Floods of 1955

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UNITED STATES DEPARTMENT OF THE INTERIOR

STEWART L. UDALL, *Secretary*

GEOLOGICAL SURVEY

Thomas B. Nolan, *Director*

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Floods of May 1955 in Colorado and New Mexico

By WALTER C. VAUDREY

FLOODS OF 1955

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1455-A

Prepared in cooperation with the Department of the Army, Corps of Engineers, and the States of Colorado and New Mexico

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1960

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FRED A. SEATON, *Secretary*

GEOLOGICAL SURVEY

Thomas B. Nolan, *Director*

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PREFACE

This report on the floods of May 1955 in Colorado and New Mexico was prepared by the Water Resources Division of the U.S. Geological Survey, Luna B. Leopold, chief hydraulic engineer, under the general direction of J. V. B. Wells, chief, Surface Water Branch.

The collection of basic stage and discharge records in the area described in this report is a part of a continuous cooperative program with the States of Colorado and New Mexico, and the Department of the Army, Corps of Engineers.

The basic data were compiled and computed in the district offices of the Surface Water Branch under the supervision of the following district engineers: F. M. Bell, Colorado, succeeded by J. M. Terry; Berkeley Johnson, New Mexico, succeeded by W. T. Miller. Valuable assistance in preparing this report was given by H. F. Matthai, flood specialist.

The Corps of Engineers furnished the flood-profile data, the isohyetal map, and the figures on flood damage.

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FLOODS OF MAY 1955 IN COLORADO AND NEW MEXICO

By WALTER C. VAUDREY

ABSTRACT

Severe floods in southeastern Colorado and northeastern New Mexico resulted from heavy rains during May 17–20, 1955. According to U.S. Weather Bureau records, total rainfall was more than 13.5 inches during this period near Lake Maloya, N. Mex., most of which fell on May 19. On the Arkansas River above the mouth of the Purgatoire River the resulting flood was the greatest since June 1921. The volume of runoff on the Purgatoire River at Trinidad, Colo., was almost equal to that of the flood in September 1904, whereas the peak discharge of the flood in May 1955 was 28,000 cfs as compared to 45,400 cfs (the maximum discharge known) for the flood in September 1904. The 1955 peak on the Canadian River in New Mexico was the highest since September 1942.

Two lives were lost, and, although no comprehensive estimate was made, damage exceeded $4 million.

INTRODUCTION

The storm that caused the floods described in this report started with gentle rains on May 17, 1955. Intense rains occurred late on May 18 and the early part of May 19; smaller amounts fell through May 20. Precipitation was varied over the storm area, and data obtained from rain gages showed precipitation that exceeded 13.5 inches in 1 locality.

Figure 1 shows the location of the area covered by this report and the area in which major floods occurred.

Unusually large floods occurred in the Raton Creek basin in Colorado, the Raton Creek basin in New Mexico, and the Canadian River basin in New Mexico. Record discharges occurred at all Purgatoire River gaging stations downstream from Trinidad, Colo. Discharges in the Arkansas River below the mouth of the Purgatoire River were reduced by John Martin Reservoir—which was dry prior to the flood —from a peak inflow of about 90,000 cfs (cubic feet per second) to a controlled release of 630 cfs.

The great size of the floods made the collection of data and measurement of streamflow essential for use in computing current and

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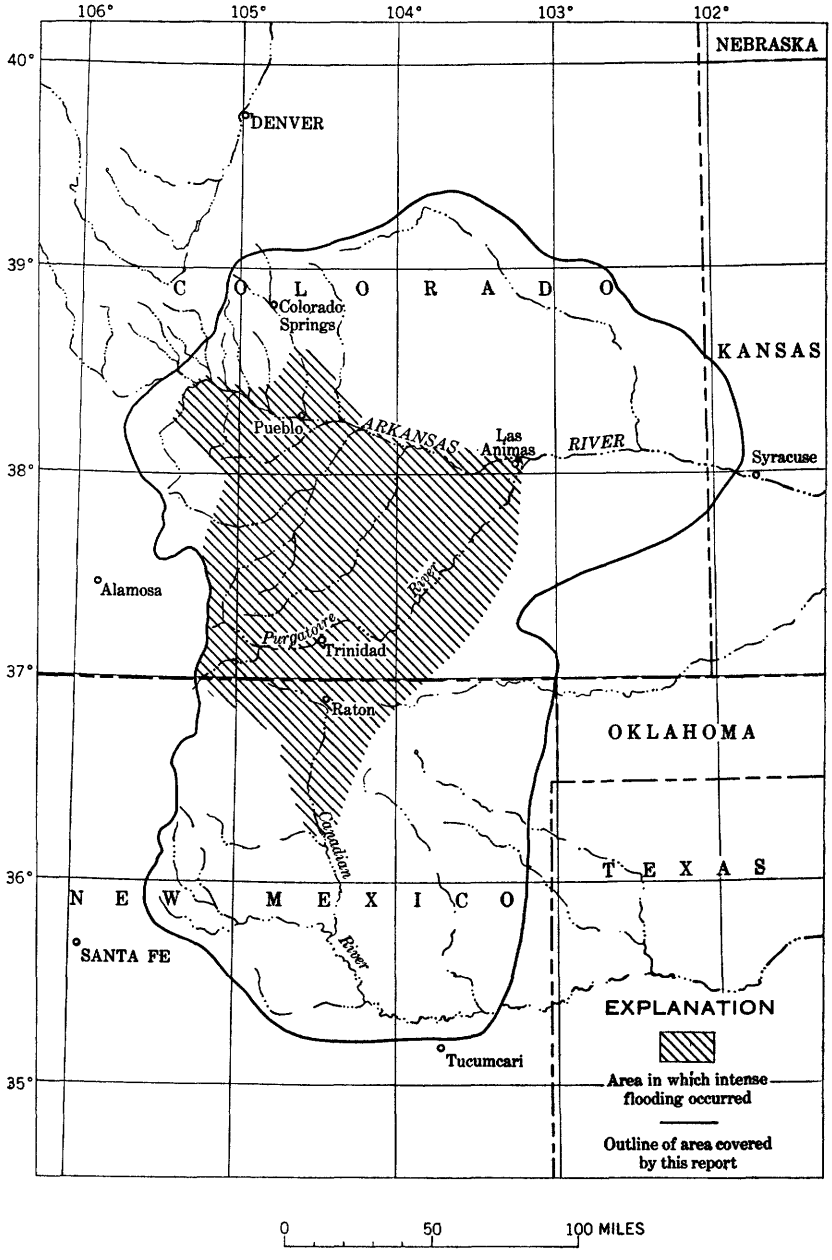

FIGURE 1.—Map showing area covered by this report.

future streamflow records. At many gaging stations current-meter measurements could not be obtained because of rapid rise and fall of the streams, and the inaccessibility of some gaging stations under flood conditions. Some stations lacked suitable bridges or cableways from which measurements of such large discharges could be made. For complete coverage of this flood and for use in future studies in this area, measurements of peak discharges on ungaged streams were desired. Therefore, soon after the floods receded and before high-water marks were obliterated, field parties of the Geological Survey collected data for indirect measurements of peak discharges.

This report contains records of the following: Stage and discharge during May for 34 gaging stations and 1 crest-stage station, peak stage and discharge at 3 discontinued gaging stations, peak discharge at 31 miscellaneous sites, peak stage at 1 site, contents in 2 reservoirs, an isohyetal map showing total precipitation during May 17–20, and other data related to the floods. The locations of the flood-determination points are shown on plate 1.

GENERAL DESCRIPTION OF THE FLOODS

ANTECEDENT CONDITIONS

Agricultural prospects were unfavorable in southeastern Colorado before the flood-producing rains of May 17–20. During the 2-month period preceding the floods, the weather stations at Trinidad and Pueblo, Colo., and at Lake Maloya, N. Mex.—about 10 miles northeast of Raton, N. Mex.—reported total precipitation of a little more than 1 inch at each site. Streamflow was deficient (about 30 percent of normal); overall runoff for the flood area was near the minimum of record, and there was no storage in John Martin Reservoir located on the Arkansas River downstream from the mouth of the Purgatoire River.

PRECIPITATION

On May 17 a cold front moved into the area and remained; rain fell gently at first, and continued into May 20. During May 17–20, from about 2 inches to 13.5 inches of precipitation fell over a belt up to 150 miles wide extending from near Great Bend, Kans., westward to the Sangre de Cristo Range in Colorado, and including the northeastern part of New Mexico. Much of the precipitation was snow at the higher elevations. The greatest total amount of rainfall recorded during the storm was 13.59 inches in 48 hours at Lake Maloya, N. Mex. Of the total, 11.28 inches fell in the 24-hour period ending 4 p.m., May 19. In Colorado, 9.92 inches was recorded at Rye and 7.76 inches at Lake Morraine. Figure 2 is an isohyetal map prepared from a map furnished by the Corps of Engineers.

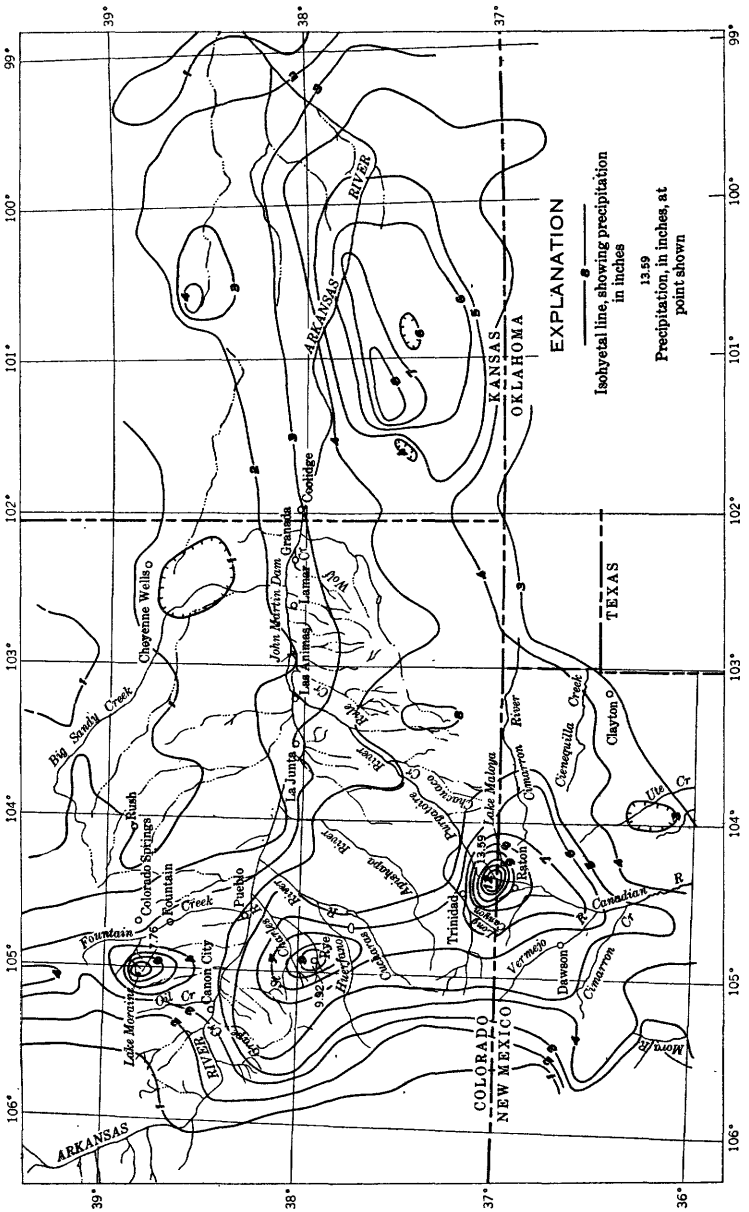

FIGURE 2.—Isohyetal map showing total precipitation, in inches, May 17–20, 1955.

A. Aerial view of inundated lands near Swink, May 20, 1955. Photograph by Roos Studio, La Junta, Colo.

B. Floodwater from Purgatoire River at Commercial St., Trinidad, morning of May 19, 1955. Photograph by Aultman Studio, Trinidad, Colo.

PHOTOGRAPHS OF MAY 1955 FLOOD IN COLORADO

ARKANSAS RIVER ABOVE LAS ANIMAS, COLO.

Runoff from the Arkansas River basin above Canon City contributed very little to the flooding between Pueblo and Las Animas. Total precipitation for the storm was about 1 inch only 40 miles west of Canon City. Two centers of heavy precipitation, one near Lake Moraine west of Colorado Springs and the other near Rye southwest of Pueblo, caused moderate rises in all tributary streams from Grape Creek to the St. Charles River and in the Huerfano and Apishapa Rivers. Most of the peak discharges on these tributaries occurred on May 19. See figure 3.

Arkansas River tributaries in the area east of Pueblo and north of the river did not contribute to the flood because the precipitation was generally less than 2 inches.

The precipitation pattern and the increasing channel storage on the larger flood plains downstream from Pueblo (pl. 2*A*) were two factors which reduced the peak discharge of 50,000 cfs at La Junta to 44,000 cfs at Las Animas. The runoff volume was about the same at both locations. The peak discharge at Las Animas did not occur until 9 p.m. May 20. See figure 4.

PURGATOIRE RIVER AND TRIBUTARIES

The heaviest rainfall in the flood area was centered at Lake Maloya near the divide between the Purgatoire and Canadian Rivers along the Colorado–New Mexico State line (fig. 2). Raton Creek at Starkville, Colo., had a peak discharge of 9,400 cfs from a drainage area of 60.5 square miles. The highest unit rate of runoff in the Purgatoire River basin was 252 cfs per square mile from a drainage area of 1.49 square miles in Draw No. 2 at U.S. Highway 160, near Trinidad, Colo.

The Purgatoire River reached flood conditions from Valdez to the mouth. At Trinidad the stage of this flood (peak discharge, 28,000 cfs) was 0.5 foot higher than that of April 23, 1942, (peak discharge, 27,000 cfs) when channel conditions were similar. The stage of this flood was also 0.7 foot higher than that during the flood of September 30, 1904, when channel conditions were different and the maximum peak discharge of 45,400 cfs occurred (the maximum since at least 1859). The volume of runoff at Trinidad during the flood of 1955, despite the much smaller peak discharge, was about equal to that during the flood of 1904.

The peak discharge of 28,000 cfs at 8:20 a.m. May 19, 1955, at Trinidad (pl. 2*B*) was augmented by heavy tributary inflow in the Trinidad-Higbee reach. The peak discharge of 80,000 cfs at Ninemile Dam, near Higbee occurred at 10 p.m. May 19. By 7 a.m. May

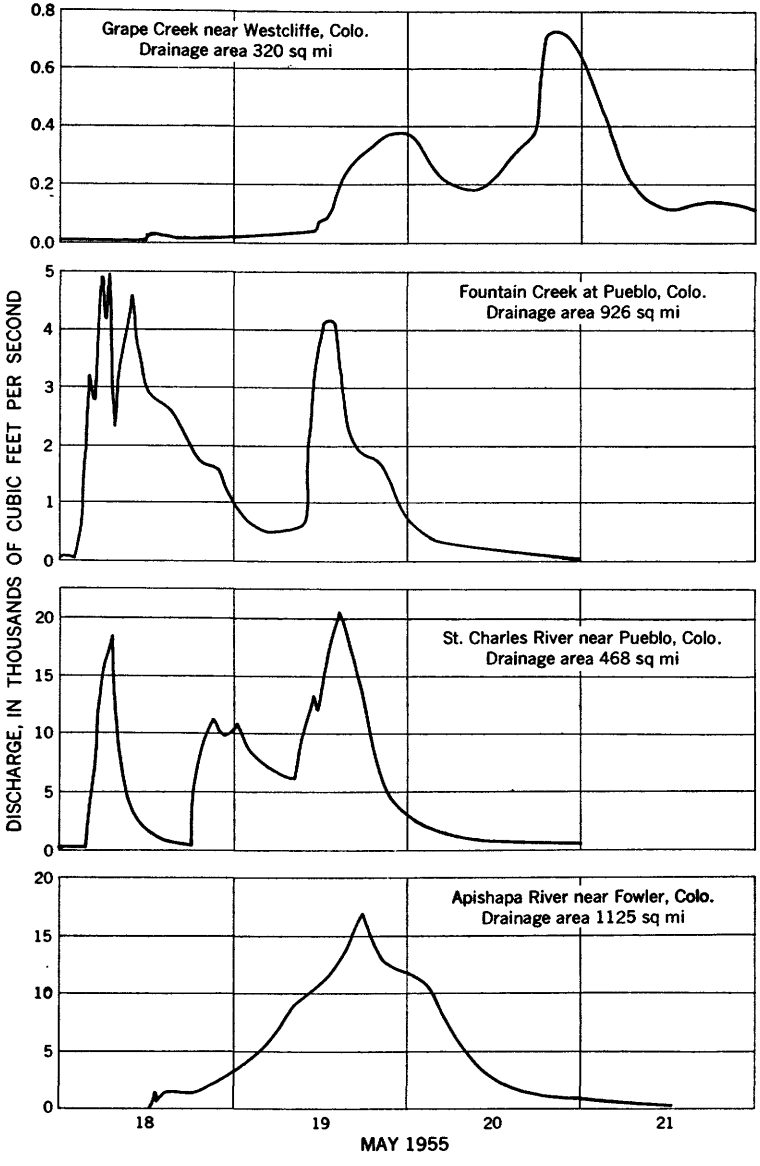

FIGURE 3.—Hydrographs of Arkansas River tributaries above Las Animas, Colo., May 18–21, 1955.

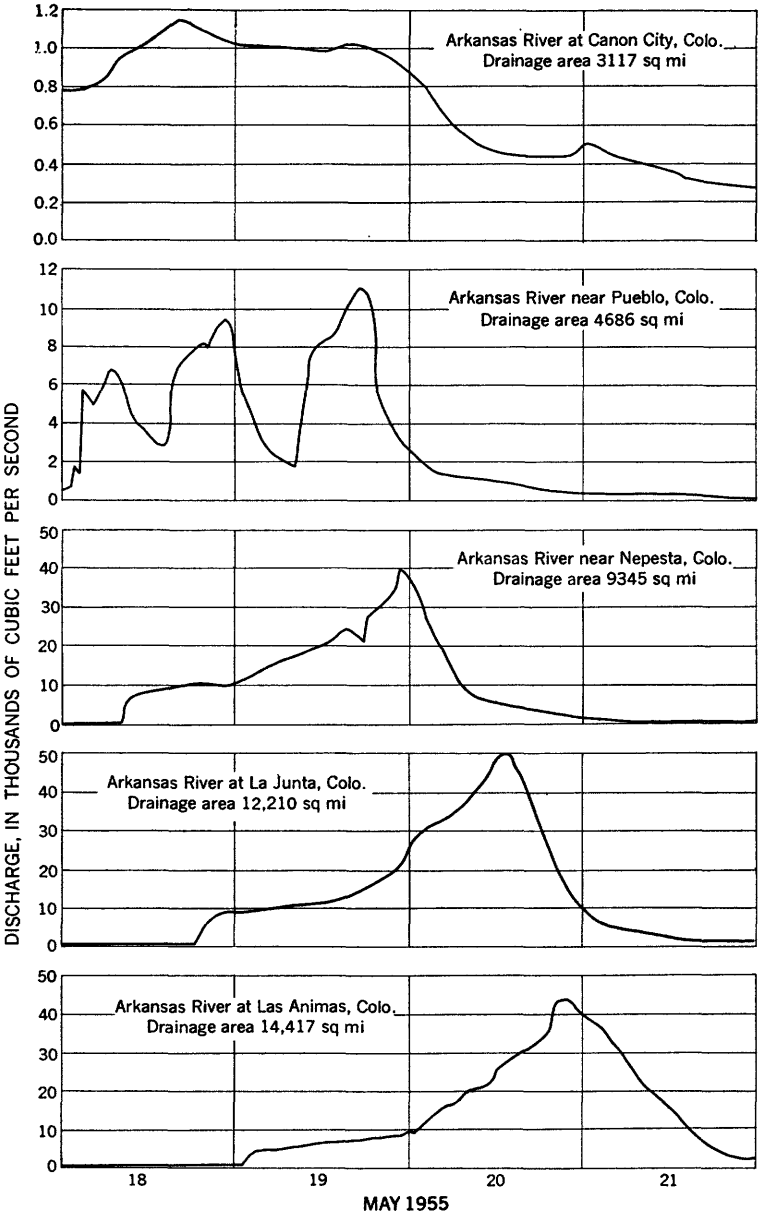

FIGURE 4.—Hydrographs at gaging stations on Arkansas River above Las Animas, Colo., May 18–21, 1955.

20 the crest had reached the mouth of the Purgatoire River and had decreased to 70,000 cfs (fig. 5).

ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR

An important feature of the May 1955 flood was the effect of John Martin Reservoir on the flood downstream from the reservoir. The

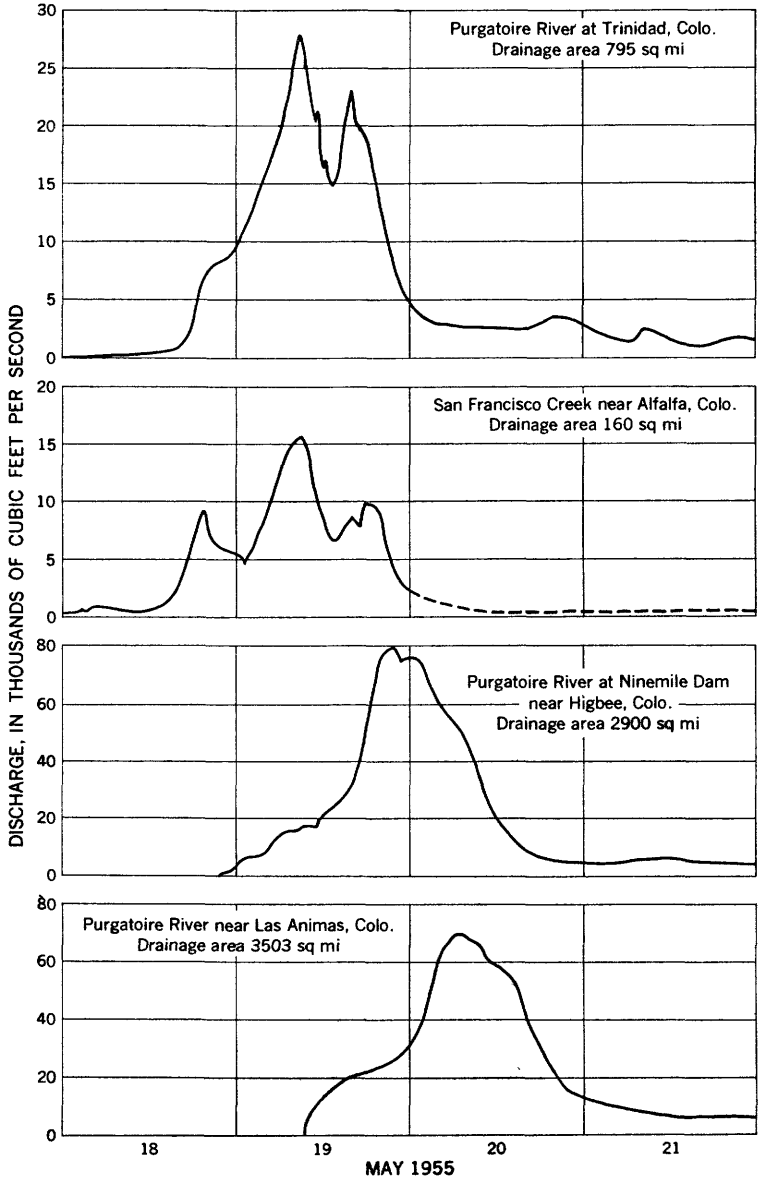

FIGURE 5.—Hydrographs at gaging stations in Purgatoire River basin, May 18–21, 1955.

computed inflow hydrograph and the actual outflow hydrograph are compared in figure 6. The entire flood runoff into John Martin Reservoir was stored. The peak inflow of almost 90,000 cfs was re-

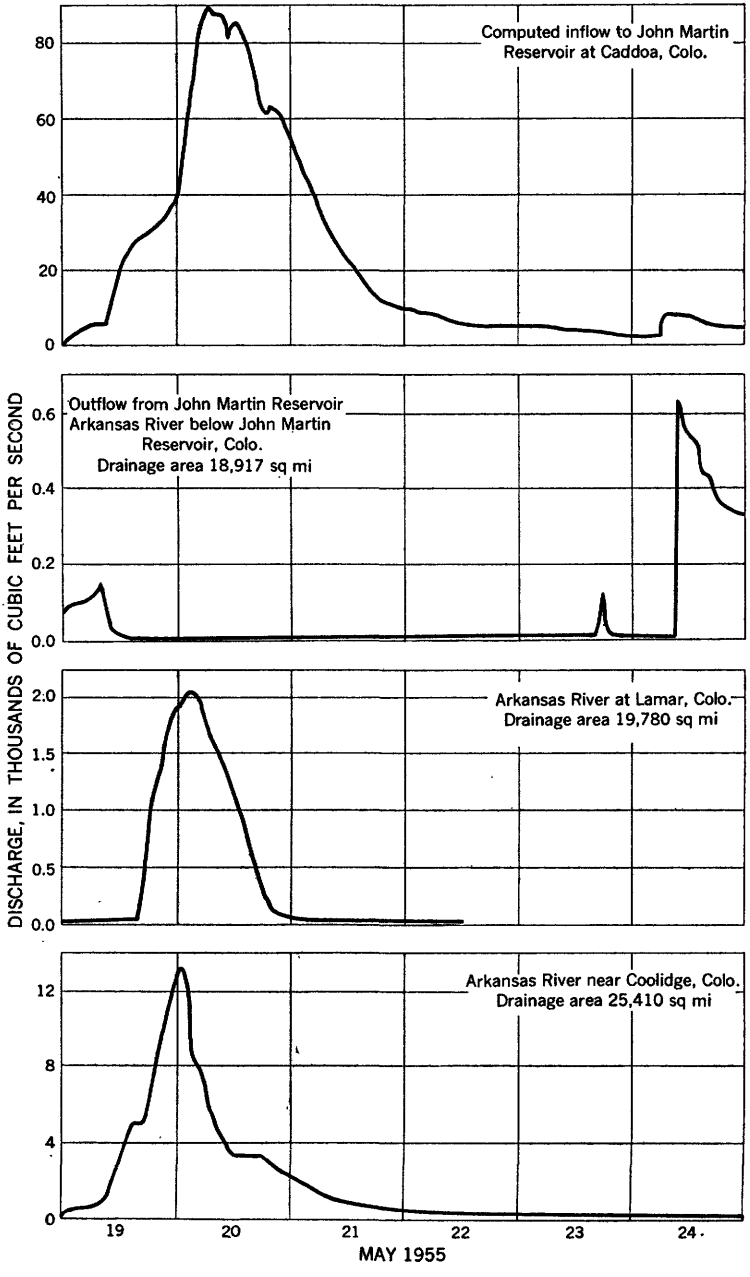

FIGURE 6.—Hydrographs for Arkansas River at and below John Martin Reservoir, May 19–24, 1955.

duced to a peak outflow of 630 cfs and was delayed 4 days until flood runoff from the area below the reservoir had ceased.

