923	16.6	8,500		June 17, 1935	16.41	9,170
	June 3, 1923	16.9	9,030		July 1, 1935	18.0	13,200
	June 10, 1923	28.43	103,000				
	Sept.30, 1923	26.02	8,240	1936	June 6, 1936	15.12	6,440
1924	Oct. 15, 1923	16.3	12,800	1937	May 29, 1937	16.37	9,980
	May 2, 1924	21.5	22,400		June 1, 1937	16.9	11,400
					June 11, 1937	16.15	9,420
1925	Sept.23, 1925	12.93	2,710		July 20, 1937	17.03	11,700
1926	Sept. 5, 1926	16.31	7,760	1938	May 6, 1938	15.89	8,860
					May 21, 1938	19.50	19,600
1927	Oct. 4, 1926	23.94	45,300		May 25, 1938	17.6	13,200
	Apr. 9, 1927	22.8	36,300		June 28, 1938	17.4	12,300
	Apr. 20, 1927	19.2	17,100		Aug. 18, 1938	16.92	11,400
	Aug. 4, 1927	19.29	17,600				
	Aug. 20, 1927	20.29	21,600	1939	Nov. 4, 1938	15.7	7,740
					June 29, 1939	18.19	14,800
1928	Oct. 1, 1927	15.7	7,960		Aug. 17, 1939	15.77	8,300
	Apr. 7, 1928	17.3	12,100				
	June 9, 1928	18.4	15,800	1940	May 20, 1940	15.05	6,760
	June 18, 1928	19.46	19,900		July 5, 1940	16.5	9,700
	June 29, 1928	15.5	7,490		Sept. 5, 1940	16.95	11,400
1929	Nov. 17, 1928	17.1	11,600	1941	June 11, 1941	18.90	17,200
	Apr. 20, 1929	17.4	12,400		July 4, 1941	18.31	15,400
	May 17, 1929	15.4	7,260				

Peak stages and discharges of Arkansas River at Arkansas City, Kans.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Oct. 26, 1941	19.45	19,100	1949	June 16, 1949	18.75	17,800
	Apr. 27, 1942	19.76	20,700		June 21, 1949	19.71	20,800
	May 7, 1942	18.37	16,400		July 13, 1949	15.89	9,680
	June 22, 1942	24.83	45,800				
	July 2, 1942	18.02	14,400	1950	June 3, 1950	15.29	8,400
	Sept. 5, 1942	16.45	10,000		July 17, 1950	19.37	20,900
					July 19, 1950	20.47	24,800
1943	Oct. 6, 1942	17.55	12,800		July 29, 1950	15.23	8,710
	Dec. 26, 1942	15.46	8,020		Aug. 2, 1950	22.74	36,200
	May 19, 1943	17.95	14,100		Aug. 21, 1950	16.77	13,200
					Sept. 1, 1950	16.63	12,900
1944	Mar. 19, 1944	16.65	11,000				
	Mar. 23, 1944	17.49	13,500	1951	Oct. 9, 1950	15.03	9,080
	Apr. 13, 1944	20.07	23,400		Apr. 29, 1951	15.69	9,790
	Apr. 24, 1944	28.21	73,500		May 2, 1951	20.57	25,300
	May 2, 1944	20.34	24,800		May 19, 1951	26.47	66,000
	June 6, 1944	20.19	23,900		May 23, 1951	21.94	31,800
	June 9, 1944	15.08	7,170		June 9, 1951	20.17	23,800
	July 13, 1944	15.92	9,100		June 25, 1951	21.17	27,900
	Sept.28, 1944	15.21	6,710		July 1, 1951	24.02	44,400
					July 14, 1951	21.40	29,000
1945	Oct. 4, 1944	16.57	10,600		July 24, 1951	17.31	14,300
	Dec. 7, 1944	19.77	20,700		Aug. 11, 1951	15.10	8,330
	Mar. 20, 1945	15.54	6,710		Sept. 8, 1951	19.27	20,500
	Apr. 12, 1945	16.03	9,350		Sept.14, 1951	17.43	14,600
	Apr. 18, 1945	24.94	51,600		Sept.26, 1951	18.27	17,200
	Apr. 29, 1945	17.00	11,600				
	Sept.30, 1945	21.99	30,500	1952	Oct. 8, 1951	14.68	7,320
					Mar. 11, 1952	15.09	8,310
1946	Jan. 6, 1946	13.28	3,810		Apr. 22, 1952	14.95	7,970
					Apr. 24, 1952	15.45	9,170
1947	Mar. 14, 1947	17.22	12,200		June 5, 1952	14.70	7,370
	Apr. 15, 1947	23.07	36,000				
	May 15, 1947	15.28	7,560	1953	Apr. 1, 1953	15.69	5,360
	May 21, 1947	17.16	11,700				
	May 25, 1947	17.50	12,400	1954	May 29, 1954	14.10	7,260
	May 29, 1947	17.07	11,500				
	June 8, 1947	15.77	8,440	1955	May 26, 1955	15.92	11,600
	June 22, 1947	17.44	12,900		June 7, 1955	13.70	6,550
	June 29, 1947	17.77	13,700		June 19, 1955	14.54	8,140
1948	Feb. 29, 1948	17.69	13,500	1956	Oct. 4, 1955	19.35	21,500
	Mar. 3, 1948	17.59	13,200				
	Mar. 21, 1948	17.15	12,200	1957	May 18, 1957	25.55	73,100
	June 24, 1948	17.71	13,700		May 25, 1957	13.02	10,000
	July 1, 1948	21.57	29,600		May 30, 1957	11.86	7,320
	July 11, 1948	18.13	15,500		June 3, 1957	12.93	9,820
	July 16, 1948	22.07	32,200		June 12, 1957	15.93	17,400
	July 25, 1948	22.61	35,000		June 20, 1957	12.58	8,400
	Aug. 16, 1948	19.24	19,500		June 25, 1957	14.75	14,000
					June 29, 1957	22.20	41,800
1949	Jan. 17, 1949	16.87	12,200		Sept.21, 1957	13.14	10,400
	Jan. 25, 1949	17.44	13,900				
	Feb. 13, 1949	19.45	20,100	1958	Mar. 11, 1958	12.55	7,110
	Feb. 19, 1949	19.23	19,700		Mar. 24, 1958	13.42	9,100
	Feb. 27, 1949	18.69	17,500		Apr. 3, 1958	14.62	12,100
	Apr. 28, 1949	16.04	9,940		May 7, 1958	13.36	8,950
	May 2, 1949	17.37	13,600		July 4, 1958	17.70	22,100
	May 19, 1949	19.39	19,700		July 18, 1958	16.62	18,500
	May 23, 1949	18.95	18,400		Aug. 2, 1958	15.52	14,700
	June 1, 1949	16.84	12,200		Sept.18, 1958	17.32	20,600
	June 8, 1949	19,70	20,800		Sept.23, 1958	12.70	7,290

1484. Salt Fork Arkansas River near Alva, Okla.

Location.--Lat 36°48'45", long 98°38'50", in SW¼SW¼ sec.18, T.27 N., R.13 W., near left bank on downstream side of pier of bridge on State Highway 14, 1 mile northeast of Alva, 19 miles upstream from Medicine Lodge River, and at mile 126.0.

Drainage area.--1,009 sq mi.

Gage.--Recording. Datum of gage is 1,297.04 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--6 ft.

Historical data.--According to the Atchison, Topeka and Santa Fe Railway Co., a notable flood occurred July 7, 1904, which was 0.8 ft lower than the flood of May 8, 1922, at railway bridge three-quarters of a mile upstream.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Peak stage for 1922 furnished by Corps of Engineers. Base for partial-duration series, 8,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1922	May 8, 1922	10.3	-	1946	June 18, 1946	6.60	8,330
1938	Apr. 27, 1938	7.51	17,000	1947	Apr. 10, 1947	6.72	8,660
	May 4, 1938	5.70	8,800		Apr. 13, 1947	6.64	8,330
	May 19, 1938	7.95	19,900		June 4, 1947	6.70	8,660
	May 23, 1938	8.42	22,300		June 21, 1947	7.10	10,100
	May 31, 1938	7.00	14,500				
	Aug 16, 1938	8.90	25,300	1948	June 28, 1948	8.26	12,500
	Sept.13, 1938	5.95	10,000		Aug. 14, 1948	8.20	15,200
1939	June 27, 1939	6.10	9,900	1949	May 16, 1949	9.43	26,200
					May 19, 1949	7.27	12,300
1940	Aug. 30, 1940	5.98	9,500		June 4, 1949	6.70	9,700
					June 8, 1949	7.00	11,000
1941	Sept. 1, 1941	6.43	8,150		June 13, 1949	7.87	16,000
					Sept. 4, 1949	7.12	11,500
1942	Oct. 23, 1941	9.08	27,000		Sept.11, 1949	7.77	15,400
	Apr. 19, 1942	6.40	8,110				
	Apr. 24, 1942	6.70	8,760	1950	July 28, 1950	7.65	10,700
1943	Oct. 3, 1942	7.00	14,000	1951	May 17, 1951	7.84	17,500
					May 22, 1951	6.62	11,000
1944	Apr. 10, 1944	6.80	13,000		June 21, 1951	6.52	10,600
	Apr. 22, 1944	7.60	13,500		June 24, 1951	6.88	12,500
					June 30, 1951	8.52	21,700
1945	June 26, 1945	7.20	8,900				
	July 10, 1945	6.57	8,240	1957	May 16, 1957	10.6	-
	Sept.28, 1945	8.65	16,200				

1490. Medicine Lodge River near Kiowa, Kans.
(Published as "Medicine River" 1895-96)

Location.--Lat 37°03', long 98°28', in SW¼ sec.36, T.34 S., R.11 W., at bridge on State Highway 14, 200 ft downstream from The Atchison, Topeka and Santa Fe Railway Co. bridge and 1½ miles northeast of Kiowa.

Drainage area.--914 sq mi.

Gage.--Nonrecording prior to Mar. 3, 1938; recording thereafter. May 6, 1895, to Oct. 31, 1896, at site 2 miles upstream at different datum. Feb. 11,1938, to Sept. 30, 1944, at present site at datum 3.00 ft higher; gage heights 1938-44 converted to last used datum. Datum of last used gage is 1,286.99 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements 1938-55.

Bankfull stage.--10 ft.

Remarks.--Records for 1938-50 furnished by Corps of Engineers. Base for partial-duration series, 3,700 cfs.

Peak stages and discharges of Medicine Lodge River near Kiowa, Kans.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1896	June 25, 1896	a7.5	-	1946	Apr. 15, 1946	7.80	5,070
1938	May 5, 1938	a11.05	a13,000	1947	Apr. 10, 1947	8.75	7,210
					Apr. 13, 1947	7.60	4,100
1939	Nov. 3, 1938	7.87	2,740		May 20, 1947	7.42	3,700
1940	June 7, 1940	8.10	5,020	1948	Mar. 1, 1948	8.40	5,000
					June 22, 1948	8.96	6,670
1941	May 5, 1941	8.40	5,660		June 28, 1948	9.54	8,700
	June 9, 1941	8.72	6,360		Aug. 13, 1948	9.50	8,520
1942	Oct. 22, 1941	11.75	16,000	1949	May 7, 1949	8.63	5,760
	Apr. 19, 1942	8.75	6,600		May 17, 1949	9.90	11,100
	June 29, 1942	9.30	8,070		May 19, 1949	9.00	6,190
					May 21, 1949	8.74	5,380
1943	Oct. 4, 1942	9.48	8,190		June 5, 1949	9.64	8,360
					June 9, 1949	9.06	8,550
1944	Apr. 10, 1944	8.62	5,680		June 13, 1949	8.75	7,440
	Apr. 22, 1944	9.52	7,900		Sept. 5, 1949	10.19	13,100
	May 3, 1944	8.24	4,890		Sept.11, 1949	8.54	6,740
1945	Apr. 15, 1945	8.90	7,700	1950	Aug. 1, 1950	7.30	2,460
	Apr. 21, 1945	8.10	5,340				
	Sept.22, 1945	8.00	5,110	1955	May 26, 1955	8.07	3,340
	Sept.24, 1945	9.70	9,510				
	Sept.28, 1945	9.82	9,600	1957	May 16, 1957	a11.72	-

a Annual peak only.

1495. Salt Fork Arkansas River near Cherokee, Okla.

Location.--Lat 36°49', long 98°19', in SW¼NW¼ sec.18, T.27 N., R.10 W., near right bank at downstream side of piling of abandoned Atchison, Topeka and Santa Fe Railway Co. bridge, 0.7 miles downstream from Medicine Lodge River, 4 miles northeast of Cherokee, and at mile 106.3.

Drainage area.--2,439 sq mi.

Gage.--Nonrecording prior to May 14, 1941; recording thereafter. Datum of gage is 1,155.94 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 30,000 cfs and extended above on basis of reservoir inflow computations for flood in October 1941.

Bankfull stage.--9 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 5,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	May 4, 1941	8.24	4,680	1945	Apr. 16, 1945	9.25	7,700
					Apr. 22, 1945	8.71	5,450
1942	Oct. 23, 1941	11.7	35,000		June 26, 1945	8.98	8,900
	Apr. 19, 1942	10.50	10,800		July 10, 1945	8.82	7,500
	Apr. 25, 1942	9.60	7,320		Sept.25, 1945	8.60	5,020
	June 30, 1942	9.30	6,560		Sept.28, 1945	10.66	14,000
1943	Oct. 4, 1942	10.35	10,300	1946	Apr. 15, 1946	8.18	5,760
1944	Apr. 10, 1944	9.81	13,500	1947	Nov. 6, 1946	8.77	5,050
	Apr. 22, 1944	9.95	14,800		Mar. 13, 1947	9.67	8,850
	May 4, 1944	8.87	7,000		Apr. 10, 1947	9.65	8,720

Peak stages and discharges of Salt Fork Arkansas River near Cherokee, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Apr. 13, 1947	10.70	13,900	1949	May 17, 1949	11.98	32,300
	May 18, 1947	9.40	7,600		May 19, 1949	11.45	18,900
	May 21, 1947	9.48	7,970		May 24, 1949	10.60	9,380
	May 24, 1947	9.32	7,050		June 5, 1949	11.21	16,300
	June 4, 1947	8.83	5,420		June 9, 1949	10.60	9,380
	June 21, 1947	9.79	9,390		June 14, 1949	11.15	15,600
					Sept. 5, 1949	11.0	13,600
1948	June 28, 1948	11.26	15,300		Sept.11, 1949	11.35	18,600
	July 16, 1948	9.94	5,230				
	Aug. 15, 1948	11.65	23,300	1950	July 29, 1950	10.60	9,380
					Aug. 1, 1950	10.50	8,580
1949	Feb. 8, 1949	11.46	7,500				
	May 7, 1949	10.25	6,420	1957	May 17, 1957	a13.7	-
	May 14, 1949	9.89	5,070				

a Annual peak only, from floodmark.

1505. Salt Fork Arkansas River near Jet, Okla.

Location.--Lat 36°45', long 98°08', in NE¼NE¼ sec.11, T.26 N., R.9 W., near center of span on downstream side of county highway bridge, 0.6 mile downstream from Great Salt Plains Dam, 4 miles upstream from Wagon Creek, 6 miles northeast of Jet, and at mile 102.7.

Drainage area.--3,202 sq mi, of which about 3,194 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Mar. 17, 1938; recording thereafter. Prior to Mar. 16, 1938, at site 2½ miles upstream at datum 13.46 ft higher; Mar. 17, 1938, to Sept. 30, 1949, at present site at datum 5.00 ft higher. Datum of present gage is 1,092.20 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--13 ft.

Remarks.--Flow regulated since June 1941 by detention storage in Great Salt Plains Reservoir (capacity, 292,400 acre-ft). Records 1937-50 computed by Corps of Engineers and reviewed by Geological Survey. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	May 19, 1938	8.80	25,900	1949	May 21, 1949	6.82	8,970
1939	Apr. 5, 1939	5.88	4,920	1950	Aug. 3, 1950	4.44	4,410
1940	May 18, 1940	5.09	2,700				
				1951	July 2, 1951	11.67	9,650
1941	May 7, 1941	5.74	4,340	1952	Apr. 23, 1952	8.35	3,600
1942	Oct. 25, 1941	7.35	8,300	1953	July 16, 1953	6.21	757
1943	Oct. 6, 1942	4.31	2,670	1954	May 26, 1954	6.99	1,470
1944	Apr. 23, 1944	5.62	4,680	1955	June 20, 1955	9.80	4,700
1945	Sept.30, 1945	5.15	4,640				
				1956	Oct. 5, 1955	7.19	1,540
1946	Oct. 16, 1945	2.66	999	1957	May 18, 1957	12.13	9,820
1947	Apr. 15, 1947	5.62	5,880	1958	June 28, 1958	9.20	4,490
1948	Aug. 16, 1948	6.01	6,820				

1510. Salt Fork Arkansas River at Tonkawa, Okla.

Location.--Lat 36°40'30", long 97°18'40", in NE¼SW¼ sec.4, T.25 N., R.1 W., near left bank on downstream side of pier of bridge on U. S. Highway 177 in Tonkawa, 4 miles downstream from Thompson Creek, 7.8 miles upstream from Chikaskia River, and at mile 33.8.

Drainage area.--4,528 sq mi, of which about 4,520 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Jan. 23, 1939; recording thereafter. Datum of gage is 930.22 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--17 ft.

Historical data.--Maximum stage for water year 1904 is from records for a staff gage operated by Geological Survey (datum unknown). The discharge was estimated on basis of a few discharge measurements made during 1904-5 and shape of rating curve used in 1938 and has been shown because it is the third highest flood known.

Remarks.--Some regulation since June 1941 by Great Salt Plains Reservoir on Salt Fork Arkansas River 69.5 miles above station (capacity, 292,400 acre-ft). Base for partial-duration series, 11,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1904	July 11, 1904	14.6	25,000	1947	May 16, 1947	18.35	16,000
1923	June 10, 1923	26.8	-	1948	May 10, 1948	16.58	12,700
1935	June 1935	23.0	-		Aug. 15, 1948	17.22	13,300
				1949	Feb. 13, 1949	17.09	13,300
1936	June 6, 1936	15.53	11,400		Mar. 31, 1949	16.60	12,600
					May 21, 1949	19.33	19,600
1937	June 10, 1937	16.62	14,000		May 29, 1949	16.85	13,000
	Sept. 9, 1937	16.76	14,500		Sept. 6, 1949	16.29	12,100
1938	May 20, 1938	22.82	40,800	1950	July 30, 1950	14.71	9,650
	May 24, 1938	21.94	34,500				
	June 1, 1938	17.41	16,300	1951	May 19, 1951	17.36	14,300
	Aug. 17, 1938	16.27	13,900		May 22, 1951	18.71	17,200
					June 26, 1951	17.43	13,800
1939	Apr. 6, 1939	16.08	14,600		July 2, 1951	20.14	22,600
					July 4, 1951	19.35	19,200
1940	June 10, 1940	8.21	1,620				
				1952	Apr. 22, 1952	12.81	6,620
1941	June 10, 1941	15.58	12,500	1953	July 12, 1953	10.26	3,370
1942	Oct. 27, 1941	16.06	12,200				
	Apr. 26, 1942	17.70	15,500	1954	May 26, 1954	9.93	2,380
	June 22, 1942	16.69	13,400				
				1955	June 19, 1955	16.10	9,470
1943	May 20, 1943	17.86	16,500				
				1956	Oct. 3, 1955	17.51	12,100
1944	Apr. 23, 1944	19.26	22,500				
				1957	Apr. 23, 1957	16.90	11,100
1945	Dec. 5, 1944	18.05	16,800		May 17, 1957	20.82	19,600
	Apr. 16, 1945	20.06	23,500		May 25, 1957	19.70	18,500
	Sept.30, 1945	17.35	14,300		June 25, 1957	21.14	21,200
					July 3, 1957	19.17	17,200
1946	Oct. 17, 1945	7.80	1,080				
				1958	July 7, 1958	12.72	5,720
1947	Apr. 14, 1947	18.53	16,600				

1515. Chikaskia River near Corbin, Kans.

Location.--Lat 37°08', long 97°36', on west line of sec.36, T.33 S., R.3 W., at bridge on State Highway 49, 1 mile upstream from Prairie Creek, 3 miles west of Corbin, and at mile 67.5.

Drainage area.--794 sq mi.

Gage.--Nonrecording prior to Mar. 22, 1951; recording thereafter. Datum of gage is 1,108.00 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements. Approximate discharge for flood of June 9, 1923, determined from logarithmic extension above 35,000 cfs of subsequent stage-discharge relation. Shifts in relation occur.

Historical data.--Flood of June 9, 1923, which destroyed the bridge then at the gage site, reached a stage of 28.0 ft on the apron of a granary located 300 ft left and 200 ft downstream from the gage, from floodmark remembered by local resident in 1950.

Remarks.--Base for partial-duration series, 1,800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	June 9, 1923	28.0	60,000	1955	May 26, 1955	17.55	18,800
					June 3, 1955	6.55	1,900
1950	Aug. 30, 1950	11.0	a6,100		June 6, 1955	9.71	4,610
					June 16, 1955	9.10	4,000
1951	May 1, 1951	10.01	4,910		June 18, 1955	11.20	6,340
	May 17, 1951	22.50	35,100				
	May 22, 1951	12.50	8,100	1956	Oct. 2, 1955	11.76	7,060
	June 7, 1951	14.00	10,700		Oct. 4, 1955	9.71	4,610
	June 11, 1951	6.12	1,810				
	June 16, 1951	6.97	2,390	1957	Apr. 23, 1957	10.74	5,610
	June 24, 1951	15.80	14,500		May 14, 1957	11.00	5,900
	June 30, 1951	8.63	3,600		May 17, 1957	22.31	38,100
	July 14, 1951	16.08	15,100		May 25, 1957	9.65	4,570
	Sept. 6, 1951	6.85	2,380		June 12, 1957	14.28	11,700
	Sept.12, 1951	6.79	2,290		June 23, 1957	8.05	3,160
					June 27, 1957	15.52	14,300
1952	June 5, 1952	5.83	1,630		July 1, 1957	9.45	4,300
1953	Mar. 31, 1953	7.50	2,760	1958	Mar. 29, 1958	6.79	2,100
	July 12, 1953	6.89	2,330		June 21, 1958	7.71	2,770
	Aug. 3, 1953	9.70	4,600		June 25, 1958	9.71	4,560
					July 5, 1958	6.60	1,980
1954	May 24, 1954	6.30	1,920				

a Maximum Aug. 9 to Sept. 30; probably was exceeded during period of no record.

1520. Chikaskia River near Blackwell, Okla.

Location.--Lat 36°49', long 97°17', in NW¼ sec.23, T.27 N., R.1 W., near left bank on downstream side of pier of St. Louis-San Francisco Railway Co. bridge at northeast edge of Blackwell, 0.2 mile downstream from Bitter Creek and at mile 28.2.

Drainage area.--1,859 sq mi; 1,711 sq mi at previous site.

Gage.--Nonrecording prior to Jan. 25, 1939; recording thereafter. Prior to Apr. 29, 1938, at site 2¾ miles upstream at unknown datum; Apr. 29, 1938, to Apr. 16, 1952, at site 0.6 mile upstream at datum 8.06 ft higher. Present datum of gage is 967.41 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 85,000 cfs and extended to 100,000 cfs.

Bankfull stage.--Present site, 26 ft; at site 2¾ miles upstream, 16 ft; at site 0.6 mile upstream, 20 ft.

Historical data.--Crest stage for flood in 1923 estimated on basis of comparative information during flood in 1942.

Remarks.--Base for partial-duration series, 8,000 cfs.

Peak stages and discharges of Chikaskia River near Blackwell, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	June 10, 1923	34.0	100,000	1948	Aug. 14, 1948	24.28	23,100
1936	June 6, 1936	24.70	10,800	1949	Nov. 2, 1948	17.45	8,970
					Jan. 25, 1949	20.69	13,300
1937	May 31, 1937	27.09	12,900		Feb. 13, 1949	18.16	9,550
	June 10, 1937	22.32	8,600		Feb. 27, 1949	18.07	9,470
	Sept. 9, 1937	22.30	8,600		May 20, 1949	18.65	9,900
					May 25, 1949	19.65	11,100
1938	May 6, 1938	15.42	9,130		Sept. 6, 1949	19.58	11,100
	May 20, 1938	24.05	26,800		Sept.12, 1949	19.88	11,600
	May 24, 1938	17.61	10,800				
				1950	Aug. 2, 1950	16.88	8,070
1939	Nov. 4, 1938	14.25	8,340				
				1951	May 1, 1951	16.35	8,250
1940	June 9, 1940	10.38	6,040		May 18, 1951	26.59	53,000
					May 23, 1951	21.86	19,100
1941	Apr. 16, 1941	16.38	8,820		June 8, 1951	20.79	15,600
	June 10, 1941	15.47	8,190		June 23, 1951	23.78	27,000
					June 25, 1951	25.89	40,300
1942	Apr. 26, 1942	17.06	10,100		July 1, 1951	22.47	22,100
	Apr. 28, 1942	14.27	8,190		July 15, 1951	26.01	43,700
	June 22, 1942	27.48	85,000				
				1952	June 5, 1952	20.90	8,130
1943	May 20, 1943	20.18	12,200				
				1953	Aug. 4, 1953	19.65	7,280
1944	Apr. 11, 1944	20.31	12,400				
	Apr. 23, 1944	27.31	82,000	1954	May 25, 1954	12.33	3,120
	Apr. 27, 1944	15.35	8,840				
	Sept.29, 1944	17.07	8,500	1955	May 27, 1955	b25.56	39,300
					June 19, 1955	b15.30	8,760
1945	Oct. 3, 1944	20.00	11,800				
	Dec. 5, 1944	24.07	25,800	1956	Oct. 3, 1955	28.19	14,600
	Apr. 12, 1945	17.15	8,830				
	Apr. 17, 1945	25.13	35,800	1957	Apr. 21, 1957	23.80	10,000
	Sept.29, 1945	24.12	25,800		Apr. 24, 1957	25.28	12,600
					May 15, 1957	21.74	8,690
1946	Apr. 16, 1946	12.74	a6,200		May 18, 1957	32.56	55,000
					May 26, 1957	24.97	10,700
1947	Apr. 14, 1947	24.86	31,000		June 13, 1957	28.30	14,800
	May 21, 1947	17.96	9,390		June 24, 1957	24.67	11,000
	May 25, 1947	17.28	8,900		June 28, 1957	30.20	20,500
					July 2, 1957	23.73	10,200
1948	June 29, 1948	21.24	13,800				
	July 5, 1948	16.26	8,250	1958	June 26, 1958	23.15	9,050
	July 16, 1948	23.52	20,200				

a Maximum peak discharge; maximum discharge occurred at 12:01 a.m. Oct. 1, stage falling.
b Gage destroyed by storm; gage heights obtained at site and datum used Apr. 29, 1938, to Apr. 16, 1952.

1525. Arkansas River at Ralston, Okla.

Location.--Lat 36°30'10", long 96°43'30", in NW¼ sec.1, T.23 N., R.5 E., near right bank on downstream side of pier of bridge on State Highway 18 at Ralston, 2 miles downstream from Salt Creek, 2 miles upstream from Grayhorse Creek, and at mile 594.0.

Drainage area.--54,465 sq mi, of which about 46,850 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Feb. 24, 1939; recording thereafter. Prior to Nov. 14, 1935, at site 1,200 ft upstream at same datum. Datum of gage is 776.80 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Prior to April 1938, defined by 26 current-meter measurements made by Corps of Engineers during 1928-32 below 44,000 cfs and extended to 108,000 cfs by logarithmic plotting; subsequently defined by current-meter measurements to maximum discharge for period of record.

Bankfull stage.--16 ft.

Remarks.--Slight regulation since December 1943 by John Martin Reservoir on Arkansas River (capacity, 662,900 acre-ft) and since June 1941 by Great Salt Plains Reservoir on Salt Fork Arkansas River (capacity, 292,400 acre-ft). Records prior to Mar. 27, 1938, computed on basis of once-daily Weather Bureau gage readings. Records 1948-55 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 30,000 cfs.

Peak stages and discharges of Arkansas River at Ralston, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)
1915	-	18.0	-
1923	May 27, 1923	10.4	32,400
	June 3, 1923	12.6	48,000
	June 11, 1923	23.0	200,000
	June 18, 1923	12.0	43,400
1924	Oct. 16, 1923	11.8	42,000
	May 2, 1924	11.7	41,300
1925	Apr. 27, 1925	6.4	11,300
1926	Sept. 5, 1926	10.4	32,400
1927	Oct. 6, 1926	18.7	108,000
	Apr. 11, 1927	15.4	73,000
	Apr. 21, 1927	15.7	77,400
	Aug. 5, 1927	14.5	68,500
	Aug. 20, 1927	10.9	39,300
1928	Oct. 3, 1927	13.2	56,800
	June 12, 1928	13.9	63,100
	June 21, 1928	15.0	73,000
1929	Nov. 20, 1928	15.3	76,300
	Apr. 22, 1929	12.3	49,400
	Apr. 25, 1929	9.9	32,400
	May 12, 1929	12.0	47,000
	May 19, 1929	12.2	48,600
	June 3, 1929	9.9	32,400
	June 24, 1929	11.7	44,900
	July 12, 1929	11.4	42,800
1930	Apr. 30, 1930	9.8	31,800
	May 7, 1930	10.2	34,400
	May 13, 1930	12.1	47,800
1931	June 14, 1931	9.5	28,200
1932	June 23, 1932	10.6	33,700
1933	Aug. 30, 1933	9.3	25,700
1934	Apr. 8, 1934	6.4	11,700
1935	May 15, 1935	14.7	65,600
	May 21, 1935	16.0	77,800
	June 1, 1935	14.1	60,300
	June 4, 1935	11.4	39,100
1936	June 7, 1936	9.9	26,600
1937	June 11, 1937	13.0	47,500
1938	May 23, 1938	16.44	75,600
1939	June 28, 1939	8.48	19,200
1940	Sept. 5, 1940	10.26	27,800
1941	Apr. 17, 1941	12.34	41,200
	June 11, 1941	13.59	51,000
1942	Oct. 26, 1941	12.89	45,400
	Apr. 9, 1942	11.21	34,000
	Apr. 21, 1942	12.94	45,400
	Apr. 30, 1942	13.04	46,200
	June 24, 1942	18.54	94,000
1943	Dec. 28, 1942	10.60	32,200
1943	May 20, 1943	18.12	97,200
1944	Mar. 23, 1944	11.43	37,900
	Apr. 12, 1944	15.34	68,400
	Apr. 25, 1944	22.82	179,000
	Sept. 29, 1944	10.23	31,300
1945	Oct. 4, 1944	10.74	34,600
	Dec. 7, 1944	15.55	76,000
	Mar. 25, 1945	10.82	34,000
	Apr. 13, 1945	11.78	42,700
	Apr. 19, 1945	19.55	124,000
	June 29, 1945	10.33	34,000
	July 1, 1945	13.59	57,800
1946	Oct. 2, 1945	19.48	110,000
1947	Apr. 16, 1947	18.50	114,000
	May 17, 1947	11.87	44,500
	May 22, 1947	11.24	39,600
	May 27, 1947	10.56	35,800
1948	July 1, 1948	13.19	52,800
	July 18, 1948	14.93	70,200
	July 26, 1948	11.74	43,100
	Aug. 17, 1948	12.72	51,800
1949	Jan. 18, 1949	10.63	32,400
	Jan. 25, 1949	12.70	45,900
	Feb. 14, 1949	14.78	65,400
	Feb. 20, 1949	11.60	40,600
	Mar. 1, 1949	12.57	50,200
	Apr. 1, 1949	10.47	33,600
	May 21, 1949	15.30	70,700
	May 26, 1949	13.68	55,500
1950	July 18, 1950	15.90	75,300
	Aug. 4, 1950	17.60	92,800
	Aug. 10, 1950	11.12	37,100
1951	May 3, 1951	14.15	54,200
	May 20, 1951	19.23	106,000
	May 24, 1951	17.70	95,500
	June 10, 1951	14.35	61,200
	June 27, 1951	17.42	91,100
	July 3, 1951	21.45	135,000
	July 16, 1951	20.28	120,000
	Sept. 15, 1951	11.57	36,200
1952	June 6, 1952	10.48	25,800
1953	May 31, 1953	8.80	17,500
1954	May 2, 1954	9.07	18,700
1955	May 29, 1955	12.71	36,300
1956	Oct. 5, 1956	14.64	49,200
1957	Apr. 25, 1957	11.70	33,300
	May 20, 1957	21.41	120,000
	May 23, 1957	14.21	51,000
	May 26, 1957	15.13	57,900
	June 1, 1957	12.40	37,900
	June 13, 1957	17.46	77,900
	June 18, 1957	13.41	42,000
	June 26, 1957	15.97	67,900
	July 1, 1957	19.88	112,000
1958	Mar. 25, 1958	11.24	32,300
	July 7, 1958	14.86	56,800

1530. Black Bear Creek at Pawnee, Okla.

Location.--Lat 36°20'35", long 96°48'00", on east line of SE¼NE¼ sec.31, T.22 N., R.5 E., on downstream side of left pier of bridge on State Highway 18 in north Pawnee, 50 ft downstream from Skedee Creek and at mile 23.4.

Drainage area.--576 sq mi.

Gage.--Nonrecording prior to Sept. 20, 1944, and Aug. 27, 1953, to Apr. 29, 1954; recording Sept. 21, 1944, to Aug. 26, 1953, and since Apr. 29, 1954. Datum of gage is 802.73 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--17 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 4,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)
1908	May 25, 1908	27.30	15,600
1943	May 19, 1943	28.19	17,800
1945	Dec. 7, 1944	17.86	6,500
	Mar. 26, 1945	16.21	5,390
	Apr. 13, 1945	16.15	5,460
	Apr. 17, 1945	20.62	8,750
	June 22, 1945	16.00	5,580
	June 29, 1945	15.76	5,460
	Sept. 30, 1945	28.11	17,500
1946	June 29, 1946	15.43	4,900
1947	Apr. 16, 1947	22.55	9,390
	May 17, 1947	17.31	5,340
1948	Aug. 8, 1948	16.45	4,890
1949	May 19, 1949	15.37	4,410
	May 21, 1949	15.70	4,550
	May 27, 1949	16.16	4,790
1950	Aug. 3, 1950	13.58	3,830
1951	July 3, 1951	14.76	4,280
1952	June 7, 1952	16.18	4,790
1953	July 14, 1953	10.56	2,610
1954	May 2, 1954	11.16	2,810
1955	May 11, 1955	16.37	5,130
	May 22, 1955	21.74	8,640
	May 28, 1955	21.78	8,720
1956	Oct. 5, 1955	16.96	5,430
1957	Apr. 20, 1957	20.73	7,680
	Apr. 23, 1957	16.23	4,930
	May 18, 1957	25.26	12,200
	May 22, 1957	18.10	6,090
	May 27, 1957	18.48	6,370
	June 12, 1957	18.95	6,740
	June 25, 1957	22.56	9,720
	July 3, 1957	14.28	4,000
1958	July 12, 1958	13.97	3,880

1544. Carrizozo Creek near Kenton, Okla.

Location.--Lat 36°52'55", long 103°01'05", in NE¼ sec.31, T.31 N., R.37 E., under bridge on New Mexico State Highway 18, about 4 miles southwest of Kenton, Okla.

Drainage area.--111 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by 2 indirect measurements and 1 current-meter measurement. Poorly defined below 4,000 cfs.

Bankfull stage.--11 ft.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	-	-	a9,160	1956	Aug. 18, 1956	9.52	6,230
1954	August 1954	7.52	3,600	1957	Aug. 18, 1957	7.64	3,750
1955	May 19, 1955	7.35	3,400	1958	July 6, 1958	12.22	15,600

a Result of indirect measurement made in 1956.

1545. Cimarron River near Kenton, Okla.

Location.--Lat 36°56', long 102°57', in SE¼ sec.4, T.5 N., R.1 E., near right bank on downstream side of pier of highway bridge, 1.5 miles upstream from Carrizo Creek, 1.7 miles northeast of Kenton, 2.2 miles downstream from Carrizozo Creek, and at mile 594.0.

Drainage area.--1,106 sq mi, of which about 1,038 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 4,267.08 ft above mean sea level, datum of 1929 (levels by State Highway Commission).

Stage-discharge relation.--Defined by current-meter measurements below 6,000 cfs and extended above on basis of logarithmic plotting.

Bankfull stage.--13 ft.

Historical data.--Corps of Engineers report that a major flood occurred in May 1914.

Remarks.--Base for partial-duration series, 3,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	Aug. 21, 1951	5.96	2,850	1954	Aug. 13, 1954	10.67	14,100
1952	Aug. 23, 1952	6.12	3,130	1955	Oct. 6, 1954	7.40	5,790
					May 20, 1955	10.02	11,800
1953	June 29, 1953	7.05	4,630				
	July 3, 1953	6.65	4,000	1956	June 28, 1956	6.32	3,820
	Aug. 17, 1953	8.00	6,610		Aug. 18, 1956	9.35	10,000
1954	July 23, 1954	7.00	4,630	1957	Aug. 18, 1957	7.78	6,780
	Aug. 7, 1954	7.86	6,390				
				1958	July 6, 1958	13.67	26,300

1550. Cimarron River above Ute Creek, near Boise City, Okla.
(Published as "near Garret" May 1905 to July 1907)

Location.--Lat 36°55', long 102°36', in SE¼ sec.10, T.5 N., R.4 E., on right bank 1,000 ft downstream from Kohler's dam, 1 mile upstream from Cold Springs Creek, 5.5 miles upstream from Ute Creek, 14 miles northwest of Boise City, and at mile 560.0.

Drainage area.--1,955 sq mi, of which about 1,879 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to 1942 at site half a mile upstream at unknown datum; recording thereafter. Datum of last used gage, 3,932.85 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 4,200 cfs and extended to 17,200 cfs on basis of computation of flow over dam. Peak discharge for flood in 1942 from mean of slope-area measurements and logarithmic extension above 41,000 cfs for station at Boise City.

Bankfull stage.--16 ft.

Historical data.--Flood in 1914 was 3 or 4 ft higher than in 1942, from information by local resident. Channel capacity has greatly increased due to erosion since 1914.

Remarks.--Base for partial-duration series, 1,700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	Sept.27, 1906	12.25	5,000	1950	June 19, 1950	7.23	8,220
					June 22, 1950	3.79	1,950
1942	Apr. 20, 1942	20.1	80,000		July 13, 1950	4.02	2,200
					July 20, 1950	5.05	3,920
1943	Aug. 6, 1943	6.90	5,000		July 28, 1950	9.66	15,000
	Aug. 26, 1943	5.68	3,920		Aug. 1, 1950	9.49	14,300
					Aug. 14, 1950	4.06	2,310
1944	May 29, 1944	4.77	1,800		Aug. 26, 1950	7.80	9,580
					Aug. 29, 1950	7.26	8,460
1945	May 30, 1945	8.0	8,660				
	Aug. 21, 1945	7.8	7,930	1951	May 15, 1951	10.22	17,200
					May 21, 1951	4.77	3,480
1946	May 28, 1946	8.29	9,130		June 5, 1951	3.58	1,760
	Aug. 15, 1946	8.31	9,150		June 12, 1951	3.73	1,980
					July 12, 1951	5.03	4,190
1947	July 3, 1947	5.00	2,910		Aug. 21, 1951	7.67	9,350
	July 7, 1947	4.82	2,640				
	Aug. 15, 1947	7.09	6,500	1952	Aug. 24, 1952	4.30	2,720
1948	June 1, 1948	5.76	4,060	1953	June 29, 1953	4.60	3,140
	June 21, 1948	5.27	3,260		July 3, 1953	10.16	17,200
	Aug. 4, 1948	4.48	1,760		July 11, 1953	6.03	5,720
	Aug. 7, 1948	7.00	6,040		Aug. 6, 1953	3.50	1,710
	Sept. 8, 1948	9.68	13,000		Aug. 17, 1953	8.14	10,300
1949	June 5, 1949	8.70	10,200	1954	July 23, 1954	8.25	10,600
	July 12, 1949	4.49	2,290		July 28, 1954	4.97	3,780
					Aug. 7, 1954	6.8	7,350
1950	June 17, 1950	4.23	2,580		Aug. 13, 1954	9.61	14,700

1555. Cimarron River near Boise City, Okla.

Location.--Lat 36°55'15", long 102°31'15", in NW¼NE¼ sec.9, T.5 N., R.5 E., on downstream side of central pier of bridge on U. S. Highway 287, 2 miles downstream from Ute Creek, 13 miles north of Boise City, and at mile 551.5.

Drainage area.--2,214 sq mi, of which about 2,023 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 3,859.86 ft above mean sea level (State Highway Commission bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 41,000 cfs and extended above on basis of logarithmic plotting and of slope-area measurement of peak flow in 1942 at site 8.5 miles above station.

Bankfull stage.--7 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 1,700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	May 1914	a17.23	-	1941	May 2, 1941	7.75	30,600
					May 23, 1941	7.80	29,600
1938	Sept. 4, 1938	8.0	a39,200		June 2, 1941	5.06	8,990
					June 7, 1941	4.44	4,480
1939	Oct. 9, 1938	4.04	5,490		June 17, 1941	5.20	4,700
	Jan. 8, 1939	3.16	2,220		June 26, 1941	6.10	8,250
	May 4, 1939	7.10	29,100		July 4, 1941	6.50	11,900
	May 26, 1939	3.28	2,360		July 13, 1941	4.82	3,840
	June 28, 1939	3.50	2,800		July 16, 1941	6.06	8,250
	July 1, 1939	3.55	2,760		July 25, 1941	5.18	5,320
	July 17, 1939	4.35	6,750		Aug. 20, 1941	5.82	6,810
	Aug. 4, 1939	3.91	3,960		Sept.22, 1941	10.00	60,200
	Aug. 20, 1939	6.00	18,800				
				1942	Oct. 22, 1941	5.80	17,100
1940	June 10, 1940	6.25	21,000		Apr. 20, 1942	11.90	80,000
	July 5, 1940	4.85	8,760		Apr. 24, 1942	4 39	4,990
	Aug. 8, 1940	4.94	9,950		June 22, 1942	6.62	18,000
	Sept. 4, 1940	6.20	20,500		July 10, 1942	5.64	3,330
					July 19, 1942	5.90	6,100
1941	Oct. 1, 1940	6.30	17,900		Sept. 2, 1942	6.00	7,750

a Annual peak only.

1570. Cimarron River near Mocane, Okla.

Location.--Lat 36°59', long 100°19' in SW¼NW¼ sec.24, T.6 N., R.25 E., near right bank on downstream side of county highway bridge, 6½ miles northeast of Mocane, 14.7 miles upstream from Crooked Creek, and at mile 364.1.

Drainage area.--8,670 sq mi, of which about 4,305 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Nov. 9, 1942; recording thereafter. Datum of gage is 2,206.12 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 6,300 cfs and extended above on basis of slope-area measurement at 53,400 cfs.

Bankfull stage.--8 ft.

Historical data.--Local resident stated that flood in 1914 was 2 or 3 ft higher than that in April 1942 which exceeded by half a foot the flood in May 1951.

Remarks.--Diversion above station for irrigation of about 11,000 acres. Base for partial-duration series, 3,000 cfs.

Peak stages and discharges of Cimarron River near Mocane, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	-	13.0	-	1951	June 7, 1951	2.71	3,440
					June 23, 1951	3.25	6,150
1942	April 1942	10.5	-		Aug. 23, 1951	2.88	3,780
1943	Oct. 14, 1942	-	3,000	1952	Aug. 23, 1952	2.18	1,080
1944	May 31, 1944	3.69	2,970	1953	Aug. 20, 1953	3.60	4,650
1945	June 26, 1945	5.12	9,600	1954	Aug. 9, 1954	3.60	3,010
					Aug. 15, 1954	3.81	4,300
1946	May 30, 1946	3.95	4,050				
				1955	Aug. 14, 1955	4.85	6,920
1947	Oct. 6, 1946	4.38	5,520		May 18, 1955	5.00	7,610
	Oct. 8, 1946	5.03	8,150		May 22, 1955	5.45	11,200
					May 26, 1955	4.24	5,790
1948	Aug. 14, 1948	4.60	4,300				
	Sept.11, 1948	4.69	5,330	1956	Aug. 21, 1956	3.40	2,630
1949	June 4, 1949	5.30	8,200	1957	May 16, 1957	5.06	9,300
	June 7, 1949	5.50	10,500		May 29, 1957	4.06	4,520
	June 13, 1949	4.20	4,440		June 1, 1957	3.73	3,130
					June 24, 1957	4.17	5,020
1950	July 30, 1950	4.32	3,690		July 25, 1957	4.82	8,100
	Aug. 3, 1950	4.83	6,320		Aug. 3, 1957	3.78	3,330
	Aug. 29, 1950	3.96	4,090		Aug. 30, 1957	3.90	3,830
	Aug. 31, 1950	4.04	4,440		Sept.11, 1957	3.93	3,960
1951	Oct 2, 1950	4.22	3,200	1958	June 21, 1958	4.15	4,920
	May 14, 1951	5.07	7,720		June 23, 1958	4.73	7,660
	May 17, 1951	9.94	53,400		July 8, 1958	6.75	21,300
	May 22, 1951	2.75	3,640		Aug. 19, 1958	4.87	8,460

1575. Crooked Creek near Nye, Kans.

Location.--Lat 37°02', long 100°12', at southeast corner of sec.1, T.35 S., R.27 W., at bridge on county road, 6½ miles east of Nye and 14.0 miles upstream from mouth.

Drainage area.--1,157 sq mi, of which about 813 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 2,163.79 ft above mean sea level (unadjusted).

Stage-discharge relation.--Defined by current-meter measurements below 2,400 cfs and extended to 13,600 cfs on basis of mean of slope-area measurement and of current-meter measurement of 10,000 cfs at site 10 miles above station.

Bankfull stage.--5 ft.

Historical data.--In 1943, resident supplied information to indicate stage had not exceeded 5.5 ft in past 10 years. Flood of May 23, 1951, was reported by resident in 1951 to be maximum known and to exceed that in 1913.

Remarks.--Base for partial-duration series, 1,400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Aug. 5, 1943	2.03	118	1948	Aug. 9, 1948	3.89	1,610
					Aug. 14, 1948	5.12	3,330
1944	Apr. 29, 1944	3.68	1,360				
				1949	Apr. 26, 1949	6.93	7,100
1945	June 26, Aug.15	4.65	2,310		May 16, 1949	5.28	3,490
					June 4, 1949	6.82	5,970
1946	Aug. 27, 1946	4.78	2,530		June 9, 1949	4.65	2,150
					June 13, 1949	5.00	3,570
1947	Oct. 10, 1946	5.66	3,970		Sept.11, 1949	4.89	1,820
	Apr. 12, 1947	6.13	4,950				
				1950	Oct. 10, 1949	6.20	3,930
1948	June 28, 1948	4.18	2,080		Oct. 12, 1949	6.50	4,660
	Aug. 1, 1948	3.72	1,400		July 27, 1950	7.15	6,360

Peak stages and discharges of Crooked Creek near Nye, Kans.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	July 29, 1950	6.70	4,910	1954	July 23, 1954	4.47	1,320
	Aug. 22, 1950	6.08	2,980				
	Aug. 29, 1950	6.28	2,880	1955	May 20, 1955	8.01	13,600
					May 23, 1955	4.25	2,140
1951	May 14, 1951	6.72	4,370		May 26, 1955	4.07	1,840
	May 18, 1951	7.40	7,400		June 16, 1955	4.21	1,840
	May 23, 1951	7.59	10,000		June 20, 1955	4.56	2,290
	July 2, 1951	5.47	3,070				
	Sept. 5, 1951	4.49	1,550	1956	July 3, 1956	4.38	1,640
1952	Apr. 29, 1952	5.98	3,730	1957	May 16, 1957	6.24	4,220
					May 31, 1957	4.92	2,220
1953	July 11, 1953	5.68	3,210				
	July 23, 1953	5.10	2,370	1958	July 5, 1958	5.01	1,860
					Aug. 20, 1958	7.94	13,200

1580. Cimarron River near Waynoka, Okla.

Location.--Lat 36°30'55", long 98°52'45", near center of sec.35, T.24 N., R.16 W., near right bank on downstream side of bridge on U. S. Highway 281, three-quarters of a mile downstream from Maine Creek, 5 miles south of Waynoka, and at mile 247.0.

Drainage area.--13,334 sq mi, of which about 8,504 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 1,367.50 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 45,000 cfs and extended above on basis of contracted-opening measurement at 94,500 cfs.

Bankfull stage.--8 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 10,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	May 1914	14.0	-	1942	Apr. 22, 1942	10.50	55,000
1935	May 19, 1935	14.5	-	1943	Oct. 3, 1942	9.10	31,700
					May 19, 1943	6.40	10,000
1938	Apr. 27, 1938	9.26	44,400		July 18, 1943	7.73	24,400
	May 2, 1938	6.02	11,100				
	May 19, 1938	9.49	46,600	1944	Apr. 22, 1944	9.80	47,000
	May 23, 1938	10.70	60,000		July 10, 1944	7.33	14,400
	May 31, 1938	7.17	22,300		July 25, 1944	9.00	30,600
	June 20, 1938	7.00	20,300				
	Aug. 16, 1938	8.40	34,500	1945	Oct. 2, 1944	7.20	13,100
	Sept. 7, 1938	7.2	22,300		June 27, 1945	7.32	13,900
					Sept.28, 1945	8.00	20,400
1939	Apr. 5, 1939	7.17	22,200				
	Apr. 15, 1939	5.85	12,100	1946	June 29, 1946	6.64	8,570
	June 12, 1939	6.44	15,200				
				1947	Oct. 6, 1946	7.23	11,100
1940	May 19, 1940	7.50	19,500		Nov. 6, 1946	7.19	11,500
	July 2, 1940	7.05	15,100		Apr. 13, 1947	8.13	20,800
	Aug. 9, 1940	6.95	14,100		May 15, 1947	7.27	10,100
1941	Apr. 15, 1941	7.80	22,600	1948	June 28, 1948	9.35	34,600
	May 4, 1941	7.35	18,000				
	May 20, 1941	7.70	19,500	1949	May 7, 1949	7.25	10,500
	May 26, 1941	7.34	16,500		May 16, 1949	10.00	42,900
	June 9, 1941	8.10	26,100		May 21, 1949	8.90	28,200
	Sept.25, 1941	8.35	29,700		June 5, 1949	8.55	24,000
					June 8, 1949	7.77	15,300
1942	Oct. 23, 1941	9.70	45,100		June 13, 1949	8.60	24,600
	Apr. 18, 1942	7.26	17,000		July 27, 1949	7.80	15,800

Peak stages and discharges of Cimarron River near Waynoka, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Sept.12, 1949	7.68	14,800	1955	May 23, 1955	7.71	17,400
					May 26, 1955	9.10	34,000
1950	July 19, 1950	8.03	18,400		June 18, 1955	8.56	27,100
	July 25, 1950	8.45	22,800		June 20, 1955	8.37	24,700
	July 28, 1950	11.40	70,000				
	Aug. 2, 1950	8.90	32,600	1956	Aug. 19, 1956	6.31	6,290
	Aug. 4, 1950	6.90	12,300				
	Aug. 30, 1950	6.72	10,700	1957	Apr. 17, 1957	7.72	17,400
	Sept.16, 1950	6.83	11,900		Apr. 23, 1957	7.40	14,500
					May 2, 1957	7.83	19,000
1951	May 18, 1951	9.54	37,700		May 10, 1957	9.06	34,000
	May 23, 1951	8.69	28,300		May 13, 1957	8.28	22,900
	June 22, 1951	8.18	17,900		May 16, 1957	15.10	94,500
	June 24, 1951	9.58	33,900		May 24, 1957	8.44	27,700
	June 30, 1951	9.43	28,700		May 30, 1957	10.56	48,400
	July 4, 1951	6.65	10,200		June 10, 1957	8.31	26,500
					June 18, 1957	6.79	11,900
1952	May 1, 1952	6.87	7,640		June 23, 1957	11.78	60,200
					July 1, 1957	9.71	41,800
1953	July 12, 1953	6.30	6,010		Sept.14, 1957	6.65	10,700
1954	May 24, 1954	7.11	9,540	1958	June 26, 1958	8.34	16,400
					July 9, 1958	7.85	13,000
1955	May 19, 1955	9.73	41,800				

1585. Preacher Creek near Dover, Okla.

Location.--Lat 36°03', long 98°01', in NW¼NW¼ sec.13, T.18 N., R.8 W., on right bank 75 ft downstream from county highway bridge, 1.4 miles upstream from mouth, and 7 miles northwest of Dover.

Drainage area.--14.5 sq mi.

Gage.--Recording gage and Parshall flume. Altitude of gage is 1,073 ft.

Stage-discharge relation.--Defined by current-meter measurements below 70 cfs and extended above on basis of slope-area measurement at 6,420 cfs.

Bankfull stage.--3 ft.

Historical data.--In 1951, local residents stated that a stage of about 4 ft occurred "several years ago." The stage of 4.73 ft, occurring July 24, 1953, was reported to be the highest since at least 1918.

Remarks.--Base for partial-duration series, 50 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Apr. 22, 1952	2.31	9.2	1955	May 26, 1955	4.87	512
					June 16, 1955	4.41	275
1953	July 19, 1953	4.02	155		June 17, 1955	3.74	100
	July 24, 1953	4.73	431				
				1956	Oct. 4, 1955	3.84	118
1954	May 24, 1954	3.08	32				
				1957	May 15, 1957	9.1	6,420

1590. Turkey Creek near Drummond, Okla.

Location.--Lat 36°19', long 98°00', in NE¼ sec.12, T.21 N., R.8 W., near right bank on downstream side of pile bent of county highway bridge, 2¼ miles northeast of Drummond, 2½ miles downstream from Clear Creek, and 9 miles southwest of Enid.

Drainage area.--248 sq mi.

Gage.--Recording. Datum of gage is 1,148.22 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 7,300 cfs and extended above by logarithmic plotting.

Bankfull stage.--18 ft.

Remarks.--Base for partial-duration series, 1,800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	May 10, 1948	5.92	1,620	1953	June 5, 1953	4.94	1,230
1949	Mar. 30, 1949	8.46	2,800	1954	May 25, 1954	4.25	908
	May 19, 1949	7.26	2,240				
	May 21, 1949	6.69	1,970	1955	May 9, 1955	7.88	2,520
	May 23, 1949	7.85	2,480		May 19, 1955	8.10	2,620
	May 28, 1949	11.69	4,390		June 18, 1955	13.30	5,320
	June 4, 1949	6.79	2,020				
				1956	Oct. 2, 1955	6.23	1,750
1950	May 8, 1950	17.36	10,200				
	May 10, 1950	8.29	2,710	1957	Apr. 23, 1957	6.67	1,850
	July 20, 1950	6.59	1,930		May 3, 1957	6.58	1,840
	July 29, 1950	20.44	16,300		May 16, 1957	21.61	18,800
	Aug. 1, 1950	8.12	2,620		May 25, 1957	8.58	2,660
					June 10, 1957	12.39	4,550
1951	May 22, 1951	7.61	2,380		June 18, 1957	7.70	2,240
	May 27, 1951	7.17	2,200		June 23, 1957	11.55	3,620
	June 21, 1951	8.31	2,710		June 26, 1957	10.32	3,090
	June 30, 1951	8.17	2,660		July 1, 1957	7.15	1,840
	July 4, 1951	7.46	2,340				
				1958	Nov. 17, 1957	3.93	695
1952	Apr. 22, 1952	2.35	254				

1595. Bluff Creek above Lake Hefner, near Oklahoma City, Okla.

Location.--Lat 35°32'33", long 97°35'46", in SW¼ sec.2, T.12 N., R.4 W., on left bank at upstream side of weir at bridge in Lake Hefner recreational area, just upstream from Lake Hefner, 6¼ miles northwest of the State Capitol in Oklahoma City.

Drainage area.--1.62 sq mi.

Gage.--Recording. Datum of gage is 1,199.86 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 80 cfs and extended above on basis of weir determination at 1,070 cfs.

Bankfull stage.--6 ft.

Remarks.--About 9.5 percent of drainage is in urban area of Warr Acres. Some regulation by ponds in basin. Base for partial-duration series, 70 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	May 9, 1951	2.55	192	1955	June 16, 1955	4.95	1,070
	May 18, 1951	2.20	120		June 17, 1955	2.76	240
	May 27, 1951	3.49	452				
	July 24, 1951	2.44	168	1956	Oct. 2, 1955	2.58	199
1952	May 23, 1952	1.78	47	1957	Apr. 22, 1957	2.15	110
					May 24, 1957	2.21	122
1953	Apr. 5, 1953	2.06	94		June 22, 1957	2.37	154
	July 20, 1953	2.28	136		Sept.14, 1957	1.97	78
1954	May 1, 1954	2.45	170	1958	Apr. 19, 1958	2.82	255
					June 21, 1958	2.36	152
1955	May 19, 1955	3.46	441		June 25, 1958	2.47	175

1598. Cottonwood Creek at Guthrie, Okla.

Location.--Lat 35°53', long 97°26', in NE¼ sec.8, T.16 N., R.2 W., near upstream side of bridge on State Highway 33 in northwest Guthrie, 2½ miles upstream from mouth.

Drainage area.--370 sq mi.

Gage.--Reference point at tree and at street curb. Datum is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Not defined.

Bankfull elevation.--923 ft.

Remarks.--Data furnished by Ed Nelson, local resident, who has recorded all peaks above 924 ft since at least 1889.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1889	April 1889	927.1		1927	Apr. 12, 1927	927.85	
1908	May 28, 1908	927.4		1941	May 4,5, 1941	925.2	
1910	Nov. 28, 1909	927.1		1945	Apr. 16, 1945	925.6	
1912	May 1912	927.4		1947	Apr. 14, 1947	925.3	
1916	April 1916	927.5		1949	May 19, 1949	929.6	
1921	March 1921	927.1		1956	Oct. 3, 1955	924.7	
					Oct. 5, 1955	925.2	

1600. Cimarron River near Guthrie, Okla.

Location.--Lat 35°55'10", long 97°25'35", in NE¼SE¼ sec.29, T.17 N., R.2 W., on left bank 125 ft upstream from The Atchison, Topeka and Santa Fe Railway Co. bridge, 1.2 miles downstream from Cottonwood Creek, 2½ miles north of Guthrie, 6.5 miles upstream from Skeleton Creek (Ephraim Creek), and at mile 121.8.

Drainage area.--16,892 sq mi, of which 11,966 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Mar. 10, 1939 at railway bridge; recording thereafter. Datum of gage is 900.50 ft above mean sea level (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--10 ft.

Historical data.--Flood in May 1935 is greatest known prior to flood of May 17, 1957, from information by Corps of Engineers. Other major floods are reported to have occurred in May 1914 and October 1926.

