STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

EDMUND G. BROWN, Governor
HARVEY O. BANKS, Director of Water Resources
RALPH M. BRODY, Deputy Director of Water Resources

REPORT ON

WATERMASTER SERVICE

IN

BIG VALLEY WATERMASTER SERVICE AREA

MODOC AND LASSEN COUNTIES, CALIFORNIA

1958 SEASON

Sacramento, California

August, 1959

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SUBMISSION TO, AND ADOPTION BY
DEPARTMENT OF WATER RESOURCES

I, Orville L. Abbott, Senior Hydraulic Engineer, Department of Water Resources of the State of California, approve this "Report on Watermaster Service in Big Valley Watermaster Service Area, Modoc and Lassen Counties, California, 1958 Season."

/s/ Orville L. Abbott

Orville L. Abbott
Senior Hydraulic Engineer

I, W. R. Gianelli, Principal Hydraulic Engineer, Department of Water Resources of the State of California, approve this "Report on Watermaster Service in Big Valley Watermaster Service Area, Modoc and Lassen Counties, California, 1958 Season."

/s/ W. R. Gianelli

W. R. Gianelli
Principal Hydraulic Engineer

I, Harvey O. Banks, Director of the Department of Water Resources of the State of California, approve and adopt this "Report on Watermaster Service in Big Valley Watermaster Service Area, Modoc and Lassen Counties, California, 1958 Season" as a report of the Department of Water Resources.

WITNESS my hand and the seal of the Department of Water Resources of the State of California, this 31st day of August, 1959.

State of California
Department of Water Resources

(SEAL)

/s/ Harvey O. Banks

HARVEY O. BANKS
Director

ORGANIZATION

STATE DEPARTMENT OF WATER RESOURCES

Harvey O. Banks . . . . . Director of Water Resources

Ralph M. Brody . . . . . Deputy Director of Water Resources

The activity covered by this report is under the

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INTRODUCTION

This is the twenty-fourth annual report on watermaster service in the Big Valley Watermaster Service Area and covers the period of water distribution in 1958 beginning April 1 and ending September 30.

The watermaster service area was created by order of the Department of Public Works on November 13, 1934, to include all the water rights on Pit River in Big Valley as determined by agreement in writing entitled "Agreement Determining Rights to Water and Use Thereof from Pit River in Big Valley in Modoc and Lassen Counties, California", dated October 10, 1933. Boundaries of the service area were extended by an order dated March 11, 1949, to include the water rights on Ash Creek and its tributaries in Modoc and Lassen Counties in California as established by decree entered by the Superior Court, Modoc County, California, on October 27, 1947, in the case of Charles A. Gerig, vs. C. W. Clark Company et al., Number 3670. Watermaster service has been provided during each irrigation season since the service area was created.

This report is presented under four headings as follows: Introduction, Water Supply, Distribution of Water, Pit River Decree, and Changes in Ownership of Lands and Water Rights. Following the text are tables presenting precipitation data at Bieber, water supply records at various locations within the area and plates showing (1) hydrographs of Pit River near Canby and Roberts Reservoir releases and 20-year mean monthly discharge of Pit River near Canby, and (2) Pit River near Bieber.

WATER SUPPLY

Water supply from Pit River in Big Valley was well above normal throughout the year. Sufficient water was available to satisfy all first and second priority rights throughout the irrigation season.

Precipitation

Data on precipitation at Bieber as compiled from records of the Department of Water Resources, California Cooperative Snow Survey for the period October 1, 1957, to September 30, 1958, are shown in Table A-1. The precipitation for the period was 25.77 inches, which is equivalent to about 159 per cent of the 50-year mean.

Water content of the snow pack on April 1 at the two courses in the Upper Pit River area as compiled from the Department of Water Resources Bulletin "Water Conditions in California, April 1, 1958", is presented in the following tabulation:

Snow course	Elevation in feet	Water content of snow in inches		Per cent of mean
		50-year computed mean	1958	
Cedar Pass	7,100	19.9	24.8	125
Adin Mountain	6,500	13.8	16.7	121

The water content of the two stations was 123 per cent of the combined mean.

Stream Flow

The major source of water for Big Valley is the Pit River. Daily mean discharge of Pit River near Canby as obtained from preliminary records of the United States Geological Survey is presented in Table A-2. The amount

of water flowing past this station is considered to be the amount of water available for distribution in Big Valley from Pit River.

Roberts Reservoir is a source of supplemental water for the shareholders of the Big Valley Mutual Water Company. Released water was used for irrigation between August 16 and September 2 of the 1958 season. Daily mean releases from the reservoir are presented in Table A-8.

The flow of Pit River at Canby during the irrigation season is comprised of natural flow of North Fork and South Fork of Pit River together with return flow from lands irrigated with water released from Big Sage, West Valley, and numerous smaller reservoirs, all of which are located above the Canby gage. On a normal year there is no natural flow available after July 1. After this date, drainage and return flow from irrigated lands comprise all of the flow in Pit River at the Canby Gaging station. Due to the type of irrigation in Hot Springs Valley, the quantity of water available for use in Big Valley fluctuates considerably from day to day.

Drainage and return flow together with water in excess of the demands of the users in Big Valley are measured at the Geological Survey station on Pit River located approximately six miles south of Bieber. Daily mean discharge of Pit River at this station, as obtained from preliminary records, is presented in Table A-4. Stream gaging stations equipped with automatic water stage recorders are maintained by the Surface Water Unit of the Department on Ash Creek at Adin, Rush Creek near Adin, and Willow Creek near Adin. These stations were installed in the spring of 1958. A stream gaging station was also installed on Pit River approximately eight miles north of Lookout.