In April 1942, when John Martin dam was under construction, a flood almost as large as the 1955 flood was only partly controlled. The peak inflow to John Martin Reservoir in April 1942 probably was between 70,000 and 80,000 cfs. Storage behind the uncompleted dam reduced the peak outflow to 40,000 cfs, the maximum since 1938 when the gaging station below the reservoir was established. Downstream at Lamar, however, the maximum discharge of record of the Arkansas River was 130,000 cfs on June 5, 1921.

A peak discharge of 13,200 cfs occurred early in the morning of May 20 on the Arkansas River near Coolidge, Kans. This water came from the drainage area downstream from John Martin Reservoir, primarily from the area south of the Arkansas River. Owing to the timing of the peaks, the peak discharge downstream from John Martin Reservoir would have been about 90,000 cfs, if the reservoir had not stored any inflow. At the Coolidge gaging station, this discharge would have produced a stage about 3 to 3.5 feet higher than the 8.08-foot stage that did occur.

ARKANSAS RIVER TRIBUTARIES IN NEW MEXICO

The heavy precipitation near Lake Maloya, N. Mex., caused record floods on Raton Creek, Chicorica Creek and the Canadian River near Hebron. The maximum unit discharge in the flood area was 263 cfs per square mile on Chicorica Creek above Lake Maloya, near Sugarite, from a drainage area of 9.3 square miles. The peak discharge of the Canadian River near Hebron was 30 percent higher than the previous maximum of the 10 years of record. However, the flood in 1942 reached a stage about 16 feet higher than that of May 19, 1955.

Peak discharges at other locations were much lower than the previous maxima except on the Cimarron River near Guy where the 1955 discharge was 90 percent of the October 5, 1954, peak discharge.

Hydrographs for selected streams in New Mexico are shown in figure 7.

Records of precipitation and streamflow show that the storm reached the Canadian River basin near Sanchez and Taylor Springs on May 18 before heavy precipitation occurred near the headwaters. This distribution allowed the high flows from the downstream area to decrease before the water from the upstream area reached the Roy and Sanchez gaging stations. The 2 peaks at the upstream gaging station near Hebron occurred about 7 hours after the first 2 peaks at the downstream gaging station near Sanchez (fig. 7). This sequence of events produced 2 peaks near Hebron and 4 peaks near Taylor Springs, Roy, and Sanchez.

FLOOD DAMAGES

Two people lost their lives as a result of the flood, and 2,800 people had to evacuate their homes. Cattle were drowned, railroads and highways were severely damaged, and telephone facilities were disrupted. Flood damage was concentrated along the main stem of the

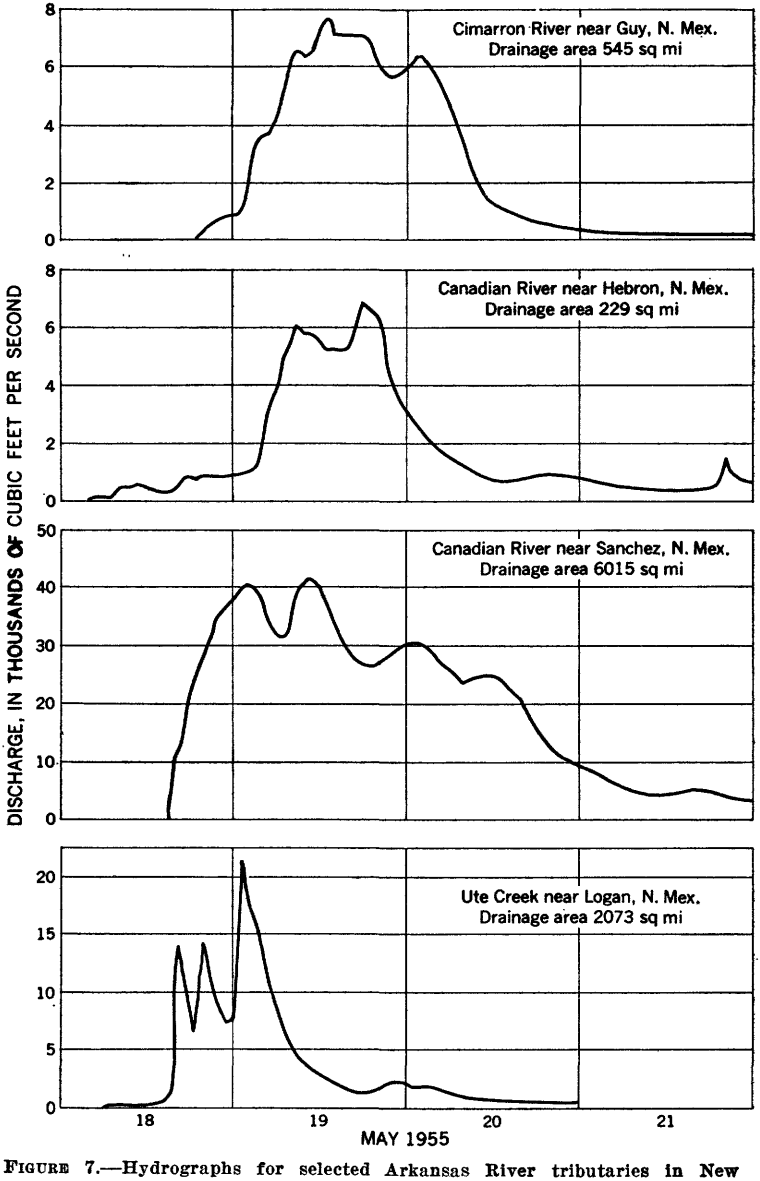

FIGURE 7.—Hydrographs for selected Arkansas River tributaries in New Mexico, May 18–21, 1955.

Arkansas River between Pueblo and John Martin Reservoir (pl. 3); along the Purgatoire River from Weston to Alfalfa (pl. 4), and from Ninemile Dam to the mouth; and along Raton Creek in Colorado from Morley to the mouth. The damage was estimated by the Corps of Engineers to be $4,310,000 (table 1).

TABLE 1.—*Summary of damage, in dollars, flood of May 1955 in Arkansas River basin, Colorado*

[Data furnished by Corps of Engineers]

Reach	Rural				Urban	Total damage
	Agricultural	Transportation facilities	Utilities and communication facilities	Subtotal		
Main stem of Arkansas River:						
Pueblo to mouth of Huerfano River	99,400	39,600	1,200	140,200	----------	140,200
Mouth of Huerfano River to mouth of Apishapa River	104,700	100	1,200	106,000	----------	106,000
Mouth of Apishapa River to La Junta	934,500	82,100	2,400	1,019,000	----------	1,019,000
La Junta to mouth of Purgatoire River	111,000	34,200	1,200	146,400	375,100	521,500
Total	1,249,600	156,000	6,000	1,411,600	375,100	1,786,700
Main stem of Purgatoire River:						
Weston to upper city limits of Trinidad	47,400	87,000	----------	134,400	----------	134,400
City of Trinidad	126,100	----------	----------	126,100	1,072,500	1,198,600
Lower city limits of Trinidad to Alfalfa	203,000	66,200	----------	269,200	----------	269,200
Ninemile Dam to mouth	211,500	71,000	----------	282,500	----------	282,500
Total	588,000	224,200	----------	812,200	1,072,500	1,884,700
Raton Creek, tributary of Purgatoire River	9,200	538,700	----------	547,900	82,600	630,500
Arkansas River tributaries with minor damage	8,100	----------	----------	8,100	----------	8,100
Total damage	1,854,900	918,900	6,000	2,779,800	1,530,200	4,310,000

Tributary inflow below John Martin Reservoir caused the Arkansas River to overflow at a few places, but little damage resulted. Minor damage occurred along the St. Charles, Huerfano, and Apishapa Rivers, and along Wolf Creek.

Flood damage in New Mexico was slight. Most of the damage occurred along Chicorica Creek and its tributaries. The road to Lake Maloya was washed out in several places, with damage estimated at $10,000. A ranch house near Sugarite was completely washed away.

A bridge east of Yankee was washed out, and traffic on U.S. Highway 87 between Clayton and Raton was delayed several hours on the night of May 18 by water flowing over dips in the highway. The drainage system in Springer could not handle the runoff resulting from the intense rainfall, and some flooding of the business section occurred.

A. Damaged bridge near Avondale, Colo.

B. State Route 71 bridge north of Rocky Ford, Colo.

AERIAL VIEW OF ARKANSAS RIVER, MAY 20, 1955

Photographs by Pueblo Star-Journal, Pueblo, Colo.

A. View of A.T. & S.F. Ry. station, May 21, 1955. Photograph by Aultman Studio, Trinidad, Colo.

B. Mud and debris on A.T. & S.F. Ry. tracks upstream from U.S. Highways 85 and 87 overpass. Photograph by Corps of Engineers.

INUNDATION BY MAY 1955 FLOOD, TRINIDAD, COLO.

FLOOD STAGES AND DISCHARGES

STATION DESCRIPTIONS AND DATA

Data collected at each gaging station consist of the following: A record of stage from the trace of a water-stage recorder or by periodic direct readings on a nonrecording gage; discharge measurements, generally by current meter, but also by indirect methods; and general information useful in computing the daily discharge.

The data tabulated on the following pages for each gaging station consist of the following: A station description; daily mean discharges for May 1955; and gage heights and discharges at selected times during days of rapidly changing stage and discharge.

Each station description includes the following data: Location, type, and datum of the gage; size of the drainage basin; length of record; nature of the gage-height record obtained during the flood period; definition of the stage-discharge relation; peak stage and discharge during the May 1955 flood and previous maxima of record; an explanation of the effects of upstream diversions; and other relevant information.

Daily mean discharge is tabulated for May 1955. A summary shows the monthly mean discharge in cubic feet per second and the runoff in acre-feet and in inches. Inches are not included where the runoff was appreciably affected by storage or diversions, or where part of the drainage area is noncontributing.

The tables of stage and discharge at indicated times are in sufficient detail to define the gage-height hydrographs and the discharge hydrographs during the flood period.

The data for each discontinued gaging station consist of a station description similar to that of an active gaging station.

The data for each miscellaneous site consist of the following: Location of the site; drainage area; peak discharge for the current flood and previous floods that are known; and other pertinent information.

1. GRAPE CREEK NEAR WESTCLIFFE, COLO.

Location. Lat 38°11', long 105°30', in sec. 36, T. 21 S., R. 73 W., on left bank three-quarters of a mile downstream from Taylor Creek and 3 miles northwest of Westcliffe.

Drainage area. 320 sq mi.

Gage-height record. Water-stage recorder graph. Altitude of gage is 7,720 ft (from topographic map).

Discharge record. Stage-discharge relation defined by current-meter measurements below 830 cfs.

Maxima. May 1955: Discharge, 735 cfs 8 p.m. May 20 (gage height, 2.98 ft).
1924 to April 1955: Discharge, 1,960 cfs Apr. 23, 1942 (gage height, 5.26 ft).

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	7.6	8	5.6	14	6.4	20	374	26	20
2	7.2	9	6.0	15	6.0	21	219	27	16
3	7.6	10	11	16	4.4	22	58	28	12
4	6.4	11	12	17	4.8	23	34	29	8.9
5	6.0	12	8.2	18	12	24	23	30	7.6
6	5.6	13	7.2	19	155	25	21	31	6.4
7	5.2								

Monthly mean discharge, in cubic feet per second	35.0
Runoff, in acre-feet	2,150
Runoff, in inches	0.13

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 19—Continued*			*May 20—Continued*		
12 p.m.	0.15	5.2	12 m.	0.87	74	12 p.m.	2.78	643
May 18			1 p.m.	1.00	92	*May 21*		
			2:30	1.50	195			
4 a.m.	.20	7.6	7	1.94	332	4 a.m.	2.10	388
5	.23	9.5	9	2.07	377	6	1.65	243
10	.11	4.0	11:30	2.10	388	9	1.32	159
11:30	.11	4.0	12 p.m.	2.07	377	12 m.	1.14	121
12 m.	.37	20	*May 20*			2 p.m.	1.13	119
2 p.m.	.41	23				6	1.26	146
4	.35	18	3 a.m.	1.73	265	7	1.27	148
12 p.m.	.36	19	7	1.50	198	12 p.m.	1.06	106
May 19			10	1.45	186	*May 22*		
			12 m.	1.54	209			
4 a.m.	.40	22	2 p.m.	1.77	278	2:30 a.m.	.92	84
6	.42	24	5:30	2.13	399	9	.73	58
8	.50	32	6	2.57	562	6 p.m.	.60	44
11	.72	54	7	2.94	716	12 p.m.	.54	38
11:30 a.m.	.88	75	8	2.98	735			
			10:30 p.m.	2.95	721			

2. ARKANSAS RIVER AT CANON CITY, COLO.

Location. Lat 38°26′, long 105°15′, in sec. 32, T. 18 S., R. 70 W., on right bank in Canon City, 800 ft upstream from Sand Creek.

Drainage area. 3,117 sq mi.

Gage-height record. Water-stage recorder graph. Datum of gage is 5,343.87 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements.

Maxima. May 1955: Discharge, 1,140 cfs 4 p.m. May 18 (gage height, 2.13 ft). 1888 to April 1955: Discharge, 19,000 cfs Aug. 2, 1921 (gage height, 10.7 ft, from floodmark, at site about a quarter of a mile upstream at different datum), from rating curve extended above 5,000 cfs.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	291	8	335	14	439	20	534	26	368
2	339	9	529	15	493	21	368	27	327
3	396	10	566	16	610	22	307	28	272
4	339	11	550	17	780	23	327	29	223
5	265	12	468	18	982	24	319	30	200
6	261	13	473	19	990	25	335	31	226
7	279								

Monthly mean discharge, in cubic feet per second	426
Runoff, in acre-feet	26,160
Runoff, in inches	0.16

3. OIL CREEK NEAR CANON CITY, COLO.

[Gaging station discontinued in 1953]

Location. Lat 38°27′, long 105°10′30″, in sec. 26, T. 18 S., R. 70 W., on right bank 600 ft upstream from bridge on U.S. Highway 50, 1¼ miles upstream from mouth, 1.8 miles east from city limits of Canon City, and 5 miles downstream from Wilson Creek.

Drainage area. 432 sq mi.

Gage-height record. Floodmarks only. Altitude of gage is 5,330 ft (from topographic map).

Discharge record. Stage-discharge relation defined by current-meter measurements below 140 cfs and by slope-area measurements at 778 and 4,260 cfs.

Maxima. May 1955: Discharge, 1,440 cfs May 19 (gage height, 5.80 ft).

1948 to September 1953: Discharge, 4,260 cfs July 11, 1951 (gage height, 9.25 ft, from floodmarks).

July 4, 1944: Discharge, 20,600 cfs, by slope-area measurement on Wilson Creek (drainage area, 68 sq mi) at mouth, at point 5 miles upstream from station, from information by Bureau of Reclamation.

Remarks. Flood flow not appreciably affected by diversions.

4. ARKANSAS RIVER NEAR PUEBLO, COLO.

Location. Lat 38°16′, long 104°39′, in sec. 34, T. 20 S., R. 65 W., on right bank at intake of southside waterworks, 1 mile upstream from Dry Creek, and 2½ miles west of city hall in Pueblo.

Drainage area. 4,686 sq mi.

Gage-height record. Water-stage recorder graph. Datum of gage is 4,689.82 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 6,700 cfs.

Maxima. May 1955: Discharge, 11,100 cfs 5:15 p.m. May 19 (gage height, 7.18 ft).

1885–87, 1889, 1894 to April 1955: Discharge, 103,000 cfs June 3, 1921 (gage height, 24.66 ft, at site 2½ miles downstream at different datum), from rating curve extended above 6,700 cfs on basis of float measurement at 17,900 cfs and slope-area measurement at 103,000 cfs.

Remarks. Figures of daily mean discharge include water diverted above the station into the intake of the northside waterworks for municipal supply of Pueblo. Discharges at indicated times and extremes do not include the diverted water (daily mean discharge, approximately 20 cfs).

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	151	8	153	14	373	20	1,140	26	114
2	200	9	284	15	350	21	407	27	105
3	230	10	532	16	440	22	229	28	56
4	249	11	478	17	629	23	231	29	28
5	167	12	416	18	5,680	24	208	30	21
6	115	13	358	19	6,000	25	105	31	20
7	123								

Monthly mean discharge, in cubic feet per second	632
Runoff, in acre-feet	38,860
Runoff, in inches	0.16

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 18—Continued*			*May 19—Continued*		
12 p.m.	2.58	747	4 p.m.	5.55	6,730	4:30 p.m.	7.10	10,800
May 18			6	5.94	7,740	5:15	7.18	11,100
			7:15	6.13	8,240	7	6.50	9,220
1:15 a.m.	2.60	758	8	6.05	8,030	8	5.00	5,350
1:30	3.37	1,680	10:30	6.50	9,220	12 p.m.	3.85	2,650
2	3.25	1,510	11	6.56	9,380	*May 20*		
3	5.15	5,720	12 p.m.	6.08	8,110			
4:15	4.88	5,050	*May 19*			2 a.m.	3.51	1,980
6:30	5.55	6,730				3	3.38	1,720
7	5.58	6,810	1 a.m.	5.20	5,850	6	3.17	1,420
8	5.45	6,480	2	4.80	4,880	6 p.m.	2.48	645
9	5.00	5,350	4	4.05	3,050	9	2.35	522
10	4.60	4,350	5	3.82	2,580	12 p.m.	2.29	468
11	4.40	3,850	6	3.64	2,220	*May 21*		
12 m.	4.27	3,540	8	3.45	1,840			
1 p.m.	4.12	3,190	9	4.40	3,880	6 a.m.	2.19	381
2	3.98	2,880	10	5.32	6,150	9	2.19	381
2:30	4.15	3,260	10:30	5.82	7,430	12 m.	2.24	424
3 p.m.	5.00	5,350	2 p.m.	6.40	8,950	12 p.m.	2.07	288

5. TEMPLETON GAP FLOODWAY AT COLORADO SPRINGS, COLO.

Location. Lat 38°53'17", long 104°49'01", in SE¼ sec. 30, T. 13 S., R. 66 W., on left bank 75 ft upstream from mouth of concrete flume, 400 ft upstream from bridge on U.S. Highways 85 and 87, and three-quarters of a mile north of Colorado Springs.

Drainage area. 8.46 sq mi.

Gage-height record. Water-stage recorder not operating during May. Graph estimated on basis of typical rain-peak hydrograph, range in stage, and precipitation records. Altitude of gage is 6,200 ft (from topographic map).

Discharge record. Stage-discharge relation defined by computation of flow at critical depth at gage heights 1.3, 1.4, 1.8, 3.0, 6.0, and 10.0 ft.

Maxima. May 1955: Discharge, 168 cfs about 3 p.m. May 18 (gage height, 2.05 ft).

1951 to April 1955: Discharge, 261 cfs Aug. 15, 1953 (gage height, 2.26 ft).

Remarks. Templeton Gap Floodway is an artificial channel constructed to divert flows from normally dry channels around Colorado Springs during heavy rainfall.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	0	8	0	14	0	20	0	26	1.5
2	0	9	.1	15	0	21	0	27	0
3	0	10	14	16	0	22	0	28	0
4	0	11	0	17	0	23	0	29	0
5	0	12	0	18	70	24	0	30	0
6	0	13	0	19	4.0	25	.3	31	0
7	0								

Monthly mean discharge, in cubic feet per second	2.90
Runoff, in acre-feet	178
Runoff, in inches	0.40

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 18—Continued*			*May 19*		
12 p.m.	1.26	0	8 a.m.	1.52	25	4 a.m.	1.40	9.0
May 18			12 m.	1.90	112	8	1.30	.6
2 a.m.	1.30	.6	2 p.m.	2.04	164	12 m.	1.25	0
5	1.48	19	3	2.05	168	12 p.m.	1.19	0
7 a.m.	1.45	16	4	2.04	164			
			8	1.80	82			
			12 p.m.	1.54	29			

6. FOUNTAIN CREEK NEAR FOUNTAIN, COLO.

[Gaging station discontinued in 1954]

Location. Lat 38°36'08", long 104°40'13", in NE¼ sec. 4, T. 17 S., R. 65 W., on right bank 250 ft upstream from bridge on county road, 1¼ miles downstream from Little Fountain Creek, and 5¼ miles southeast of Fountain.

Drainage area. 676 sq mi.

Gage-height record. Floodmarks only. Datum of gage is 5,341.74 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 1,600 cfs and by slope-area measurement at 6,800 cfs.

Maxima. May 1955: Discharge 3,480 cfs May 18 (gage height, 6.35 ft).

1938 to September 1954: Discharge, 22,100 cfs May 28, 1940 (gage height, 9.19 ft), from rating curve extended above 3,000 cfs on basis of slope-area measurement at 22,100 cfs.

Maximum stage known, 14.4 ft May 30, 1935.

Remarks. Flood flow not appreciably affected by diversions.

7. FOUNTAIN CREEK AT PUEBLO, COLO.

Location. Lat 38°16'20", long 104°35'40", in SW¼ sec. 30, T. 20 S., R. 64 W., on left bank at downstream side of Eighth St. bridge in Pueblo, 2 miles upstream from mouth.

Drainage area. 926 sq. mi.

Gage-height record. Water-stage recorder graph except May 21, 22, 24–30. Datum of gage is 4,663.45 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 1,600 cfs and by float-area determinations at 11,800 and 16,500 cfs. Discharge, May 21, 22, 24–30, estimated on basis of weather records.

Maxima. May 1955: Discharge, 4,950 cfs 7 a.m. May 18 (gage height, 5.53 ft).

1922–25, 1940 to April 1955: Discharge, 17,800 cfs July 10, 1945 (gage height, 9.50 ft), from rating curve extended above 2,400 cfs on basis of slope-area measurement at 11,000 cfs.

June 4, 1921: Discharge, 34,000 cfs, by slope-area measurement.

May 30, 1935: Discharge, 35,000 cfs, by slope-area measurement.

Remarks. Flood flow not appreciably affected by diversions.