Remarks.--Base for partial-duration series, 13,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	May 1935	16.5	90,000	1941	Apr. 16, 1941	8.13	23,600
					May 5, 1941	9.31	32,000
1938	Apr. 28, 1938	7.92	25,400		May 22, 1941	7.66	15,000
	May 5, 1938	6.86	15,700		May 24, 1941	8.02	13,900
	May 20, 1938	10.7	46,300		June 10, 1941	9.87	21,400
	May 24, 1938	10.10	42,100				
	June 1, 1938	7.85	24,500	1942	Oct. 16, 1941	7.84	15,000
	June 21, 1938	7.56	22,800		Oct. 25, 1941	11.40	41,400
	Aug. 17, 1938	6.85	16,200		Apr. 10, 1942	9.22	26,200
					Apr. 20, 1942	11.90	45,400
1939	Apr. 6, 1939	7.16	22,000		Apr. 23, 1942	10.19	34,400
					Apr. 26, 1942	10.59	38,200
1940	July 3, 1940	7.15	10,600				

Peak stages and discharges of Cimarron River near Guthrie, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	May 20, 1943	11.57	42,900	1950	Aug. 2, 1950	11.10	32,300
1944	Apr. 11, 1944	11.01	43,000	1951	May 20, 1951	11.80	42,500
	Apr. 23, 1944	9.15	27,800		May 23, 1951	9.42	20,800
	June 14, 1944	8.65	16,700		May 26, 1951	8.78	17,400
					June 23, 1951	8.30	14,000
1945	Apr. 16, 1945	10.87	41,500		June 26, 1951	9.82	22,200
	Sept.29, 1945	9.77	22,200		July 1, 1951	10.41	27,900
					July 6, 1951	8.40	14,500
1946	June 30, 1946	8.37	16,100				
				1952	May 3, 1952	5.35	4,230
1947	Apr. 14, 1947	11.27	43,500				
	May 13, 1947	8.35	14,600	1953	July 20, 1953	6.70	5,620
	May 16, 1947	11.15	35,000				
				1954	May 26, 1954	8.66	11,000
1948	June 24, 1948	11.32	37,700				
	June 29, 1948	9.98	28,800	1955	May 21, 1955	13.70	43,400
	Aug. 10, 1948	8.15	13,400		May 24, 1955	9.48	16,800
	Aug. 15, 1948	8.31	14,300		May 27, 1955	11.89	30,600
					June 19, 1955	11.13	28,200
1949	Mar. 31, 1949	7.8	16,000				
	May 20, 1949	12.98	51,500	1956	Oct. 5, 1955	11.90	39,400
	May 22, 1949	12.74	48,500				
	May 25, 1949	9.02	18,000	1957	Apr. 24, 1957	9.67	20,700
	June 7, 1949	8.68	16,700		May 3, 1957	10.67	30,600
	June 11, 1949	8.62	15,400		May 17, 1957	18.58	158,000
	June 15, 1949	9.62	21,500		May 21, 1957	10.94	42,000
					May 26, 1957	9.7	30,300
1950	May 8, 1950	8.58	18,000		June 1, 1957	10.4	39,000
	July 26, 1950	8.88	22,800		June 11, 1957	11.04	42,000
	July 30, 1950	12.05	44,500				

1605. Skeleton Creek near Lovell, Okla.

Location.--Lat 36°04', long 97°35', in SW¼ sec.1, T.18 N., R.4 W., near right bank on downstream side of pier of bridge on State Highway 74, 2 miles upstream from Otter Creek and 2¾ miles east of Lovell.

Drainage area.--410 sq mi.

Gage.--Nonrecording prior to Dec. 5, 1949; recording thereafter. Datum of gage is 914.76 ft above mean sea level, datum of 1929 (State Highway Commission bench mark).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--25 ft.

Historical data.--Local residents reported that flood in August 1932 was the highest known prior to 1957 and was considerably higher than the flood in 1912. The flood of July 30, 1950, was reported to be highest since 1932.

Remarks.--Base for partial-duration series, 1,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	Aug. 17, 1932	32.0	-	1951	June 15, 1951	16.73	2,040
					June 22, 1951	18.28	2,520
1949	May 20, 1949	24.01	-		July 2, 1951	18.44	2,550
1950	May 12, 1950	13.71	1,300	1952	Aug. 9, 1952	10.20	638
	July 21, 1950	17.88	2,420				
	July 26, 1950	13.90	1,360	1953	June 7, 1953	13.56	1,400
	July 30, 1950	27.57	8,970				
				1954	Nov. 20, 1953	14.48	1,290
1951	May 1, 1951	14.57	1,430		Dec. 4, 1953	13.90	1,430
	May 18, 1951	17.35	2,190				
	May 23, 1951	17.78	2,340	1955	May 9, 1955	26.80	7,650
	May 28, 1951	14.72	1,480		May 20, 1955	26.40	7,070

Peak stages and discharges of Skeleton Creek near Lovell, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	May 26, 1955	28.72	11,100	1957	June 11, 1957	23.30	4,090
	June 16, 1955	17.92	2,580		June 19, 1957	19.86	2,740
	June 19, 1955	22.56	4,440		June 24, 1957	26.21	7,370
	June 23, 1955	16.70	2,140		June 27, 1957	23.51	4,620
					July 2, 1957	19.83	2,840
1956	Oct. 4, 1955	27.10	7,960		Sept.16, 1957	20.93	3,220
1957	Apr. 23, 1957	19.40	2,840	1958	Apr. 3, 1958	18.10	2,400
	May 4, 1957	20.66	3,260		May 30, 1958	15.83	1,710
	May 16, 1957	34.58	75,200		June 21, 1958	16.91	1,960
	May 21, 1957	21.57	3,620		June 25, 1958	19.42	2,710
	May 26, 1957	22.61	4,090		Sept.10, 1958	18.82	2,520
	May 30, 1957	21.00	3,380				

1610. Cimarron River at Perkins, Okla.

Location.--Lat 35°58', long 97°02', in SW¼SW¼ sec.7, T.17 N., R.3 E., near right bank on downstream side of pier of bridge on State Highway 40, 1 mile south of Perkins, 1½ miles upstream from Dugout Creek, 4 miles downstream from Wildhorse Creek, and at mile 87.3.

Drainage area.--17,852 sq mi, of which about 12,926 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to June 26, 1940; recording thereafter. Datum of gage is 819.88 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 90,000 cfs and extended above by logarithmic plotting.

Bankfull stage.--11 ft.

Remarks.--Records furnished by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 13,000 cfs. Only annual peaks are shown prior to 1940.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	-	17.0	-	1941	June 11, 1941	12.70	31,600
1927	Oct. 5, 1926	17.0	-	1942	Oct. 16, 1941	11.70	23,100
					Oct. 25, 1941	14.25	46,900
1928	May 18, 1928	10.6	-		Apr. 10, 1942	12.40	30,600
					Apr. 20, 1942	14.30	48,300
1929	June 1, 1929	10.8	-		Apr. 23, 1942	13.09	34,400
					Apr. 26, 1942	13.17	35,500
1930	May 17, 1930	10.4	-		Aug. 14, 1942	11.75	23,100
1931	Apr. 18, 1931	10.1	-	1943	May 18, 1943	12.74	29,400
					May 20, 1943	14.08	46,600
1932	Aug. 18, 1932	14.6	-				
				1944	Apr. 11, 1944	14.08	55,700
1933	Sept. 4, 1933	10.5	-		Apr. 23, 1944	12.28	25,000
					June 14, 1944	11.93	17,000
1934	Sept. 3, 1934	9.5	-				
				1945	Apr. 12, 1945	11.73	25,500
1935	June 21, 1935	18.0	-		Apr. 17, 1945	13.92	41,900
					Sept.30, 1945	12.56	34,100
1936	June 6, 1936	12.8	-				
				1946	June 30, 1946	11.03	16,000
1937	June 16, 1937	12.1	-				
				1947	Apr. 14, 1947	13.63	45,500
1938	May 24, 1938	13.2	-		May 13, 1947	11.33	17,400
					May 16, 1947	13.50	30,600
1940	July 4, 1940	10.69	11,300		May 22, 1947	10.55	14,100
1941	Apr. 17, 1941	11.90	24,600	1948	June 24, 1948	13.26	34,500
	May 6, 1941	12.57	29,700		June 29, 1948	12.87	29,400
	May 22, 1941	11.88	20,800				
	May 24, 1941	11.14	17,300	1949	May 19, 1949	15.22	65,300
	June 8, 1941	10.55	14,700		May 22, 1949	14.00	46,400

Peak stages and discharges of Cimarron River at Perkins, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	June 7, 1949	11.07	17,200	1954	May 27, 1954	10.43	11,000
	June 11, 1949	10.93	16,600				
	June 15, 1949	11.90	21,000	1955	May 11, 1955	11.15	13,000
					May 21, 1955	14.80	49,600
1950	May 9, 1950	10.05	17,600		May 27, 1955	13.80	35,400
	July 22, 1950	10.20	13,700		June 19, 1955	13.20	33,500
	July 26, 1950	10.75	18,900				
	July 31, 1950	13.80	49,000	1956	Oct. 5, 1955	13.39	53,700
	Aug. 2, 1950	13.36	39,600				
				1957	Apr. 24, 1957	11.62	27,700
1951	May 20, 1951	13.90	50,200		May 3, 1957	11.51	28,300
	May 23, 1951	11.50	25,000		May 17, 1957	19.53	149,000
	May 26, 1951	10.73	18,900		May 21, 1957	15.75	94,000
	June 15, 1951	10.73	18,100		May 26, 1957	12.22	33,000
	June 23, 1951	10.54	17,700		June 1, 1957	12.32	34,500
	June 26, 1951	11.53	27,200		June 11, 1957	12.61	53,200
	July 1, 1951	11.40	33,800		June 19, 1957	9.67	19,000
	July 5, 1951	10.67	18,900		June 25, 1957	13.80	76,600
1952	May 3, 1952	7.40	4,120	1958	June 22, 1958	8.77	15,800
					June 26, 1958	10.98	35,000
1953	July 21, 1953	8.56	5,470				

1630. Council Creek near Stillwater, Okla.

Location.--Lat 36°07', long 96°52', in SE¼SW¼ sec.15, T.19 N., R.4 E., on right bank 200 ft upstream from county highway bridge, 10 miles east of Stillwater, and at mile 10.0.

Drainage area.--31 sq mi.

Gage.--Nonrecording prior to May 4, 1934; recording thereafter. Datum of gage is 838.28 ft above mean sea level, adjustment of 1912.

Stage-discharge relation.--Defined by current-meter measurements below 2,500 cfs and extended above on basis of slope-area measurements at gage heights 13.4 and 17.5 ft.

Bankfull stage.--10 ft.

Remarks.--Base for partial-duration series, 660 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	Apr. 27, 1912	16.6	a14,400	1941	May 20, 1941	8.14	1,520
					June 9, 1941	9.60	2,050
1934	May 3, 1934	7.20	1,260				
	Sept. 2, 1934	5.32	797	1942	Oct. 15, 1941	8.57	1,700
	Sept.10, 1934	7.78	1,410		Oct. 22, 1941	9.79	2,120
					Oct. 30, 1941	10.62	2,410
1935	Oct. 17, 1934	7.34	1,290		Apr. 9, 1942	9.71	2,080
	June 17, 1935	5.00	736		Apr. 17, 1942	11.75	3,090
	June 21, 1935	11.92	2,900		Apr. 19, 1942	12.76	4,190
					Apr. 24, 1942	10.28	2,300
1936	Sept.20, 1936	4.66	656		June 21, 1942	8.64	1,700
					June 24, 1942	13.42	5,170
1937	June 9, 1937	7.42	1,100		Aug. 14, 1942	17.54	18,000
	June 15, 1937	5.37	717				
	Sept. 7, 1937	8.79	1,480	1943	May 10, 1943	10.31	2,300
					May 18, 1943	15.31	9,890
1938	Mar. 28, 1938	13.34	5,000		Sept.30, 1943	6.79	1,130
	May 7, 1938	8.70	1,450				
	June 11, 1938	9.97	1,940	1944	Oct. 23, 1943	9.10	1,880
	Aug. 16, 1938	10.10	1,980		Apr. 10, 1944	9.15	1,910
					Apr. 22, 1944	5.58	785
1939	June 28, 1939	3.9	461		June 8, 1944	7.50	1,340
					June 13, 1944	9.30	1,940
1940	Apr. 11, 1940	6.02	822		June 19, 1944	5.95	890
1941	Nov. 25, 1940	6.53	1,040	1945	Dec. 4, 1944	7.66	1,400
	May 4, 1941	9.43	1,980		Mar. 15, 1945	7.34	1,280
	May 7, 1941	5.50	762		Sept.25, 1945	9.06	1,880

a Annual peak only.

Peak stages and discharges of Council Creek near Stillwater, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Sept.30, 1945	11.20	2,690	1952	Mar. 9, 1952	5.59	828
					June 5, 1952	8.34	1,600
1946	Jan. 8, 1946	6.82	1,140				
	May 30, 1946	5.09	727	1953	July 12, 1953	7.43	1,310
	June 26, 1946	8.03	1,490		July 23, 1953	8.07	1,530
	June 29, 1946	8.35	1,630				
				1954	May 1, 1954	7.89	1,470
1947	Apr. 15, 1947	7.14	1,220				
	Apr. 24, 1947	6.83	1,140	1955	May 19, 1955	8.18	1,560
	May 16, 1947	11.01	2,590		May 20, 1955	7.89	1,470
	June 26, 1947	7.83	1,430				
				1956	Oct. 4, 1955	4.17	524
1948	June 23, 1948	7.44	1,310				
	June 28, 1948	10.07	2,220	1957	Apr. 19, 1957	5.51	805
	July 10, 1948	12.67	4,050		Apr. 23, 1957	6.07	948
	July 16, 1948	6.19	976		May 8, 1957	5.85	875
					May 17, 1957	4.88	680
1949	May 19, 1949	12.69	4,050		May 20, 1957	17.01	16,400
	May 24, 1949	9.75	2,120		June 10, 1957	10.68	2,450
					June 12, 1957	9.82	2,110
1950	June 3, 1950	5.39	783		June 18, 1957	8.49	1,660
	July 10, 1950	10.93	2,540		June 23, 1957	9.54	2,000
	July 21, 1950	11.22	2,690		June 28, 1957	9.03	1,830
	July 29, 1950	9.27	1,930		July 1, 1957	8.16	1,560
	July 31, 1950	6.60	1,080		Sept.14, 1957	6.26	999
1951	May 1, 1951	9.44	1,970	1958	Mar. 29, 1958	8.20	1,560
	July 4, 1951	6.62	1,080		June 25, 1958	8.03	1,500
	Sept. 9, 1951	8.19	1,560		July 5, 1958	7.64	1,370
					July 28, 1958	5.24	740
1952	Oct. 6, 1951	4.86	680		Aug. 20, 1958	6.92	1,160

1635. Cimarron River at Oilton, Okla.

Location.--Lat 36°06', long 96°35', in SW¼ sec.28, T.19 N., R.7 E., near center of span on downstream side of pier of bridge on State Highway 51, half a mile north of Oilton, 4¼ miles upstream from Buckeye Creek, and at mile 35.1.

Drainage area.--18,669 sq mi, of which about 13,743 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Sept. 30, 1938; recording thereafter. Datum of gage is 718.99 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 56,000 cfs and extended above.

Bankfull stage.--18 ft.

Remarks.--Base for partial-duration series, 15,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	October 1908	21.3	-	1942	Oct. 16, 1941	10.53	19,700
					Oct. 25, 1941	13.52	42,500
1935	Mar. 24, 1935	10.26	17,200		Oct. 30, 1941	15.08	56,100
	May 15, 1935	11.09	22,600		Apr. 9, 1942	12.20	33,500
	May 20, 1935	13.96	45,800		Apr. 17, 1942	11.24	24,300
	June 21, 1935	16.8	72,300		Apr. 21, 1942	14.90	54,600
					Apr. 23, 1942	12.59	35,000
1936	June 6, 1936	12.07	30,900		June 21, 1942	10.83	21,100
					June 24, 1942	13.68	43,900
1937	June 16, 1937	11.63	26,500		Aug. 14, 1942	15.37	59,100
1938	Mar. 28, 1938	12.85	38,400	1943	May 10, 1943	11.94	30,600
	May 20, 1938	12.0	31,000		May 19, 1943	14.70	53,700
	May 24, 1938	12.36	34,600				
	Aug. 17, 1938	10.50	18,100	1944	Oct. 23, 1943	10.85	19,400
					Apr. 11, 1944	13.22	47,500
1939	July 2, 1939	9.15	9,550		Apr. 24, 1944	10.86	22,300
					June 14, 1944	10.09	15,900
1940	Sept. 4, 1940	12.11	29,200				
				1945	Apr. 12, 1945	11.25	27,000
1941	Apr. 17, 1941	10.97	21,400		Apr. 17, 1945	12.17	37,500
	May 6, 1941	11.30	23,600		Sept.30, 1945	14.56	52,800
	June 11, 1941	11.48	25,200				

1640. Cimarron River at Mannford, Okla.

Location.--Lat 36°09', long 96°23', in SW¼NW¼ sec.5, T.19 N., R.9 E., on downstream side of county highway bridge, half a mile north of Mannford, 1½ miles downstream from House Creek, and at mile 17.7.

Drainage area.--18,849 sq mi, of which about 13,923 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Oct. 1, 1942, at site 1 1/8 miles upstream at datum 5.00 ft higher; recording gage thereafter at last used site and datum. Datum of last used gage, 682.92 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 85,000 cfs and extended above.

Bankfull stage.--18 ft.

Historical data.--According to local residents, the flood in October 1908 was about 0.5 ft higher than that in 1940.

Remarks.--Records furnished by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 17,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1918	-	20.0	-	1946	July 1, 1946	13.18	15,400
1936	July 1936	18.5	a53,000	1947	Apr. 15, 1947	19.22	53,800
					May 16, 1947	17.90	44,800
1939	July 2, 1939	8.10	7,300				
				1948	June 23, 1948	18.40	48,100
1940	Sept. 4, 1940	25.2	103,000		June 29, 1948	15.00	26,700
					July 11, 1948	18.13	46,200
1941	Apr. 17, 1941	11.70	22,100				
	May 6, 1941	11.97	24,800	1949	Feb. 7, 1949	16.12	33,400
	June 11, 1941	12.10	23,600		May 19, 1949	23.58	78,400
					May 23, 1949	18.10	45,400
1942	Oct. 16, 1941	10.60	28,900		May 26, 1949	16.60	36,400
	Oct. 24, 1941	13.64	45,500		June 3, 1949	14.06	22,100
	Oct. 30, 1941	18.00	70,000		June 16, 1949	13.53	19,000
	Apr. 9, 1942	13.10	34,000				
	Apr. 17, 1942	11.60	27,200	1950	July 21, 1950	14.40	25,900
	Apr. 19, 1942	17.00	63,000		July 27, 1950	13.06	17,400
	Apr. 25, 1942	12.70	32,200		July 31, 1950	17.20	43,600
	June 21, 1942	11.15	25,400		Aug. 2, 1950	16.62	36,400
	June 24, 1942	15.90	49,200				
	Aug. 14, 1942	17.53	57,800	1951	May 20, 1951	17.43	45,000
					June 15, 1951	13.73	-
1943	May 10, 1943	17.05	39,500		June 26, 1951	14.58	-
	May 19, 1943	19.40	56,500		July 2, 1951	15.17	-
1944	Oct. 23, 1943	13.93	22,000	1952	Mar. 11, 1952	11.57	11,000
	Apr. 11, 1944	17.17	46,800				
	Apr. 24, 1944	13.69	23,900	1953	July 12, 1953	12.40	14,800
1945	Apr. 12, 1945	15.60	32,800	1954	May 28, 1954	12.29	14,000
	Apr. 17, 1945	16.05	37,200				
	Sept.30, 1945	20.40	62,500	1955	May 22, 1955	19.20	54,000

a Annual peak only.

1645. Arkansas River at Tulsa, Okla.

Location.--Lat 36°08'40", long 96°00'10", in NW¼ sec.11, T.19 N., R.12 E., near left bank on downstream side of pier of bridge on U. S. Highway 66 in Tulsa, 10.1 miles upstream from Polecat Creek, 17.1 miles downstream from Cimarron River, and at mile 523.7.

Drainage area.--74,615 sq mi, of which about 62,074 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Feb. 2, 1939; recording thereafter. Prior to Oct. 1, 1952, at datum 3.00 ft higher. Datum of present gage is 615.23 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Prior to 1938, defined by 35 current-meter measurements made by Corps of Engineers during 1928-32 below 60,000 cfs and extended to 114,000 cfs on basis of subsequent ratings defined by current-meter measurements to maximum discharge for period of record. Some rock outcrops in channel probably stabilize high-water rating.

Bankfull stage.--19 ft.

Remarks.--Slight regulation since December 1943 by John Martin Reservoir on Arkansas River (capacity, 662,900 acre-ft) and since June 1941 by Great Salt Plains Reservoir on Salt Fork Arkansas River (capacity, 292,400 acre-ft). Records prior to April 1938 computed on basis of once-daily Weather Bureau gage readings. Records 1939-55 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 50,000 cfs. Only annual peaks are shown prior to 1926.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	June 3, 1905	7.1	-	1928	June 13, 1928	10.5	65,500
					June 22, 1928	11.5	76,500
1906	Sept.20, 1906	8.0	-				
				1929	Nov. 21, 1928	11.0	71,000
1907	Jan. 22, 1907	12.4	-		Apr. 14, 1929	10.2	62,100
					Apr. 25, 1929	10.9	69,500
1908	May 25, 1908	18.8	-		May 14, 1929	11.1	72,100
					May 20, 1929	11.3	74,000
1909	Oct. 23, 1908	15.7	-		June 8, 1929	9.1	50,600
					June 25, 1929	9.8	57,900
1910	Nov. 17, 1909	9.5	-		July 2, 1929	10.2	62,100
1911	Aug. 7, 1911	14.2	-	1930	May 13, 1930	9.9	59,000
					June 15, 1930	9.5	55,000
1912	Apr. 29, 1912	16.4	-				
				1931	June 15, 1931	8.9	49,000
1913	May 6, 1913	6.7	-				
				1932	Aug. 19, 1932	10.5	65,500
1914	May 5, 1914	10.2	-				
				1933	Sept. 5, 1933	7.4	35,200
1915	May 25, 1915	14.8	-				
				1934	May 6, 1934	4.6	15,700
1916	June 15, 1916	11.6	-				
				1935	May 16, 1935	11.2	73,200
1917	June 8, 1917	7.0	-		May 22, 1935	12.3	85,600
					June 2, 1935	10.7	67,700
1918	May 9, 1918	8.1	-		June 21, 1935	13.3	98,200
1919	June 16, 1919	9.8	-	1936	June 7, 1936	9.4	54,000
1920	Sept. 9, 1920	11.5	-	1937	June 12, 1937	10.0	60,000
1921	June 26, 1921	12.0	-	1938	Mar. 29, 1938	10.5	61,000
					May 23, 1938	12.62	96,100
1922	Apr. 10, 1922	14.7	-		May 25, 1938	12.55	94,800
1923	June 13, 1923	19.8	244,000	1939	Apr. 8, 1939	6.06	24,700
1924	Oct. 16, 1923	12.5	-	1940	Sept. 4, 1940	16.20	143,000
1925	Apr. 28, 1925	5.9	-	1941	Apr. 18, 1941	10.25	66,200
					June 11, 1941	11.65	78,100
1926	June 3, 1926	8.3	43,200				
				1942	Oct. 26, 1941	12.35	85,400
1927	Oct. 7, 1926	14.3	113,000		Oct. 30, 1941	14.42	116,000
	Apr. 13, 1927	14.4	114,000		Apr. 10, 1942	10.59	76,000
	Apr. 21, 1927	12.4	86,800		Apr. 18, 1942	8.95	53,000
	Aug. 5, 1927	13.1	95,800		Apr. 21, 1942	12.95	96,000

Peak stages and discharges of Arkansas River at Tulsa, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Apr. 24, 1942	10.22	61,700	1950	July 19, 1950	10.98	75,700
	Apr. 27, 1942	11.30	76,800		July 21, 1950	10.32	67,100
	June 25, 1942	15.20	139,000		Aug. 3, 1950	13.02	101,000
	Aug. 15, 1942	10.46	74,400				
				1951	May 3, 1951	9.73	57,700
1943	May 10, 1943	10.39	70,500		May 21, 1951	14.73	135,000
	May 20, 1943	16.50	173,000		May 25, 1951	13.30	111,000
					June 10, 1951	10.00	61,200
1944	Apr. 12, 1944	13.12	102,000		June 27, 1951	12.86	102,000
	Apr. 26, 1944	17.00	172,000		July 4, 1951	15.70	149,000
	May 4, 1944	10.08	63,500		July 17, 1951	14.18	123,000
1945	Dec. 8, 1944	11.85	84,900	1952	June 7, 1952	6.88	32,900
	Apr. 13, 1945	10.69	64,700				
	Apr. 18, 1945	15.40	140,000	1953	June 1, 1953	7.04	17,000
	July 2, 1945	10.33	61,300				
				1954	May 3, 1954	8.88	26,000
1946	Oct. 1, 1945	16.70	165,000				
				1955	May 22, 1955	12.47	56,300
1947	Apr. 16, 1947	15.94	151,000		May 29, 1955	12.87	60,700
	May 18, 1947	11.83	87,600		June 21, 1955	11.73	54,500
	May 23, 1947	9.32	55,900				
				1956	Oct. 6, 1955	14.97	97,600
1948	June 23, 1948	10.50	67,100				
	June 30, 1948	10.38	65,900	1957	Apr. 23, 1957	12.06	59,000
	July 11, 1948	9.70	58,000		May 19, 1957	20.35	213,000
	July 19, 1948	10.76	70,700		May 21, 1957	21.53	235,000
	Aug. 17, 1948	9.66	58,000		May 25, 1957	15.08	112,000
					June 2, 1957	12.63	74,800
1949	Feb. 15, 1949	10.63	72,000		June 12, 1957	14.83	107,000
	Mar. 1, 1949	9.00	50,800		June 26, 1957	15.90	135,000
	May 20, 1949	14.44	123,000		July 2, 1957	15.88	119,000
				1958	July 8, 1958	11.55	62,200

1655. Polecat Creek below Heyburn Reservoir, near Heyburn, Okla.
(Published as "at Heyburn" prior to 1957)

Location.--Lat 35°57', long 96°18', in SE¼ sec.13, T.17 N., R.9 E., at intake structure at right abutment of Heyburn Dam on Polecat Creek, 2½ miles northwest of Heyburn, 3.4 miles upstream from former site at bridge on U. S. Highway 66, 11 miles southwest of Sapulpa, and 48.6 miles upstream from mouth.

Drainage area.--123 sq mi.

Gage.--Nonrecording prior to Feb. 22, 1949; recording thereafter. Prior to Feb. 17, 1956, at site 3.4 miles downstream at datum 706.47 ft. Feb. 17, 1956, to Apr. 17, 1957, and Oct. 1, 1957 to Mar. 7, 1958, at site 1,100 ft downstream at datum 718.00 ft. Datum of present gage is 760.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements at present site. At former site, rating extended above 9,000 cfs on basis of 1940 estimate derived from slope-area measurement of peak flow at Sapulpa, 26 miles downstream.

Bankfull stage.--18 ft at former site.

Remarks.--Records furnished by Corps of Engineers and reviewed by Geological Survey. Peak flows regulated since March 1950 by Heyburn Reservoir (capacity, 59,650 acre-ft). Base for partial-duration series, 3,600 cfs. Only annual peaks are shown subsequent to 1949.

Peak stages and discharges of Polecat Creek below Heyburn Reservoir, near Heyburn, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	Sept. 4, 1940	31.5	a26,000	1948	June 23, 1948	28.18	17,300
1943	May 9, 1943	27.60	17,000	1949	May 19, 1949	28.53	17,300
	May 17, 1943	23.54	9,290				
	May 19, 1943	20.37	5,170	1950	Feb. 28, 1950	19.74	2,900
1944	Oct. 23, 1943	21.00	5,810	1951	Feb. 20, 1951	11.29	613
	Mar. 15, 1944	19.25	4,080				
	May 2, 1944	19.00	3,920	1952	May 23, 1952	14.94	1,180
1945	Mar. 15, 1945	23.00	8,490	1953	Apr. 23, 1953	16.67	1,700
	Apr. 13, 1945	24.39	10,900				
	Sept.25, 1945	20.59	3,840	1954	May 2, 1954	15.89	1,610
	Sept.28, 1945	22.46	6,150				
				1955	May 24, 1955	11.15	718
1946	Jan. 5, 1946	21.80	5,170				
	May 7, 1946	21.12	4,340	1956	Sept.13, 1956	6.10	154
1947	Apr. 10, 1947	21.30	4,560	1957	May 25, 1957	11.08	1,880
	May 16, 1947	21.20	4,430				
				1958	June 25, 1958	11.40	1,890
1948	June 22, 1948	20.70	3,860				

a Annual peak only.

1710. Verdigris River near Lenapah, Okla.

Location.--Lat 36°51', long 95°35', at center of sec.3, T.27 N., R.16 E., near right bank on downstream side of pier of county highway bridge, 2¾ miles east of Lenapah, 4½ miles upstream from Cedar Creek, and at mile 144.6.

Drainage area.--3,639 sq mi.

Gage.--Recording. Datum of gage is 644.89 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 105,000 cfs and extended above.

Bankfull stage.--30 ft.

Remarks.--Some regulation by Fall River Reservoir since Apr. 20, 1949 (capacity, 263,000 acre-ft). Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 23,000 cfs.

Peak stages and discharges of Verdigris River near Lenapah, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	May 21, 1939	19.88	17,600	1947	Apr. 8, 1947	25.62	24,100
					Apr. 16, 1947	35.88	51,900
1940	Apr. 19, 1940	18.25	15,000				
				1948	June 23, 1948	35.97	45,700
1941	Apr. 19, 1941	33.66	39,300		July 25, 1948	35.23	41,500
	June 5, 1941	26.03	26,700				
	June 10, 1941	32.02	36,400	1949	Jan. 16, 1949	27.53	25,600
	Sept.10, 1941	29.40	32,100		Jan. 24, 1949	26.00	23,500
					Feb. 15, 1949	27.30	25,300
1942	Oct. 3, 1941	32.34	35,100				
	Oct. 5, 1941	31.90	34,400	1950	July 21, 1950	31.02	31,200
	Oct. 31, 1941	32.28	35,100				
	Apr. 7, 1942	26.43	25,200	1951	July 3, 1951	38.66	94,800
	Apr. 10, 1942	27.12	26,300		July 15, 1951	37.36	68,900
	Apr. 20, 1942	25.43	23,700				
	Apr. 22, 1942	28.61	28,700	1952	Mar. 12, 1952	23.52	20,300
	Sept. 7, 1942	25.74	24,200				
				1953	May 13, 1953	10.66	5,660
1943	May 11, 1943	34.40	38,700				
	May 20, 1943	40.44	137,000	1954	May 4, 1954	27.90	26,100
	June 27, 1943	29.92	28,700				
				1955	May 29, 1955	24.88	21,800
1944	Mar. 22, 1944	28.88	27,600				
	Apr. 12, 1944	36.87	64,300	1956	Oct. 3, 1955	21.72	16,800
	Apr. 26, 1944	36.09	53,500				
	May 2, 1944	27.94	26,000	1957	May 19, 1957	29.34	28,300
	Sept.29, 1944	26.45	23,900		May 22, 1957	26.62	24,100
					May 26, 1957	29.60	28,800
1945	Oct. 5, 1944	30.55	30,600		June 4, 1957	27.38	25,300
	Dec. 8, 1944	27.05	24,700		June 10, 1957	26.14	23,400
	Mar. 28, 1945	27.44	26,800		June 15, 1957	31.22	31,500
	Apr. 18, 1945	38.50	91,100				
				1958	Mar. 26, 1958	27.80	25,900
1946	Oct. 3, 1945	36.03	50,700				
	Jan. 6, 1946	26.38	25,300				

1715. Verdigris River near Sageeyah, Okla.

Location.--Lat 36°23', long 95°40', in SW¼NW¼ sec.13, T.22 N., R.15 E., at Missouri Pacific Railroad Co. bridge, 1½ miles downstream from Sweetwater Creek, 1½ miles northwest of Sageeyah, 5.4 miles upstream from Caney River, and at mile 83.7.

Drainage area.--4,402 sq mi.

Gage.--Nonrecording prior to Feb. 10, 1939; recording thereafter. Datum of gage is 550.97 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--35 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 24,000 cfs. Only annual peaks are shown prior to 1938.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1904	July 1904	44.8	-	1932	Nov. 27, 1931	33.3	-
1909	October 1908	43.4	-	1933	May 15, 1933	33.1	-
1922	April 1922	43.2		1934	Sept.15, 1934	22.7	-
1927	April 1927	43.8	-	1935	June 6, 1935	40.0	-
1928	June 24, 1928	37.0	-	1936	Sept.29, 1936	29.0	-
1929	Apr. 26, 1929	40.4	-	1937	Oct. 11, 1936	35.8	-
1930	May 2, 1930	35.3	-	1938	Mar. 31, 1938	30.4	25,600
1931	June 14, 1931	21.4	-		May 28, 1938	42.1	34,600

Note.--Due to effect of variable slope, peak stage often occurs at different time than peak discharge.

Peak stages and discharges of Verdigris River near Sageeyah, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	May 13, 1939	23.00	17,700	1943	May 11, 1943	42.73	48,300
					May 21, 1943	51.54	138,000
1940	Apr. 20, 1940	17.90	12,900		June 6, 1943	30.18	24,400
					June 28, 1943	31.53	27,700
1941	Apr. 21, 1941	40.45	41,700				
	June 12, 1941	39.60	32,800	1944	Mar. 23, 1944	30.95	27,000
	Sept.11, 1941	34.47	30,000		Apr. 15, 1944	43.28	59,100
					Apr. 30, 1944	38.65	41,000
1942	Oct. 7, 1941	42.18	40,300				
	Oct. 24, 1941	31.73	24,100	1945	Oct. 7, 1944	36.78	31,300
	Nov. 1, 1941	42.80	46,200		Dec. 9, 1944	32.95	25,000
	Apr. 8, 1942	32.51	26,600		Mar. 16, 1945	31.67	24,300
	Apr. 11, 1942	35.22	25,400		Mar. 29, 1945	33.01	25,700
	Apr. 21, 1942	36.60	29,900		Apr. 20, 1945	44.66	73,000
	June 24, 1942	38.15	31,300		July 1, 1945	33.55	31,500

Note.--Due to effect of variable slope, peak stage often occurs at different time than peak discharge.

1720. Caney River near Elgin, Kans.

Location.--Lat 37°00', long 96°19', in SE¼ sec.16, T.35 S., R.10 E., at highway bridge 2 miles west of Elgin and at mile 117.8.

Drainage area.--445 sq mi.

Gage.--Recording. Datum of gage is 763.32 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 33,000 cfs. Shifts in relation occur.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 6,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	May 21, 1939	6.39	a4,280	1945	Mar. 29, 1945	9.55	7,770
					Apr. 16, 1945	21.32	20,700
1940	June 10, 1940	4.10	2,020		Apr. 24, 1945	9.03	7,110
					May 9, 1945	9.00	7,110
1941	Apr. 15, 1941	14.50	13,600		July 1, 1945	12.18	10,600
	June 9, 1941	15.38	14,700		Sept.24, 1945	16.88	15,800
					Sept.28, 1945	19.53	18,700
1942	Oct. 26, 1941	13.40	12,200		Sept.30, 1945	25.05	26,100
	Oct. 31, 1941	13.82	12,700				
	Apr. 9, 1942	8.83	6,890	1946	Mar. 23, 1946	7.55	5,580
	Apr. 19, 1942	14.77	14,000				
	June 21, 1942	16.02	15,500	1947	Apr. 5, 1947	10.14	7,770
	Sept. 4, 1942	14.54	13,600		Apr. 10, 1947	12.45	10,300
	Sept.19, 1942	10.11	8,320		Apr. 13, 1947	21.33	20,700
	Sept.26, 1942	8.98	7,110		May 16, 1947	16.68	15,200
					May 20, 1947	9.97	7,550
1943	May 10, 1943	14.85	14,000				
	May 19, 1943	24.51	29,000	1948	May 10, 1948	12.13	9,000
					June 22, 1948	12.97	9,990
1944	Mar. 22, 1944	8.53	6,560		June 26, 1948	15.13	12,500
	Apr. 10, 1944	29.80	35,500		July 11, 1948	9.70	6,600
	Apr. 19, 1944	9.50	7,660		July 16, 1948	14.88	12,300
	Apr. 23, 1944	17.67	17,700				
	Apr. 26, 1944	8.55	6,670	1949	Jan. 16, 1949	10.33	7,220
	Apr. 29, 1944	9.58	7,770		Jan. 23, 1949	12.95	9,990
	Sept.28, 1944	17.85	17,800		Feb. 13, 1949	12.69	9,660
					Feb. 27, 1949	9.48	6,470
1945	Oct. 2, 1944	16.05	14,800		Mar. 30, 1949	9.06	6,100
	Dec. 5, 1944	18.96	18,100		Apr. 27, 1949	9.14	6,100
	Mar. 24, 1945	23.52	23,700		May 8, 1949	11.31	8,190

a Maximum May 5 to Sept. 30, 1939; probably maximum for year.

Peak stages and discharges of Caney River near Elgin, Kans.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Sept.18, 1949	17.10	15,000	1954	May 1, 1954	17.80	16,300
1950	June 3, 1950	13.54	10,600	1955	Oct. 12, 1954	9.80	6,990
	July 16, 1950	23.28	23,400		May 26, 1955	17.80	16,300
	July 31, 1950	17.26	15,300				
	Aug. 5, 1950	17.84	15,900	1956	June 23, 1956	5.30	2,720
	Aug. 17, 1950	16.33	14,000				
				1957	Apr. 23, 1957	9.76	7,210
1951	May 1, 1951	19.73	19,000		May 16, 1957	14.50	12,100
	May 22, 1951	9.60	6,560		May 22, 1957	17.02	15,400
	June 9, 1951	14.32	11,600		May 25, 1957	21.00	22,000
	June 24, 1951	14.88	12,400		June 12, 1957	26.40	32,500
	June 30, 1951	26.22	30,000		June 18, 1957	17.63	16,300
	July 13, 1951	24.60	27,000		June 27, 1957	10.49	7,880
	Sept.24, 1951	17.16	15,500				
				1958	Mar. 23, 1958	13.05	9,080
1952	Mar. 10, 1952	15.76	13,500		Apr. 3, 1958	19.29	17,900
					May 4, 1958	11.32	8,080
1953	May 16, 1953	4.82	2,240				

1730. Caney River near Hulah, Okla.

Location.--Lat 36°56', long 96°05', in NW¼ sec.12, T.28 N., R.11 E., 1,000 ft downstream from The Atchison, Topeka and Santa Fe Railway Co. bridge, 0.9 mile downstream from Hulah Dam, 1½ miles upstream from Opossum Creek, 2½ miles west of Hulah, and at mile 95.3.

Drainage area.--736 sq mi.

Gage.--Nonrecording prior to Feb. 18, 1939; recording thereafter. Prior to Oct. 1, 1948, at site 0.8 mile upstream at datum 3.00 ft higher. Datum of present gage is 681.96 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 30,000 cfs and extended above.

Bankfull stage.--34 ft.

Remarks.--Flow completely regulated by Hulah Reservoir since February 1950 (capacity, 295,100 acre-ft). Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 6,000 cfs. Only annual peaks are shown subsequent to 1949.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1926	-	40.2	-	1942	Sept.26, 1942	27.70	6,280
1938	Mar. 28, 1938	32.70	10,500	1943	May 10, 1943	37.10	16,800
	May 20, 1938	35.90	15,100		May 20, 1943	38.52	32,600
	May 23, 1938	35.80	14,900		June 10, 1943	28.40	6,580
	June 1, 1938	27.40	6,880				
	June 7, 1938	30.60	8,600	1944	Apr. 10, 1944	39.45	51,000
	June 11, 1938	31.50	9,350		Apr. 20, 1944	27.68	6,490
					Apr. 23, 1944	34.30	11,700
1939	May 22, 1939	21.90	4,700		Apr. 30, 1944	29.50	7,670
					Sept.28, 1944	34.68	10,200
1940	June 10, 1940	32.35	10,200				
				1945	Oct. 3, 1944	35.10	11,100
1941	Apr. 16, 1941	35.42	13,200		Dec. 5, 1944	37.20	17,500
	Apr. 19, 1941	27.92	6,590		Mar. 15, 1945	27.06	6,030
	June 10, 1941	37.46	19,100		Mar. 25, 1945	37.80	24,500
					Apr. 16, 1945	37.96	24,700
1942	Oct. 23, 1941	31.05	8,530		Apr. 24, 1945	28.07	6,240
	Oct. 27, 1941	31.50	8,920		July 2, 1945	31.07	7,890
	Oct. 31, 1941	30.52	8,030		Sept.25, 1945	36.50	14,200
	Apr. 10, 1942	32.88	10,600		Sept.30, 1945	38.58	30,500
	Apr. 20, 1942	36.73	15,300				
	June 21, 1942	36.48	14,800	1946	Mar. 23, 1946	22.80	3,580
	Sept. 5, 1942	31.58	8,530				
	Sept. 9, 1942	28.25	6,490	1947	Apr. 11, 1947	29.52	6,600
	Sept.19, 1942	27.77	6,320		Apr. 14, 1947	37.46	22,000

Peak stages and discharges of Caney River near Hulah, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Apr. 25, 1947	30.66	7,390	1951	July 9, 1951	33.55	7,930
	May 16, 1947	36.20	14,800				
				1952	Mar. 14, 1952	26.30	4,670
1948	Apr. 25, 1948	28.52	6,020				
	May 10, 1948	34.04	10,200	1953	May 19, 1953	17.78	1,870
	June 22, 1948	34.52	10,800				
	June 26, 1948	32.06	7,880	1954	May 6, 1954	24.55	4,350
	July 17, 1948	34.90	11,500				
	Aug. 12, 1948	30.03	6,410	1955	June 1, 1955	25.18	4,540
1949	Jan. 16, 1949	31.02	5,860	1956	Oct. 7, 1955	18.55	2,300
	Jan. 24, 1949	36.20	9,890				
	Feb. 13, 1949	33.03	7,040	1957	June 27, 1957	33.92	9,240
	May 19, 1949	31.72	6,240				
	Sept.19, 1949	34.90	8,640	1958	Mar. 28, 1958	28.50	6,400
1950	July 19, 1950	39.24	17,200				

1740. Caney Creek near Copan, Okla.

Location.--Lat 36°58'15", long 95°56'05", on south line of sec.19, T.29 N., R.13 E., at downstream side of right pier of highway bridge, 500 ft downstream from The Atchison, Topeka, and Santa Fe Railway Co. bridge, 3½ miles upstream from Cotton Creek, 5 miles north of Copan, and at mile 18.9.

Drainage area.--424 sq mi.

Gage.--Nonrecording prior to Sept. 12, 1947; recording thereafter. Prior to May 26, 1944, at site 500 ft upstream at present datum. Datum of present gage is 690.03 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--20 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 5,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Apr. 10, 1944	30.56	36,400	1950	July 19, 1950	27.38	16,100
	Apr. 20, 1944	23.92	5,960		July 30, 1950	24.65	5,480
	Apr. 30, 1944	23.98	6,140		Sept.22, 1950	24.30	5,080
	Sept.29, 1944	24.01	6,140				
				1951	May 2, 1951	24.97	7,770
1945	Oct. 4, 1944	25.68	11,900		June 30, 1951	29.76	36,300
	Dec. 6, 1944	25.57	11,400		July 14, 1951	25.79	10,700
	Mar. 25, 1945	24.10	6,330				
	Apr. 16, 1945	26.26	14,900	1952	Mar. 11, 1952	25.20	8,410
	July 2, 1945	23.70	5,630				
	July 11, 1945	23.72	5,630	1953	May 13, 1953	18.26	2,040
	Sept.26, 1945	25.49	11,000				
	Sept.29, 1945	25.46	11,000	1954	May 3, 1954	26.19	10,800
1946	Oct. 1, 1945	25.94	12,900	1955	May 27, 1955	24.71	6,120
1947	Apr. 14, 1947	25.69	8,350	1956	Oct. 3, 1955	21.09	2,630
	Apr. 26, 1947	24.55	5,480				
	May 17, 1947	25.20	6,800	1957	May 2, 1957	24.10	5,100
					May 18, 1957	25.60	9,000
1948	June 23, 1948	26.68	12,200		May 23, 1957	25.09	7,200
	June 27, 1948	25.44	7,390		May 26, 1957	25.75	9,900
	July 18, 1948	26.54	11,400		June 2, 1957	24.10	5,100
	Aug. 13, 1948	25.79	8,690		June 13, 1957	26.81	15,600
					June 19, 1957	25.50	8,600
1949	Jan. 24, 1949	25.30	7,090				
	Feb. 14, 1949	24.35	5,200	1958	Mar. 10, 1958	24.29	5,360
	May 20, 1949	24.58	5,480		Mar. 24, 1958	25.64	9,000
					Apr. 4, 1958	25.75	9,900
1950	June 4, 1950	24.85	5,840				

1745. Caney River at Bartlesville, Okla.

Location.--Lat 36°45', long 95°58', in SE¼NE¼ sec.7, T.26 N., R.13 E., near right bank on downstream side of pier of bridge on U. S. Highway 60 at Bartlesville, 0.7 mile downstream from Coon Creek, 3.2 miles upstream from Sand Creek, and at mile 67.0.

Drainage area.--1,465 sq mi; at site 2.5 miles upstream, 1,392 sq mi.

Gage.--Nonrecording prior to Oct. 1, 1949, at site 2.5 miles upstream at datum 0.53 ft higher; recording Oct. 1, 1949, to Sept. 30, 1956. Datum of last used gage is 634.80 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined at present site by current-meter measurements throughout range in stage. Defined at upstream site for within-bank flow only.

Bankfull stage.--29 ft; at site 2.5 miles upstream, 13 ft.

Historical data.--Peaks prior to 1937 are from floodmarks noted by water superintendent and tied in by levels by the Corps of Engineers.

Remarks.--Considerable regulation since February 1950 by Hulah Reservoir (capacity, 295,100 acre-ft) 29.2 miles above station. Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 6,000 cfs. Only annual peak stages are shown prior to 1950.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1918	May 7, 1918	23.3	-	1948	July 19, 1948	18.30	-
1927	Oct. 3, 1926	a41.80	-	1949	Jan. 25, 1949	14.20	-
1928	Oct. 3, 1927	22.2	-	1950	June 5, 1950	29.25	10,400
					June 11, 1950	24.80	8,050
1929	Apr. 21, 1929	21.8	-		July 21, 1950	35.62	26,400
					Aug. 2, 1950	32.98	16,000
1935	June 19, 1935	18.3	-		Aug. 7, 1950	27.32	9,320
					Aug. 18, 1950	27.60	9,480
1937	Oct. 11, 1936	17.7	-				
				1951	May 2, 1951	24.32	7,800
1938	May 25, 1938	15.73	-		May 4, 1951	23.92	7,600
					May 24, 1951	21.74	6,580
1939	May 22, 1939	7.61	-		July 2, 1951	34.44	21,300
					July 16, 1951	21.67	6,580
1940	June 11, 1940	8.21	-		Sept.24, 1951	23.27	7,300
1941	June 11, 1941	17.85	-	1952	Nov. 12, 1951	22.38	6,900
					Mar. 18, 1952	20.75	6,180
1942	Apr. 21, 1942	18.63	-				
				1953	June 6, 1953	13.93	3,280
1943	May 19, 1943	23.40	-				
				1954	May 2, 1954	27.20	7,300
1944	Apr. 11, 1944	a41.07	-		May 4, 1954	20.48	6,040
1945	Apr. 17, 1945	19.18	-	1955	May 26, 1955	24.15	6,550
1946	Oct. 2, 1945	21.32	-	1956	Oct. 7, 1955	11.76	2,580
1947	Apr. 15, 1947	18.65	-				

a Last used site and datum.

1755. Caney River near Ramona, Okla.
(Published as "near Collinsville" October 1935 to February 1939)

Location.--Lat 36°30'30", long 95°50'30", in NE¼NW¼ sec.5, T.23 N., R.14 E., near right bank on downstream side of pier of county highway bridge, 1 mile upstream from Buck Creek, 2½ miles downstream from Double Creek, 4½ miles southeast of Ramona, and at mile 32.0.

Drainage area.--1,955 sq mi; at former site, 2,046 sq mi.

Gage.--Nonrecording prior to Feb.16, 1946; recording thereafter. Prior to Feb. 28, 1939, at site 16.2 miles downstream at datum 21.41 ft lower. Datum of present gage is 586.43 ft above mean sea level, datum of 1929.

Stage-discharge relation.--At Collinsville site, defined by current-meter measurements below 13,000 cfs and extended to 18,000 cfs on basis of current-meter measurements made in earlier years. At present site, defined by current-meter measurements to maximum discharge for period of record.

Bankfull stage.--Present site, 27 ft; former site, 28 ft.

Remarks.--Some regulation since February 1950 by Hulah Reservoir 64.2 miles upstream (capacity, 295,100 acre-ft). Data for peaks prior to 1935 and for 1943 and 1945 are from files of the Corps of Engineers. Records since 1948 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 5,000 cfs. Only annual peaks are shown prior to 1937.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	October 1926	39.0	-	1949	Jan. 18, 1949	24.10	7,300
					Jan. 27, 1949	27.79	9,740
1929	Apr. 24, 1929	33.4	-		Feb. 10, 1949	23.40	6,930
					Feb. 16, 1949	26.50	8,690
1930	May 4,5, 1930	32.7	-		May 22, 1949	28.00	10,100
					July 6, 1949	19.61	5 160
1931	July 21, 1931	20.4	5,000		July 13, 1949	19.70	5,210
					Sept.21, 1949	22.77	6,630
1932	Nov. 27, 1931	30.6	-				
				1950	Apr. 29, 1950	21.35	5,970
1935	June 1935	33.5	29,000		May 11, 1950	27.80	9,300
					May 26, 1950	23.50	6,980
1936	June 8, 1936	27.85	10,200		June 6, 1950	27.37	10,100
					June 12, 1950	23.60	7,040
1937	Oct. 13, 1936	32.05	18,000		July 23, 1950	29.42	21,800
	Nov. 4, 1936	22.67	6,460		Aug. 4, 1950	29.10	16,700
	Jan. 30, 1937	21.1	5,500		Aug. 20, 1950	26.85	8,870
	June 12, 1937	26.24	8,800				
	June 17, 1937	22.97	6,640	1951	May 3, 1951	24.14	7,300
	July 22, 1937	22.30	6,220		May 25, 1951	21.27	5,930
					June 22, 1951	20.23	5,430
1938	Apr. 2, 1938	31.27	13,100		July 5, 1951	29.02	15,700
	May 8, 1938	23.3	6,540		July 17, 1951	21.86	6,200
	May 25, 1938	30.0	11,400		July 22, 1951	20.54	5,560
	June 9, 1938	21.26	5,480				
	June 14, 1938	26.06	8,250	1952	Nov. 12, 1951	26.13	8,810
	Aug. 17, 1938	20.4	5,030		Mar. 11, 1952	24.00	7,610
					Mar. 19, 1952	21.47	6,350
1943	May 21, 1943	39.8	-		Apr. 23, 1952	19.25	5,280
1945	Oct. 7, 1944	28.88	15,600	1953	May 12, 1953	22.28	7,050
	Mar. 16, 1945	28.14	9,850				
	Mar. 22, 1945	22.10	6,040	1954	May 3, 1954	26.69	9,340
	Mar. 28, 1945	28.45	11,400				
	Apr. 13, 1945	23.26	6,660	1955	May 13, 1955	18.80	5,360
	Apr. 19, 1945	29.28	21,600		May 21, 1955	20.75	6,300
	Apr. 26, 1945	21.87	5,940		May 29, 1955	25.50	8,650
	May 11, 1945	21.25	5,610		June 15, 1955	18.42	5,180
	July 3, 1945	28.50	11,700				
				1956	Oct. 8, 1955	11.54	2,570
1946	Oct. 3, 1945	30.12	38,500				
	Jan. 6, 1946	27.07	8,850	1957	Apr. 22, 1957	22.90	6,600
	Jan. 11, 1946	20.44	5,260		May 2, 1957	26.70	9,730
	Feb. 20, 1946	22.87	6,450		May 14, 1957	19.85	5,860
					May 18, 1957	29.20	14,600
1947	Apr. 18, 1947	29.06	17,600		May 27, 1957	29.17	14,400
	Apr. 27, 1947	26.41	8,390		June 3, 1957	28.90	12,600
	May 20, 1947	27.82	9,410		June 12, 1957	29.69	36,700
					June 20, 1957	28.07	11,500
1948	Apr. 27, 1948	26.02	8,150		June 25, 1957	29.11	16,000
	May 13, 1948	24.90	7,520				
	June 26, 1948	29.30	19,900	1958	Mar. 14, 1958	19.25	5,590
	July 13, 1948	26.65	8,520		Mar. 24, 1958	22.13	7,000
	July 21, 1948	28.94	14,800		Apr. 7, 1958	22.65	7,250
	Aug. 17, 1948	28.44	11,300		July 14, 1958	19.06	5,540

1760. Verdigris River near Claremore, Okla.

Location.--Lat 36°18'30", long 95°41'40", in SE¼SW¼ sec.10, T.21 N., R.15 E., near left bank on downstream side of pier of bridge on State Highway 20, 2.3 miles downstream from Caney River, 4½ miles west of Claremore, 12.4 miles upstream from Bird Creek, and at mile 76.0.

Drainage area.--6,534 sq mi.

Gage.--Nonrecording prior to Feb. 24, 1939; recording thereafter. Datum of gage is 538.62 ft above mean sea level, datum of 1929 (levels by Corps of Engineers)

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--38 ft.

Remarks.--Some regulation since April 1949 by Fall River Reservoir on Fall River (capacity, 263,000 acre-ft) and since February 1950 by Hulah Reservoir on Caney River (capacity, 295,100 acre-ft). Records since 1950 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 24,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	June 1935	46.2	a64,200	1946	Oct. 4, 1945	46.98	73,000
					Jan. 7, 1946	38.90	31,800
1936	Sept.28, 1936	33.95	29,500	1947	Apr. 20, 1947	44.51	53,000
1937	Oct. 11, 1936	41.20	38,700		Apr. 26, 1947	38.29	32,300
	Nov. 4, 1936	30.10	24,800		May 24, 1947	35.56	28,800
	June 13, 1937	35.30	31,100				
	July 22, 1937	31.70	26,700	1948	June 27, 1948	46.41	61,000
					July 15, 1948	37.91	30,400
1938	Mar. 31, 1938	38.12	34,600		July 23, 1948	44.80	50,400
	May 29, 1938	42.10	39,900		Aug. 15, 1948	36.15	28,600
1939	May 13, 1939	28.96	23,600	1949	Jan. 18, 1949	34.39	26,700
					Jan. 25, 1949	37.78	30,000
1940	Apr. 21, 1940	18.20	12,200		Feb. 17, 1949	39.03	31,000
					May 21, 1949	38.58	30,800
1941	Apr. 22, 1941	44.46	48,200		June 10, 1949	31.91	24,400
	June 14, 1941	44.30	45,100				
	Sept.12, 1941	38.58	29,400	1950	May 11, 1950	31.15	28,400
					June 4, 1950	33.30	26,000
1942	Oct. 8, 1941	45.83	52,800		July 23, 1950	40.00	37,200
	Oct. 18, 1941	39.88	31,600		July 30, 1950	30.30	25,200
	Nov. 2, 1941	46.60	64,200		Aug. 4, 1950	32.58	24,700
	Apr. 12, 1942	41.41	34,900				
	Apr. 23, 1942	42.82	38,300	1951	July 6, 1951	46.95	74,900
	June 26, 1942	43.63	41,300		July 20, 1951	44.16	51,900
	Sept. 9, 1942	34.27	26,400				
				1952	Nov. 13, 1951	32.72	26,200
1943	May 13, 1943	46.55	68,000		Mar. 12, 1952	34.04	27,600
	May 21, 1943	55.05	182,000				
	June 7, 1943	34.86	28,000	1953	May 12, 1953	21.12	14,500
	June 28, 1943	34.31	27,300				
				1954	May 4, 1954	38.12	32,900
1944	Mar. 16, 1944	34.26	25,800				
	Mar. 23, 1944	34.43	27,400	1955	May 30, 1955	33.32	26,800
	Apr. 13, 1944	47.23	85,200				
	Apr. 30, 1944	41.47	36,600	1956	Oct. 4, 1955	21.47	14,700
1945	Oct. 1, 1944	35.10	28,200	1957	May 22, 1957	43.96	47,500
	Oct. 7, 1944	41.40	36,400		June 5, 1957	41.98	37,900
	Dec. 10, 1944	38.37	32,200		June 15, 1957	46.51	68,500
	Mar. 16, 1945	37.54	30,400		June 25, 1957	38.36	35,800
	Mar. 29, 1945	38.10	32,800				
	Apr. 21, 1945	47.14	81,400	1958	Mar. 27, 1958	33.82	30,800
	July 1, 1945	37.14	30,100		Apr. 6, 1958	30.10	25,800

a Annual peak only.

1765. Bird Creek at Avant, Okla.

Location.--Lat 36°29', long 96°04', in NW¼ sec.7, T.23 N., R.12 E., near left bank on downstream side of pier of county highway bridge at Avant, 1½ miles upstream from Candy Creek and at mile 54.2.

Drainage area.--364 sq mi.

Gage.--Recording. Datum of gage is 651.28 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 17,000 cfs and extended to maximum for period of record.

Bankfull stage.--17 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 6,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	May 1943	29.6	-	1951	June 21, 1951	16.17	11,200
					June 30, 1951	16.14	11,100
1945	Sept.30, 1945	21.66	a15,600		July 13, 1951	13.57	9,650
					Sept. 5, 1951	6.35	6,040
1946	May 9, 1946	7.21	6,920		Sept.24, 1951	9.65	7,980
1947	Oct. 23, 1946	8.09	7,440	1952	Nov. 12, 1951	13.71	9,700
	Nov. 2, 1946	6.85	6,520		Mar. 10, 1952	9.58	7,980
	Apr. 25, 1947	10.32	8,190		May 23, 1952	12.70	9,200
	May 16, 1947	14.97	10,400				
	June 23, 1947	10.18	8,160	1953	May 12, 1953	17.15	11,900
1948	Apr. 25, 1948	17.09	11,800	1954	May 2, 1954	16.72	11,500
	June 22, 1948	11.80	7,890				
	June 26, 1948	20.47	14,500	1955	May 12, 1955	7.80	7,320
	July 11, 1948	12.16	8,950		May 20, 1955	14.24	9,970
	July 15, 1948	13.43	9,550		May 23, 1955	7.70	7,270
	Aug. 14, 1948	9.09	7,830		May 26, 1955	9.66	8,010
1949	Jan. 23, 1949	9.10	7,830	1956	Oct. 5, 1955	3.69	1,320
	May 19, 1949	14.80	10,300				
	May 21, 1949	11.68	8,730	1957	Apr. 21, 1957	11.36	7,630
	July 9, 1949	10.97	8,450		Apr. 23, 1957	8.17	6,810
					May 17, 1957	23.16	18,700
1950	Apr. 29, 1950	13.37	9,550		May 21, 1957	19.55	15,000
	May 10, 1950	14.84	10,300		May 22, 1957	11.88	8,690
	May 26, 1950	18.77	13,100		May 25, 1957	25.35	21,100
	June 10, 1950	7.82	7,320		June 1, 1957	16.23	11,900
	July 10, 1950	12.10	8,900		June 10, 1957	9.94	7,880
	July 19, 1950	11.98	8,850		June 12, 1957	29.00	25,400
	Aug. 1, 1950	20.28	14,300		June 18, 1957	18.40	14,800
	Aug. 18, 1950	16.44	11,300		June 23, 1957	24.38	21,100
1951	May 1, 1951	13.13	9,400	1958	Mar. 23, 1958	5.25	4,100

a Annual peak only, may have been exceeded in July 1945.

1770. Hominy Creek near Skiatook, Okla.

Location.--Lat 36°21', long 96°07', in SE¼ sec.27, T.22 N., R.11 E., on left bank 50 ft downstream from bridge on State Highway 20, 1 mile upstream from Tall Chief Creek, 6 miles west of Skiatook, and at mile 16.8.

Drainage area.--340 sq mi.

Gage.--Nonrecording prior to May 26, 1945; recording thereafter. Datum of gage is 619.66 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 9,000 cfs and extended above on basis of velocity-area studies.

Bankfull stage.--28 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 5,000 cfs.

Peak stages and discharges of Hominy Creek near Skiatook, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	May 1943	35.0	-	1950	July 11, 1950	31.04	8,800
					Aug. 5, 1950	27.90	5,950
1944	Apr. 11, 1944	27.41	8,210				
				1951	June 22, 1951	31.30	9,160
1945	Dec. 5, 1944	26.40	7,430		July 1, 1951	27.28	5,610
	Mar. 15, 1945	28.00	a8,690		July 15, 1951	25.95	5,000
	Apr. 15, 1945	26.60	7,220				
	July 2, 1945	25.50	6,240	1952	Nov. 12, 1951	24.35	5,140
1946	Oct. 1, 1945	33.60	12,900	1953	May 3, 1953	24.07	5,000
	Jan. 9, 1946	25.23	5,280				
				1954	May 2, 1954	25.47	5,640
1947	Apr. 25, 1947	26.65	5,770				
	May 16, 1947	30.64	8,360	1955	May 21, 1955	23.92	4,920
1948	Apr. 26, 1948	26.78	5,360	1956	Oct. 5, 1955	11.30	1,240
	June 22, 1948	32.61	10,800				
	July 16, 1948	31.98	9,400	1957	Apr. 21, 1957	29.80	7,690
					May 17, 1957	30.48	8,390
1949	May 19, 1949	31.63	9,520		May 21, 1957	34.42	13,200
	May 22, 1949	27.30	5,610		May 25, 1957	32.43	10,600
	May 24, 1949	27.27	5,610		June 2, 1957	30.20	8,090
	July 10, 1949	35.06	14,200		June 13, 1957	31.94	9,970
					June 24, 1957	33.14	11,500
1950	May 11, 1950	30.26	8,030				
	May 26, 1950	29.93	7,610	1958	Mar. 24, 1958	22.60	3,630

a Maximum peak discharge; maximum discharge during year, 12,800 cfs at 12 p.m. Sept. 30, 1945, stage rising.

