United States Department of the Interior

Geological Survey

FLOODS OF JULY 1956 IN CLARKE COUNTY, ALABAMA

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Open-file report

Montgomery, Alabama
1956

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FLOODS OF JULY 1956 IN CLARKE COUNTY, ALABAMA

ACKNOWLEDGMENTS

This report was prepared in the Surface Water Branch, J. V. B. Wells, Chief, under the direction of M. R. Williams, district engineer. Meteorological data and information on flood damages were furnished by the U. S. Weather Bureau, Montgomery, Alabama.

GENERAL DESCRIPTION OF THE FLOODS

The Storm

A weak tropical disturbance formed just off the coast of Alabama on July 5, 1956. Moving inland over the southwestern part of the State, the storm produced heavy rains on the 7th and the morning of the 8th before it dissipated and moved out toward the north.

An isohyetal map of storm rainfall for July 7-9 is shown by figure 1. The storm centered over Whatley, in Clarke County, where a 24-hour rainfall of 10.85 inches was recorded on July 8, with a storm total of 14.22 inches. A secondary center was located near Chatom, in Washington County, where 9.99 inches was reported for July 8, with a storm total of 10.34 inches. The hourly distribution of these rains is not available, as no recording rain gages were located in the storm center.

The storm was accompanied by fairly high winds. An interesting feature of its concluding phase was a violent windstorm, suspected by local residents as being a tornado, reported about 6 miles north of Jackson, Clarke County, at 8 a.m. on July 8.

The Floods

As a result of the heavy rainfall, many small streams in the area rose quickly to unprecedented stages, overflowing and damaging the highways in several places and washing out a number of bridges. Highest rates of runoff occurred in streams heading in the immediate area of the storm center near Whatley, Grove Hill, and Jackson, in Clarke County.

Peak discharge of Jackson Creek near Winn, 9 miles southwest of Grove Hill, was estimated as 34,000 cubic feet per second (cfs) from a drainage area of 42.7 square miles, or a peak runoff of 796 cubic feet per second per square mile (csm). Pigeon Creek overflowed U. S. Highway 84 near Cosport, 8 miles southeast of Whatley, with a peak discharge of 18,800 cfs from 22.6 square miles (832 csm).

Peak discharge of the larger streams that head north of the storm center, though notably high, was less extreme. Satilpa Creek at State Highway 44, four miles east of Coffeeville, reached a peak discharge of 25,300 cfs from 166 square miles (152 csm), and the peak discharge of East Bassett Creek at Walker Springs was 19,800 cfs from 188 square miles (105 csm).

These and other determinations of peak flow are summarized in table 1.

Flood damage.--Damage from the storm and ensuing floods was heavy. Property damage in the storm area was estimated as about $400,000, not including crops and livestock.

Although crop damage was not formally appraised, it was estimated at $100,000, which was considered to be conservative by the U. S. Weather Bureau. Weakening of plant root support by soil wetness contributed to widespread wind damage to crops and vegetation. Wet soil also delayed cultivation, allowing weeds and grass to grow unchecked on many farms, and stimulated boll-weevil activity in cotton.

Total livestock losses are not known, but some 20 head of cattle from one herd were drowned in East Bassett Creek near Whatley, and other losses undoubtedly occurred.

Damage from flooding and erosion was extensive. Most modern highway bridges suffered little damage, but a number of the older wooden bridges on rural roads and some railroad bridges were severely damaged or washed out.

The locomotive and 14 cars of a long Frisco Railroad freight train were derailed at a washout 5 miles north of Chatom, and 200 yards of track was torn up. A Southern Railway train was isolated for several hours between Suggsville and Whatley, where it was trapped between washouts with the water reportedly a foot deep over the rails.

Numerous fish ponds were destroyed.

In Grove Hill the floors of a number of business houses and homes were flooded as a result of the inability of local drainage systems to carry off the excessive rainfall.

STAGES AND DISCHARGES AT GAGING STATIONS

Two stream-gaging stations of the Geological Survey were in the vicinity of the storm center--one on East Bassett Creek at Walker Springs and the other on Satilpa Creek near Coffeeville. However, considerable portions of the drainage basins of these streams lay outside the area of most intense rainfall; hence, their peak discharges were relatively lower than those from the smaller basins in the vicinity of the storm center.