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Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	1.0	8	1.0	14	1.0	20	213	26	20
2		9		15		21	28	27	100
3		10		16		22	8.0	28	4.5
4		11		17		23	147	29	
5		12		18	2,350	24	6.0	30	
6		13		19	1,620	25	15	31	
7									

Monthly mean discharge, in cubic feet per second	147
Runoff, in acre-feet	9,010
Runoff, in inches	0.18

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 18—Continued*			*May 19—Continued*		
12 p.m.	2.30	1.3	3 p.m.	4.26	2,620	1 p.m.	4.94	4,180
			6	3.95	1,940	2	4.90	4,090
May 18			8	3.79	1,620	3	4.45	3,030
			10	3.75	1,540	4	4.10	2,260
2 a.m.	2.70	18	11	3.63	1,300	6	3.89	1,820
3	3.57	588	12 p.m.	3.45	972	8	3.87	1,780
4	4.90	3,210				10	3.62	1,280
5	4.65	2,770	*May 19*			12 p.m.	3.30	732
6	5.51	4,900						
6:30	5.22	4,210	5 a.m.	3.13	495	*May 20*		
7	5.53	4,950	7	3.14	508			
7:30	4.35	2,330	9:30	3.22	616	3 a.m.	3.05	397
8	4.65	3,100	10	4.00	2,040	12 m.	2.72	133
10	5.19	4,500	11	4.55	3,250	6 p.m.	2.58	76
12 m.	4.42	2,970	12 m.	4.77	3,780	12 p.m.	2.52	58

8. MUDDY CREEK NEAR PUEBLO, COLO.

[Miscellaneous site]

Location. Lat 38°01'12", long 104°43'31" (Pueblo quad.), in sec. 25, T. 23 S., R. 66 W., at old U.S. Highways 85 and 87, a quarter of a mile upstream from mouth and 18 miles south of Pueblo.

Drainage area. 42.5 sq mi.

Maxima. May 1955: Discharge, 3,650 cfs May 19, by slope-area measurement.

Remarks. Flood flow not appreciably affected by regulation or diversion.

9. ST. CHARLES RIVER NEAR PUEBLO, COLO.

[Crest-stage station; gaging station discontinued 1953]

Location. Lat 38°12'20", long 104°31'40", in sec. 23, T. 21 S., R. 64 W., on downstream side of right abutment of highway bridge, 500 ft downstream from Bessemer ditch siphon, 5 miles upstream from mouth, and 6 miles southeast of city hall in Pueblo.

Drainage area. 468 sq mi.

Gage-height record. Water-stage recorder graph corrected on basis of high-water mark in gage well, except 9 a.m. to 6:40 p.m. May 18, 2 a.m. to 9 a.m. and after 6:20 p.m. May 19. One gage reading on May 20. Altitude of gage is 4,690 ft (from topographic map).

Discharge record. Stage-discharge relation defined by current-meter measurements below 1,000 cfs and by slope-area measurement at 20,600 cfs. Discharge for periods of no gage-height record estimated on basis of records for nearby stations.

Maxima. May 1955: Discharge, 20,600 cfs 2:30 p.m. May 19 (gage height, 7.53 ft).

1941 to April 1955: Discharge, 17,600 cfs July 26, 1950 (gage height, 9.20 ft), from rating curve extended above 2,000 cfs on basis of slope-area measurements at 7,000 and 16,100 cfs, and float measurement at 12,300 cfs.

Maximum discharge known, 56,000 cfs June 3, 1921 (determined by State engineer's office).

Remarks. Flood flow not appreciably affected by regulation or diversion. Gaging station operated at this site January 1941 to September 1953.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	----------	8	----------	14	----------	20	1,010	26	----------
2	----------	9	----------	15	----------	21	200	27	----------
3	----------	10	----------	16	----------	22	50	28	----------
4	----------	11	----------	17	2	23	----------	29	----------
5	----------	12	----------	18	5,240	24	----------	30	----------
6	----------	13	----------	19	10,300	25	----------	31	----------
7	----------								

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 18—Continued*			*May 19—Continued*		
12 p.m.	--------	2	9:30 p.m.	5.75	10,900	12:40 p.m.	6.82	16,400
May 18			10	5.58	10,100	1	6.95	17,100
			11	5.50	9,800	2	7.42	19,900
			12 p.m.	5.60	10,200	2:30	7.53	20,600
3:30 a.m.	--------	50				4	7.10	18,000
4	5.13	4,440	*May 19*			4:20	6.80	16,200
5	6.00	8,000				5:20	6.70	15,700
5:40	6.58	13,800	12:40 a.m.	5.73	10,800	6	6.22	13,100
7	7.13	18,100	1:20	5.32	9,080	6:20	5.90	11,600
8	5.63	10,300	2	5.15	8,490	7	--------	9,800
9	4.50	6,000	4	--------	7,200	8	--------	7,400
10	--------	3,500	6	--------	6,400	12 p.m.	--------	2,850
12 m.	--------	1,400	8	--------	6,000			
6 p.m.	--------	200	9	5.15	8,400	*May 20*		
6:40	4.33	5,490	9:30	5.65	10,400			
7	4.83	7,160	10	5.75	10,900	4 a.m.	--------	1,450
7:40	5.28	8,920	11	6.20	13,000	8	2.08	946
8	5.40	9,400	11:40	6.00	12,000	12 m.	--------	750
9 p.m.	5.70	10,600	12 m.	6.32	13,600	12 p.m.	--------	490

10. HUERFANO RIVER AT MANZANARES CROSSING, NEAR REDWING, COLO.

Location. Lat 37°43'40", long 105°21'10", in sec. 5, T. 27 S., R. 71 W., on left bank at Manzanares Crossing, a quarter of a mile downstream from Manzanares Creek, and 3½ miles southwest of Redwing.

Drainage area. 73 sq mi.

Gage-height record. Water-stage recorder graph except May 1–3, 12–26. Peak stage from recorded range in stage. Altitude of gage is 8,150 ft (from topographic map).

Discharge record. Stage-discharge relationship defined by current-meter measurements. Discharge for periods of no gage-height record estimated on basis of two current-meter measurements, recorded range in stage, weather records, and records for nearby stations.

Maxima. May 1955: Discharge, 132 cfs probably May 23 (gage height, 2.25 ft).

1923 to April 1955: Discharge, 10,200 cfs Aug. 2, 1951 (gage height, 8.14 ft), from rating curve extended above 270 cfs on basis of slope-area measurement at 10,200 cfs.

Remarks. Flood flow not appreciably affected by storage or diversion.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	15	8	22	14	27	20	46	26	75
2	16	9	24	15	32	21	55	27	74
3	15	10	29	16	32	22	65	28	86
4	14	11	27	17	32	23	125	29	76
5	15	12	26	18	35	24	110	30	72
6	14	13	26	19	40	25	92	31	74
7	16								

Monthly mean discharge, in cubic feet per second	45.4
Runoff, in acre-feet	2,790
Runoff, in inches	0.72

11. HUERFANO RIVER AT BADITO, COLO.

[Gaging station discontinued in 1954]

Location. Lat 37°43'40", long 105°00'30", in sec. 4, T. 27 S., R. 68 W., on right bank at Badito, 460 ft downstream from bridge on State Route 69, half a mile downstream from South Oak Creek, and 15 miles northwest of Walsenburg.

Drainage area. 532 sq mi.

Gage-height record. Floodmark only. Datum of gage is 6,415.20 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 60 cfs and by slope-area measurements at 445, 620, and 1,280 cfs.

Maxima. May 1955: Discharge, 670 cfs May 19 (gage height, 8.12 ft).

1912, 1923–25, 1938–41, 1946 to September 1954: Discharge, 5,510 cfs July 15, Aug. 1, 1923 (gage height, 9.20 ft, at site 460 ft upstream at different datum), from rating curve extended above 150 cfs on basis of slope-area measurement at 5,510 cfs.

July 31, 1945: Discharge, 7,400 cfs by slope-area measurement and Aug. 14, 1945, 8,480 cfs (from records for station near Badito 0.6 mile upstream).

Remarks. Flood flow not appreciably affected by storage or diversion.

12. CUCHARAS RIVER AT BOYD RANCH, NEAR LA VETA, COLO.

Location. Lat 37°25', long 105°03', in sec. 24, T. 30 S., R. 69 W., on left bank at Boyd Ranch, 6 miles south of La Veta.

Drainage area. 56 sq mi.

Gage-height record. Water-stage recorder graph except May 6, 7. Altitude of gage is 7,800 ft (from topographic base map).

Discharge record. Stage-discharge relation defined by current-meter measurements below 400 cfs.

Maxima. May 1955: Discharge, 444 cfs May 23 (gage height, 4.05 ft).

1934 to April 1955: Discharge, 417 cfs June 18, 1947 (gage height, 3.80 ft).

Remarks. Flood flow not appreciably affected by storage or diversion.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	21	8	19	14	21	20	98	26	247
2	22	9	19	15	23	21	136	27	278
3	19	10	21	16	23	22	224	28	276
4	18	11	20	17	24	23	332	29	261
5	18	12	18	18	44	24	329	30	292
6	18	13	18	19	34	25	274	31	346
7	18								

Monthly mean discharge, in cubic feet per second	113
Runoff, in acre-feet	6,960
Runoff, in inches	2.33

13. HUERFANO RIVER BELOW HUERFANO VALLEY DAM, NEAR UNDERCLIFFE, COLO.

Location. Lat 38°, long 104°28′, in S½ sec. 32, T. 23 S., R. 63 W., at left end of diversion dam for Huerfano Valley ditch, 8 miles southwest of Undercliffe.

Drainage area. 1,673 sq mi.

Gage-height record. Water-stage recorder graph except 8 a.m. to 7 p.m. May 18 and after 10 a.m. May 19. Peak stage determined from high-water mark in gage well. Datum of gage is 4,886.29 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 190 cfs and by computed flow over dam at 16,700 cfs. Discharge for periods of no gage-height record estimated on basis of a typical recession, and records of releases from Cucharas Valley Reservoir, and sluicing operations.

Maxima. May 1955: Discharge, 11,300 cfs (revised) about 2 p.m. May 19 (gage height, 11.04 ft), result of computation of peak flow over dam.

1938 to April 1955: Discharge, 16,700 cfs (revised) July 26, 1950 (gage height, 14.2 ft, from floodmarks).

Maximum stage and discharge known since at least 1900, that of July 26, 1950, from information by local residents.

Remarks. Flood flow partly affected by storage in Cucharas Valley Reservoir and diversions.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	0	8	0	14	0	20	1,000	26	150
2	0	9	0	15	0	21		27	
3	0	10	0	16	0	22		28	
4	0	11	0	17	0	23	150	29	
5	0	12	0	18	1,030	24		30	
6	0	13	0	19	6,050	25		31	
7	0								

Monthly mean discharge, in cubic feet per second	314
Runoff, in acre-feet	19,300

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 18—Continued*			*May 19—Continued*		
12 p.m.	--------	0	6 p.m.	1.00	36	8 a.m.	4.95	2,960
May 18			7	3.20	1,320	9	6.25	4,480
			8	4.70	2,700	10	7.10	5,540
			10	5.65	3,760	11	--------	7,600
6:30 a.m.	--------	0	12 p.m.	6.65	4,960	12 m.	--------	9,900
7	3.20	1,320	*May 19*			2 p.m.	11.04	11,300
8	--------	1,100				4	--------	10,500
10	--------	900				8	--------	6,000
12 m.	--------	600	4 a.m.	4.80	2,800	12 p.m.	--------	4,000
4 p.m.	--------	200	6 a.m.	3.90	1,910			

14. ARKANSAS RIVER NEAR NEPESTA, COLO.

Location. Lat 38°11′, long 104°10′, in NW¼ sec. 31, T. 21 S., R. 60 W., on right bank 100 ft downstream from diversion dam of Oxford Farmers Co. Canal, 1¼ miles west of Nepesta, and 6 miles downstream from Huerfano River.

Drainage area. 9,345 sq mi of which 54 sq mi is probably noncontributing.

Gage-height record. Water-stage recorder graph to 8:30 a.m. May 18. Twice-daily staff-gage readings May 18–24. Graph based on staff-gage readings, floodmark, and water-stage recorder graph for station above diversion dam used May 18–21. Datum of gage is 4,378.68 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 12,000 cfs and extended above by logarithmic plotting. Discharge May 25–31 is waste water from canal and enters river a short distance downstream from gage.

Maxima. May 1955: Discharge, 40,200 cfs about 11 p.m. May 19 (gage height, 8.05 ft, from floodmark).

1897–1904, 1906–12, 1913 to April 1955: Discharge, 180,000 cfs June 4, 1921 (gage height not determined), from rating curve extended above 12,000 cfs on basis of slope-area measurement of peak flow at site 9 miles upstream.

Remarks. Daily mean discharge figures are the combined flow of Arkansas River and Oxford Farmers Co. Canal. Discharges at indicated times do not include flow in this canal. Flood flow not appreciably affected by storage or diversion.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	108	8	116	14	302	20	10,600	26	165
2	124	9	156	15	272	21	908	27	126
3	185	10	323	16	316	22	403	28	73
4	232	11	412	17	402	23	394	29	66
5	220	12	402	18	6,350	24	261	30	80
6	155	13	348	19	22,200	25	136	31	117
7	113								

Monthly mean discharge, in cubic feet per second	1,486
Runoff, in acre-feet	91,370

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 16			*May 18—Continued*			*May 20*		
12 p.m.	3.27	213	8 p.m.	6.55	10,800	2 a.m.	7.75	30,200
May 17			11	6.45	10,000	4	7.35	21,300
6 a.m.	3.38	261	12 p.m.	6.50	10,400	6	6.80	13,400
4 p.m.	3.40	270	*May 19*			8	6.30	8,900
12	3.66	403	4 a.m.	6.90	14,600	10	6.00	7,110
May 18			8	7.15	18,000	12 m.	5.75	5,920
4 a.m	3.83	514	12 m.	7.30	20,400	4 p.m.	5.35	4,200
8:30	3.88	554	3 p.m.	7.50	24,200	12 p.m.	4.70	2,000
9	5.60	5,230	4	7.50	24,200	*May 21*		
10	6.10	7,650	5:30	7.35	21,300			
11	6.20	8,250	6	7.65	27,600	7 a.m.	4.05	820
12 m	6.25	8,580	8	7.75	30,200	12 m.	3.75	530
4 p.m.	6.45	10,000	10	7.90	34,500	4 p.m.	3.60	425
6 p.m.	6.50	10,400	11	8.05	40,000	12 p.m.	3.50	370
			12 p.m.	8.00	38,000			

15. APISHAPA RIVER NEAR AGUILAR, COLO.

[Gaging station discontinued in 1950]

Location. Lat 37°22'50", long 104°39'50", in sec. 4, T. 31 S., R. 65 W., 1½ miles southwest of Aguilar and 1.4 miles downstream from Mauricio Canyon Creek.

Drainage area. 126 sq mi.

Gage-height record. Floodmarks only. Datum of gage is 6,408.11 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 500 cfs and by float measurement at 1,580 cfs.

Maxima. May 1955: Discharge, 4,300 cfs probably May 19 (gage height, 7.64 ft).

1939 to September 1950: Discharge, 4,500 cfs July 14, 1948 (gage height, 7.84 ft), from rating curve extended above 500 cfs on basis of float measurement at 1,580 cfs.

Remarks. Flood flow not appreciably affected by regulation or diversion.

16. APISHAPA RIVER NEAR FOWLER, COLO.

Location. Lat 38°05', long 103°59', in sec. 35, T. 22 S., R. 59 W., on downstream side of county highway bridge, 3½ miles upstream from mouth and 4 miles southeast of Fowler.

Drainage area. 1,125 sq mi.

Gage-height record. Water-stage recorder graph. Datum of gage is 4,317.05 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 5,500 cfs and by contracted-opening measurement at 17,000 cfs.

Maxima. May 1955: Discharge, 17,000 cfs 5:30 p.m. May 19 (gage height, 16.70 ft).

1922–25, 1939 to April 1955: Discharge, 83,000 cfs Aug. 22, 1923, by slope-area measurement about 2 miles upstream from present station, caused by failure of Apishapa Dam about 31 miles upstream.

Remarks. Waste water from Oxford Farmers Co. Canal and Rocky Ford Highline Canal enters river above station. Flood flow not appreciably affected by storage or diversion.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	1.3	8	1.0	14	0.8	20	4,270	26	237
2	1.0	9	1.1	15	.5	21	235	27	219
3	1.1	10	1.6	16	.7	22	85	28	200
4	1.1	11	2.0	17	.7	23	167	29	150
5	1.1	12	1.0	18	774	24	884	30	120
6	1.0	13	0.9	19	10,100	25	292	31	110
7	1.0								

Monthly mean discharge, in cubic feet per second	576
Runoff, in acre-feet	35,430
Runoff, in inches	0.59

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 19*			*May 20—Continued*		
12 p.m.	1.35	1.0	3 a.m.	8.00	4,730	5 a.m.	10.70	7,570
			6	10.00	6,800	8	8.20	4,930
May 18			7	10.82	7,700	10	6.55	3,280
			8	11.35	8,280	12 m.	5.95	2,680
6 a.m.	1.38	1.3	9	11.55	8,500	4 p.m.	5.02	1,750
12 m.	1.38	1.3	12 m.	13.40	10,600	5	4.76	1,490
12:45 p.m.	1.38	1.5	3 p.m.	15.05	13,200	6	4.68	1,410
1	4.85	1,530	4	15.65	14,400	7	4.45	1,180
1:30	4.05	820	5:30	16.70	17,000	9	4.05	860
2	4.40	1,130	7:30	15.65	14,400	12 p.m.	3.70	595
3	4.65	1,380	9	14.77	12,600	*May 21*		
7	4.65	1,380	11	14.45	12,100			
8	4.95	1,680	12 p.m.	14.40	12,000	3 a.m.	3.45	475
9	5.25	1,980	*May 20*			6	3.05	310
10	5.50	2,230				12 m.	2.55	172
11	5.59	2,320	2 a.m.	13.95	11,300	9 p.m.	2.05	86
12 p.m.	6.39	3,120	4 a.m.	12.20	9,220	12 p.m.	2.05	86

17. ARKANSAS RIVER AT LA JUNTA, COLO.

Location. Lat 37°59′, long 103°31′, in sec. 2, T. 24 S., R. 55 W., on downstream side near middle of East Bridge in La Junta and just upstream from King Arroyo.

Drainage area. 12,210 sq mi, of which 115 sq mi is probably noncontributing.

Gage-height record. Water-stage recorder graph to 7 p.m. May 19. Twice-daily or more frequent temporary gage readings May 19–31. Graph based on gage readings used 7 p.m. May 19 to May 21. Datum of gage is 4,039.60 ft above mean sea level, datum of 1929.

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

Maxima. May 1955: Discharge, 50,000 cfs 1:30 p.m. May 20 (gage height, 14.2 ft).

1889, 1893–95, 1903, 1908, 1912 to April 1955: Discharge, 200,000 cfs June 4, 1921 (gage height, 18.4 ft, datum then in use), from rating curve extended above 15,000 cfs on basis of slope-area measurement at 200,000 cfs.

Remarks. Natural flow of stream affected by transmountain diversions, storage reservoirs, and diversions for irrigation of about 400,000 acres. Flow during this flood probably not appreciably affected.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	53	8	74	14	58	20	33,700	26	536
2	52	9	82	15	60	21	3,620	27	368
3	48	10	80	16	45	22	1,180	28	270
4	54	11	95	17	39	23	825	29	232
5	55	12	114	18	1,580	24	988	30	190
6	58	13	87	19	13,400	25	715	31	161
7	60								

Monthly mean discharge, in cubic feet per second	1,899
Runoff, in acre-feet	116,800

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 19*			*May 20—Continued*		
12 p.m.	3.46	29	6 a.m.	9.35	10,100	3 p.m.	13.8	45,600
May 18			8	9.50	10,800	5	13.1	36,900
			10:30	9.60	11,100	6	12.6	30,800
			12 m.	9.65	11,200	8	11.4	21,900
6 a.m.	3.47	30	4 p.m.	10.15	13,600	10	10.3	14,800
8	3.48	31	8	10.8	17,700	12 p.m.	9.2	10,100
9:30	3.52	34	9	11.0	18,800			
10	3.65	45	10:50	11.66	23,800	*May 21*		
10:20	4.00	90	12 p.m.	12.0	26,800			
12 m.	4.08	104	*May 20*			2 a.m.	8.15	6,900
1 p.m.	4.13	114				4	7.5	5,340
2	4.24	140	1 a.m.	12.2	28,600	6	6.9	4,300
3	4.26	146	2	12.4	30,400	6:40	6.66	3,820
6	4.30	155	4	12.6	32,200	8:25	6.41	3,460
6:40	4.32	161	6	12.8	34,000	11:35	6.00	2,980
7	7.00	3,190	8	13.2	38,400	12:05 p.m.	5.9	2,840
8	8.20	6,190	10	13.6	42,900	2:20	5.64	2,680
10	8.8	8,130	11:30	14.0	47,800	8	5.05	2,040
12 p.m.	9.0	8,880	1:30 p.m.	14.2	50,000	12 p.m.	4.85	1,810

18. ARKANSAS RIVER AT LAS ANIMAS, COLO.

Location. Lat 38°05'08", long 103°12'50", in SW¼ sec. 35, T. 22 S., R. 52 W., on left bank 0.4 mile downstream from bridge on U.S. Highway 50, 1.5 miles north of courthouse in Las Animas, and 3½ miles upstream from Purgatoire River.

Drainage area. 14,417 sq mi, of which 441 sq mi is probably noncontributing.

Gage-height record. Water-stage recorder graph. Datum of gage is 3,874.97 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 24,000 cfs and by indirect measurement at 44,000 cfs.

Maxima. May 1955: Discharge, 44,000 cfs 9 p.m. May 20 (gage height, 15.03 ft).

1939 to April 1955: Discharge, 23,600 cfs Apr. 25, 1942 (gage height, 12.58 ft).

Remarks. Flood flow not appreciably affected by storage or diversions.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	8.0	8	9.0	14	13	20	25,800	26	720
2	9.5	9	21	15	12	21	17,100	27	560
3	8.0	10	40	16	12	22	2,000	28	410
4	7.5	11	26	17	12	23	985	29	375
5	7.5	12	22	18	17	24	778	30	300
6	8.0	13	16	19	6,230	25	816	31	190
7	7.5								

Monthly mean discharge, in cubic feet per second	1,823
Runoff, in acre-feet	112,100

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 19*—Continued			*May 21*		
12 p.m.	1.97	12	1 p.m.	8.15	7,000	2 a.m.	14.32	36,500
			2	8.13	6,960	4	13.84	32,200
May 18			4	8.48	7,700	6	13.32	27,500
			5	8.54	7,850	8	12.65	22,400
3 a.m.	2.00	14	6	8.56	7,900	10	12.07	18,800
5 p.m.	2.00	14	7:20	8.53	7,820	12 m.	11.45	15,500
9	2.17	28	8	8.64	8,100	2 p.m.	10.55	11,800
12 p.m.	2.15	26	9	8.74	8,350	4	9.15	7,620
			10	8.84	8,600	6	7.75	4,670
May 19			12 p.m.	9.10	9,250	8	7.00	3,700
			May 20			12 p.m.	6.25	3,180
1:20 a.m.	2.17	28						
1:30	5.70	2,680	1 a.m.	9.22	9,550	*May 22*		
3	6.64	4,110	2	10.10	11,900			
3:40	7.03	4,810	4	10.75	14,300	6 a.m.	5.60	2,540
4:30	6.91	4,600	6	11.35	16,800	12 m.	5.05	1,810
5:30	7.14	5,010	8	11.92	19,600	6 p.m.	4.70	1,450
6	7.02	4,800	9:30	12.14	20,700	12 p.m.	4.50	1,250
6:30	7.20	5,120	10	12.12	20,600			
7	7.20	5,120	11	12.28	21,400	*May 23*		
8	7.50	5,700	11:40	12.96	25,700			
8:50	7.72	6,140	12 m.	12.92	25,400	6 a.m.	4.35	1,120
9:10	7.63	5,960	1 p.m.	13.20	27,400	12 m.	4.15	960
9:20	7.70	6,100	2	13.36	28,500	6 p.m.	4.00	840
9:40	7.43	5,560	4	13.63	30,500	12 p.m.	3.95	800
10	7.70	6,100	6	13.98	33,300			
10:20	7.56	5,820	7	14.20	35,300	*May 24*		
10:40	8.13	6,960	8	14.85	42,000			
11	8.05	6,800	9	15.03	44,000	6 a.m.	3.90	760
11:20	8.13	6,960	10	15.00	43,700	12 m.	3.75	650
11:40	8.08	6,860	11	14.80	41,500	7 p.m.	3.75	650
12 m.	8.16	7,020	12 p.m.	14.66	40,000	12 p.m.	4.45	1,200

19. PURGATOIRE RIVER ABOVE LORENCITO CANYON, NEAR WESTON, COLO

[Miscellaneous site]

Location. Lat 37°06'10", long 104°45'48" (Spanish Peaks quad.), in S½ sec. 33, T. 33 S., R. 66 W., a short distance upstream from Lorencito Canyon, 4 miles east of Weston, and 15 miles west of Trinidad.