1775. Bird Creek near Sperry, Okla.

Location.--Lat 36°17', long 95°57', on south line of sec.20, T.21 N., R.13 E., on downstream side of right pier of county highway bridge, 1½ miles upstream from Delaware Creek, 2.4 miles downstream from Hominy Creek, 2½ miles southeast of Sperry, and at mile 25.0.

Drainage area.--905 sq mi.

Gage.--Recording. Datum of gage is 579.43 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 43,000 cfs and extended above on basis of current-meter measurement in main-channel during maximum flow and computation of overflow discharge.

Bankfull stage.--21 ft.

Historical data.--According to local residents, flood in 1915 reached a stage similar to that of Oct. 31, 1941.

Remarks.--Records since 1948 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 11,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	May 13, 1939	17.48	10,100	1943	May 10, 1943	30.25	52,100
					May 18, 1943	31.68	86,500
1940	Sept. 5, 1940	19.53	11,300		June 5, 1943	26.68	17,700
1941	Apr. 16, 1941	19.86	11,500	1944	Mar. 16, 1944	23.49	13,500
	June 11, 1941	28.46	23,000		Apr. 11, 1944	28.22	22,000
1942	Oct. 5, 1941	22.79	12,800	1945	Dec. 6, 1944	23.16	13,200
	Oct. 17, 1941	25.77	16,200		Mar. 16, 1945	25.17	15,200
	Oct. 25, 1941	24.19	14,200		Apr. 16, 1945	26.74	17,500
	Oct. 27, 1941	23.08	13,100		July 2, 1945	28.73	25,200
	Oct. 31, 1941	30.14	45,700		Sept.26, 1945	22.65	11,900
	Apr. 8, 1942	28.56	24,000				
	Apr. 10, 1942	27.22	18,600	1946	Oct. 1, 1945	28.84	24,300
	Apr. 20, 1942	28.93	27,500				
	June 22, 1942	29.31	31,900	1947	Apr. 26, 1947	22.32	11,000
	Sept.19, 1942	23.28	13,300		May 17, 1947	25.48	14,200

Peak stages and discharges of Bird Creek near Sperry, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	June 23, 1948	27.29	16,600	1954	May 3, 1954	23.10	11,800
	June 27, 1948	23.62	11,400				
	July 17, 1948	24.77	12,400	1955	May 21, 1955	20.40	10,600
1949	May 20, 1949	26.55	15,000	1956	Oct. 5, 1955	4.70	1,930
1950	May 11, 1950	26.65	15,000	1957	Apr. 22, 1957	21.90	11,200
	May 27, 1950	26.10	14,100		May 18, 1957	26.89	15,500
					May 22, 1957	27.20	17,100
1951	June 23, 1951	25.58	13,400		May 26, 1957	28.46	24,700
	July 1, 1951	23.50	11,300		June 2, 1957	24.83	13,600
					June 13, 1957	29.03	31,400
1952	Mar. 11, 1952	19.33	8,790		June 19, 1957	22.72	11,800
					June 24, 1957	28.35	23,800
1953	May 13, 1953	20.90	9,640				
				1958	Mar. 24, 1958	15.84	7,180

1780. Bird Creek near Owasso, Okla.

Location.--Lat 36°14'50", long 95°52'00", on east line NE¼ sec.1, T.20 N., R.13 E., on upstream handrail near center of bridge on U. S. Highway 75, half a mile upstream from Ranch Creek, 1½ miles southwest of Owasso, and 14 miles upstream from mouth.

Drainage area.--1,022 sq mi.

Gage.--Nonrecording. Datum of gage is 559.03 ft above mean sea level (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by occasional current-meter measurements but backwater effect from Verdigris River makes high-water record uncertain.

Bankfull stage.--21 ft.

Remarks.--Peak-stage data prior to 1935 furnished by Corps of Engineers. Base for partial-duration series, 11,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	Oct. 25, 1908	34.0	-	1932	Nov. 24, 1931	21.0	12,000
1927	Apr. 15, 1927	28.5	-	1935	June 1935	26.2	16,900
1929	Apr. 15, 1929	26.3	17,000	1936	Sept.27, 1936	17.14	8,490
1930	May 1, 1930	23.7	14,400	1937	Oct. 8, 1936	24.76	15,500
1931	May 4, 1931	19.2	12,200	1938	Mar. 29, 1938	26.2	19,700
					Aug. 17, 1938	21.0	14,500

1786. Verdigris River near Inola, Okla.

Location.--Lat 36°10', long 95°37', near northwest corner of sec.4, T.19 N., R.16 E., near right bank on downstream side of pier of bridge on State Highway 33, 6 miles downstream from Dog Creek, 6 miles west of Inola, and at mile 48.8.

Drainage area.--7,911 sq mi.

Gage.--Nonrecording prior to Oct. 1, 1946; recording thereafter. Datum of gage is 506.87 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements. Peaks prior to 1945 obtained from rating defined by several discharge measurements in 1943.

Bankfull stage.--42 ft.

Remarks.--Some regulation since April 1949 by Fall River Reservoir (capacity, 263,000 acre-ft) on Fall River and since February 1950 by Hulah Reservoir (capacity, 295,100 acre-ft) on Caney River. Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 23,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	Sept. 5, 1940	30.8	16,300	1947	May 25, 1947	42.39	31,700
1941	Nov. 27, 1940	39.76	27,600	1948	June 27, 1948	52.40	77,000
	Apr. 23, 1941	49.79	49,800		July 25, 1948	49.02	49,000
	June 15, 1941	49.39	47,600		Aug. 16, 1948	42.86	32,500
	Sept.12, 1941	44.06	34,800				
				1949	Jan. 19, 1949	39.00	26,700
1942	Oct. 8, 1941	50.83	63,000		Jan. 26, 1949	42.92	32,500
	Oct. 19, 1941	47.32	41,400		Feb. 18, 1949	43.55	33,600
	Nov. 1, 1941	52.00	105,000		May 23, 1949	46.46	38,900
	Apr. 13, 1942	48.18	43,700		June 11, 1949	38.28	25,800
	Apr. 23, 1942	49.22	46,700				
	June 26, 1942	48.82	45,400	1950	May 12, 1950	43.31	32,400
	Sept. 8, 1942	40.27	28,300		May 28, 1950	39.41	26,700
	Sept.20, 1942	37.41	24,100		June 5, 1950	39.18	28,300
					July 23, 1950	43.55	34,300
1943	Dec. 30, 1942	37.73	24,500		Aug. 3, 1950	40.72	29,800
	May 12, 1943	51.80	98,000				
	May 21, 1943	54.93	224,000	1951	Feb. 21, 1951	34.43	23,500
	June 7, 1943	41.10	29,600		June 24, 1951	37.97	29,000
					July 8, 1951	52.32	69,200
1944	Mar. 17, 1944	43.25	33,200				
	Mar. 23, 1944	41.00	29,400	1952	Nov. 14, 1951	39.28	30,200
	Apr. 14, 1944	50.64	57,700		Mar. 12, 1952	40.78	32,400
	May 4, 1944	46.60	39,800				
				1953	Apr. 24, 1953	32.20	23,000
1945	Oct. 1, 1944	40.77	29,100				
	Oct. 8, 1944	45.40	37,300	1954	May 5, 1954	43.03	37,100
	Dec. 11, 1944	43.30	33,300				
	Mar. 18, 1945	44.50	35,600	1955	May 30, 1955	37.68	29,500
	Mar. 30, 1945	42.70	32,300				
	Apr. 22, 1945	51.70	94,500	1956	Oct. 6, 1955	a25.90	13,600
	July 5, 1945	44.30	35,200				
				1957	Apr. 24, 1957	39.33	29,800
1946	Oct. 4, 1945	51.65	86,100		May 2, 1957	35.47	25,900
	Jan. 8, 1946	43.94	33,800		May 25, 1957	51.50	67,000
	Feb. 20, 1946	37.10	23,400		June 16, 1957	52.75	85,900
1947	Apr. 11, 1947	43.05	32,800	1958	Mar. 15, 1958	33.83	24,900
	Apr. 22, 1947	48.74	44,400		Mar. 28, 1958	38.28	31,200
	Apr. 28, 1947	45.38	36,800		Apr. 6, 1958	34.70	26,100

a Occurred Oct. 4, affected by backwater.

1850. Neosho River near Commerce, Okla.

Location.--Lat 36°56', long 94°57', in SW¼SE¼ sec.5, T.28 N., R.22 E., on downstream side of left pier of county highway bridge, 1¾ miles upstream from Mud Creek, 1¾ miles downstream from Four Mile Creek, 4½ miles west of Commerce, and at mile 153.4.

Drainage area.--5,876 sq mi.

Gage.--Recording. Datum of gage is 748.97 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--15 ft.

Remarks.--Base for partial-duration series, 18,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1904	June 1904	a21.5	a55,000	1948	June 24, 1948	23.38	85,000
					July 13, 1948	17.34	25,300
1927	April 1927	a21.1	a50,000		July 28, 1948	24.43	93,200
1935	May 1935	20.8	a46,000	1949	Jan. 17, 1949	17.78	26,500
					Jan. 25, 1949	17.95	27,000
1938	May 1938	19.8	a36,400		Feb. 17, 1949	18.23	28,500
					May 20, 1949	15.54	21,400
1940	Apr. 19, 1940	12.28	14,900		May 26, 1949	14.17	18,900
					July 8, 1949	16.35	23,300
1941	Apr. 19, 1941	20.08	36,800		Sept.19, 1949	13.6	18,200
	June 11, 1941	20.26	38,400				
	Sept.11, 1941	19.44	31,900	1950	June 3, 1950	15.49	20,800
					July 12, 1950	14.92	19,600
1942	Oct. 7, 1941	21.08	49,100		July 15, 1950	14.79	19,400
	Oct. 18, 1941	19.02	31,000		July 21, 1950	20.08	37,500
	Nov. 1, 1941	22.06	64,800		Sept. 2, 1950	14.38	18,700
	Apr. 11, 1942	18.78	29,800				
	June 23, 1942	19.31	32,800	1951	May 9, 1951	15.20	20,800
	Sept. 7, 1942	16.07	20,900		May 24, 1951	15.84	22,000
					June 13, 1951	15.01	20,400
1943	Dec. 28, 1942	17.86	25,000		July 3, 1951	20.51	42,000
	May 12, 1943	20.63	44,200		July 15, 1951	-	267,000
	May 20, 1943	25.12	105,000		July 16, 1951	34.03	-
	June 5, 1943	15.06	20,200		Aug. 30, 1951	15.59	21,600
	June 25, 1943	18.57	27,200		Sept.14, 1951	20.68	48,400
1944	Mar. 22, 1944	18.93	31,600	1952	Nov. 13, 1951	15.98	22,400
	Apr. 12, 1944	20.00	41,300		Mar. 11, 1952	16.04	22,400
	Apr. 29, 1944	21.85	70,000				
	June 22, 1944	16.16	22,100	1953	May 13, 1953	5.57	4,500
	Aug. 27, 1944	15.56	21,100				
	Sept.30, 1944	17.00	23,400	1954	May 4, 1954	18.04	27,000
1945	Oct. 5, 1944	18.50	29,200	1955	Oct. 12, 1954	14.36	19,300
	Dec. 16, 1944	18.72	30,400		May 29, 1955	17.11	24,800
	Mar. 16, 1945	15.70	20,800		June 28, 1955	16.16	22,800
	Mar. 21, 1945	17.90	25,600				
	Mar. 29, 1945	14.49	18,700	1956	Oct. 5, 1955	10.98	13,300
	Apr. 23, 1945	22.17	73,300				
	July 3, 1945	17.34	23,800	1957	May 25, 1957	19.71	36,200
	Sept.27, 1945	20.22	39,800		June 3, 1957	18.82	29,700
					June 16, 1957	20.22	41,000
1946	Oct. 2, 1945	19.22	32,200				
	Jan. 8, 1946	19.14	31,600	1958	Mar. 10, 1958	15.97	22,400
					Mar. 25, 1958	17.74	26,300
1947	Apr. 21, 1947	18.43	27,600		Apr. 5, 1958	17.05	24,600
	Apr. 26, 1947	17.94	25,600		May 6, 1958	14.58	19,800
	May 22, 1947	16.41	22,700		July 14, 1958	20.05	39,000
	June 1, 1947	13.78	18,000		July 18, 1958	17.86	26,800
					July 28, 1958	14.76	20,000
1948	Mar. 24, 1948	16.30	23,100				

a Annual peak only.

1870. Shoal Creek above Joplin, Mo.
(Published as "near Joplin" prior to 1942)

Location.--Lat 37°00'45", long 94°28'45", in NE¼ sec.1, T.26 N., R.33 W., at bridge on U. S. Highway 71, 4 miles southeast of Joplin, 6 miles downstream from Baynham Branch, and 15.0 miles above mouth.

Drainage area.--410 sq mi; 439 sq mi prior to Oct. 1, 1941.

Gage.--Nonrecording prior to Apr. 25, 1934; recording thereafter. At site 5.0 miles downstream prior to Oct. 1, 1941. At datum 44.21 ft lower prior to Apr. 25, 1934. At datum 45.21 ft lower Apr. 25, 1934, to Sept. 30, 1941. Datum of present gage is 902.37 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 41,000 cfs at former site. Defined by current-meter measurements at present site. Shifts in relation occur.

Bankfull stage.--10 ft.

Remarks.--Records for sites "near" and "above" Joplin considered equivalent for flood-frequency study. Base for partial-duration series, 6,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	July 13, 1924	13.08	a14,200	1933	Dec. 25, 1932	12.33	9,930
					May 14, 1933	13.0	11,900
1925	Apr. 9, 1925	4.83	2,580				
				1934	Oct. 23, 1933	3.16	1,260
1926	Sept. 6, 1926	8.33	6,230				
				1935	Mar. 12, 1935	18.25	20,100
1927	Apr. 15, 1927	12.33	12,700		June 8, 1935	16.24	15,100
	Apr. 19, 1927	12.42	12,900				
	Aug. 8, 1927	10.50	9,550	1936	Sept.27, 1936	8.88	5,220
	Aug. 18, 1927	8.70	6,780				
				1937	June 10, 1937	8.92	5,330
1928	June 2, 1928	8.70	6,430				
	June 10, 1928	13.83	15,100	1938	June 8, 1938	10.10	6,610
	June 19, 1928	13.83	15,100				
	June 21, 1928	12.75	13,200	1939	May 13, 1939	8.35	4,420
	June 28, 1928	9.00	6,850				
	Aug. 5, 1928	11.50	11,000	1940	Aug. 18, 1940	4.78	1,630
1929	Apr. 9, 1929	9.42	7,450	1941	Apr. 19, 1941	28.0	54,000
	Apr. 21, 1929	11.50	11,000				
	May 9, 1929	9.08	7,000	1942	Oct. 5, 1941	11.86	11,500
	May 13, 1929	12.92	13,400				
	May 18, 1929	9.17	7,150	1943	May 10, 1943	12.16	16,600
	June 3, 1929	8.42	6,020		May 18, 1943	16.8	62,100
1930	Sept.10, 1930	13.92	15,200	1944	June 20, 1944	10.0	7,260
	Sept.16, 1930	10.92	9,930				
				1945	Apr. 13, 1945	13.3	24,800
1931	July 26, 1931	6.33	3,760		Apr. 15, 1945	12.8	21,000
					May 10, 1945	11.57	14,000
1932	June 2, 1932	9.00	6,850		May 17, 1945	10.35	8,650
	June 27, 1932	15.00	17,200		Sept.24, 1945	12.84	20,400

a Annual peak only.

Peak stages and discharges of Shoal Creek above Joplin, Mo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	May 31, 1946	10.56	9,840	1952	Aug. 22, 1952	7.68	3,110
1947	Apr. 10, 1947	10.80	10,300	1953	Mar. 15, 1953	6.10	1,300
	Apr. 25, 1947	12.73	20,400				
				1954	Sept.30, 1954	8.36	4,150
1948	June 23, 1948	9.36	6,070				
	July 26, 1948	9.90	7,440	1955	Mar. 21, 1955	9.96	7,740
1949	June 14,15,1949	8.07	3,620	1956	May 16, 1956	10.00	7,740
1950	Jan. 14, 1950	9.57	6,570	1957	May 22, 1957	11.85	15,000
	Aug. 5, 1950	10.75	10,500		May 25, 1957	12.03	16,100
	Aug. 27, 1950	13.6	27,300		June 10, 1957	12.04	16,100
1951	June 30, 1951	10.87	10,900	1958	July 26, 1958	10.34	8,100

1880. Spring River near Quapaw, Okla.

Location.--Lat 36°56', long 94°45', in center SW¼ sec.5, T.28 N., R.24 E., near center of span on downstream side of pier of county highway bridge, an eighth of a mile upstream from Rock Creek, 3 miles southeast of Quapaw, and at mile 13.9.

Drainage area.--2,510 sq mi, includes that of Rock Creek.

Gage.--Recording. Datum of gage is 746.25 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 54,000 cfs and extended above on basis of slope-area measurement at 190,000 cfs.

Bankfull stage.--20 ft.

Historical data.--A flood in December 1895 reached a stage similar to that in 1943, from information by local Indian Chief.

Remarks.--Low and medium flow regulated by Riverton hydroelectric plant 15 miles upstream from station. Effect of regulation probably small for peaks above the base. Base for partial-duration series, 14,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	Mar. 13, 1935	a30.0	-	1944	June 21, 1944	22.77	36,100
					Aug. 27, 1944	15.85	16,200
1940	July 24, 1940	11.60	8,480				
				1945	Mar. 2, 1945	15.94	16,400
1941	Apr. 16, 1941	20.40	26,300		Mar. 20, 1945	19.37	25,600
	Apr. 20, 1941	29.66	63,200		Mar. 26, 1945	16.28	17,700
	June 11, 1941	16.83	17,300		Apr. 16, 1945	29.60	67,900
	Sept. 9, 1941	19.11	22,600		Apr. 22, 1945	19.56	28,000
					May 10, 1945	15.59	16,400
1942	Oct. 6, 1941	27.92	50,300		May 17, 1945	18.52	24,600
	Oct. 17, 1941	20.36	25,900		May 25, 1945	17.77	22,600
	Oct. 26, 1941	18.56	21,400		May 28, 1945	20.26	30,200
	Nov. 1, 1941	29.31	56,200		June 7, 1945	22.20	36,600
	Apr. 9, 1942	20.27	25,700		June 18, 1945	19.17	26,800
	June 19, 1942	17.58	19,100		Sept.25, 1945	26.81	54,300
	June 21, 1942	17.58	19,100				
	Sept. 7, 1942	17.90	19,800	1946	Oct. 22, 1945	15.56	16,700
	Sept.19, 1942	19.22	23,300		Feb. 19, 1946	15.20	15,700
					May 31, 1946	22.26	37,000
1943	Dec. 27, 1942	22.18	30,800				
	May 11, 1943	28.2	54,500	1947	Apr. 11, 1947	19.78	28,600
	May 19, 1943	43.4	190,000		Apr. 26, 1947	26.46	53,000
	May 24, 1943	19.6	24,300		May 21, 1947	14.53	14,100
	June 5, 1943	18.7	21,800				
				1948	Mar. 23, 1948	15.89	17,600
1944	Mar. 19, 1944	17.27	20,000		June 23, 1948	30.20	74,600
	Apr. 11, 1944	19.62	26,200		July 18, 1948	14.75	14,800
	May 2, 1944	15.55	15,700		July 27, 1948	21.85	35,600

a Annual peak only.

Peak stages and discharges of Spring River near Quapaw, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Jan. 24, 1949	16.83	20,100	1954	Sept.30, 1954	12.34	9,400
	Feb. 16, 1949	17.16	21,300				
	May 21, 1949	16.61	19,600	1955	Oct. 12, 1954	15.54	17,000
					Oct. 27, 1954	15.85	17,700
1950	Oct. 22, 1949	14.40	14,100		Feb. 20, 1955	15.17	16,200
	Jan. 14, 1950	16.19	18,200		June 28, 1955	20.20	29,800
	July 10, 1950	17.22	20,600				
	July 19, 1950	18.50	24,000	1956	Sept.30, 1956	14.10	12,700
	Aug. 6, 1950	16.88	19,900				
	Aug. 29, 1950	27.59	54,800	1957	Apr. 4, 1957	15.82	17,600
					Apr. 18, 1957	15.93	17,800
1951	Feb. 21, 1951	21.52	33,800		May 17, 1957	15.70	17,300
	June 22, 1951	17.97	23,500		May 23, 1957	21.37	34,900
	June 30, 1951	20.80	31,600		May 25, 1957	25.40	49,700
	July 5, 1951	18.62	25,200		June 3, 1957	20.59	32,100
	July 11, 1951	16.83	20,300		June 11, 1957	27.00	56,000
	Sept.10, 1951	17.27	21,600		June 15, 1957	21.8	36,300
	Sept.13, 1951	18.23	24,100				
				1958	Mar. 24, 1958	16.87	20,400
1952	Nov. 10, 1951	14.58	15,000		July 7, 1958	15.58	16,800
	Nov. 12, 1951	18.09	24,100		July 12, 1958	20.2	30,800
	Nov. 16, 1951	16.56	20,000		July 18, 1958	16.28	18,700
	Feb. 3, 1952	19.72	28,900		July 25, 1958	21.70	36,000
					July 28, 1958	17.2	21,300
1953	Apr. 24, 1953	12.90	11,500				

1885. Lost Creek at Seneca, Mo.

Location.--Lat 36°50', long 94°36', in SW¼SW¼ sec.36, T.25 N., R.34 W., on left bank on downstream side of Seneca Street Bridge in Seneca, half a mile upstream from Little Lost Creek and 9½ miles upstream from mouth.

Drainage area.--42 sq mi.

Gage.--Recording. Datum of gage is 839.96 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,400 cfs and extended above by logarithmic plotting.

Remarks.--Base for partial-duration series, 175 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	May 16, 1943	11.7	-	1955	Mar. 20, 1955	1.80	187
					June 27, 1955	1.96	218
1945	September 1945	11.7	-		July 6, 1955	2.29	287
					July 17, 1955	1.90	206
1949	Feb. 15, 1949	2.79	361				
	Apr. 27, 1949	2.39	252	1956	May 31, 1956	1.49	132
	Sept.13, 1949	2.08	178				
	Sept.18, 1949	2.38	252	1957	Mar. 31, 1957	2.95	596
					Apr. 3, 1957	1.98	281
1950	Jan. 13, 1950	2.37	249		Apr. 16, 1957	2.79	539
	May 11, 1950	2.15	207		Apr. 20, 1957	3.59	890
	July 10, 1950	2.33	241		May 16, 1957	1.72	213
	Aug. 27, 1950	6.78	3,280		May 21, 1957	7.54	4,690
	Sept.15, 1950	2.89	377		May 25, 1957	8.21	5,760
					May 29, 1957	2.82	539
1951	Oct. 3, 1950	2.67	301		June 2, 1957	2.65	486
	Feb. 20, 1951	3.22	488		June 9, 1957	7.20	4,270
	June 30, 1951	8.05	4,600		July 1, 1957	1.72	208
	July 10, 1951	2.48	267				
				1958	Mar. 23, 1958	2.25	361
1952	May 23, 1952	3.18	472		Mar. 30, 1958	1.70	210
					June 21, 1958	1.77	230
1953	Apr. 24, 1953	1.77	107		July 7, 1958	2.48	337
					July 25, 1958	4.46	1,420
1954	Sept.30, 1954	2.04	274		July 28, 1958	1.71	231
1955	Oct. 26, 1954	2.33	296				

1886. Neosho River near Wyandotte, Okla.
(Below Spring River, known locally as Grand River)

Location.--Lat 36°48', long 94°45', in NE¼ sec.30, T.27 N., R.24 E., at left pier of St. Louis-San Francisco Railway Co. bridge, 0.2 mile downstream from Lost Creek, 1½ miles west of Wyandotte, and at mile 130.3.

Drainage area.--8,792 sq mi.

Gage.--Nonrecording. Datum of gage is 717.56 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Not defined.

Bankfull stage.--23 ft.

Remarks.--Records furnished by U. S. Weather Bureau. Only annual peak stages are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1896	December 1895	34.0		1926	Sept. 5, 1926	19.0	
				1927	Apr. 15, 1927	29.5	
1912	Apr. 30, 1912	30.0		1928	June 22, 1928	25.5	
1913	Mar. 26, 1913	17.0		1929	Apr. 22, 1929	26.8	
1914	Feb. 20, 1914	11.4		1930	June 16, 1930	18.0	
1915	May 28, 1915	21.2					
				1931	May 20, 1931	12.2	
1916	Jan. 29, 1916	25.6		1932	June 28, 1932	14.4	
1917	June 6, 1917	9.5		1933	May 15, 1933	21.6	
1918	Apr. 29, 1918	11.0		1934	Sept.30, 1934	8.8	
1919	Nov. 8, 1918	20.0		1935	June 8, 1935	27.7	
1920	Mar. 26, 1920	18.5					
				1936	Sept.28, 1936	14.8	
1921	Apr. 27, 1921	15.2		1937	June 11, 1937	18.5	
1922	Apr. 10, 1922	23.5		1938	May 1,30,1938	20.0	
1923	June 15, 1923	24.5		1939	May 23, 1939	11.2	
1924	May 30, 1924	21.0					
1925	Nov. 16, 1924	8.6					

1890. Elk River near Tiff City, Mo.

Location.--Lat 36°38', long 94°35', in NE¼ sec.22, T.22 N., R.34 W., on downstream side of right pier of bridge on State Highway 43, three-quarters of a mile downstream from Blackfoot Branch, 2¾ miles upstream from Buffalo Creek, 3 miles southeast of Tiff City, and at mile 15.8.

Drainage area.--872 sq mi.

Gage.--Recording. Datum of gage is 750.61 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 60,000 cfs and extended on basis of slope-area measurement at 137,000 cfs.

Bankfull stage.--15 ft.

Remarks.--Base for partial-duration series, 9,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	Apr. 12, 1940	11.62	9,480	1943	Dec. 28, 1942	14.35	15,600
					Apr. 12, 1943	12.26	11,000
1941	Apr. 16, 1941	21.46	48,000		May 10, 1943	23.55	62,400
	Apr. 19, 1941	28.4	137,000		May 18, 1943	23.60	62,900
1942	Oct. 5, 1941	11.60	9,480	1944	Apr. 11, 1944	15.36	18,500
	Oct. 31, 1941	19.69	36,400		June 21, 1944	14.46	16,600
	Apr. 9, 1942	12.66	11,700				
				1945	Feb. 22, 1945	14.90	18,000
1943	Oct. 31, 1942	16.70	23,000		Mar. 3, 1945	17.54	26,200
	Nov. 6, 1942	12.99	12,400		Mar. 7, 1945	13.57	14,900

Peak stages and discharges of Elk River near Tiff City, Mo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Mar. 19, 1945	16.16	21,700	1951	Feb. 19, 1951	17.00	22,000
	Mar. 25, 1945	13.46	14,700				
	Apr. 15, 1945	23.5	63,200	1952	Aug. 22, 1952	11.85	10,300
	May 10, 1945	12.46	12,200				
	May 17, 1945	15.83	20,500	1953	Mar. 15, 1953	10.06	7,270
	May 27, 1945	11.20	10,400				
	June 18, 1945	10.61	9,320	1954	May 3, 1954	11.06	9,030
	Sept.25, 1945	12.84	13,300				
				1955	Feb. 20, 1955	14.69	16,100
1946	Feb. 14, 1946	13.79	15,200		Mar. 21, 1955	11.47	9,750
	May 25, 1946	11.22	10,400				
				1956	May 15, 1956	23.14	49,900
1947	Dec. 10, 1946	15.94	20,800				
	Apr. 11, 1947	14.29	16,500	1957	Apr. 4, 1957	18.37	23,900
	Apr. 25, 1947	16.10	21,400		May 19, 1957	12.13	10,900
					May 21, 1957	24.72	70,800
1948	Aug. 15, 1948	10 50	8,410		May 25, 1957	21.12	38,000
					June 3, 1957	12.85	12,200
1949	May 20, 1949	11.29	9,860		June 10, 1957	12.51	11,600
					June 13, 1957	11.66	10,200
1950	Jan. 14, 1950	15.13	18,500				
	May 11, 1950	21.72	45,900	1958	Mar. 24, 1958	12.75	12,200
	July 20, 1950	17.52	24,000		May 3, 1958	13.53	13,500
	Aug. 6, 1950	19.60	33,000		May 9, 1958	11.20	9,340
	Aug. 27, 1950	11.83	10,500		July 12, 1958	11.40	9,680
					July 26, 1958	18.53	26,000

1895. Neosho River near Grove, Okla.
(Below Spring River, known locally as Grand River)

Location.--Lat 36°36'45", long 94°49'25", in SE¼ sec.27, T.25 N., R.23 E., near left bank on downstream side of former bridge on State Highway 25, 3 miles downstream from Spring Branch, 3½ miles northwest of Grove, 8.2 miles downstream from Elk River, and at mile 105.4.

Drainage area.--9,969 sq mi.

Gage.--Nonrecording. Datum of gage is 666.94 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 100,000 cfs and extended above.

Bankfull stage.--24 ft.

Remarks.--Base for partial-duration series, 23,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
-	-	a33.0	125,000	1928	Oct. 3, 1927	22.00	70,600
					Feb. 7, 1928	13.43	32,000
1925	Mar. 20, 1925	10.0	19,400		Mar. 17, 1928	12.51	28,600
					Apr. 6, 1928	12.46	28,600
1926	Nov. 9, 1925	12.05	26,200		Apr. 23, 1928	18.70	55,000
	Sept. 5, 1926	23.0	72,100		Apr. 27, 1928	11.22	24,100
	Sept.22, 1926	14.50	35,600		June 2, 1928	22.62	73,500
					June 11, 1928	19.98	61,100
1927	Oct. 1, 1926	14.04	34,300		June 22, 1928	25.87	89,500
	Oct. 5, 1926	24.64	83,100		June 29, 1928	13.28	31,600
	Nov. 15, 1926	12.22	27,500		July 1, 1928	12.38	28,200
	Jan. 29, 1927	13.48	32,300		Aug. 4, 1928	20.98	65,800
	Mar. 21, 1927	16.95	47,200				
	Apr. 1, 1927	23.00	75,400	1929	Nov. 28, 1928	15.86	42,300
	Apr. 15, 1927	b34.58	133,000		Dec. 18, 1928	14.45	35,900
	Apr. 19, 1927	25.58	88,000		Jan. 11, 1929	11.70	25,800
	Apr. 25, 1927	18.26	53,200		Apr. 9, 1929	20.80	64,900
	May 8, 1927	12.54	28,600		Apr. 15, 1929	18.00	51,800
	June 22, 1927	21.56	68,700		Apr. 21, 1929	29.60	108,000
	July 23, 1927	10.98	23,400		May 9, 1929	21.38	67,700
	Aug. 4, 1927	11.30	24,400		May 13, 1929	29.50	107,000
	Aug. 10, 1927	20.10	61,600		May 19, 1929	25.40	87,000
	Aug. 19, 1927	25.10	85,500		June 4, 1929	19.20	57,300

a Floodmark found in 1925; date unknown but may have occurred in April 1912, according to Weather Bureau records at Pensacola.
b This flood probably lower than that in December 1895.

Peak stages and discharges of Neosho River near Grove, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	June 8, 1929	16.10	43,100	1935	June 18, 1935	20.9	65,300
	June 13, 1929	13.30	31,600		June 22, 1935	20.0	61,100
	June 20, 1929	13.80	33,500		June 27, 1935	14.7	37,100
	June 25, 1929	11.4	24,800				
	July 8, 1929	11.5	25,100	1936	Nov. 6, 1935	12.50	25,800
					Sept.28, 1936	19.3	57,800
1930	Feb. 5, 1930	13.10	30,800				
	Feb. 8, 1930	12.36	28,200	1937	Oct. 8, 1936	17.0	47,200
	May 1, 1930	18.75	55,500		Nov. 3, 1936	20.0	61,100
	May 12, 1930	13.75	33,500		Jan. 15, 1937	18.20	52,700
	May 18, 1930	12.05	26,800		Jan. 31, 1937	18.45	53,600
	June 13, 1930	12.15	27,500		Mar. 25, 1937	11.05	23,400
	June 16, 1930	19.7	59,700		Apr. 22, 1937	11.88	26,500
					May 24, 1937	11.49	25,100
1931	May 30, 1931	13.30	31,600		June 11, 1937	21.88	70,100
					June 16, 1937	21.0	65,800
1932	Nov. 25, 1931	13.08	30,800		July 20, 1937	11.20	24,100
	June 22, 1932	11.80	26,100		Sept.10, 1937	18.0	51,800
	June 28, 1932	15.20	39,200				
				1938	Feb. 18, 1938	15.0	38,400
1933	Dec. 25, 1932	23.28	76,300		Mar. 31, 1938	18.46	54,100
	Apr. 22, 1933	14.50	36,300		Apr. 11, 1938	12.09	27,200
	May 15, 1933	25.9	89,500		May 8, 1938	13.75	33,500
					May 30, 1938	23.85	79,200
1934	Sept.30, 1934	10.4	21,300		June 1, 1938	20.45	63,000
					June 17, 1938	17.40	49,000
1935	Nov. 23, 1934	14.20	35,100				
	Mar. 12, 1935	26.10	90,500	1939	May 14, 1939	15.6	40,900
	Mar. 25, 1935	12.32	27,900		May 23, 1939	13.98	34,300
	May 20, 1935	16.55	45,400		May 27, 1939	12.31	27,900
	June 8, 1935	34.0	130,000				

1905. Neosho River near Langley, Okla.
(Below Spring River, known locally as Grand River)

Location.--Lat 36°26', long 95°03', in SW¼NW¼ sec.27, T.23 N., R.21 E., near left bank on downstream side of pier of bridge on State Highway 82, 1½ miles southwest of Langley, 4.1 miles downstream from Pensacola Dam, 5.8 miles upstream from Big Cabin Creek, and at mile 73.4.

Drainage area.--10,335 sq mi.

Gage.--Nonrecording prior to Feb. 16, 1940; recording thereafter. Prior to Feb. 10, 1954, at site half a mile upstream. Datum of gage is 607.65 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements to 133,000 cfs and extended on basis of computation of peak outflow from Lake O' The Cherokees during 1943 flood.

Bankfull stage.--27 ft.

Historical data.--Flood of Oct. 31, 1941, was reported by local resident as being higher than that in December 1895.

Remarks.--Flow completely regulated since March 1940 by Lake O' The Cherokees (capacity, 2,197,000 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	June 1935	35.4	150,000	1949	Feb. 18, 1949	19.66	48,100
1940	Mar. 10, 1940	5.20	1,280	1950	Aug. 30, 1950	20.10	50,400
1941	Apr. 20, 1941	35.43	150,000	1951	July 18, 1951	36.25	158,000
1942	Oct. 31, 1941	36.20	158,000	1952	Nov. 13, 1951	22.11	58,700
1943	May 20, 1943	45.5	300,000	1953	Apr. 22, 1953	11.00	10,200
1944	Apr. 17, 1944	24.92	73,300	1954	July 7, 1954	9.50	10,700
1945	Apr. 16, 1945	34.24	143,000	1955	June 30, 1955	15.30	33,900
1946	Oct. 5, 1945	22.20	60,900	1956	Dec. 7, 1955	9.50	10,700
1947	Apr. 27, 1947	24.73	73,200	1957	May 25, 1957	37.6	180,000
1948	June 27, 1948	26.23	80,000	1958	July 13, 1958	21.60	62,800

1910. Big Cabin Creek near Big Cabin, Okla.

Location.--Lat 36°31', long 95°08', in NW¼SE¼ sec.35, T.24 N., R.20 E., on downstream side of right pier of county highway bridge, 2 1/3 miles upstream from Mustang Creek, 5 miles southeast of Big Cabin, and 8.5 miles upstream from mouth.

Drainage area.--466 sq mi.

Gage.--Nonrecording prior to Oct. 29, 1947; recording thereafter. Datum of gage is 622.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 32,000 cfs and extended on basis of slope-area measurement at 63,000 cfs.

Bankfull stage.--17 ft.

Historical data.--In 1941, local residents reported that the flood in 1935 was the highest in 48 years. Peak stage data prior to 1948 furnished by Corps of Engineers.

Remarks.--Records for 1948 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 9,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	June 6, 1935	30.9	41,000	1948	Aug. 15, 1948	22.40	13,400
1941	Apr. 19, 1941	27.5	27,300	1949	May 20, 1949	21.43	12,000
	June 10, 1941	27.7	28,000		June 14, 1949	20.75	11,100
1942	Oct. 5, 1941	31.1	42,000	1950	May 11, 1950	19.27	9,150
	Sept.20, 1942	23.5	15,600		May 26, 1950	20.62	10,800
					May 30, 1950	20.95	11,400
1943	May 10, 1943	32.0	46,500				
	May 18, 1943	34.96	63,000	1951	Oct. 3, 1950	19.98	10,100
					Feb. 21, 1951	20.33	10,400
1944	Mar. 16, 1944	22.4	13,400		June 30, 1951	30.76	40,700
	Apr. 9, 1944	25.0	19,300				
	Apr. 11, 1944	19.8	9,800	1952	Mar. 11, 1952	17.50	6,920
1945	Mar. 19, 1945	19.8	9,800	1953	Apr. 24, 1953	19.84	9,670
	Apr. 13, 1945	24.1	17,000				
	Apr. 16, 1945	23.0	14,500	1954	May 1, 1954	14.13	3,930
	May 10, 1945	19.3	9,150				
	Sept.25, 1945	25.5	20,800	1955	Mar. 21, 1955	18.30	7,880
1946	May 31, 1946	19.5	9,410	1956	Apr. 15, 1956	14.74	4,350
1947	Apr. 11, 1947	24.4	17,700	1957	May 1, 1957	19.66	9,860
	Apr. 25, 1947	28.25	29,900		May 17, 1957	19.40	9,470
	Apr. 27, 1947	19.8	9,800		May 21, 1957	25.65	18,900
	June 23, 1947	20.9	11,300		May 25, 1957	27.81	25,500
					June 2, 1957	19.10	9,090
1948	June 23, 1948	28.78	33,800		June 10, 1957	21.38	12,200
	June 27, 1948	21.80	12,500		June 13, 1957	23.05	14,500
	July 19, 1948	19.73	9,670				
	Aug. 13, 1948	24.87	19,800	1958	Mar. 24, 1958	19.90	10,100
					July 13, 1958	30.58	33,900

Note.--Stages for 1935 and 1941-43 are not complete as a partial-duration series.

1915. Neosho River near Chouteau, Okla.
(Below Spring River, known locally as Grand River)

Location.--Lat 36°14', long 95°14', in SE¼SE¼ sec.1, T.20 N., R.19 E., on downstream side of right pier of county highway bridge, 5.0 miles upstream from Pryor Creek, 7½ miles northeast of Chouteau, and at mile 44.7.

Drainage area.--11,546 sq mi; at former site below Pryor Creek, 11,915 sq mi.

Gage.--Nonrecording prior to Apr. 4, 1941, at site 5.7 miles downstream at datum 15.46 ft lower; recording thereafter at present site and datum. Datum of present gage is 551.83 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 140,000 cfs and extended on basis of slope-area measurement at 400,000 cfs. Peak discharges since 1950 computed from 1950 rating curve.

Bankfull stage.--25 ft.

Remarks.--Flow regulated since 1940 by Lake O' The Cherokees (capacity, 2,197,000 acre-ft) 32.3 miles upstream. Records for 1937-39 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 30,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Apr. 19, 1927	44.5	a165,000	1943	June 25, 1943	16.96	47,700
					June 29, 1943	14.42	33,800
1938	Feb. 18, 1938	23.40	66,800				
	Mar. 31, 1938	24.07	71,000	1944	Mar. 23, 1944	14.43	33,800
	May 9, 1938	16.85	34,900		Mar. 29, 1944	13.88	31,000
	May 31, 1938	26.18	83,600		Apr. 11, 1944	20.30	68,000
	June 10, 1938	20.63	52,700		Apr. 18, 1944	21.09	72,500
	June 18, 1938	20.80	53,700		Apr. 23, 1944	15.62	43,100
					May 2, 1944	20.89	71,500
1939	May 14, 1939	21.00	54,700		May 6, 1944	20.79	71,000
	May 21, 1939	15.76	30,900		June 22, 1944	15.60	43,100
	May 23, 1939	17.35	37,300				
				1945	Mar. 8, 1945	13.80	31,700
1940	Apr. 29, 1940	8.6	6,100		Mar. 19, 1945	18.12	57,000
					Mar. 25, 1945	17.47	53,800
1941	Apr. 20, 1941	35.10	186,000		Apr. 16, 1945	35.00	164,000
	June 11, 1941	23.92	82,300		Apr. 25, 1945	22.36	79,500
	Sept.10, 1941	18.60	57,500		May 10, 1945	14.47	36,800
	Sept.17, 1941	13.79	36,000		May 20, 1945	13.91	32,900
					May 30, 1945	16.4	48,800
1942	Oct. 6, 1941	30.70	115,000		June 8, 1945	13.74	33,600
	Oct. 16, 1941	20.51	66,200		June 19, 1945	14.86	40,700
	Nov. 1, 1941	36.45	205,000		Sept.26, 1945	22.90	81,000
	Apr. 10, 1942	22.00	73,100				
	Apr. 28, 1942	17.60	52,900	1946	Oct. 6, 1945	18.52	59,000
	June 13, 1942	14.22	37,800		Oct. 24, 1945	13.73	32,700
	June 22, 1942	18.94	58,800		Jan. 12, 1946	15.09	40,300
	June 27, 1942	17.10	50,600		Feb. 22, 1946	14.73	38,500
	July 12, 1942	12.75	31,600		June 4, 1946	14.61	37,900
	Sept. 7, 1942	16.63	48,300				
	Sept.20, 1942	20.22	64,800	1947	Apr. 8, 1947	14.25	35,600
					Apr. 11, 1947	22.53	79,000
1943	Oct. 4, 1942	14.62	39,500		Apr. 20, 1947	16.43	48,100
	Oct. 31, 1942	13.70	34,300		Apr. 26, 1947	24.89	91,000
	Dec. 28, 1942	20.34	64,200		May 23, 1947	14.04	34,400
	May 11, 1943	38.35	214,000				
	May 20, 1943	45.00	400,000	1948	June 23, 1948	21.80	73,500
	June 7, 1943	20.18	63,700		June 27, 1948	25.32	92,500

a Annual peak only.

Peak stages and discharges of Neosho River near Chouteau, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	July 13, 1948	13.65	33,200	1952	Nov. 26, 1951	13.52	33,000
	July 23, 1948	18.50	60,500		Feb. 4, 1952	14.23	37,100
	July 31, 1948	19.05	63,500		Mar. 11, 1952	15.52	44,800
	Aug. 14, 1948	16.09	47,500				
				1953	Apr. 24, 1953	11.21	20,700
1949	Feb. 18, 1949	16.58	50,400				
	May 20, 1949	14.58	40,100	1954	June 23, 1954	8.42	9,760
	May 29, 1949	15.88	47,700				
	June 16, 1949	13.47	33,500	1955	June 30, 1955	13.66	34,100
1950	May 11, 1950	21.58	76,500	1956	May 15, 1956	9.75	14,600
	June 11, 1950	13.05	31,200				
	July 28, 1950	15.84	47,100	1957	May 1, 1957	18.21	59,200
	Aug. 11, 1950	15.42	44,800		June 16, 1957	30.80	127,000
	Aug. 30, 1950	16.62	51,500		July 4, 1957	25.32	96,200
1951	Oct. 4, 1950	13.15	31,200	1958	Mar. 25, 1958	17.00	53,100
	June 23, 1951	13.40	32,400		Mar. 30, 1958	15.10	42,500
	July 1, 1951	21.30	74,600		Apr. 4, 1958	16.18	48,800
	July 18, 1951	31.8	133,000		July 13, 1958	24.80	93,600
	Sept.18, 1951	15.88	47,100		July 27, 1958	18.15	59,200
					July 29, 1958	14.85	41,000
1952	Nov. 14, 1951	17.88	57,700				

1920. Pryor Creek near Pryor, Okla.

Location.--Lat 36°17', long 95°20', in SW¼ sec.19, T.21 N., R.19 E., on right bank at downstream side of bridge on U. S. Highway 69, 1¾ miles south of Pryor, 2 miles downstream from Seminole Creek, and 10.5 miles upstream from mouth.

Drainage area.--229 sq mi.

Gage.--Nonrecording prior to Nov. 1, 1947; recording thereafter. Datum of gage is 578.06 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 12,000 cfs and extended by logarithmic plotting.

Bankfull stage.--16 ft.

Historical data.--Local residents reported that the flood of Oct. 5, 1941, was somewhat lower than that in 1943 and highest previously known for at least 28 years.

Remarks.--Records for 1947-48 computed by Corps of Engineers and reviewed by Geological Survey. Peak stages prior to 1947 from files of Corps of Engineers. Base for partial-duration series, 2,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	May 10, 1943	20.4	-	1952	Oct. 27, 1951	13.85	2,580
	May 18, 1943	18.85	11,000		Mar. 11, 1952	13.94	2,610
1944	Mar. 16, 1944	17.10	4,400	1953	Apr. 24, 1953	17.15	4,400
1945	Apr. 14, 1945	19.6	17,500	1954	May 1, 1954	7.99	1,000
1946	Feb. 19, 1946	13.8	2,540	1955	Sept.30, 1955	11.93	2,120
1947	Apr. 25, 1947	18.4	8,800	1956	Oct. 5, 1955	11.67	2,060
					May 15, 1956	13.82	2,580
1948	Mar. 23, 1948	15.30	2,960				
	June 23, 1948	18.95	11,600	1957	Apr. 3, 1957	11.35	2,030
	July 16, 1948	17.41	5,120		Apr. 23, 1957	15.63	3,620
	Aug. 15, 1948	17.60	5,700		May 2, 1957	15.87	3,760
					May 17, 1957	11.87	2,200
1949	Jan. 23, 1949	12.66	2,240		May 21, 1957	18.84	11,400
	Feb. 15, 1949	16.12	3,240		May 25, 1957	19.41	15,700
	May 19, 1949	18.32	8,300		May 30, 1957	11.35	2,030
	May 24, 1949	16.51	3,500		June 1, 1957	17.28	4,920
					June 15, 1957	18.26	7,850
1950	May 11, 1950	18.21	7,900		June 23, 1957	15.09	3,400
1951	Feb. 20, 1951	12.12	2,100	1958	Mar. 24, 1958	11.77	2,100
	July 2, 1951	16.60	3,890				

1925. Neosho River near Wagoner, Okla.
(Below Spring River, known locally as Grand River)

Location.--Lat 35°56', long 95°16', on south line of sec.22, T.17 N., R.19 E., on downstream side of left pier of bridge on State Highway 51, 2¼ miles downstream from Nigger Creek, 5 miles southeast of Wagoner, 6 miles upstream from Fourteen Mile Creek, and at mile 13.7.

Drainage area.--12,307 sq mi.

Gage.--Nonrecording prior to Oct. 1, 1939, at site 1½ miles downstream; recording thereafter at last used site. Prior to Dec. 20, 1925, at datum 0.17 ft higher. Oct. 6, 1937, to Sept. 30, 1939, at datum 4.03 ft lower. Datum of last used gage is 495.35 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Gage heights after Mar. 14, 1949, computed from stage-relation curve and gage-height record at Fort Gibson damsite.

Stage-discharge relation.--Defined by current-meter measurements to 210,000 cfs and extended on basis of slope-area measurement at 400,000 cfs.

Bankfull stage.--34 ft.

Historical data.--Flood in December 1896 was reported by local residents as being similar to that of Nov. 2, 1941, and flood in June 1935 as similar to that of Apr. 20, 1941. Flood of Apr. 30, 1912, was 0.1 ft lower than in 1927 at Wagoner Water Works.

Remarks.--Flow regulated since March 1940 by Lake O' The Cherokees 63.3 miles above station. Records for 1937-39 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 35,000 cfs. Only annual peaks are shown prior to 1938.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	Apr. 28, 1925	11.27	24,100	1943	June 7, 1943	-	70,000
					June 25, 1943	-	48,300
1927	Apr. 16, 1927	a39.0	170,000				
				1944	Mar. 23, 1944	17.12	35,000
1929	May 14, 1929	a34.2	122,000		Apr. 11, 1944	22.34	66,500
					Apr. 18, 1944	23.68	74,400
1938	Feb. 19, 1938	23.40	63,200		Apr. 23, 1944	18.48	45,400
	Apr. 1, 1938	24.70	70,000		May 2, 1944	24.28	77,700
	May 9, 1938	17.70	37,400		June 23, 1944	18.02	42,700
	May 31, 1938	26.41	79,400				
	June 11, 1938	21.56	54,500	1945	Mar. 19, 1945	22.58	66,500
	June 18, 1938	20.70	50,200		Mar. 25, 1945	20.19	53,600
					Apr. 17, 1945	36.42	167,000
1939	May 14, 1939	21.10	52,100		Apr. 25, 1945	25.0	81,700
	May 23, 1939	17.53	36,600		May 11, 1945	16.77	37,300
					May 30, 1945	18.74	48,700
1940	June 28, 1940	10.49	10,500		June 19, 1945	17.44	41,100
					Sept.27, 1945	24.97	85,200
1941	Apr. 16, 1941	17.21	37,000				
	Apr. 20, 1941	37.65	183,000	1946	Oct. 6, 1945	20.78	58,100
	June 11, 1941	27.24	88,400		Jan. 12, 1946	17.76	42,200
	Sept.11, 1941	21.61	58,000		Feb. 19, 1946	17.10	38,600
					June 4, 1946	16.81	37,600
1942	Oct. 7, 1941	33.38	126,000				
	Oct. 17, 1941	25.26	80,000	1947	Apr. 8, 1947	17.15	39,600
	Oct. 22, 1941	20.63	54,000		Apr. 12, 1947	25.70	87,900
	Nov. 2, 1941	38.78	190,000		Apr. 20, 1947	18.84	48,100
	Apr. 10, 1942	25.19	79,400		Apr. 26, 1947	28.17	103,000
	Apr. 25, 1942	20.00	49,800		May 23, 1947	17.60	41,700
	Apr. 28, 1942	23.40	68,100				
	June 16, 1942	17.77	39,600	1948	June 28, 1948	32.26	99,800
	June 22, 1942	22.31	63,200		July 23, 1948	23.72	59,400
	June 27, 1942	20.00	50,800		Aug. 1, 1948	24.64	63,600
	Sept. 7, 1942	19.16	47,700		Aug. 14, 1948	22.89	55,800
	Sept.20, 1942	23.06	68,700				
				1949	Feb. 19, 1949	22.06	52,200
1943	Dec. 28, 1942	23.53	72,000		May 19, 1949	23.9	60,600
	May 11, 1943	39.35	215,000		May 29, 1949	17.88	47,200
	May 21, 1943	45.2	400,000		June 11, 1949	15.54	36,400

a At site and datum used 1937-39.

1935. Neosho River below Fort Gibson Reservoir, near Fort Gibson, Okla.
(Below Spring River, known locally as Grand River)

Location.--Lat 35°51'15", long 95°13'45", in SE¼NW¼ sec.19, T.16 N., R.19 E., on left bank 1.1 miles downstream from Fort Gibson Dam, 4.5 miles north of Fort Gibson, and at mile 6.6.

Drainage area.--12,495 sq mi.

Gage.--Nonrecording prior to Aug. 21, 1951; recording thereafter. Prior to June 12, 1952, at site 4.4 miles downstream at datum 8.00 ft lower. Datum of present gage is 483.75 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--23 ft.

Remarks.--Flow regulated by Lake O' The Cherokees (capacity, 2,197,000 acre-ft) and, since May 1950, by Fort Gibson Reservoir (capacity, 1,284,000 acre-ft). Records computed by Corps of Engineers and reviewed by Geological Survey. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	May 1943	a43.0	400,000	1954	May 3, 1954	10.23	12,100
1950	May 11, 1950	22.10	57,000	1955	July 1, 1955	14.10	33,500
	Aug. 3, 1950	b22.73	-	1956	Oct. 6, 1955	12.01	11,600
1951	July 18, 1951	b30.96	-				
	July 20, 1951	b28.40	133,000	1957	May 26, 1957	37.60	223,000
1952	Nov. 17, 1951	17.57	46,800	1958	July 13, 1958	20.96	79,000
1953	Apr. 24,25, 1953	12.84	25,700				

a From high-water profile.
b Affected by backwater.

1945. Arkansas River near Muskogee, Okla.

Location.--Lat 35°46', long 95°18', in NW¼ sec.21, T.15 N., R.19 E., on downstream side of left pier of bridge on U. S. Highways 62 and 64, 1.7 miles downstream from Neosho River, 3½ miles northeast of Muskogee, and at mile 457.8.

Drainage area.--96,674 sq mi, of which about 84,133 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Feb. 22, 1939; recording thereafter. Peak stages prior to March 1935 are adjusted to present site and datum from gage-relation curve and gage-height graphs based on once-daily readings at Oklahoma Gas & Electric Co. gage 1,600 ft downstream. Datum of gage is 471.38 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--35 ft.

Historical data.--Flood in 1833 was probably similar to that in 1943. It was 0.8 ft lower than 1943 flood at Webbers Falls 29 miles downstream.

Remarks.--Increasing regulation since 1940 by the following reservoirs, listed chronologically by completion: Lake O' The Cherokees on Neosho River, Salt Plains Reservoir on Salt Fork Arkansas River, John Martin Reservoir on Arkansas River in Colorado, Fall River Reservoir on Fall River in Kansas, Fort Gibson Reservoir on Neosho River, and Hulah Reservoir (1950) on Caney River. Base for partial-duration series, 100,000 cfs.

Peak stages and discharges of Arkansas River near Muskogee, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1898	May 1898	a39.5	b384,000	1942	Oct. 17, 1941	25.85	151,000
					Oct. 27, 1941	26.00	153,000
1923	June 1923	34.7	b295,000		Oct. 31, 1941	37.23	304,000
					Apr. 10, 1942	27.42	176,000
1926	Sept. 7, 1926	23.4	142,000		Apr. 22, 1942	24.13	138,000
					Apr. 25, 1942	25.78	158,000
1927	Oct. 6, 1926	31.4	248,000		Apr. 28, 1942	29.56	211,000
	Apr. 3, 1927	23.8	145,000		June 25, 1942	28.97	198,000
	Apr. 15, 1927	36.5	325,000				
	June 21, 1927	24.8	157,000	1943	Dec. 30, 1942	21.28	115,000
	Aug. 5, 1927	24.9	160,000		May 11, 1943	38.32	340,000
	Aug. 20, 1927	23.2	139,000		May 21, 1943	48.20	700,000
					June 6, 1943	22.35	122,000
1928	Oct. 4, 1927	25.3	163,000				
	Apr. 24, 1928	20.0	103,000	1944	Mar. 24, 1944	20.91	111,000
	June 14, 1928	23.0	137,000		Apr. 12, 1944	27.44	187,000
	June 22, 1928	27.9	197,000		Apr. 17, 1944	26.06	171,000
	Aug. 5, 1928	26.0	172,000		Apr. 27, 1944	27.64	189,000
1929	Nov. 21, 1928	20.0	103,000	1945	Oct. 7, 1944	19.68	103,000
	Apr. 10, 1929	21.0	114,000		Dec. 8, 1944	21.08	116,000
	Apr. 15, 1929	25.1	162,000		Mar. 20, 1945	22.99	131,000
	Apr. 23, 1929	29.8	222,000		Mar. 27, 1945	21.29	113,000
	May 10, 1929	23.0	137,000		Apr. 18, 1945	36.65	326,000
	May 15, 1929	31.5	249,000		July 3, 1945	20.89	115,000
	May 20, 1929	31.4	248,000				
	June 5, 1929	22.1	128,000	1946	Oct. 1, 1945	30.67	231,000
	June 9, 1929	22.9	138,000				
	June 26, 1929	20.1	105,000	1947	Apr. 16, 1947	27.31	196,000
					Apr. 26, 1947	25.19	156,000
1930	May 14, 1930	20.9	114,000		May 18, 1947	22.39	128,000
	June 17, 1930	22.7	136,000		May 23, 1947	22.36	128,000
1931	June 16, 1931	16.0	63,000	1948	June 24, 1948	30.25	224,000
					June 30, 1948	28.62	203,000
1932	Nov. 25, 1931	19.2	95,300		July 19, 1948	24.10	145,000
					Aug. 15, 1948	21.04	112,000
1933	Dec. 26, 1932	21.5	121,000				
	May 16, 1933	25.1	165,000	1949	Feb. 16, 1949	22.62	137,000
					May 20, 1949	28.27	208,000
1934	Apr. 9, 1934	14.9	b57,200		June 11, 1949	22.07	121,000
1935	Nov. 23, 1934	19.9	103,000	1950	May 11, 1950	23.15	141,000
	Mar. 13, 1935	23.2	141,000		July 22, 1950	23.46	138,000
	May 22, 1935	23.6	146,000		Aug. 3, 1950	25.10	157,000
	June 9, 1935	30.8	243,000		Aug. 8, 1950	20.68	107,000
	June 17, 1935	29.8	229,000				
	June 22, 1935	28.0	204,000	1951	May 22, 1951	23.20	144,000
	July 1, 1935	21.4	120,000		May 26, 1951	22.68	138,000
					July 5, 1951	30.83	242,000
1936	Sept.29, 1936	19.54	98,000		July 17, 1951	31.40	240,000
					Sept.16, 1951	21.23	111,000
1937	Oct. 9, 1936	21.55	122,000				
	Jan. 16, 1937	19.67	100,000	1952	Nov. 17, 1951	17.71	83,000
	Feb. 1, 1937	20.46	109,000				
	June 13, 1937	23.25	141,000	1953	Apr. 25, 1953	15.99	66,600
	June 18, 1937	22.47	133,000				
				1954	May 3, 1954	15.83	63,000
1938	Mar. 30, 1938	21.39	108,000				
	May 26, 1938	24.79	149,000	1955	May 29, 1955	18.16	87,200
	May 31, 1938	23.78	135,000				
	June 12, 1938	21.11	105,000	1956	Oct. 6, 1955	20.28	110,000
1939	May 14, 1939	18.20	77,800	1957	May 3, 1957	19.86	104,000
					May 20, 1957	29.50	248,000
1940	Sept. 5, 1940	24.68	161,000		May 22, 1957	31.85	259,000
					May 26, 1957	39.03	366,000
1941	Apr. 21, 1941	32.72	248,000				
	June 12, 1941	29.09	195,000	1958	Mar. 27, 1958	20.54	110,000
	Sept.11, 1941	20.99	100,000		July 14, 1958	22.66	138,000
1942	Oct. 7, 1941	27.39	173,000				

a Based on comparative elevations of floods in 1898 and 1927 at site 4 miles downstream.
b Annual peak only.

1946. Arkansas River at Webbers Falls, Okla.

Location.--Lat 35°31', long 95°07', in SW¼ sec.18, T.12 N., R.21 E., near right bank at downstream side of pier of bridge on U. S. Highway 64 at east edge of Webbers Falls, 1.7 miles upstream from Illinois River and at mile 428.4.

Drainage area.--97,049 sq mi, of which about 84,508 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to July 7, 1934, and after Sept. 16, 1948; recording July 7, 1934, to Sept. 16, 1948. Datum of gage is 442.2 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 270,000 cfs during 1929. Backwater occurs from high inflows of Illinois River. Large shifts occur.

Bankfull stage.--23 ft.