The locations of the gaging stations are shown in figure 1. Both gaging stations were established only a month before the flood. As a result of some defects in operation that had not yet been discovered and corrected, the gage-height record during the flood is not complete at either station. It was possible to reconstruct the flood hydrograph for East Bassett Creek, however; but the flood hydrograph for Satilpa Creek could not be estimated with any assurance prior to 4 p.m. July 8.

The following pages present detailed information for East Bassett Creek and Satilpa Creek during the flood period. This information includes descriptions of the gaging stations; gage heights and discharges at 2-hour or 6-hour intervals, when available, during the passage of the flood crest; and mean daily discharges for East Bassett Creek for the month of July.

Peak discharges at the gaging stations are listed in table 1 and are plotted on figure 2.

Mobile River Basin

East Bassett Creek at Walker Springs, Ala.

Location.- Lat 31°12', long 87°47', in NE¼ sec. 32, T. 7 N., R. 3 E., on right bank, 50 ft upstream from county highway bridge, 1,000 ft southeast of Walker Springs, and 2 3/4 miles upstream from Rabbit Creek.

Drainage area.- 188 sq mi.

Gage-height record.- Water-stage recorder graph except from noon on July 8 to 8 a.m., July 10. Graph for this period reconstructed on basis of gage readings and floodmarks.

Discharge record.- Stage-discharge relation defined by current-meter measurements below 8,000 cfs and extended to peak stage by logarithmic plotting. Gage heights used to hundredths.

Maximum.- July 1956: Discharge, 19,800 cfs, 8 p.m. July 8 (gage height, 12.25 ft).

Remarks.- Flood runoff not affected by artificial storage.

East Barrett Creek at Walker Springs, Ala.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, July 1956

Hour	July 7		July 8		July 9		July 10	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	1.40	62	1.82	102	11.90	16,800	8.85	4,270
4	1.39	61	2.25	148	11.63	14,800	8.65	3,850
6	1.37	60	5.00	530	11.33	13,200	8.45	3,460
8	1.37	60	6.80	1,240	11.02	11,800	8.27	3,120
10	1.37	60	9.00	4,600	10.75	10,600	8.12	2,850
N	1.36	59	10.90	11,200	10.50	9,500	7.98	2,620
2	1.36	59	11.55	14,300	10.27	8,590	7.84	2,390
4	1.36	59	12.02	17,800	10.06	7,790	7.72	2,210
6	1.36	59	12.17	19,000	9.82	6,890	7.61	2,050
8	1.52	73	12.25	19,800	9.58	6,100	7.52	1,940
10	1.72	92	12.20	19,300	9.35	5,450	7.46	1,860
12	1.74	94	12.10	18,400	9.10	4,830	7.41	1,800

Hour	July 11		July 12	
	Gage height	Discharge	Gage height	Discharge
6	7.15	1,540	5.69	707
N	6.82	1,260	5.36	615
6	6.45	1,010	5.00	530
12	6.05	820	4.93	516

Mean discharge, in cubic feet per second, July 1956

Day	Discharge	Day	Discharge
1	67	17	235
2	99	18	209
3	140	19	196
4	110	20	209
5	85	21	235
6	63	22	222
7	65	23	176
8	9,770	24	150
9	10,300	25	136
10	2,830	26	121
11	1,280	27	109
12	630	28	104
13	455	29	109
14	352	30	94
15	320	31	111
16	280		

Monthly mean discharge, in cfs 944

Runoff, in inches 5.79

Mobile River Basin

Satilpa Creek near Coffeeville, Ala.

Location.- Lat 31°45', long 88°02', in SE¼ sec. 13, T. 9 N., R. 1 W., near left bank on downstream side of bridge on State Highway 44, 1/4 mile upstream from unnamed tributary, 3 miles downstream from Harris Creek, and 3 3/4 miles east of Coffeeville.

Drainage area.- 166 sq mi.