Drainage area. 381 sq mi.

Maximum. May 1955: Discharge, 1,790 cfs May 19 from computation of flow over dam.

Remarks. Flood flow not appreciably affected by diversions.

20. ZARCILLO CANYON NEAR SEGUNDO, COLO.

[Miscellaneous site]

Location. Lat 37°07'25", long 104°45'25" (Spanish Peaks quad.), in sec. 34, T. 33 S., R. 66 W., a short distance upstream from bridge on State Route 12 and 2 miles west of Segundo.

Drainage area. 36.4 sq mi.

Maximum. May 1955: Discharge, 1,460 cfs May 19, by slope-area measurement.

21. PURGATOIRE RIVER AT DIVERSION DAM, AT VALDEZ, COLO.

[Miscellaneous site]

Location. Lat 37°07'32", long 104°41'50" (Madrid quad.), in SW¼ sec. 32, T. 33 S., R. 65 W., a quarter of a mile northeast of Valdez, and 1 mile upstream from Valdez Canyon.

Drainage area. 485 sq mi.

Maximum. May 1955: Discharge, 4,400 cfs May 19, from computation of flow over dam.

Remarks. Flood flow not appreciably affected by diversions.

22. BURRO CANYON AT MADRID, COLO.

[Miscellaneous site]

Location. Lat 37°07'30", long 104°38'20" (Madrid quad.), in SE¼ sec. 34, T. 33 S., R. 65 W., a quarter of a mile upstream from State Route 12 and half a mile west of Madrid.

Drainage area. 28.3 sq mi.

Maxima. May 1955: Discharge, 1,280 cfs May 19, from slope-area measurement.

July 22, 1925: Discharge, 23,600 cfs from slope-area measurement.

Remarks. Flood flow not appreciably affected by regulation or diversion.

23. REILLY CANYON AT COKEDALE, COLO.

[Miscellaneous site]

Location. Lat 37°07'56", long 104°36'34" (Trinidad quad.) in NW¼ sec. 31, T. 33 S., R. 64 W., 350 ft upstream from new State Route 12, 0.4 mile upstream from mouth, half a mile west of Viola, and 1 mile southeast of Cokedale.

Drainage area. 36.7 sq mi.

Maximum. May 1955: Discharge, 2,800 cfs May 19, from slope-area measurement.

Remarks. Flood flow not appreciably affected by diversions.

24. LONG CANYON NEAR SOPRIS, COLO.

[Miscellaneous site]

Location. Lat 37°07'20", long 104°35'20" (Starkville quad.) in SE¼ sec. 31, T. 33 S., R. 64 W., 1 mile upstream from mouth and 2½ miles southwest of Sopris.

Drainage area. 104 sq mi.

Maximum. May 1955: Discharge, 9,650 cfs May 19, from slope-area measurement.

25. PURGATOIRE RIVER AT LOPEZ DIVERSION DAM, COLORADO

[Miscellaneous site]

Location. Lat 37°08'28", long 104°33'53" (Trinidad quad.), in NW¼SE¼ sec. 28, T. 33 S., R. 64 W., a quarter of a mile north of Sopris and half a mile upstream from Carpios Canyon.

Drainage area. 691 sq mi.

Maximum. May 1955: Discharge, 19,800 cfs May 19, from computation of flow over dam.

Remarks. Flood flow not appreciably affected by regulation or diversion.

26. RATON CREEK AT UPPER U.S. HIGHWAYS 85 AND 87 CROSSING, COLORADO

[Miscellaneous site]

Location. Lat 37°00'30", long 104°26'50" (Elmoro quad.), in sec. 9, T. 35 S., R. 63 W,, at upper U.S. Highways 85 and 87 crossing, 4 miles southeast of Morley, and 1½ miles north of New Mexico–Colorado State line.

Drainage area. 5.27 sq mi.

Maximum. May 1955: Discharge, 402 cfs May 19, from computation of flow through culvert.

27. JOE CREEK NEAR MORLEY, COLO.

[Miscellaneous site]

Location. Lat 37°01', long 104°28'45" (Elmoro quad.), in sec. 6, T. 35 S., R. 63 W., at U.S. Highways 85 and 87 crossing and 3 miles southeast of Morley.

Drainage area. 4.54 sq mi.

Maximum. May 1955: Discharge, 642 cfs May 19, from computation of flow through culvert.

28. RATON CREEK AT STARKVILLE, COLO.

[Miscellaneous site]

Location. Lat 37°06'53", long 104°31'18" (Starkville quad.), in NW¼ sec. 1, T. 34 S., R. 64 W., just upstream from bridge on U.S. Highways 85 and 87, in Starkville.

Drainage area. 60.5 sq mi.

Maxima. May 1955: Discharge, 9,400 cfs May 19, from slope-area measurement.

Apr. 23, 1942: Discharge, 5,580 cfs, by slope-area measurement at site 2 miles downstream.

Remarks. Flood flow not appreciably affected by regulation or diversion

29. PURGATOIRE RIVER AT JANSEN, COLO.

[Miscellaneous site]

Location. Lat 37°09'02", long 104°32'30" (Trinidad quad.), in SE¼SE¼ sec. 22, T. 33 S., R. 64 W., at A.T.&S.F. Ry. bridge and 2.2 miles southwest of city hall in Trinidad.

Drainage area. 766 sq mi.

Maximum. May 1955: Discharge, 26,400 cfs May 19, from contracted-opening measurement.

Remarks. Flood flow not appreciably affected by diversions.

30. COLORADO CANYON NEAR JANSEN, COLO.

[Miscellaneous site]

Location. Lat 37°09'12", long 104°32'50" (Trinidad quad.), in SE¼ sec. 22, T. 33 S., R. 64 W., half a mile upstream from mouth, and half a mile southwest of Jansen.

Drainage area. 9.88 sq mi.

Maxima. May 1955: Discharge, 940 cfs May 19, from slope-area measurement.
July or August 1954: Discharge, 3,100 cfs, from slope-area measurement.

31. GRASMACK ARROYO NEAR TRINIDAD, COLO.

[Miscellaneous site]

Location. Lat 37°09'04", long 104°30'45" (Trinidad quad.), in N½ sec. 25, T. 33 S., R. 64 W., 100 ft upstream from bridge on old U.S. Highways 85 and 87, and 1.5 miles south of city hall in Trinidad.

Drainage area. 3.6 sq mi.

Maximum. May 1955: Discharge, 820 cfs May 19, from slope-area measurement.

Remarks. Flood flow not appreciably affected by storage or diversion.

32. PUGATOIRE RIVER AT TRINIDAD, COLO.

Location. Lat 37°10'15", long 104°30'30", in sec. 13, T. 33 S., R. 64 W., on right bank at foot of College St. 90 ft upstream from railroad bridge and 500 ft downstream from Animas Street bridge in Trinidad.

Drainage area. 795 sq mi.

Gage-height record. Water-stage recorder graph except 7–10 a.m., 3–6 p.m. May 19 and after 9 p.m. May 19. Two or three chain-gage readings daily May 18–31. Graph based on chain-gage readings used May 19–24. Datum of gage is 5,981.76 ft (revised) above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 2,800 cfs and extended above on basis of indirect measurements of peak flow above and below station.

Maxima. May 1955: Discharge, 28,000 cfs 8:20 a.m. May 19 (gage height, 14.35 ft).

1895–99, 1905–12, 1915 to April 1955: Discharge, 27,000 cfs (revised) Apr. 23, 1942 (gage height, 13.85 ft, corrected).

Maximum discharge known since at least 1859, 45,400 cfs Sept. 30, 1904 (gage height, 13.6 ft, by levels from floodmark 170 ft downstream, corrected for slope), from slope-area measurement.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	11	8	20	14	26	20	2,780	26	592
2	10	9	25	15	44	21	1,580	27	504
3	14	10	38	16	65	22	954	28	432
4	10	11	31	17	75	23	1,490	29	352
5	10	12	20	18	2,190	24	1,210	30	340
6	16	13	18	19	16,800	25	820	31	328
7	18								

Monthly mean discharge, in cubic feet per second	994
Runoff, in acre-feet	61,140
Runoff, in inches	1.44

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 19—Continued*			*May 20—Continued*		
12 p.m.	1.75	104	9:40 a.m.	12.95	25,000	12 p.m.	1.15	2,680
May 18			10	12.95	25,000	*May 21*		
			11	11.45	20,900			
			11:20	11.60	21,300			
6 a.m.			12 m.	9.85	16,400	4 a.m.	.45	1,820
12 m.	1.87	158	12:20 p.m.	10.20	17,400	7	.05	1,410
4 p.m.	2.22	376	1	9.40	15,400	8	.80	2,240
5	2.90	1,010	1:40	9.10	14,700	12 m.	−.10	1,270
6	3.40	1,630	2	9.60	15,800	4 p.m.	−.40	1,020
7	4.40	3,400	3	10.90	19,300	8	.15	1,510
8	5.50	5,700	3:40	12.20	23,000	12 p.m.	−.10	1,270
9	6.00	6,800	4	12.20	23,000			
10	6.50	8,000	5	11.20	20,200	*May 22*		
11	6.65	8,360	6	10.70	18,800			
12 p.m.	6.68	8,430	7	9.50	15,600	6 a.m.	−.26	1,130
	7.00	9,200	8	7.90	12,500	12 m.	−.60	820
May 19			9	5.85	9,120	6 p.m.	−.70	730
			10	4.75	7,520	12 p.m.	−.40	1,000
1 a.m.	7.75	11,000	11	3.80	6,200	*May 23*		
2	8.20	12,100	12 p.m.	2.90	4,880			
3	8.90	13,900				6 a.m.	−.25	1,180
4	9.55	15,600	*May 20*			12 m.	.28	1,920
5	10.40	17,900				6 p.m.	−.20	1,620
6	11.10	19,900	4 a.m.	1.30	2,880	12 p.m.	−.35	1,470
7	12.00	22,400	8	.90	2,360	*May 24*		
8	13.80	26,900	12 m.	.80	2,240			
8:20	14.35	28,000	4 p.m.	.70	2,120	12 m.	−.60	1,230
8:40 a.m.	14.30	27,900	8 p.m.	1.60	3,270	12 p.m.	−.95	919

33. GRAY CREEK NEAR TRINIDAD, COLO.

[Miscellaneous site]

Location. Lat 37°12′15″, long 104°27′10″ (Elmoro quad.), in NW¼ sec. 4, T. 33 S., R. 63 W., just upstream from bridge on U.S. Highway 350, half a mile upstream from mouth and 3 miles northeast of Trinidad.

Drainage area. 16.0 sq mi.

Maximum. May 1955: Discharge, 1,960 cfs about 10 a.m. May 19, from slope-area measurement.

Remarks. Flood flow may be slightly affected by irrigation diversion.

34. PURGATOIRE RIVER NEAR HOEHNE, COLO.

Location. Lat 37°14′50″, long 104°23′50″, in sec. 13, T. 32 S., R. 63 W., on left bank 5 ft downstream from bridge on county road, 40 ft upstream from diversion dam for Hoehne ditch, 2½ miles southwest of Hoehne, and 8 miles northeast of city hall in Trinidad.

Drainage area. 857 sq mi.

Gage-height record. Water-stage recorder graph to 7 p.m. May 19. Datum of gage is 5,740.99 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 40 cfs and by indirect measurements at 5,920 cfs and by discharge of 35,000 cfs estimated from slope-area measurement at U.S. Highway 350, 5½ miles downstream. Discharge after 7 p.m. May 19 estimated on basis of records for station at Trinidad.

Maxima. May 1955: Discharge, 35,000 cfs 9:20 a.m. May 19 (gage height, 13.97 ft).

1954 to April 1955: Discharge, 5,920 cfs July 22, 1954 (gage height, 7.34 ft).

Greatest flood known since at least 1859 occurred Sept. 30, 1904.

Remarks. Flood flow may be slightly affected by storage and diversions.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	0	8	0	14	0	20	3,060	26	600
2	0	9	0	15	0	21	1,570	27	500
3	0	10	0	16	0	22	980	28	400
4	0	11	0	17	0	23	1,200	29	350
5	0	12	0	18	1,550	24	850	30	350
6	0	13	0	19	19,800	25	750	31	350
7	0								

Monthly mean discharge, in cubic feet per second	1,042
Runoff, in acre-feet	64,090
Runoff, in inches	1.40

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 18—Continued*			*May 19—Continued*		
12 p.m.	--------	0	12 p.m.	7.90	7,300	2 p.m.	12.50	24,400
May 18			*May 19*			3	12.50	24,400
						4	12.90	26,800
9 a.m.	--------	0	1 a.m.	7.55	6,420	4:30	13.00	27,500
10	2.70	3	2	8.15	7,920	5	12.40	23,800
11	2.70	3	3	8.95	10,200	6	12.10	22,100
12 m.	2.95	33	4	9.70	12,500	7	11.55	19,500
1 p.m.	3.15	98	5	10.40	14,900	8	--------	17,000
2	3.35	195	6	11.30	18,500	12 p.m.	--------	7,000
3	3.50	280	7	11.90	21,100	*May 20*		
4	3.85	510	8	12.20	22,600			
5	4.10	720	9	13.55	31,600	4 a.m.	--------	3,200
6	4.90	1,600	9:20	13.97	35,000	8	--------	2,400
7	5.90	3,060	9:40	13.80	33,600	12 m.	--------	2,380
8	6.55	4,340	10	13.90	34,400	4 p.m.	--------	2,380
9	7.25	5,740	11	13.65	32,400	8	--------	3,000
10	8.20	8,050	12 m.	13.60	32,000	12 p.m.	--------	3,000
11 p.m.	8.50	8,900	1 p.m.	13.00	27,500			

35. CHICOSA CREEK NEAR HOEHNE, COLO.

[Miscellaneous site]

Location. Lat 37°17'12", long 104°19'43" (Elmoro quad.), in NE¼ sec. 4, T. 32 S., R. 62 W., a quarter of a mile upstream from mouth and 2½ miles northeast of Hoehne.

Drainage area. 123 sq mi.

Maximum. May 1955: Discharge, 1,140 cfs May 19, from computation of flow over dam.

Remarks. Flood flow affected by valley storage due to overflow.

36. PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO

[Miscellaneous site]

Location. Lat 37°17'12", long 104°18'42" (Elmoro quad.), in NW¼ sec. 2, T. 32 S., R. 62 W., at bridge on U.S. Highway 350, 1 mile downstream from Chicosa Creek, 3 miles east of Hoehne.

Drainage area. 1,015 sq mi.

Maximum. May 1955: Discharge, 37,900 cfs May 19, from computation of flow through contraction and over the road.

Remarks. Flood flow not appreciably affected by diversions.

37. FRIJOLE CREEK NEAR ALFALFA, COLO.

[Miscellaneous site]

Location. Lat 37°11'55", long 104°11'35" (Elmoro quad.), in sec. 2, T. 33 S., R. 61 W., at bridge on U.S. Highway 160, 4 miles west of Alfalfa, and 16 miles east of Trinidad.

Drainage area. 80 sq mi.

Gage-height record. Floodmarks only.

Discharge record. Stage-discharge relation defined at high stages by a current-meter measurement at 8,770 cfs, a contracted-opening measurement at 13,500 cfs, and extended below by slope-conveyance method.

Maxima. May 1955: Discharge, 6,400 cfs May 19 (gage height, 13.3 ft). Secondary peak, 3,200 cfs (gage height, 10.3 ft).

1954 to April 1955: Discharge, 13,500 cfs July 22, 1954 (gage height, 17.23 ft), by contracted-opening measurement.

38. DRAW NO. 1 AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLO.

[Miscellaneous site]

Location. Lat 37°11'45", long 104°11' (Elmoro quad.), in SE¼ sec. 2, T. 33 S., R. 61 W., at U.S. Highway 160, half a mile upstream from mouth, 0.6 mile east of Frijole Creek bridge on U.S. Highway 160, and 17 miles east of Trinidad.

Drainage area. 0.84 sq mi.

Maxima. May 1955: Discharge, 187 cfs May 19, from computation of flow through culvert.

1954 to April 1955: Discharge, 447 cfs July 22, 1954, from computation of flow through culvert.

39. DRAW NO. 2 AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLO.

[Miscellaneous site]

Location. Lat 37°11'45", long 104°10'36" (Elmoro quad.), in SW¼ sec. 1, T. 33 S., R. 61 W., at U.S. Highway 160, half a mile upstream from mouth, 1.1 miles east of Frijole Creek bridge on U.S. Highway 160, and 17½ miles east of Trinidad.

Drainage area. 1.49 sq mi.

Maxima. May 1955: Discharge, 375 cfs May 19, from computation of flow through culvert.

1954 to April 1955: Discharge, 1,130 cfs July 22, 1954, from computation of flow through culvert and over road.

40. SAN FRANCISCO CREEK NEAR ALFALFA, COLO.

Location. Lat 37°11'10", long 104°07'50", in sec. 8, T. 33 S., R. 60 W., on downstream side of right abutment of bridge on U.S. Highway 160, half a mile upstream from mouth, 1½ miles south of Alfalfa, and 20 miles east of Trinidad.

Drainage area. 160 sq mi.

Gage-height record. Water-stage recorder May 1–19 and May 22–24. Altitude of gage is 5,320 ft (from topographic map).

Discharge record. Stage-discharge relation defined by current-meter measurements below 250 cfs and by slope-area measurements at 15,500 cfs.

Maxima. May 1955: Discharge, 15,500 cfs 9 a.m. May 19 (gage height, 13.00 ft).

1954 to April 1955: Discharge, 26,300 cfs July 22, 1954 (gage height, 14.40 ft, from floodmarks), from contracted-opening measurement.

Remarks. Flood flow not appreciably affected by diversions.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	0	8	0	14	0.4	20	350	26	60
2	0	9	0	15	.3	21	300	27	25
3	0	10	32	16	.2	22	179	28	15
4	0	11	2.8	17	.4	23	369	29	8
5	0	12	.8	18	2,660	24	162	30	4
6	0	13	.8	19	8,790	25	40	31	4
7	0								

Monthly mean discharge, in cubic feet per second	419
Runoff, in acre-feet	25,790
Runoff, in inches	3.02

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 18*—Continued			*May 19*—Continued		
12 p.m.	2.07	228	2 p.m.	4.50	1,380	5 a.m.	10.90	10,400
			4	6.00	2,600	7	12.35	13,900
May 18			6	9.30	7,100	9	13.00	15,500
			7:30	10.38	9,200	11:40	10.84	10,200
1 a.m.	2.00	210	8	9.74	7,890	1:30 p.m.	8.89	6,420
3	3.16	640	8:20	10.19	8,780	4	10.09	8,580
3:45	3.05	585	9:30	8.69	6,100	5	9.64	7,710
4	3.37	745	10:30	8.44	5,720	6	10.64	9,770
5	3.37	745	11	8.66	6,060	8	10.09	8,580
8	2.78	462	12 p.m.	8.44	5,720	9	8.84	6,340
11	2.67	418	*May 19*			11	5.84	2,440
12 m.	2.77	458				12 p.m.	5.34	1,980
1 p.m.	3.15	635	1:15 a.m.	7.84	4,880			

41. PURGATOIRE RIVER NEAR ALFALFA, COLO.

Location. Lat 37°11'30", long 104°07'30", in NW¼ sec. 9, T. 33 S., R. 60 W., on right bank 550 ft downstream from San Francisco Creek, 1½ miles southeast of Alfalfa, and 20 miles east of Trinidad.

Drainage area. 1,320 sq mi.

Gage-height record. Water-stage recorder graph May 10–12. Gage height determined by levels on May 21, 30, 31.

Discharge record. Stage-discharge relation defined by current-meter measurements below 2,700 cfs and by slope-area measurements at 3,440, 6,230, 8,740, 37,800 and 44,300 cfs. Discharge for periods of no gage-height record estimated on basis of 2 discharge measurements, 3 gage heights, and records for upstream and downstream stations.

Maxima. May 1955: Discharge, 41,900 cfs May 19 (gage height, 28.9 ft, from floodmark).

1905–7, 1924–28, 1951 to April 1955: Discharge, 37,800 cfs July 22, 1954 (gage height, 27.60 ft, from floodmark).

Remarks. Flood flow not appreciably affected by regulation or diversion.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	1.5	8	1.5	14	5.0	20	4,000	26	500
2		9		15		21	2,500	27	400
3		10	41	16		22	1,200	28	350
4		11	19	17		23	1,600	29	300
5		12	8.3	18	4,500	24	1,100	30	350
6		13	5.0	19	29,000	25	800	31	400
7									

Monthly mean discharge, in cubic feet per second	1,520
Runoff, in acre-feet	93,430
Runoff, in inches	1.33

42. TRINCHERA CREEK NEAR TRINCHERA, COLO.

[Miscellaneous site]

Location. Lat 37°07'45", long 104°00'50" (Elmoro quad.), in sec. 33, T. 33 S., R. 59 W., at U.S. Highway 160, 6 miles northeast of Trinchera.

Drainage area. 129 sq mi.

Gage-height record. Floodmarks only.

Maxima. May 1955: Discharge not determined May 19 (stage, 8 ft lower than that for flood of July 22, 1954).

1954 to April 1955: Discharge, 25,100 cfs July 22, 1954, from computation of flow through a contraction and over the road.

Remarks. Flood flow not appreciably affected by diversions.

43. ALKALI ARROYO NEAR TRINCHERA, COLO.

[Miscellaneous site]

Location. Lat 37°10', long 103°56'13" (Mesa De Maya quad.), in sec. 18, T. 33 S., R. 58 W., at bridge on U.S. Highway 160, 10 miles northeast of Trinchera.

Drainage area. 34.5 sq mi.

Maxima. May 1955: Discharge, 1,260 cfs May 19, from slope-area measurement.

1954 to April 1955: Discharge, 15,500 cfs July 22, 1954, from computation of flow through culvert.

44. PURGATOIRE RIVER AT CANYON CROSSING, COLORADO

[Miscellaneous site, stage only]

Location. Lat 37°22'20", long 103°54'10" (Mesa De Maya quad.), in sec. 10, T. 31 S., R. 58 W., at gasline crossing and county road bridge, and 35 miles northeast of Trinidad.

Drainage area. 1,935 sq mi.

Gage-height record. Floodmarks only.

Maxima. May 1955: Stage, 27.7 ft May 19.

1954 to April 1955: Stage, 29.2 ft July 22, 1954.

45. CHACUACO CREEK NEAR LA JUNTA, COLO.

[Miscellaneous site]

Location. Lat 37°33'10", long 104°37' (Timpas quad.), in sec. 12, T. 29 S., R. 56 W., 2 miles upstream from mouth and 32 miles south of La Junta.

Drainage area. 387 sq mi.

Maximum. May 1955: Discharge, 3,170 cfs May 19, from slope-area measurement.

Remarks. Flood flow not appreciably affected by regulation or diversion.

46. PURGATOIRE RIVER AT NINEMILE DAM, NEAR HIGBEE, COLO.

Location. Lat 37°44′, long 103°29′, in NW¼ sec. 7, T. 27 S., R. 54 W., on left bank 850 ft upstream from Ninemile Dam, 4 miles southwest of Higbee, and 5½ miles upstream from Smith Canyon.

Drainage area. 2,900 sq mi.

Gage-height record. Water-stage recorder graph to 12 m. May 19. Graph based on once-daily or more frequent determinations of gage height and flood marks used May 19–24. Datum of gage is 4,240.59 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 21,000 cfs and by computation of flow over dam at 80,000 cfs. Stage-discharge relation not defined 5 p.m. May 21 to May 24. Discharge May 22–31 estimated on basis of record for station near Las Animas.

Maxima. May 1955: Discharge, 80,000 cfs about 10 p.m. May 19 (gage height, 17.7 ft).

1924 to April 1955: Discharge, 45,000 cfs Sept. 15, 1934, July 23, 1954 (gage height, 14.3 ft), from rating curve extended above 16,000 cfs on basis of flood routing to station at Highland Dam.