Remarks.--Flow partly regulated since 1940 (see references for station near Muskogee). Stage records obtained from publications of U. S. Weather Bureau. Results of several discharge measurements during 1928-32 furnished by Corps of Engineers. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1833	June 1833	38.2	-	1935	June 18, 1935	29.9	-
1905	June 1, 1905	17.4	-	1936	June 9, 1936	16.4	-
				1937	June 13, 1937	22.3	-
1906	June 7, 1906	18.0	-	1938	Feb. 18, 1938	26.8	-
1907	May 17, 1907	19.4	-	1939	May 15, 1939	17.9	-
1908	May 26, 1908	31.0	-	1940	Sept. 6, 1940	21.3	-
1909	Dec. 1, 1908	26.5	-				
1910	Nov. 19, 1909	13.2	-	1941	Apr. 21, 1941	31.1	-
				1942	Nov. 1, 1941	35.8	-
1911	Aug. 8, 1911	21.1	-	1943	May 22, 1943	39.0	-
				1944	May 3, 1944	25.9	-
1923	June 14, 1923	29.5	-	1945	Apr. 16, 1945	37.2	-
1924	Oct. 17, 1923	23.6	-				
1925	Apr. 29, 1925	14.5	-	1946	Oct. 2, 1945	29.0	-
				1947	Apr. 16, 1947	26.4	-
1926	Sept.10, 1926	21.1	-	1948	June 24, 1948	30.1	-
1927	Apr. 15, 1927	33.6	-	1949	May 20, 1949	29.3	-
1928	June 23, 1928	25.7	-	1950	May 12, 1950	31.8	-
1929	May 15, 1929	29.0	273,000				
1930	June 17, 1930	21.6	-	1951	July 5, 1951	28.9	-
				1952	Mar. 13, 1952	18.2	-
1931	June 17, 1931	15.0	-	1953	Apr. 25, 1953	17.2	-
1932	Nov. 25, 1931	19.4	-	1954	May 3, 1954	20.9	-
1933	May 16, 1933	26.4	-	1955	May 30, 1955	19.5	-
1934	Apr. 10, 1934	14.4	57,200				

1965. Illinois River near Tahlequah, Okla.

Location.--Lat 35°55', long 94°55', in SE¼ sec.26, T.17 N., R.22 E., near center of span on downstream side of pier of bridge on U. S. Highway 62, 2¼ miles northeast of Tahlequah, 6.5 miles upstream from Barren Fork, and at mile 55.8.

Drainage area.--959 sq mi.

Gage.--Nonrecording prior to Feb. 23, 1939; recording thereafter. Datum of gage is 664.14 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 77,000 cfs and extended on basis of slope-area measurement at 150,000 cfs.

Bankfull stage.--11 ft.

Remarks.--Peak stage data for 1916 and 1927 furnished by Corps of Engineers. Base for partial-duration series, 7,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1916	January 1916	26	a112,000	1943	May 21, 1943	14.53	18,400
1927	April 1927	22.3	a60,000	1944	Mar. 17, 1944	12.72	12,400
					Mar. 21, 1944	15.82	23,200
1935	-	15	a18,500		Apr. 12, 1944	11.06	8,300
					May 3, 1944	10.86	7,820
1936	Dec. 7, 1935	-	9,000				
				1945	Feb. 22, 1945	14.85	19,800
1937	Jan. 10, 1937	11.98	9,580		Feb. 27, 1945	13.26	14,200
	Jan. 16, 1937	13.65	14,500		Mar. 4, 1945	15.14	20,800
	Apr. 22, 1937	11.42	7,960		Mar. 7, 1945	12.54	12,100
	Sept.11, 1937	11.49	8,220		Mar. 16, 1945	11.38	9,290
					Mar. 20, 1945	21.12	51,000
1938	Feb. 18, 1938	19.67	39,400		Mar. 25, 1945	11.38	9,040
	Mar. 29, 1938	13.19	12,600		Mar. 31, 1945	11.12	8,540
	May 24, 1938	13.14	12,300		Apr. 15, 1945	23.60	68,800
					May 17, 1945	12.44	12,700
1939	Feb. 21, 1939	10.8	6,400		June 12, 1945	12.88	14,600
1940	Apr. 12, 1940	10.39	5,600	1946	Feb. 15, 1946	12.81	14,000
					May 26, 1946	15.99	25,800
1941	Jan. 2, 1941	15.22	20,500				
	Apr. 16, 1941	13.10	13,300	1947	Nov. 8, 1946	12.23	12,200
	Apr. 20, 1941	19.56	41,400		Nov. 11, 1946	12.03	11,600
					Dec. 11, 1946	13.95	18,000
1942	Oct. 17, 1941	12.57	11,200		Dec. 13, 1946	14.36	19,800
	Nov. 1, 1941	17.71	30,000		Apr. 12, 1947	10.97	9,160
	Apr. 10, 1942	11.83	9,200		May 17, 1947	12.87	14,700
	Apr. 26, 1942	12.13	10,000		June 3, 1947	11.49	10,500
	Apr. 29, 1942	15.41	20,600				
				1948	Mar. 3, 1948	10.45	7,770
1943	Oct. 31, 1942	16.66	25,800		Aug. 10, 1948	10.24	7,300
	Nov. 6, 1942	13.60	14,200		Aug. 13, 1948	14.16	19,100
	Nov. 9, 1942	13.64	14,200		Aug. 15, 1948	19.21	41,400
	Dec. 28, 1942	17.33	29,400				
	May 11, 1943	25.37	93,200	1949	Jan. 26, 1949	10.66	8,500

a Annual peak only.

Peak stages and discharges of Illinois River near Tahlequah, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Jan. 29, 1949	10.58	8,250	1953	May 14, 1953	11.21	10,100
	Feb. 16, 1949	13.29	16,000				
	Mar. 28, 1949	10.44	8,010	1954	May 3, 1954	13.13	16,000
	May 20, 1949	13.36	16,700				
				1955	Feb. 21, 1955	13.02	13,000
1950	Jan. 5, 1950	10.80	9,240		Mar 22, 1955	13.55	14,800
	Jan. 15, 1950	12.70	14,800				
	Feb. 14, 1950	11.46	11,200	1956	May 16, 1956	11.40	8,350
	May 10, 1950	27.94	150,000				
	July 24, 1950	10.1	7,980	1957	Apr. 4, 1957	21.60	55,400
	Aug. 7, 1950	9.87	7,500		Apr. 24, 1957	10.92	8,140
					May 19, 1957	16.16	23,800
1951	Feb. 21, 1951	18.22	38,000		May 24, 1957	17.48	31,500
	Mar. 12, 1951	10.37	8,470		May 26, 1957	18.17	35,100
					June 3, 1957	13.10	13,500
1952	Mar. 12, 1952	10.10	7,740		June 11, 1957	12.34	11,400
	Apr. 13, 1952	10.24	7,980				
				1958	Mar. 25, 1958	11.59	8,180
1953	Mar. 15, 1953	10.58	8,470		May 4, 1958	12.20	9,440
	Mar. 19, 1953	10.83	8,470		July 13, 1958	16.89	25,800

1970. Barren Fork at Eldon, Okla.

Location.--Lat 35°55', long 94°50', in SE¼ sec.27, T.17 N., R.23 E., at bridge on State Highway 51, three-eighths of a mile southeast of Eldon, 6 miles downstream from Tyner Creek, and 8.8 miles upstream from mouth.

Drainage area.--307 sq mi.

Gage.--Nonrecording prior to Dec. 14, 1948; recording thereafter. Datum of gage is 701.14 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 28,000 cfs and extended above.

Bankfull stage.--18 ft.

Remarks.--Peak-stage data for 1945 and 1948 furnished by Corps of Engineers. Base for partial-duration series, 6,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Apr. 15, 1945	23.8	-	1953	Mar. 18, 1953	10.82	6,660
					May 12, 1953	12.03	9,240
1948	Aug. 14, 1948	19.8	a34,400				
				1954	May 2, 1954	16.78	21,600
1949	Jan. 24, 1949	11.21	7,220				
	Feb. 14, 1949	12.85	10,600	1955	Feb. 20, 1955	12.42	9,680
	Mar. 26, 1949	10.62	6,480		Mar. 20, 1955	14.47	14,800
	May 19, 1949	11.63	8,400		June 6, 1955	11.53	7,800
	June 14, 1949	10.76	6,660		June 15, 1955	14.96	16,200
1950	Jan. 4, 1950	11.70	8,200	1956	May 15, 1956	10.70	6,300
	Jan. 13, 1950	12.27	9,240				
	Feb. 12, 1950	11.62	8,000	1957	Apr. 3, 1957	20.33	37,600
	May 10, 1950	19.51	31,000		May 17, 1957	18.89	31,600
					May 23, 1957	18.79	31,100
1951	Feb. 20, 1951	18.65	27,800		May 25, 1957	17.48	25,600
	July 2, 1951	11.77	8,400		June 1, 1957	11.98	8,400
					June 9, 1957	15.5	18,000
1952	Apr. 13, 1952	10.76	6,480				
	May 23, 1952	11.03	6,840	1958	July 13, 1958	14.75	15,700

a Annual peak only.

1980. Illinois River near Gore, Okla.

Location.--Lat 35°34', long 95°04', in NE¼SW¼ sec.27, T.13 N., R.21 E., on right bank 4.3 miles downstream from Tenkiller Ferry Dam, 4½ miles northeast of Gore, and 8.5 miles upstream from mouth.

Drainage area.--1,626 sq mi; at site used 1939-51, 1,622 sq mi.

Gage.--Nonrecording prior to Apr. 2, 1926, and May 21, 1949, to Feb. 19, 1952; recording Apr. 15, 1939, to May 20, 1949, and since Feb. 20, 1952. Mar. 25, 1924, to Apr. 1, 1926, at site 2.4 miles downstream at altitude 467 ft. Apr. 15, 1939, to Feb. 19, 1952, at site 1.6 miles upstream at datum 9.60 ft higher than present gage. Datum of present gage is 473.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 42,000 cfs and extended on basis of logarithmic plotting and velocity-area studies.

Bankfull stage.--13 ft; at previous site, 10 ft.

Remarks.--Flow regulated since July 1952 by Tenkiller Ferry Reservoir, with some attenuation of peaks in 1951 during construction operations (capacity, 791,900 acre-ft). Base for partial-duration series, 17,000 cfs. Only annual peaks are shown subsequent to 1950.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	Dec. 21, 1924	5.10	6,990	1947	May 17, 1947	10.13	17,800
					June 11, 1947	10.53	19,400
1940	Aug. 17, 1940	10.20	17,600				
				1948	Aug. 16, 1948	15.09	40,200
1941	Apr. 20, 1941	16.18	43,900				
				1949	Feb. 17, 1949	10.18	19,300
1942	Nov. 1, 1941	14.95	38,900		May 21, 1949	11.7	24,900
	Apr. 28, 1942	14.26	35,900				
				1950	Jan. 15, 1950	10.24	17,300
1943	Nov. 1, 1942	12.20	27,100		May 11, 1950	30.2	180,000
	Nov. 8, 1942	11.17	22,900				
	Dec. 29, 1942	13.37	32,200	1951	Feb. 22, 1951	12.50	27,200
	May 11, 1943	24.50	110,000				
	May 21, 1943	11.62	21,800	1952	Apr. 14, 1952	11.29	10,500
1944	Mar. 20, 1944	12.81	29,200	1953	May 12, 1953	6.41	1,160
1945	Feb. 23, 1945	11.06	22,500	1954	May 2, 1954	10.90	9,280
	Mar. 4, 1945	11.71	25,000				
	Mar. 20, 1945	18.30	58,800	1955	June 18, 1955	9.89	5,880
	Apr. 15, 1945	25.38	118,000				
	June 10, 1945	16.28	45,900	1956	Aug. 14, 1956	8.93	3,610
1946	May 27, 1946	11.83	22,000	1957	June 9, 1957	13.70	18,100
	June 30, 1946	10.46	17,100				
				1958	May 4, 1958	12.50	13,700
1947	Dec. 12, 1946	13.16	30,900				

1985. Dirty Creek near Warner, Okla.

Location.--Lat 35°33', long 95°18', in SE¼ sec.32, T.13 N., R.19 E., near center of bridge on U. S. Highway 64, 4 miles north of Warner, 6½ miles upstream from Georges Fork, and 6½ miles downstream from Butter Creek.

Drainage area.--227 sq mi.

Gage.--Nonrecording. Datum of gage is 485.51 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 29,000 cfs and extended on basis of contracted-opening measurement at 42,000 cfs.

Bankfull stage.--17 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 2,400 cfs.

Peak stages and discharges of Dirty Creek near Warner, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	February 1938	23.0	a19,300	1943	June 7, 1943	20.65	9,030
1940	Aug. 19, 1940	18.42	2,360	1944	Mar. 16, 1944	18.60	2,820
					Mar. 20, 1944	19.41	4,220
1941	Jan. 2, 1941	18.42	2,360		May 3, 1944	18.17	2,460
1942	Oct. 16, 1941	21.20	11,900	1945	Feb. 22, 1945	19.78	5,490
	Oct. 31, 1941	22.9	17,800		Mar. 3, 1945	20.22	6,910
	Apr. 9, 1942	18.84	3,620		Mar. 7, 1945	18.70	3,030
	Apr. 25, 1942	20.75	10,500		Mar. 16, 1945	20.40	7,680
	Apr. 28, 1942	19.43	5,600		Mar. 19, 1945	21.47	12,600
	May 3, 1942	19.50	5,950		Apr. 2, 1945	18.48	2,710
	May 5, 1942	19.50	5,950		Apr. 14, 1945	24.17	30,800
	May 20, 1942	20.26	8,750		June 11, 1945	22.00	15,300
					June 23, 1945	18.33	2,570
1943	Nov. 6, 1942	19.50	4,300				
	Dec. 27, 1942	20.90	10,100	1946	Feb. 19, 1946	19.10	3,660
	May 10, 1943	26.00	42,000		Apr. 30, 1946	18.60	2,900
	May 17, 1943	18.58	2,590		May 24, 1946	20.78	9,340
	May 20, 1943	19.53	4,300		June 1, 1946	19.48	4,580
	May 28, 1943	19.07	3,300		June 27, 1946	18.80	3,170

a Annual peak only.

2280. Canadian River near Canadian, Tex.

Location.--Lat 35°55' long 100°22', near left bank on downstream side of pier of bridge on U. S. Highways 60 and 83, 500 ft downstream from Panhandle and Santa Fe Railway Co. bridge, 1.2 miles downstream from Red Deer Creek, 1.6 miles northeast of Canadian, Hemphill County, and at mile 434.

Drainage area.--22,866 sq mi, of which about 18,178 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Dec. 15, 1938; recording and nonrecording thereafter. Prior to Sept. 30, 1953, at site 300 ft upstream at same datum. Datum of present gages is 2,301.50 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Subject to frequent large shifts. Defined by current-meter measurements below 55,000 cfs in two channels

Bankfull stage.--10 ft.

Historical data.--Maximum stage known, about 20.0 ft Oct. 2, 1904. Other high stages occurred May 2, 1914, and Oct. 5, 1923 (about 12 ft), and May 31, 1937 (11.2 ft). Elevation of 1904 flood determined by levels to point given by Mr. Charles Peet, observer, in 1924. Information on floods in 1914, 1923, and 1927 furnished by Chief Engineer Office of Panhandle and Santa Fe Railroad.

Remarks.--Some regulation by Conchas Reservoir since Dec. 28, 1938. Conchas Canal and Bell Ranch Canal divert from Conchas Reservoir for irrigation. Base for partial-duration series, 8,900 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	May 16, 1938	5.91	9,600	1939	June 22, 1939	7.94	68,600
	May 18, 1938	8.62	16,400		June 29, 1939	7.68	55,600
	June 1, 1938	6.75	20,500		Aug. 3, 1939	6.70	21,300
	June 9, 1938	7.18	34,600		Aug. 5, 1939	7.15	31,600
	June 16, 1938	6.85	25,100		Aug. 12, 1939	6.82	26,700
	June 28, 1938	6.40	17,400				
	July 20, 1938	7.25	34,600	1940	Nov. 26, 1939	6.70	11,400
	Sept. 8, 1938	7.50	37,000				
				1941	Apr. 30, 1941	7.00	27,400
1939	Oct. 11, 1938	7.20	46,600		May 3, 1941	9.60	110,000
	Jan. 9, 1939	7.56	48,300		May 21, 1941	6.60	14,000
	Apr. 6, 1939	7.61	53,700		May 24, 1941	8.25	49,100
	May 7, 1939	6.01	13,100		May 26, 1941	7.17	35,000
	June 13, 1939	7.06	35,800		May 31, 1941	7.62	47,600

Peak stages and discharges of Canadian River near Canadian, Tex.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	June 7, 1941	7.54	47,200	1948	Aug. 17, 1948	6.60	11,400
	June 9, 1941	8.55	35,200				
	June 16, 1941	6.26	9,280	1949	May 7, 1949	7.18	29,900
	June 27, 1941	8.08	35,200		May 17, 1949	8.34	69,600
	July 5, 1941	8.15	52,300		May 19, 1949	6.77	19,800
	July 12, 1941	6.38	9,540		June 4, 1949	7.62	20,700
	July 15, 1941	7.15	20,600		June 8, 1949	6.92	9,970
	July 20, 1941	6.80	16,300		June 13, 1949	6.40	10,100
	July 25, 1941	9.60	114,000		July 13, 1949	6.85	11,700
	Aug. 21, 1941	7.60	35,700		July 16, 1949	6.50	8,910
	Aug. 24, 1941	7.91	43,800				
	Sept.23, 1941	9.80	122,000	1950	July 8, 1950	7.84	24,400
					July 19, 1950	7.05	14,800
1942	Oct. 1, 1941	8.98	91,600		July 21, 1950	7.65	22,800
	Oct. 7, 1941	6.64	25,000		July 24, 1950	6.98	13,000
	Oct. 12, 1941	5.78	10,300		July 29, 1950	7.30	17,700
	Oct. 22, 1941	7.93	60,700		Aug. 1, 1950	7.46	16,000
	Oct. 25, 1941	6.92	20,000		Aug. 29, 1950	7.58	19,100
	Oct. 29, 1941	6.46	13,400		Sept. 4, 1950	6.90	10,400
	Apr. 20, 1942	7.35	21,600		Sept.12, 1950	7.20	13,600
	Apr. 22, 1942	6.98	14,800		Sept.26, 1950	7.08	11,800
	Apr. 24, 1942	6.94	18,200				
	Apr. 26, 1942	8.08	41,900	1951	May 17, 1951	8.82	65,900
	May 11, 1942	6.30	19,800		June 5, 1951	7.75	19,900
	May 19, 1942	6.24	20,500		June 24, 1951	7.60	15,400
	June 2, 1942	6.55	12,200		Sept. 7, 1951	7.27	9,320
	June 8, 1942	8.40	44,300				
	June 22, 1942	6.05	14,900	1952	Aug. 26, 1952	7.50	10,700
	June 29, 1942	6.89	27,200				
	July 4, 1942	6.24	14,200	1953	July 20, 1953	7.73	15,600
	Aug. 17, 1942	6.97	17,000		July 23, 1953	7.61	14,700
	Sept. 4, 1942	7.75	38,600				
	Sept. 7, 1942	6.98	25,200	1954	May 24, 1954	7.18	9,050
	Sept.13, 1942	6.35	10,600		July 25, 1954	7.54	12,200
	Sept.20, 1942	6.50	9,410				
				1955	Oct. 9, 1954	7.35	18,900
1943	July 10, 1943	6.47	9,990		May 1, 1955	7.88	34,400
					May 20, 1955	8.43	36,800
1944	Oct. 16, 1943	6.93	10,500		June 8, 1955	7.43	17,800
	Oct. 22, 1943	6.71	13,900		June 28, 1955	9.25	79,000
	June 4, 1944	6.90	11,000				
				1956	May 26, 1956	7.25	21,200
1945	Oct. 2, 1944	7.02	8,860				
				1957	May 25, 1957	9.30	77,600
1946	May 30, 1946	7.50	33,000		June 2, 1957	6.86	9,640
	Sept.12, 1946	8.12	49,400		July 30, 1957	6.78	11,300
	Sept.18, 1946	6.58	11,900		Aug. 8, 1957	7.10	10,400
	Sept.21, 1946	6.84	11,200		Aug. 18, 1957	7.40	16,400
					Sept.14, 1957	6.85	9,660
1947	Oct. 5, 1946	7.98	46,500				
	Oct. 7, 1946	8.26	58,100	1958	June 20, 1958	7.22	11,700
	Oct. 11, 1946	6.96	23,900		July 5, 1958	7.16	12,800
	May 15, 1947	6.83	14,800		July 7, 1958	8.42	37,900
					July 17, 1958	7.47	17,300
1948	June 5, 1948	6.77	10,700		July 21, 1958	8.42	37,900
	June 7, 1948	6.75	10,300		July 28, 1958	7.14	14,500
	June 21, 1948	7.14	22,200		Aug. 1, 1958	7.80	38,100
	June 25, 1948	7.01	20,100		Sept. 8, 1958	7.48	20,200
	Aug. 15, 1948	6.75	14,000				

2285. Canadian River at Bridgeport, Okla.

Location.--Lat 35°34'00", long 98°22'45", in SE¼SW¼ sec.28, T.13 N., R.11 W., near right bank on downstream side of pier of Chicago, Rock Island and Pacific Railroad Co. bridge, 1 mile north of Bridgeport, 2¾ miles upstream from Lumpmouth Creek, and at mile 267.1.

Drainage area.--25,229 sq mi, of which about 20,428 sq mi contributes directly to surface runoff.

Gage.--Recording Oct. 1, 1944, to Sept. 30, 1947, and since Sept. 30, 1948; nonrecording Oct. 1, 1947, to Sept. 30, 1948. Prior to Oct. 1, 1947, at site a quarter of a mile downstream at same datum. Datum of present gage is 1,384.25 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 50,000 cfs and extended by logarithmic plotting.

Bankfull stage.--14 ft.

Historical data.--The flood in October 1904 probably exceeded that of 1914, from information by Corps of Engineers.

Remarks.--Some regulation by Conchas Reservoir. Records 1944-48 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 15,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	May 3, 1914	a19.4	-	1951	May 17, 1951	11.74	65,000
					May 20, 1951	10.25	42,000
1915	April 1915	a15.9	-		June 7, 1951	8.55	20,100
					June 10, 1951	8.55	15,000
1945	Sept.28, 1945	8.16	15,600				
				1952	May 23, 1952	8.50	9,300
1946	June 29, 1946	7.40	7,900				
				1953	Aug. 22, 1953	9.77	9,900
1947	Oct. 9, 1946	9.52	57,000				
	Oct. 13, 1946	7.50	20,800	1954	May 24, 1954	10.34	16,100
	May 12, 1947	8.14	26,700				
	May 16, 1947	8.77	35,000	1955	May 19, 1955	11.04	23,700
	May 20, 1947	8.26	25,600		May 22, 1955	11.63	31,200
1948	June 23, 1948	14.60	150,000	1956	Oct. 4, 1955	11.35	30,800
1949	May 7, 1949	8.30	18,600	1957	May 26, 1957	11.30	40,600
	May 19, 1949	9.93	42,000		Aug. 20, 1957	8.71	12,600
	June 5, 1949	9.00	21,800				
				1958	June 21, 1958	10.17	23,400
1950	July 9, 1950	9.38	21,900		July 8, 1958	10.73	31,400
	July 20, 1950	8.73	18,000		July 19, 1958	9.43	15,600
	July 23, 1950	9.57	28,000		July 23, 1958	10.10	22,800
	Aug. 1, 1950	9.98	27,800				
	Aug. 30, 1950	8.91	15,300				

a Furnished by Chicago, Rock Island and Pacific Railroad Co.

2290. Canadian River near Newcastle, Okla.

Location.--Lat 35°18', long 97°36', in NW¼NW¼ sec.35, T.10 N., R.4 W., near right bank on downstream side of pier of bridge on U. S. Highways 62 and 277, 4 miles north of Newcastle, 9 miles downstream from Worley Creek, and at mile 213.5.

Drainage area.--25,763 sq mi, of which about 20,962 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Jan. 31, 1939; recording thereafter. Datum of gage is 1,146.75 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 80,000 cfs and extended above.

Bankfull stage.--12 ft.

Remarks.--Some regulation by Conchas Reservoir. Base for partial-duration series, 15,000 cfs.

Peak stages and discharges of Canadian River near Newcastle, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	Oct. 3, 1904	18.5	-	1942	Oct. 2, 1941	7.10	53,400
					Oct. 6, 1941	5.62	19,900
1939	Oct. 13, 1938	6.50	35,500		Oct. 15, 1941	5.60	23,400
	Apr. 8, 1939	6.32	35,500		Oct. 24, 1941	7.19	54,500
	June 24, 1939	6.65	39,700		Apr. 19, 1942	5.84	20,800
	July 2, 1939	6.54	56,200		Apr. 25, 1942	6.49	37,200
					Apr. 27, 1942	7.57	52,700
1940	July 3, 1940	4.57	5,300		June 10, 1942	7.31	39,400
					Sept. 6, 1942	6.60	31,000
1941	May 4, 1941	9.2	200,000		Sept. 9, 1942	6.29	25,200
	May 21, 1941	6.46	42,600				
	May 25, 1941	6.58	57,500	1943	Oct. 19, 1942	6.05	20,000
	May 28, 1941	5.06	16,300				
	June 2, 1941	5.69	33,400	1944	Apr. 10, 1944	8.17	66,000
	June 10, 1941	6.49	42,600		June 13, 1944	7.00	31,500
	June 29, 1941	5.90	16,100				
	July 27, 1941	8.39	142,000	1945	Apr. 15, 1945	6.00	19,500
	Aug. 23, 1941	6.57	52,800		June 10, 1945	6.29	21,600
	Aug. 28, 1941	5.70	24,300		July 10, 1945	6.10	15,400
	Sept.25, 1941	8.0	150,000		Sept.29, 1945	6.50	30,000

2300. Little River below Hog Creek, near Norman, Okla.

Location.--Lat 35°13'15", long 97°12'40", in SW¼ sec.28, T.9 N., R.1 E., near center of span on downstream side of bridge on county road, just downstream from Hog Creek, three-quarters of a mile upstream from Prairie Creek, 13 miles east of Norman, and at mile 96.0.

Drainage area.--257 sq mi.

Gage.--Nonrecording prior to Nov. 28, 1956; recording thereafter. Datum of gage is 965.62 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 15,000 cfs and extended on basis of logarithmic plotting.

Bankfull stage.--32 ft.

Remarks.--Base for partial-duration series, 2,700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Apr. 5, 1953	8.90	2,640	1957	May 13, 1957	13.92	6,760
					May 18, 1957	12.76	5,690
1954	Apr. 30, 1954	8.82	2,610		May 25, 1957	28.85	34,600
					June 4, 1957	9.28	2,800
1955	May 19, 1955	13.45	6,010		June 15, 1957	21.44	17,800
					June 22, 1957	15.50	8,580
1956	Oct. 3, 1955	12.6	5,360		Sept.14, 1957	13.28	6,100
	Oct. 5, 1955	10.55	3,840				
				1958	June 20, 1958	13.43	6,730
1957	Apr. 23, 1957	13.03	5,930				

2305. Little River near Tecumseh, Okla.

Location.--Lat 35°10'25", long 96°55'55", near northwest corner of sec.18, T.8 N., R.4 E., on downstream side of right pier of bridge on State Highway 18, 1½ miles downstream from Dance Creek, 5 miles south of Tecumseh, and at mile 77.2.

Drainage area.--456 sq mi.

Gage.--Recording. Datum of gage is 898.52 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 26,000 cfs and extended above.

Bankfull stage.--11 ft.

Remarks.--Records 1944-48 collected by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 5,000 cfs.

Peak stages and discharges of Little River near Tecumseh, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	June 1932	a25.58	b60,000	1950	May 11, 1950	17.20	20,600
					July 20, 1950	10.90	5,790
1944	May 23, 1944	13.35	6,120		July 22, 1950	11.04	5,900
	May 27, 1944	14.06	6,720				
				1951	May 1, 1951	12.93	6,370
1945	Mar. 11, 1945	12.62	5,860		May 18, 1951	12.09	5,680
	Mar. 15, 1945	13.88	6,670				
	Mar. 19, 1945	13.87	6,090	1952	May 23, 1952	12.11	6,140
	Apr. 14, 1945	18.00	25,100				
	May 12, 1945	12.70	6,090	1953	July 20, 1953	12.25	6,280
	June 12, 1945	14.04	8,230				
	July 10, 1945	14.13	7,890	1954	Oct. 23, 1953	11.25	5,060
	Sept.30, 1945	16.06	15,200		Apr. 30, 1954	12.82	6,310
1946	May 23, 1946	12.54	5,530	1955	May 19, 1955	14.87	8,700
	May 29, 1946	13.07	6,080				
	June 29, 1946	13.38	6,380	1956	Oct. 5, 1955	12.00	5,640
1947	Dec. 11, 1946	12.57	5,690	1957	Apr. 23, 1957	12.77	6,010
	Apr. 14, 1947	13.43	6,620		May 13, 1957	13.87	7,640
	Apr. 24, 1947	11.86	5,040		May 17, 1957	14.74	9,200
	May 12, 1947	12.78	5,900		May 25, 1957	18.84	32,400
	May 16, 1947	14.75	10,300		May 31, 1957	12.75	6,010
	June 1, 1947	14.77	10,300		June 4, 1957	12.62	5,770
	June 23, 1947	14.80	10,300		June 15, 1957	14.95	9,800
					June 23, 1957	13.34	6,700
1948	June 21, 1948	16.43	17,000		Sept.15, 1957	14.68	9,200
	July 23, 1948	13.14	6,240		Sept.21, 1957	13.05	6,250
1949	May 18, 1949	19.68	32,300	1958	June 21, 1958	13.05	7,220
	May 26, 1949	11.86	5,210				
	June 10, 1949	15.10	11,200				

a From floodmark, furnished by Corps of Engineers.
b From rating extension.

2310. Little River near Sasakwa, Okla.

Location.--Lat 34°59', long 96°33', in NE¼ sec.22, T.6 N., R.7 E., on right bank at downstream side of pier of county highway bridge, 2¾ miles northwest of Sasakwa, 8.7 miles downstream from Salt Creek, and at mile 24.1.

Drainage area.--865 sq mi.

Gage.--Nonrecording prior to Apr. 11, 1946; recording thereafter. Datum of gage is 749.21 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--21 ft.

Historical data.--Corps of Engineers reports indicate that at site 5 miles downstream the flood of June 6, 1932, was 2.3 ft higher than that in May 1929, and that major floods occurred in May 1898, May 1908, and October 1923.

Remarks.--Base for partial-duration series, 5,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	June 1939	31.2	33,000	1946	Oct. 1, 1945	27.50	16,000
					Mar. 28, 1946	23.55	7,460
1943	May 11, 1943	30.8	27,100		June 1, 1946	23.30	7,120
					July 1, 1946	22.37	5,990
1944	May 28, 1944	25.54	11,700				
				1947	Dec. 13, 1946	23.56	7,460
1945	Mar. 4, 1945	23.00	6,510		Apr. 16, 1947	25.39	11,500
	Mar. 16, 1945	27.00	16,000		Apr. 26, 1947	21.62	5,080
	Mar. 20, 1945	25.70	12,300		May 17, 1947	25.67	12,300
	Apr. 15, 1945	32.50	39,000		May 21, 1947	24.36	9,040
	June 13, 1945	25.6	12,000		June 2, 1947	26.60	14,800
	June 18, 1945	22.9	6,260		June 25, 1947	23.93	8,010
	June 23, 1945	23.3	6,900				
	July 11, 1945	23.2	6,730	1948	June 24, 1948	30.63	28,000

Peak stages and discharges of Little River near Sasakwa, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	July 4, 1948	23.78	7,300	1954	May 13, 1954	18.55	5,010
	July 24, 1948	23.15	6,600				
				1955	May 21, 1955	24.29	10,200
1949	May 2, 1949	21.38	5,160				
	May 19, 1949	30.80	29,800	1956	Oct. 7, 1955	13.51	2,630
	June 12, 1949	24.39	9,040				
				1957	Apr. 3, 1957	19.87	6,270
1950	May 11, 1950	33.48	44,600		Apr. 22, 1957	21.59	7,320
	July 11, 1950	21.03	5,760		May 18, 1957	29.80	26,500
	July 19, 1950	22.79	7,420		May 22, 1957	22.90	8,360
	July 23, 1950	25.07	11,000		May 27, 1957	28.71	22,400
	July 26, 1950	20.64	5,480		June 6, 1957	23.43	8,870
	Sept.16, 1950	23.01	7,650		June 10, 1957	20.38	6,570
					June 15, 1957	23.10	8,550
1951	May 20, 1951	19.40	4,770		June 17, 1957	21.51	7,250
					June 24, 1957	23.21	8,650
1952	Apr. 23, 1952	22.88	8,150		July 25, 1957	18.27	5,380
					Sept.16, 1957	19.62	6,090
1953	July 21, 1953	26.41	15,400		Sept.22, 1957	19.56	6,090
1954	Oct. 24, 1953	24.31	10,200	1958	June 22, 1958	18.92	6,390
	Oct. 27, 1953	20.35	6,090		June 25, 1958	18.65	6,090
	May 2, 1954	25.20	12,200		Aug. 21, 1958	28.24	23,100

2315. Canadian River at Calvin, Okla.

Location.--Lat 34°58', long 96°14', in NE¼SW¼ sec.22, T.6 N., R.10 E., near left bank on downstream side of pier of bridge on U. S. Highway 75, half a mile northeast of Calvin, 2½ miles upstream from Shawnee Creek, 8.5 miles downstream from Little River, and at mile 93.9.

Drainage area.--27,952 sq mi, of which about 23,151 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Aug. 13, 1944; recording thereafter. Prior to 1935 at site three-quarters of a mile upstream at datum 2 ft higher. Datum of present gage is 684.72 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 140,000 cfs and extended above.

Bankfull stage.--15 ft.

Remarks.--Slight regulation since 1938 by Conchas Reservoir. Gage-height records 1909-38 furnished by U. S. Weather Bureau. Records 1944-55 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 25,000 cfs. Only annual peaks are shown prior to 1939.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	Oct. 4, 1904	20.5	-	1916	Jan. 21, 1916	11.2	-
1906	Aug. 7, 1906	21.0	a128,000	1917	Aug. 18, 1917	7.8	-
1907	Aug. 27, 1907	5.8	-	1918	May 11, 1918	6.2	-
1908	May 24, 1908	17.2	-	1919	Sept.22, 1919	8.0	-
1909	May 24, 1909	11.0	-	1920	Sept.10, 1920	8.7	-
1910	Aug. 20, 1910	5.8	-	1921	June 9, 1921	12.0	-
1911	June 2, 1911	7.1	-	1922	May 9, 1922	7.5	-
1912	June 18, 1912	6.5	-	1923	June 10, 1923	13.0	-
1913	June 17, 1913	7.4	-	1924	Oct. 14, 1923	13.2	-
1914	May 3, 1914	18.0	-	1925	May 11, 1925	8.6	-
1915	Apr. 21, 1915	8.8	-	1926	Sept.30, 1926	8.5	-

a Result of slope-area measurement of peak discharge.
Note.--Gage heights shown for period 1904-38 are generally maximum observed and are often considerably lower than peak stage.

Peak stages and discharges of Canadian River at Calvin, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Apr. 13, 1927	9.5	-	1946	Jan. 5, 1946	6.60	29,200
					May 29, 1946	8.36	39,300
1928	Oct. 2, 1927	8.0	-		May 31, 1946	7.94	34,900
1929	Nov. 20, 1928	8.0	-	1947	Oct. 11, 1946	9.68	49,300
					Dec. 11, 1946	9.10	48,300
1930	June 16, 1930	8.9	-		Apr. 10, 1947	7.29	28,500
					Apr. 15, 1947	8.06	36,500
1931	Oct. 15, 1930	12.0	-		May 12, 1947	10.92	70,300
					May 16, 1947	11.50	78,100
1932	June 6, 1932	8.5	-		May 20, 1947	8.40	46,000
					May 24, 1947	6.93	25,000
1933	Aug. 30, 1933	10.6	-		June 1, 1947	12.30	88,500
					June 23, 1947	9.47	57,300
1934	Apr. 5, 1934	7.0	-				
				1948	Mar. 1, 1948	6.95	26,500
1935	Sept. 1, 1935	9.0	-		June 24, 1948	15.20	149,000
					July 23, 1948	6.02	28,600
1936	June 7, 1936	8.3	-				
				1949	Feb. 14, 1949	6.76	29,800
1937	May 31, 1937	15.0	-		May 1, 1949	9.00	61,000
					May 18, 1949	15.55	146,000
1938	May 20, 1938	8.8	-		May 29, 1949	6.45	35,900
					June 10, 1949	8.04	49,000
1939	June 25, 1939	7.86	31,700				
	July 3, 1939	8.8	41,900	1950	May 11, 1950	17.35	174,000
					July 10, 1950	6.58	31,600
1940	July 2, 1940	8.82	28,400		July 22, 1950	6.88	30,600
					July 24, 1950	7.05	32,600
1941	May 5, 1941	17.0	150,000		July 29, 1950	6.80	29,600
	May 26, 1941	8.18	39,300				
	June 2, 1941	9.50	47,800	1951	May 18, 1951	10.55	80,800
	June 6, 1941	11.00	63,100		June 12, 1951	7.94	47,800
	June 10, 1941	11.44	80,400				
	June 13, 1941	7.68	32,600	1952	May 24, 1952	6.49	26,300
	July 27, 1941	10.60	65,600				
	Sept. 9, 1941	8.66	35,300	1953	July 20, 1953	9.60	60,400
	Sept.25, 1941	13.85	101,000				
				1954	Oct. 23, 1953	7.26	35,100
1942	Oct. 4, 1941	11.74	77,400		May 2, 1954	8.52	51,600
	Oct. 15, 1941	9.17	36,300				
	Oct. 24, 1941	10.29	54,700	1955	May 20, 1955	12.60	102,000
	Oct. 30, 1941	13.9	100,000		May 24, 1955	8.10	43,900
	Apr. 9, 1942	8.40	39,300				
	Apr. 20, 1942	8.07	44,300	1956	Oct. 6, 1955	8.76	51,600
	Apr. 25, 1942	8.71	52,400				
	Apr. 28, 1942	9.89	57,100	1957	Apr. 3, 1957	8.25	45,000
	June 11, 1942	9.80	51,100		Apr. 21, 1957	7.45	31,800
	Sept. 7, 1942	8.21	35,200		Apr. 23, 1957	8.20	37,300
					May 14, 1957	8.02	42,800
1943	May 10, 1943	14.8	b130,000		May 18, 1957	14.10	134,000
					May 22, 1957	10.80	84,200
1944	June 14, 1944	7.8	b33,000		May 25, 1957	13.05	102,000
					May 28, 1957	8.40	48,400
1945	Mar. 15, 1945	11.15	71,000		May 31, 1957	6.63	30,000
	Mar. 19, 1945	7.76	33,700		June 4, 1957	6.60	30,000
	Apr. 16, 1945	9.65	56,000		June 15, 1957	10.50	72,100
	June 11, 1945	9.62	52,500		Sept.21, 1957	7.46	39,000
	June 17, 1945	7.98	38,200				
	June 21, 1945	8.00	38,500	1958	June 22, 1958	7.61	36,200
	July 7, 1945	6.90	27,200		June 25, 1958	7.55	38,400
	July 10, 1945	8.96	49,500		Aug. 21, 1958	12.70	104,000
	Sept.27, 1945	9.00	45,000				
	Sept.30, 1945	12.05	91,000				

b Estimated on basis of ratings for adjacent years, annual peak only.
Note.--Gage heights shown for period 1904-38 are generally maximum observed and are often considerably lower than peak stage.

2320. Gaines Creek near Krebs, Okla.

Location.--Lat 34°59', long 95°37', in SW¼NE¼ sec.21, T.6 N., R.16 E., on downstream side of right pier of abandoned bridge on county road, three-quarters of a mile upstream from Nutter Creek and 6½ miles northeast of Krebs.

Drainage area.--588 sq mi.

Gage.--Nonrecording prior to Dec. 5, 1945; recording thereafter. Datum of gage is 551.22 ft above mean sea level (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 19,000 cfs and extended on basis of contracted-opening measurement at 62,000 cfs.

Bankfull stage.--26 ft.

Historical data.--In 1942, local residents reported that an outstanding flood occurred in 1909 and a flood almost as high occurred in 1915. The flood in 1938 was reported to be greatest since at least 1912. The flood of Apr. 25, 1942, was reported as outstanding.

Remarks.--Base for partial-duration series, 5,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Feb. 18, 1938	31.9	70,000	1950	Jan. 15, 1950	23.87	7,950
					Feb. 14, 1950	24.24	8,400
1943	Dec. 28, 1942	28.85	18,700		May 13, 1950	23.75	7,300
	May 11, 1943	31.7	62,000		July 7, 1950	24.48	9,500
					July 25, 1950	23.34	7,850
1944	Mar. 1, 1944	22.9	7,900		July 31, 1950	24.76	9,350
	Mar. 21, 1944	19.5	6,310		Sept.17, 1950	30.62	25,200
	May 4, 1944	24.8	9,100				
	June 7, 1944	19.3	5,780	1951	Feb. 21, 1951	24.68	8,720
					June 14, 1951	24.76	9,460
1945	Feb. 22, 1945	29.6	24,300				
	Mar. 4, 1945	26.4	11,300	1952	Apr. 14, 1952	24.73	10,200
	Mar. 20, 1945	29.0	20,300		Apr. 24, 1952	23.30	7,100
	Apr. 1, 1945	26.7	10,700				
	Apr. 15, 1945	24.9	8,390	1953	Mar. 16, 1953	26.0	11,100
	May 17, 1945	27.2	12,500		Mar. 19, 1953	25.84	10,700
	June 13, 1945	29.1	20,800		Apr. 7, 1953	18.61	5,210
	June 19, 1945	23.4	7,840		Apr. 25, 1953	26.24	12,200
	July 3, 1945	19.5	5,690		Apr. 30, 1953	24.98	9,840
	Sept.29, 1945	24.7	6,680		May 14, 1953	27.46	13,400
					July 22, 1953	22.16	6,960
1946	Feb. 7, 1946	18.82	5,280		July 26, 1953	20.46	6,160
	Feb. 15, 1946	23.82	8,600				
	Feb. 20, 1946	23.63	7,960	1954	May 4, 1954	23.95	7,720
	June 2, 1946	24.72	9,400				
				1955	Mar. 22, 1955	26.8	10,800
1947	Nov. 8, 1946	28.62	17,200				
	Dec. 12,13, 1946	29.82	21,600	1956	May 25, 1956	14.76	3,570
	Apr. 12, 1947	23.65	8,540				
	Apr. 30, 1947	23.89	8,700	1957	Apr. 5, 1957	28.49	16,800
	May 18, 1947	27.64	13,000		Apr. 27, 1957	28.72	17,400
	June 3, 1947	24.95	9,600		May 19, 1957	24.40	8,950
					May 27, 1957	27.96	14,500
1948	Jan. 2, 1948	18.44	5,550		June 4, 1957	26.07	9,900
	Feb. 28, 1948	24.20	9,140		Sept.24, 1957	23.05	8,350
1949	Feb. 16, 1949	22.27	7,250	1958	Nov. 9, 1957	24.3	10,100
	May 3, 1949	18.78	5,180		Mar. 25, 1958	20.96	6,930
	June 16, 1949	22.45	7,450		May 4, 1958	25.94	12,200

Note.--Due to effect of slope, the peak stage and discharge often occur at different times of day.

2325. North Canadian River near Guymon, Okla.

Location.--Lat 36°43'20", long 101°29'30", in NW¼SW¼ sec.18, T.3 N., R.15 E., near center of span on downstream side of pier of bridge on U. S. Highway 64 at Dry Sand Draw, 1¼ miles upstream from Gulf Creek, 2½ miles north of Guymon, and at mile 650.7.

Drainage area.--2,139 sq mi (includes that of Dry Sand Draw), of which about 1,175 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 2,970.93 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 26,000 cfs and extended by logarithmic plotting.

Bankfull stage.--7 ft.

Remarks.--Records 1937-46 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 2,400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1937	June 1937	11.4	a28,600	1947	June 25, 1947	6.98	6,240
1938	May 31, 1938	6.33	4,800	1948	June 1, 1948	8.26	12,100
	June 17, 1938	7.22	7,550		June 24, 1948	8.70	13,900
	July 30, 1938	6.57	5,640		Aug. 13, 1948	5.61	3,380
	Sept. 5, 1938	7.58	9,020		Aug. 27, 1948	7.03	7,290
1939	Apr. 5, 1939	6.72	5,930	1949	May 17, 1949	5.58	3,380
	June 23, 1939	9.45	17,100				
	June 29, 1939	5.50	3,580	1950	July 19, 1950	7.96	11,200
	July 2, 1939	6.30	5,070		July 21, 1950	5.70	3,850
	Aug. 20, 1939	5.20	2,560		Aug. 27, 1950	7.17	8,400
					Sept.11, 1950	4.90	2,560
1940	May 18, 1940	6.55	5,930				
	May 28, 1940	6.10	5,070	1951	May 14, 1951	5.38	2,950
	Aug. 7, 1940	8.10	11,000		May 17, 1951	7.56	9,970
	Sept. 3, 1940	7.20	7,550				
				1952	July 16, 1952	6.95	6,930
1941	May 3, 1941	9.20	16,100				
	June 7, 1941	6.10	2,950	1953	July 20, 1953	4.44	1,240
	July 2, 1941	6.20	4,040				
	July 5, 1941	7.85	9,400	1954	Oct. 21, 1953	6.31	4,650
	Sept.21, 1941	9.50	17,600				
	Sept.23, 1941	13.82	44,000	1955	May 19, 1955	7.42	6,930
					May 25, 1955	10.90	25,300
1942	Oct. 21, 1941	5.50	4,380		June 16, 1955	5.61	3,380
	Apr. 20, 1942	8.00	16,700		June 19, 1955	7.88	10,400
	June 1, 1942	5.30	3,800		Aug. 8, 1955	7.13	7,650
	June 8, 1942	6.80	10,700				
				1956	May 25, 1956	9.50	17,700
1943	Aug. 6, 1943	5.15	1,470		June 20, 1956	6.15	4,540
					July 6, 1956	5.65	3,320
1944	July 20, 1944	5.15	1,470		July 17, 1956	5.43	2,920
					Aug. 19, 1956	7.03	7,100
1945	July 7, 1945	6.32	4,800				
	July 12, 1945	5.95	3,200	1957	May 28, 1957	5.78	2,950
	July 14, 1945	5.56	2,480		June 23, 1957	7.45	7,650
					Aug. 4, 1957	10.30	21,700
1946	May 29, 1946	8.40	12,300				
	Aug. 15, 1946	7.79	9,880	1958	July 6,16, 1958	5.90	2,650
	Aug. 19, 1946	8.60	13,200		Aug. 20, 1958	8.38	11,300
	Aug. 28, 1946	7.15	7,420		Sept. 5, 1958	11.12	22,600
					Sept. 7, 1958	7.68	8,500
1947	Oct. 7, 1946	6.10	4,100				

a Annual peak only.

2330. Coldwater Creek near Hardesty, Okla.

Location.--Lat 36°39', long 101°13', in NW¼NE¼ sec.15, T.2 N., R.17 E., on downstream side of piling near center of bridge on State Highway 3, 2 miles northwest of Hardesty and 5.7 miles upstream from mouth.

Drainage area.--1,967 sq mi, of which about 767 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 2,751.32 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Prior to 1950, extended above 1,500 cfs by conveyance studies; defined by current-meter measurements thereafter.

Bankfull stage.--7 ft.

Remarks.--Records 1939-46 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	July 2, 1939	6.70	10,600	1950	July 18, 1950	9.12	10,500
					July 21, 1950	5.31	2,680
1940	May 6, 1940	5.15	3,090		July 31, 1950	7.70	5,100
	May 18, 1940	7.35	14,500		Aug. 27, 1950	4.45	1,510
	May 28, 1940	5.22	4,080		Aug. 29, 1950	6.15	2,510
	June 10, 1940	4.85	2,720		Sept. 5, 1950	5.25	2,430
	Aug. 12, 1940	4.40	1,160		Sept.11, 1950	6.22	4,130
	Sept.24, 1940	4.81	2,220		Sept.13, 1950	5.80	3,380
					Sept.26, 1950	5.26	1,400
1941	May 22, 1941	5.95	6,640				
	July 13, 1941	5.20	3,700	1951	Oct. 1, 1950	5.44	1,480
					May 14, 1951	6.84	4,020
1942	June 8, 1942	4.87	2,330		May 16, 1951	7.68	7,250
	July 11, 1942	4.20	1,150		Aug. 22, 1951	5.34	1,360
1943	July 9, 1943	4.57	1,550	1952	July 17, 1952	5.18	837
1944	May 11, 1944	5.49	3,570	1953	July 23, 1953	5.15	845
1945	June 24, 1945	4.13	501	1954	June 15, 1954	3.98	95
1946	July 4, 1946	6.37	8,720	1955	May 15, 1955	8.45	6,810
					May 19, 1955	7.90	5,110
1947	Oct. 5, 1946	5.80	5,880		May 26, 1955	6.80	2,640
	Oct. 7, 1946	8.76	22,800		June 3, 1955	5.88	1,610
	June 25, 1947	9.07	24,600		June 18, 1955	8.80	8,670
					July 14, 1955	6.95	3,490
1948	June 27, 1948	3.80	440				
				1956	May 2, 1956	6.15	1,460
1949	May 15, 1949	5.15	3,160				
	July 10, 1949	5.84	6,080	1957	June 23, 1957	8.65	5,860
					Aug. 5, 1957	8.40	5,410
1950	July 2, 1950	4.88	1,960				
	July 5, 1950	4.27	1,120	1958	Aug. 20, 1958	7.88	4,810

2335. Palo Duro Creek near Spearman, Tex.

Location.--Lat 36°12', long 101°19', near center of span on downstream side of bridge on State Highway 282, at abandoned town of Hansford, 6 miles west of Spearman, Hansford County, about 18 miles upstream from Horse Creek, and at mile 50.0.

Drainage area.--960 sq mi, approximately, of which about 440 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 2,961.63 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 20,000 cfs and extended by logarithmic plotting.

Remarks.--Base for partial-duration series, 500 cfs.

Peak stages and discharges of Palo Duro Creek near Spearman, Tex.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	June 4, 1936	21	26,100	1953	June 4, 1953	13.12	1,750
					July 12, 1953	12.15	1,060
1938	Sept. 4, 1938	22.5	34,000		July 19, 1953	16.93	8,550
					July 23, 1953	11.66	844
1945	Sept.28, 1945	11.14	790				
	Sept.30, 1945	10.02	530	1954	June 8, 1954	11.91	985
					June 14, 1954	15.92	6,000
1946	Sept.12, 1946	13.90	3,430		July 23, 1954	12.04	840
1947	Oct. 7, 1946	19.87	21,200	1955	Oct. 6, 1954	12.82	1,450
	June 25, 1947	12.88	2,090		Apr. 30, 1955	16.25	6,660
					May 18, 1955	14.56	3,700
1948	Oct. 7, 1947	11.20	820		July 14, 1955	14.53	3,700
1949	May 16, 1949	12.70	1,980	1956	July 17, 1956	12.10	955
	May 19, 1949	10.88	730		July 19, 1956	12.60	1,290
					Aug. 20, 1956	12.11	785
1950	June 22, 1950	11.25	820				
	July 18, 1950	12.98	2,220	1957	Apr. 28, 1957	12.43	1,180
	July 21, 1950	10.62	655		May 16, 1957	11.38	695
	July 29, 1950	11.30	1,110		May 25, 1957	13.58	1,810
	Aug. 1, 1950	13.50	3,580		June 1, 1957	12.12	955
	Sept.11, 1950	12.45	1,580		July 25, 1957	11.01	616
					July 31, 1957	12.14	982
1951	May 14, 1951	13.03	1,770		Aug. 4, 1957	11.10	632
	May 17, 1951	15.32	4,930				
				1958	July 3, 1958	10.00	616
1952	Apr. 20, 1952	14.12	3,060		July 7, 1958	11.40	860
	Aug. 7, 1952	10.58	578		July 23, 1958	13.01	1,540
					Aug. 1, 1958	12.51	1,210

2340. North Canadian River at Beaver, Okla.
(Published as "Beaver Creek at Beaver" 1904-5)

Location.--Lat 36°49'20", long 100°31'05", in SW¼ sec.7, T.4 N., R.24 E., near right bank on downstream side of pier of bridge on U. S. Highway 270 at Beaver, 1½ miles downstream from Home Creek, 5 miles upstream from Clear Creek, and at mile 576.0.

Drainage area.--7,955 sq mi, of which about 3,685 sq mi contributes directly to surface runoff.

Gage.--Nonrecording during 1904-5 at unknown datum; recording since 1938. Prior to Oct. 1, 1946, at datum 3.0 ft higher. Datum of present gage is 2,368.16 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 42,000 cfs and extended to maximum discharge on basis of slope-area measurement of overflow and extension of main-channel curve.

Bankfull stage.--9 ft.

Remarks.--Records 1937-46 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 4,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1904	July 9, 1904	(a)	-	1939	June 27, 1939	3.96	4,650
					June 29, 1939	4.90	7,880
1923	-	b12.3	-		July 2, 1939	6.95	16,300
1938	May 31, 1938	4.72	6,920	1940	May 18, 1940	6.00	11,100
	June 9, 1938	4.19	5,160		May 28, 1940	5.00	6,350
	June 18, 1938	3.97	4,580		June 5, 1940	4.85	5,610
	Sept. 5, 1938	7.25	17,400		June 10, 1940	5.45	8,050
1939	Apr. 5, 1939	5.80	11,300	1941	May 3, 1941	7.00	17,000
	May 5, 1939	4.95	8,060		May 23, 1941	5.05	6,330
	May 25, 1939	4.70	7,000		July 5, 1941	6.93	16,000
	June 24, 1939	6.62	14,700		Sept.18, 1941	6.05	10,000

a Gage destroyed.
b Present datum, from floodmark, furnished by Corps of Engineers.

Peak stages and discharges of North Canadian River at Beaver, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Sept.24, 1941	10.65	38,200	1950	July 29, 1950	8.52	7,200
					Aug. 1, 1950	9.32	10,200
1942	Oct. 22, 1941	6.14	14,500		Aug. 29, 1950	8.50	6,800
	Apr. 21, 1942	7.60	20,200		Sept.27, 1950	7.66	4,350
	June 1, 1942	5.57	8,840				
	June 9, 1942	6.42	12,200	1951	May 14, 1951	10.60	22,100
					May 17, 1951	11.57	32,200
1943	Oct. 19, 1942	4.26	3,060				
				1952	July 19, 1952	5.49	1,180
1944	Apr. 10, 1944	5.63	8,240				
				1953	July 23, 1953	9.12	11,800
1945	June 3, 1945	5.10	5,350		Aug. 18, 1953	8.04	8,800
	June 26, 1945	5.20	5,710				
	July 6, 1945	5.60	7,500	1954	July 23, 1954	7.01	4,100
1946	Aug. 27, 1946	4.50	4,400	1955	May 2, 1955	7.01	4,100
					May 16, 1955	10.25	19,900
1947	Oct. 8, 1946	14.15	70,000		May 20, 1955	8.74	11,200
	June 26, 1947	8.90	18,300		May 26, 1955	9.70	17,200
					June 8, 1955	7.08	6,710
1948	June 2, 1948	6.72	6,180		June 17, 1955	10.94	28,100
	June 27, 1948	6.32	4,630		June 19, 1955	9.95	20,800
1949	June 4, 1949	8.11	13,200	1956	May 26, 1956	7.04	5,700
	June 9, 1949	8.54	16,100				
	June 13, 1949	7.20	7,920	1957	Apr. 17, 1957	8.03	8,810
	June 24, 1949	7.33	9,090		May 16, 1957	7.75	7,960
					June 24, 1957	7.35	6,650
1950	Oct. 10, 1949	7.18	8,240		July 1, 1957	7.15	5,110
	July 5, 1950	8.54	7,800		Aug. 5, 1957	7.9	8,470
	July 12, 1950	7.92	5,250				
	July 19, 1950	9.75	12,800	1958	Aug. 21, 1958	9.31	12,800
	July 21, 1950	8.53	7,000		Sept. 6, 1958	7.98	9,600
	July 25, 1950	9.92	13,700		Sept.10, 1958	6.93	5,860

2345. North Canadian River near Fort Supply, Okla.
(Published as "near Supply" prior to 1942)

Location.--Lat 36°35'30", long 99°35'30", in NE¼NE¼ sec.6, T.24 N., R.22 W., near right bank on downstream side of pier of bridge on State Highway 34, 1½ miles northwest of Fort Supply, 8.1 miles upstream from Wolf Creek, and at mile 495.8.

Drainage area.--9,615 sq mi, of which about 5,068 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Feb. 12, 1938; recording thereafter. Prior to June 6, 1951, at datum 6.0 ft higher. Datum of present gage is 1,969.63 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 37,000 cfs and extended above. Not defined since 1950.

Bankfull stage.--13 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 2,500 cfs. Only annual peak stages are shown since 1950.

Peak stages and discharges of North Canadian River near Fort Supply, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1937	June 10, 1937	8.3	10,900	1946	Aug. 30, 1946	6.20	2,100
1938	May 6, 1938	6.40	4,280	1947	Oct. 9, 1946	11.83	50,000
	May 23, 1938	6.30	3,960		May 16, 1947	6.95	8,100
	June 1, 1938	6.45	4,570		May 20, 1947	6.40	3,500
	June 20, 1938	5.70	2,610		June 27, 1947	7.04	7,400
	Sept. 7, 1938	8.18	10,400	1948	June 28, 1948	7.82	8,680
1939	Apr. 7, 1939	7.10	6,090				
	May 6, 1939	6.00	2,830	1949	May 17, 1949	7.91	11,100
	June 25, 1939	7.75	8,740		May 19, 1949	7.08	6,800
	June 28, 1939	6.36	3,740		May 23, 1949	6.05	2,680
	June 30, 1939	6.77	4,940		June 5, 1949	7.19	5,620
	July 3, 1939	7.85	8,940		June 9, 1949	7.33	6,120
					June 14, 1949	7.20	7,930
1940	May 19, 1940	6.77	6,850		June 24, 1949	5.35	3,060
	May 31, 1940	6.31	4,820		July 10, 1949	5.30	2,960
	June 6, 1940	6.62	4,180		July 12, 1949	5.62	4,000
	June 11, 1940	7.01	5,610				
	Aug. 8, 1940	7.67	9,300	1950	Oct. 10, 1949	4.08	3,820
					May 24, 1950	3.61	2,750
1941	May 4, 1941	7.10	6,030		July 6, 1950	4.84	6,350
	May 23, 1941	8.50	17,300		July 28, 1950	5.15	12,700
	June 9, 1941	6.50	4,630		Aug. 2, 1950	6.27	24,600
	July 7, 1941	7.60	8,940		Aug. 30, 1950	3.60	5,330
	Sept.25, 1941	7.95	13,900		Sept. 6, 1950	3.12	3,930
					Sept.12, 1950	3.59	5,330
1942	Oct. 23, 1941	8.75	17,400		Sept.27, 1950	3.00	3,520
	Apr. 22, 1942	7.80	8,960				
	Apr. 24, 1942	6.22	3,900	1951	May 17, 1951	7.77	-
	June 10, 1942	7.80	7,280				
				1953	July 25, 1953	10.14	-
1943	Oct. 20, 1942	5.91	2,510				
				1954	June 17, 1954	7.73	-
1944	Apr. 11, 1944	7.26	6,390				
	Apr. 30, 1944	6.14	3,240	1955	June 18, 1955	12.03	-
1945	June 4, 1945	6.25	2,850	1956	May 27, 1956	10.03	-
	June 27, 1945	6.45	3,340				
	July 7, 1945	6.34	4,260	1957	June 23, 1957	12.12	-
	Sept.28, 1945	5.95	2,590				
				1958	Aug. 22, 1958	10.05	-

2355. Wolf Creek near Shattuck, Okla.

Location.--Lat 36°17'10", long 99°54'45", in NE¼NE¼ sec.19, T.21 N., R.25 W., at The Atchison, Topeka and Santa Fe Railway Co. bridge, 2 miles northwest of Shattuck, 2½ miles upstream from Rock Creek, 3 miles downstream from Ivanhoe Creek, and at mile 38.2.