Gage-height record.- Water-stage recorder graph July 8-10; graph reconstructed on basis of fragmentary record and gage readings July 11-15. No record prior to 4 p.m., July 8.

Discharge record.- Stage-discharge relation defined by current-meter measurements below 13,400 cfs and extended to peak stage by logarithmic plotting. Gage heights used to hundredths.

Maximum.- July 1956: Discharge, 25,300 cfs, 10 p.m., July 8 (gage height, 18.37 ft).

Remarks.- Flood runoff not affected by artificial storage.

Satilpa Creek near Coffeeville, Ala.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, July 1956

Hour	July 8		July 9	
	Gage height	Discharge	Gage height	Discharge
2			17.86	21,000
4			17.35	17,500
6			16.80	14,400
8			16.21	11,800
10			15.69	9,760
N			15.15	7,600
2			14.70	6,100
4	16.62	13,500	14.35	5,090
6	17.75	20,200	14.02	4,340
8	18.23	24,100	13.80	3,910
10	18.37	25,300	13.60	3,540
12	18.20	23,800	13.40	3,180

Hour	July 10		July 11		July 12		July 13	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
6	12.90	2,330	8.90	792	6.05	361	5.12	257
N	12.42	1,750	8.00	640	5.63	311	5.02	247
6	11.50	1,320	7.25	528	5.40	286	5.00	245
12	10.23	1,050	6.60	434	5.25	270	4.88	233

OTHER DETERMINATIONS OF FLOOD DISCHARGE

Because there were only two stream-gaging stations in the storm area, these being on relatively larger streams, an effort was made to determine the peak discharge of a number of smaller streams by indirect methods. A reconnaissance for acceptable sites for these determinations was made in Clarke County by two field parties on July 12, and four sites were found at which dependable estimates of peak flow appeared possible. The computed peak discharges for these sites are listed in table 1; the locations are identified in figure 1 by the reference number used in the table.

RELATIVE MAGNITUDE OF PEAK DISCHARGES

A comparison of the peak discharges of table 1 with the discharge having an average recurrence interval of 50 years [1/] (50-year flood) is shown in figure 2. This figure shows that while the flood of July 8, 1956, on East Bassett and Satilpa Creeks had roughly a 50-year recurrence interval, on the four smaller streams it was a much rarer event.

[1/] The 50-year discharge is based on information contained in U.S.G.S. Circular 342, 1954.