Remarks. Flood flow not appreciably affected by storage or diversion.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	1.5	8	0	14	13	20	31,000	26	600
2	1.2	9	0	15	10	21	4,700	27	350
3	0	10	0	16	8.0	22	2,990	28	250
4	0	11	1.4	17	6.5	23	2,960	29	200
5	0	12	1.4	18	189	24	3,440	30	250
6	0	13	6.2	19	31,500	25	800	31	360
7	0								

Monthly mean discharge, in cubic feet per second	2,569
Runoff, in acre-feet	158,000
Runoff, in inches	1.02

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 19—Continued*			*May 21—Continued*		
12 p.m.	1.4	8	10 p.m.	17.7	80,000	3 p.m.	4.70	5,370
May 18			11	17.2	74,500	5	4.50	4,670
12 m.	1.4	8	12 p.m.	17.35	76,200	9	3.25	4,400
4 p.m.	1.45	10	*May 20*			12 p.m.	2.60	3,950
8	1.5	12				*May 22*		
10	1.7	23	12:20 a.m.	17.4	76,700			
10:20	3.6	1,560	1:40	17.2	74,500	4 a.m.	2.0	3,000
12 p.m.	4.3	3,320	3	16.4	66,000	7	1.68	2,600
May 19			4	15.8	60,200	12 m.	1.30	3,000
			6	15.0	53,000	6 p.m.	1.07	3,150
2 a.m.	5.3	6,770	8	14.4	48,400	12 p.m.	1.00	2,500
4	5.7	8,170	8:40	14.0	45,900			
5	6.2	9,920	11	10.3	26,400	*May 23*		
5:20	6.7	11,700	1 p.m.	8.1	17,000			
6:20	7.4	14,300	2	7.25	13,800	4 p.m.	.97	1,600
8	7.9	16,200	4	5.95	9,220	9	1.83	6,600
9	7.8	15,800	6	5.3	7,120	10:30	2.00	6,400
9:20	8.25	17,600	8	4.8	5,540	12 p.m.	-------	4,110
11:20	8.2	17,400	12 p.m.	4.3	3,980			
1 p.m.	9.3	22,100	*May 21*			*May 24*		
4	11.0	29,600						
5:40	14.0	45,900	2 a.m.	4.2	3,640	4 a.m.	2.06	4,600
8	17.2	74,500	10	4.75	5,540	10	2.00	3,500
9 p.m.	17.6	78,900	12 m.	4.78	5,650	12 m.	1.95	3,170
						12 p.m.	1.35	2,500

47. SMITH CANYON NEAR NINAVIEW, COLO.

[Miscellaneous site]

Location. Lat 37°42'25", long 103°24'20" (Higbee quad.), in NE¼ sec. 14, T. 27 S., R. 54 W., at concrete ford on county road, 4½ miles upstream from mouth, 5 miles southeast of Higbee, and 11 miles northwest of Ninaview.

Drainage area. 291 sq mi.

Maximum. May 1955: Discharge, 5,660 cfs May 19, by slope-area meeasurement.

Remarks. Flood flow not appreciably affected by diversions.

48. PURGATOIRE RIVER AT HIGHLAND DAM, NEAR LAS ANIMAS, COLO.

Location. Lat 37°55', long 103°18', in sec. 1, T. 25 S., R. 53 W., on left bank 70 ft upstream from diversion dam for Highland ditch and 11 miles southwest of Las Animas.

Drainage area. 3,376 sq mi.

Gage-height record. Water-stage recorder graph to 1:10 a.m. May 20. Peak stage determined from high-water mark in gage well. Altitude of gage is 3,980 ft (from topographic map).

Discharge record. Stage-discharge relation defined by current-meter measurements below 22,000 cfs and by indirect measurements at 26,000, 60,000, and 73,400 cfs. Discharge May 20–31 estimated on basis of records for nearby stations.

Maxima. May 1955: Discharge, 73,400 cfs about 3 a.m. May 20 (gage height, 19.30 ft).

1931 to April 1955: Discharge, 60,000 cfs Apr. 24, 1942 (gage height, about 16.8 ft), from rating curve extended above 22,000 cfs on basis of slope-area measurement at 60,000 cfs by Bureau of Reclamation and office of State engineer.

Remarks. Flood flow not appreciably affected by storage or diversion.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	0	8	0	14	0	20	45,007	26	2,100
2	0	9	0	15	0	21	6,500	27	1,350
3	0	10	0	16	0	22	3,500	28	950
4	0	11	0	17	.8	23	2,350	29	550
5	0	12	0	18	10	24	4,100	30	510
6	0	13	0	19	13,400	25	2,500	31	530
7	0								

Monthly mean discharge, in cubic feet per second	2,711
Runoff, in acre-feet	166,700
Runoff, in inches	0.93

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 18—Continued*			*May 19—Continued*		
12 p.m.	0.67	2.7	12 p.m.	1.25	11	4 p.m.	9.50	17,900
May 18			*May 19*			8	10.8	23,300
						9	11.2	25,200
						9:20	11.3	25,800
6 a.m.	.68	2.8	2 a.m.	1.55	19	10	11.85	28,300
8	1.50	18	5:20	1.60	20	11	13.5	37,000
9	1.68	22	6	2.15	38	12 p.m.	16.1	52,900
1 p.m.	2.10	36	6:40	2.30	48			
2	1.00	7.0	7	4.20	2,100	*May 20*		
3	.80	4.2	7:30	4.30	2,200			
6	.80	4.2	8	6.05	6,600	12:40 a.m.	17.2	60,000
8:20	.86	5.0	10	7.55	11,200	1:10 p.m.	17.9	64,600
10:20 p.m.	1.05	7.8	12 m.	8.40	14,200	3 p.m.	19.30	73,400

49. PURGATOIRE RIVER NEAR LAS ANIMAS, COLO.

Location. Lat 38°02'02", long 103°12', in sec. 23, T.23 S., R. 52 W., near right bank on downstream side of pier of bridge on State Route 101, 2.3 miles southeast of courthouse in Las Animas and 4.5 miles upstream from mouth.

Drainage area. 3,503 sq mi.

Gage-height record. Water-stage recorder graph except May 3 to 6 p.m. May 18, and 10 p.m. May 19 to 9 a.m. May 21. Graph based on 10 gage readings used 10 p.m. May 19 to 9 a.m. May 21. Datum of gage is 3,879.94 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation May 1 to 7 a.m. May 20 defined by current-meter measurements below 38,000 cfs and extended by logarithmic plotting. Stage-discharge relation 7 a.m. May 20 to May 31 defined by current-meter measurements below 2,100 cfs and by comparison with records for stations at Ninemile Dam and Highland Dam. Discharge May 3–17 estimated on basis of 2 discharge measurements and weather records.

Maxima. May 1955: Discharge, 70,000 cfs 7 a.m. May 20 (gage height, 15.0 ft).

1889, 1922–31, 1948 to April 1955: Discharge, 49,000 cfs July 21, 1927 (gage height, 8.80 ft, datum then in use), from rating curve extended above 12,000 cfs by logarithmic plotting.

Greatest flood known occurred Oct. 1, 1904.

Remarks. Flood flow not appreciably affected by storage or diversion.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	1.4	8	1.6	14	1.4	20	46,300	26	2,440
2	1.4	9	1.6	15	1.3	21	8,500	27	1,490
3	1.6	10	1.6	16	1.2	22	4,170	28	1,080
4	1.6	11	1.6	17	1.2	23	2,480	29	652
5	1.6	12	1.6	18	19	24	4,100	30	495
6	1.6	13	1.5	19	11,700	25	2,600	31	528
7	1.6								

Monthly mean discharge, in cubic feet per second	2,793
Runoff, in acre-feet	171,700
Runoff, in inches	0.92

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 20*			*May 21—Continued*		
12 p. m.	--------	1	1 a.m.	10.85	34,300	12 m.	2.45	7,250
			2	11.90	41,200	3 p.m.	2.40	7,000
May 18			3	12.95	50,600	6	2.55	7,750
			4	13.90	59,100	12 p.m.	2.25	6,250
12 m.	--------	1	5	14.60	66,000			
6 p. m.	1.35	24	6	14.95	69,500	*May 22*		
12 p.m.	1.45	99	7	15.00	70,000			
May 19			8	14.75	67,700	6 a.m.	2.00	5,200
			9	14.70	67,300	12 m.	1.70	4,000
4 a.m.	1.55	132	10	14.50	66,000	6 p.m.	1.40	2,850
8	1.65	172	11	13.00	60,000	12 p.m.	1.45	3,020
9	1.75	225	12 m.	12.75	59,200			
10	1.90	320	1 p.m.	12.25	57,800	*May 23*		
10:20	5.10	5,900	2	11.40	55,200			
11	6.10	9,360	3	9.80	51,600	6 a.m.	1.50	3,200
12 m.	7.00	13,200	4	8.40	44,400	12 m.	1.30	2,500
1 p.m.	7.70	16,500	5	7.20	37,200	6 p.m.	1.15	2,050
2	8.00	18,000	6	6.25	30,800	12 p.m.	.90	1,360
3	8.20	19,100	7	5.50	25,500			
4	8.45	20,500	8	5.00	22,000	*May 24*		
5	8.55	21,000	10	4.25	17,200			
6	8.70	21,800	12 p.m.	3.75	14,200	5:40 a.m.	1.20	2,200
7	8.85	22,700				7	2.15	5,800
8	9.00	23,500	*May 21*			8	2.30	6,500
9	9.15	24,300				12 m.	2.15	5,800
10	9.40	25,700	2 a.m.	3.40	12,100	6 p.m.	1.75	4,200
11	9.70	27,400	4	3.10	10,500	12 p.m.	1.50	3,200
12 p.m.	10.15	30,100	8 a.m.	2.70	8,500			

50. RULE CREEK NEAR CADDOA, COLO.

[Gaging station discontinued in 1946]

Location. Lat 38°, long 103°04′, in SE¼ sec. 36, T. 23 S., R. 51 W., 5 miles upstream from mouth and 9 miles southwest of Caddoa.

Drainage area. 435 sq mi.

Gage-height record. Floodmarks only. Altitude of gage is 3,890 ft (from topographic map).

Maxima. May 1955: Discharge, 4,680 cfs May 19 (gage height, 17.15 ft), by slope-area measurement.

1941–46: Discharge, 1,720 cfs June 28, 1943 (gage height, 11.30 ft).

Flood of about June 5, 1949, reached a stage of 20.05 ft, from floodmarks (discharge, 11,600 cfs).

Remarks. Flood flow not appreciably affected by diversions.

51. JOHN MARTIN RESERVOIR AT CADDOA, COLO.

Location. Lat 38°04′05″, long 102°56′15″, in NW¼ sec. 8, T. 23 S., R. 49 W., at dam on Arkansas River at Caddoa, 3½ miles southeast of Hasty, and 58 miles upstream from Colorado-Kansas State line.

Gage-height record. Water-stage recorder graph to 2 p.m. May 20 and May 23–31. Graph based on two gage readings used 2 p.m. May 20 to May 22. Datum of gage is 3,760.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark); gage readings have been reduced to elevations above mean sea level.

Maxima. May 1955: Contents, 244,300 acre-ft 12 p.m. May 31 (elevation, 3,837.88 ft).

1943 to April 1955: Contents, 244,700 acre-ft July 3, 1948 (elevation, 3,835.70 ft).

Remarks. Reservoir stored all inflow during flood period; controlled release began May 24. Reservoir is formed by concrete and earth-fill dam. Capacity, 662,900 acre-ft at elevation 3,870.00 ft (top of spillway gates), of which 383,700 acre-ft (between elevations, 3,768.00 ft, elevation of no contents, and 3,851.00 ft) is for conservation and 279,200 acre-ft (between elevations 3,851.00 and 3,870.00 ft) is reserved for flood control. Figures given represent total contents.

Elevation, in feet, and contents, in acre-feet, May 1955

Day	Contents	Day	Elevation	Contents	Day	Elevation	Contents
1	0	11	----------	0	21	3,832.2	196,500
2	0	12	----------	0	22	3,834.9	218,500
3	0	13	----------	0	23	3,835.99	227,800
4	0	14	----------	0	24	3,836.35	230,900
5	0	15	----------	0	25	3,836.70	233,900
6	0	16	----------	0	26	3,837.06	237,100
7	0	17	----------	0	27	3,837.42	240,200
8	0	18	----------	0	28	3,837.78	243,400
9	0	19	3,789.60	14,130	29	3,837.83	243,900
10	0	20	3,818.84	109,300	30	3,837.84	244,000
					31	3,837.88	244,300

Elevation, in feet, and contents, in acre-feet, at indicated time, 1955

Hour	Elevation	Contents	Hour	Elevation	Contents
May 18			*May 20*—Con.		
12 p.m.	----------	0	9 a.m.	3,799.9	38,180
May 19			10	3,802.6	45,780
			11	3,805.2	53,770
			12 m.	3,807.6	61,660
9 p.m.	3,787.7	10,320	1 p.m.	3,809.7	68,980
10	3,788.4	11,680	2	3,811.3	75,040
11	3,789.0	12,890	12 p.m.	3,818.84	109,300
12 p.m.	3,789.60	14,130	*May 21*		
May 20			2 p.m.	3,829.7	177,600
1 a.m.	3,790.6	16,240	5:45	3,830.5	183,500
2	3,791.5	18,180	12 p.m.	3,832.2	196,500
3	3,792.5	20,380	*May 22*		
4	3,793.4	22,400			
6	3,795.4	26,990			
7	3,796.4	29,360	11:40 a.m.	3,833.66	208,200
8 a.m.	3,797.6	32,270	12 p.m.	3,834.9	218,500

52. ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLO.

Location. Lat 38°05', long 102°55'10", in NW¼ sec. 4, T. 23 S., R. 49 W., on left bank 1 mile upstream from Caddoa Creek, 1¾ miles downstream from John Martin dam, and 3 miles southeast of Hasty.

Drainage area. 18,917 sq mi of which 785 sq mi is probably noncontributing.

Gage-height record. Water-stage recorder graph. Datum of gage is 3,737.40 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Discharge record. Stage-discharge relation defined by current-meter measurements.

Maxima. May 1955: Discharge, 630 cfs 10 a.m. May 24 (gage height, 2.31 ft). 1938 to April 1955: Discharge, 40,000 cfs Apr. 24, 1942 (gage height, 10.46 ft, at site 700 ft upstream at datum 3.64 ft higher) from rating curve extended above 12,000 cfs on basis of flow over dam and critical depth determination at 40,000 cfs.

Remarks. Flow completely regulated by John Martin Reservoir.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	20	8	19	14	30	20	3.5	26	466
2	18	9	22	15	28	21	3.2	27	478
3	20	10	50	16	26	22	2.9	28	448
4	20	11	54	17	28	23	9.5	29	305
5	20	12	44	18	38	24	260	30	279
6	20	13	40	19	48	25	386	31	222
7	20								

Monthly mean discharge, in cubic feet per second	110
Runoff, in acre-feet	6,780

53. ARKANSAS RIVER AT LAMAR, COLO.

Location. Lat 38°06'17", long 102°37'01", in SE¼ sec. 30, T. 22 S., R. 46 W., on right bank 150 ft downstream from bridge on U.S. Highways 50 and 287, and 1.2 miles north of city hall in Lamar.

Drainage area. 19,780 sq mi, of which 950 sq mi is probably noncontributing.

Gage-height record. Water-stage recorder graph May 19–20. Datum of gage is 3,603.88 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements. Discharge May 1–18, 21–31 estimated on basis of 5 discharge measurements and weather records.

Maxima. May 1955: Discharge, 2,030 cfs 3 a.m. May 20 (gage height, 3.77 ft). 1913 to April 1955: Discharge, 130,000 cfs June 5, 1921, from rating curve extended above 10,000 cfs by logarithmic plotting

Remarks. Flow regulated by John Martin Reservoir. Flood runoff came from drainage area below John Martin Reservoir.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	1.6	8	1.6	14	1.5	20	1,070	26	2.0
2	1.6	9	1.8	15	1.4	21	20	27	1.7
3	1.6	10	2.0	16	1.3	22	10	28	1.5
4	1.6	11	2.2	17	1.3	23	5.0	29	1.3
5	1.6	12	2.0	18	4.0	24	3.0	30	1.1
6	1.5	13	1.7	19	411	25	2.5	31	1.0
7	1.6								

Monthly mean discharge, in cubic feet per second	50.4
Runoff, in acre-feet	3,100

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 18			*May 19*—Continued			*May 20*—Continued		
12 p.m.	0.30	9.5	6 p.m.	2.25	860	3 a.m.	3.77	2,030
May 19			7	2.54	1,040	5	3.66	1,920
			8	2.83	1,230	7	3.40	1,680
			9	3.10	1,430	9	3.12	1,450
1 a.m.	.37	15	10	3.42	1,700	1 p.m.	2.52	1,030
3	.37	15	11	3.58	1,840	5	1.58	458
5	.40	18	12 p.m.	3.65	1,910	8	.88	123
7	.42	21	*May 20*			10	.65	60
4 p.m.	.42	21				11	.60	49
5 p.m.	1.64	494	1 a.m.	3.68	1,940	12 p.m.	.59	47

54. WOLF CREEK NEAR GRANADA, COLO.

[Miscellaneous site]

Location. Lat 38°02'30", long 102°20' (Granada quad.), in NE¼ sec. 22, T. 23 S., R. 44 W., just upstream from concrete-slab ford on improved road and 2 miles southwest of Granada.

Drainage area. 116 sq mi.

Maximum. May 1955: Discharge, 1,420 cfs May 20, by slope-area measurement.

Remarks. Flood flow not appreciably affected by diversions.

55. ARKANSAS RIVER NEAR COOLIDGE, KANS.

Location. Lat 38°01'33", long 102°01', in NW¼ sec. 26, T. 23 S., R. 43 W., on right bank 1,560 ft upstream from highway bridge, 1 mile south of Coolidge, and 1½ miles downstream from Colorado-Kansas State line.

Drainage area. 25,410 sq mi, of which 1,708 sq mi is probably noncontributing.

Gage-height record. Water-stage recorder graph. Datum of gage is 3,333.84 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 9,600 cfs and extended by logarithmic plotting.

Maxima. May 1955: Discharge, 13,200 cfs 1 a.m. May 20 (gage height, 8.08 ft)

1903, 1950 to April 1955: Discharge, 60,000 cfs May 15, 1951 (gage height, 10.67 ft), from rating curve extended above 11,000 cfs by logarithmic plotting.

Remarks. Flow partly regulated by John Martin Reservoir. Flood runoff came from drainage area below John Martin Reservoir.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	5.2	8	4.4	14	4.4	20	5,310	26	117
2	5.2	9	4.8	15	4.0	21	1,060	27	275
3	4.8	10	5.2	16	4.0	22	378	28	345
4	4.8	11	5.2	17	536	23	252	29	296
5	4.4	12	4.8	18	864	24	191	30	268
6	4.0	13	4.4	19	4,030	25	130	31	175
7	4.8								
Monthly mean discharge, in cubic feet per second									461
Runoff, in acre-feet									28,370

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 16			*May 19—Continued*			*May 20—Continued*		
12 p.m.	1.88	4.4	6 a.m.	3.10	602	2 p.m.	5.28	3,200
			8	3.10	602	6	5.28	3,200
May 17			9	3.50	950	8	5.15	2,950
			10	4.08	1,510	10	4.87	2,500
12 m.	1.91	5.6	11	4.66	2,210	12 p.m.	4.65	2,200
2 p.m.	1.98	10	12 m.	5.05	2,780			
7:30	1.93	6.7	1 p.m.	5.45	3,550	*May 21*		
8	3.90	1,310	2	5.85	4,580			
9	5.10	2,860	3	6.00	5,020	6 a.m.	4.00	1,420
10	5.43	3,510	5:30	6.02	5,080	12 m.	3.40	850
11	5.55	3,780	6	6.35	6,100	6 p.m.	3.12	610
12 p.m.	5.30	3,240	8	7.17	9,050	12 p.m.	2.96	490
			9	7.28	9,460			
May 18			10	7.70	11,400	*May 22*		
			12 p.m.	7.98	12,800			
2 a.m.	4.72	2,290				12 m.	2.78	366
4	4.34	1,810	*May 20*			12 p.m.	2.65	289
6	3.90	1,310						
12 m.	2.80	380	1 a.m.	8.08	13,200	*May 23*		
6 p.m.	2.45	188	2	8.05	13,100			
10	2.45	188	3	7.45	10,200	12 m.	2.58	247
12 p.m.	2.63	275	4	7.00	8,400	12 p.m.	2.52	227
			5	6.88	7,950			
May 19			6	6.70	7,300	*May 24*		
			8	6.10	5,320			
2 a.m.	2.94	482	10	5.60	3,900	12 m.	2.47	194
4 a.m.	3.03	546	12 m.	5.34	3,320	12 p.m.	2.37	150

56. CIMARRON RIVER NEAR GUY, N. MEX.

Location. Lat 36°59'15", long 103°25'25", in SE¼ sec. 21, T. 32 N., R. 33 E., on right bank 1.5 miles upstream from Baker damsite, 1.7 miles northwest of Valley filling station, 12 miles north of Guy, and 27 miles northwest of Kenton, Okla.

Drainage area. 545 sq mi.

Gage-height record. Water-stage recorder graph. Altitude of gage is 4,900 ft (from topographic map).

Discharge record. Stage-discharge relation defined by current-meter measurements below 3,000 cfs and extended above on basis of velocity-area study and logarithmic plotting.

Maxima. May 1955: Discharge, 7,660 cfs 1 p.m. May 19 (gage height, 19.1 ft). 1942 to April 1955: Discharge, 8,500 cfs Oct. 5, 1954 (gage height, 20.50 ft), from rating curve extended as described above.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	4.8	8	2.0	14	1.5	20	2,420	26	14
2	2.4	9	2.1	15	1.4	21	218	27	11
3	2.0	10	2.3	16	1.4	22	96	28	8.3
4	1.8	11	2.7	17	1.5	23	55	29	7.4
5	2.0	12	2.7	18	125	24	29	30	6.5
6	1.8	13	2.0	19	5,560	25	20	31	6.0
7	1.8								

Monthly mean discharge, in cubic feet per second	278
Runoff, in acre-feet	17,080
Runoff, in inches	0.59

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 19—Continued*			*May 20—Continued*		
12 p.m.	0.36	2.3	5 a.m.	11.8	3,750	9 a.m.	9.0	2,370
			6	13.0	4,350	10	7.80	1,840
May 18			8	16.8	6,320	11	7.00	1,520
			9	17.2	6,540	12 m.	6.30	1,260
4 a.m.	.36	2.3	10	17.0	6,420	2 p.m.	5.50	980
6	.48	4.2	11	17.3	6,590	3	5.05	845
1 p.m.	.47	4.1	12 m.	18.5	7,300	4	4.75	755
3	.56	6.0	1 p.m.	19.1	7,660	5	4.35	637
4	.84	16	2	18.1	7,060	6	4.10	569
5	.80	14	6	18.1	7,060	7	3.90	517
6	.93	20	9	15.7	5,710	8	3.75	480
7	1.43	57	10	15.5	5,600	9	3.50	419
8	2.94	298	11	15.7	5,710	12 p.m.	3.20	352
9	4.00	543	12 p.m.	16.2	5,980			
11	5.15	875				*May 21*		
12 p.m.	5.00	830	*May 20*					
						2 a.m.	3.10	325
May 19			1 a.m.	16.8	6,320	6	2.80	264
			2	16.8	6,320	10	2.60	227
1 a.m.	5.00	830	3	16.2	5,980	2 p.m.	2.40	191
2	8.00	1,920	4	15.5	5,600	6	2.23	162
3	10.6	3,150	6	13.3	4,500	10	2.07	137
4 a.m.	11.6	3,650	7 a.m.	12.1	3,900	12 p.m.	2.03	131

57. CANADIAN RIVER NEAR HEBRON, N. MEX.

Location. Lat 36°47'10", long 104°27'45", in Maxwell Grant, at upstream end of left abutment of bridge on U.S. Highways 64 and 85, 3¼ miles north of Hebron, 5 miles upstream from Chicorica Creek, and 8 miles south of Raton.

Drainage area. 229 sq mi.

Gage-height record. Water-stage recorder graph except 9 p.m. May 19 to 4 p.m. May 21, for which graph was drawn on basis of four staff-gage readings and records for station near Taylor Springs. Altitude of gage is 6,250 ft (from topographic map).

Discharge record. Stage-discharge relation defined by current-meter measurements below 1,300 cfs and extended above by logarithmic plotting.

Maxima. May 1955: Discharge, 6,860 cfs 6 p.m. May 19 (gage height, 10.40 ft). 1946 to April 1955: Discharge, 5,250 cfs Aug. 16, 1953 (gage height, 10.49 ft). Gage height, 11.6 ft Aug. 24, 1951 (backwater from temporary dam downstream).