Drainage area.--1,183 sq mi, of which about 961 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 2,189.22 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 11,000 cfs and extended on basis of logarithmic plotting.

Bankfull stage.--6 ft.

Historical data.--Flood in October 1923 was reported by railway section foreman as highest known.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 1,800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	May 1, 1938	4.11	2,570	1942	Oct. 22, 1941	8.87	24,000
	May 23, 1938	4.63	3,840		Oct. 26, 1941	3.80	2,690
	May 31, 1938	4.23	2,880		Apr. 23, 1942	4.00	2,340
	June 7, 1938	4.07	2,500		June 9, 1942	5.35	5,920
	June 9, 1938	3.89	2,100		Aug. 12, 1942	5.70	6,900
	June 15, 1938	4.74	4,100		Aug. 15, 1942	4.17	3,160
	Sept. 4, 1938	5.55	6,480				
				1943	Oct. 15, 1942	4.47	3,820
1939	Mar. 25, 1939	4.12	2,620		Sept. 4, 1943	4.15	2,070
	Apr. 5, 1939	6.10	8,020				
	June 23, 1939	6.30	8,580	1944	Apr. 10, 1944	4.59	2,840
	July 2, 1939	4.60	3,840		July 25, 1944	6.60	8,800
	Aug. 8, 1939	4.55	3,710		Aug. 17, 1944	4.88	3,900
					Sept.19, 1944	4.94	4,060
1940	June 10, 1940	6.96	10,700				
	Aug. 8, 1940	8.42	16,600	1945	Oct. 2, 1944	6.18	8,290
	Sept. 3, 1940	4.05	2,460		June 12, 1945	4.72	3,960
					Sept.28, 1945	7.15	11,400
1941	May 11, 1941	4.30	3,320				
	May 23, 1941	7.20	12,100	1946	July 1, 1946	4.00	1,970
	June 9, 1941	7.70	14,600		Sept. 2, 1946	3.95	1,850
	July 6, 1941	3.40	2,940				
	Aug. 21, 1941	4.20	2,810				

2360. Wolf Creek near Fargo, Okla.

Location.--Lat 36°24'00", long 99°37'25", in SE¼NE¼ sec.11, T.22 N., R.23 W., near right bank on downstream side of county highway bridge, 800 ft downstream from Boggy Creek, 1¼ miles downstream from Sixteen Mile Creek, 1½ miles north of Fargo, and at mile 18.7.

Drainage area.--1,624 sq mi, of which about 1,386 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 2,054.35 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 8,300 cfs and extended on basis of contracted-opening measurement at 81,600 cfs.

Bankfull stage.--7 ft.

Historical data.--Flood of May 16, 1951, reported as maximum known at town of Gage, 12 miles upstream, prior to 1957.

Remarks.--Records 1943-50 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 2,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Oct. 15, 1942	-	4,500	1950	Sept. 5, 1950	3.70	3,570
	May 18, 1943	4.59	3,300				
				1951	May 16, 1951	8.19	23,500
1944	Mar. 15, 1944	3.96	2,050		June 15, 1951	4.26	5,160
	Apr. 10, 1944	4.38	3,150		June 20, 1951	3.50	3,220
	Apr. 22, 1944	6.17	6,950		June 25, 1951	3.67	3,620
	Apr. 29, 1944	4.65	3,410				
	July 25, 1944	6.93	8,900	1952	May 24, 1952	3.86	2,910
	Sept.19, 1944	4.05	2,200				
				1953	May 16, 1953	3.32	2,170
1945	Oct. 2, 1944	7.65	10,800		June 7, 1953	3.86	3,660
	Sept.28, 1945	5.70	6,030		July 24, 1953	3.67	3,100
1946	July 1, 1946	3.20	1,150	1954	Oct. 15, 1953	6.00	8,950
					May 25, 1954	3.34	2,450
1947	Apr. 10, 1947	4.22	2,350				
	May 16, 1947	7.18	9,530	1955	May 19, 1955	4.88	5,930
	May 20, 1947	4.40	2,850		June 9, 1955	4.32	4,560
	June 20, 1947	4.13	2,230		June 17, 1955	4.96	6,540
					June 19, 1955	3.85	3,300
1948	Apr. 22, 1948	5.10	4,400		June 28, 1955	4.64	5,590
	June 28, 1948	4.52	3,120		July 15, 1955	3.44	2,380
					Sept.28, 1955	3.57	2,640
1949	May 7, 1949	4.30	2,260				
	May 16, 1949	7.00	8,880	1956	Aug. 19, 1956	3.58	3,100
	May 19, 1949	6.65	8,070				
	May 23, 1949	5.70	5,750	1957	Mar. 31, 1957	3.98	4,280
	June 4, 1949	6.27	7,280		Apr. 21, 1957	5.50	9,610
	June 9, 1949	5.19	4,530		Apr. 23, 1957	3.15	2,400
	June 13, 1949	4.20	2,340		May 3, 1957	3.72	3,080
	June 24, 1949	5.05	4,290		May 10, 1957	3.73	3,540
					May 16, 1957	6.25	11,300
1950	May 8, 1950	6.38	6,250		May 24, 1957	4.70	6,680
	May 20, 1950	5.15	4,170		June 18, 1957	5.91	10,100
	June 12, 1950	4.20	2,050		June 23, 1957	10.0	81,600
	July 6, 1950	5.85	6,120		July 1, 1957	4.60	8,600
	July 18, 1950	7.06	9,420		July 24, 1957	2.32	2,220
	July 22, 1950	6.54	8,450		Sept.14, 1957	3.25	3,580
	July 27, 1950	5.40	5,870				
	July 29, 1950	3.82	2,630	1958	June 19, 1958	2.70	2,000
	Aug. 2, 1950	6.65	9,750		Aug. 1, 1958	4.10	6,400
	Aug. 29, 1950	3.95	3,470				

2370. Wolf Creek near Fort Supply, Okla.
(Published as "near Supply" prior to Oct. 1, 1941)

Location.--Lat 36°34'00", long 99°33'05", in SE¼SE¼ sec.9, T.24 N., R.22 W., on left bank on downstream side of pier of bridge on U. S. Highway 270, 1 mile southeast of Fort Supply, 1.6 miles downstream from Fort Supply Dam, and 3.9 miles upstream from mouth.

Drainage area.--1,739 sq mi, of which about 1,498 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Feb. 10, 1938; recording thereafter. At datum 6.00 ft higher prior to Oct. 1, 1944, and 3.00 ft higher Oct. 1, 1944, to Sept. 30, 1950. Datum of present gage is 1,962.38 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 8,000 cfs and extended by logarithmic plotting.

Bankfull stage.--11 ft.

Remarks.--Flow completely regulated since May 1942 by Fort Supply Reservoir (capacity, 106,100 acre-ft). Records 1938-50 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 3,000 cfs. Only annual peaks are shown subsequent to 1941.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Oct. 13, 1937	3.35	3,210	1946	Oct. 8, 1945	4.47	1,230
	Apr. 27, 1938	4.64	5,340				
	May 19, 1938	4.15	4,110	1947	May 23, 1947	5.44	3,290
	May 23, 1938	4.10	4,110				
	June 15, 1938	4.09	3,850	1948	July 1, 1948	3.79	1,500
	Sept. 4, 1938	4.20	4,250				
				1949	May 25, 1949	4.44	2,230
1939	Mar. 25, 1939	4.35	5,400				
	Apr. 5, 1939	5.20	10,700	1950	Aug. 23, 1950	3.22	1,410
	June 24, 1939	5.60	14,200				
	July 2, 1939	4.22	4,700	1951	May 28, 1951	5.90	-
					June 13-16, 1951	-	1,230
1940	June 11, 1940	4.65	6,510				
	Aug. 6, 1940	4.15	3,320	1952	Apr. 24, 1952	4.92	583
	Aug. 8, 1940	5.80	10,400				
				1953	July 26, 1953	5.35	798
1941	May 24, 1941	4.62	3,980				
	June 10, 1941	4.75	6,050	1954	Oct. 25, 1953	5.99	1,470
1942	Oct. 24, 1941	4.38	6,350	1955	June 23, 1955	6.63	2,240
1943	Oct. 15, 1942	1.59	477	1956	Feb. 20, 1956	3.25	49
1944	Apr. 24, 1944	3.11	3,620	1957	May 19, 1957	7.71	5,020
1945	Oct. 4, 1944	5.42	3,200	1958	Aug. 2, 1958	5.81	2,080

2375. North Canadian River at Woodward, Okla.

Location.--Lat 36°26', long 99°17', in SE¼SE¼ sec.25, T.23 N., R.20 W., near left bank on downstream side of pier of bridge on State Highway 15, 200 ft downstream from The Atchison, Topeka and Santa Fe Railway Co. bridge, 6 miles east of Woodward, 7.2 miles upstream from Indian Creek, 27.5 miles downstream from Wolf Creek, and at mile 460.2.

Drainage area.--11,589 sq mi, of which about 6,777 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Oct. 26, 1943; recording thereafter. Prior to July 13, 1951, at site 7.8 miles upstream. Oct. 1, 1938, to July 12, 1951, at datum 37.01 ft higher. Prior to Oct. 1, 1938, datum unknown but is approximately same as for 1938-51. Datum of present gage is 1,830.43 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 29,000 cfs and extended above.

Bankfull stage.--12 ft. At prior site and present Weather Bureau datum, 10 ft.

Remarks.--Some regulation since May 1942 by Fort Supply Reservoir on Wolf Creek (capacity, 106,100 acre-ft). Records 1938-46 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 3,500 cfs. Only annual peaks (furnished by U. S. Weather Bureau) are shown prior to 1939 and are generally maximum observed. Prior to 1931, no records were collected during winter period November to February.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1920	Sept. 8, 1920	7.9	-	1938	Sept. 7, 1938	5.3	11,400
1921	Oct. 22, 1920	9.4	-	1939	Apr. 6, 1939	4.78	9,320
					June 25, 1939	5.40	10,500
1922	Mar. 15, 1922	7.6	-		June 28, 1939	3.94	4,970
					June 30, 1939	4.40	5,950
1923	June 10, 1923	9.9	-		July 3, 1939	5.40	10,500
1924	Oct. 12, 1923	10.9	-	1940	May 19, 1940	4.10	4,960
					June 7, 1940	4.00	4,600
1925	June 14, 1925	4.0	-		June 11, 1940	5.10	8,940
					Aug. 9, 1940	5.44	10,300
1926	Sept. 6, 1926	4.0	-				
				1941	May 4, 1941	4.52	7,780
1927	Aug. 4, 1927	5.1	-		May 24, 1941	6.40	18,000
					June 9, 1941	4.80	8,240
1928	June 16, 1928	4.0	-		July 7, 1941	5.40	12,200
					Sept.25, 1941	5.20	8,240
1929	Nov. 17, 1928	4.0	-				
				1942	Oct. 23, 1941	7.70	31,000
1930	June 7, 1930	4.6	-		Apr. 22, 1942	5.40	8,800
					Apr. 24, 1942	4.40	6,000
1931	Oct. 13, 1930	4.0	-		June 10, 1942	5.15	8,250
1932	June 17, 1932	6.8	-	1943	Oct. 3, 1942	4.6	6,000
					Oct. 20, 1942	4.00	3,780
1933	May 7, 1933	7.0	-				
				1944	Apr. 11, 1944	4.82	6,600
1934	June 17, 1934	5.0	-		Apr. 22, 1944	4.54	6,030
					Apr. 25, 1944	4.53	5,000
1935	May 18, 1935	10.4	-		Apr. 30, 1944	4.24	4,260
					July 26, 1944	4.70	5,530
1936	June 6, 1936	7.8	-				
				1945	Oct. 5, 1944	4.22	4,180
1937	June 16, 1937	6.8	-		June 27, 1945	4.31	4,020

Peak stages and discharges of North Canadian River at Woodward, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Sept.28, 1946	4.10	3,170	1951	May 18, 1951	8.70	43,000
					May 23, 1951	4.08	4,630
1947	Oct. 10, 1946	9.80	42,000		June 12, 1951	4.55	5,320
	May 16, 1947	5.76	5,630		June 17, 1951	4.00	3,940
	May 20, 1947	5.09	5,210		June 25, 1951	4.58	5,710
	May 23, 1947	4.63	4,280				
	June 27, 1947	5.48	6,930	1952	Apr. 25, 1952	5.46	912
1948	June 28, 1948	5.55	8,410	1953	July 24, 1953	8.10	4,940
					Aug. 19, 1953	7.73	4,200
1949	May 17, 1949	5.98	9,790				
	May 19, 1949	4.90	6,270	1954	Oct. 27, 1953	6.15	1,410
	May 25, 1949	4.25	3,770				
	May 28, 1949	4.24	4,070	1955	May 18, 1955	8.41	6,400
	June 5, 1949	5.60	7,900		May 20, 1955	9.46	12,400
	June 10, 1949	5.40	7,250		May 28, 1955	8.31	6,600
	June 14, 1949	5.60	7,900		June 18, 1955	9.01	11,200
	June 25, 1949	4.48	5,190		June 21, 1955	9.08	11,200
	July 12, 1949	4.98	6,550		June 28, 1955	7.58	4,540
1950	July 6, 1950	4.67	5,320	1956	May 27, 1956	6.10	1,650
	July 13, 1950	4.73	5,190				
	July 21, 1950	6.25	9,790	1957	May 16, 1957	8.55	6,820
	July 23, 1950	6.50	10,500		May 20, 1957	7.75	4,340
	July 25, 1950	4.60	4,800		May 25, 1957	7.57	4,450
	July 28, 1950	6.68	10,900		June 20, 1957	7.15	3,740
	July 30, 1950	5.44	7,610		June 22, 1957	7.58	4,700
	Aug. 3, 1950	7.06	13,900		June 24, 1957	10.50	14,000
	Aug. 30, 1950	5.02	6,410		July 2, 1957	8.70	7,880
	Sept. 6, 1950	4.38	4,930				
	Sept.12, 1950	4.77	5,850	1958	June 22, 1958	7.36	3,680
	Sept.15, 1950	4.43	5,060		Aug. 22, 1958	8.00	5,510
	Sept.28, 1950	4.38	4,930				

2380. North Canadian River near Seiling, Okla.

Location.--Lat 36°11', long 98°55', in NW¼ sec.28, T.20 N., R.16 W., near center of span on downstream side of pier of bridge on U. S. Highway 60, 2 miles upstream from Seiling Creek, 2¼ miles north of Seiling, 2¾ miles downstream from Deep Creek, and at mile 422.6.

Drainage area.--12,261 sq mi, of which about 7,414 sq mi contributes directly to surface runoff.

Gage.--Recording. Prior to Oct. 1, 1954, at datum 5.00 ft higher. Present datum of gage is 1,675.42 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--11 ft.

Remarks.--Some regulation by Fort Supply Reservoir on Wolf Creek. Records 1946-50 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 3,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	Oct. 13, 1923	a16.4	-	1949	May 29, 1949	5.45	4,640
					June 4, 1949	6.38	6,760
1947	Oct. 11, 1946	11.00	29,300		June 8, 1949	6.03	7,130
	May 16, 1947	5.95	7,000		June 10, 1949	5.71	6,210
	May 21, 1947	5.78	6,550		June 15, 1949	5.64	6,200
	May 24, 1947	5.15	4,670		June 25, 1949	5.31	4,320
	June 27, 1947	5.78	5,450		July 12, 1949	5.63	6,580
1948	June 29, 1948	5.63	5,180	1950	June 10, 1950	4.75	4,110
	Aug. 9, 1948	7.06	9,550		July 7, 1950	5.19	4,850
	Aug. 14, 1948	5.84	5,680		July 14, 1950	5.35	5,180
					July 21, 1950	6.63	8,140
1949	May 7, 1949	5.39	4,530		July 30, 1950	7.25	9,290
	May 19, 1949	8.71	14,800		Aug. 4, 1950	7.78	8,600

a Annual peak only.

Peak stages and discharges of North Canadian River near Seiling, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Aug. 30, 1950	6.54	6,530	1955	May 26, 1955	9.95	4,060
	Sept. 7, 1950	5.56	4,850		May 28, 1955	11.02	6,490
	Sept.13, 1950	5.71	5,840		June 21, 1955	11.80	8,770
	Sept.15, 1950	5.40	5,180		June 24, 1955	9.73	3,770
	Sept.28, 1950	5.67	5,290		June 29, 1955	10.28	5,370
1951	May 19, 1951	10.61	40,100	1956	May 28, 1956	7.80	1,000
	May 22, 1951	5.81	5,480				
	June 12, 1951	5.61	4,680	1957	May 4, 1957	10.06	4,050
	June 17, 1951	5.21	3,980		May 17, 1957	11.10	7,010
	June 25, 1951	5.82	5,390		May 20, 1957	10.24	5,210
					May 25, 1957	10.51	6,240
1952	Apr. 19, 1952	3.35	1,260		June 22, 1957	10.15	5,070
					June 25, 1957	12.48	13,100
1953	July 25, 1953	6.02	3,840		July 3, 1957	10.97	8,510
	Aug. 19, 1953	5.79	3,780				
				1958	June 22, 1958	9.64	3,600
1954	Apr. 30, 1954	5.56	3,720		June 25, 1958	9.63	3,600
					Aug. 4, 1958	10.16	4,800
1955	May 20, 1955	12.10	8,510		Aug. 23, 1958	10.06	4,540

2390. North Canadian River at Canton, Okla.

Location.--Lat 36°04'45", long 98°35'25", in NE¼SW¼ sec.33, T.19 N., R.13 W., on right bank 2,700 ft downstream from Canton Dam, 1½ miles northwest of Canton, 4¾ miles upstream from Minnehaha Creek, and at mile 393.8.

Drainage area.--12,484 sq mi, of which about 7,601 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Oct. 1, 1937, at railway bridge 300 ft upstream from State Highway 58; recording Oct. 1, 1937, to Jan. 6, 1955, at State Highway 58, 2½ miles downstream. Prior to Oct. 1, 1950, all gage heights adjusted to datum 1.91 ft lower than present datum. Oct. 1, 1950, to Jan. 6, 1955, datum of gage was 6.91 ft lower. Datum of present gage is 1,562.50 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements throughout range of discharges shown.

Bankfull stage.--12 ft. At prior site and present datum, 14 ft.

Remarks.--Some regulation by Fort Supply Reservoir on Wolf Creek during May 1942 to April 1948 and complete regulation thereafter by Canton Reservoir (capacity, 390,800 acre-ft). Records 1937-50 computed by Corps of Engineers and reviewed by Geological Survey. Gage-height records for period 1914-37 furnished by U. S. Weather Bureau are generally annual observed peaks. Prior to 1931, no data were collected in winter period November to February. Base for partial-duration series, 2,000 cfs. Only annual peaks are shown prior to 1938 and subsequent to 1947.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	May 6, 1914	10.0	-	1923	June 10, 1923	13.6	-
1915	June 7, 1915	12.3	-	1924	Oct. 13, 1923	16.8	-
1916	June 7, 1916	13.0	-	1925	June 13, 1925	7.4	-
1917	Aug. 18, 1917	9.0	-	1926	Sept.12, 1926	5.6	-
1918	May 31, 1918	12.5	-	1927	Aug. 5, 1927	10.6	-
1919	May 27, 1919	8.0	-	1928	May 17, 1928	6.6	-
1920	Sept. 9, 1920	9.6	-	1929	Nov. 18, 1928	7.0	-
1921	Oct. 24, 1920	12.3	-	1930	May 7, 1930	8.6	-
1922	Mar. 16, 1922	9.1	-	1931	Oct. 14, 1930	6.0	-

Peak stages and discharges of North Canadian River at Canton, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	June 28, 1932	9.3	-	1942	June 11, 1942	9.35	5,780
					Sept.26, 1942	7.03	2,500
1933	May 8, 1933	9.4	-				
				1943	Oct. 3, 1942	9.20	6,500
1934	Apr. 4, 1934	11.5	-		Oct. 21, 1942	7.45	3,740
					May 19, 1943	7.03	2,410
1935	May 20, 1935	13.2	-		June 8, 1943	7.45	2,920
1936	June 7, 1936	11.5	-	1944	Apr. 12, 1944	8.54	3,820
					Apr. 23, 1944	9.63	5,850
1937	June 17, 1937	11.2	-		Apr. 26, 1944	8.78	4,550
					Apr. 29, 1944	7.74	2,940
1938	Apr. 28, 1938	7.43	3,690		May 1, 1944	7.89	3,120
	May 7, 1938	7.42	3,610		July 28, 1944	7.75	3,390
	May 19, 1938	10.25	8,750				
	May 24, 1938	8.13	4,770	1945	Oct. 6, 1944	7.56	2,350
	June 2, 1938	7.36	3,530		June 28, 1945	7.16	2,940
	June 16, 1938	6.35	2,060		Sept.28, 1945	9.02	4,550
	June 20, 1938	7.20	3,290				
	Sept. 8, 1938	8.78	6,010	1946	June 29, 1946	7.23	1,620
	Sept.13, 1938	6.82	2,690				
				1947	Oct. 12, 1946	12.83	24,800
1939	Nov. 3, 1938	6.52	2,270		Apr. 13, 1947	9.62	3,980
	Apr. 7, 1939	9.10	6,550		May 17, 1947	10.20	5,350
	June 26, 1939	9.78	7,860		May 21, 1947	9.63	4,450
	July 1, 1939	8.06	4,770		May 24, 1947	9.12	3,880
	July 4, 1939	9.53	7,290		June 28, 1947	9.73	4,570
1940	May 20, 1940	7.36	3,610	1948	Aug. 15, 1948	7.86	2,020
	June 1, 1940	6.40	2,130				
	June 7, 1940	6.76	2,620	1949	June 11, 1949	9.86	4,020
	June 12, 1940	9.00	5,300				
	Aug. 10, 1940	9.04	5,300	1950	Aug. 15,24-27	a8.55	3,230
1941	May 5, 1941	8.92	6,910	1951	June 15, 1951	13.44	3,820
	May 21, 1941	8.47	3,650				
	May 25, 1941	11.05	9,980	1952	Feb. 28, 1952	7.88	1,060
	June 4, 1941	7.40	2,500				
	June 7, 1941	7.17	2,720	1953	Sept.13, 1953	9.42	1,660
	June 10, 1941	10.10	7,200				
	June 23, 1941	7.07	2,610	1954	Mar. 19, 1954	9.32	1,500
	July 8, 1941	9.25	5,420				
	Aug. 27, 1941	8.27	4,050	1955	June 30, 1955	10.62	2,360
	Sept.26, 1941	9.45	5,780				
				1956	July 10, 1956	9.84	1,590
1942	Oct. 6, 1941	6.65	2,140				
	Oct. 15, 1941	7.28	2,830	1957	July 1, 1957	10.79	2,420
	Oct. 25, 1941	12.51	21,900				
	Apr. 23, 1942	9.35	5,780	1958	July 1, 1958	8.82	1,450
	Apr. 25, 1942	8.98	5,260				

a Occurred Aug. 18, 1950.

2395. North Canadian River near El Reno, Okla.

Location.--Lat 35°34', long 97°58', on east line of sec.32, T.13 N., R.7 W., near left bank on downstream side of pier of bridge on U. S. Highway 81, 2 miles north of El Reno, 2¼ miles downstream from Target Creek, and at mile 307.4.

Drainage area.--13,042 sq mi, of which about 8,143 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Mar. 3, 1938; recording thereafter. 1902-8 at site 50 ft downstream at unknown datum. Datum of present gage is 1,299.02 ft above mean sea level, datum of 1929. U. S. Weather Bureau gage heights for period 1934-37 have been adjusted to present datum.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--15 ft.

Remarks.--Some regulation by Fort Supply Reservoir on Wolf Creek since May 1942 and major regulation by Canton Reservoir since April 1948 (capacity, 390,800 acre-ft), 87 miles upstream. Gage heights for 1934-37 furnished by U. S. Weather Bureau. Base for partial-duration series, 3,100 cfs. Only annual peaks are shown prior to 1938.

Peak stages and discharges of North Canadian River near El Reno, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1903	May 28, 1903	10.5	4,400	1944	Apr. 10, 1944	13.18	9,540
					Apr. 24, 1944	9.09	3,110
1904	July 15, 1904	10.4	4,320		Apr. 27, 1944	9.08	3,220
					June 13, 1944	10.70	4,820
1905	June 1, 1905	6.0	980				
				1945	Apr. 11, 1945	9.05	3,140
1906	Aug. 12, 1906	10.0	3,600		Apr. 16, 1945	9.48	3,500
					May 12, 1945	9.40	3,380
1907	June 9, 1907	10.0	3,640		July 10, 1945	9.38	3,380
1924	Oct. 15, 1923	(a)	(b)	1946	June 29, 1946	9.41	3,300
1934	Apr. 6, 1934	11.5	-	1947	Oct. 15, 1946	11.99	5,800
					Apr. 15, 1947	9.74	3,390
1935	May 21, 1935	16.8	-		May 12, 1947	10.37	3,940
					May 16, 1947	11.57	5,440
1936	June 10, 1936	12.9	-		May 22, 1947	10.02	3,720
					May 26, 1947	10.08	3,610
1937	June 19, 1937	11.8	-		June 29, 1947	9.34	2,500
1938	May 8, 1938	9.10	3,390	1948	June 24, 1948	16.14	12,800
	May 21, 1938	11.10	7,950				
	May 25, 1938	10.00	5,290	1949	May 19, 1949	12.23	6,320
	Sept. 9, 1938	9.80	3,590		May 21, 1949	11.76	5,680
					May 29, 1949	10.56	4,050
1939	Apr. 9, 1939	10.40	4,340		June 13, 1949	10.68	4,050
	June 28, 1939	10.07	4,620				
	July 2, 1939	9.98	4,520	1950	Aug. 1, 1950	10.99	4,280
	July 6, 1939	10.13	4,800		Aug. 16, 1950	10.19	3,620
					Sept. 5, 1950	10.23	3,620
1940	June 13, 1940	9.32	3,080		Sept.17, 1950	9.76	3,290
1941	May 6, 1941	9.54	3,190	1951	June 11, 1951	10.77	4,280
	May 23, 1941	9.67	3,300		June 15, 1951	10.58	4,280
	May 28, 1941	11.56	5,830				
	June 6, 1941	9.35	3,080	1952	May 23, 1952	8.64	2,250
	June 13, 1941	11.60	6,130				
	July 9, 1941	9.64	3,760	1953	Sept.13, 1953	8.96	1,120
	Sept.27, 1941	9.72	3,760				
				1954	May 25, 1954	9.95	2,200
1942	Oct. 28, 1941	15.98	15,000				
	Apr. 19, 1942	12.82	8,360	1955	May 27, 1955	11.32	2,970
	Apr. 25, 1942	10.61	5,940				
	Apr. 27, 1942	9.80	4,660	1956	Oct. 4, 1955	12.82	5,240
	June 7, 1942	8.90	3,300				
	June 12, 1942	9.49	4,200	1957	Apr. 24, 1957	10.28	2,540
1943	May 10, 1943	8.88	3,160	1958	June 22, 1958	10.68	3,090
	May 19, 1943	10.00	4,430				

a Flood reached an elevation of 1,326.3 ft above mean sea level at railroad bridge 1 mile upstream.
b A peak inflow figure of 135,000 cfs at Lake Overholser, 25 miles downstream, is used by Oklahoma City Water Department, based on cross-sectional studies.

2410. North Canadian River below Lake Overholser, near Oklahoma City, Okla.

Location.--Lat 35°28'44", long 97°39'47", on north line of sec.31, T.12 N., R.4 W., near left bank on downstream side of pier of bridge on State Highway 4, 0.5 mile downstream from Lake Overholser, 2.4 miles upstream from Mustang Creek, 9.1 miles southwest of State Capitol in Oklahoma City, and at mile 281.0.

Drainage area.--13,222 sq mi, of which about 8,323 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 1,204.66 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 5,310 cfs and extended above.

Bankfull stage.--20 ft.

Remarks.--Flow partly regulated by Lake Overholser (capacity, 17,100 acre-ft), by Fort Supply Reservoir since 1942, and by Canton Reservoir since 1948. Municipal water supply for Oklahoma City obtained from flow diverted to Lake Hefner through Lake Hefner Canal and from Lake Overholser. Base for partial-duration series, 4,000 cfs.

Peak stages and discharges of North Canadian River below Lake Overholser, near Oklahoma City, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	October 1920	a20.7	-	1955	July 6, 1955	8.15	1,860
1923	June 1923	a26.0	-	1956	Oct. 5, 1955	12.44	5,790
					Oct. 7, 1955	10.34	4,120
1924	October 1923	a30.9	-				
				1957	June 24, 1957	10.00	3,120
1953	Apr. 5, 1953	4.47	165				
				1958	June 21, 1958	11.10	4,810
1954	May 2, 1954	3.81	78				

a Annual peak only, from information by State Highway Commission.

2415. North Canadian River near Oklahoma City, Okla.

Location.--Lat 35°29'40", long 97°25'40", on north line of sec.29, T.12 N., R.2 W., near right bank on downstream side of pier of bridge on U. S. Highway 62, 4½ miles east of State Capitol in Oklahoma City, 5 miles upstream from Crutcho Creek, and at mile 261.2.

Drainage area.--13,354 sq mi, of which about 8,455 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Feb. 8, 1940; recording thereafter. Prior to June 27, 1939, at site 1,250 ft downstream at datum 0.66 ft lower. Datum of last used gage is 1,140.79 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--11 ft.

Remarks.--Considerable regulation since April 1948 by Canton Reservoir, 133 miles upstream. Some regulation during period of record by Lake Overholser (capacity, 17,100 acre-ft), 20 miles upstream. Base for partial-duration series, 4,400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	June 3, 1932	-	a100,000	1946	June 29, 1946	7.39	3,330
1939	June 28, 1939	11.47	7,600	1947	Apr. 13, 1947	9.84	6,130
					Apr. 15, 1947	9.53	5,450
1940	July 2, 1940	9.80	5,240		May 16, 1947	10.74	8,010
					May 19, 1947	10.30	6,910
1941	May 5, 1941	11.77	8,240		June 1, 1947	8.84	4,610
	May 29, 1941	10.31	5,420				
	June 6, 1941	11.79	8,780	1948	Mar. 26, 1948	9.00	5,300
	June 15, 1941	10.78	6,080		June 22, 1948	12.01	9,060
					June 24, 1948	12.06	9,120
1942	Oct. 15, 1941	9.81	5,100				
	Oct. 30, 1941	14.74	16,700	1949	May 23, 1949	8.47	4,870
	Apr. 19, 1942	10.72	6,550		May 29, 1949	9.82	6,320
	Apr. 26, 1942	10.11	5,820		June 10, 1949	9.56	6,130
					June 21, 1949	9.04	4,870
1943	May 10, 1943	8.55	4,420				
	May 20, 1943	10.07	6,090	1950	Aug. 16, 1950	8.23	4,190
1944	Mar. 15, 1944	8.13	4,430	1951	May 18, 1951	11.35	7,880
	Apr. 11, 1944	9.13	4,620		May 21, 1951	9.83	5,660
	June 13, 1944	10.96	8,730		May 27, 1951	9.41	5,420
					June 11, 1951	11.88	8,700
1945	Apr. 12, 1945	9.20	5,600		June 19, 1951	9.06	5,060
	Apr. 16, 1945	10.67	8,200				
	June 11, 1945	10.88	8,500	1952	May 23, 1952	8.20	4,700
	July 10, 1945	9.17	5,580				
	Sept.30, 1945	10.0	7,000	1953	Apr. 5, 1953	9.54	6,410

a Data determined at Spencer, 5 miles downstream, furnished by Oklahoma City Water Department.

2420. North Canadian River near Wetumka, Okla.

Location.--Lat 35°15'40", long 96°12'40", in center of SW¼ sec.12, T.9 N., R.10 E., near left bank on downstream side of pier of bridge on U. S. Highway 75, 2.3 miles upstream from Wewoka Creek, 2½ miles northeast of Wetumka, and at mile 84.4.

Drainage area.--14,290 sq mi, of which about 9,391 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Jan. 19, 1939; recording thereafter. Datum of gage is 683.28 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 60,000 cfs and extended above.

Bankfull stage.--14 ft.

Remarks.--Some regulation by Lake Overholser (capacity, 17,100 acre-ft) at mile 281.5 and since April 1948 by Canton Reservoir (capacity, 390,800 acre-ft) at mile 394.3. Base for partial-duration series, 5,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	October 1923	a26.9	-	1947	Apr. 28, 1947	11.43	6,590
					May 12, 1947	11.30	6,790
1927	April 1927	a26.5	-		May 17, 1947	13.23	9,550
					May 21, 1947	12.76	8,650
1938	Feb. 17, 1938	-	11,000		June 1, 1947	12.14	7,770
	Mar. 29, 1938	15.64	7,440		June 24, 1947	11.75	6,480
	Apr. 22, 1938	12.52	5,050		June 26, 1947	11.72	6,270
	May 23, 1938	13.14	5,470				
				1948	Mar. 26, 1948	11.35	5,660
1939	June 29, 1939	12.62	5,950		May 6, 1948	12.63	8,210
					May 25, 1948	11.30	5,460
1940	Sept. 5, 1940	9.47	3,820		June 24, 1948	20.99	30,000
					July 8, 1948	12.99	11,000
1941	Apr. 19, 1941	13.20	7,900				
	June 2, 1941	11.77	6,260	1949	Feb. 24, 1949	10.40	5,780
	June 8, 1941	13.94	8,340		May 1, 1949	11.45	7,280
	June 12, 1941	19.18	16,600		May 18, 1949	17.60	32,200
	Sept.10, 1941	11.88	6,360		May 24, 1949	10.40	7,450
					June 3, 1949	11.10	8,950
1942	Oct. 5, 1941	15.25	8,730		June 11, 1949	11.55	9,950
	Oct. 16, 1941	15.49	9,020		June 24, 1949	10.06	5,700
	Oct. 26, 1941	11.37	5,790				
	Oct. 31, 1941	24.4	25,000	1950	Apr. 3, 1950	9.83	6,460
	Nov. 4, 1941	18.75	19,800		May 11, 1950	16.49	36,000
	Apr. 10, 1942	15.58	10,200		July 10, 1950	11.10	8,050
	Apr. 22, 1942	15.18	12,200		July 22, 1950	11.50	10,800
	Apr. 25, 1942	15.85	10,300		Aug. 28, 1950	10.29	5,670
	June 11, 1942	11.87	7,290		Sept. 1, 1950	10.10	5,370
	June 13, 1942	11.03	6,150		Sept.16, 1950	13.07	23,500
	June 22, 1942	11.79	6,770		Sept.25, 1950	10.35	5,820
1943	Oct. 30, 1942	11.00	5,670	1951	May 24, 1951	9.30	5,230
	May 10, 1943	23.72	28,300		June 15, 1951	10.81	9,210
	May 17, 1943	10.53	6,120				
	May 20, 1943	11.35	7,090	1952	Apr. 23, 1952	10.10	8,000
1944	Mar. 16, 1944	10.31	6,120	1953	Apr. 24, 1953	10.60	11,300
1945	Mar. 3, 1945	12.34	7,980	1954	May 2, 1954	11.20	16,900
	Mar. 12, 1945	10.98	6,650				
	Mar. 15, 1945	b13.51	9,300	1955	May 20, 1955	11.94	14,500
	Mar. 20, 1945	14.93	10,400				
	Apr. 15, 1945	26.40	66,000	1956	Oct. 6, 1955	9.53	4,970
	May 12, 1945	12.36	10,100				
	June 12, 1945	11.98	8,840	1957	Apr. 3, 1957	11.02	10,900
	June 17, 1945	13.02	11,500		Apr. 23, 1957	10.25	8,710
					May 13, 1957	10.54	12,300
1946	Oct. 1, 1945	14.23	13,900		May 19, 1957	11.88	18,400
	Mar. 28, 1946	9.43	5,210		May 23, 1957	11.25	12,900
	Apr. 23, 1946	10.25	6,370		May 25, 1957	15.00	39,400
	Apr. 30, 1946	9.47	5,630		June 4, 1957	11.00	10,900
	May 8, 1946	10.00	6,070		June 10, 1957	11.35	14,100
	May 24, 1946	14.10	15,200		June 15, 1957	10.74	12,300
	May 31, 1946	12.28	10,000		June 19, 1957	10.96	13,500
	June 30, 1946	11.12	6,790		June 24, 1957	10.33	9,690
1947	Dec. 12, 1946	11.77	8,770	1958	June 25, 1958	10.75	11,800
	Apr. 16, 1947	11.50	7,850		Aug. 22, 1958	10.80	13,500
	Apr. 25, 1947	10.91	5,650				

a Annual peak only, from floodmarks from information furnished by Corps of Engineers.
b Occurred Mar. 16, 1945.

2425. Bellcow Creek at Chandler, Okla.

Location.--Lat 35°42', long 96°53', in SW¼ sec.9, T.14 N., R.4 E., on right bank half a mile upstream from bridge on U. S. Highway 66, half a mile west of courthouse in Chandler, and 1.4 miles downstream from Bellcalf Creek.

Drainage area.--46 sq mi.

Gage.--Recording. Datum of gage is 824.26 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,600 cfs and extended above.

Bankfull stage.--12 ft.

Remarks.--Base for partial-duration series, 1,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	May 16, 1943	-	a2,600	1951	June 8, 1951	8.34	1,620
					June 10, 1951	8.54	1,680
1948	June 24, 1948	15.20	-		June 19, 1951	10.84	2,530
					Sept. 6, 1951	7.69	1,420
1949	Jan. 23, 1949	6.9	1,210				
	May 18, 1949	7.52	1,390	1952	May 23, 1952	11.80	2,910
	May 19, 1949	11.00	2,540		July 17, 1952	10.16	2,300
	May 21, 1949	7.0	1,240				
	May 24, 1949	9.0	1,860	1953	Apr. 5, 1953	7.00	1,260
					July 23, 1953	7.14	1,270
1950	June 10, 1950	8.46	1,700				
	July 10, 1950	9.04	1,860	1954	May 1, 1954	8.53	1,700
	July 20, 1950	8.34	1,670				
	Aug. 1, 1950	6.97	1,240	1955	May 19, 1955	9.80	2,110
1951	May 1, 1951	7.80	1,450				

a From contracted-opening measurement of peak discharge at site three-quarters of a mile downstream.

2435. Deep Fork near Beggs, Okla.

Location.--Lat 35°41', long 96°04', on line between secs. 19 and 20, T.14 N., R.12 E., near left bank on downstream side of pier of county highway bridge, 3 miles upstream from Adams Creek, 4 miles south of Beggs, 8 miles downstream from Flat Rock (Checkerboard) Creek, and at mile 85.0.

Drainage area.--2,018 sq mi.

Gage.--Nonrecording prior to June 23, 1953; recording thereafter. Prior to Aug. 29, 1939, at site 450 ft downstream at present datum. Datum of gage is 632.55 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 50,000 cfs and extended by logarithmic plotting.

Bankfull stage.--16 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 3,000 cfs.

Peak stages and discharges of Deep Fork near Beggs, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	July 8, 1939	12.50	2,280	1947	Apr. 19, 1947	23.30	11,300
					Apr. 30, 1947	22.40	9,220
1940	Apr. 30, 1940	14.82	3,060		May 18, 1947	25.90	17,700
	Sept. 5, 1940	20.94	4,870		June 3, 1947	16.00	3,120
					July 2, 1947	17.20	3,500
1941	Dec. 2, 1940	20.13	4,890				
	Apr. 22, 1941	23.88	18,500	1948	May 17, 1948	19.24	4,300
	May 10, 1941	21.85	10,500		June 24, 1948	33.35	53,400
	June 11, 1941	29.78	31,000		July 12, 1948	22.90	10,400
	Sept.11, 1941	18.40	3,950				
				1949	Feb. 16, 1949	18.12	3,960
1942	Oct. 6, 1941	23.50	11,800		May 3, 1949	19.34	4,590
	Oct. 17, 1941	22.90	10,400		May 24, 1949	27.80	23,200
	Nov. 3, 1941	28.79	27,100		June 4, 1949	22.62	9,680
	Nov. 25, 1941	15.98	3,120		June 12, 1949	25.20	15,800
	Apr. 13, 1942	24.18	13,400				
	Apr. 23, 1942	27.75	23,400	1950	Apr. 5, 1950	15.71	3,190
	June 15, 1942	23.71	12,200		May 12, 1950	26.85	20,200
	June 26, 1942	26.25	18,600		July 13, 1950	16.65	3,520
	Aug. 19, 1942	22.18	8,760		July 20, 1950	23.65	12,000
					Sept.16, 1950	20.80	6,050
1943	Oct. 31, 1942	19.33	4,270				
	Mar. 28, 1943	17.00	3,430	1951	Feb. 21, 1951	16.00	3,300
	May 11, 1943	34.55	66,800		Mar. 11, 1951	15.40	3,080
	May 20, 1943	28.05	24,000		June 17, 1951	20.35	5,780
	June 2, 1943	18.0	3,770				
				1952	Mar. 12, 1952	14.90	3,010
1944	Mar. 22, 1944	18.61	3,990		Apr. 24, 1952	18.60	5,090
	Apr. 10, 1944	17.40	3,570		May 30, 1952	19.60	6,200
	May 5, 1944	16.62	3,310				
	May 11, 1944	19.90	4,600	1953	Apr. 26, 1953	19.00	4,710
	May 30, 1944	17.90	3,740				
				1954	May 4, 1954	18.88	4,660
1945	Mar. 8, 1945	17.01	3,430		May 26, 1954	14.74	3,010
	Mar. 20, 1945	25.63	17,700				
	Apr. 15, 1945	34.11	60,900	1955	May 25, 1955	23.18	11,100
	June 14, 1945	17.88	4,030				
	June 18, 1945	22.09	8,530	1956	Oct. 5, 1955	12.82	2,400
	July 3, 1945	19.97	5,070				
				1957	Apr. 3, 1957	15.86	3,430
1946	Oct. 5, 1945	24.50	13,400		Apr. 27, 1957	21.50	7,290
	Jan. 11, 1946	15.79	3,060		May 20, 1957	22.74	9,910
	Apr. 4, 1946	15.93	3,180		May 26, 1957	29.75	30,300
	May 5, 1946	17.60	3,700		June 6, 1957	22.52	10,500
	May 14, 1946	16.40	3,340		June 16, 1957	26.17	20,300
	May 29, 1946	20.36	5,600		June 29, 1957	20.35	6,810
	June 30, 1946	15.50	3,030				
				1958	June 23, 1958	19.53	5,390
1947	Dec. 14, 1946	17.95	3,770		June 27, 1958	25.22	16,600

2440. Deep Fork near Dewar, Okla.

Location.--Lat 35°28'50", long 95°52'50", in SE¼ sec.25, T.12 N., R.13 E., at left bank on downstream side of pier of bridge on U. S. Highway 266, 3.2 miles upstream from Wolf Creek, 3½ miles east of Dewar, and at mile 43.9

Drainage area.--2,307 sq mi.

Gage.--Nonrecording prior to Feb. 14, 1939, and since Sept. 30, 1950; recording for remainder of period. Datum of gage is 578.32 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--18 ft.

Historical data.--Crest stage for 1908 obtained from floodmark by Corps of Engineers. Crest for 1935 obtained from floodmark on bridge in 1939, identified by local resident who said 1923 flood was "higher."

Remarks.--Records 1948-50 computed by Corps of Engineers and reviewed by Geological Survey. Maximum observed stages since 1950 from U. S. Weather Bureau records. Base for partial-duration series, 3,200 cfs.

Peak stages and discharges of Deep Fork near Dewar, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	October 1908	29.0	85,000	1946	Jan. 12, 1946	17.05	3,650
					Feb. 19, 1946	17.65	3,970
1935	June 1935	24.48	29,000		Apr. 24, 1946	16.94	3,690
					May 1, 1946	19.59	6,070
1938	February 1938	-	20,000		May 16, 1946	18.71	4,860
	Mar. 29, 1938	19.76	6,360		May 24, 1946	19.86	6,760
	Apr. 4, 1938	21.43	10,100		June 1, 1946	19.24	5,390
	Apr. 22, 1938	15.74	3,580		July 1, 1946	17.29	3,650
	May 23, 1938	19.21	5,700				
	June 12, 1938	17.40	4,370	1947	Nov. 7, 1946	16.82	3,680
					Dec. 12, 1946	20.00	7,020
1939	July 9, 1939	11.69	2,220		Apr. 22, 1947	20.67	9,500
					May 3, 1947	20.11	7,600
1940	Sept. 6, 1940	18.45	4,140		May 20, 1947	21.84	14,700
					June 2, 1947	18.74	4,860
1941	Dec. 6, 1940	17.72	4,190		July 4, 1947	16.14	3,430
	Apr. 24, 1941	21.87	12,300				
	May 15, 1941	19.64	5,700	1948	Mar. 2, 1948	15.90	3,340
	June 13, 1941	23.9	23,300		Mar. 23, 1948	15.77	3,300
	Sept.18, 1941	17.26	3,420		Mar. 26, 1948	18.45	4,640
					May 19, 1948	17.52	4,110
1942	Oct. 10, 1941	21.05	8,750		June 24, 1948	25.16	39,500
	Oct. 16, 1941	21.88	12,200		July 15, 1948	20.72	8,760
	Oct. 30, 1941	24.17	24,400				
	Nov. 5, 1941	24.24	24,400	1949	Feb. 15, 1949	18.61	4,720
	Apr. 15, 1942	21 56	12,400		Feb. 25, 1949	16.20	3,360
	Apr. 25, 1942	24.32	27,400		May 9, 1949	19.18	5,560
	June 18, 1942	20.82	9,410		May 25, 1949	23.12	21,700
	June 28, 1942	22.02	14,800		June 4, 1949	21.25	11,000
	Aug. 23, 1942	19.83	6,310		June 12, 1949	22.63	18,600
1943	Nov. 8, 1942	18.73	4,440	1950	Apr. 3, 1950	18.71	4,960
	Dec. 27, 1942	17.79	3,850		May 11, 1950	23.18	23,000
	Mar. 27, 1943	18.53	4,440		July 23, 1950	22.22	15,800
	May 12, 1943	26.21	44,800		Sept.17, 1950	20.46	8,160
	May 22, 1943	23.29	20,600				
				1951	Feb. 21, 1951	19.3	5,710
1944	Mar. 20, 1944	18.98	5,580		Mar. 12, 1951	18.7	4,960
	Apr. 12, 1944	16.12	3,660		June 22, 1951	18.7	4,960
	May 6, 1944	15.49	3,410				
	May 12, 1944	18.81	5,290	1952	Apr. 23, 1952	19.6	6,160
	May 29, 1944	17.10	4,110		June 2, 1952	17.7	4,050
1945	Mar. 3, 1945	19.12	5,390	1953	Mar. 25, 1953	19.06	5,440
	Mar. 21, 1945	21.96	15,800				
	Apr. 16, 1945	26.67	57,400	1954	May 3, 1954	21.06	7,120
	June 12, 1945	20.1	7,910				
	June 22, 1945	21.47	13,700	1955	May 21, 1955	19.98	6,900
	July 2, 1945	18.90	5,250		May 29, 1955	20.17	7,360
1946	Oct. 7, 1945	21.51	12,300				

2450. Canadian River near Whitefield, Okla.

Location.--Lat 35°16', long 95°14', in SE¼SE¼ sec.12, T.9 N., R.19 E., near right bank on downstream side of pier of bridge on State Highway 2, three-quarters of a mile north of Whitefield, 5½ miles upstream from Snake Creek, and at mile 18.8.

Drainage area.--47,576 sq mi, of which about 37,876 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Jan. 11, 1939; recording thereafter. Prior to Dec. 10, 1941, and June 12, 1947, to Sept. 30, 1948, at site 2.1 miles downstream at datum 2.80 ft lower. Datum of present gage is 478.16 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 230,000 cfs and extended above.

Bankfull stage.--16 ft.

Historical data.--Local residents reported that flood in May 1898 was about same as that in October 1941 (discharge smaller since channel capacity has increased over the period of years). Corps of Engineers reported that significant floods occurred in May 1914 and October 1923.

Remarks.--Occasional slight regulation by Conchas Reservoir in New Mexico. Records for 1938-39 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 35,000 cfs.

Peak stages and discharges of Canadian River near Whitefield, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	July 3, 1939	13.0	58,800	1948	Feb. 27, 1948	10.55	42,000
					Mar. 1, 1948	10.97	46,800
1940	Aug. 18, 1940	12.3	31,400		June 25, 1948	17.7	260,000
					July 12, 1948	11.47	42,700
1941	Jan. 1, 1941	14.41	53,500				
	Apr. 19, 1941	15.45	63,900	1949	Feb. 15, 1949	13.44	54,100
	May 6, 1941	17.75	94,600		May 2, 1949	14.86	78,700
	May 26, 1941	13.04	40,800		May 19, 1949	18.70	210,000
	June 2, 1941	13.20	36,300		June 14, 1949	14.41	73,900
	June 7, 1941	15.70	74,200				
	June 11, 1941	16.90	85,400	1950	Feb. 13, 1950	12.60	42,700
	July 28, 1941	14.0	49,000		May 7, 1950	11.92	42,700
	Sept.26, 1941	15.0	62,300		May 11, 1950	20.00	256,000
					July 11, 1950	12.42	48,200
1942	Oct. 5, 1941	16.74	84,500		July 18, 1950	12.00	41,000
	Oct. 16, 1941	15.75	66,000		July 23, 1950	14.35	81,100
	Oct. 25, 1941	15.70	65,000		July 26, 1950	14.88	91,000
	Oct. 31, 1941	21.4	220,000		July 29, 1950	15.37	102,000
	Apr. 9, 1942	17.49	89,000		Aug. 3, 1950	13.34	43,600
	Apr. 25, 1942	21.10	137,000		Sept.16, 1950	18.73	159,000
	June 11, 1942	14.88	45,500				
	June 24, 1942	15.47	57,600	1951	Feb. 20, 1951	13.15	54,100
					May 19, 1951	14.47	73,900
1943	Dec. 27, 1942	14.8	48,500		June 12, 1951	13.97	64,800
	May 10, 1943	25.5	281,000		June 15, 1951	12.50	44,500
1944	May 28, 1944	13.08	35,800	1952	Apr. 23, 1952	14.42	60,400
	June 14, 1944	13.07	35,600				
				1953	Mar. 31, 1953	14.10	66,100
1945	Mar. 3, 1945	15.15	70,600		Apr. 24, 1953	14.01	57,800
	Mar. 15, 1945	17.22	107,000		May 13, 1953	12.11	35,900
	Mar. 19, 1945	15.66	90,000		July 21, 1953	13.40	48,700
	Mar. 30, 1945	14.36	47,500				
	Apr. 16, 1945	21.80	255,000	1954	May 2, 1954	18.71	165,000
	May 13,14, 1945	12.25	35,000		May 13, 1954	12.48	35,900
	June 12, 1945	15.50	90,400				
	July 11, 1945	13.11	46,100	1955	May 21, 1955	15.22	97,500
					May 24, 1955	13.07	48,700
1946	Oct. 1, 1945	16.08	102,000				
	Feb. 18, 1946	12.38	45,000	1956	Oct. 6, 1955	12.50	41,000
	May 3, 1946	13.25	46,400				
	May 23, 1946	14.26	75,000	1957	Apr. 3, 1957	15.76	94,700
	June 1, 1946	13.46	60,000		Apr. 24, 1957	15.38	100,000
	July 1, 1946	12.22	35,500		May 18, 1957	18.25	176,000
					May 23, 1957	16.40	159,000
1947	Oct. 11, 1946	12.07	38,700		May 26, 1957	16.80	159,000
	Nov. 6, 1946	12.85	45,600		June 2, 1957	14.74	89,500
	Dec. 10, 1946	17.1	151,000		June 11, 1957	12.63	45,400
	Apr. 11, 1947	13.60	47,100		June 15, 1957	15.72	119,000
	Apr. 16, 1947	13.4	45,600		Sept.22, 1957	12.00	37,100
	Apr. 29, 1947	13.80	48,600				
	May 13, 1947	16.93	118,000	1958	June 22, 1958	13.17	50,400
	May 17, 1947	18.07	144,000		June 26, 1958	14.30	77,400
	June 1, 1947	16.93	118,000		Aug. 21, 1958	15.55	103,000

2455. Sallisaw Creek near Sallisaw, Okla.

Location.--Lat 35°28', long 94°52', in SW¼ sec.34, T.12 N., R.23 E., on downstream side of right pier of abandoned highway bridge, 400 ft downstream from water-supply dam of City of Sallisaw, 3½ miles west of Sallisaw, 5 miles upstream from Little Sallisaw Creek, and 9 miles upstream from mouth.

Drainage area.--182 sq mi.

Gage.--Recording gage. Prior to Aug. 20, 1953, just above dam 400 ft upstream at datum 13.22 ft higher. Datum of present gage is 476.78 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements to 23,000 cfs and extended on basis of contracted-opening measurements of peak flows in April and June 1945.

Bankfull stage.--14 ft.

Historical data.--Flood in October 1941 reported by local resident in 1943 as "highest flood in recent years," referenced to high-water mark for flood of Dec. 27, 1942.

Remarks.--Small diversion at low-water dam for municipal water supply. Base for partial-duration series, 4,000 cfs.

Peak stages and discharges of Sallisaw Creek near Sallisaw, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	October 1941	a15.4	b28,400	1949	Jan. 24, 1949	3.56	5,660
					Jan. 27, 1949	3.10	4,370
1943	Nov. 5, 1942	4.08	7,740		Feb. 14, 1949	3.50	5,510
	Dec. 27, 1942	6.65	18,900		May 1, 1949	5.29	12,400
	Apr. 11, 1943	3.80	6,690		June 3, 1949	3.52	5,660
	May 10, 1943	8.63	38,000		June 13, 1949	4.46	8,820
	May 27, 1943	3.07	4,430				
				1950	Jan. 13, 1950	3.75	6,300
1944	Mar. 19, 1944	4.07	7,340		Feb. 12, 1950	4.05	7,340
	May 2, 1944	4.21	7,870		May 10, 1950	8.30	35,000
1945	Feb. 21, 1945	4.74	10,000	1951	Feb. 20, 1951	4.55	8,820
	Feb. 26, 1945	4.34	8,430		June 9, 1951	5.77	14,900
	Mar. 2, 1945	4.68	9,820				
	Mar. 15, 1945	3.73	6,300	1952	Apr. 12, 1952	3.32	4,920
	Mar. 19, 1945	6.76	20,100		May 3, 1952	3.43	5,630
	Mar. 25, 1945	4.51	9,010				
	Apr. 15, 1945	11.25	110,000	1953	Mar. 17, 1953	3.85	6,980
	May 16, 1945	3.59	5,820		May 12, 1953	4.06	7,690
	June 10, 1945	7.96	58,000				
	July 1, 1945	-	10,000	1954	May 2, 1954	15.50	30,000
1946	Feb. 13, 1946	4.72	9,820	1955	Feb. 19, 1955	11.56	9,620
	Apr. 23, 1946	3.10	4,370		Mar. 20, 1955	11.59	9,620
	May 23, 1946	5.76	14,900				
	June 30, 1946	5.40	12,900	1956	Apr. 29, 1956	6.83	3,420
1947	Nov. 6, 1946	4.75	10,000	1957	Apr. 3, 1957	16.50	38,400
	Nov. 10, 1946	4.50	9,010		Apr. 23, 1957	8.28	4,860
	Nov. 25, 1946	3.25	4,780		May 25, 1957	12.00	10,800
	Dec. 10, 1946	5.85	14,900		June 2, 1957	10.42	7,170
	Dec. 12, 1946	5.45	12,900		June 10, 1957	9.40	5,900
	May 17, 1947	3.63	5,980		June 13, 1957	13.50	17,000
	June 1, 1947	3.71	6,140				
	June 11, 1947	4.73	10,000	1958	Mar. 8, 1958	8.07	4,060
	June 21, 1947	3.78	6,470		May 2, 1958	10.46	6,940
					May 9, 1958	10.94	7,800
1948	Mar. 26, 1948	3.11	4,500		June 25, 1958	11.46	8,090
	Apr. 10, 1948	3.00	4,240		July 7, 1958	11.39	7,870
	June 24, 1948	4.45	8,820		July 13, 1958	10.80	6,790
	Aug. 8, 1948	3.71	6,300				
	Aug. 15, 1948	3.45	5,360				

a At present site and datum.
b Annual peak only.

2460. Sans Bois Creek near Keota, Okla.

Location.--Lat 35°16', long 94°58', in NW¼ sec.15, T.9 N., R.22 E., at bridge on State Highway 10, 2½ miles west of Keota and 13 miles upstream from mouth.

Drainage area.--346 sq mi.

Gage.--Nonrecording. Datum of gage is 437.27 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 17,000 cfs and extended above.

Bankfull stage.--17 ft.

Remarks.--Records 1938-40 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 1,800 cfs.

Peak stages and discharges of Sans Bois Creek near Keota, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Feb. 18, 1938	a26.1	30,000	1941	Apr. 21, 1941	16.7	2,310
					May 1, 1941	14.4	1,970
1939	Feb. 20, 1939	14.8	1,840				
	Mar. 5, 1939	14.8	1,840	1942	Oct. 17, 1941	17.5	3,050
	Apr. 7, 1939	17.1	2,920		Nov. 1, 1941	22.2	10,100
	Apr. 18, 1939	17.55	3,450		Jan. 31, 1942	14.7	2,030
					Feb. 17, 1942	14.5	2,120
1940	Apr. 13, 1940	17.90	3,660		Apr. 9, 1942	19.5	7,150
	June 11, 1940	16.7	2,740		Apr. 25, 1942	25.2	26,300
					June 26, 1942	15.7	2,260
1941	Jan. 3, 1941	19.4	6,300		July 12, 1942	15.6	2,280
	Feb. 4, 1941	13.8	1,830				
	Feb. 21, 1941	17.6	3,290	1943	May 11, 1943	a27.9	-
	Apr. 17, 1941	16.1	2,800				

a Annual peak only.

2465. Arkansas River near Sallisaw, Okla.

Location.--Lat 35°21', long 94°46', in SW¼ sec.9, T.10 N., R.24 E., near center of span on downstream side of pier of bridge on State Highway 59, 3.9 miles downstream from Sans Bois Creek, 7½ miles south of Sallisaw, and at mile 395.0.

Drainage area.--147,757 sq mi, of which about 125,516 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 413.42 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--23 ft.

Remarks.--Some regulation of peaks by storage reservoirs and power development. Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 100,000 cfs. Only annual peak stages are shown prior to 1948.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	April 1927	34.5	-	1951	May 22, 1951	21.30	180,000
					June 12, 1951	18.96	124,000
1940	Sept. 6, 1940	20.0	-		July 6, 1951	25.63	253,000
					July 19, 1951	25.84	245,000
1941	Apr. 21, 1941	29.05	-		Sept.17, 1951	18.73	118,000
1942	Nov. 2, 1941	34.70	-	1952	Mar. 13, 1952	17.03	104,000
					Apr. 23, 1952	18.82	129,000
1943	May 11, 1943	37.90	-				
				1953	Apr. 25, 1953	17.26	112,000
1944	May 3, 1944	24.33	-				
				1954	May 3, 1954	23.70	202,000
1945	Apr. 16, 1945	35.96	-				
				1955	May 22, 1955	17.30	108,000
1946	Oct. 2, 1945	27.37	-		May 30, 1955	17.46	102,000
1947	Dec. 12, 1946	23.80	-	1956	Oct. 7, 1955	19.70	139,000
1948	June 25, 1948	29.70	361,000	1957	Apr. 4, 1957	19.85	134,000
	July 20, 1948	20.72	144,000		Apr. 27, 1957	23.98	191,000
	Aug. 16, 1948	20.26	138,000		May 3, 1957	22.08	146,000
					May 15, 1957	18.57	110,000
1949	Jan. 28, 1949	17.65	132,000		May 20, 1957	29.75	334,000
	Feb. 16, 1949	21.86	199,000		May 23, 1957	31.15	367,000
	May 2, 1949	18.83	139,000		May 27, 1957	34.80	544,000
	May 21, 1949	28.18	363,000		June 3, 1957	28.83	300,000
	June 12, 1949	21.77	160,000		June 16, 1957	28.04	264,000
1950	May 12, 1950	31.04	442,000	1958	Mar. 27, 1958	18.40	130,000
	July 23, 1950	24.40	212,000		June 26, 1958	20.28	161,000
	Aug. 3, 1950	23.75	203,000		July 9, 1958	16.76	106,000
	Sept.17, 1950	22.00	176,000		July 14, 1958	20.00	156,000
1951	Feb. 21, 1951	19.50	146,000				

2470. Poteau River at Cauthron, Ark.

Location.--Lat 34°55', long 94°18', in sec.16, T.3 N., R.31 W., on right bank at downstream side of highway bridge at Cauthron, 8 miles downstream from Jones Creek.