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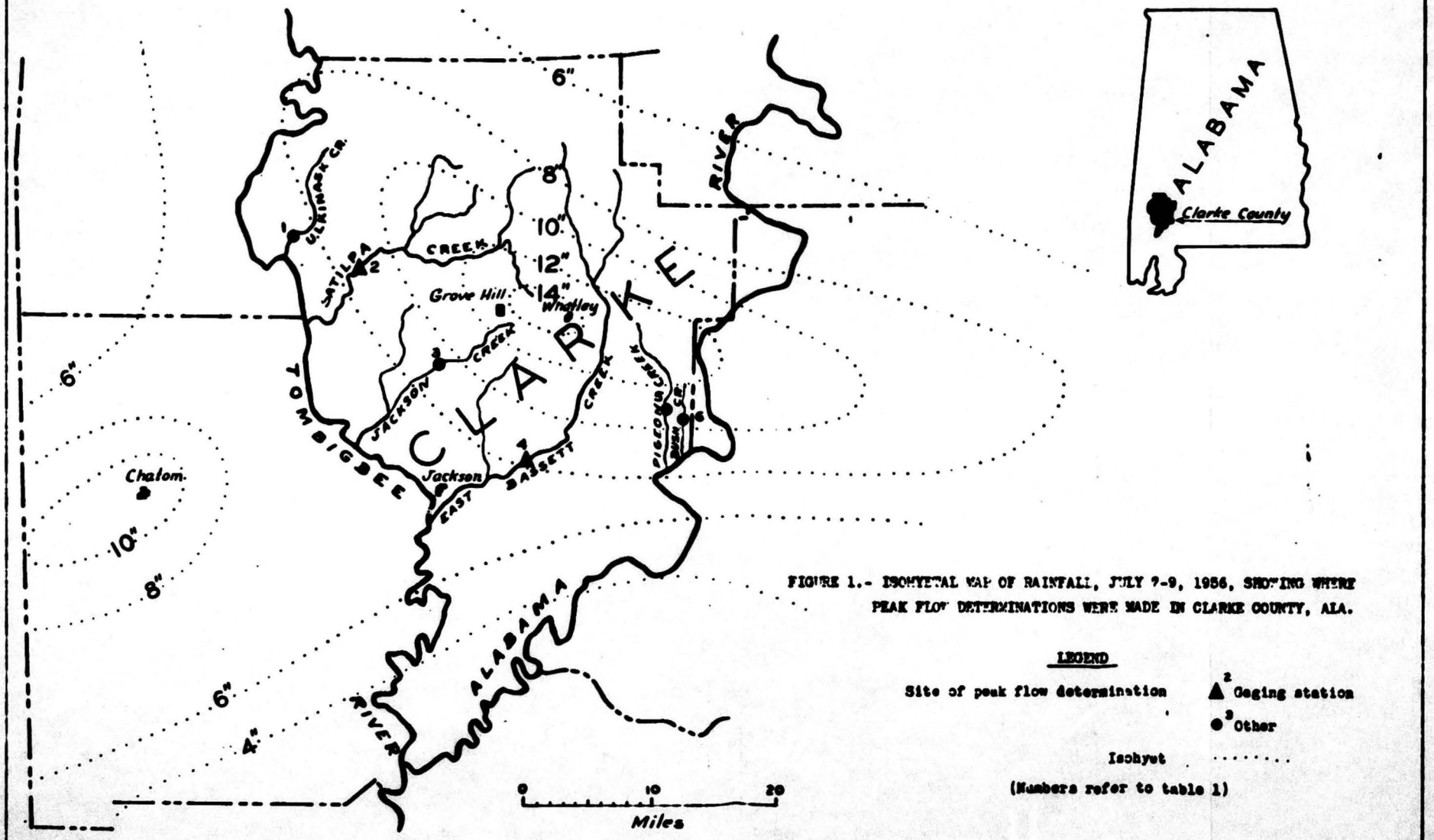

FIGURE 1.- ISOHYETAL MAP OF RAINFALL, JULY 7-9, 1956, SHOWING WHERE PEAK FLOW DETERMINATIONS WERE MADE IN CLARKE COUNTY, ALA.

LEGEND

Site of peak flow determination — ▲2 Gaging station; ●3 Other

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(Numbers refer to table 1)

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Table 1.- Summary of peak-flow determinations in Clarke County, Ala., flood of July 8, 1956

Ref. no. on fig. 1,2	Stream and place of determination	Drainage area (sq.mi.)	Maximum, July 8, 1956			
			Gage height (ft)	Discharge (cfs)	Discharge (cms)	How determined
1	Ulkinask Creek near Coffeeville, Ala. In NE¼ sec. 5, T. 9 N., R. 1 W., 2 miles northwest of Coffeeville on road to West Bend	31.1	-	25,500	820	a
2	Satilpa Creek near Coffeeville, Ala. In SE¼ sec. 13, T. 9 N., R. 1 W., 3 3/4 miles east of Coffeeville on State Highway 44	166	18.37	25,300	152	b
3	Jackson Creek near Winn, Ala. In E½ sec. 25, T. 8 N., R. 6 W., 2 miles southwest of Winn	42.7	-	34,000	796	c
4	East Bassett Creek at Walker Springs, Ala. In NE¼ sec. 32, T. 7 N., R. 3 E., at county highway bridge at Walker Springs	188	12.25	19,800	105	d
5	Pigeon Creek near Gosport, Ala. In NE¼ sec. 7, T. 7 N., R. 5 E., one mile west of Gosport at bridge on U. S. Highway 84	22.6	-	18,800	832	a
6	Bush Creek near Gosport, Ala. In SW¼ sec. 9, T. 7 N., R. 5 E., 1/2 mile east of Gosport at bridge on U. S. Highway 84	4.5	-	4,050	900	e

a Contracted-opening measurement
b From rating curve extended above 13,400 second feet
c Estimated by valley-conveyance method
d From rating curve extended above 8,000 second-fe
e Estimated by contracted-opening method