Flood in 1942 reached a stage of about 26 ft from information by local residents.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	0	8	0	14	0	20	1,200	26	97
2	0	9	0	15	0	21	550	27	55
3	0	10	.1	16	0	22	380	28	35
4	0	11	0	17	0	23	338	29	16
5	0	12	0	18	432	24	297	30	10
6	0	13	0	19	4,490	25	198	31	7.0
7	0								

Monthly mean discharge, in cubic feet per second	261
Runoff, in acre-feet	16,080
Runoff, in inches	1.31

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 19—Continued*			*May 20—Continued*		
12 p.m.	2.41	0.2	2 a.m.	5.15	1,080	12 m.	4.30	760
			3	5.40	1,280	2 p.m.	4.20	710
May 18			4	6.30	1,990	4	4.30	760
			5	7.34	2,990	7	4.56	916
1 a.m.	2.64	15	6	8.18	3,830	10	4.35	790
2	2.87	38	7	9.24	5,050	12 p.m.	4.25	735
3	2.75	25	8	9.49	5,420			
4	3.00	56	9	9.95	6,020	*May 21*		
5:30	3.47	144	10	9.70	5,700			
7	3.24	98	11	9,68	5,700	2 a.m.	4.00	610
8	4.16	354	12 m.	9.50	5,500	4	3.80	510
9	4.55	520	1 p.m.	9.24	5,190	8	3.65	435
10	4.38	460	2	9.19	5,180	12 m.	3.35	292
11	4.72	630	3	9.14	5,140	4 p,m.	3.53	375
12 m.	4.52	548	4	9.34	5,420	6	3.70	460
1 p.m.	4.30	468	5	10.00	6,300	7	4.50	880
2	3.90	330	6	10.40	6,860	8	5.35	1,440
3	3.61	239	7	10.20	6,580	9	4.60	940
4	3.89	342	8	10.00	6,300	10	4.20	710
5	4.80	760	9	9.50	5,630	12 p.m.	4.10	660
6	4.95	862	10	8.25	4,150			
7	4.60	680	11	7.60	3,500	*May 22*		
8	4.80	796	12 p.m.	7.15	3,050			
9	4.75	778				3 a.m.	3.79	505
10	4.83	838	*May 20*			6	3.65	435
11	4.80	832				9	3.52	370
12 p.m.	4.88	892	2 a.m.	6.50	2,400	12 m.	3.47	346
			4	5.85	1,830	3 p.m.	3.37	302
May 19			6	5.40	1,480	6	3.29	266
			8	4.85	1,100	10	3.42	324
1 a.m.	5.00	970	10 a.m.	4.50	880	12 p.m.	3.50	360

58. CHICORICA CREEK ABOVE LAKE MALOYA, NEAR SUGARITE, N. MEX.

[Miscellaneous site]

Location. Lat 37°, long 104°21'50" (Raton quad.), in sec. 8, T. 35 S., R. 62 W., 0.5 mile north of Colorado-New Mexico State line, 1.3 miles northeast of Lake Maloya, and 4 miles north of Sugarite.

Drainage area. 9.3 sq mi.

Maximum. May 1955: Discharge, 2,450 cfs May 18, by slope-area measurement.

59. CHICORICA CREEK BELOW LAKE MALOYA, N. MEX.

[Gaging station discontinued in 1951]

Location. Lat 36°58'30", long 104°22'50", in SW¼ sec. 27, T. 32 N., R. 24 E. (projected), on left bank 0.8 mile downstream from Lake Maloya, 1.5 miles upstream from Lake Alice, and 6 miles northeast of Raton.

Drainage area. 26 sq mi, approximately.

Maxima. May 1955: Discharge, 2,230 cfs May 18 (gage height, 7.8 ft, from floodmarks), from computation of flow over 2 spillways and through outlet mains at Maloya dam.

1945–51: Discharge (regulated), not determined Aug. 7, 1948 (gage height, 3.25 ft).

Remarks. Flow regulated by Lake Maloya (capacity, 4,000 acre-ft). Diversions above station for municipal supply of Raton.

60. RATON CREEK AT RATON, N. MEX.

[Miscellaneous site]

Location. Lat 36°54', long 104°26' (Raton quad.), in Maxwell Grant, 60 ft upstream from bridge on State Route 72 at Raton.

Drainage area. 14.4 sq mi.

Maximum. May 1955: Discharge, 817 cfs May 18, by slope-area measurement.

61. VERMEJO RIVER NEAR DAWSON, N. MEX.

Location. Lat 36°40'50", long 104°47'05", in Maxwell Grant, on left bank 1½ miles north of Dawson.

Drainage area. 301 sq mi.

Gage-height record. Water-stage recorder graph. Altitude of gage is 6,540 ft (from topographic map).

Discharge record. Stage-discharge relation defined by current-meter measurements below 290 cfs and by slope-area measurements at 3,250 and 5,000 cfs.

Maxima. May 1955: Discharge, 1,770 cfs 8:30 p.m. May 19 (gage height, 6.62 ft).

1927 to April 1955: Discharge, about 9,000 cfs Aug. 6, 1940 (gage height, 11.88 ft, at site three-quarters of a mile upstream at different datum), from rating curve extended above 360 cfs on basis of slope-area measurements at 3,250 and 5,000 cfs at present site.

A major flood occurred Aug. 2, 1921, when discharge probably exceeded 10,000 cfs.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	0.7	8	1.0	14	1.6	20	565	26	168
2	.7	9	1.4	15	1.6	21	374	27	144
3	.7	10	2.9	16	1.4	22	370	28	137
4	.7	11	2.6	17	1.6	23	412	29	123
5	.7	12	2.1	18	32	24	342	30	128
6	.8	13	1.6	19	951	25	258	31	128
7	.8								

Monthly mean discharge, in cubic feet per second	134
Runoff, in acre-feet	8,240
Runoff, in inches	0.51

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 19—Continued*			*May 21—Continued*		
12 p.m.	1.42	4	8:30 p.m.	6.62	1,770	6 a.m.	3.88	382
May 18			10	6.18	1,530	8	3.72	318
			11	5.77	1,300	10	3.61	276
6 a.m.	1.64	10	12 p.m.	5.38	1,100	12 m.	3.52	243
12 m.	1.91	24	*May 20*			3 p.m.	3.40	202
4 p.m.	2.05	36	1 a.m.	4.98	900	5	3.36	190
8	2.24	56	3	4.49	656	6	3.47	226
12 p.m.	2.55	105	5	4.12	489	7	3.70	310
May 19			7	3.86	374	8	3.88	382
			9	3.71	314	9	4.12	489
1 a.m.	2.67	129	11	3.62	280	10	4.28	561
3	2.70	135	1 p.m.	3.50	236	11	4.37	602
4	2.90	176	3	3.48	229	12 p.m.	4.32	579
6	3.25	262	4	3.85	370	*May 22*		
7	3.77	401	5	4.52	670			
8	4.43	628	6	4.90	860	3 a.m.	4.12	489
9	4.75	785	7	5.08	950	6	3.92	399
10	5.32	1,070	8	5.07	945	9	3.73	322
11	5.67	1,250	10	4.82	820	12 m.	3.64	287
12 m.	5.61	1,220	12 p.m.	4.60	710	3 p.m.	3.52	243
2 p.m.	5.40	1,110	*May 21*			5	3.48	229
4	5.75	1,290				7	3.64	287
5	6.13	1,500	2 a.m.	4.28	561	9	3.96	417
7 p.m.	6.45	1,680	4 a.m.	4.06	462	11	4.20	525
						12 p.m.	4.18	516

62. CIMARRON CREEK AT SPRINGER, N. MEX.

Location. Lat 36°21'30", long 104°35'50", in southeast corner of Maxwell Grant, on left bank at Springer, Colfax County, 270 ft downstream from highway bridge, 6 miles downstream from Rayado Creek and 6 miles upstream from mouth.

Drainage area. 1,032 sq mi.

Gage-height record. Water-stage recorder graph. Altitude of gage is 5,770 ft, from nearby level line.

Discharge record. Stage-discharge relation defined by current-meter measurements.

Maxima. May 1955: Discharge, 1,170 cfs 10:30 a.m. May 19 (gage height, 7.25 ft).

1930 to April 1955: Discharge, 5,000 cfs, Apr. 23, 1942 (gage height, 10.11 ft, from floodmark), from rating curve extended above 1,700 cfs by logarithmic plotting.

Maximum stage known, about 22 ft (backwater from debris on railroad bridge) Sept. 29, 1904. Another major flood occurred June 11, 1913. Maximum discharge of those floods probably exceeded 10,000 cfs.

Remarks. Flow partly regulated by Eagles Nest Reservoir (capacity, 79,120 acre-ft). Flood runoff came from drainage area below Eagles Nest Reservoir.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	2.6	8	1.1	14	1.0	20	136	26	14
2	2.2	9	1.3	15	.9	21	22	27	11
3	1.8	10	2.2	16	.9	22	19	28	8.7
4	1.4	11	2.2	17	5.4	23	25	29	7.7
5	1.3	12	1.8	18	302	24	22	30	5.2
6	1.1	13	1.6	19	780	25	18	31	4.2
7	1.1								

Monthly mean discharge, in cubic feet per second	45.3
Runoff, in acre-feet	2,790

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 18—Continued*			*May 19—Continued*		
9 p.m.	3.31	0.8	10 p.m.	5.80	470	3 p.m.	6.18	612
12 p.m.	4.15	58	11	5.88	498	6	6.40	720
May 18			12 p.m.	6.00	540	9	5.80	470
			May 19			12 p.m.	5.66	421
3 a.m.	3.91	32				*May 20*		
6	4.28	75	3 a.m.	6.62	830			
9	4.73	157	6	7.06	1,060	4 a.m.	5.22	273
12 m.	5.10	245	9	7.22	1,150	8	4.59	126
3 p.m.	5.52	372	10:30	7.25	1,170	12 m.	4.30	77
5	6.12	588	11	6.98	1,010	6 p.m.	4.14	56
7 p.m.	6.42	730	1 p.m.	6.45	745	12 p.m.	3.98	38

63. CANADIAN RIVER NEAR TAYLOR SPRINGS, N. MEX.

Location. Lat 36°17'20", long 104°29'10", in NW¼ sec. 27, T. 24 N., R. 23 E., on left bank 1 mile upstream from Chico Creek, 2½ miles downstream from Cimarron Creek, and 2½ miles south of Taylor Springs.

Drainage area. 2,853 sq mi.

Gage-height record. Water-stage recorder graph except May 1–8. Altitude of gage is 5,600 ft (from topographic map).

Discharge record. Stage-discharge relation defined by current-meter measurements below 10,000 cfs and by slope-area measurements at 21,700 and 37,400 cfs. Discharge for May 1–8 estimated on basis of records for stations upstream and downstream.

Maxima. May 1955: Discharge, 24,500 cfs 5 p.m. May 19 (gage height, 18.68 ft).

1940 to April 1955: Discharge, 37,400 cfs Apr. 23, 1942 (gage height, 24.17 ft).

Maximum known flood occurred Sept. 29, 1904.

Remarks. Flood flow not appreciably affected by storage or diversions.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	100	8	2	14	2	20	10,200	26	370
2	40	9	3	15	0	21	2,710	27	290
3	25	10	16	16	0	22	2,080	28	234
4	15	11	32	17	0	23	874	29	186
5	10	12	9	18	8,910	24	892	30	151
6	6	13	5	19	18,200	25	550	31	118
7	4								

Monthly mean discharge, in cubic feet per second	1,485
Runoff, in acre-feet	91,310
Runoff, in inches	0.60

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 19*—Continued			*May 20*—Continued		
12 p.m.	0.63	3	8 a.m.	14.00	14,500	12 p.m.	7.50	3,780
May 18			9	13.70	13,900	*May 21*		
12:30 p.m.	.68	4	10	14.00	14,500	1 a.m.	7.90	4,210
1	4.80	1,560	11	14.32	15,200	2	8.03	4,370
2	4.00	970	12 m.	14.75	16,100	3	7.98	4,310
3	3.32	590	1 p.m.	15.70	18,000	4	8.22	4,590
4	4.55	1,350	2	17.00	20,800	5	7.95	4,270
5	5.00	1,660	3	17.90	22,800	6	7.63	3,910
6	6.00	2,450	4	18.10	23,300	8	6.95	3,260
7	6.45	2,820	5	18.68	24,500	10	6.44	2,810
8	8.80	5,340	6	18.60	24,400	12 m.	6.00	2,450
9	10.10	7,200	7	18.40	23,900	2 p.m.	5.54	2,080
10	10.65	8,120	8	17.50	21,900	4	5.30	1,890
11	10.80	8,380	9	16.65	20,100	6	5.04	1,690
12 m.	11.30	9,280	10	16.10	18,900	8	4.80	1,520
1 p.m.	12.40	11,400	11	15.85	18,400	10	4.62	1,390
2	13.35	13,200	*May 20*			12 p.m.	4.48	1,300
3	13.50	13,500	2 a.m.	16.60	20,000			
4	13.80	14,100	4	17.40	21,700	*May 22*		
5	14.80	16,200	5	17.20	21,300			
6	15.07	16,700	6	16.30	19,300	3 a.m.	4.34	1,200
7	15.10	16,700	7	15.00	16,600	4	7.66	3,950
8	14.72	15,900	8	13.60	13,700	5	7.90	4,210
9	14.25	14,900	9	12.20	11,000	6	7.60	3,880
10	13.50	13,400	10	11.30	9,280	8	6.52	2,880
11	13.00	12,400	11	10.60	8,040	10	5.88	2,350
12 p.m.	12.87	12,200	12 m.	9.90	6,890	12 m.	5.37	1,950
May 19			1 p.m.	9.50	6,290	2 p.m.	4.95	1,620
			2	9.20	5,870	3	5.00	1,660
			3	8.70	5,210	4	5.55	2,090
1 a.m.	13.60	13,700	4	8.30	4,690	5	5.55	2,090
2	14.50	15,500	6	7.50	3,780	6	5.05	1,700
4	14.70	16,000	8	7.00	3,310	7	4.70	1,450
6	14.85	16,300	10	6.75	3,080	9	4.55	1,340
7 a.m.	14.62	15,800	11 p.m.	7.00	3,310	12 p.m.	4.28	1,160

64. CANADIAN RIVER TRIBUTARY NEAR MILLS, N. MEX.

[Miscellaneous site]

Location. Lat 36°12'30", long 104°15'30", in NE¼ sec. 3, T. 22 N., R. 25 E., at culvert on State Route 39, 6 miles north of Mills, N. Mex.

Drainage area. 4.21 sq mi.

Maximum. May 1955: Discharge, 190 cfs May 18, by slope-area measurement.

65. CANADIAN RIVER NEAR ROY, N. MEX.

Location. Lat 35°55'10", long 104°21'10", in E½ sec. 35, T. 20 N., R. 24 E., on right bank 1,080 ft upstream from bridge on State Route 120 and 9 miles west of Roy.

Drainage area. 4,066 sq mi, of which 107 sq mi is probably noncontributing.

Gage-height record. Water-stage recorder graph except May 1–5, 23, 24, 28–31. Datum of gage is 4,893.55 ft above mean sea level (levels by Corps of Engineers).

Discharge record. Stage-discharge relation defined by current-meter measurements. Discharge for periods of no gage-height record estimated on basis of recession curves and records for stations upstream and downstream.

Maxima. May 1955: Discharge, 41,000 cfs 6:20 a.m. May 19 (gage height, 14.60 ft).

1936 to April 1955: Discharge, 63,800 cfs Apr. 23, 1942 (gage height, 14.22 ft, at site 1,080 ft downstream, at datum 0.61 ft lower).

Flood of Sept. 29 or 30, 1904, may have exceeded flood of 1942.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	330	8	8	14	20	20	16,200	26	445
2	150	9	7	15	12	21	3,640	27	303
3	85	10	8	16	7	22	2,300	28	250
4	45	11	54	17	5	23	1,200	29	200
5	30	12	80	18	14,600	24	900	30	170
6	16	13	36	19	30,600	25	680	31	140
7	11								

Monthly mean discharge, in cubic feet per second	2,340
Runoff, in acre-feet	143,900

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 18			*May 19—Continued*			*May 20—Continued*		
6 a.m.	0.48	4	2 a.m.	12.79	30,200	6 a.m.	11.43	23,200
7	1.99	380	3	12.36	27,900	8	11.88	25,400
8	1.59	236	4	12.76	30,100	9	11.88	25,400
9	1.24	140	5	14.21	38,500	10	11.60	24,000
10	1.14	120	6:20	14.60	41,000	12 m.	10.38	18,400
11	3.00	1,010	8	14.15	38,200	2 p.m.	8.94	12,900
12 m.	4.14	2,120	10	13.19	32,500	4	7.94	9,790
1 p.m.	8.25	10,700	12 m.	11.90	25,500	6	7.20	7,760
2	10.10	17,300	1 p.m.	11.30	22,600	8	6.68	6,480
3	10.70	19,800	2	11.20	22,100	10	6.20	5,420
4	11.40	23,100	3	11.32	22,700	12 p.m.	5.85	4,720
5	12.60	29,200	5	11.82	25,100			
6	13.60	34,800	7	12.75	30,000	*May 21*		
7	14.10	37,900	9	13.10	32,000			
8	14.30	39,100	11	12.89	30,800	3 a.m.	5.34	3,800
9	14.45	40,000	12 p.m.	12.59	29,100	5:30	5.16	3,510
10	14.25	38,800				9	5.77	4,560
11	14.05	37,600	*May 20*			11	5.82	4,660
12 p.m.	13.85	36,300				1 p.m.	5.56	4,180
			1 a.m.	11.88	25,400	4	5.12	3,440
May 19			2	11.50	23,600	7	4.72	2,860
			3	11.16	21,900	10	4.38	2,410
1 a.m.	13.44	33,900	4 a.m.	11.03	21,300	12 p.m.	4.18	2,170

66. MORA RIVER NEAR SHOEMAKER, N. MEX.

Location. Lat 35°48', long 104°47', in Mora Grant, 4½ miles east of Shoemaker, Mora County, and 23 miles upstream from mouth.

Drainage area. 1,104 sq mi, of which 71 sq mi is probably noncontributing.

Gage-height record. Water-stage recorder graph. Altitude of gage is 6,170 ft (from topographic map).

Discharge record. Stage-discharge relation defined by current-meter measurements.

Maxima. May 1955: Discharge, 205 cfs 1 a.m. May 20 (gage height, 2.18 ft).

1914 to April 1955: Discharge, 15,200 cfs June 3, 1948 (gage height, 12.79 ft), from rating curve extended above 2,800 cfs by slope-area measurements at 9,100 and 15,200 cfs.

Floods of Sept. 29, 1904, and June 11, 1913, probably exceeded 30,000 cfs.

Remarks. Flood flow not appreciably affected by diversions.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	1.6	8	0.2	14	0.2	20	121	26	98
2	.6	9	.2	15	.1	21	39	27	69
3	.5	10	.3	16	.1	22	31	28	42
4	.4	11	.4	17	.1	23	58	29	26
5	.3	12	.3	18	3.3	24	83	30	18
6	.2	13	.3	19	32	25	101	31	9.8
7	.2								

Monthly mean discharge, in cubic feet per second	23.8
Runoff, in acre-feet	1,460

67. CANADIAN RIVER NEAR SANCHEZ, N. MEX.

Location. Lat 35°39'15", long 104°22'30", in S½ sec. 34, T. 17 N., R. 24 E., at downstream end of bridge pier on State Route 65, 1 mile upstream from Lagartija Creek, 3 miles northeast of Sanchez, 10 miles downstream from Mora River, and 24 miles southwest of Mosquero.

Drainage area. 6,015 sq mi, of which 303 sq mi is probably noncontributing.

Gage-height record. Water-stage recorder graph except May 9–11 and 9:15 p.m. May 18 to 12 m. May 19. Graph based on record for station near Roy used during latter period. Altitude of gage is 4,500 ft (from topographic map).

Discharge record. Stage-discharge relation defined by current-meter measurements.

Maxima. May 1955: Discharge, 41,200 cfs 10:30 a.m. May 19 (gage height, 12.45 ft).

1912–14, 1935 to April 1955: Discharge, 87,800 cfs Sept. 2, 1942 (gage height, 19.3 ft, from floodmarks), from rating curve extended above 48,000 cfs by slope-area measurement at 88,000 cfs.

Maximum flood known occurred Sept. 29 or 30, 1904.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	841	8	14	14	48	20	21,600	26	736
2	240	9	13	15	31	21	5,050	27	575
3	108	10	12	16	19	22	2,420	28	461
4	63	11	13	17	12	23	1,900	29	362
5	41	12	21	18	9,140	24	975	30	297
6	27	13	75	19	33,500	25	996	31	250
7	19								

Monthly mean discharge, in cubic feet per second	2,576
Runoff, in acre-feet	158,400

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 19—Continued*			*May 20—Continued*		
12 p.m.	0.77	12	2 p.m.	11.20	33,500	10 p.m.	6.30	10,300
May 18			3	10.80	31,200	11	6.10	9,620
			4	10.40	29,000	12 p.m.	5.90	8,940
			5	10.10	27,400			
10 a.m.	.76	11	6	9.95	26,600	*May 21*		
12 m.	.87	21	7	9.90	26,400			
1 p.m.	.88	22	8	9.95	26,700	1 a.m.	5.70	8,260
2	1.00	38	9	10.10	27,600	2	5.50	7,630
3	1.14	63	10	10.20	28,200	3	5.30	7,040
4	6.90	10,900	11	10.40	29,400	4	5.10	6,460
5	7.30	12,500	12 p.m.	10.50	30,000	5	4.80	5,680
6	9.00	20,500	*May 20*			6	4.70	5,400
7	9.90	25,200				7	4.60	5,100
8	10.55	28,700	1 a.m.	10.60	30,700	8	4.50	4,830
9	11.00	31,300	2	10.55	30,400	9	4.40	4,570
10	11.60	35,000	3	10.40	29,600	10	4.20	4,110
11	11.80	36,400	5	9.90	27,000	11	4.20	4,070
12 p.m.	11.95	37,300	7	9.40	24,600	12 m.	4.30	4,230
May 19			8	9.20	23,600	1 p.m.	4.40	4,400
			10	9.40	24,400	2	4.60	4,790
			12 m.	9.52	24,700	3	4.60	4,790
2 a.m.	12.40	40,300	1 p.m.	9.40	24,000	4	4.70	5,030
4	12.00	37,900	2	9.30	23,400	5	4.60	4,830
6	11.00	31,900	3	9.00	21,800	6	4.50	4,630
7	10.9	31,300	4	8.70	20,300	7	4.40	4,450
8	11.1	32,600	5	8.20	17,900	8	4.20	4,030
9	12.1	38,800	6	7.60	15,300	9	4.10	3,850
10:30	12.45	41,200	7	7.20	13,700	10	4.00	3,680
12 m.	12.30	40,300	8	6.90	12,600	11	3.80	3,320
1 p.m.	11.80	37,100	9 p.m.	6.60	11,400	12 p.m.	3.80	3,320

68. CONCHAS RIVER AT VARIADERO, N. MEX.

Location. Lat 35°24'10", long 104°26'35", in NE¼NE¼ sec. 36, T. 14 N., R. 23 E., on left bank 1.5 miles northeast of Variadero and 15 miles west of Conchas Dam.

Drainage area. 523 sq mi, of which 130 sq mi is probably noncontributing.

Gage-height record. Water-stage recorder graph except May 24, 25. Altitude of gage is 4,430 ft (from topographic map).

Discharge record. Stage-discharge relation defined by current-meter measurements below 370 cfs and by slope-area measurements at 8,800 and 44,000 cfs.

Maxima. May 1955: Discharge, 1,620 cfs 4 p.m. May 18 (gage height, 4.60 ft). 1936 to April 1955: Discharge, 44,000 cfs Sept. 1, 1942 (gage height, 19.96 ft), by slope-area measurement.

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	0	8	0	14	0	20	53	26	1.8
2	0	9	0	15	0	21	21	27	1.0
3	0	10	.2	16	0	22	39	28	.6
4	0	11	.1	17	0	23	61	29	.4
5	0	12	0	18	300	24	8	30	4.7
6	0	13	0	19	404	25	3	31	.7
7	0								

Monthly mean discharge, in cubic feet per second	29.0
Runoff, in acre-feet	1,780

69. CONCHAS RESERVOIR NEAR CONCHAS DAM, N. MEX.

Location. Lat 35°24'10", long 104°11'25", in Pablo Montoya Grant, in stilling well within concrete part of Conchas Dam on Canadian River, 1¾ miles northwest of town of Conchas Dam, and about 24 miles north of Newkirk.

Drainage area. 7,409 sq mi, of which 433 sq mi is probably noncontributing.

Gage-height record. Water-stage recorder graph. Datum of gage is at mean sea level, datum of 1929.

Contents records. Furnished by Corps of Engineers.

Maxima. May 1955: Contents, 259,200 acre-ft May 30, 31 (elevation, 4,187.80 ft).

1938 to April 1955: Contents, 479,600 acre-ft Apr. 24, 1942 (elevation, 4,208.41 ft).

Remarks. Reservoir stored all inflow during flood period; controlled release started May 24. Reservoir is formed by dam consisting of concrete main section and earth-fill wings, completed Sept. 15, 1939; storage began Dec. 29, 1938. Capacity, 370,200 acre-ft between elevations 4,073.5 and 4,201.0 ft (crest of 300-ft ungated service spillway); dead storage 90,800 acre-ft at elevation 4,155 ft. Capacity of 196,000 acre-ft between elevations 4,201.0 and 4,218.0 ft (crest of 3,000 ft ungated emergency spillway) acts as detention storage in the control of floods. Figures given represent total contents.