Drainage area.--200 sq mi.

Gage.--Nonrecording prior to May 2, 1939; recording thereafter. Datum of gage is 569.53 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--19 ft.

Historical data.--Flood in June 1935 was reported by local residents as greatest known.

Remarks.--Base for partial-duration series, 5,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	June 1935	a27.4	-	1949	Feb. 14, 1949	17.68	8,520
					Mar. 26, 1949	14.20	5,120
1939	Feb. 19, 1939	15.1	5,640		May 1, 1949	16.29	6,840
	Feb. 25, 1939	17.0	7,460				
	Mar. 5, 1939	14.6	5,240	1950	Jan. 4, 1950	17.08	7,710
	Apr. 6, 1939	17.8	8,470		Jan. 13, 1950	19.81	13,200
	Apr. 16, 1939	22.5	24,400		Feb. 1, 1950	17.92	8,840
					Feb. 12, 1950	22.78	27,800
1940	Apr. 29, 1940	10.71	2,810		Apr. 4, 1950	11.85	3,580
					May 8, 1950	18.28	9,500
1941	Dec. 16, 1940	10.57	2,760		May 12, 1950	14.98	5,690
					July 23, 1950	14.55	5,400
1942	Oct. 4, 1941	17.34	7,820		Aug. 2, 1950	15.60	6,180
	Oct. 31, 1941	18.87	10,500		Sept.16, 1950	14.42	5,260
	Apr. 8, 1942	16.70	7,130				
	May 20, 1942	14.54	5,160	1951	Feb. 15, 1951	15.08	5,770
					Feb. 20, 1951	14.59	5,400
1943	May 11, 1943	21.74	19,000				
	May 20, 1943	19.43	11,800	1952	Nov. 1, 1951	15.13	5,770
					Jan. 2, 1952	16.16	6,740
1944	Feb. 17, 1944	15.23	5,720		Mar. 10, 1952	15.88	6,450
	Feb. 28, 1944	17.09	7,580		Apr. 12, 1952	18.86	10,700
	Mar. 16, 1944	14.33	5,010		Apr. 22, 1952	18.69	10,900
	May 2, 1944	16.96	7,460				
				1953	Nov. 25, 1952	20.44	15,600
1945	Feb. 21, 1945	21.03	16,600		Mar. 18, 1953	20.28	15,200
	Feb. 27, 1945	19.07	10,800		Apr. 24, 1953	17.23	7,830
	Mar. 3, 1945	16.14	6,640		Apr. 29, 1953	18.90	10,700
	Mar. 6, 1945	14.13	5,050		May 13, 1953	20.46	16,000
	Mar. 12, 1945	17.34	7,950				
	Mar. 19, 1945	17.78	8,590	1954	May 2, 1954	19.86	13,600
	Mar. 29, 1945	22.11	22,000				
	May 15, 1945	22.39	23,800	1955	Mar. 21, 1955	17.22	7,830
	June 11, 1945	18.56	9,850				
				1956	Feb. 18, 1956	16.52	6,790
1946	Jan. 9, 1946	16.37	6,940				
	Feb. 13, 1946	18.30	9,350	1957	Jan. 22, 1957	14.57	5,220
	May 23, 1946	17.44	8,070		Apr. 4, 1957	18.37	9,680
	May 31, 1946	17.67	8,450		Apr. 25, 1957	16.28	6,840
					Apr. 27, 1957	18.15	9,320
1947	Nov. 26, 1946	15.58	6,180		May 23, 1957	18.73	10,300
	Dec. 10, 1946	21.18	17,400		June 5, 1957	16.20	6,740
					Aug. 12, 1957	18.38	9,320
1948	Dec. 7, 1947	14.90	5,610				
	Jan. 1, 1948	21.08	17,000	1958	Nov. 18, 1957	18.63	10,100
	Feb. 26, 1948	14.52	5,330		Mar. 7, 1958	15.85	6,820
	Mar. 2, 1948	14.44	5,260		May 2, 1958	18.91	11,200
1949	Jan. 24, 1949	23.34	31,000				

a Annual peak only.

2475. Fourche Maline near Red Oak, Okla.

Location.--Lat 34°54'45", long 95°09'20", in NW¼NW¼ sec.13, T.5 N., R.20 E., on downstream side of left abutment of highway bridge, 0.1 mile downstream from Little Fourche Maline, 5 miles southwest of Red Oak, and at mile 41.2.

Drainage area.--122 sq mi.

Gage.--Nonrecording prior to Apr. 25, 1939; recording thereafter. Datum of gage is 540.80 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 8,000 cfs and extended by logarithmic plotting.

Bankfull stage.--15 ft.

Remarks.--Records for 1939 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 3,100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	June 1935	a25.4	-	1948	Feb. 27, 1948	16.32	3,200
1939	Apr. 16, 1939	16.60	3,630	1949	Feb. 14, 1949	16.38	3,330
					June 14, 1949	16.15	3,090
1940	Apr. 11, 1940	17.47	5,850				
				1950	Jan. 13, 1950	16.87	4,210
1941	Apr. 16, 1941	16.53	3,470		Feb. 13, 1950	16.72	3,810
					May 11, 1950	17.49	5,720
1942	Oct. 31, 1941	17.94	7,130		July 22, 1950	17.30	5,190
	Apr. 8, 1942	17.72	6,470		July 29, 1950	20.72	16,400
	Apr. 25, 1942	22.34	26,300		Sept.16, 1950	20.60	16,100
	July 11, 1942	17.64	6,150				
				1951	Feb. 18, 1951	17.60	5,990
1943	Dec. 27, 1942	21.34	21,600		June 11, 1951	17.00	4,440
	Apr. 12, 1943	17.24	4,990				
	May 10, 1943	21.14	20,900	1952	Apr. 12, 1952	17.36	5,450
1944	Feb. 28, 1944	17.80	6,790	1953	Mar. 14, 1953	18.17	7,730
	May 2, 1944	17.54	5,850		Mar. 18, 1953	18.46	8,970
					Apr. 24, 1953	19.47	12,800
1945	Feb. 21, 1945	21.01	17,600		Apr. 29, 1953	17.25	5,450
	Mar. 3, 1945	17.60	5,990		May 12, 1953	17.96	8,030
	Mar. 19, 1945	19.17	11,000		July 25, 1953	16.79	4,680
	Mar. 30, 1945	17.99	7,130				
	Apr. 14, 1945	17.22	4,930	1954	May 2, 1954	11.89	1,460
	May 15, 1945	20.40	15,300				
	June 11, 1945	18.14	7,430	1955	Mar. 21, 1955	17.28	5,190
1946	Feb. 13, 1946	17.32	5,190	1956	Feb. 17, 1956	12.55	1,490
	May 31, 1946	16.86	4,210				
				1957	Apr. 3, 1957	18.86	13,400
1947	Nov. 6, 1946	17.68	6,270		Apr. 23, 1957	16.68	3,870
	Dec. 10, 1946	19.34	11,300		Apr. 26, 1957	19.02	14,300
	Apr. 11, 1947	17.70	6,270		May 26, 1957	17.76	7,520
	Apr. 29, 1947	17.04	4,440				
	May 17, 1947	17.13	4,680	1958	May 2, 1958	18.19	8,200

a Annual peak only.

2485. Poteau River near Wister, Okla.

Location.--Lat 34°56'15", long 94°42'50", in NW¼NW¼ sec.6, T.5 N., R.25 E., on left bank of outflow channel, 700 ft downstream from Wister Dam, 2½ miles southeast of Wister, 2.6 miles upstream from Caston Creek, and at mile 60.5.

Drainage area.--993 sq mi.

Gage.--Nonrecording prior to Jan. 1, 1939, at site 0.1 mile downstream at datum 13.11 ft lower; recording thereafter. Jan. 1, 1939, to Sept. 30, 1947, and Oct. 1, 1947, to June 28, 1953, at sites 1.6 and 1.1 miles, respectively, downstream at datum 12.41 ft lower. Datum of present gage is 445.43 ft above mean sea level, datum of 1929.

Bankfull stage.--18 ft. At previous site, 24 ft.

Historical data.--Maximum stage known occurred in 1935. According to project report for Wister Reservoir, other major floods occurred in August and October 1915, April 1927, May 1930, May 1935, and February 1938.

Remarks.--Flow completely regulated by Wister Reservoir since October 1949 (capacity, 429,600 acre-ft). Records 1938-39 furnished by Corps of Engineers. Base for partial-duration series, 7,000 cfs. Only annual peaks are shown subsequent to 1948.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	June 1935	a43.0	-	1946	Jan. 10, 1946	27.51	14,800
					Feb. 14, 1946	30.00	18,400
1939	Feb. 21, 1939	22.88	10,200		Apr. 25, 1946	27.15	14,400
	Feb. 26, 1939	25.37	13,000		May 1, 1946	19.08	6,880
	Apr. 7, 1939	25.90	13,700		May 4, 1946	23.31	10,200
	Apr. 17, 1939	37.1	77,800		May 18, 1946	21.78	8,880
					May 26, 1946	30.20	18,800
1940	Apr. 12, 1940	19.70	7,670		June 1, 1946	32.24	26,800
1941	Jan. 2, 1941	21.58	8,760	1947	Nov. 7, 1946	27.90	15,300
	Feb. 21, 1941	19.89	7,740		Nov. 9, 1946	28.72	16,400
	Apr. 16, 1941	18.98	7,200		Nov. 27, 1946	21.40	8,560
	Apr. 18, 1941	21.28	8,580		Dec. 12, 1946	34.66	46,400
					Apr. 11, 1947	26.29	13,800
1942	Oct. 5, 1941	20.79	8,770		Apr. 30, 1947	23.56	11,500
	Nov. 2, 1941	27.69	15,400		May 14, 1947	25.10	12,700
	Apr. 9, 1942	31.03	21,800		May 18, 1947	22.46	10,700
	Apr. 26, 1942	29.82	18,700				
				1948	Dec. 8, 1947	23.34	10,300
1943	Dec. 28, 1942	30.64	20,600		Jan. 2, 1948	32.71	24,500
	May 11, 1943	37.05	77,000		Feb. 27, 1948	29.50	17,500
	May 22, 1943	26.08	13,400		Mar. 2, 1948	26.03	12,200
					May 12, 1948	25.12	11,300
1944	Feb. 29, 1944	28.75	17,000				
	Mar. 20, 1944	25.20	12,400	1949	Jan. 27, 1949	29.89	14,600
	May 3, 1944	31.06	22,100				
	June 14, 1944	20.94	8,840	1950	Jan. 12, 1950	23.33	8,420
1945	Feb. 18, 1945	20.40	8,490	1951	Feb. 27, 1951	20.11	7,090
	Feb. 22, 1945	34.31	42,800				
	Feb. 28, 1945	32.66	30,100	1952	Apr. 27, 1952	24.03	9,720
	Mar. 14, 1945	22.67	10,100				
	Mar. 20, 1945	33.08	32,900	1953	May 5, 1953	22.89	9,220
	Mar. 25, 1945	20.18	8,360				
	Mar. 31, 1945	34.23	41,900	1954	May 13, 1954	8.73	6,740
	Apr. 13, 1945	21.10	8,980				
	May 13, 1945	20.47	8,560	1955	Apr. 7, 1955	8.43	6,360
	May 16, 1945	37.16	78,600				
	June 12, 1945	35.00	49,400	1956	Feb. 23, 1956	8.10	6,060
	June 18, 1945	23.66	10,900				
	Sept.29, 1945	26.64	14,000	1957	May 27, 1957	14.41	11,300
1946	Jan. 6, 1946	19.91	7,440	1958	May 23, 1958	8.76	7,140

a Annual peak only, at site and datum used in 1938; estimated as 38.5 ft at site used 1939-47, on basis of fall determined for flood in 1943.

2490. Poteau River at Poteau, Okla.

Location.--Lat 35°03'35", long 94°36'10", in SE¼SW¼ sec.19, T.7 N., R.26 E., at St. Louis-San Francisco Railway Co. bridge, 1 mile northeast of Poteau, 2 miles upstream from Nail Creek, and at mile 39.6.

Drainage area.--1,240 sq mi.

Gage.--Nonrecording prior to May 20, 1939, at site 100 ft upstream; recording thereafter. Datum of gage is 409.4 ft above mean sea level (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 73,000 cfs.

Bankfull stage.--20 ft.

Historical data.--Major floods are reported to have occurred in May 1898, June 1904, and May 1908.

Remarks.--Base for partial-duration series, 6,500 cfs. Only annual peaks are shown prior to 1938.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)
1923	September 1923	29.0	21,000
1926	September 1926	32.5	40,000
1927	Apr. 15, 1927	34.0	51,000
1929	May 20, 1929	29.0	21,000
1930	May 12, 1930	31.8	37,000
1932	Feb. 18, 1932	31.0	32,000
1935	June 18, 1935	39.0	100,000
1938	Nov. 12, 1937	24.0	8,370
	Dec. 19, 1937	25.0	9,370
	Jan. 25, 1938	31.8	37,000
	Feb. 19, 1938	36.3	73,000
	May 30, 1938	28.0	16,500
	Apr. 1, 1938	24.1	8,460
	Apr. 9, 1938	24.8	9,160
	Apr. 17, 1938	24.2	8,560
1939	Feb. 21, 1939	24.70	9,060
	Feb. 27, 1939	26.80	12,400
	Apr. 8, 1939	26.69	12,100
	Apr. 17, 1939	36.20	68,200
1940	Apr. 12, 1940	22.40	7,540
1941	Jan. 3, 1941	24.87	9,260
	Feb. 4, 1941	19.91	6,550
1941	Feb. 21, 1941	23.28	8,250
	Apr. 19, 1941	24.75	9,160
1942	Oct. 6, 1941	22.31	7,750
	Nov. 3, 1941	27.77	11,800
	Feb. 1, 1942	20.16	6,700
	Apr. 10, 1942	29.63	22,700
	Apr. 27, 1942	28.56	18,500
1943	Dec. 29, 1942	29.03	20,900
	May 11, 1943	37.00	58,100
	May 16, 1943	23.22	7,420
	May 22, 1943	26.76	11,500
1944	Feb. 19, 1944	24.29	8,140
	Mar. 1, 1944	28.27	15,400
	Mar. 21, 1944	26.68	10,900
	May 4, 1944	29.51	20,300
	June 14, 1944	23.86	7,900
1945	Feb. 19, 1945	22.51	7,150
	Feb. 22, 1945	32.89	39,200
	Mar. 1, 1945	31.02	27,300
	Mar. 14, 1945	25.13	9,500
	Mar. 20, 1945	31.55	30,700
	Mar. 25, 1945	23.95	9,000
	Mar. 31, 1945	32.38	35,800
	Apr. 14, 1945	23.67	7,780
	May 16, 1945	36.42	66,300
	June 12, 1945	35.10	55,900
	June 19, 1945	25.89	9,680
	Sept.30, 1945	27.84	13,800

2494.5. Arkansas River at Fort Smith, Ark.

Location.--Lat 35°23'35", long 94°26'00", in S½ sec.27, T.11 N., R.27 E., Indian Meridian, on upstream side of bridge on U. S. Highway 64 at Fort Smith, 0.2 mile downstream from Poteau River, 7.1 miles upstream from Lee Creek, and at mile 361.8.

Drainage area.--149,972 sq mi, of which about 127,731 sq mi contributes directly to surface runoff.

Gage.--Nonrecording. Prior to Oct. 1, 1903, at present site and Oct. 1, 1903, to July 23, 1942, on Missouri Pacific Railroad Co. bridge 800 ft upstream. All gages at datum 380.24 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Not defined.

Bankfull stage.--22 ft.

Historical data.--The flood in June 1833 was highest known prior to flood in 1943.

Remarks.--Gage heights furnished by U. S. Weather Bureau. Crest stages affected by storage reservoirs and power development since 1940.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)
1833	June 1833	38.0	
1879	May 4, 1879	10.8	
1880	Apr. 5, 1880	12.9	
1881	May 25, 1881	15.8	
1882	Feb. 23, 1882	21.8	
1883	June 11, 1883	22.8	
1884	Feb. 14, 1884	27.9	
1885	Apr. 26, 1885	27.9	
1886	Aug. 9, 1886	13.7	
1887	June 18, 1887	9.3	
1888	May 21, 1888	17.8	
1889	Mar. 26, 1889	20.0	
1890	Mar. 12, Apr.28	21.0	
1891	June 8, 1891	20.4	
1892	May 19, 1892	30.95	
1893	May 1, 1893	26.8	
1894	Mar. 8-9, 1894	17.6	
1895	Aug. 1, 1895	19.6	
1896	Dec. 26, 1895	27.6	
1897	Jan. 5, 1897	18.6	
1898	May 7, 1898	35.4	
1899	May 9, 1899	26.4	
1900	May 23, 1900	12.8	
1901	Apr. 19, 1901	14.7	
1902	May 25, 1902	19.0	
1903	May 26, 1903	25.1	
1904	June 7, 1904	33.4	
1905	May 30, 1905	22.4	
1906	Aug. 10, 1906	20.2	
1907	May 17-18, 1907	19.3	
1908	May 27, 1908	32.7	
1909	May 27, 1909	26.6	
1910	Nov. 19, 1909	12.4	
1911	Aug. 7, 1911	21.2	
1912	May 1, 1912	28.2	
1913	Mar. 28, 1913	16.0	
1914	May 6, 1914	17.2	
1915	May 30, 1915	29.2	
1916	Jan. 30, 1916	32.7	
1917	June 10, 1917	15.0	
1918	May 12, 1918	18.00	
1919	Nov. 10, 1918	20.7	
1920	Mar. 28, 1920	22.9	
1921	Mar. 25, 1921	22.8	
1922	Apr. 12, 1922	27.8	
1923	June 15, 1923	29.4	
1924	May 2, 1924	23.0	
1925	Apr. 30, 1925	15.8	
1926	Sept. 8, 1926	19.7	
1927	Apr. 16, 1927	36.7	
1928	June 24, 1928	24.8	
1929	May 16, 1929	29.7	
1930	May 13, 1930	21.5	
1931	Feb. 10, 1931	14.2	
1932	Jan. 24, 1932	22.0	
1933	May 17, 1933	27.7	
1934	Apr. 8, 1934	18.1	
1935	June 19, 1935	34.4	
1936	Sept.30, 1936	20.00	
1937	June 14, 1937	21.7	
1938	Feb. 19, 1938	33.2	
1939	May 16, 1939	16.6	
1940	Sept. 6, 1940	19.1	
1941	Apr. 22, 1941	31.4	
1942	Nov. 1, 1941	37.3	
1943	May 12, 1943	41.7	
1944	May 4, 1944	26.7	
1945	Apr. 16, 1945	38.4	
1946	Oct. 2, 1945	28.8	
1947	Dec. 13, 1946	26.6	
1948	June 26, 1948	29.7	
1949	May 22, 1949	28.6	
1950	May 13, 1950	31.0	
1951	July 19, 1951	25.9	
1952	Apr. 24, 1952	19.2	
1953	Apr. 26, 1953	18.3	
1954	May 3, 1954	22.5	
1955	May 31, 1955	17.7	
1957	May 27, 1957	35.75	

2495. Cove Creek near Lee Creek, Ark.

Location.--Lat 35°43'20", long 94°24'30", in SW¼NW¼ sec.16, T.12 N., R.32 W., on downstream side of bridge, 4½ miles northwest of Lee Creek and 5¾ miles upstream from mouth.

Drainage area.--36.9 sq mi.

Gage.--Recording. Altitude of gage is 852 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 5,000 cfs and extended on basis of slope-area measurement at 20,500 cfs.

Bankfull stage.--7 ft.

Remarks.--Base for partial-duration series, 1,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	May 10, 1950	10.50	a9,510	1955	June 15, 1955	7.80	4,340
1951	Feb. 18, 1951	6.65	2,850	1956	Apr. 28, 1956	7.80	4,320
	July 2, 1951	8.80	5,890		May 15, 1956	6.60	2,790
1952	Mar. 10, 1952	5.28	1,580	1957	Apr. 3, 1957	13.50	20,500
	Apr. 12, 1952	5.79	2,150		May 17, 1957	11.75	13,700
	May 23, 1952	6.01	2,250		May 22, 1957	11.75	13,700
					May 25, 1957	7.00	3,300
1953	Mar. 14, 1953	8.03	4,640		June 9, 1957	6.30	2,440
	May 12, 1953	6.20	2,250		Aug. 13, 1957	8.70	5,840
	May 17, 1953	6.45	2,520		Aug. 16, 1957	9.60	7,680
					Sept.21, 1957	5.83	2,000
1954	May 2, 1954	5.56	1,670				
				1958	Nov. 7, 1957	6.09	2,230
1955	Oct. 11, 1954	6.78	2,930		Nov. 18, 1957	6.44	2,610
	Dec. 27, 1954	6.20	2,250		Mar. 8, 1958	6.15	2,280
	Feb. 19, 1955	7.90	4,190		June 25, 1958	6.90	3,170
	Mar. 20, 1955	7.20	3,470		July 12, 1958	12.45	16,100
	May 26, 1955	6.30	2,350		Aug. 2, 1958	6.30	2,200
	June 5, 1955	7.95	4,640				

a Annual peak only.

2500. Lee Creek near Van Buren, Ark.

Location.--Lat 35°29'40", long 94°27'00", in SE¼ sec.21, T.12 N., R.27 E., Indian Meridian, on right bank 300 ft west of Arkansas-Oklahoma State line, 3.2 miles downstream from Webbers Creek, 6¾ miles northwest of Van Buren, and 7.9 miles upstream from mouth.

Drainage area.--427 sq mi.

Gage.--Nonrecording prior to June 1937; recording thereafter. Datum of gage is 408.04 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 55,000 cfs.

Bankfull stage.--17 ft.

Remarks.--Base for partial-duration series, 13,000 cfs. Only annual peaks are shown prior to 1951.

Peak stages and discharges of Lee Creek near Van Buren, Ark.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	Feb. 8, 1931	20.5	27,700	1953	Mar. 14, 1953	15.65	16,200
					Mar. 18, 1953	17.24	19,500
1932	Jan. 16, 1932	18.1	23,200		May 12, 1953	16.57	18,300
1933	May 14,15, 1933	22.3	32,200	1954	May 2, 1954	15.34	15,600
1934	Sept. 2, 1934	13.3	13,700	1955	Feb. 20, 1955	18.54	22,500
					Mar. 20, 1955	16.06	17,300
1935	June 17, 1935	27.0	57,700				
				1956	Apr. 29, 1956	14.02	13,000
1936	Dec. 6, 1935	14.8	15,100				
				1957	Apr. 3, 1957	29.37	73,200
1943	May 10, 1943	27.0	57,700		May 17, 1957	17.98	21,700
					May 23, 1957	25.16	48,500
1945	Apr. 15, 1945	35.0	112,000		June 2, 1957	15.86	16,700
					June 13, 1957	20.66	29,800
1950	May 10, 1950	27.2	58,900		Aug. 16, 1957	14.04	13,000
1951	Feb. 18, 1951	17.76	20,900	1958	May 9, 1958	14.34	14,800
	July 2, 1951	19.46	25,000		June 25, 1958	15.22	16,600
					July 13, 1958	22.32	35,900
1952	Apr. 12, 1952	15.02	15,000				

2505. Arkansas River at Van Buren, Ark.

Location.--Lat 35°25'42", long 94°21'37", in NW¼ sec.36, T.9 N., R.32 W., near right bank on downstream side of bridge on U. S. Highways 64 and 71 at Van Buren, 1.3 miles downstream from Lee Creek, 8.6 miles downstream from Poteau River, and at mile 353.4.

Drainage area.--150,483 sq mi, of which about 128,242 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Oct. 1, 1934; recording thereafter. Datum of gage is 372.36 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 760,000 cfs.

Bankfull stage.--22 ft.

Historical data.--Maximum stage known since at least 1833, that of Apr. 16, 1945.

Remarks.--Peak discharges affected by storage reservoirs and power development since March 1940. Base for partial-duration series, 110,000 cfs. Only annual peaks prior to 1934.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Apr. 16, 1927	35.0	-	1936	Dec. 8, 1935	20.10	118,000
					Sept.30, 1936	21.17	143,000
1928	Oct. 5, 1927	25.2	243,000				
				1937	Oct. 10, 1936	20.10	126,000
1929	May 16, 1929	29.0	315,000		Jan. 17, 1937	21.9	154,000
					Feb. 2, 1937	21.1	143,000
1930	May 10, 1930	22.6	164,000		June 2, 1937	18.9	122,000
					June 14, 1937	21.9	148,000
1931	Dec. 6, 1930	15.5	82,500		June 19, 1937	21.0	134,000
1932	Jan. 24, 1932	22.15	184,000	1938	Feb. 19, 1938	32.71	375,000
					Mar. 30, 1938	a25.40	195,000
1933	May 17, 1933	27.88	278,000		May 25, 1938	25.12	200,000
1934	Apr. 9, 1934	17.90	116,000	1939	May 16, 1939	16.68	77,400
1935	Nov. 24, 1934	18.60	111,000	1940	Sept. 6, 1940	20.45	127,000
	Mar. 14, 1935	25.10	206,000	1941	Apr. 22, 1941	30.58	311,000
	Mar. 26, 1935	23.78	179,000		June 13, 1941	27.52	244,000
	May 6, 1935	22.41	165,000		Sept.11, 1941	a19.64	115,000
	May 22, 1935	25.48	215,000				
	June 9, 1935	a29.47	269,000	1942	Oct. 7, 1941	a25.93	209,000
	June 19, 1935	b34.1	418,000		Oct. 18, 1941	a26.32	204,000

a Occurred on following day.
b Occurred at different time than peak discharge.

Peak stages and discharges of Arkansas River at Van Buren, Ark.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Oct. 28, 1941	26.56	203,000	1948	Aug. 17, 1948	21.9	149,000
	Nov. 2, 1941	a35.70	485,000				
	Apr. 12, 1942	27.78	268,000	1949	Jan. 27-28, 1949	b22.02	157,000
	Apr. 30, 1942	31.00	328,000		Feb. 16, 1949	b24.90	205,000
	June 26, 1942	26.20	218,000		May 2, 1949	b21.40	152,000
					May 22, 1949	b29.03	323,000
1943	Dec. 29, 1942	a23.30	188,000		June 15, 1949	23.04	173,000
	May 12, 1943	b38.00	850,000				
	May 23, 1943	b36.80	752,000	1950	May 13, 1950	b30.90	402,000
	June 8, 1943	22.80	144,000		July 24, 1950	25.30	226,000
					July 30, 1950	23.20	173,000
1944	Mar. 21, 1944	22.50	152,000		Aug. 4, 1950	24.50	204,000
	Apr. 13, 1944	24.63	182,000		Sept.17, 1950	22.80	185,000
	May 3, 1944	a26.84	238,000				
	June 15, 1944	20.32	127,000	1951	Feb. 21, 1951	21.19	164,000
					May 22, 1951	a22.08	164,000
1945	Dec. 9, 1944	19.37	124,000		June 13, 1951	20.72	138,000
	Feb. 24, 1945	19.28	111,000		June 28, 1951	20.98	140,000
	Mar. 4, 1945	b23.88	177,000		July 6, 1951	26.76	250,000
	Mar. 21, 1945	b29.78	304,000		July 19, 1951	86.82	238,000
	Apr. 2, 1945	23.70	156,000		Sept.17, 1951	19.56	117,000
	Apr. 17, 1945	c38.10	650,000				
	May 17, 1945	21.86	146,000	1952	Apr. 24, 1952	20.70	145,000
	June 11, 1945	b26.70	229,000				
	July 4, 1945	20.40	130,000	1953	Apr. 26, 1953	b19.28	133,000
1946	Oct. 2, 1945	29.42	287,000	1954	May 3, 1954	23.84	205,000
	Jan. 12, 1946	20.45	139,000				
	Feb. 20, 1946	20.13	128,000	1955	May 31, 1955	18.91	101,000
	May 24, 1946	21.63	148,000				
	June 2, 1946	19.62	118,000	1956	Oct. 7, 1955	19.63	128,000
1947	Nov. 10, 1946	19.68	119,000	1957	Apr. 5, 1957	21.78	150,000
	Dec. 13, 1946	27.80	262,000		Apr. 28, 1957	25.32	197,000
	Apr. 17, 1947	26.36	238,000		May 28, 1957	35.97	510,000
	Apr. 30, 1947	25.80	205,000				
	May 18, 1947	26.72	224,000	1958	Mar. 28, 1958	20.17	132,000
	June 3, 1947	23.53	155,000		May 10, 1958	18.93	117,000
					June 26, 1958	21.90	171,000
1948	June 25-26, 1948	b30.61	330,000		July 15, 1958	22.20	160,000
	July 20, 1948	22.12	152,000				

a Occurred on following day.
b Occurred at different time than peak discharge.
c Occurred Apr. 16, 1945.

3000. Salt Fork Red River near Wellington, Tex.

Location.--Lat 34°57'25", long 100°13'30", near center of stream on downstream side of bridge on U. S. Highway 83, 4 miles downstream from Fort Worth and Denver (Burlington) Railway Co. bridge, 4.5 miles south of Lutie, and 6.5 miles north of Wellington, Collingsworth County.

Drainage area.--1,222 sq mi, of which about 1,013 sq mi contributes directly to surface runoff.

Gage.--Recording and nonrecording. Datum of gage is 1,941.41 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Subject to frequent shifts. Defined by current-meter measurements below 12,000 cfs and extended on basis of slope-area measurement at 63,400 cfs.

Bankfull stage.--20 ft.

Remarks.--Small diversions above station for irrigation. Base for partial-duration series, 5,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	-	17.5	-	1956	May 27, 1956	8.50	18,400
1953	July 19, 1953	13.90	63,400	1957	Oct. 15, 1956	6.30	6,660
					Apr. 28, 1957	8.86	21,000
1954	May 11, 1954	7.01	6,080		May 16, 1957	19.00	146,000
	May 24, 1954	7.65	8,640		May 24, 1957	7.01	10,800
	June 10, 1954	16.00	95,900		Aug. 4, 1957	6.00	5,460
					Aug. 29, 1957	6.05	6,260
1955	May 19, 1955	9.25	23,000				
	June 2, 1955	7.62	12,800	1958	May 13, 1958	12.50	51,700
	June 8, 1955	6.37	6,870		July 6, 1958	6.15	7,080
	June 19, 1955	9.30	23,700				

3005. Salt Fork Red River at Mangum, Okla.

Location.--Lat 34°52', long 99°31', in SW¼SE¼ sec.34, T.5 N., R.22 W., near left bank on downstream side of pier of bridge on State Highway 34, half a mile south of Mangum, 13 miles downstream from Fish Creek, and at mile 35.5.

Drainage area.--1,566 sq mi, of which about 1,357 sq mi contributes directly to surface runoff.

Gage.--Nonrecording at site a quarter of a mile upstream at unknown datum during 1905-6 and at present site Oct. 1, 1937, to Nov. 8, 1938; recording thereafter. Datum of present gage is 1,490.87 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 50,000 cfs and extended above.

Bankfull stage.--9 ft.

Historical data.--Local residents indicate that flood in 1938 is maximum known.

Remarks.--Base for partial-duration series, 6,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	May 19, 1938	9.74	10,400	1949	Feb. 6, 1949	9.51	6,320
	June 10, 1938	9.20	6,900		May 13, 1949	9.65	6,540
	June 16, 1938	14.7	60,000		May 18, 1949	10.56	11,900
1939	June 21, 1939	10.44	15,400	1950	Sept.11, 1950	9.31	5,690
1940	July 12, 1940	8.71	6,850	1951	May 17, 1951	10.79	13,200
					July 2, 1951	10.32	12,100
1941	Apr. 28, 1941	11.18	23,300				
	May 3, 1941	9.70	11,400	1952	Apr. 21, 1952	8.62	3,030
	May 20, 1941	10.50	17,400				
	May 24, 1941	9.32	7,610	1953	June 5, 1953	10.13	9,100
	June 6, 1941	10.54	17,800		July 19 1953	13.75	44,800
	June 8, 1941	12.20	32,500				
	June 29, 1941	9.80	11,400	1954	May 12, 1954	8.95	7,180
	Sept.17, 1941	9.31	8,790		May 24, 1954	9.19	8,240
					June 10, 1954	13.30	38,100
1942	Oct. 4, 1941	8.86	5,700				
	Oct. 23, 1941	9.47	8,370	1955	May 11, 1955	9.02	7,390
					May 16, 1955	9.08	7,180
1943	Oct. 15, 1942	10.45	15,800		May 19, 1955	10.77	16,600
	Oct. 17, 1942	8.92	6,000		June 3, 1955	9.21	7,600
					June 8, 1955	9.75	10,300
1944	June 1, 1944	9.92	9,240		June 19, 1955	10.61	15,400
	June 13, 1944	10.95	16,900		Sept.18, 1955	8.81	6,190
1945	June 5, 1945	8.77	6,160	1956	Oct. 4, 1955	10.20	13,100
					May 2, 1956	11.34	19,800
1946	Apr. 29, 1946	9.68	10,500		May 27, 1956	12.20	35,900
					July 17, 1956	10.10	19,100
1947	May 12, 1947	11.35	21,400				
	May 15, 1947	9.00	9,200	1957	Apr. 20, 1957	8.95	6,380
	May 20, 1947	8.96	8,660		Apr. 28, 1957	10.30	11,500
	June 12, 1947	9.26	7,240		May 8, 1957	9.30	7,390
	June 22, 1947	9.1	6,420		May 16, 1957	14.55	72,000
	June 25, 1947	8.9	8,080		May 25, 1957	8.90	10,200
	July 18, 1947	9.70	8,660				
				1958	May 13, 1958	12.18	32,500
1948	June 21, 1948	11.77	21,500		May 17, 1958	8.23	6,100

3015. North Fork Red River near Carter, Okla.

Location.--Lat 35°10', long 99°30', in NW¼SE¼ sec.15, T.8 N., R.22 W., near left bank on downstream side of pier of bridge on State Highway 34, 3 miles south of Carter, 10.8 miles downstream from Timber Creek, and at mile 110.5.

Drainage area.--2,337 sq mi, of which about 1,938 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 1,673.71 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 18,000 cfs and extended above.

Bankfull stage.--11 ft.

Remarks.--Base for partial-duration series, 3,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	June 21, 1945	8.63	6,360	1951	May 21, 1951	8.96	9,930
	Aug. 15, 1945	7.49	4,040		June 2, 1951	8.70	9,490
					June 6, 1951	9.26	11,400
1946	May 31, 1946	6.54	1,580				
				1952	Apr. 22, 1952	6.62	2,010
1947	Oct. 7, 1946	8.50	6,120				
	May 12, 1947	10.37	15,000	1953	July 20, 1953	8.20	4,190
	May 15, 1947	7.01	4,080				
	May 20, 1947	9.75	12,800	1954	Oct. 23, 1953	9.01	5,550
	June 7, 1947	8.03	7,010		Apr. 30, 1954	10.51	9,070
	June 20, 1947	7.24	4,920		May 11, 1954	8.71	5,360
	June 25, 1947	7.53	5,680		May 24, 1954	11.24	12,700
1948	Mar. 1, 1948	7.21	4,800	1955	May 16, 1955	8.75	5,170
	May 25, 1948	8.11	6,070		May 19, 1955	9.59	6,910
	June 21, 1948	8.33	7,010		June 5, 1955	7.86	3,390
					June 9, 1955	8.09	3,840
1949	Nov. 2, 1948	6.96	3,400		June 18, 1955	8.42	4,410
	Feb. 6, 1949	8.10	6,330				
	May 7, 1949	9.30	10,400	1956	Oct. 4, 1955	10.14	9,450
	May 17, 1949	7.45	5,050		May 1, 1956	9.00	6,510
	May 27, 1949	7.81	6,070		May 28, 1956	9.82	8,080
	June 3, 1949	7.07	4,800				
				1957	Apr. 19, 1957	10.39	10,600
1950	May 13, 1950	8.55	7,010		Apr. 23, 1957	9.80	9,470
	May 18, 1950	10.34	16,400		Apr. 26, 1957	8.03	4,360
	June 2, 1950	6.84	3,290		May 4, 1957	9.68	9,110
	June 11, 1950	7.35	4,440		May 11, 1957	8.86	6,240
	July 5, 1950	8.50	8,580		May 17, 1957	11.95	25,300
	July 20, 1950	8.35	7,430				
	Aug. 1, 1950	7.60	4,920	1958	May 13, 1958	8.10	5,360
	Aug. 17, 1950	8.67	8,000		June 21, 1958	8.63	6,660
					June 24, 1958	7.64	5,240
1951	May 18, 1951	9.45	18,300		July 5, 1958	7.58	3,920
					July 22, 1958	7.86	3,500

3020. North Fork Red River near Granite, Okla.
(Published as "Red River (North Fork) near Granite" 1903-4, and as "North Fork Red River at Lugert Dam" 1930-32)

Location.--Lat 34°58', long 99°20', on south line of sec.20, T.6 N., R.20 W., near center of span on downstream side of pier of bridge on State Highway 9, 2½ miles east of Granite, 6.4 miles upstream from Lugert Dam, and at mile 80.0.

Drainage area.--2,494 sq mi, of which about 2,095 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to 1938; recording thereafter. July 1903 to March 1908 at site 50 ft downstream at datum 4.90 ft lower. Apr. 19, 1930, to Dec. 31, 1932, at old Lugert Dam, 6.5 miles downstream at datum 1,504.31 ft above mean sea level, unadjusted. Datum of last used gage was 1,534.85 ft above mean sea level, datum of 1929.

Stage-discharge relation.--1903-8: Defined by current-meter measurements below 6,000 cfs.
1930-32: Defined by current-meter measurements below 360 cfs and extended by computation of flow over dam.
1937-44: Defined by current-meter measurements below 14,000 cfs.

Bankfull stage.--8 ft.

Historical data.--In 1931, the Corps of Engineers reported that the maximum flood known occurred in 1903. A stage of 16 ft shown on bridge plans (last used site and datum) may have occurred at that time.

Remarks.--Base for partial-duration series, 3,200 cfs. Only annual peaks are shown prior to 1938.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1904	May 3, 1904	8.5	9,500	1941	May 1, 1941	5.51	6,180
					May 4, 1941	6.52	7,180
1905	May 27, 1905	12.0	18,800		May 21, 1941	8.72	16,400
					May 24, 1941	8.30	13,500
1906	Nov. 24, 1905	10.0	9,000		May 27, 1941	4.52	4,160
					June 2, 1941	4.46	4,050
1907	June 21, 1907	11.0	10,000		June 6, 1941	4.74	4,200
					June 9, 1941	8.21	12,800
1928	May 16, 1928	14.5	14,300		June 23, 1941	4.95	4,300
					June 30, 1941	4.68	3,820
1930	May 7, 1930	13.70	10,400		Aug. 27, 1941	7.08	8,550
1931	Oct. 13, 1930	12.10	4,390	1942	Oct. 24, 1941	8.12	12,200
					Apr. 19, 1942	5.84	5,050
1932	June 26, 1932	11.5	2,680		Apr. 24, 1942	6.70	7,090
					Apr. 27, 1942	9.55	23,900
1935	May 18, 1935	9.8	28,000		June 9, 1942	7.08	8,230
					June 22, 1942	8.38	14,200
1938	Apr. 27, 1938	5.00	5,120				
	May 19, 1938	7.11	9,770	1943	Oct. 15, 1942	6.51	6,290
	June 16, 1938	4.22	3,790		Oct. 17, 1942	7.52	7,080
1939	May 8, 1939	6.75	8,960	1944	June 1, 1944	7.37	5,220
	June 19, 1939	4.68	4,490		June 13, 1944	8.6	10,400
	June 22, 1939	6.84	9,080		July 25, 1944	6.91	3,920
	July 2, 1939	4.45	3,990		July 30, 1944	7.07	4,410
					Sept.28, 1944	6.52	3,260
1940	July 2, 1940	4.50	4,090				

3030. North Fork Red River below Altus Dam, near Lugert, Okla.
(Published as "at Lugert Dam" 1930-32)

Location.--Lat 34°53'26", long 99°18'22", in SW¼ sec.22, T.15 N., R.20 W., on right bank 3,500 ft downstream from Altus Dam, 1.9 miles upstream from Elm Fork of North Fork, 2 miles west of Lugert, and at mile 72.8.

Drainage area.--2,515 sq mi, of which about 2,116 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Dec. 31, 1932, at old Lugert Dam, 0.7 mile upstream at datum 1,504.31 ft above mean sea level, unadjusted; recording thereafter at present site and datum. Datum of present gage is 1,471.81 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 11,000 cfs and extended above.

Bankfull stage.--18 ft.

Remarks.--Flow regulated since 1943 by Lake Altus (capacity, 148,600 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	May 16, 1928	14.5	14,300	1952	Apr. 21, 1952	1.95	24
				1953	June 5, 1953	3.16	(a)
1930	May 7, 1930	13.70	10,400	1954	-	-	No flow
				1955	-	-	No flow
1931	Oct. 13, 1930	12.10	4,390				
1932	June 26, 1932	11.5	2,680	1956	-	-	No flow
				1957	-	-	No flow
1951	May 18, 1951	12.70	16,100	1958	-	-	No flow

a Negligible flow.

3035. Elm Fork of North Fork Red River near Mangum, Okla.
(Published 1905-8 as "Elm Fork of Red River")

Location.--Lat 34°56', long 99°30', on east line of sec.10, T.5 N., R.22 W., near right bank on downstream side of pier of bridge on U. S. Highway 283, 3 miles north of Mangum, 5 miles downstream from Haystack Creek, and at mile 17.8.

Drainage area.--838 sq mi.

Gage.--Nonrecording 1905-8 at unknown datum and 1930-31 at datum 4.22 ft lower than last used gage; recording thereafter at datum 1,530.77 ft above mean sea level, datum of 1929 (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--11 ft.

Remarks.--Base for partial-duration series, 2,400 cfs. Only annual peaks are shown prior to 1930.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	May 27, 1905	15.0	23,000	1930	June 10, 1930	9.2	2,550
1906	Sept.17, 1906	8.0	6,200	1931	Oct. 14, 1930	9.0	2,440
1907	June 9, 1907	10.2	10,900	1938	May 16, 1938	6.44	4,180
					May 19, 1938	7.38	6,860
1908	Oct. 3, 1907	a13.0	17,500		June 10, 1938	8.07	10,400
					June 16, 1938	9.15	18,600
1921	-	b16.4	-		June 25, 1938	6.59	4,470
1930	May 6, 1930	9.7	2,860	1939	Jan. 8, 1939	7.76	8,580

a Maximum observed; may have been exceeded in May or June 1908.
b At present datum, from information by State Highway Commission.

Peak stages and discharges of Elm Fork of North Fork Red River near Mangum, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	Mar. 27, 1939	5.37	2,500	1942	June 23, 1942	6.11	2,900
	May 26, 1939	9.00	17,200				
	June 21, 1939	8.53	13,800	1943	Oct. 15, 1942	7.66	5,050
					Oct. 18, 1942	6.61	3,380
1940	Sept.23, 1940	4.93	1,690				
				1944	Mar. 15, 1944	5.77	2,430
1941	Apr. 16, 1941	5.98	3,410		June 1, 1944	5.73	2,470
	Apr. 19, 1941	5.28	2,440		June 13, 1944	7.00	3,760
	Apr. 29, 1941	7.77	8,580		July 13, 1944	8.12	6,200
	May 2, 1941	8.10	8,000				
	May 21, 1941	11.17	21,200	1945	June 16, 1945	8.70	7,580
	May 24, 1941	8.54	9,250		July 10, 1945	6.77	3,300
	June 6, 1941	7.36	4,920				
	June 9, 1941	11.05	20,400	1946	May 31, 1946	6.07	2,670
	June 16, 1941	6.42	3,600				
	June 23, 1941	6.54	3,760	1947	Oct. 6, 1946	7.58	4,610
	June 29, 1941	8.04	6,530		Apr. 15, 1947	6.27	2,840
	Aug. 27, 1941	7.01	7,700		May 12, 1947	13.52	30,600
	Sept.18, 1941	6.38	3,400		May 15, 1947	8.02	5,470
					May 20, 1947	8.96	6,710
1942	Oct. 22, 1941	7.80	5,860		May 24, 1947	6.32	2,780
	Apr. 24, 1942	6.97	4,380		June 5, 1947	6.40	3,000
	Apr. 27, 1942	11.18	27,800		June 20, 1947	6.08	3,000
	May 11, 1942	6.17	3,950		June 25, 1947	5.66	2,460

3045. Elk Creek near Hobart, Okla.

Location.--Lat 34°55', long 99°07', in NE¼ sec.17, T.5 N., R.18 W., near right bank on downstream side of pier of county highway bridge, 7 miles downstream from Little Elk Creek, 7½ miles south of Hobart, and 10.9 miles upstream from mouth.

Drainage area.--549 sq mi.

Gage.--Nonrecording 1904-8, June 6, 1951, to Oct. 23, 1952, and May 7, 1953, to Apr. 28, 1954; recording during remainder of period. Prior to Apr. 13, 1905, at site 3 miles southwest of Hobart at unknown datum. Apr. 13, 1905, to Mar. 31, 1908, at present site at datum 1,430.56 ft above mean sea level, unadjusted. Datum of present gage is 1,429.4 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 6,000 cfs and extended on basis of field estimate at 22,400 cfs.

Bankfull stage.--27 ft.

Remarks.--Base for partial-duration series, 1,800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	May 28, 1905	25.0	3,500	1954	Oct. 23, 1953	19.64	2,240
					May 24, 1954	18.60	1,870
1906	July 11, 1906	16.0	1,310				
				1955	May 9, 1955	18.76	2,040
1907	June 9, 1907	28.9	-		May 16, 1955	18.08	1,920
					May 19, 1955	23.30	3,270
1949	May 1949	a28.63	8,400				
				1956	Oct. 4, 1955	30.75	22,400
1950	July 17, 1950	19.00	2,200		May 28, 1956	18.70	2,130
	July 22, 1950	21.15	3,320		July 17, 1956	19.54	2,300
	July 26, 1950	17.05	2,170				
	Aug. 2, 1950	15.66	1,860	1957	Apr. 3, 1957	18.67	2,080
					Apr. 21, 1957	18.21	2,140
1951	May 18, 1951	27.89	6,090		Apr. 24, 1957	23.55	3,790
	May 21, 1951	18.89	2,650		May 3, 1957	20.50	2,800
	May 23, 1951	23.87	3,860		May 5, 1957	25.78	4,570
	June 7, 1951	20.5	2,990		May 10, 1957	22.53	3,100
	June 10, 1951	21.11	3,180		May 18, 1957	21.90	2,860
					May 25, 1957	20.08	2,420
1952	Apr. 22, 1952	17.5	2,040				
				1958	June 21, 1958	18.50	2,220
1953	Apr. 6, 1953	17.82	2,120				
	June 6, 1953	25.2	4,050				

a Annual peak only.

3050. North Fork Red River near Headrick, Okla. (Published as "near Snyder" April to June 1905)

Location.--Lat 34°38', long 99°06', in center of N½ sec.21, T.2 N., R.18 W., near right bank on downstream side of pier of bridge on U. S. Highway 62, 2½ miles east of Headrick, 12.9 miles upstream from Otter Creek, and at mile 33.0.

Drainage area.--4,244 sq mi, of which about 3,845 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to 1938 at different sites and unknown datum; recording thereafter at present site. Datum of gage is 1,299.83 ft above mean sea level, datum of 1929 (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 28,000 cfs at present site. Peak discharge for 1907 obtained from curve extended above 9,600 cfs on basis of runoff comparisons. Peaks for historic flood which reached a stage of 16.1 ft and flood of May 18, 1935, computed by logarithmic extension above 28,000 cfs. Rating has been stable for several years.

Bankfull stage.--7 ft.

Remarks.--Some regulation since December 1943 by Lake Altus (capacity, 142,900 acre-ft), 39.5 miles above station. Base for partial-duration series, 5,000 cfs. Only annual peaks are shown prior to 1938.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
-	-	a16.1	b85,000	1946	June 2, 1946	5.17	3,830
1905	May 27, 1905	8.0	29,000	1947	May 13, 1947	9.85	21,700
					May 16, 1947	7.98	12,200
1906	Nov. 24, 1905	7.0	12,500		May 21, 1947	7.83	13,000
					May 26, 1947	6.75	7,760
1907	June 9, 1907	10.1	30,000		June 1, 1947	8.08	13,000
					June 26, 1947	6.20	6,040
1935	May 18, 1935	a14.8	b60,000				
				1948	June 22, 1948	7.24	8,980
1938	May 4, 1938	6.22	5,810				
	May 20, 1938	7.09	9,800	1949	May 19, 1949	9.55	20,600
	June 10, 1938	6.70	8,900		May 28, 1949	6.47	5,340
	June 16, 1938	7.54	12,500		June 4, 1949	6.86	6,480
	June 26, 1938	6.09	6,230				
				1950	July 21, 1950	7.61	12,600
1939	Jan. 9, 1939	7.19	11,400		July 26, 1950	6.51	6,940
	May 26, 1939	7.01	9,800		Aug. 3, 1950	6.68	7,100
	June 22, 1939	7.70	13,400				
				1951	May 19, 1951	9.96	24,900
1940	Apr. 29, 1940	4.57	1,580		May 23, 1951	7.63	12,300
					May 25, 1951	6.27	7,160
1941	May 5, 1941	8.52	16,100		June 7, 1951	9.36	19,300
	May 21, 1941	9.60	21,200		June 12, 1951	6.42	6,690
	May 23, 1941	8.16	15,200		June 19, 1951	6.06	5,370
	May 24, 1941	8.82	17,500				
	June 7, 1941	8.34	13,400	1952	Apr. 23, 1952	5.71	4,560
	June 10, 1941	10.85	27,400				
	June 16, 1941	5.89	6,200	1953	June 6, 1953	9.08	17,900
	June 24, 1941	5.68	7,200		July 20, 1953	8.46	11,700
	June 30, 1941	5.90	5,650				
	Aug. 28, 1941	6.15	6,600	1954	Oct. 23, 1953	7.88	10,100
					May 12, 1954	6.42	5,080
1942	Oct. 23, 1941	8.95	18,900		May 25, 1954	9.40	17,300
	Apr. 25, 1942	7.33	10,200				
	Apr. 28, 1942	8.33	15,700	1955	May 17, 1955	6.88	7,510
	Apr. 30, 1942	6.38	6,400		May 20, 1955	7.96	11,400
	May 12, 1942	6.01	5,320				
	June 10, 1942	6.54	7,410	1956	Oct. 5, 1955	11.50	30,700
	June 23, 1942	8.50	15,200		May 3, 1956	8.25	13,700
	Sept.19, 1942	5.91	5,360		May 28, 1956	10.10	24,500
					July 18, 1956	6.00	6,110
1943	Oct. 15, 1942	7.26	9,740				
	Oct. 18, 1942	7.41	10,600	1957	Apr. 23, 1957	8.93	18,300
					May 4, 1957	9.36	20,100
1944	Mar. 16, 1944	5.79	5,190		May 10, 1957	8.31	13,500
	June 14, 1944	7.44	13,600		May 12, 1957	9.05	17,700
					May 19, 1957	8.04	12,000
1945	Mar. 11, 1945	5.61	5,250		May 26, 1957	7.16	7,600
	Apr. 11, 1945	6.41	8,010		July 24, 1957	6.76	6,000
	Apr. 14, 1945	6.50	8,400				
	June 16, 1945	6.97	10,500	1958	June 22, 1958	6.61	5,910
	July 11, 1945	5.62	5,250				

a At present site and datum, from information by State Highway Commission and Corps of Engineers. The stage of 16.1 occurred sometime prior to 1927.

3055. Otter Creek at Snyder Lake, near Mountain Park, Okla.
(Published as "near Mountain Park" 1903-8)

Location.--Lat 34°44', long 98°59', in NE¼ sec.16, T.3 N., R.17 W., at intake tower at Snyder Dam on Otter Creek, 0.8 mile upstream from small tributary, 3 miles northwest of Mountain Park, and at mile 26.0.

Drainage area.--132 sq mi.

Gage.--Nonrecording prior to 1952 at site 1.8 miles upstream at different datum; recording since October 1951 at present site and datum. Datum of present gage is 1,360.99 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Outflow discharge defined by current-meter measurements below 1,600 cfs and extended on basis of computation of flow-over-dam in 1953.

Bankfull stage.--14 ft, at present site.

Remarks.--Some regulation by Snyder Lake (capacity, 1,353 acre-ft). Base for partial-duration series, 1,400 cfs. Only annual peaks are shown prior to 1952.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1903	Apr. 11, 1903	22.0	3,200	1954	May 24, 1954	14.29	1,850
1904	June 10, 1904	11.0	1,140	1955	May 19, 1955	15.83	4,440
					June 19, 1955	13.98	1,450
1905	May 27, 1905	21.0	3,400	1956	Oct. 4, 1955	15.74	4,240
1906	Apr. 4, 1906	18.5	2,830	1957	Apr. 21, 1957	14.27	1,780
1907	June 9, 1907	22.8	5,000		Apr. 23, 1957	14.34	1,920
					May 4, 1957	15.05	2,960
1952	May 17, 1952	14.24	1,940		May 13, 1957	14.62	2,260
	May 23, 1952	14.35	2,140		May 18, 1957	15.73	4,240
					May 25, 1957	14.28	1,850
1953	June 6, 1953	19.50	14,200		June 2, 1957	14.34	1,920
					July 24, 1957	16.26	5,310
1954	Oct. 23, 1953	14.83	2,640				
	May 1, 1954	14.19	1,710	1958	June 21, 1958	13.29	741
	May 11, 1954	14.13	1,630				

3065. Otter Creek at Mountain Park, Okla.

Location.--Lat 34°42', long 98°59', in NW¼NW¼ sec.34, T.3 N., R.17 W., at county highway bridge 500 ft upstream from Horse Creek, 1½ miles west of Mountain Park, 3.0 miles downstream from Snyder Lake, and at mile 23.0.

Drainage area.--164 sq mi, includes that of Horse Creek.

Gage.--Nonrecording prior to Oct. 19, 1946; recording thereafter. Datum of gage is 1,329.90 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--15 ft.

Remarks.--Some regulation by Snyder Lake (capacity, 1,355 acre-ft). Base for partial-duration series, 1,400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	May 23, 1946	14.32	1,440	1949	June 3, 1949	18.30	4,800
	May 28, 1946	16.08	2,380		June 10, 1949	17.59	4,330
1947	Apr. 15, 1947	16.04	2,300	1950	July 18, 1950	17.74	4,700
	May 12, 1947	17.30	3,730		Aug. 2, 1950	17.09	3,430
	May 16, 1947	17.89	5,110				
	June 1, 1947	17.20	3,570	1951	May 18, 1951	17.65	4,450
					May 20, 1951	16.90	3,180
1948	Dec. 4, 1947	14.82	1,620		June 7, 1951	16.30	2,550
	June 23, 1948	17.39	3,910		July 2, 1951	15.21	1,800
1949	May 18, 1949	14.77	1,620				

3110. Cache Creek near Walters, Okla.

Location.--Lat 34°20', long 98°17', in SE¼ sec.19, T.2 S., R.10 W., on downstream side of central pier of bridge on State Highway 53, 1¾ miles east of Walters, 12.2 miles upstream from West Cache Creek, and at mile 19.7.

Drainage area.--675 sq mi.

Gage.--Nonrecording prior to Jan. 8, 1939; recording thereafter. Datum of gage is 938.2 ft above mean sea level (State Highway Commission bench mark).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--15 ft.

Historical data.--According to local residents, the flood in 1906 was similar to that of May 17, 1947.

Remarks.--Some regulation by reservoirs in basin of tributary, Medicine Creek. Base for partial-duration series, 1,600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	-	a29.6	-	1945	May 31, 1945	22.52	3,130
					Apr. 12, 1945	19.32	2,240
1939	Aug. 9, 1939	8.90	657		Apr. 14, 1945	23.23	3,400
					Apr. 17, 1945	26.62	6,420
1940	July 3, 1940	17.42	2,020		June 13, 1945	22.87	3,280
	July 23, 1940	18.41	2,240		July 15, 1945	23.40	3,490
					Sept.28, 1945	26.39	6,010
1941	Nov. 27, 1940	19.16	2,690		Sept.30, 1945	27.45	9,500
	Feb. 2, 1941	16.43	1,990				
	May 1, 1941	15.18	1,730	1946	Oct. 5, 1945	19.16	2,090
	May 6, 1941	25.60	4,860		Feb. 19, 1946	19.84	2,300
	May 24, 1941	20.51	3,040		May 30, 1946	24.26	3,950
	June 3, 1941	17.42	2,230		June 2, 1946	26.87	7,100
	June 8, 1941	28.18	11,300		July 1, 1946	20.99	2,620
	June 11, 1941	24.57	3,990				
	June 17, 1941	24.40	3,890	1947	Dec. 12, 1946	21.44	2,740
					Apr. 16, 1947	26.09	5,840
1942	Oct. 2, 1941	26.28	5,570		May 14, 1947	26.14	5,550
	Oct. 16, 1941	18.03	2,000		May 17, 1947	29.62	25,600
	Oct. 31, 1941	25.97	5,200		May 24, 1947	25.16	4,580
	Apr. 9, 1942	24.94	4,150		June 3, 1947	26.64	6,420
	Apr. 25, 1942	20.45	2,480				
	June 24, 1942	25.32	4,500	1948	Dec. 6, 1947	24.96	4,420
	Aug. 27, 1942	22.66	3,230		Feb. 27, 1948	16.54	1,600
	Sept.21, 1942	21.66	2,940		Mar. 2, 1948	20.17	2,420
					Mar. 16, 1948	17.25	1,750
1943	Apr. 12, 1943	16.60	1,840		Mar. 23, 1948	24.75	4,280
	May 11, 1943	27.34	8,750		Apr. 26, 1948	25.03	4,420
	May 18, 1943	25.69	5,100		June 25, 1948	19.5	2,250
	May 21, 1943	27.02	7,100				
	May 28, 1943	28.06	11,100	1949	Feb. 9, 1949	22.96	3,320
	June 5, 1943	16.50	1,640		May 2, 1949	17.38	1,740
					May 20, 1949	21.47	2,770
1944	Apr. 12, 1944	25.76	5,240		May 31, 1949	25.42	4,760
					June 5, 1949	25.03	4,420
1945	Oct. 4, 1944	23.60	3,580		June 11, 1949	17.85	1,870
	Mar. 4, 1945	23.15	3,400				
	Mar. 12, 1945	27.45	9,500	1950	May 12, 1950	27.56	6,420
	Mar. 16, 1945	17.83	2,000		June 4, 1950	24.34	3,280
	Mar. 20, 1945	17.97	2,040		June 22, 1950	24.18	3,240

a Annual peak only.

Peak stages and discharges of Cache Creek near Walters, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	July 19, 1950	20.22	2,050	1954	May 13, 1954	27.80	10,200
1951	May 18, 1951	29.72	28,200	1955	May 20, 1955	28.38	14,200
	May 26, 1951	17.47	1,610		May 27, 1955	22.71	2,740
	June 8, 1951	25.71	4,340		June 10, 1955	25.21	3,880
	June 10, 1951	21.43	2,390		Sept.27, 1955	26.33	5,050
	June 12, 1951	27.23	7,150				
	June 20, 1951	26.76	5,790	1956	Oct. 6, 1955	27.79	10,200
	July 3, 1951	25.66	4,290				
				1957	Apr. 24, 1957	24.75	3,610
1952	May 18, 1952	28.07	11,800		Apr. 26, 1957	23.90	3,130
	May 24, 1952	19.36	1,920		May 1, 1957	18.30	1,690
	June 2, 1952	22.44	2,650		May 4, 1957	27.53	8,820
					May 10, 1957	21.58	2,440
1953	Mar. 15, 1953	20.79	2,230		May 19, 1957	26.51	5,350
	Mar. 31, 1953	23.81	3,090		May 23, 1957	20.56	2,110
	June 7, 1953	26.52	5,350		May 26, 1957	28.80	15,000
	July 21, 1953	20.94	2,250		June 1, 1957	25.62	3,970
					June 5, 1957	25.23	3,610
1954	Oct. 24, 1953	27.00	6,400		June 19, 1957	19.26	1,750
	Oct. 27, 1953	23.80	3,090		Sept.23, 1957	23.86	3,020
	Nov. 20, 1953	26.62	5,500				
	Dec. 4, 1953	25.80	4,440	1958	May 4, 1958	24.24	3,120
	May 2, 1954	22.11	2,620				

3115. Deep Red Run near Randlett, Okla.

Location.--Lat 34°13', long 98°27', in SW¼ sec.10, T.4 S., R.12 W., near right bank on downstream side of pier of bridge on U. S. Highway 277, 2¾ miles north of Randlett and 4.8 miles upstream from mouth.