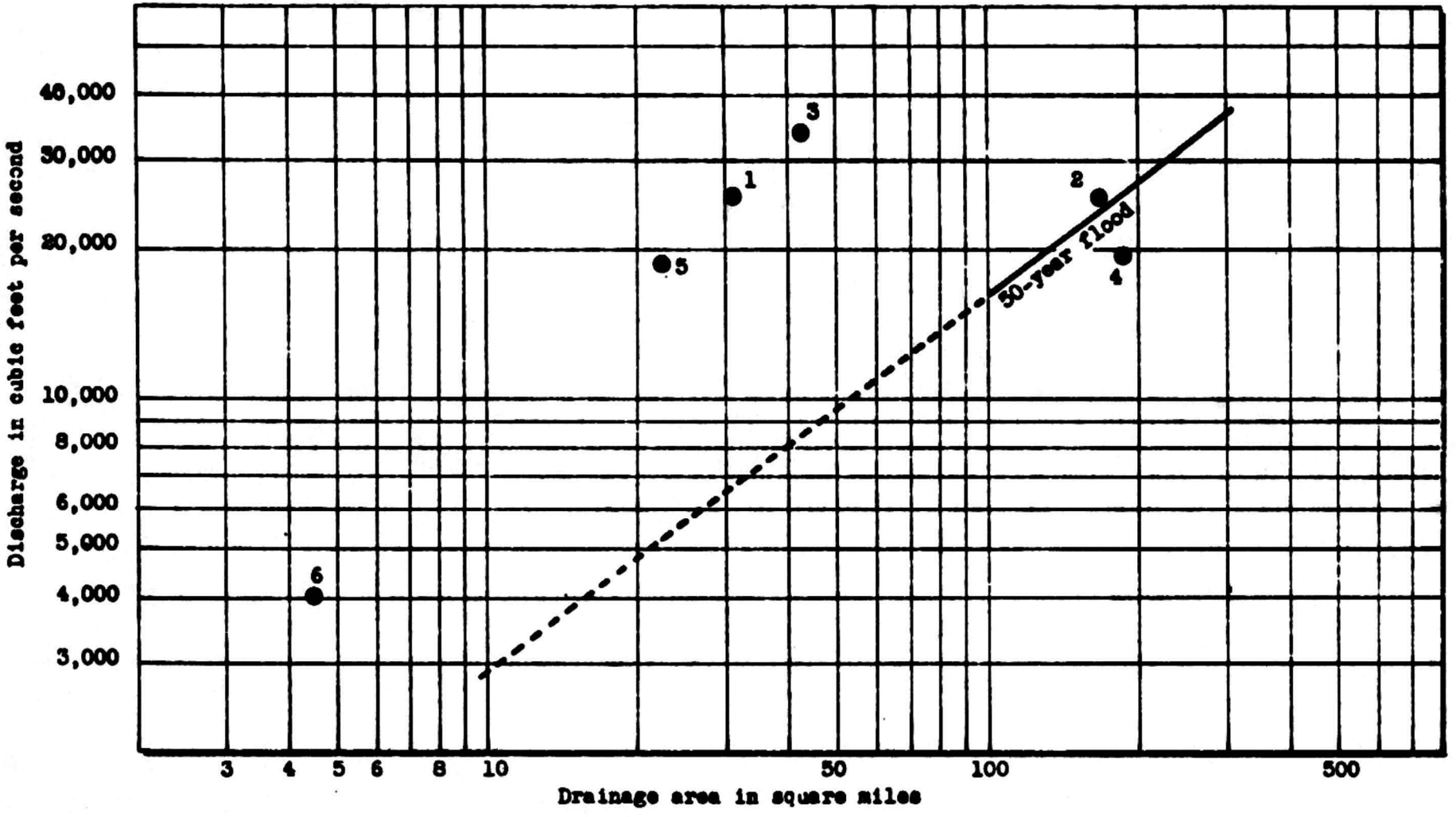

Figure 2.- Comparison of peak discharges of July 1956 with 50-year flood.