Elevation, in feet, and contents, in acre-feet, May 1955

Day	Elevation	Contents	Day	Elevation	Contents
1	4,165.75	131,900	17	4,163.50	122,300
2	4,165.71	131,700	18	4,164.30	125,600
3	4,165.60	131,200	19	4,178.00	194,900
4	4,165.44	130,500	20	4,184.40	235,200
5	4,165.26	129,800	21	4,185.91	245,600
6	4,165.10	129,100	22	4,186.60	250,500
7	4,164.90	128,200	23	4,187.12	254,200
8	4,164.78	127,700	24	4,187.25	255,200
9	4,164.64	127,100	25	4,187.42	256,400
10	4,164.50	126,500	26	4,187.59	257,600
11	4,164.40	126,100	27	4,187.67	258,200
12	4,164.31	125,700	28	4,187.72	258,600
13	4,164.10	124,800	29	4,187.79	259,100
14	4,163.94	124,100	30	4,187.80	259,200
15	4,163.80	123,500	31	4,187.80	259,200
16	4,163.64	122,900			

Elevation, in feet, and contents, in acre-feet, at indicated times, 1955

Hour	Elevation	Contents	Hour	Elevation	Contents
May 18			*May 19*—Con.		
12 p.m.	4,164.30	125,600	12 p.m.	4,178.00	194,900
May 19			*May 20*		
1 a.m.	4,164.70	127,300	1 a.m.	4,178.40	197,300
5	4,167.50	139,800	4	4,179.50	203,900
6	4,168.90	146,400	5	4,180.05	207,200
7	4,169.60	149,800	6	4,180.40	209,400
8	4,169.95	151,500	8	4,180.80	211,800
12 m.	4,172.40	163,900	10	4,181.55	216,600
2 p.m.	4,173.90	171,800	11	4,181.74	217,800
3	4,174.60	175,600	12 m.	4,182.00	219,400
4	4,174.84	176,900	4 p.m.	4,183.00	225,900
5	4,175.60	181,100	5	4,183.30	227,900
6	4,176.10	183,900	6	4,183.50	229,200
7	4,176.50	186,200	7	4,183.70	230,500
8	4,176.80	187,900	8	4,183.90	231,900
9	4,177.20	190,200	9	4,184.05	232,900
10 p.m.	4,177.50	192,000	12 p.m.	4,184.40	235,200

70. CARRIZO CREEK NEAR ROY, N. MEX.

[Miscellaneous site]

Location. Lat 36°03′, long 103°58′, in NW¼SE¼ sec. 16, T. 21 N., R. 28 E., 800 ft downstream from culvert on State Route 120 and 12 miles northeast of Roy.

Drainage area. 67.5 sq mi.

Maximum. May 1955: Discharge, 586 cfs May 18, by slope-area measurement.

71. UTE CREEK NEAR LOGAN, N. MEX.

Location. Lat 35°24′, long 103°30′, in NE¼ sec. 35, T. 14 N., R. 32 E., on right bank a quarter of a mile downstream from Logan-Trigg Ranch road crossing, 5½ miles upstream from mouth, and 6 miles northwest of Logan.

Drainage area. 2,073 sq mi, of which 617 sq mi is probably noncontributing.

Gage-height record. Water-stage recorder graph except May 1–5, 25, 26, 29–31. Datum of gage is 3,758.50 ft above mean sea level, datum of 1929.

Discharge record. Stage-discharge relation defined by current-meter measurements below 7,700 cfs and by slope-area measurements at 9,700 and 18,000 cfs. Discharge for May 1–5, 25, 26, 29–31 estimated on basis of available recorder trace, weather records and records for Canadian River at Logan.

Maxima. May 1955: Discharge, 21,500 cfs 1:15 a.m. May 19 (gage height, 7.85 ft).

1942 to April 1955: Discharge, 24,500 cfs May 28, 1946, July 12, 1951 (gage height, 8.4 ft), from rating curve extended as described above.

Flood of May 1, 1914 reached a stage of 22.95 ft, at site about 1¾ miles downstream at different datum. Another major flood reached a stage of 16.0 ft sometime in 1941, from information furnished by Bureau of Reclamation (discharge, about 70,000 cfs).

Mean discharge, in cubic feet per second, May 1955

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	2	8	0	14	63	20	1,010	26	12
2	0	9	0	15	5	21	272	27	5
3	0	10	0	16	0	22	92	28	1
4	0	11	0	17	0	23	53	29	1
5	0	12	0	18	3,640	24	27	30	0
6	0	13	0	19	5,670	25	20	31	0
7	0								

Monthly mean discharge, in cubic feet per second	351
Runoff, in acre-feet	21,570

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1955

Hour	Gage height	Discharge	Hour	Gage height	Discharge	Hour	Gage height	Discharge
May 17			*May 18*—Continued			*May 19*—Continued		
12 p.m.	0.34	0	5:30 p.m.	5.60	10,400	11 a.m.	3.40	3,160
May 18			6:30	4.60	6,590	3 p.m.	2.73	1,750
			8	6.40	14,000	7	2.33	1,180
			9	5.75	11,100	10	2.84	2,160
6 a.m.	.42	1	11	4.85	7,480	12 p.m.	2.80	2,080
7	1.00	68	12 p.m.	4.90	7,670	*May 20*		
8	.88	39	*May 19*					
9	1.10	102				1 a.m.	2.62	1,730
10	.94	53				2	2.72	1,920
12 m.	.82	29	1:15 a.m.	7.85	21,500	6	2.35	1,310
1 p.m.	.93	50	2	7.30	18,000	12 m.	1.98	904
2	1.60	265	3	6.90	16,000	6 p.m.	1.70	585
3	2.25	890	4	6.20	12,800	12 p.m.	1.52	403
4	5.45	9,820	6	5.00	8,040			
4:30 p.m.	6.40	14,000	8 a.m.	4.15	5,260			

72. CIENEGUILLA CREEK NEAR SENECA, N. MEX.

[Miscellaneous site]

Location. Lat 36°34'50", long 103°17', in S½ sec. 14, T. 27 N., R. 34 E., half a mile upstream from State Route 370 and 9½ miles southwest of Seneca.

Drainage area. 110 sq mi.

Maximum. May 1955: Discharge, 1,600 cfs May 18, by slope-area measurement.

SUMMARY OF FLOOD STAGES AND DISCHARGES

Table 2 summarizes the maximum stages and discharges for the May 1955 flood; the maximum for the operating period of the gaging station prior to May 1955; and the maximum, if known, outside of the period of record. Mountain standard time is used throughout the summary. Station numbers correspond to those on plate 1, and aid in locating the points of observation. Figure 8 shows the relation of the peak discharge, expressed in cubic feet per second per square mile, to the size of the drainage basin.

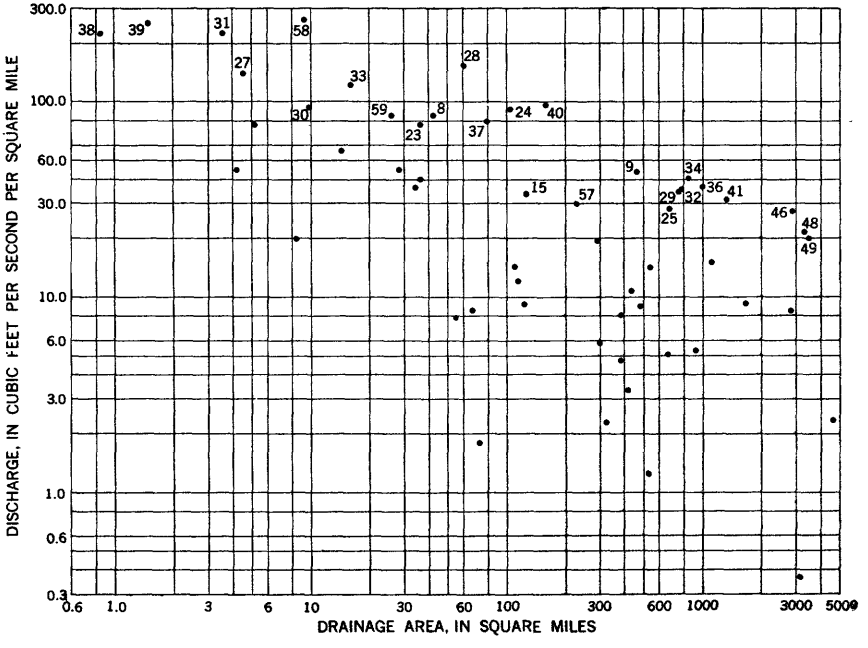

FIGURE 8.—Relation of unit discharge to size of drainage basin. Numbers refer to stations shown on plate 1 and table 2.

TABLE 2.—*Summary of flood stages and discharges*

No.	Stream and place of determination	Drainage area (sq mi)	Period of record	Maximum flood previously known				Maximum during May 1955 flood			
				Date	Gage height (feet)	Discharge		Date and hour	Gage height (feet)	Discharge	
						Cfs	Cfs per sq mi			Cfs	Cfs per sq mi
	COLORADO										
1	Grape Creek near Westcliffe	320	1924–55	Apr. 23, 1942	5.26	1,960	6.12	May 20, 8 p.m.	2.98	735	2.30
2	Arkansas River at Canon City	3,117	1888–1955	Aug. 2, 1921	[1] [2] 10.7	19,000	6.10	May 18, 4 p.m.	2.13	1,140	0.37
3	Oil Creek near Canon City	432	1948–53	July 11, 1951	[1] 9.25	4,260	9.86	May 19	[1] 5.80	1,440	3.33
				July 4, 1944		[3] 20,600					
4	Arkansas River near Pueblo	4,686	1885–87, 1889, 1894–1955.	June 3, 1921	[2] 24.66	103,000	22.0	May 19, 5:15 p.m.	7.18	[4] 11,100	2.37
5	Templeton Gap Floodway at Colorado Springs.	8.46	1951–55	Aug. 15, 1953	2.26	261	30.9	May 18, 3 p.m.	2.05	168	19.9
6	Fountain Creek near Fountain	676	1938–54	May 28, 1940	9.19	22,100	32.7	May 18	[1] 6.35	3,480	5.15
				May 30, 1935	[5] 14.4						
7	Fountain Creek at Pueblo	926	1922–25, 1940–55.	July 10, 1945	9.50	17,800	19.2	May 18, 7 a.m.	5.53	4,950	5.35
				May 30, 1935		35,000	37.8				
8	Muddy Creek near Pueblo	42.5						May 19		3,650	85.9
9	St. Charles River near Pueblo	468	1941–55	July 26, 1950	9.20	17,600	37.6	May 19, 2:30 p.m.	7.53	20,600	44.0
				June 3, 1921		[5] 56,000	120				
10	Huerfano River at Manzanares Crossing, near Redwing.	73	1923–55	Aug. 2, 1951	8.14	10,200	140	May 23	2.25	132	1.81
11	Huerfano River at Badito	532	1912, 1923–25, 1938–41, 1946–54.	July 15, Aug. 1, 1923.	[3] 9.20	5,510	10.4	May 19	[1] 8.12	670	1.26
				Aug. 14, 1945		[6] 8,480					
12	Cucharas River at Boyd Ranch, near La Veta	56	1934–55	June 18, 1947	3.80	417	7.45	May 23, 3 p.m.	4.05	444	7.93
13	Huerfano River below Huerfano Valley Dam, near Undercliffe.	1,673	1938–55	July 26, 1950	[1] [7] 14.2	[7] 16,700	9.98	May 19, 2 p.m.	11.04	11,300	6.75
14	Arkansas River near Nepesta	[8] 9,345	1897–1904, 1906–12, 1913–55.	June 4, 1921		180,000	19.3	May 19, 11 p.m.	[1] 8.05	40,200	
15	Apishapa River near Aguilar	126	1939–50	July 14, 1948	7.84	4,500	35.7	May 19	[1] 7.64	4,300	34.1
16	Apishapa River near Fowler	1,125	1922–25, 1939–55.	Aug. 22, 1923		[9] 83,000	73.8	May 19, 5:30 p.m.	16.70	17,000	15.1
17	Arkansas River at La Junta	[8] 12,210	1889, 1893–95, 1903–08, 1912–55.	June 4, 1921	[10] 18.4	200,000		May 20, 1:30 p.m.	14.2	50,000	

18	Arkansas River at Las Animas	[9] 14,417	1939–55	Apr. 15, 1942	12.58	23,600		May 20, 9 p.m.	15.03	44,000		
19	Purgatoire River above Lorencito Canyon, near Weston.	381						May 19		1,790	4.70	
20	Zarcillo Canyon near Segundo	36.4						May 19		1,460	40.1	
21	Purgatoire River at diversion dam, at Valdez.	485						May 19		4,400	9.07	
22	Burro Canyon at Madrid	28.3		July 22, 1925		23,600	834	May 19		1,280	45.2	
23	Reilly Canyon at Cokedale	36.7						May 19		2,800	76.3	
24	Long Canyon near Sopris	104						May 19		9,650	92.8	
25	Purgatoire River at Lopez diversion dam	691						May 19		19,800	28.7	
26	Raton Creek at upper U.S. Highway 85, 87 crossing.	5.27						May 19		402	76.3	
27	Joe Creek near Morley	4.54						May 19		642	141	
28	Raton Creek at Starkville	60.5		Apr. 23, 1942		[11] 5,580		May 19		9,400	155	
29	Purgatoire River at Jansen	766						May 19		26,400	34.5	
30	Colorado Canyon near Jansen	9.88		July or Aug. 1954.		3,100	314	May 19		940	95.1	
31	Grasmack Arroyo near Trindad	3.6						May 19		820	228	
32	Purgatoire River at Trinidad	795	1895–99, 1905–12, 1915–55.	Apr. 23, 1942 Sept. 30, 1904	13.85 [1] 13.6	27,000 [12] 45,400	34.0 57.1	May 19, 8:20 a.m.	14.35	28,000	35.2	
33	Gray Creek near Trinidad	16.0						May 19, 10 a.m.		1,960	122	
34	Purgatoire River near Hoehne	857	1954–55	July 22, 1954 Sept. 30, 1904	7.34	5,920 ([12])	6.91	May 19, 9:20 a.m.	13.97	35,000	40.8	
35	Chicosa Creek near Hoehne	123						May 19		1,140	9.27	
36	Purgatoire River at U.S. Highway 350 bridge.	1,015						May 19		37,900	37.3	
37	Frijole Creek near Alfalfa	80	1954–55	July 22, 1954	17.23	13,500	169	May 19	13.3	6,400	80.0	
38	Draw no. 1 at U.S. Highway 160, near Trinidad.	.84	1954–55	July 22, 1954		447	532	May 19		187	223	
39	Draw no. 2 at U.S. Highway 160, near Trinidad.	1.49	1954–55	July 22, 1954		1,130	758	May 19		375	252	
40	San Francisco Creek near Alfalfa	160	1954–55	July 22, 1954	[1] 14.40	26,300	164	May 19, 9 a.m.	13.00	15,500	96.9	
41	Purgatoire River near Alfalfa	1,320	1905–7, 1924–28 1951–55	July 22, 1954	[1] 27.60	37,800	28.6	May 19	[1] 28.9	41,900	31.7	
42	Trinchera Creek near Trinchera	129	1954–55	July 22, 1954		25,100	195	May 19	([13])			
43	Alkali Arroyo near Trinchera	34.5	1954–55	July 22, 1954		15,500	449	May 19		1,260	36.5	
44	Purgatoire River at canyon crossing	1,935	1954–55	July 22, 1954	[1] 29.2			May 19	[1] 27.7			
45	Chacuaco Creek near La Junta	387						May 19		3,170	8.19	
46	Purgatoire River at Ninemile Dam, near Higbee.	2,900	1924–55	Sept. 15, 1934 July 23, 1954.	14.3	45,000	15.5	May 19, 10 p.m.	17.7	80,000	27.6	
47	Smith Canyon near Ninaview	291						May 19		5,660	19.5	
48	Purgatoire River at Highland Dam, near Las Animas.	3,376	1931–55	Apr. 24, 1942	16.8	60,000	17.8	May 20, 3 a.m.	[1] 19.30	73,400	21.7	
49	Purgatoire River near Las Animas	3,503	1889, 1922–31, 1948–55.	July 21, 1927 Oct. 1, 1904	[10] 8.80	49,000 ([5])	14.0	May 20, 7 a.m.	15.0	70,000	20.0	
50	Rule Creek near Caddoa	435	1941–46	June 28, 1943 [14] June 1949	11.30 [1] 20.05	1,720 11,600	3.95 26.7	May 19	[1] 17.15	4,680	10.8	
51	John Martin Reservoir at Caddoa		1943–55	July 3, 1948	3,835.70	[15] 244,700		May 31, 12 p.m.	3,837.88	[15] 244,300		

See footnotes at end of table.

TABLE 2.—*Summary of flood stages and discharges*—Continued

No.	Stream and place of determination	Drainage area (sq mi)	Period of record	Maximum flood previously known				Maximum during May 1955 flood			
				Date	Gage height (feet)	Discharge		Date and hour	Gage height (feet)	Discharge	
						Cfs	Cfs per sq mi			Cfs	Cfs per sq mi
52	Arkansas River below John Martin Reservoir.	18,917	1938–55	Apr. 24, 1942	[2] 10.46	[16] 40,000		May 24, 10 a.m.	2.31	[16] 630	
53	Arkansas River at Lamar	[8] 19,780	1913–55	June 5, 1921		130,000		May 20, 3 a.m.	3.77	[16] 2,030	
54	Wolf Creek near Granada	116						May 20		1,420	12.2
	KANSAS										
55	Arkansas River near Coolidge	[8] 25,410	1903, 1950–55	May 15, 1951	10.67	[16] 60,000		May 20, 1 a.m.	8.08	[16] 13,200	
	NEW MEXICO										
56	Cimarron River near Guy	545	1942–55	Oct. 5, 1954	20.50	8,500	15.6	May 19, 1 p.m.	19.1	7,660	14.1
57	Canadian River near Hebron	229	1946–55	Aug. 16, 1953		5,250	22.9	May 19, 6 p.m.	10.40	6,860	30.0
				Aug. 24, 1951	[17] 11.6						
				1942	26						
58	Chicorica Creek above Lake Maloya, near Sugarite.	9.3						May 18		2,450	263
59	Chicorica Creek below Lake Maloya	26	1945–51	Aug. 7, 1948	3.25			May 18	[1] 7.8	2,230	85.8
60	Raton Creek at Raton	14.4						May 18		817	56.7
61	Vermejo River near Dawson	301	1927–55	Aug. 6, 1940	[2] 11.88	9,000	29.9	May 19, 8:30 p.m.	6.62	1,770	5.88
				Aug. 2, 1921		[18]					
62	Cimarron Creek at Springer	1,032	1930–55	Apr. 23, 1942	[1] 10.11	[16] 5,000		May 19, 10:30 a.m.	7.25	[16] 1,170	
				Sept. 29, 1904	[5] [17] 22	[18]					
				June 11, 1913		[18]					
63	Canadian River near Taylor Springs	2,853	1940–55	Apr. 23, 1942	24.17	37,400	13.1	May 19, 5 p.m.	18.68	24,500	8.59
				Sept. 29, 1904		[5]					
64	Canadian River tributary near Mills	4.21						May 18		190	45.1
65	Canadian River near Roy	[8] 4,066	1936–55	Apr. 23, 1942	[2] 14.22	63,800		May 19, 6:20 a.m.	14.60	41,000	
				Sept. 29 or 30, 1904.		[19]					
66	Mora River near Shoemaker	[8] 1,104	1914–55	June 3, 1948	12.79	15,200		May 20, 1 a.m.	2.18	205	
				Sept. 29, 1904, June 11, 1913		[20]					
67	Canadian River near Sanchez	[8] 6,015	1912–14, 1935–55.	Sept. 2, 1942	[1] 19.3	87,800		May 19, 10:30 a.m.	12.45	41,200	
				Sept. 29 or 30, 1904.		[5]					

68	Conchas River at Variadero	[5] 523	1936–55	Sept. 1, 1942	19.96	44,000		May 18, 4 p.m.	4.60	1,620	
69	Conchas Reservoir near Conchas Dam	[8] 7,409	1938–55	Apr. 24, 1942	4,208.41	[15] 479,600		May 30, 31	4,187.80	[15] 259,200	
70	Carrizo Creek near Roy	67.5						May 18		586	8.68
71	Ute Creek near Logan	[8] 2,073	1942–55	May 28, 1946, July 12, 1951.	8.4	24,500		May 19, 1:15 a.m.	7.85	21,500	
				May 1, 1914	[2] 22.95						
				1941	16.0	70,000					
72	Cieneguilla Creek near Seneca	110						May 18		1,600	14.5

[1] From floodmarks.
[2] Site and datum then in use; see station description.
[3] On Wilson Creek at mouth, at point 5 miles upstream from station; drainage area, 68 sq. mi.
[4] Does not include flow diverted to north-side waterworks.
[5] Maximum known.
[6] At site near Badito, 0.6 mile upstream; drainage area, 499 sq. mi.
[7] Maximum known since at least 1900.
[8] Part of drainage area noncontributing; see station description.
[9] Caused by failure of Apishapa Dam, about 31 miles upstream.
[10] Datum then in use.
[11] At site 2 miles downstream.
[12] Maximum known since at least 1859.
[13] Stage 8 ft lower than flood of July 22, 1954 (discharge not determined).
[14] About June 5, 1949.
[15] Contents in acre-ft.
[16] Affected by regulation; see station description.
[17] Affected by backwater; see station description.
[18] Probably exceeded 10,000 cfs.
[19] May have exceeded that of April 23, 1942.
[20] Probably exceeded 30,000 cfs.

FLOOD-CREST STAGES

Flood-crest elevations along the Arkansas River (table 3) and the Purgatoire River (table 4) in the area flooded during May 1955 were obtained by the Corps of Engineers, and the Colorado State Highway Department.

These records are of special interest with respect to the limitation of future development along the rivers. The records also furnish basic data on the velocity of flood crests and on valley or channel storage. The flood-crest elevations of May 1955 are the highest of record at some places.

The profile sites are described in enough detail so that they can be relocated with a fair degree of accuracy for comparison with crests of other floods. Other information at each site in the tables includes: the date (and the hour when known) that the crest occurred; the distance above the mouth, in river miles; and the elevation, in feet above sea level.

TABLE 3.—*Flood-crest stages, Arkansas River in Colorado, flood of May 1955*

[Based on data furnished by Corps of Engineers]

Location	Date and hour	Miles above mouth	Elevation (feet)
Left bank, 13 ft southeast of brass tablet range marker, *R1L*, between gravelled road and Missouri Pacific RR., in NE¼ sec. 33, T. 20 S., R. 64 W.	May 19	1, 279. 2	4, 608. 67
Left bank, 750 ft north and 50 ft upstream from north end of bridge on State Route 233, in SE¼ sec. 36, T. 20 S., R. 64 W., and 2.4 miles northwest of Vineland.	do	1, 276. 0	4, 575. 32
Left bank, 100 ft north and 40 ft upstream from north end of bridge on State Route 231, in SE¼ sec. 32, T. 20 S., R. 63 W., and 1.5 miles north of Vineland.	do	1, 273. 1	4, 553. 62
Left bank, 75 ft north and 100 ft upstream from north end of bridge on county road, in NW¼ sec. 1, T. 21 S., R. 63 W., and 3 miles northwest of Avondale.	do	1, 267. 7	4, 519. 57
Left bank, 300 ft northwest of bridge on State Route 18, in SW¼ sec. 4, T. 21 S., R. 62 W., and 0.4 mile north of Avondale.	do	1, 264. 4	4, 495. 70
Right bank, 30 ft north of toe of bluff, 2 miles east of Avondale, in SW¼ sec. 10, T. 21 S., R. 62 W.	do	1, 261. 4	4, 473. 08
Right bank, 100 ft south and 100 ft upstream from south end of bridge on State Route 209, in SE¼ sec. 7, T. 21 S., R. 61 W., and 1.3 miles south of Boone.	do	1, 257. 2	4, 447. 63
Right bank, at headgate to Highline Canal, in NW¼ sec. 16, T. 21 S., R. 61 W., and 2 miles southeast of Boone.	do	1, 253. 0	4, 434. 47
Right bank, at toe of Highline Canal levee, in NW¼ sec. 16, T. 21 S., R. 61 W., and 2 miles southeast of Boone.	do	1, 252. 8	4, 413. 97

TABLE 3.—*Flood-crest stages, Arkansas River in Colorado, flood of May 1955*—Con.