Drainage area.--617 sq mi.

Gage.--Recording. Datum of gage is 924.49 ft above mean sea level, datum of 1929 (State Highway Commission bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 13,000 cfs and extended above.

Bankfull stage.--20 ft.

Historical data.--During crest of 1951, local resident indicated "highest rise since 1908 when stage was somewhat higher."

Remarks.--Base for partial-duration series, 2,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	May 11, 1950	24.18	9,400	1955	May 20, 1955	23.99	8,190
	May 27, 1950	21.40	2,710		Sept.26, 1955	23.00	5,680
	June 4, 1950	20.84	2,360				
	June 23, 1950	21.02	2,450	1956	Oct. 6, 1955	24.44	10,800
1951	May 18, 1951	27.10	20,300	1957	Apr. 23, 1957	22.01	3,170
	June 6, 1951	21.87	3,470		Apr. 26, 1957	22.69	4,870
					May 1, 1957	22.00	3,470
1952	May 18, 1952	24.92	12,800		May 4, 1957	23.71	7,870
	May 30, 1952	19.74	2,040		May 11, 1957	21.00	2,620
					May 20, 1957	23.74	8,050
1953	Apr. 1, 1953	15.91	1,290		May 27, 1957	22.91	5,380
					June 2, 1957	22.13	3,730
1954	Oct. 24, 1953	23.63	7,030		June 20, 1957	20.20	2,400
	Oct. 26, 1953	22.58	4,870				
	May 13, 1954	23.98	7,590	1958	May 4, 1958	20.23	2,330
	May 27, 1954	19.23	2,080		July 8, 1958	20.00	2,270

3125. Wichita River at Wichita Falls, Tex.

Location.--Lat 33°54'30", long 98°32'05", near center of stream on downstream side of bridge on Beverly Drive in Wichita Falls, Wichita County, 4 miles upstream from Fort Worth and Denver Railway Co. bridge, about 7 miles upstream from Holliday Creek, and at mile 55.3.

Drainage area.--3,140 sq mi, of which 2,099 sq mi is above Lake Kemp Dam.

Gage.--Nonrecording. Prior to February 1902, at highway bridge about 4 miles downstream at different datum. Datum of present gage is 924.26 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--18 ft.

Historical data.--Flood of June 18, 1915, is greatest known. Maximum stage between beginning of storage in Lake Kemp Oct. 1, 1922, and establishment of station Mar. 30, 1938, was that of Sept. 18, 1936.

Remarks.--Flow largely regulated by Lake Kemp (capacity, 438,000 acre-ft). Lake Kemp was completed in 1923 and has never filled. Floods listed herein since 1923 originated downstream from Lake Kemp. Water is diverted at diversion dam (capacity of diversion reservoir, about 40,000 acre-ft) about 50 miles upstream for irrigation in the vicinity of Wichita Falls. Forty-two thousand acres of land are available for irrigation. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1900	July 21, 1900	12.10	16,740	1946	Sept.14, 1946	7.18	1,470
				1947	May 21, 1947	16.39	6,100
1901	May 17, 1901	19.40	37,440	1948	June 1, 1948	12.60	4,040
				1949	May 26, 1949	7.71	1,500
1915	June 8, 1915	-	a50,000	1950	Aug. 4, 1950	21.42	9,000
1936	Sept.18, 1936	20.6	-	1951	May 20, 1951	18.98	6,670
				1952	May 28, 1952	6.76	1,210
1938	June 10, 1938	17.00	7,240	1953	July 2, 1953	9.60	2,400
1939	Aug. 10, 1939	9.42	2,430	1954	May 13, 1954	14.83	4,710
1940	Aug. 15, 1940	10.17	2,830	1955	Sept.27, 1955	18.12	7,200
1941	June 4, 1941	22.71	15,500	1956	Oct. 5, 1955	20.88	9,510
1942	Oct. 3, 1941	24.00	17,800	1957	May 3, 1957	18.27	7,200
1943	Apr. 18, 1943	11.20	3,510	1958	May 4, 1958	14.90	5,280
1944	Mar. 1, 1944	5.42	720				
1945	Sept.30, 1945	14.82	5,170				

a Computed by Big Wichita River Irrigation Co.

3130. Little Beaver Creek near Duncan, Okla.

Location.--Lat 34°30', long 98°07', in NE¼ sec.11, T.1 S., R.9 W., on downstream side of right pier of county highway bridge, three-quarters of a mile downstream from Stage Stand Creek, 8½ miles west of Duncan, and 11.9 miles upstream from mouth.

Drainage area.--158 sq mi.

Gage.--Recording. Prior to Oct. 1, 1954, at datum 2.00 ft higher. Datum of present gage is 1,001.39 ft above mean sea level, unadjusted (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 5,000 cfs and extended on basis of computations of overflow at gage heights 18.39 and 18.87 ft.

Bankfull stage.--12 ft.

Remarks.--Base for partial-duration series, 2,000 cfs.

Peak stages and discharges of Little Beaver Creek near Duncan, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	May 18, 1949	13.19	1,880	1953	June 6, 1953	16.20	10,200
1950	May 11, 1950	16.03	12,200	1954	Oct. 23, 1953	17.13	31,800
	May 26, 1950	15.81	8,900		Oct. 25, 1953	15.90	5,560
	June 3, 1950	14.59	2,080		Nov. 19, 1953	14.39	2,330
	June 11, 1950	15.49	3,460		May 2, 1954	17.14	32,000
	July 4, 1950	15.83	4,890				
	Sept.13, 1950	15.36	3,090	1955	May 19, 1955	19.46	39,800
1951	May 1, 1951	15.13	2,500	1956	June 3, 1956	16.03	2,120
	May 17, 1951	16.87	25,200				
	May 20, 1951	15.97	5,990	1957	Apr. 21, 1957	17.01	2,720
	June 6, 1951	15.84	4,950		Apr. 23, 1957	17.30	3,180
	June 11, 1951	16.49	16,000		May 4, 1957	17.28	3,180
	June 18, 1951	15.05	2,370		May 13, 1957	16.40	2,380
	July 2, 1951	15.57	3,710		May 18, 1957	19.16	32,500
					May 25, 1957	19.74	47,500
1952	Oct. 27, 1951	15.67	3,650		May 30, 1957	16.58	2,480
	May 17, 1952	16.40	15,000		June 18, 1957	16.00	2,050
	May 23, 1952	15.05	2,370				
	June 1, 1952	15.67	4,000	1958	May 3, 1958	17.43	3,500
1953	May 16, 1953	14.58	2,080				

3135. Beaver Creek near Waurika, Okla.

Location.--Lat 34°13', long 98°03', on north line of NW¼NW¼ sec.16, T.4 S., R.8 W., on left bank on downstream side of bridge on State Highway 5, 4.5 miles northwest of Waurika, 6.2 miles upstream from Cow Creek, and at mile 25.8.

Drainage area.--563 sq mi.

Gage.--Recording. Datum of gage is 879.17 ft above mean sea level, datum of 1929 (levels by State Highway Commission).

Stage-discharge relation.--Defined by current-meter measurements since 1953. Peak discharge of 1951 was determined by slope-area measurement.

Bankfull stage.--17 ft.

Historical data.--According to local residents, a flood similar to that of 1951 occurred in 1889 or earlier. A flood in 1908 was reported to have been 1.3 ft lower than the 1951 flood at a site 2 miles upstream.

Remarks.--Base for partial-duration series, 2,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	May 18, 1951	-	a65,300	1956	July 4, 1956	20.14	6,870
1953	June 8, 1953	19.70	a4,820	1957	Apr. 23, 1957	19.46	4,350
					Apr. 26, 1957	19.10	3,750
1954	Oct. 24, 1953	21.34	11,500		May 4, 1957	20.30	7,000
	Oct. 27, 1953	19.54	4,320		May 18, 1957	21.16	14,600
	May 3, 1954	20.99	10,200		May 26, 1957	21.82	22,500
	May 12, 1954	20.46	7,800		June 1, 1957	19.63	4,820
1955	May 20, 1955	22.42	32,200	1958	May 5, 1958	17.92	2,560
	June 10, 1955	17.96	2,540				

a Annual peak only.

3150. Little Wichita River near Henrietta, Tex.

Location.--Lat 33°50'00", long 98°12'30", on left bank at downstream side of bridge on State Highway 148, 1.5 miles northwest of Henrietta, Clay County, 4 miles upstream from Turkey Creek, and 5 miles upstream from Dry Fork Little Wichita River.

Drainage area.--1,037 sq mi.

Gage.--Nonrecording prior to June 26, 1953; recording gage and concrete control thereafter. Datum of gage is 831.57 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--12 ft.

Remarks.--Some regulation by Lake Kickapoo since 1946. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	-	a21	-	1956	Oct. 1, 1955	17.44	4,080
				1957	May 2, 1957	18.36	6,390
1953	July 25, 1953	9.78	623	1958	Nov. 10, 1957	17.23	3,390
1954	Oct. 26, 1953	17.91	5,890				
1955	Sept.28, 1955	17.78	5,430				

a From information by State Highway Department.

3155. Red River near Terral, Okla.

Location.--Lat 33°52'50", long 97°56'15", near center of stream on downstream side of pier of bridge on U. S. Highway 81, a quarter of a mile downstream from Chicago, Rock Island and Pacific Railroad Co. bridge, 1.2 miles south of Terral, Jefferson County, 3.2 miles downstream from Little Wichita River, and at mile 872.

Drainage area.--28,723 sq mi, of which about 22,787 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Jan. 12, 1939; recording and nonrecording thereafter. Datum of gage is 770.31 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements. Subject to frequent shifts.

Historical data.--Floods in 1891 and May 1, 1908, are reported to have reached about the same stage as flood of May 19, 1935.

Remarks.--Some regulation since 1923 by Lake Kemp on Wichita River, in Baylor County, Tex. (capacity, 648,000 acre-ft), since 1946 by Lake Kickapoo on North Fork Little Wichita River in Archer County, Tex. (capacity, 106,000 acre-ft), and since 1943 by Lake Altus on North Fork Red River in Kiowa County, Okla. (capacity, 142,000 acre-ft). Base for partial-duration series, 21,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	May 19, 1935	a27.2	-	1947	May 19, 1947	20.14	82,000
					May 21, 1947	18.72	57,000
1938	May 5, 1938	16.95	29,600		May 24, 1947	17.78	44,400
	May 24, 1938	17.85	43,700		June 3, 1947	16.05	25,500
	June 10, 1938	17.65	40,900				
	June 18, 1938	17.48	39,500	1948	June 25, 1948	16.27	18,000
	June 27, 1938	16.60	28,400				
				1949	May 21, 1949	18.00	33,700
1939	June 23, 1939	18.14	43,000				
				1950	May 12, 1950	18.82	53,800
1940	July 2, 1940	16.62	22,400		July 24, 1950	16.90	21,700
	Aug. 19, 1940	16.63	21,800		July 26, 1950	17.58	28,400
					Aug. 2, 1950	17.36	26,200
1941	May 2, 1941	18.35	43,500		Sept.14, 1950	17.65	22,400
	May 5, 1941	25.57	134,000				
	May 13, 1941	19.27	37,800	1951	May 19, 1951	26.68	164,000
	May 23, 1941	20.70	74,600		June 3, 1951	15.83	21,200
	May 25, 1941	19.82	62,500		June 7, 1951	19.47	44,600
	June 3, 1941	19.40	54,700		June 13, 1951	16.71	25,500
	June 8, 1941	28.12	197,000		June 21, 1951	16.21	24,700
	June 11, 1941	22.97	119,000		July 4, 1951	16.60	27,100
	June 16, 1941	21.50	73,200				
				1952	May 19, 1952	17.00	30,300
1942	Oct. 3, 1941	20.26	76,000				
	Oct. 6, 1941	18.15	43,500	1953	Aug. 20, 1953	14.87	15,000
	Oct. 24, 1941	18.35	47,900				
	Oct. 31, 1941	21.45	91,000	1954	Oct. 25, 1953	19.55	57,300
	Nov. 2, 1941	18.05	50,100		May 14, 1954	21.42	85,800
	Apr. 9, 1942	18.90	54,900		May 26, 1954	18.40	36,800
	Apr. 21, 1942	17.63	32,700				
	Apr. 26, 1942	18.70	46,800	1955	May 21, 1955	22.44	109,000
	Apr. 30, 1942	18.80	47,900		June 22, 1955	19.51	42,800
	Sept.21, 1942	17.00	30,300		Sept.26, 1955	16.62	24,000
1943	Oct. 17, 1942	16.78	39,300	1956	Oct. 7, 1955	23.30	111,000
	Oct. 19, 1942	16.50	32,700		May 29, 1956	18.43	49,400
	May 12, 1943	17.38	41,300				
	May 20, 1943	16.34	28,700	1957	Apr. 22, 1957	17.73	41,400
	May 29, 1943	17.58	43,500		Apr. 27, 1957	18.26	45,800
	June 6, 1943	16.58	31,100		Apr. 30, 1957	19.39	62,500
					May 6, 1957	19.42	72,500
1944	June 16, 1944	17.20	38,700		May 10, 1957	18.12	52,800
					May 13, 1957	18.82	60,800
1945	Apr. 17, 1945	16.60	28,200		May 20, 1957	21.00	87,800
	July 12, 1945	16.42	26,100		May 23, 1957	18.11	46,200
	Sept.27, 1945	16.86	34,400		May 27, 1957	20.06	71,900
					May 31, 1957	16.73	27,100
1946	Oct. 1, 1945	19.62	66,200		June 4, 1957	22.72	110,000
1947	Apr. 17, 1947	16.25	29,100	1958	May 4, 1958	15.27	16,700
	May 14, 1947	17.85	40,800				

a Annual peak only.

3160. Red River near Gainesville, Tex.

Location.--Lat 33°44', long 97°10', in SW¼ sec.36, T.9 S., R.1 E., near center of span on downstream side of bridge on U. S. Highway 77, a quarter of a mile downstream from Gulf, Colorado and Santa Fe Railway Co. bridge, 5 miles downstream from Fish Creek, 7 miles north of Gainesville, and at mile 791.5.

Drainage area.--30,782 sq mi, of which about 24,846 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Jan. 17, 1939; recording thereafter. Datum of gage is 627.91 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--25 ft.

Remarks.--Information on peaks during short periods of no record in 1936-37 obtained from inspection of records for downstream stations. Some regulation since 1923 by Lake Kemp on Wichita River, since 1943 by Lake Altus on North Fork Red River, and since 1946 by Lake Kickapoo on North Fork Little Wichita River. Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 24,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Dec. 5, 1935	-	(a)	1942	May 1, 1942	14.21	53,000
	May 9, 1936	-	(a)		Sept.22, 1942	11.26	31,000
	May 30, 1936	12.38	32,600				
	June 8, 1936	11.60	26,300	1943	Oct. 20, 1942	11.96	35,500
	Sept.19, 1936	12.74	36,200		May 12, 1943	13.80	47,200
	Sept.21, 1936	13.40	42,500		May 21, 1943	12.00	32,000
	Sept.28, 1936	15.95	67,900		May 30, 1943	13.37	43,100
					June 7, 1943	12.30	33,100
1937	June 1, 1937	11.4	24,500				
	June 10, 1937	14.9	54,400	1944	June 16, 1944	12.43	34,000
	Aug. 24, 1937	-	(a)				
				1945	Mar. 15, 1945	14.40	52,000
1938	Oct. 14, 1937	-	(a)		Mar. 19, 1945	12.65	40,000
	Feb. 17, 1938	15.67	65,400		Apr. 2, 1945	12.05	28,000
	Mar. 30, 1938	14.20	50,400		Apr. 17, 1945	13.10	31,700
	May 6, 1938	11.80	29,000		July 12, 1945	12.89	24,000
	May 22, 1938	12.00	30,800		Sept.28, 1945	13.00	35,000
	May 24, 1938	15.82	67,600				
	June 11, 1938	13.8	46,400	1946	Oct. 2, 1945	17.75	83,500
	June 18, 1938	12.70	35,300		May 31, 1946	12.60	28,200
	June 28, 1938	11.70	26,300				
				1947	Oct. 10, 1946	11.75	24,000
1939	June 24, 1939	13.07	38,900		Dec. 12, 1946	12.71	33,800
					Apr. 16, 1947	12.65	33,000
1940	May 30, 1940	12.31	27,600		May 15, 1947	14.25	41,800
	July 3, 1940	13.23	37,500		May 20, 1947	17.90	71,000
	Aug. 16, 1940	11.95	24,300		May 26, 1947	15.48	52,300
	Aug. 20, 1940	11.98	24,300				
				1948	June 26, 1948	13.80	24,400
1941	Feb. 3, 1941	12.19	28,400				
	Apr. 18, 1941	12.58	28,000	1949	May 22, 1949	14.44	44,000
	May 3, 1941	13.59	40,800		June 12, 1949	13.90	32,000
	May 6, 1941	20.43	116,000				
	May 13, 1941	13.27	36,600	1950	May 13, 1950	15.73	51,200
	May 24, 1941	16.20	68,400		July 24, 1950	13.54	25,700
	June 3, 1941	14.53	51,000		July 27, 1950	14.36	35,300
	June 9, 1941	24.15	168,000		Aug. 3, 1950	14.80	39,900
	June 17, 1941	16.61	73,000		Aug. 24, 1950	13.94	27,700
	June 28, 1941	13.06	35,600		Aug. 28, 1950	14.98	46,000
	July 3, 1941	12.28	28,500		Sept.13, 1950	15.14	46,000
1942	Oct. 4, 1941	22.32	156,000	1951	May 21, 1951	26.53	146,000
	Oct. 25, 1941	13.66	44,000		June 4, 1951	15.74	39,100
	Nov. 1, 1941	20.36	136,000		June 8, 1951	17.50	55,300
	Apr. 9, 1942	16.11	87,700		June 14, 1951	15.63	38,300
	Apr. 21, 1942	13.35	47,000		June 22, 1951	13.86	24,700
	Apr. 24, 1942	15.65	72,000		July 4, 1951	15.11	34,000

a A peak higher than the base probably occurred this date.

Peak stages and discharges of Red River near Gainesville, Tex.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	May 20, 1952	13.00	32,300	1957	Apr. 23, 1957	15.76	43,600
					Apr. 27, 1957	17.83	62,800
1953	Aug. 22, 1953	11.00	9,820		May 1, 1957	18.57	68,500
					May 7, 1957	18.96	69,500
1954	Oct. 26, 1953	16.20	50,800		May 11, 1957	16.66	48,100
	May 15, 1954	19.32	74,200		May 14, 1957	18.06	60,900
	May 27, 1954	15.67	41,800		May 20, 1957	b22.80	100,000
					May 28, 1957	b21.95	75,000
1955	May 22, 1955	21.08	96,900		June 5, 1957	b25.14	102,000
	June 22, 1955	16.90	49,900				
				1958	May 5, 1958	14.36	21,600
1956	Oct. 8, 1955	21.70	106,000				
	May 30, 1956	15.12	36,000				

b Backwater from Lake Texoma.

3165. Washita River near Cheyenne, Okla.

Location.--Lat 35°38', long 99°40', on line between SE¼ and SW¼ sec.5, T.13 N., R.23 W., near left bank on downstream side of pier of bridge on U. S. Highway 283, half a mile downstream from Sergeant Major Creek, 1 mile north of Cheyenne, 5.2 miles upstream from Dead Indian Creek, and at mile 543.9.

Drainage area.--794 sq mi.

Gage.--Nonrecording prior to Jan. 12, 1948; recording thereafter. Datum of gage is 1,905.98 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 27,000 cfs and extended on basis of contracted-opening measurement at 69,800 cfs.

Bankfull stage.--7 ft.

Historical data.--According to local residents the flood in 1934 was the highest known for 40 years.

Remarks.--Records 1938-46 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	Apr. 3, 1934	a16.9	bc52,000	1944	May 27, 1944	6.25	1,240
					June 13, 1944	6.20	1,180
1938	May 18, 1938	10.2	c14,600		July 30, 1944	5.92	1,120
1939	Apr. 5, 1939	5.08	1,340	1945	Oct. 1, 1944	7.58	4,000
	Jan. 8, 1939	6.62	3,070		Apr. 14, 1945	6.37	1,740
	May 7, 1939	6.50	2,940		June 11, 1945	7.51	4,000
	May 12, 1939	5.84	2,090		Aug. 15, 1945	8.99	9,900
	June 21, 1939	6.06	2,090		Sept.28, 1945	5.72	1,120
1940	Aug. 29, 1940	5.50	1,080	1946	May 10, 1946	7.00	2,500
					May 28, 1946	6.60	1,890
1941	Apr. 19, 1941	7.00	2,840		July 1, 1946	9.16	8,900
	Apr. 30, 1941	7.00	3,200		Aug. 20, 1946	6.45	2,500
	May 4, 1941	5.40	1,170				
	May 20, 1941	7.60	3,400	1947	Oct. 6, 1946	8.80	d7,100
	May 23, 1941	13.5	40,000				
	May 27, 1941	4.76	1,280	1948	June 28, 1948	7.58	3,580
	June 9, 1941	10.00	13,300		July 30, 1948	6.94	2,340
	June 22, 1941	8.90	7,550		Aug. 15, 1948	9.21	8,900
	July 26, 1941	5.93	1,240				
				1949	Nov. 1, 1948	6.32	1,750
1942	Oct. 23, 1941	10.11	14,000		Mar. 30, 1949	8.25	5,150
	Apr. 23, 1942	7.50	3,400		Apr. 27, 1949	7.86	4,380
	June 8, 1942	7.90	4,250		May 6, 1949	9.80	8,900
	June 22, 1942	7.00	2,500		May 20, 1949	8.72	3,780
	June 29, 1942	6.80	2,190		May 28, 1949	7.25	2,160
					June 4, 1949	10.60	11,900
1943	Oct. 14, 1942	6.45	1,590				
	Oct. 17, 1942	6.8	2,190	1950	May 18, 1950	8.71	6,500
	Oct. 20, 1942	6.1	1,180		July 5, 1950	9.10	8,450
	June 16, 1943	6.36	1,520		July 12, 1950	7.87	4,120

a At right bank above highway fill where flood in 1954 reached a stage of 18.0 ft.
b Estimated from present rating to indicate approximate magnitude.
c Annual peak only.
d Maximum recorded during year; flow may have been somewhat higher in May 1947.

Peak stages and discharges of Washita River near Cheyenne, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Aug. 1, 1950	7.05	2,430	1955	June 5, 1955	6.87	4,370
					June 8, 1955	6.22	3,280
1951	May 18, 1951	9.16	5,040		June 17, 1955	7.72	5,830
	June 2, 1951	7.72	2,900				
	June 7, 1951	9.29	4,700	1956	July 10, 1956	6.60	3,890
	June 10, 1951	7.53	2,470				
	June 15, 1951	7.37	2,230	1957	Apr. 3, 1957	5.33	2,160
					Apr. 18, 1957	4.80	1,640
1952	June 1, 1952	5.30	465		Apr. 22, 1957	4.57	1,280
					Apr. 26, 1957	5.03	1,800
1953	June 6, 1953	8.25	3,550		May 3, 1957	4.52	1,230
					May 17, 1957	6.77	4,210
1954	Apr. 29, 1954	15.24	69,800		May 24, 1957	6.35	3,500
	May 1, 1954	5.60	3,580				
	May 17, 1954	5.25	2,660	1958	Oct. 13, 1957	5.00	1,750
	May 24, 1954	5.21	1,980		June 21, 1958	4.78	1,530
	May 30, 1954	7.57	5,630				

3245. Barnitz Creek near Arapaho, Okla.

Location.--Lat 35°35', long 99°02', in SE¼SE¼ sec.19, T.13 N., R.17 W., on right bank on downstream side of pier of county highway bridge, half a mile downstream from confluence of East and West Barnitz Creeks, 4½ miles west of Arapaho, and 6 miles upstream from mouth.

Drainage area.--243 sq mi.

Gage.--Recording. Datum of gage is 1,529.12 ft above mean sea level, unadjusted (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs and extended on basis of field estimate at 7,700 cfs.

Bankfull stage.--20 ft.

Historical data.--Local residents indicated during 1951 field survey that similar stages had occurred in previous years and that maximum known occurred in April 1934.

Remarks.--Runoff affected by continuing developments in basin by Soil Conservation Service. Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 30, 1946	17.77	1,420	1951	May 16, 1951	20.67	7,700
1947	Oct. 7, 1946	16.58	1,240	1952	Apr. 22, 1952	9.38	168
	Oct. 10, 1946	18.99	1,610				
	Apr. 8, 1947	20.8	6,000	1953	Aug. 18, 1953	10.86	252
	May 12, 1947	17.94	1,760				
	May 16, 1947	18.08	1,850	1954	Apr. 30, 1954	18.32	1,880
					May 17, 1954	16.19	1,190
1948	May 10, 1948	17.90	1,600		May 24, 1954	16.10	1,290
1949	Nov. 1, 1948	19.65	2,360	1955	June 8, 1955	15.49	1,020
	Feb. 8, 1949	15.4	1,240		June 15, 1955	15.38	1,000
	May 19, 1949	17.88	1,860				
	May 21, 1949	18.81	2,120	1956	Oct. 4, 1955	15.56	1,050
1950	July 20, 1950	18.29	1,810	1957	May 1, 1957	16.07	1,160
	Aug. 1, 1950	19.47	2,240				
				1958	June 20, 1958	17.58	1,290

3250. Washita River near Clinton, Okla.

Location.--Lat 35°31', long 98°57', in center of sec.11, T.12 N., R.17 W., near right bank on downstream side of pier of bridge on U. S. Highway 183, half a mile north of Clinton, three-quarters of a mile upstream from Beaver Creek, 4.8 miles downstream from Barnitz Creek, and at mile 447.4.

Drainage area.--1,977 sq mi.

Gage.--Nonrecording prior to Feb. 7, 1939, and Mar. 26, 1940, to Mar. 18, 1941; recording during remainder of period. Mar. 26 to May 13, 1940, at site 75 ft upstream at present datum. May 14, 1940, to Mar. 18, 1941, at railway bridge 1 mile downstream at datum 4.55 ft lower. Datum of present gage is 1,467.60 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 7,900 cfs and extended on basis of contracted-opening measurement at 66,800 cfs.

Bankfull stage.--18 ft.

Remarks.--Probably some reduction in peak discharges in recent years from Soil Conservation Service detention reservoirs on several tributaries. Base for partial-duration series, 3,400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	Apr.3-4, 1934	a33.9	-	1947	May 12, 1947	21.24	8,110
					May 16, 1947	19.32	5,930
1935	May or June 1935	a28	25,000		May 20, 1947	16.32	4,180
					June 5, 1947	15.64	3,800
1936	Apr. 27, 1936	20.88	3,900				
	May 1, 1936	23.23	8,750	1948	Aug. 16, 1948	16.08	3,960
	June 5, 1936	28.5	26,900				
				1949	Nov. 1, 1948	21.41	8,110
1937	May 30, 1937	20.5	3,650		Feb. 6, 1949	17.19	4,670
					May 21, 1949	18.34	5,300
1938	May 19, 1938	24.90	13,000		June 5, 1949	14.86	3,450
					June 26, 1949	15.95	4,010
1939	May 9, 1939	17.82	3,430				
				1950	July 21, 1950	18.36	5,060
1940	Apr. 11, 1940	25.5	15,000		Aug. 2, 1950	17.88	4,670
	July 2, 1940	20.05	6,520				
				1951	May 16, 1951	31.09	66,800
1941	Apr. 19, 1941	16.65	3,810		May 20, 1951	18.48	5,230
	May 4, 1941	21.84	9,320		May 22, 1951	15.49	3,740
	May 21, 1941	22.36	11,000		June 14, 1951	15.44	3,720
	May 25, 1941	21.24	8,000				
	June 10, 1941	22.86	12,500	1952	Apr. 22, 1952	10.51	1,260
1942	Oct. 25, 1941	22.13	10,100	1953	June 8, 1953	14.06	2,470
	Apr. 17, 1942	17.79	4,590				
	Apr. 25, 1942	15.81	3,590	1954	May 1, 1954	23.99	13,100
	Apr. 27, 1942	21.34	8,200		May 24, 1954	21.29	5,960
	June 23, 1942	16.87	4,140				
				1955	June 8, 1955	20.93	6,270
1943	May 27, 1943	16.19	3,860				
				1956	Oct. 4, 1955	23.21	7,550
1944	June 13, 1944	18.18	4,930				
	June 24, 1944	16.06	3,700	1957	Apr. 20, 1957	19.88	4,440
					Apr. 23, 1957	20.63	4,900
1945	Apr. 10, 1945	22.19	10,400		May 4, 1957	17.82	3,400
	Apr. 15, 1945	16.09	3,700		May 12, 1957	18.49	3,700
					May 25, 1957	17.98	3,480
1946	July 2, 1946	15.61	3,430		May 30, 1957	19.84	4,380
1947	Apr. 8, 1947	21.70	9,060	1958	June 20, 1958	20.68	4,100

a Annual peak only, from floodmarks pointed out by local residents.

3255. Washita River at Carnegie, Okla.

Location.--Lat 35°07', long 98°34', near center of north line of sec.3, T.7 N., R.13 W., on downstream side of right pier of bridge on State Highway 9, 1,300 ft upstream from Running Creek, 2.7 miles east of Carnegie, and at mile 353.9.

Drainage area.--3,129 sq mi, includes that of Running Creek.

Gage.--Recording. Prior to October 1942 at site 8 miles upstream at datum 24.57 ft higher. Datum of present gage is 1,249.23 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 36,000 cfs and extended on basis of contracted-opening measurement at 50,000 cfs. At former site defined by current-meter measurements below 8,600 cfs and extended on basis of peak stage and interpolated discharge for flood of 1951 (reach, Clinton to Carnegie).

Bankfull stage.--18 ft. At former site, 5 ft.

Historical data.--Data for 1903 obtained in 1952 from approximate marks pointed out by local residents at two independent sites. Data for 1913-36 obtained in 1942 from chiseled marks of all major floods occurring since 1912 at Southwestern Light and Power Co. plant at Carnegie; tabulated stages contain 0.5-foot allowance for slope in reach.

Remarks.--Base for partial-duration series, 3,000 cfs. Only annual peaks are shown prior to 1938.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1903	May 23, 1903	29.	-	1943	May 28, 1943	19.12	6,690
1913	Oct. 27, 1912	12.20	8,700	1944	Apr. 11, 1944	19.54	6,670
					June 14, 1944	22.74	14,000
1921	Apr. 5, 1921	13.96	12,000		June 26, 1944	17.05	4,570
1923	June 10, 1923	12.89	10,000	1945	Apr. 13, 1945	19.01	6,670
					Apr. 16, 1945	21.00	9,810
1924	Oct. 14, 1923	13.78	11,600		June 12, 1945	14.43	3,040
					June 16, 1945	14.76	3,080
1934	Apr. 5, 1934	16.39	18,500		July 27, 1945	16.93	3,830
					Sept.29, 1945	15.67	3,100
1935	May 19, 1935	16.28	18,000				
				1946	June 26, 1946	16.10	3,310
1936	June 6, 1936	17.16	21,500		July 1, 1946	17.77	4,460
1938	May 23, 1938	11.14	7,080	1947	Apr. 11, 1947	15.89	3,200
					Apr. 16, 1947	16.27	3,410
1939	June 22, 1939	7.69	2,950		May 14, 1947	21.49	9,200
					May 17, 1947	22.20	10,600
1940	Apr. 14, 1940	8.50	3,790		May 23, 1947	16.24	4,000
	July 4, 1940	9.01	4,250		June 3, 1947	17.97	4,440
1941	May 5, 1941	12.51	9,030	1948	June 25, 1948	14.22	2,660
	May 23, 1941	11.94	8,330				
	May 28, 1941	8.69	4,660	1949	Feb. 10, 1949	15.39	3,330
	June 6, 1941	12.29	9,050		May 18, 1949	26.21	50,000
	June 10, 1941	9.83	5,960		May 26, 1949	16.36	4,040
	June 13, 1941	11.67	8,320		May 29, 1949	15.06	3,350
					June 4, 1949	22.31	14,900
1942	Oct. 23, 1941	13.16	10,300		June 10, 1949	17.00	4,320
	Oct. 27, 1941	11.98	8,700				
	Apr. 11, 1942	7.60	3,500	1950	July 18, 1950	17.63	4,920
	Apr. 20, 1942	9.39	5,480		July 21, 1950	18.45	5,590
	Apr. 26, 1942	10.72	7,080		July 25, 1950	17.61	5,000
	Apr. 29, 1942	11.53	8,080		Aug. 3, 1950	19.89	6,870
	June 24, 1942	8.99	5,000				
				1951	May 18, 1951	25.50	40,900
1943	May 18, 1943	18.93	5,770		June 13, 1951	15.94	4,150
					June 16, 1951	14.11	3,100

Peak stages and discharges of Washita River at Carnegie, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	May 25, 1952	14.60	3,120	1956	Oct. 5, 1955	24.04	23,900
					May 28, 1956	12.78	3,120
1953	July 19, 1953	20.29	8,550				
				1957	Apr. 3, 1957	17.60	4,330
1954	Oct. 23, 1953	14.02	3,550		Apr. 24, 1957	21.41	12,600
	May 2, 1954	14.04	3,300		May 3, 1957	21.40	11,600
	May 27, 1954	19.28	6,720		May 11, 1957	15.57	3,810
					May 13, 1957	16.20	4,100
1955	May 10, 1955	12.21	3,020		May 20, 1957	15.61	3,810
	May 12, 1955	12.83	3,250		May 25, 1957	15.80	3,950
	May 21, 1955	15.00	4,160		June 4, 1957	18.68	6,200
	June 8, 1955	16.67	4,880				
	Sept.23, 1955	13.32	3,380	1958	June 23, 1958	14.20	3,580

3260. Pond Creek near Fort Cobb, Okla.
(Known locally as Cobb Creek)

Location.--Lat 35°08', long 98°27', in NW¼SE¼ sec.26, T.8 N., R.12 W., on left bank 100 ft downstream from county highway bridge, 2.7 miles north of Fort Cobb, and 5.0 miles upstream from mouth.

Drainage area.--319 sq mi.

Gage.--Nonrecording prior to Aug. 30, 1940; recording thereafter. Datum of gage is 1,252.57 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 4,300 cfs and extended to 35,000 cfs on basis of contracted-opening measurements at gage heights 16.62, 17.58, and 18.72 ft.

Bankfull stage.--14 ft.

Historical data.--Data for flood in 1937 based on floodmark pointed out by local resident who stated that higher floods had occurred in previous years.

Remarks.--Base for partial-duration series, 1,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1937	June 15, 1937	a19.3	-	1949	May 17, 1949	18.72	35,000
					May 20, 1949	14.95	2,300
1940	July 2, 1940	15.81	3,290		May 26, 1949	14.68	2,090
					June 3, 1949	14.72	2,090
1941	Apr. 18, 1941	14.97	1,820				
	June 7, 1941	14.79	1,640	1950	July 20, 1950	14.92	1,940
					July 25, 1950	14.33	1,720
1942	Oct. 23, 1941	15.42	2,610		Aug. 1, 1950	14.46	1,820
1943	May 18, 1943	14.50	1,440	1951	May 18, 1951	13.93	1,640
					May 20, 1951	15.92	4,540
1944	Apr. 10, 1944	16.62	8,500		June 12, 1951	14.95	2,300
	June 13, 1944	17.22	12,700				
	June 24, 1944	14.95	1,760	1952	May 24, 1952	15.98	4,900
1945	Apr. 11, 1945	14.60	1,860	1953	Apr. 5, 1953	13.73	1,520
	Apr. 15, 1945	15.21	2,560		July 19, 1953	16.10	5,400
	June 11, 1945	17.58	16,000				
	July 14, 1945	15.71	3,160	1954	May 24, 1954	14.30	1,620
	Sept.29, 1945	14.30	1,550				
				1955	May 19, 1955	16.97	7,950
1946	July 1, 1946	16.05	4,700		June 19, 1955	16.03	2,950
					Aug. 10, 1955	15.57	2,330
1947	May 16, 1947	16.06	4,760				
	July 1, 1947	14.17	1,640	1956	Oct. 5, 1955	15.99	3,350
1948	June 23, 1948	16.71	6,110	1957	Apr. 21, 1957	14.08	1,550
1949	Feb. 8, 1949	13.75	1,620	1958	June 20, 1958	14.48	1,760

a Annual peak only.

3265. Washita River at Anadarko, Okla.
(Published as "near Anadarko" 1902-8)

Location.--Lat 35°05', long 98°14', in NW¼ sec.15, T.7 N., R.10 W., at upstream handrail of bridge on U. S. Highway 281, half a mile north of Anadarko, 8 miles upstream from Sugar Creek, and at mile 305.0.

Drainage area.--3,656 sq mi.

Gage.--Nonrecording. Prior to 1936, at site 75 ft downstream at datum estimated to be 0.9 ft higher. Datum of last used gage was 1,151.88 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 9,600 cfs and extended above.

Bankfull stage.--19 ft.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1903	May 25, 1903	26.8	29,000	1907	June 14, 1907	20.7	11,600
1904	July 14, 1904	14.7	3,240	1908	Oct. 9, 1907	22.9	28,100
1905	May 31, 1905	18.9	6,480				
				1936	June 8, 1936	21.69	10,800
1906	Sept.18, 1906	13.0	3,150	1937	June 19, 1937	17.55	4,660

3275. Little Washita River at Ninnekah, Okla.

Location.--Lat 34°57'24", long 97°55'34", at center of north line of sec.34, T.6 N., R.7 W., at center of span on downstream side of pier of Chicago, Rock Island and Pacific Railroad Co. bridge, half a mile north of Ninnekah, 1.2 miles downstream from Rock Creek, and 6.2 miles upstream from mouth.

Drainage area.--227 sq mi.

Gage.--Recording. Datum of gage is 1,058.52 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 5,500 cfs and extended on basis of contracted-opening measurement at 25,200 cfs.

Bankfull stage.--17 ft.

Historical data.--According to local residents, a notable flood occurred in April 1927.

Remarks.--Base for partial-duration series, 1,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	May 16, 1947	-	a36,000	1956	Oct. 3, 1955	14.23	3,480
					Oct. 4, 1955	13.82	3,260
1952	Apr. 19, 1952	12.80	2,000		May 26, 1956	11.72	2,200
	May 18, 1952	16.62	3,670				
	June 1, 1952	17.15	3,950	1957	Apr. 21, 1957	10.84	1,840
					Apr. 23, 1957	11.73	2,120
1953	Mar. 14, 1953	11.80	1,590		May 2, 1957	11.64	2,070
	Sept. 3, 1953	11.79	1,590		May 13, 1957	10.72	1,660
					May 17, 1957	18.80	7,410
1954	Oct. 23, 1953	12.57	1,910		May 22, 1957	10.40	1,800
	Oct. 25, 1953	14.34	2,640		May 24, 1957	22.20	25,200
	Dec. 3, 1953	12.82	2,000		May 30, 1957	12.43	3,230
	May 2, 1954	13.95	2,510		Sept.21, 1957	16.04	5,560
	May 10, 1954	14.49	2,730				
				1958	July 21, 1958	7.18	910
1955	May 19, 1955	17.09	4,860				
	Sept.22, 1955	13.73	3,100				

a Annual peak only. Contracted-opening measurement of peak discharge at State Highway 19, 4½ miles downstream.

3280. Washita River near Tabler, Okla.

Location.--Lat 34°58', long 97°51', in SW¼SW¼ sec.21, T.6 N., R.6 W., on downstream side of left pier of abandoned county highway bridge, 1 mile downstream from Little Washita River, 5 miles south of Tabler, and at mile 243.0.

Drainage area.--4,706 sq mi.

Gage.--Nonrecording prior to June 6, 1940; recording thereafter. Datum of gage is 1,022.38 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements of main channel and by computation of flow in flood plain by special methods.

Bankfull stage.--21 ft.

Remarks.--Base for partial-duration series, 4,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	-	a28.7	b36,200	1945	Sept.29, 1945	24.20	10,900
1927	Apr. 7, 1927	a29.9	b53,600	1946	May 29, 1946	19.89	5,650
					May 31, 1946	19.30	5,350
1940	July 5, 1940	13.54	3,380		June 30, 1946	24.60	10,400
1941	Apr. 18, 1941	16.31	4,410	1947	Apr. 10, 1947	16.93	4,200
	May 2, 1941	16.94	4,510		Apr. 13, 1947	20.32	5,850
	May 5, 1941	20.75	6,460		Apr. 15, 1947	19.09	5,250
	May 23, 1941	22.05	7,330		May 12, 1947	21.30	6,230
	May 29, 1941	18.50	5,160		May 16, 1947	29.08	38,000
	June 7, 1941	26.02	15,800		May 21, 1947	24.06	10,400
	June 10, 1941	24.31	10,900		June 1, 1947	24.05	10,100
	June 15, 1941	21.58	6,960	1948	Mar. 1, 1948	20.5	6,680
1942	Oct. 2, 1941	19.60	5,690		June 22, 1948	22.16	7,950
	Oct. 7, 1941	15.96	4,010				
	Oct. 30, 1941	24.06	10,600	1949	May 1, 1949	18.78	5,640
	Apr. 8, 1942	20.94	6,430		May 20, 1949	29.72	50,000
	Apr. 19, 1942	22.18	7,480		May 29, 1949	22.06	8,130
	Apr. 25, 1942	21.30	6,650		June 3, 1949	23.65	11,100
	May 3, 1942	17.59	4,460		June 7, 1949	23.27	10,200
	Aug. 26, 1942	18.93	5,350		June 10, 1949	20.17	7,100
	Sept.19, 1942	16.49	4,690	1950	May 10, 1950	20.94	8,300
1943	May 10, 1943	24.13	10,600		July 20, 1950	23.35	12,300
	May 19, 1943	22.34	7,840		July 25, 1950	20.87	8,300
	May 31, 1943	16.64	4,270		Aug. 6, 1950	14.78	4,570
	June 4, 1943	23.28	9,020	1951	May 18, 1951	27.14	24,800
1944	Apr. 14, 1944	17.68	4,610		May 20, 1951	26.72	22,800
	June 12, 1944	18.40	5,050		June 9, 1951	16.54	5,340
	June 18, 1944	17.39	4,710		June 12, 1951	21.64	9,180
1945	Oct. 3, 1944	19.18	5,400	1952	May 18, 1952	14.51	4,560
	Mar. 11, 1945	23.19	9,090		June 1, 1952	15.15	4,900
	Apr. 16, 1945	25.19	13,300				
	Apr. 20, 1945	22.70	8,940	1955	-	a28.8	37,300
	June 8, 1945	21.37	7,170				
	June 12, 1945	24.77	12,300	1957	May, 1957	a29.6	48,300
	July 10, 1945	22.58	8,640				

a Annual peak only.
b Approximate discharge.

3285. Washita River near Pauls Valley, Okla.

Location.--Lat 34°45', long 97°15', in SE¼ sec.1, T.3 N., R.1 W., on downstream side of right pier of bridge on U. S. Highway 77, 2 miles northwest of Pauls Valley, 6 miles downstream from Owl Creek, 7 miles upstream from Washington Creek, and at mile 146.5.

Drainage area.--5,330 sq mi.

Gage.--Nonrecording prior to Jan. 26, 1939; recording thereafter. Prior to Oct. 7, 1948, at site 0.7 mile upstream at datum 1.53 ft higher. Datum of present gage is 854.61 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 18,000 cfs and extended above.

Bankfull stage.--24 ft. At upstream site, 25 ft.

Historical data.--According to local residents in 1938, the flood in 1908 was maximum known and in 1941, it was reported as similar to flood of June 10, 1941. In 1938, local residents reported that a notable flood occurred in 1923.

Remarks.--Base for partial-duration series, 5,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Feb. 16, 1938	-	10,000	1947	Apr. 25, 1947	20.99	7,870
	Mar. 29, 1938	23.90	7,800		May 12, 1947	21.02	7,870
	May 7, 1938	22.41	6,570		May 19, 1947	28.04	15,200
	May 23, 1938	24.92	8,880		May 25, 1947	27.52	14,500
					May 29, 1947	17.67	5,220
1939	June 30, 1939	16.93	4,260		June 2, 1947	26.25	12,500
					June 24, 1947	25.41	12,100
1940	July 4, 1940	23.42	7,150		July 3, 1947	17.67	5,540
1941	May 10, 1941	19.13	5,120	1948	Mar. 3, 1948	16.23	5,600
	May 25, 1941	19.81	5,430		May 26, 1948	16.15	5,040
	June 2, 1941	22.3	6,610		June 21, 1948	17.02	5,600
	June 10, 1941	30.60	22,000		June 25, 1948	24.00	12,100
	Sept. 9, 1941	20.50	5,550				
				1949	May 1, 1949	21.62	10,400
1942	Oct. 5, 1941	23.35	7,070		May 22, 1949	28.42	21,700
	Oct. 15, 1941	21.7	6,150		May 30, 1949	17.48	7,200
	Oct. 31, 1941	29.15	16,200		June 9, 1949	18.78	9,180
	Apr. 9, 1942	25.34	9,000				
	Apr. 20, 1942	24.70	7,840	1950	May 11, 1950	29.88	30,000
	Apr. 25, 1942	24.50	7,700		May 26, 1950	15.64	8,600
					June 12, 1950	12.10	5,390
1943	Oct. 30, 1942	18.94	5,180		July 22, 1950	15.74	9,200
	May 11, 1943	27.75	14,000		July 26, 1950	18.11	11,400
	May 18, 1943	25.33	9,890		Sept.14, 1950	11.84	5,600
	May 20, 1943	23.47	7,850				
	June 6, 1943	23.63	7,990	1951	May 1, 1951	16.60	11,700
					May 23, 1951	23.00	20,100
1944	June 9, 1944	21.18	8,010		May 27, 1951	13.80	6,480
	June 14, 1944	20.26	7,280		June 11, 1951	17.24	11,100
					June 14, 1951	15.27	8,410
1945	Mar. 3, 1945	18.53	5,430				
	Mar. 15, 1945	23.56	8,170	1952	May 18, 1952	18.29	15,100
	Mar. 19, 1945	19.59	5,990		May 28, 1952	13.41	8,120
	Apr. 20, 1945	23.20	8,100				
	June 8, 1945	21.70	7,680	1953	July 23, 1953	10.14	3,830
	June 15, 1945	26.23	9,770				
	June 17, 1945	24.21	8,380	1954	Oct. 23, 1953	19.15	17,400
	June 22, 1945	19.21	5,430		Oct. 26, 1953	15.39	10,700
	July 10, 1945	23.28	8,600		May 2, 1954	15.60	11,000
					May 12, 1954	14.25	9,200
1946	Oct. 1, 1945	29.70	18,600				
	May 23, 1946	22.06	7,750	1955	May 21, 1955	17.65	14,500
	May 31, 1946	26.19	9,860		June 16, 1955	12.30	5,860
	June 30, 1946	23.1	8,600		June 19, 1955	12.80	6,530
					Sept.26, 1955	12.98	6,950
1947	Dec. 11, 1946	21.92	8,590				
	Apr. 15, 1947	23.80	10,400	1956	Oct. 5, 1955	16.71	13,000

Peak stages and discharges of Washita River near Pauls Valley, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	Apr. 21, 1957	16.90	12,900	1957	May 26, 1957	24.64	29,300
	Apr. 23, 1957	17.00	12,400		May 30, 1957	21.18	21,500
	Apr. 26, 1957	15.22	9,760		June 4, 1957	16.35	11,600
	May 1, 1957	12.18	5,260		June 15, 1957	17.08	13,200
	May 3, 1957	13.59	7,360		June 23, 1957	13.84	7,360
	May 9, 1957	14.95	9,760		Sept.21, 1957	19.10	18.600
	May 13, 1957	17.16	13,600				
	May 18, 1957	27.34	35,800	1958	June 21, 1958	13.75	8,890
	May 22, 1957	16.10	10,800				

3290. Rush Creek at Purdy, Okla.

Location.--Lat 34°42', long 97°35', in center of NE¼ sec.26, T.3 N., R.4 W., on right bank 20 ft downstream from low-water bridge on State Highway 76, three-quarters of a mile south of Purdy, 8½ miles south of Lindsay, and at mile 26.1.

Drainage area.--145 sq mi.

Gage.--Nonrecording prior to Aug. 23, 1943, and May 11, 1950, to Sept. 18, 1952; recording during remainder of record. Prior to Oct. 1, 1942, at datum 5.00 ft higher. Datum of last used gage was 989.7 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements to 14,500 cfs and extended on basis of conveyance studies.

Bankfull stage.--23 ft.

Historical data.--According to local residents, the flood of May 10, 1950, was the highest known since flood in 1908, which exceeded it by 1 or 2 ft.

Remarks.--Records 1939-50 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 5,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	July 3, 1940	15.95	10,400	1946	June 29, 1946	14.30	6,500
1941	Apr. 29, 1941	12.47	7,200	1947	Dec. 11, 1946	11.92	6,400
	June 1, 1941	15.60	9,990		Apr. 24, 1947	11.85	5,040
	June 6, 1941	21.00	15,200				
	June 9, 1941	16.80	11,400	1948	June 24, 1948	15.25	6,600
	June 15, 1941	13.60	8,480				
				1949	May 1, 1949	11.60	3,950
1942	Oct. 2, 1941	13.10	8,440				
	Oct. 4, 1941	13.80	4,950	1950	May 10, 1950	27.0	30,000
	Oct. 30, 1941	15.30	10,300		May 26, 1950	18.20	14,300
	Apr. 8, 1942	-	10,000		Aug. 24, 1950	16.10	11,400
	June 22, 1942	13.40	8,750		Sept.13, 1950	19.70	16,400
1943	May 10, 1943	26.10	15,300	1951	May 1, 1951	19.90	18,400
	May 16, 1943	18.50	9,100		May 18, 1951	18.89	17,000
					June 9, 1951	12.0	7,600
1944	June 9, 1944	17.40	8,250		June 11, 1951	10.9	6,160
					July 2, 1951	11.1	6,020
1945	Mar. 11, 1945	18.00	8,700				
	June 8, 1945	19.43	9,820	1952	May 17, 1952	14.1	11,200
	June 12, 1945	15.40	6,750		May 28, 1952	11.5	7,860
	July 27, 1945	16.20	7,350				
	Sept.28, 1945	17.50	9,750	1953	Mar. 30, 1953	9.54	5,320
					July 20, 1953	10.10	6,110
1946	May 23, 1946	15.60	6,900				
	May 31, 1946	14.60	6,150	1954	Oct. 22, 1953	20.19	a20,000

a Annual peak only.

3295. Rush Creek near Maysville, Okla.

Location.--Lat 34°44', long 97°24', in SW¼SW¼ sec.10, T.3 N., R.2 W., near right bank on downstream side of pier of bridge on State Highway 74, 2½ miles downstream from Panther Creek, 5.3 miles south of Maysville, and at mile 14.2.

Drainage area.--206 sq mi.

Gage.--Recording. Datum of gage is 903.04 ft above mean sea level, datum of 1929 (levels by State Highway Commission).

Stage-discharge relation.--Defined by current-meter measurements below 5,300 cfs and extended on basis of contracted-opening measurement at 38,500 cfs.

Bankfull stage.--20 ft.

Remarks.--Base for partial-duration series, 6,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1954	May 1, 1954	15.40	12,400	1957	Apr. 23, 1957	12.90	8,890
	May 10, 1954	14.70	11,200		May 13, 1957	13.81	10,200
	May 12, 1954	12.65	7,820		May 18, 1957	23.62	38,500
					May 22, 1957	10.70	6,620
1955	Apr. 26, 1955	13.45	9,040		May 25, 1957	18.73	18,700
	May 19, 1955	16.12	13,700		May 30, 1957	13.02	9,600
	June 16, 1955	12.65	8,420		June 15, 1957	17.30	16,800
1956	Oct. 5, 1955	7.78	2,790	1958	May 3, 1958	9.75	5,060
1957	Apr. 21, 1957	14.30	11,000				

3305. Caddo Creek near Ardmore, Okla.

Location.--Lat 34°15', long 97°06', on west line of NW¼ sec.4, T.4 S., R.2 E., at middle of downstream handrail of county highway bridge, 5 miles north of Ardmore and 10 miles upstream from mouth.

Drainage area.--298 sq mi.

Gage.--Nonrecording. Datum of gage is 709.48 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 15,000 cfs and extended above.

Bankfull stage.--19 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 2,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1937	Mar. 12, 1937	23.0	4,730	1941	Apr. 15, 1941	20.2	2,670
	Apr. 21, 1937	23.6	5,850		Apr. 30, 1941	22.0	3,750
	Aug. 22, 1937	-	7,000		May 21, 1941	20.2	2,620
					June 10, 1941	19.9	2,550
1938	Feb. 16, 1938	27.94	18,800		June 15, 1941	21.7	3,450
	Mar. 29, 1938	24.00	6,880				
				1942	Oct. 5, 1941	26.90	14,800
1939	June 12, 1939	11.79	710		Oct. 31, 1941	25.60	10,800
					Apr. 8, 1942	24.90	8,940
1940	May 9, 1940	22.10	3,490		Apr. 20, 1942	26.20	12,500
	May 18, 1940	22.50	3,970		Apr. 25, 1942	24.20	7,320
	May 22, 1940	25.16	9,700		May 18, 1942	21.80	3,490
	May 28, 1940	21.50	2,970		June 22, 1942	20.5	2,730
	June 10, 1940	25.10	9,440		June 30, 1942	21.10	2,920
	Aug. 17, 1940	22.70	4,250				
				1943	Oct. 30, 1942	21.50	3,280
1941	Nov. 26, 1940	22.2	3,930		Nov. 8, 1942	24.70	8,460

Peak stages and discharges of Caddo Creek near Ardmore, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Apr. 11, 1943	19.95	2,560	1947	Dec. 11, 1946	26.00	11,900
	Apr. 17, 1943	24.50	7,980		Apr. 15, 1947	23.42	5,620
	May 10, 1943	27.6	17,500		May 17, 1947	23.60	6,020
	May 28, 1943	23.20	6,240		May 20, 1947	23.50	5,820
					May 25, 1947	24.55	8,230
1944	Feb. 28, 1944	21.50	3,280		June 23, 1947	21.00	2,980
1945	Feb. 21, 1945	19.80	2,510	1948	May 10, 1948	20.03	2,560
	Apr. 2, 1945	20.00	2,560		July 12, 1948	20.31	2,650
	Apr. 15, 1945	23.80	6,440				
	June 12, 1945	23.50	5,820	1949	Mar. 21, 1949	21.60	3,350
	June 17, 1945	22.50	4,130		May 23, 1949	20.45	2,680
	Mar. 15, 1945	28.60	22,300		May 27, 1949	23.90	6,660
	Mar. 19, 1945	25.55	10,600		June 13, 1949	26.00	11,900
	Apr. 24, 1945	24.60	8,230				
	July 10, 1945	25.53	10,600	1950	Oct. 24, 1949	21.45	3,220
	Aug. 7, 1945	24.20	7,320		Feb. 13, 1950	21.28	3,160
	Sept.27, 1945	25.25	9,830		Apr. 29, 1950	23.83	6,440
					May 2, 1950	22.00	3,630
1946	Oct. 1, 1945	25.50	10,500		May 11, 1950	20.42	2,630
	Jan. 5, 1946	25.90	11,600		July 23, 1950	20.00	2,560
	Feb. 18, 1946	23.70	6,230		Aug. 2, 1950	21.55	3,350
	Aug. 19, 1946	21.30	3,160		Aug. 23, 1950	23.82	6,440
	Aug. 26, 1946	23.80	6,440		Sept.13, 1950	19.83	2,510
	Aug. 29, 1946	22.00	3,630				

3310. Washita River near Durwood, Okla.

Location.--Lat 34°14', long 96°58', in SE¼ sec.3, T.4 S., R.3 E., near left bank on downstream side of pier of bridge on State Highway 18, 1.3 miles downstream from Caddo Creek, 4 miles north of Durwood, and at mile 63.4.

Drainage area.--7,202 sq mi.

Gage.--Nonrecording prior to Feb. 16, 1939, and Dec. 15, 1950, to Feb. 19, 1952; recording for remainder of record. Dec. 15, 1950, to Feb. 19, 1952, at site 500 ft upstream at present datum. Datum of present gage is 650.57 ft above mean sea level (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--27 ft.

Historical data.--Data for 1927 obtained from local residents in 1928, and for 1908 in 1938.

Remarks.--Base for partial-duration series, 10,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	May 1908	42	a71,000	1933	Dec. 24, 1933	26.55	15,700
					Mar. 6, 1933	25.68	14,800
1927	April 1927	38	a43,500		May 16, 1933	32.03	23,300
					May 25, 1933	33.92	27,600
1929	May 12, 1929	26.24	15,300		Aug. 3, 1933	22.10	11,500
	May 16, 1929	23.16	12,500				
	June 1, 1929	26.3	15,400	1934	Mar. 2, 1934	17.61	8,020
1930	May 11, 1930	22.90	12,200	1935	May 6, 1935	28.89	19,000
	May 16, 1930	27.94	16,900		May 19, 1935	37.22	36,400
	May 23, 1930	22.06	11,500		June 16, 1935	25.40	14,600
1931	Mar. 20, 1931	23.32	11,700	1936	Dec. 7, 1935	24.95	14,200
					May 9, 1936	31.97	24,500
1932	Oct. 23, 1931	21.02	10,600		Sept.28, 1936	27.02	16,400
	Nov. 24, 1931	28.20	17,300				
	Jan. 6, 1932	27.58	16,700	1937	Apr. 21, 1937	20.4	10,200
	Jan. 17, 1932	20.4	10,100		Aug. 22, 1937	22.5	11,800
	Jan. 23, 1932	21.26	10,800				
	June 28, 1932	21.02	10,600	1938	Feb. 17, 1938	41.20	68,000
	July 7, 1932	27.05	16,100		Mar. 30, 1938	30.95	21,600

a Annual peak only.

Peak stages and discharges of Washita River near Durwood, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	May 9, 1938	25.33	13,700	1947	June 24, 1947	29.01	23,400
	May 25, 1938	28.21	17,000				
				1948	Feb. 26, 1948	22.99	17,500
1939	July 1, 1939	10.04	3,870		June 25, 1948	24.25	19,100
					June 28, 1948	17.75	11,500
1940	May 22, 1940	22.85	11,700				
	May 28, 1940	22.08	11,200	1949	Mar. 21, 1949	16.14	10,400
	July 3, 1940	23.63	12,300		May 2, 1949	23.90	20,400
					May 24, 1949	24.40	21,100
1941	Apr. 16, 1941	21.33	10,900		May 27, 1949	23.01	19,200
	June 13, 1941	31.56	21,000		June 13, 1949	26.18	23,800
	Sept.10, 1941	24.38	13,100				
				1950	May 12, 1950	42.57	80,100
1942	Oct. 6, 1941	38.27	38,800		May 27, 1950	16.24	10,600
	Oct. 16, 1941	21.58	10,600		July 23, 1950	17.55	12,600
	Oct. 31, 1941	44.37	85,000		July 26, 1950	18.14	13,200
	Apr. 9, 1942	38.25	44,900		Aug. 24, 1940	17.66	13,900
	Apr. 21, 1942	35.41	32,500		Sept.15, 1950	16.26	12,600
	Apr. 25, 1942	34.68	30,200				
	May 4, 1942	22.52	11,000	1951	May 2, 1951	16.40	11,700
	June 10, 1942	23.30	13,000		May 21, 1951	24.41	25,900
	June 23, 1942	30.38	18,800		May 28, 1951	16.30	11,600
					June 7, 1951	19.00	14,700
1943	Oct. 31, 1942	23.08	12,200		June 12, 1951	27.08	28,700
	Nov. 8, 1942	26.23	15,200				
	Apr. 12, 1943	26.18	15,700	1952	May 18, 1952	22.16	18,500
	Apr. 17, 1943	23.30	12,800		May 29, 1952	16.17	11,800
	May 11, 1943	44.35	91,300				
	May 19, 1943	24.54	13,900	1953	Apr. 24, 1953	16.93	11,800
	May 28, 1943	25.65	15,100		May 12, 1953	20.10	17,800
	June 6, 1943	20.33	10,400		July 20, 1953	21.20	20,000
1944	June 15, 1944	21.20	11,800	1954	Oct. 24, 1953	26.26	30,300
					Oct. 26, 1953	23.17	23,800
1945	Mar. 3, 1945	21.10	11,700		May 1, 1954	18.57	15,300
	Mar. 12, 1945	23.20	13,400		May 3, 1954	24.11	26,200
	Mar. 16, 1945	38.51	50,500		May 13, 1954	26.28	31,500
	Mar. 20, 1945	34.38	32,500		June 8, 1954	16.93	12,500
	Apr. 16, 1945	25.31	15,400				
	Apr. 24, 1945	31.63	25,000	1955	May 20, 1955	23.34	26,200
	June 10, 1945	32.19	25,900		June 17, 1955	15.70	11,200
	June 13, 1945	33.58	29,300		Sept.27, 1955	25.39	31,100
	June 18, 1945	31.37	23,400				
	July 11, 1945	31.65	25,900	1956	Oct. 6, 1955	17.20	13,500
	Aug. 8, 1945	21.61	11,100				
	Sept.28, 1945	31.34	26,100	1957	Apr. 3, 1957	21.00	19,100
					Apr. 21, 1957	25.37	30,300
1946	Oct. 1, 1945	41.54	64,800		Apr. 24, 1957	26.08	32,100
	Jan. 5, 1946	33.30	29,800		Apr. 26, 1957	26.11	29,300
	Feb. 19, 1946	26.54	18,300		May 1, 1957	19.65	18,600
	June 1, 1946	29.74	22,800		May 4, 1957	19.45	17,400
	June 30, 1946	19.98	12,500		May 14, 1957	24.54	26,800
					May 19, 1957	42.30	98,000
1947	Dec. 12, 1946	34.12	31,800		May 23, 1957	23.00	28,500
	Apr. 10, 1947	17.60	10,700		May 26, 1957	27.32	41,000
	Apr. 16, 1947	31.22	27,400		May 31, 1957	24.30	33,300
	Apr. 25, 1947	19.45	12,700		June 15, 1957	21.36	22,200
	May 13, 1947	23.85	17,500		Sept.22, 1957	24.10	25,300
	May 17, 1947	26.85	21,000				
	May 21, 1947	32.23	29,300	1958	May 3, 1958	15.88	11,900
	May 25, 1947	35.22	35,800		June 22, 1958	14.94	10,500
	June 2, 1947	19.77	12,700				

3320. Red River near Colbert, Okla.
(Published as "near Denison, Tex." prior to 1934)

Location.--Lat 33°49', long 96°31', in E½ sec.36, T.8 S., R.7 E., near center of span on downstream side of pier of former toll bridge, 1.3 miles downstream from Sand Creek, 2 miles south of Colbert, 2.9 miles downstream from Denison Dam, and at mile 723.0.

Drainage area.--39,777 sq mi, of which about 33,841 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Sept. 25, 1934; recording thereafter. Datum of gage was 13.00 ft higher 1906-8, 9.49 ft higher Oct. 1, 1923, to Sept. 30, 1931, and 9.71 ft higher Oct. 1, 1931, to Sept. 24, 1934. At site 0.6 mile upstream, datum was 13.00 ft higher 1909-17 and 10.00 ft higher during 1918-23 and Sept. 25, 1934, to July 28, 1942. Datum of present gage is 497.36 ft above mean sea level, datum of 1929. All stages adjusted to present site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 180,000 cfs and extended above.

Bankfull stage.--35 ft.

Historical data.--In 1906, it was determined that highest stage known was 36.6 ft, date unknown (probably July 1876). According to local resident, the flood of May 26, 1908, was greatest known since at least 1837.

Remarks.--Gage-height records prior to 1924 collected by U. S. Weather Bureau. Stage-relation curve furnished by Corps of Engineers. Flow completely regulated since Oct. 31, 1943, by Lake Texoma (capacity, 5,530,300 acre-ft), with some prior regulation by construction operations. Base for partial-duration series, 38,000 cfs. Only annual peaks are shown prior to 1924 and subsequent to 1942.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	Aug. 11, 1906	26.4	-	1927	Apr. 18, 1927	24.7	99,600
					Apr. 21, 1927	20.5	47,800
1907	May 27, 1907	25.1	-		July 14, 1927	24.3	94,400
1908	May 26, 1908	45.5	-	1928	May 19, 1928	25.3	107,000
					June 18, 1928	20.2	45,400
1909	June 27, 1909	21.1	-		June 21, 1928	20.0	42,000
1912	June 20, 1912	21.8	-	1929	May 14, 1929	24.7	99,600
					Sept.12, 1929	21.3	57,300
1914	Dec. 5, 1913	25.4	-				
				1930	May 9, 1930	19.8	45,700
1915	June 9, 1915	35.5	-		May 18, 1930	20.0	46,400
					June 18, 1930	19.7	39,800
1916	Oct. 19, 1915	29.8	-				
				1931	Oct. 16, 1930	22.3	66,900
1918	Apr. 15, 1918	23.6	-		Dec. 7, 1930	20.2	46,500
1919	Oct. 29, 1918	26.1	-	1932	Jan. 7, 1932	19.5	38,600
					Feb. 16, 1932	23.3	81,500
1920	(a)	25.4	-		June 29, 1932	21.0	52,500
					July 9, 1932	19.8	40,800
1921	Oct. 25, 1920	23.8	-				
				1933	Dec. 26, 1932	19.8	38,600
1922	May 11, 1922	27.7	-		May 16, 1933	20.8	49,500
					May 25, 1933	25.2	106,000
1923	June 12, 1923	21.8	-				
				1934	Mar. 1, 1934	18.6	27,300
1924	Oct. 17, 1923	29.1	158,000				
	Oct. 28, 1923	22.0	62,000	1935	May 4, 1935	20.5	44,500
	Nov. 15, 1923	20.3	42,200		May 12, 1935	20.2	39,500
	Apr. 26, 1924	20.7	48,800		May 19, 1935	28.6	154,000
	Apr. 29, 1924	20.3	44,400		May 21, 1935	31.8	201,000
					May 29, 1935	22.7	71,500
1925	Sept.16, 1925	27.1	133,000		June 2, 1935	21.9	61,600
					June 15, 1935	24.6	97,400
1926	Aug. 17, 1926	19.8	39,700		June 18, 1935	22.3	67,100
1927	Oct. 6, 1926	26.2	122,000	1936	Dec. 6, 1935	20.7	46,500
	Oct. 12, 1926	24.0	91,800		May 9, 1936	21.4	61,600
	Apr. 11, 1927	21.3	53,700		Sept.22, 1936	20.5	41,500
	Apr. 14, 1927	23.5	80,200		Sept.28, 1936	23.4	86,600

a Oct. 11, 1919, May 18, 1920.

Peak stages and discharges of Red River near Colbert, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1937	June 11, 1937	21.6	57,200	1945	May 3, 1945	22.12	47,700
1938	Feb. 18, 1938	27.3	138,000	1946	Oct. 8, 1945	21.44	40,600
	Mar. 29, 1938	23.8	93,800				
	May 25, 1938	20.4	60,000	1947	May 29, 1947	24.00	69,200
	June 11, 1938	19.4	47,000				
				1948	July 12, 1948	18.57	34,500
1939	June 24, 1939	19.5	39,100				
				1949	June 14, 1949	18.35	32,800
1940	July 4, 1940	20.4	44,400				
				1950	Aug. 10, 1950	20.04	40,100
1941	Apr. 18, 1941	20.5	45,100				
	May 3, 1941	19.9	40,600	1951	May 26, 1951	21.02	48,300
	May 7, 1941	26.4	117,000				
	May 24, 1941	22.3	67,000	1952	Apr. 28, 1952	11.60	10,400
	June 4, 1941	21.2	59,000				
	June 10, 1941	31.8	182,000	1953	Aug. 10, 1953	11.33	9,650
	June 17, 1941	24.3	94,600				
				1954	May 16, 1954	18.92	37,700
1942	Oct. 5, 1941	30.0	162,000				
	Oct. 25, 1941	21.6	59,000	1955	June 23, 1955	19.45	42,300
	Nov. 1, 1941	28.3	149,000				
	Apr. 9, 1942	25.2	106,000	1956	Oct. 8, 1955	19.56	41,400
	Apr. 25, 1942	32.0	183,000				
	May 1, 1942	22.0	66,200	1957	June 5, 1957	26.26	102,000
	May 6, 1942	19.9	44,300				
				1958	May 9, 1958	18.31	44,100
1943	May 15, 1943	21.34	60,000				
1944	June 22, 1944	12.33	5,640				

3325. Blue River near Blue, Okla.

Location.--Lat 33°59', long 96°15', on south line of SW¼ sec.34, T.6 S., R.10 E., near right bank on downstream side of pier of bridge on old U. S. Highway 70, 2 miles southwest of Blue, 6.5 miles upstream from Caddo Creek, 8 miles east of Durant, and at mile 37.6.

Drainage area.--478 sq mi.

Gage.--Nonrecording prior to Mar. 13, 1945; recording thereafter. Datum of gage is 498.36 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--23 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 4,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1937	Jan. 15, 1937	22.00	3,370	1942	Oct. 31, 1941	22.33	4,150
					Apr. 9, 1942	27.20	10,100
1938	Jan. 24, 1938	23.30	4,470		Apr. 25, 1942	31.69	33,600
	Feb. 17, 1938	31.81	34,400		June 11, 1942	24.40	5,480
	Mar. 30, 1938	25.60	6,940				
				1943	Nov. 9, 1942	26.00	7,500
1939	Apr. 16, 1939	21.50	3,320		Apr. 18, 1943	24.80	5,850
					May 11, 1943	28.73	15,300
1940	Apr. 7, 1940	24.82	5,940		May 29, 1943	28.00	12,500
	May 23, 1940	26.82	9,000		June 6, 1943	26.40	8,260
	June 18, 1940	25.10	6,290				
	July 23, 1940	24.30	5,390	1944	Feb. 25, 1944	22.36	4,200
					Feb. 28, 1944	27.25	10,100
1941	Apr. 16, 1941	22.87	4,480		Mar. 20, 1944	22.52	4,250
	Apr. 23, 1941	23.97	5,170		May 2, 1944	22.78	4,420
					May 27, 1944	27.20	10,100
1942	Oct. 4, 1941	25.30	6,430				
	Oct. 26, 1941	24.50	5,570	1945	Feb. 21, 1945	28.70	15,300

Peak stages and discharges of Blue River near Blue, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Feb. 28, 1945	25.00	6,060	1950	May 12, 1950	24.30	4,750
	Mar. 3, 1945	23.06	4,600		July 28, 1950	23.48	4,150
	Mar. 12, 1945	25.40	6,250				
	Mar. 16, 1945	27.08	9,300	1951	June 13, 1951	24.92	5,270
	Mar. 19, 1945	29.59	17,300				
	Mar. 31, 1945	27.94	11,300	1952	Apr. 23, 1952	27.33	8,530
	Apr. 3, 1945	25.30	6,130				
	Apr. 14, 1945	27.83	11,000	1953	Apr. 24, 1953	25.00	5,360
	Apr. 16, 1945	26.73	8,440		July 20, 1953	27.07	8,090
1945	May 16, 1945	22.67	4,200		July 25, 1953	24.06	4,590
	June 13, 1945	26.30	7,660				
	June 17, 1945	31.35	28,900	1954	May 2, 1954	25.45	6,000
	July 8, 1945	24.49	5,330		May 12, 1954	26.32	7,260
1946	Feb. 14, 1946	24.04	4,780	1955	May 21, 1955	23.72	4,350
	Feb. 19, 1946	27.40	9,530				
	June 1, 1946	24.28	5,100	1956	Apr. 30, June 1	12.19	978
1947	Nov. 4, 1946	23.42	4,420	1957	Apr. 4, 1957	24.25	5,100
	Nov. 6, 1946	29.32	16,000		Apr. 20, 1957	24.25	5,100
	Dec. 12, 1946	29.96	19,200		Apr. 24, 1957	25.92	6,980
	May 22, 1947	23.17	4,480		Apr. 27, 1957	29.21	13,700
					May 25, 1957	29.43	14,300
1948	May 26, 1948	25.74	6,650		June 2, 1957	28.10	11,000
	July 12, 1948	24.40	5,250		Sept.22, 1957	31.14	19,900
1949	May 18, 1949	24.20	5,000	1958	Nov. 6, 1957	25.08	5,980
					Nov. 8, 1957	26.56	8,070
1950	Feb. 13, 1950	25.45	5,750		May 2, 1958	31.70	26,000
	May 2, 1950	27.42	8,770				

3340. Muddy Boggy Creek near Farris, Okla.

Location.--Lat 34°16', long 95°55', in NW¼ sec.26, T.3 S., R.13 E., on downstream side of right pier of main span of bridge on State Highway 3, 1.3 miles downstream from McGee Creek, 2⅝ miles northwest of Farris, and 33.3 miles above confluence with Clear Boggy Creek.

Drainage area.--1,087 sq mi.

Gage.--Nonrecording prior to Mar. 13, 1945; recording thereafter. Datum of gage is 446.58 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 37,000 cfs and extended above.

Bankfull stage.--36 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 10,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Jan. 24, 1938	30.60	12,300	1942	Apr. 25, 1942	42.19	41,200
	Feb. 17, 1938	43.10	52,500		June 10, 1942	38.19	22,300
	Mar. 29, 1938	35.70	17,800		July 12, 1942	31.00	11,400
	May 23, 1938	28.00	10,000				
				1943	Dec. 27, 1942	33.15	14,900
1939	Apr. 16, 1939	32.64	14,200		May 13, 1943	40.00	28,800
1940	Apr. 7, 1940	36.6	19,600	1944	Feb. 28, 1944	33.40	15,100
	May 22, 1940	32.6	14,200		Mar. 20, 1944	31.50	13,200
	May 28, 1940	29.37	11,200		May 2, 1944	34.50	16,200
1941	Apr. 16, 1941	36.3	18,400	1945	Feb. 21, 1945	39.20	26,200
					Feb. 27, 1945	31.25	12,000
1942	Oct. 31, 1941	34.40	15,700		Mar. 3, 1945	31.40	12,200
	Apr. 9, 1942	37.60	21,000		Mar. 19, 1945	38.48	24,100

Peak stages and discharges of Muddy Boggy Creek near Farris, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Mar. 30, 1945	34.41	16,200	1951	June 7, 1951	31.22	12,600
	Apr. 18, 1945	36.33	19,400		June 12, 1951	41.78	38,800
	May 15, 1945	33.99	15,600				
	June 12, 1945	35.50	18,000	1952	Apr. 13, 1952	32.17	13,000
	June 17, 1945	44.94	61,900		Apr. 23, 1952	29.80	11,400
	Aug. 17, 1945	34.56	16,500				
	Sept.27, 1945	34.07	15,700	1953	Mar. 18, 1953	29.74	11,300
					Apr. 24, 1953	36.30	18,500
1946	Feb. 13, 1946	33.56	14,500		Apr. 29, 1953	35.08	16,400
	Feb. 19, 1946	34.92	16,600		May 13, 1953	34.39	15,500
	June 1, 1946	29.21	10,200		July 21, 1953	40.37	27,000
1947	Nov. 6, 1946	38.35	23,900	1954	May 10, 1954	36.86	19,600
	Dec. 12, 1946	39.57	29,500				
	Apr. 11, 1947	30.25	11,600	1955	Mar. 22, 1955	30.88	12,200
	May 20, 1947	33.39	15,800		Sept.23, 1955	29.45	10,300
					Sept.26, 1955	31.67	11,800
1948	July 12, 1948	27.90	9,710				
				1956	May 25, 1956	19.26	5,240
1949	May 1, 1949	35.91	19,200				
				1957	Apr. 3, 1957	37.06	19,200
1950	Jan. 14, 1950	30.34	11,000		Apr. 26, 1957	40.40	26,600
	Feb. 13, 1950	31.63	12,300		May 25, 1957	40.09	25,900
	May 1, 1950	30.17	10,900		June 4, 1957	36.88	18,800
	May 15, 1950	35.04	17,400		Sept.22, 1957	41.00	28,200
	July 30, 1950	31.35	12,100				
	Aug. 2, 1950	31.20	11,900	1958	Nov. 8, 1957	36.60	18,300
	Sept.16, 1950	37.81	23,400		May 2, 1958	39.79	25,100

3350. Clear Boggy Creek near Caney, Okla.

Location.--Lat 34°15', long 96°12', in NW¼SE¼ sec.36, T.3 S., R.10 E., on downstream side of left pier of bridge on U. S. Highways 69 and 75, half a mile downstream from Caney Creek, 1.5 miles north of Caney, and at mile 24.1.

Drainage area.--720 sq mi.

Gage.--Nonrecording prior to Mar. 13, 1945; recording thereafter. Datum of gage is 485.05 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 43,000 cfs and extended above.

Bankfull stage.--19 ft.

Remarks.--Records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 7,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	February 1938	26.91	54,600	1945	June 18, 1945	25.20	31,100
					Sept.28, 1945	23.63	12,800
1942	April 1942	26.8	52,800				
				1946	Feb. 20, 1946	23.76	14,700
1943	May 11, 1943	26.30	46,000				
				1947	Nov. 6, 1946	24.14	18,000
1944	Feb. 28, 1944	23.10	7,370		Dec. 11, 1946	26.77	52,800
	Mar. 19, 1944	23.60	9,870		Apr. 5, 1947	22.52	7,300
	May 2, 1944	23.50	9,170				
	May 29, 1944	23.36	8,570	1948	Feb. 29, 1948	23.00	9,000
					May 25, 1948	24.28	20,200
1945	Feb. 21, 1945	25.00	28,600		June 26, 1948	23.60	12,800
	Mar. 4, 1945	23.00	9,000				
	Mar. 12, 1945	22.70	7,620	1949	May 3, 1949	24.00	16,600
	Mar. 16, 1945	24.87	27,300				
	Mar. 20, 1945	24.52	22,500	1950	May 2, 1950	23.29	10,600
	Mar. 30, 1945	23.61	12,800		May 13, 1950	23.75	14,600
	Apr. 16, 1945	25.12	29,800		July 13, 1950	22.92	8,600
	May 15, 1945	23.04	9,000				
	June 12, 1945	23.39	11,300	1951	June 12, 1951	23.63	12,800

Peak stages and discharges of Clear Boggy Creek near Caney, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Apr. 22, 1952	23.21	10,000	1957	Apr. 4, 1957	22.50	8,580
					Apr. 23, 1957	23.40	15,700
1953	Apr. 24, 1953	22.62	7,700		Apr. 26, 1957	23.78	18,600
	July 21, 1953	22.68	8,050		May 2, 1957	22.13	7,330
					May 20, 1957	22.35	8,000
1954	May 3, 1954	23.30	11,000		May 25, 1957	24.02	19,000
	May 13, 1954	23.05	9,570		June 4, 1957	23.25	12,700
					Sept.23, 1957	24.54	21,700
1955	Mar. 22, 1955	21.93	6,220				
				1958	Nov. 7, 1957	22.69	8,420
1956	Feb. 18, 1956	15.86	2,540		May 2, 1958	23.14	10,200

3355. Red River at Arthur City, Tex.

Location.--Lat 33°53', long 95°30', in NW¼ sec.11, T.8 S., R.17 E., near right bank on downstream side of pier of bridge on U. S. Highway 271 at Arthur City, 10.6 miles downstream from Muddy Boggy River, 26.0 miles upstream from Kiamichi River, and at mile 633.1.

Drainage area.--44,531 sq mi, of which about 38,595 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Mar. 25, 1940; recording thereafter. Prior to 1935, at railroad bridge 200 ft upstream at present datum. Datum of present gage is 380.07 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined in recent years by current-meter measurements below 200,000 cfs. Rating for 1906-11 extended above 41,000 cfs on basis of records for later years.

Bankfull stage.--26 ft.

Remarks.--Considerable regulation since 1943 by Lake Texoma, 92.8 miles above station. Records for 1936-58 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 50,000 cfs. Only annual peak stages are shown 1891-1905, 1912-35.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1891	June 10, 1891	30.0	-	1907	July 12, 1907	20.8	52,000
1892	May 19, 1892	34.8		1908	Apr. 12, 1908	22.0	60,000
					May 14, 1908	21.0	53,300
1893	Mar. 9, 1893	15.5	-		May 28, 1908	43.2	400,000
					June 7, 1908	32.1	170,000
1894	Mar. 21, 1894	22.2	-		June 20, 1908	28.6	121,000
1895	July 13, 1895	25.0	-	1909	Dec. 2, 1908	20.0	47,000
1897	May 14, 1897	21.9	-	1910	Dec. 3, 1909	18.0	35,600
1898	May 8, 1898	21.1	-	1911	July 24, 1911	16.5	28,200
1900	Nov. 25, 1899	28.6	-	1912	Apr. 2, 1912	21.0	-
1901	Apr. 20, 1901	25.6	-	1913	July 5, 1913	16.7	-
1902	June 1, 1902	27.3	-	1914	Dec. 7, 1913	26.7	-
1903	July 5, 1903	28.8	-	1915	June 10, 1915	33.7	-
1904	June 13, 1904	24.0	-	1916	Oct. 20, 1915	29.8	-
1905	May 31, 1905	25.1	-	1917	June 2, 1917	16.0	-
1906	May 4, 1906	26.1	93,800	1918	Apr. 16, 1918	22.0	-
	Aug. 13, 1906	23.0	67,200				
				1919	Oct. 30, 1918	22.0	-
1907	May 29, 1907	23.2	68,800				
	June 2, 1907	21.0	53,300	1920	May 19, 1919	24.2	-

Peak stages and discharges of Red River at Arthur City, Tex.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	Oct. 27, 1920	21.7	-	1943	May 15, 1943	22.40	94,400
					May 18, 1943	21.20	81,200
1922	May 12, 1922	26.2	-		May 31, 1943	19.56	63,000
1923	Sept.23, 1923	20.0	-	1944	May 3, 1944	15.93	34,700
1924	Oct. 18, 1923	28.2	-	1945	Feb. 22, 1945	21.25	80,000
					Feb. 28, 1945	19.68	66,000
1925	Sept.18, 1925	25.0	-		Mar. 18, 1945	20.00	65,500
					Mar. 31, 1945	19.17	62,800
1926	Aug. 18, 1926	25.0	-		Apr. 21, 1945	19.60	61,700
					June 13, 1945	21.92	91,000
1927	Apr. 16, 1927	27.0	-		June 18, 1945	21.60	88,000
					July 11, 1945	18.60	51,100
1928	May 21, 1928	24.7	-				
				1946	Oct. 6, 1945	18.86	59,800
1929	May 15, 1929	26.7	-		Oct. 9, 1945	19.70	68,000
					Feb. 19, 1946	17.89	57,500
1930	May 19, 1930	21.7	-		Feb. 23, 1946	17.82	56,500
1931	Oct. 17, 1930	18.8	-	1947	Nov. 7, 1946	23.60	104,000
					Dec. 12, 1946	21.67	86,700
1932	Feb. 18, 1932	25.0	-		June 4, 1947	20.16	68,500
1933	May 27, 1933	25.0	-	1948	Feb. 26, 1948	18.02	57,700
					May 12, 1948	20.46	75,000
1934	Mar. 3, 1934	18.5	-		July 13, 1948	19.42	64,500
1935	June 17, 1935	31.7	-	1949	Jan. 25, 1949	17.34	55,900
1936	Sept.29, 1936	22.8	95,200	1950	Jan. 14, 1950	17.55	50,000
					Feb. 13, 1950	20.02	69,400
1937	June 12, 1937	20.6	71,800		May 3, 1950	18.26	55,200
					July 27, 1950	18.40	52,800
1938	Jan. 24, 1938	19.2	58,100				
	Feb. 19, 1938	34.3	222,000	1951	June 8, 1951	19.70	60,600
	Mar. 30, 1938	25.9	148,000		June 12, 1951	19.50	58,500
	May 26, 1938	18.8	54,500		June 17, 1951	21.01	74,500
1939	Apr. 17, 1939	19.6	58,100	1952	Apr. 23, 1952	21.74	93,400
1940	Apr. 7, 1940	17.82	51,000	1953	Apr. 30, 1953	18.54	53,800
	May 24, 1940	18.35	55,200				
				1954	May 17, 1954	18.80	57,000
1941	Apr. 19, 1941	19.13	63,800				
	Apr. 24, 1941	22.92	95,200	1955	June 24, 1955	17.30	42,200
	May 4, 1941	18.16	57,000				
	May 8, 1941	24.27	108,000	1956	Oct. 9, 1955	17.12	40,400
	May 15, 1941	17.26	50,200				
	May 25, 1941	19.56	67,800	1957	Apr. 28, 1957	23.70	99,200
	June 5, 1941	18.56	64,600		May 5, 1957	22.62	76,400
	June 12, 1941	31.27	183,000		May 14, 1957	22.30	79,200
					May 23, 1957	23.30	88,700
1942	Oct. 7, 1941	28.00	148,000		May 27, 1957	25.00	105,000
	Oct. 27, 1941	19.13	61,000		June 6, 1957	28.35	136,000
	Nov. 3, 1941	27.65	141,000		Sept.23, 1957	18.73	52,800
	Apr. 10, 1942	27.85	142,000				
	Apr. 21, 1942	24.12	115,000	1958	Nov. 6, 1957	19.45	55,200
	Apr. 26, 1942	31.55	199,000		May 3, 1958	26.35	120,000
	May 7, 1942	19.57	53,900				
	June 11, 1942	18.90	58,000				

3365. Kiamichi River near Belzoni, Okla.

Location.--Lat 34°12', long 95°29', in SE¼ sec.14, T.4 S., R.17 E., near right bank on downstream side of pier of bridge on State Highway 7, 1½ miles northwest of Belzoni, 6.5 miles downstream from Cedar Creek, 10 miles upstream from Possum Creek, and at mile 47.7.

Drainage area.--1,423 sq mi.

Gage.--Nonrecording prior to Aug. 14, 1940; recording thereafter. Datum of gage is 389.91 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 55,000 cfs and extended above.

Bankfull stage.--28 ft.

Remarks.--Records 1932-35, 1937-58 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 18,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1916	October 1916	44.2	a72,000	1941	Apr. 18, 1941	32.31	25,400
					Apr. 23, 1941	29.32	21,400
1926	Jan. 17, 1926	26.7	18,000				
	May 7, 1926	29.9	22,200	1942	Apr. 8, 1942	37.13	35,800
					Apr. 25, 1942	39.75	45,200
1927	Jan. 25, 1927	32.60	25,900				
	Apr. 15, 1927	39.60	43,800	1943	Dec. 27, 1942	37.02	35,500
	Apr. 20, 1927	35.76	31,500		May 11, 1943	41.60	55,300
	Apr. 23, 1927	32.70	26,000				
				1944	Feb. 28, 1944	33.40	27,300
1928	Dec. 14, 1927	41.24	51,600		May 2, 1944	36.40	31,000
	Apr. 6, 1928	40.3	46,900		May 29, 1944	29.20	21,300
	Apr. 23, 1928	36.7	33,600		June 6, 1944	32.45	25,700
	June 15, 1928	35.31	30,500				
				1945	Feb. 21, 1945	40.40	47,900
1929	Dec. 17, 1928	27.16	18,700		Feb. 27, 1945	36.70	32,600
	Jan. 25, 1929	32.30	25,400		Mar. 21, 1945	34.55	29,200
	May 14, 1929	36.65	32,700		Mar. 30, 1945	33.48	27,300
	May 18, 1929	29.40	21,500		May 18, 1945	37.65	36,200
	May 27, 1929	33.04	26,500		June 12, 1945	41.72	54,600
					June 17, 1945	43.90	70,600
1930	May 4, 1930	33.16	25,800		Sept.29, 1945	32.39	25,600
	May 23, 1930	29.40	21,500				
				1946	Feb. 13, 1946	34.45	27,800
1931	Feb. 9, 1931	25.6	16,700		Feb. 19, 1946	27.60	19,200
					Apr. 24, 1946	32.00	24,100
1932	January 1932	-	(b)		June 1, 1946	31.37	23,300
	Feb. 17, 1932	41.0	50,400				
	July 2, 1932	36.	34,500	1947	Nov. 4, 1946	35.32	29,700
					Nov. 6, 1946	38.83	40,600
1933	Dec. 24, 1932	34.37	31,400		Nov. 10, 1946	30.52	22,000
	Mar. 6, 1933	27.00	19,600		Dec. 12, 1946	40.33	46,900
					Apr. 30, 1947	34.00	27,100
1934	Apr. 5, 1934	35.00	32,500				
	May 5, 1934	25.8	18,000	1948	Feb. 28, 1948	28.33	18,900
					May 12, 1948	28.44	19,100
1935	Jan. 21, 1935	26.9	18,200		May 17, 1948	32.77	25,200
	Mar. 12, 1935	29.80	21,300				
	Mar. 23, 1935	30.00	21,500	1949	Jan. 25, 1949	42.93	67,200
	Apr. 29, 1935	27.0	18,300		Feb. 15, 1949	30.00	21,600
	May 5, 1935	41.40	52,800		May 1, 1949	40.68	51,200
	May 16, 1935	33.0	25,800		June 15, 1949	26.29	18,200
	June 18, 1935	42.2	57,800				
				1950	Jan. 13, 1950	32.70	26,400
1936	Dec. 7, 1935	36.81	36,700		Feb. 12, 1950	38.17	38,800
	Sept.28, 1936	36.70	36,300		July 7, 1950	29.84	22,200
					July 31, 1950	30.50	23,200
1937	Jan. 9, 1937	31.53	23,900		Aug. 3, 1950	29.22	21,500
					Sept.17, 1950	40.02	47,000
1938	Jan. 24, 1938	35.60	31,100				
	Feb. 18, 1938	44.00	71,400	1951	Feb. 20, 1951	36.52	35,400
	Mar. 29, 1938	31.40	24,200		June 12, 1951	40.05	49,400
	Mar. 31, 1938	32.60	25,900		July 3, 1951	28.05	20,600
1939	Apr. 18, 1939	36.53	35,500	1952	Apr. 12, 1952	31.80	25,600
					Apr. 23, 1952	33.20	27,800
1940	Apr. 7, 1940	24.10	14,700				
				1953	Mar. 19, 1953	27.12	20,000
1941	Apr. 16, 1941	32.55	26,000		Apr. 6, 1953	26.08	18,700

a Annual peak only.
b No record; maximum may have been slightly higher than that of Feb. 17.

Peak stages and discharges of Kiamichi River near Belzoni, Okla.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Apr. 24, 1953	36.52	37,200	1957	Feb. 7, 1957	26.10	18,700
	Apr. 29, 1953	35.08	33,600		Apr. 4, 1957	31.41	26,200
	May 13, 1953	30.58	24,800		Apr. 26, 1957	36.86	38,400
	July 21, 1953	35.92	35,600		May 1, 1957	30.33	24,400
					May 14, 1957	26.08	18,700
1954	May 10, 1954	26.06	18,700		May 26, 1957	37.60	40,500
					June 4, 1957	36.74	37,800
1955	Feb. 20, 1955	28.68	22,100		Sept.22, 1957	38.23	42,300
	Mar. 22, 1955	30.70	25,000				
	Sept.23, 1955	27.48	20,500	1958	Nov. 8, 1957	26.46	19,200
	Sept.26, 1955	32.22	27,600		Nov. 18, 1957	30.82	25,200
					May 3, 1958	40.78	55,200
1956	Feb. 18, 1956	20.00	12,000				

3370. Red River at Index, Ark.

Location.--Lat 33°33'05", long 94°02'25", in SW¼ sec.7, T.14 S., R.28 W., on downstream side of pier of bridge on U. S. Highway 71 at Index, 2¼ miles south of Ogden, 20.6 miles upstream from Little River, and at mile 485.3.

Drainage area.--48,030 sq mi, of which about 42,094 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Dec. 12, 1939, at present site or at Kansas City Southern Railway Co. bridge 1,100 ft upstream; recording at present site thereafter. Datum of gage is 246.87 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements since 1937.

Bankfull stage.--25 ft.

Remarks.--Considerable regulation by Lake Texoma, 241 miles above station since July 1942 (capacity, 5,530,300 acre-ft). Prior to 1951, records computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 70,000 cfs. Only annual peak stages are shown prior to 1937.

Peak stages and discharges of Red River at Index, Ark.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1918	Apr. 19, 1918	24.5	-	1942	Nov. 5, 1941	b25.90	128,000
					Apr. 14, 1942	28.33	145,000
1919	Oct. 31, 1918	22.0	-		Apr. 23, 1942	25.33	107,000
					May 1, 1942	29.85	178,000
1920	May 21, 1920	27.6	-	1943	May 16, 1943	b24.35	112,000
1921	June 27, 1921	23.5	-	1944	May 4, 1944	21.88	87,800
1922	May 15, 1922	26.3	-	1945	Feb. 24, 1945	23.25	105,000
1923	Sept.24, 1923	23.3	-		Mar. 2, 1945	24.17	120,000
					May 20, 1945	22.63	110,000
1924	Dec. 18, 1923	27.0	-		Apr. 1, 1945	28.05	152,000
					June 14, 1945	23.90	101,000
1925	May 1, 1925	20.5	-		June 22, 1945	c24.37	120,000
1926	Aug. 21, 1926	23.5	-	1946	Oct. 11, 1945	20.80	76,400
1927	Apr. 23, 1927	30.8	-	1947	Nov. 9, 1946	23.74	110,000
					Dec. 15, 1946	23.47	108,000
1928	May 23, 1928	25.0	-		May 2, 1947	20.40	76,500
					June 4, 1947	20.50	74,700
1929	May 21, 1929	27.2	-	1948	May 13, 1948	21.40	84,000
1930	May 21, 1930	27.2	-	1949	Jan. 29, 1949	24.56	112,000
1931	Dec. 9, 1930	20.2	-	1950	Jan. 16, 1950	20.98	78,800
					Feb. 3, 1950	20.52	71,200
1932	Feb. 21, 1932	27.4	-		Feb. 15, 1950	23.48	108,000
					May 4, 1950	22.78	87,000
1933	May 29, 1933	24.7	-		July 29, 1950	20.00	75,400
					Sept.18, 1950	21.23	74,000
1934	Mar. 4, 1934	20.5	-				
1935	May 25, 1935	31.1	-	1951	June 18, 1951	23.64	102,000
1936	Dec. 9, 1935	a22.1	-	1952	Apr. 25, 1952	24.50	112,000
1937	Oct. 1, 1936	24.00	88,100	1953	May 2, 1953	22.48	91,700
					May 17, 1953	20.50	76,400
1938	Jan. 26, 1938	25.95	114,000				
	Feb. 23, 1938	34.25	297,000	1954	May 13, 1954	20.50	76,200
	Apr. 2, 1938	27.55	139,400				
				1955	Mar. 23, 1955	17.88	56,500
1939	Apr. 19, 1939	21.2	70,600				
				1956	Feb. 20, 1956	d15.94	41,800
1940	May 26, 1940	19.7	70,100				
				1957	Apr. 30, 1957	26.92	128,000
1941	Apr. 20, 1941	b20.29	74,000		May 16, 1957	24.03	86,000
	Apr. 26, 1941	24.27	108,000		May 29, 1957	26.75	132,000
	May 10, 1941	23.36	94,100		June 8, 1957	28.56	154,000
	June 16, 1941	27.83	145,000				
				1958	May 6, 1958	25.32	145,000
1942	Oct. 9, 1941	24.55	106,000				

a Maximum crest stage. Maximum stage occurred Sept. 30 on rise that crested Oct. 1, 1936.
b Occurred on following day.
c Occurred on preceding day.
d Occurred Oct. 14, 1955.

3375. Little River near Wright City, Okla.

Location.--Lat 34°04', long 95°03', on north edge of NW¼ sec.6, T.6 S., R.22 E., at left bank on downstream side of bridge on county road, 1½ miles upstream from White Oak Creek, 2 miles west of Wright City, and at mile 140.6.

Drainage area.--645 sq mi.

Gage.--Nonrecording prior to July 31, 1951; recording thereafter. Oct. 12, 1929, to Sept. 30, 1931, at site 1 mile downstream at datum 4.27 ft higher. Datum of present gage is 346.76 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 63,000 cfs and extended above.

Bankfull stage.--32 ft.

Remarks.--Records 1944-50 computed by Corps of Engineers and reviewed by Geological Survey. Due to effect of slope the peak discharge frequently occurs at different time than peak stage. Base for partial-duration series, 9,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Dec. 16, 1929	32.66	30,000	1950	May 1, 1950	35.89	20,200
	May 4, 1930	27.84	23,400		July 5, 1950	29.80	11,700
	May 7, 1930	30.80	27,300		July 30, 1950	38.30	26,900
	May 11, 1930	31.52	28,300		Aug. 2, 1950	38.83	28,700
	May 16, 1930	25.00	18,700		Sept.16, 1950	45.77	75,400
	May 19, 1930	20.50	12,400				
	May 23, 1930	29.60	25,500	1951	Feb. 15, 1951	31.60	13,700
					Feb. 18, 1951	35.00	18,600
1931	Feb. 9, 1931	22.86	15,700		Feb. 20, 1951	33.38	16,100
	Feb. 13, 1931	24.5	18,000		Apr. 21, 1951	29.30	11,100
					June 10, 1951	34.80	18,300
1945	Feb. 21, 1945	41.30	40,700		June 12, 1951	41.51	43,200
	Feb. 27, 1945	41.30	40,700		June 14, 1951	28.00	9,860
	Mar. 3, 1945	31.0	13,000		July 1, 1951	40.50	37,000
	Mar. 18, 1945	38.0	25,900				
	Mar. 25, 1945	29.0	10,800	1952	Nov. 1, 1951	32.50	14,800
	Mar. 29, 1945	43.65	54,800		Mar. 11, 1952	27.83	10,400
	May 16, 1945	41.80	43,500		Apr. 12, 1952	38.00	25,800
	June 12, 1945	43.21	52,100		Apr. 22, 1952	39.62	32,300
	June 17, 1945	39.00	29,500				
	Sept.29, 1945	29.00	10,800	1953	Mar. 18, 1953	34.57	18,000
					Apr. 6, 1953	36.90	22,500
1946	Jan. 9, 1946	30.27	12,200		Apr. 24, 1953	37.74	26,900
	Feb. 13, 1946	39.00	29,500		Apr. 29, 1953	39.26	30,900
	Apr. 24, 1946	37.73	24,900		May 12, 1953	37.84	25,500
	May 16, 1946	28.00	9,860		July 20, 1953	43.30	55,800
	May 25, 1946	39.90	33,300				
				1954	Jan. 20, 1954	30.97	13,500
1947	Nov. 4, 1946	34.20	17,300		May 29, 1954	35.79	21,400
	Nov. 6, 1946	37.00	22,900				
	Nov. 10, 1946	34.00	17,000	1955	Oct. 1, 1954	35.00	18,000
	Dec. 12, 1946	42.40	47,000		Oct. 12, 1954	29.08	13,700
	Apr. 28, 1947	38.30	26,900		Oct. 22, 1954	25.45	10,500
	May 13, 1947	40.00	33,800		Oct. 24, 1954	28.54	12,100
	May 17, 1947	27.00	9,060		Mar. 21, 1955	34.25	17,800
					Sept.23, 1955	32.13	17,100
1948	Dec. 8, 1947	31.70	13,800		Sept.25, 1955	25.72	10,300
	Jan. 1, 1948	37.50	24,300				
	Feb. 27, 1948	27.00	9,060	1956	Feb. 18, 1956	32.62	15,200
	May 12, 1948	39.70	32,400				
				1957	Feb. 6, 1957	27.66	10,300
1949	Jan. 25, 1949	45.04	69,000		Apr. 4, 1957	37.90	26,200
	Feb. 14, 1949	31.94	14,100		Apr. 23, 1957	36.92	23,100
	Mar. 27, 1949	32.70	15,100		Apr. 26, 1957	35.34	19,800
	Apr. 10, 1949	27.17	9,220		May 1, 1957	27.53	10,200
	May 1, 1949	44.67	67,000		May 13, 1957	36.56	23,100
	June 15, 1949	29.00	10,800		May 26, 1957	38.24	27,300
					June 4, 1957	35.68	20,800
1950	Oct 25, 1949	27.98	9,860		Sept.22, 1957	39.92	35,200
	Jan. 3, 1950	36.25	20,800				
	Jan. 13, 1950	39.70	32,700	1958	Nov. 8, 1957	24.99	9,070
	Feb. 1, 1950	36.21	20,800		Nov. 18, 1957	37.86	25,500
	Feb. 12, 1950	44.04	61,100		Mar. 7, 1958	25.93	9,300
	Apr. 29, 1950	26.50	11,100		May 2, 1958	41.63	44,600

3380. Little River near Idabel, Okla.

Location.--Lat 33°56', long 94°49', in NE¼ sec.19, T.7 S., R.24 E., on downstream side of former bridge on U. S. Highway 70, 3 miles north of Idabel, 7.8 miles upstream from Lukfata Creek, 16.5 miles downstream from Glover Creek, and at mile 111.4.

Drainage area.--1,173 sq mi.

Gage.--Nonrecording. Datum of gage is 318.52 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 54,000 cfs and extended on basis of high-water data collected in 1949 at described site and at current gaging station 8 miles downstream.

Bankfull stage.--30 ft.

Remarks.--Records 1932-33, 1937-46 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 10,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Dec. 17, 1929	32.70	24,600	1939	Feb. 21, 1939	28.63	12,600
	May 8, 1930	32.28	22,600		Feb. 27, 1939	31.40	18,700
	May 12, 1930	32.80	25,200		Mar. 30, 1939	26.0	10,000
	May 19, 1930	29.80	14,400		Apr. 7, 1939	28.93	13,000
	May 25, 1930	29.30	13,600		Apr. 17, 1939	35.4	44,600
1931	Feb. 15, 1931	26.90	10,600	1940	May 19, 1940	30.20	15,100
					May 25, 1940	31.71	19,900
1932	Jan. 24, 1932	35.20	42,800				
	Feb. 17, 1932	34.0	33,000	1941	Dec. 13, 1940	27.60	11,500
	July 1, 1932	31.96	21,100		Dec. 17, 1940	27.10	11,000
					Apr. 20, 1941	29.50	13,900
1933	Dec. 26, 1932	32.8	25,200		Apr. 25, 1941	29.90	14,500
	Jan. 23, 1933	27.5	11,400		June 12, 1941	29.60	14,100
	Mar. 7, 1933	27.8	11,700				
	Apr. 22, 1933	28.0	11,900	1942	Nov. 2, 1941	29.10	13,200
	May 17, 1933	27.4	11,300		Apr. 10, 1942	34.00	32,800
1934	Apr. 6, 1934	33.8	31,600	1943	Dec. 29, 1942	31.20	17,800
					Apr. 19, 1943	28.38	₴2,300
1935	Nov. 22, 1934	29.4	13,700		May 12, 1943	32.96	26,300
	Jan. 22, 1935	32.26	22,600				
	Mar. 6, 1935	30.26	15,300	1944	Feb. 10, 1944	26.25	10,200
	Mar. 13, 1935	31.28	18,300		Mar. 1, 1944	32.00	20,500
	Mar. 23, 1935	28.0	11,900		May 3, 1944	34.34	35,500
	Apr. 27, 1935	29.7	14,200				
	May 6, 1935	36.46	55,000	1945	Nov. 9, 1944	27.90	11,800
	May 17, 1935	33.90	32,300		Feb. 22, 1945	35.16	41,000
	June 18, 1935	36.0	50,000		Feb. 28, 1945	34.20	35,200
	June 22, 1935	34.10	33,800		Mar. 20, 1945	34.30	36,200
					Mar. 26, 1945	28.70	12,700
1936	Dec. 8, 1935	33.14	27,000		Mar. 30, 1945	37.60	71,000
					May 17, 1945	34.20	35,200
1937	Jan. 10, 1937	28.40	12,400		June 13, 1945	35.56	43,200
	Jan. 16, 1937	27.70	11,600		June 19, 1945	31.34	18,300
	Apr. 22, 1937	29.5	13,900		Sept.30, 1945	28.70	12,700
	Aug. 24, 1937	28.6	12,600				
				1946	Jan. 10, 1946	30.86	15,900
1938	Dec. 19, 1937	26.70	10,600		Feb. 7, 1946	26.11	10,100
	Jan. 25, 1938	35.80	48,200		Feb. 15, 1946	32.42	20,500
	Feb. 18, 1938	39.3	86,000		Apr. 26, 1946	32.30	20,400
	Mar. 30, 1938	33.80	31,600		May 18, 1946	28.28	12,200
	Apr. 9, 1938	27.96	11,900		May 26, 1946	32.77	25,700
	Apr. 17, 1938	29.30	13,600				

3385. Little River below Lukfata Creek, near Idabel, Okla.

Location.--Lat 33°56', long 94°45', in SE¼ sec.14, T.7 S., R.24 E., on left bank at downstream side of bridge on U. S. Highway 70, just downstream from Lukfata Creek, 5 miles northeast of Idabel and at mile 103.4.

Drainage area.--1,226 sq mi.

Gage.--Nonrecording prior to Oct. 27, 1950; recording thereafter. Datum of gage is 312.08 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--27 ft.

Remarks.--Records 1946-50 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 10,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	February 1938	a39.7	86,000	1952	Nov. 3, 1951	26.09	10,800
					Apr. 14, 1952	32.46	24,200
1947	Nov. 8, 1946	31.10	18,500		Apr. 23, 1952	35.04	40,800
	Dec. 13, 1946	36.35	56,100				
	Apr. 30, 1947	32.80	25,100	1953	Mar. 20, 1953	27.74	12,200
	May 15, 1947	32.60	24,100		Apr. 8, 1953	30.12	15,900
					Apr. 26, 1953	26.88	13,700
1948	Dec. 9, 1947	26.85	11,000		Apr. 30, 1953	34.00	33,200
	Jan. 3, 1948	32.80	25,100		May 14, 1953	32.88	26,400
	Feb. 28, 1948	27.85	11,800		July 22, 1953	34.07	34,000
	May 13, 1948	32.60	24,100				
				1954	May 31, 1954	25.27	10,100
1949	Jan. 26, 1949	39.22	76,000				
	Feb. 16, 1949	26.17	11,300	1955	Oct. 2, 1954	28.53	13,200
	Mar. 28, 1949	27.56	12,000		Mar. 23, 1955	29.55	14,900
	May 3, 1949	35.00	40,500				
	June 16, 1949	27.50	12,000	1956	Feb. 20, 1956	27.98	12,600
1950	Jan. 5, 1950	31.60	20,000	1957	Feb. 8, 1957	25.23	10,600
	Jan. 15, 1950	34.01	33,200		Apr. 6, 1957	29.89	16,400
	Feb. 3, 1950	32.12	22,200		Apr. 26, 1957	33.34	29,100
	Feb. 13, 1950	37.00	61,900		May 15, 1957	29.57	15,800
	May 3, 1950	32.82	25,900		May 27, 1957	32.97	27,500
	May 17, 1950	26.27	10,900		June 6, 1957	30.53	17,800
	Aug. 1, 1950	30.98	18,000		Sept.24, 1957	29.56	15,800
	Sept.17, 1950	37.30	66,100				
				1958	Nov. 20, 1957	28.17	13,600
1951	Feb. 20, 1951	30.56	17,000		Mar. 10, 1958	26.58	11,800
	June 14, 1951	33.51	30,000		May 4, 1958	35.01	40,700
	July 3, 1951	34.08	34,000				

a Annual peak only.

3390. Mountain Fork River near Eagletown, Okla.
(Published as "near Broken Bow" 1924-25)

Location.--Lat 34°03', long 94°37', in SE¼ sec.7, T.6 S., R.26 E., near center of span on downstream side of pier of bridge on U. S. Highway 70, 2 miles west of Eagletown and 8.9 miles upstream from mouth.

Drainage area.--787 sq mi.

Gage.--Nonrecording prior to Aug. 3, 1940, and Jan. 31 to July 22, 1950; recording during remainder of period. During 1924-25 at site 300 ft downstream at datum 0.70 ft lower. Oct. 9, 1929, to Jan. 30, 1950, at site 300 ft downstream at same datum. Datum of present gage is 333.87 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 65,000 cfs and extended by logarithmic plotting.

Bankfull stage.--18 ft.

Remarks.--Records 1932-35, 1937-50 computed by Corps of Engineers and reviewed by Geological Survey. Base for partial-duration series, 22,000 cfs.

Peak stages and discharges of Mountain Fork River near Eagletown, Okla.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	Aug.18-19, 1915	a26.4	92,000	1945	Mar. 29, 1945	25.80	88,500
1925	June 13, 1925	22.0	67,500		May 15, 1945	20.32	51,800
					June 12, 1945	18.07	39,200
1930	May 7, 1930	15.5	27,200		Sept.29, 1945	16.93	33,200
	May 11, 1930	21.0	56,000	1946	Oct. 1, 1945	15.13	25,600
1931	July 26, 1931	12.75	18,200		Jan. 9, 1946	17.97	38,700
					Feb. 14, 1946	17.77	37,700
1932	Feb. 17, 1932	22.50	65,800		May 25, 1946	23.30	71,100
	July 8, 1932	14.18	22,400		May 31, 1946	16.60	31,800
				1947	Dec. 12, 1946	20.50	53,000
1933	Dec. 24, 1932	17.49	36,100		May 13, 1947	20.00	50,000
	Dec. 30, 1933	17.1	34,200		Aug. 28, 1947	25.7	87,800
	Jan. 22, 1933	14.52	23,400				
	May 15, 1933	15.0	25,200	1948	Dec. 7, 1947	17.62	36,600
					Jan. 1, 1948	21.73	60,600
1934	Apr. 5, 1934	14.0	21,700		May 12, 1948	16.34	30,500
1935	Nov. 20, 1934	16.04	29,200	1949	Jan. 24, 1949	24.77	81,400
	Jan. 20, 1935	17.04	33,700		May 1, 1949	21.85	61,200
	Mar. 22, 1935	15.5	27,100		June 14, 1949	18.66	42,500
	May 5, 1935	22.68	67,100				
	May 16, 1935	18.74	42,500	1950	Jan. 3, 1950	17.27	35,200
	June 16, 1935	21.5	59,300		Jan. 13, 1950	20.62	56,700
					Feb. 1, 1950	18.92	46,000
1936	Dec. 7, 1935	17.54	36,100		Feb. 12, 1950	25.66	91,500
					May 2, 1950	14.60	23,700
1937	Jan. 10, 1937	14.1	22,000		May 7, 1950	14.60	23,700
	Aug. 23, 1937	15.0	25,200		Aug. 2, 1950	14.50	23,700
					Sept.16, 1950	20.59	48,800
1938	Jan. 24, 1938	25.4	85,700				
	Feb. 18, 1938	23.50	72,500	1951	Feb. 16, 1951	15.34	26,400
	Mar. 29, 1938	17.05	33,700				
	Apr. 16, 1938	15.47	27,100	1952	Nov. 1, 1951	15.32	27,800
					Apr. 12, 1952	19.23	45,400
1939	Feb. 20, 1939	14.22	22,400		Apr. 22, 1952	21.08	57,400
	Feb. 25, 1939	15.48	27,100				
	Apr. 6, 1939	16.86	33,200	1953	Nov. 26, 1952	15.13	25,500
	Apr. 17, 1939	23.0	69,100		Mar. 18, 1953	14.20	23,100
					Apr. 6, 1953	15.29	26,900
1940	May 18, 1940	17.93	38,200		Apr. 29, 1953	20.24	51,500
	July 1, 1940	14.42	23,000		May 11, 1953	16.76	32,800
	Aug. 17, 1940	16.23	29,100		May 13, 1953	18.36	40,600
					July 20, 1953	17.00	33,700
1941	June 11, 1941	11.40	14,500		July 25, 1953	15.10	26,200
1942	Oct. 31, 1941	19.90	49,400	1954	May 3, 1954	17.07	34,100
	Apr. 8, 1942	17.60	34,900				
				1955	Oct. 1, 1954	14.89	24,100
1943	Dec. 27, 1942[b]	15.98	28,400		Mar. 21, 1955	14.08	22,800
1944	Feb. 28, 1944	14.10	22,100	1956	Feb. 18, 1956	14.38	23,800
	May 2, 1944	18.33	40,500				
				1957	Apr. 25, 1957	17.50	36,000
1945	Feb. 21, 1945	21.30	58,000				
	Feb. 27, 1945	19.55	47,600	1958	May 3, 1958	18.52	41,300
	Mar. 19, 1945	20.20	51,200				

a Annual peak only.

3395. Rolling Fork near De Queen, Ark.

Location.--Lat 34°03', long 94°25', in SW¼ sec.21, T.8 S., R.32 W., near center of span on downstream side of pier of bridge on U. S. Highway 70, 4 miles west of DeQueen, 6 miles upstream from Rock Creek, and 17 miles upstream from mouth.

Drainage area.--181 sq mi.

Gage.--Nonrecording prior to Dec. 16, 1948; recording thereafter. Datum of gage is 318.24 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 27,000 cfs and contracted-opening measurement at 110,000 cfs.

Bankfull stage.--20 ft.

Remarks.--Base for partial-duration series, 6,000 cfs.

Peak stages and discharges of Rolling Fork near De Queen, Ark.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Aug. 27, 1947	25.6	a110,000	1953	May 11, 1953	21.96	34,000
					July 20, 1953	17.60	10,200
1949	Jan. 24, 1949	20.16	19,200				
	May 1, 1949	17.20	8,800	1954	Apr. 16, 1954	16.11	7,040
	June 14, 1949	18.96	14,100		May 2, 1954	15.94	6,700
1950	Dec. 12, 1949	15.80	6,420	1955	Oct. 1, 1954	16.54	7,220
	Jan. 2, 1950	16.63	7,660		Mar. 21, 1955	17.67	10,500
	Jan. 13, 1950	21.04	23,700		Apr. 21, 1955	17.11	9,020
	Feb. 1, 1950	18.28	11,700		May 27, 1955	18.75	14,000
	Feb. 12, 1950	20.52	20,800				
	May 1, 1950	18.65	12,700	1956	Feb. 2, 1956	15.88	6,220
	July 30, 1950	15.64	6,150		Feb. 18, 1956	17.03	8,800
	Sept.16, 1950	20.49	20,800				
	Sept.20, 1950	17.56	9,720	1957	Mar. 18, 1957	17.80	10,700
					Apr. 4, 1957	16.77	8,400
1951	Jan. 14, 1951	16.01	6,700		Apr. 23, 1957	16.97	8,800
	July 2, 1951	16.35	7,320		Apr. 25, 1957	17.78	10,700
					Apr. 27, 1957	18.38	12,600
1952	Jan. 3, 1952	16.45	7,000		May 23, 1957	16.98	8,800
	Apr. 12, 1952	18.80	14,000		May 26, 1957	15.92	6,700
	Apr. 22, 1952	18.80	14,000				
				1958	Apr. 27, 1958	16.73	8,200
1953	Nov. 25, 1952	19.86	19,200		May 2, 1958	18.73	13,800
	Apr. 6, 1953	18.06	11,500		Sept.19, 1958	16.21	7,220
	Apr. 29, 1953	18.98	14,700				

a Annual peak only.

3400. Little River near Horatio, Ark.

Location.--Lat 33°55'10", long 94°23'15", in NE¼ sec.10, T.10 S., R.32 W., on left bank on downstream side of bridge on State Highway 41, 0.9 mile downstream from Rolling Fork, 2 miles southwest of Horatio, 28.5 miles upstream from Cossatot River, and at mile 72.0.

Drainage area.--2,674 sq mi.

Gage.--Nonrecording prior to Feb. 5, 1935; recording thereafter. Datum of gage is 272.89 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 93,000 cfs.

Bankfull stage.--26 ft.

Remarks.--Base for partial-duration series, 25,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	August 1915	38.0	a124,000	1938	Apr. 17, 1938	29.10	33,300
1930	May 20, 1930	36.0	a97,700	1939	Feb. 26, 1939	28.05	31,500
					Apr. 7, 1939	29.00	36,400
1931	July 27, 1931	24.84	20,700		Apr. 18, 1939	32.12	56,500
1932	Jan. 6, 1932	31.5	48,400	1940	May 19, 1940	28.50	28,200
	Jan. 18, 1932	28.6	31,000		July 2, 1940	30.62	37,500
	Jan. 24, 1932	31.84	50,800				
	Feb. 18, 1932	31.3	46,800	1941	Apr. 24, 1941	26.90	23,900
1933	Jan. 1, 1933	27.2	24,800	1942	Nov. 1, 1941	b27.58	25,400
					Apr. 9, 1942	31.77	50,800
1934	Apr. 9, 1934	27.36	25,100				
				1943	Dec. 28, 1942	26.45	24,700
1935	Jan. 21, 1935	31.2	46,000				
	May 6, 1935	34.80	82,100	1944	Mar. 1, 1944	c28.16	29,200
	May 21, 1935	29.14	33,300		May 3, 1944	32.64	57,900
	June 19, 1935	33.56	68,200				
				1945	Feb. 22, 1945	32.78	59,900
1936	Dec. 8, 1935	28.85	31,800		Feb. 28, 1945	32.65	57,900
					Mar. 21, 1945	31.15	44,900
1937	Jan. 11, 1937	28.15	26,700		Mar. 30, 1945	37.70	120,000
					May 17, 1945	30.80	41,700
1938	Jan. 25, 1938	36.93	110,000		June 15, 1945	30.90	42,500
	Feb. 19, 1938	36.65	106,000				
	Apr. 1, 1938	30.48	41,100	1946	Oct. 2, 1945	29.30	32,500

a Annual peak only.
b Occurred on following day.
c Occurred at different time than peak discharge.

Peak stages and discharges of Little River near Horatio, Ark.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Jan. 10, 1946	31.29	45,700	1951	Feb. 21, 1951	29.48	33,500
	Feb. 7, 1946	29.16	32,000		June 16, 1951	29.40	33,000
	Feb. 15, 1946	29.67	34,500		July 4, 1951	31.47	47,500
	May 26, 1946	31.74	49,300				
				1952	Apr. 13, 1952	31.84	53,300
1947	Nov. 8, 1946	28.25	28,000		Apr. 23, 1952	34.26	83,900
	Dec. 14, 1946	31.82	50,200				
	May 1, 1947	29.98	36,200	1953	Nov. 26, 1952	27.46	26,400
	May 14, 1947	32.00	52,000		Apr. 7, 1953	28.12	29,500
	May 18, 1947	30.87	42,500		Apr. 30, 1953	32.02	55,700
	Aug. 29, 1947	32.99	61,900		May 12, 1953	32.32	59,000
					July 24, 1953	28.73	31,800
1948	Dec. 9, 1947	28.99	31,100				
	Jan. 2, 1948	32.29	54,900	1954	May 4, 1954	28.16	29,800
	Mar. 3, 1948	28.86	30,700				
	May 13, 1948	29.36	33,000	1955	Mar. 22, 1955	30.10	37,200
1949	Jan. 27, 1949	35.58	97,900	1956	Feb. 19, 1956	27.84	28,500
	May 2, 1949	30.50	39,500				
	June 15, 1949	30.47	39,500	1957	Mar. 19, 1957	27.46	27,600
					Apr. 5, 1957	29.86	37,800
1950	Jan. 5, 1950	29.25	32,000		Apr. 28, 1957	33.13	68,300
	Jan. 14, 1950	32.66	59,700		May 15, 1957	28.35	30,500
	Feb. 2, 1950	31.42	46,600		May 27, 1957	30.92	44,500
	Feb. 13, 1950	34.06	82,500		June 6, 1957	28.50	30,900
	May 3, 1950	31.78	50,200				
	July 31, 1950	28.65	29,500	1958	Mar. 9, 1958	26.48	25,200
	Sept.17, 1950	32.80	60,800		May 3,4, 1958	32.72	63,600

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