Location	Date and hour	Miles above mouth	Elevation (feet)
Right bank, 60 ft north of Highline Canal levee, in SE¼ sec. 26, T. 21 S., R. 61 W., and 6 miles southeast of Boone.	May 19	1, 248. 7	4, 395. 72
Right bank, 225 ft downstream from diversion dam at Oxford Farmers Co. Canal, in NW¼ sec. 31, T. 21 S., R. 60 W., and 1.5 miles west of Nepesta.	May 19, 11 p.m.	1, 245. 8	4, 386. 57
Left bank, 200 ft northwest of bridge at Nepesta, in NE¼ sec. 32, T. 21 S., R. 60 W.	May 19	1, 243. 7	4, 373. 86
Left bank, 70 ft streamward from top of river bank, in NE¼ sec. 33, T. 21 S., R. 60 W., and 1 mile east of Nepesta.	do	1, 242. 5	4, 366. 10
Right bank, 200 ft south and 150 ft upstream from south end of bridge on State Route 167, in NE¼ sec. 17, T. 22 S., R. 59 W., and at Fowler.	May 20	1, 233. 6	4, 312. 25
Right bank, 150 ft southeast of Catlin Dam, in SW¼ sec. 18, T. 22 S., R. 58 W., and 300 ft downstream from Apishapa River.	do	1, 228. 5	4, 276. 46
Right bank, 500 ft south of south end of bridge on State Route 207, in NE¼ sec. 23, T. 22 S., R. 58 W., and 1 mile north of Manzanola.	do	1, 223. 0	4, 231. 71
Left bank, 125 ft upstream from Rocky Ford Dam, in SE¼ sec. 19, T. 22 S., R. 57 W., and 2 miles east of Manzanola.	do	1, 221. 4	4, 215. 38
Right bank, at Rocky Ford Canal, in NE¼ sec. 33, T. 22 S., R. 57 W., and 4 miles northwest of Rocky Ford.	do	1, 217. 8	4, 196. 75
Right bank, 2,600 ft south and 120 ft west of south end of bridge on State Route 71, in SE¼ sec. 26, T. 22 S., R. 57 W., and 3 miles northwest of Rocky Ford.	do	1, 214. 7	4, 171. 69
Right bank, at brass tablet at east edge of gravelled road, in NE¼ sec. 36, T. 22 S., R. 57 W., and 3 miles north of Rocky Ford.	do	1, 212. 9	4, 163. 75
Right bank, 0.4 mile southwest of bridge on State Route 266, on line between secs. 8 and 9, T. 23 S., R. 56 W., and 1 mile east of Rocky Ford.	do	1, 209. 2	4, 137. 8
Right bank, 200 ft south of river bank near curve in dirt road, in SW¼ sec. 15, T. 23 S., R. 56 W., and 1.5 miles east of Rocky Ford.	do	1, 207. 7	4, 123. 51
Left bank, 350 ft west-northwest of bridge on county road, in SW¼ sec. 24, T. 23 S., R. 56 W., and 1 mile north of Swink.	do	1, 205. 0	4, 104. 29
Right bank, in SE¼ sec. 30, T. 23 S., R. 55 W., 1,300 ft northeast of ditch crossing on U.S. Highway 50, 1.2 miles southeast of Swink.	do	1, 203. 5	4, 091. 61
Right bank, on west retaining wall of approach to Anderson St. bridge in La Junta, in NE¼ sec. 3, T. 24 S., R. 55 W.	do	1, 198. 9	4, 059. 90
Left bank, 150 ft north and 50 ft upstream from bridge on State Routes 109, 194 in La Junta, in NE¼ sec. 2, T. 24 S., R. 55 W.	do	1, 198. 1	4, 055. 22

TABLE 3.—*Flood-crest stages, Arkansas River in Colorado, flood of May 1955*—Con.

Location	Date and hour	Miles above mouth	Elevation (feet)
Gaging station on downstream side near middle of East Bridge at La Junta, in NE¼ sec. 2, T. 24 S., R. 55 W.	May 20, 1:30 p.m.	1, 198. 1	4, 053. 80
Left bank, 450 ft north and 200 ft upstream from bridge on county road in SE¼ sec. 29, T. 23 S., R 54 W., and 4 miles northeast of La Junta.	May 20	1, 193. 5	4, 023. 19
Left bank, 40 ft upstream from old county-line road, 1,000 ft south of State Route 194, in SE¼ sec. 12, T. 23 S., R. 54 W., and 1.5 miles north of Hadley.	do	1, 188. 4	3, 981. 21
Left bank, 40 ft south of State Route 194, in NE¼ sec. 8, T. 23 S., R. 53 W., and 3 miles northeast of Hadley.	do	1, 185. 7	3, 967. 31
Left bank, 60 ft upstream from 6th Lane, 700 ft south of State Route 194, in NW¼ sec. 1, T. 23 S., R. 53 W., and 4 miles west of Las Animas.	do	1, 181. 5	3, 933. 16
Right bank, south side county road 0.8 mile north of Melonfield School, 3 miles west of Las Animas, and in SW¼ sec. 6, T. 23 S., R. 52 W.	do	1, 180. 2	3, 926. 74
Right bank, 500 ft south and 100 ft upstream from south end of bridge on U.S. Highway 50, in NE¼ sec. 3, T. 23 S., R. 52 W., at Las Animas.	do	1, 177. 0	3, 893. 63
Gaging station on left bank, 0.4 mile downstream from bridge on U.S. Highway 50, in SW¼ sec. 35, T. 22 S., R. 52 W., and 1.5 miles north of courthouse in Las Animas.	May 20, 9 p.m.	1, 176. 6	3, 890. 00
Left bank, 300 ft north and 500 ft upstream from A.T. & S.F. Ry. bridge, and NW¼ sec. 2, T. 23 S., R. 52 W., and 1.5 miles northeast of Las Animas.	May 20	1, 176. 0	3, 888. 64
Left bank, 200 ft north and 50 ft upstream from A.T. & S.F. Ry. bridge, in NW¼ sec. 2, T. 23 S., R. 52 W., and 1.5 miles northeast of Las Animas.	do	1, 175. 9	3, 888. 25
Left bank, 50 ft downstream from A.T. & S.F. Ry. bridge, in NE¼ sec. 2, T. 23 S., R. 52 W., and 1.6 miles northeast of Las Animas.	do	1, 175. 9	3, 887. 00
Left bank, 500 ft northeast of A.T. & S.F. Ry. bridge, in NE¼ sec. 2, T. 23 S., R. 52 W., and 1.8 miles northeast of Las Animas.	do	1, 175. 8	3, 885. 74
Left bank, in E½ sec. 1, T. 23 S., R. 52 W., 2 miles northeast of Las Animas.	do	1, 174. 3	3, 874. 13
Left bank, in SE¼ sec. 5, T. 23 S., R. 51 W., on west side of road 0.5 mile west of Fort Lyon Hospital.	do	1, 170. 6	3, 859. 43
Left bank, at toe of levee at Fort Lyon Hospital in SE¼ sec. 4, T. 23 S., R. 51 W.	do	1, 169. 5	3, 853. 45

TABLE 4.—*Flood-crest stages, Purgatoire River in Colorado, flood of May 1955*

[Based on data furnished by Corps of Engineers]

Location	Date and hour	Miles above mouth	Elevation (feet)
Left bank, above upstream face of headgate wall at Lopez diversion dam in NW¼SE¼ sec. 28, T. 33 S., R. 64 W., 0.2 mile north of Sopris.	May 19------	161. 5	6, 126. 51
Left bank, just downstream from bridge on State Route 238 at Sopris, in SW¼ sec. 27, T. 33 S., R. 64 W.	-----do-------	160. 8	6, 100. 83
Left bank, 50 ft southeast of intersection of Boulevard St. and Blackwood Ave. in Trinidad, in SW¼ sec. 13, T. 33 S., R. 64 W.	May 19, 8 a.m.	157. 5	6, 022. 84
Left bank, 100 ft southwest of intersection of Boulevard and Grave Sts. in Trinidad, in SW¼ sec. 13, T. 33 S., R. 64 W.	May 19------	157. 3	6, 008. 29
Left bank, in entrance of Maurello Fruit Co. building on University St. in Trinidad, in SE¼ sec. 13, T. 33 S., R. 64 W.	-----do-------	156. 9	6, 000. 70
Right bank, entrance to city hall basement in Trinidad, in SE¼ sec. 13, T. 33 S., R. 64 W.	-----do-------	156. 8	6, 000. 42
Left bank, on water trough 30 ft upstream from Animas St. bridge in Trinidad, in SE¼ sec. 13, T. 33 S., R. 64 W.	-----do-------	156. 8	6, 000. 24
Left bank, entrance to Cash and Carry hardware store on Nevada St. in Trinidad, in NE¼ sec. 13, T. 33 S., R. 64 W.	-----do-------	156. 7	5, 996. 66
Left bank, in A. T. & S. F. Ry. station waiting room in Trinidad, in NE¼ sec. 13, T. 33 S., R. 64 W.	May 19, 8:20 a.m.	156. 6	5, 993. 87
Right bank, upstream side of Commercial St. bridge in Trinidad, in NE¼ sec. 13, T. 33 S., R. 64 W.	May 19------	156. 5	[1] 5, 992. 4
Left bank, in front of A. T. & S. F. Ry. freight house in Trinidad, in NE¼ sec. 13, T. 33 S., R. 64 W.	-----do-------	156. 4	5, 989. 77
Upstream face of center pier of C.&S. Ry. bridge in Trinidad, in NE¼ sec. 13, T. 33 S., R. 64 W.	-----do-------	156. 3	5, 982. 77
Right bank, upstream side of Linden Ave. bridge in Trinidad, in NW¼ sec. 18, T. 33 S., R. 63 W.	-----do-------	156. 0	5, 978. 08
Left bank, C.&S. Ry. roundhouse office in Trinidad, in NE¼ sec. 18, T. 33 S., R. 63 W.	-----do-------	155. 5	5, 966. 90
Right bank, upstream face of concrete pier of bridge on county road 1 mile south of Hoehne, in SE¼ sec. 7, T. 32 S., R. 62 W.	May 19, 10 a.m.	144. 1	5, 698. 52
Left bank, upstream wingwall of bridge on U.S. Highway 350, 3 miles east of Hoehne, in NW¼ sec. 2, T. 32 S., R. 62 W.	May 19------	140. 3	5, 606. 72

[1] Furnished by Colorado State Highway Department.

Profiles of flood-crest elevations along the Arkansas River (figs. 9, 10) extend from just east of Pueblo downstream to Fort Lyon, at the head of John Martin Reservoir. The profile of the Purgatoire River shown in figure 11 extends from the Lopez diversion dam

downstream to the bridge on U.S. Highway 350 near Hoehne. Figure 12 is an enlargement of a part of the profile in figure 11 showing the reach of the Purgatoire River through Trinidad.

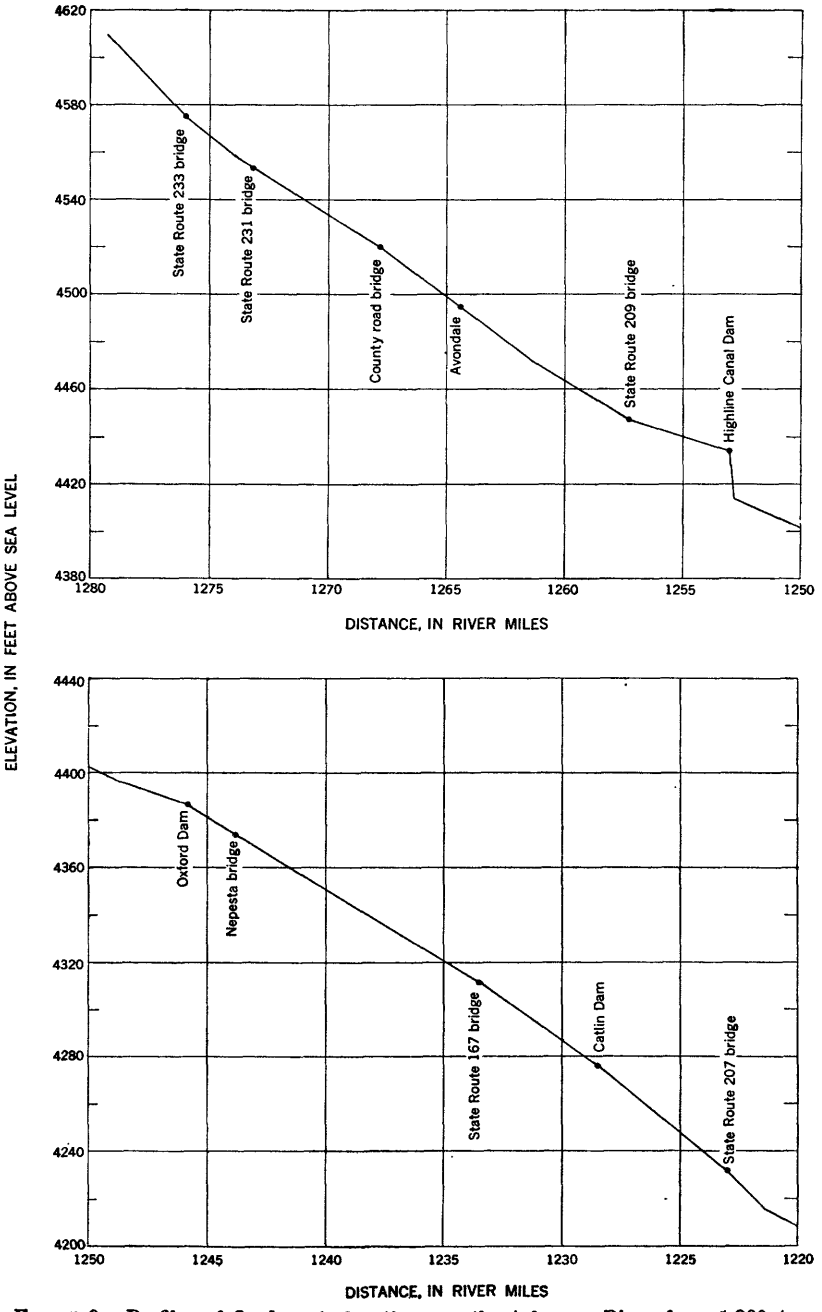

FIGURE 9.—Profiles of flood-crest elevations on the Arkansas River from 1,280 to 1,220 miles upstream from the mouth.

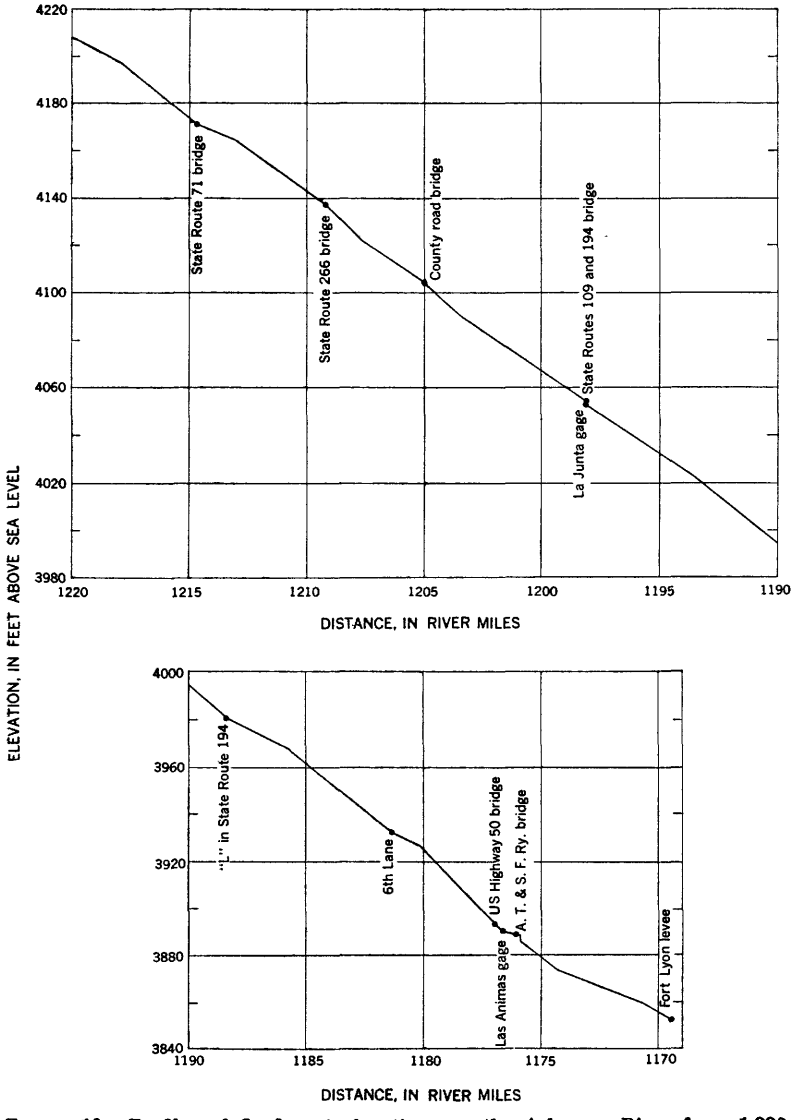

FIGURE 10.—Profiles of flood-crest elevations on the Arkansas River from 1,220 to 1,169 miles upstream from the mouth.

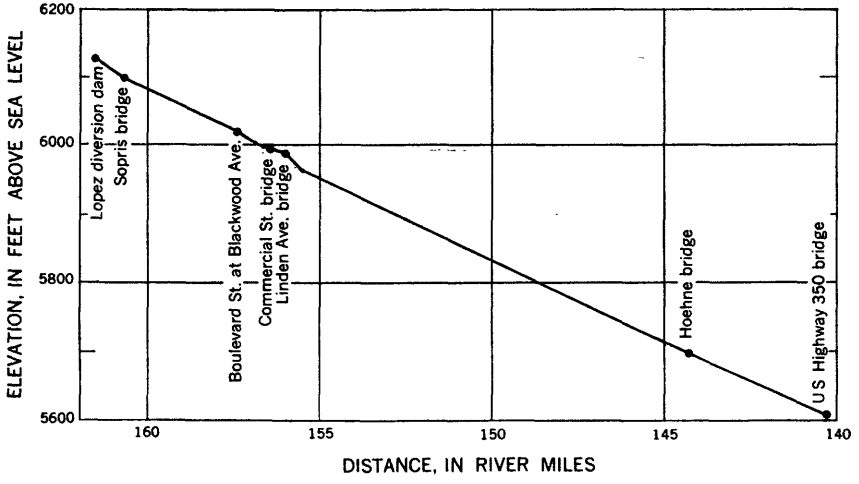

FIGURE 11.—Profile of flood-crest elevations on the Purgatoire River from 162 to 140 miles upstream from the mouth.

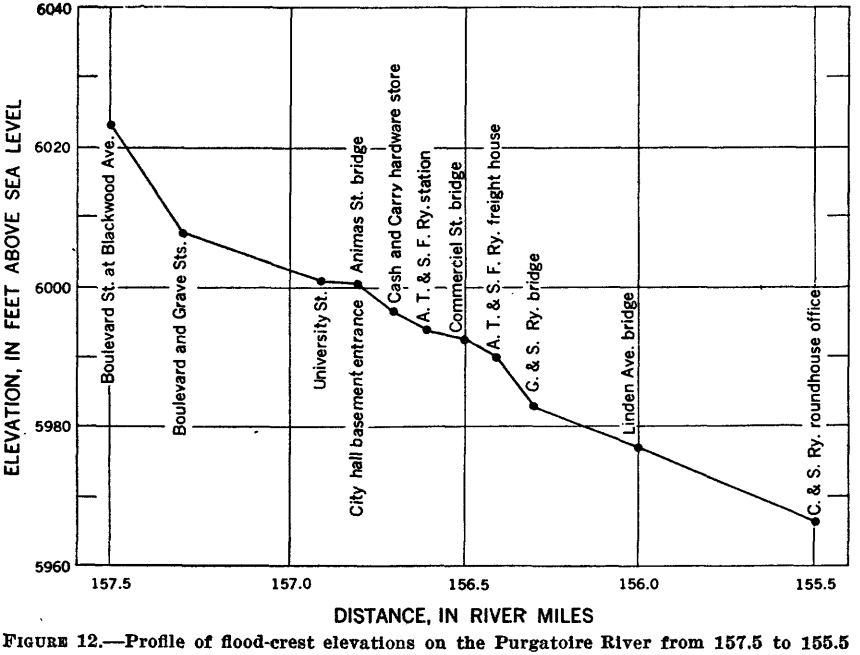

FIGURE 12.—Profile of flood-crest elevations on the Purgatoire River from 157.5 to 155.5 miles upstream from the mouth, Trinidad, Colo.

RECORDS OF PREVIOUS FLOODS

The longest continuous record of streamflow in the area covered by this report started in 1888 on the Arkansas River at Canon City, Colo. Other records which started before 1900 but were intermittent in the early years are on the Arkansas River near Pueblo, near

Nepesta, and at La Junta; and on the Purgatoire River at Trinidad. In New Mexico, streamflow records have been collected since 1903. The record for the Mora River near Shoemaker, N. Mex., started in 1914 and is the longest continuous record in the New Mexico flood area.

Historical information indicates that notable floods occurred on the Arkansas River in Colorado in 1826, probably in 1859, in June 1864, May 1867, June 1869, September 1875, June 1884, July 1886, August 1889, July 1893, and May 1894 (Follansbee and Sawyer, 1948). Little information is available concerning floods prior to 1900, on Arkansas River tributaries in New Mexico.

Geological Survey publications contain information on other floods which occurred in the area covered by this report (Murphy and others, 1905; Freeman and others, 1910; Follansbee and Jones, 1922; Dalrymple and others, 1939; Follansbee and Sawyer, 1948).

ARKANSAS RIVER ABOVE LAS ANIMAS, COLO.

The flood of June 11, 1864, was the first for which detailed information is available. According to local residents, this flood may have been nearly as high as that in June 1921 at Pueblo. Rain and rapid snowmelt in June 1884 caused a flood on the Arkansas River between the Royal Gorge and Pueblo. A cloudburst on the Grape Creek watershed below Wet Mountain Valley on August 9, 1889, caused extremely high flows in the lower reaches of Grape Creek and overflow along the Arkansas River as far east as Pueblo. In July 1893, a stage 10 feet less than that of June 1921 was reached at Pueblo.

Upstream from Pueblo the flood of May 29–31, 1894, reached a stage higher than that of June 1921 but at Las Animas the 1894 stage was 4 feet lower than that of 1921. No damaging flood occurred after 1894 until 1921. Maximum discharges of record occurred June 3 and 4, 1921, on the Arkansas River from Canon City to Lamar. The maximum discharge at Pueblo was 103,000 cfs; at La Junta, 200,000 cfs.

A flood on the Arkansas River in a short reach downstream from Oil Creek was caused by a cloudburst on July 4, 1944, on Wilson Creek, a tributary of Oil Creek. A peak discharge of 20,600 cfs or 303 cfs per square mile came from the 68-square mile drainage basin.

A severe flood, possibly the greatest known, occurred on June 10, 1864, on Fountain Creek. Lesser floods occurred on May 21, 22, 1876, in May 1878, on June 26, 1884, May 30, 1894, May 27, 1902, and July 29, 1932. The flood of June 4, 1921, produced a peak discharge of 18,000 cfs on Fountain Creek at Colorado Springs which

increased to 34,000 cfs at the mouth. On May 30, 1935, the Fountain Creek flood came mainly from the headwaters; a tributary, Monument Creek, was at the highest stage known with a discharge of about 50,000 cfs from about 75 square miles of the 238-square mile drainage basin. Fountain Creek peaked at 35,000 cfs at its mouth.

Cloudburst floods have occurred on all major Arkansas River tributaries in Colorado. Because these storms are generally localized, they result in high discharges in small areas rather than flooding a large area such as the May 1955 flood.

PURGATOIRE RIVER AND TRIBUTARIES

On the Purgatoire River at Trinidad, the flood of September 30, 1904, reached a maximum discharge of 45,400 cfs and exceeded any flood known since at least 1859. On October 20, 1908, a flood occurred on the lower part of the Purgatoire River below Smith Canyon, but the upper part was practically unaffected. The second highest flood known on the Purgatoire River prior to the May 1955 flood occurred on April 23, 1942; the discharge at Trinidad was 27,000 cfs. Floods on the Purgatoire River are discussed in detail by Follansbee and Sawyer (1948).

ARKANSAS RIVER TRIBUTARIES IN NEW MEXICO

An exceptionally large flood occurred in the Canadian River basin in September 1904, and at most sites it is the greatest flood known. The flood of June 11, 1913, on Cimarron Creek and the Mora River exceeded that of April 1942. The Canadian River was in flood on June 3, 1937. Ute Creek was very high in 1941, and on October 5, 1954, the Cimarron River near Guy had the highest flood in 13 years. The small areal extent of many storms has produced maximum discharges of record on many streams at unrelated times.

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