The watermaster maintained a recorder ~~was maintained~~ on Watson Ditch near Bieber. The Watson Ditch station was used to measure water delivered to the L. Babcock and C. Hawkins Ranches. These ranches are entitled to third priority allotments from Pit River and their proportionate share of water released from Roberts Reservoir. The daily mean discharge at this station is presented in Table A-7.

Recorder stations were also maintained on Roberts Reservoir outlet and the Babcock Pipes.

DISTRIBUTION OF WATER

The water rights in the Big Valley Watermaster Service Area are grouped as follows:

1. Pit River in Big Valley as defined in Schedules 2 and 3 of the Big Valley agreement,

2. Ash Creek and tributaries which include Rush Creek, Butte Creek, Willow Creek, and Ash Creek. The rights on these creeks are defined in Schedules 3, 4, and 5, respectively, in the Ash Creek decree.

In conjunction with distribution of water from Pit River according to the rights as set forth above, the watermaster regulates the rediversion from Pit River of water released from Roberts Reservoir.

Pit River in Big Valley (Schedules 2 and 3) and Roberts Reservoir

Irrigation in Big Valley for the 1958 season began May 6 at which time Bieber and Ricketts Dams were installed with about 700 second-feet in Pit River. The floor of Gerig Dam was raised the previous fall, and it was possible to install the dam on May 9 with approximately 600 second-feet in the river. Lookout Dam was installed on May 11. Sufficient water was available to satisfy all demands through June 29 at which time Gerig Dam was lowered to allow the hay fields to drain preparatory to haying.

Between June 29 and August 1 when the hay fields were dry, the lands producing pasture, alfalfa, and grain, received excellent irrigations. On August 1, Gerig Dam was reinstalled. There was no shortage of water for first and second priority water rights for the remainder of the irrigation season. There were five complete rotations during the 1958 season, beginning on May 6 and ending on September 25.

A summary of water available for the four priority of water rights based on the flow at the Canby gage is presented below.

Month	Per cent of allotments available			
	First priority	Second priority	Third priority	Fourth priority
April	100	100	100	100
May	100	100	100	100
June	100	100	100	100
July	100	85	52	37
August	100	75	14	8
September	100	75	21	13

Between August 16 and September 2 water was released from Roberts Reservoir for use by the shareholders as shown in the following tabulation:

Name of shareholder	Number of shares	Amount of water in acre-feet
Peter Gerig	5	164
Oral Gerig	3	98
Ward Kramer	2	65
Merlin Kennedy	1	33

Name of shareholder	Number of shares	Amount of water in acre-feet
Cornelius Iest	1	33
Cyril R. Mamath	1	33
W. H. Hunt Estate Company	2	65
Lester Babcock	3	98 [a]
Clarence Hawkins	1	33 [a]
Lewis Monchamp	1	
TOTALS	20	622[b]

a. Measured through Watson Ditch.
b. Does not include water released for Lewis Monchamp.

The daily mean releases from Roberts Reservoir are presented in Table A-8 and are shown graphically on Plate 1.

Water used by the Lewis Monchamp Ranch is diverted directly from the reservoir to the place of use through a separate outlet pipe. Water used by the Lester Babcock and Clarence Hawkins Ranches was rediverted from Pit River through the Watson Ditch, and the amount of water delivered to these ranches was measured at the recorder station on Watson Ditch near Bieber. These two ranches rotated in the use of the water. A record of daily mean discharge of Watson Ditch near Bieber is presented in Table A-7. This record includes both the rediversion of Roberts Reservoir water and the natural flow rights from Pit River for the above named ranches.

New Installations. Repairs were made to the Caldwell Dam consisting of a new floor and cleat. This dam acts as a support dam for the Babcock Pipes.

Four new uprights were placed in Lookout Dam. This was made necessary due to failure of the uprights in August.

Britten Gobel Slough Dam was completed early in the season. This dam irrigates approximately 200 acres on the E. J. Britten Ranch.

There was no action taken on installing the headgates or measuring devices as recommended during the 1957 season.

Ash Creek and Tributaries

Distribution from Ash Creek and tributaries during the 1958 season followed the methods and practices initiated in past seasons with no modifications.

Rush Creek (Schedule 3). Water supply on this stream was above normal for the entire year and there was no shortage of water throughout the season. A record of the mean daily discharge is presented in Table A-6.

Butte Creek (Schedule 4). The water supply was in excess of allotments until about July 1. Subsequent to this the flow decreased steadily during July until about 2.0 second-feet was available. Thereafter the flow remained nearly constant.

Willow Creek (Schedule 5). The water supply was sufficient to supply all rights until about May 18. After this date, the flow decreased gradually until about August 1, at which time water was available for a portion of the second priority rights. There was no critical shortage on this stream system during the 1958 season. A record of daily mean discharge is presented in Table A-5. A summary of distribution on Willow Creek is shown in the following tabulation:

Month	Per cent of allotments available			
	First priority	Second priority	Third priority	Fourth priority
May	100	97	63	52
June	100	84	20	13
July	100	58	0	0
August	100	46	0	0
September	100	42	0	0

Ash Creek (Schedule 6). The average flow of Ash Creek was sufficient to satisfy all demands until about June 1. Thereafter, the flow decreased gradually until about August 24 when approximately 20 second-feet were available. There occurred no critical shortage on this stream during the 1958 season. A record of the daily mean discharge is presented in Table A-3.

PIT RIVER DECREE

On February 17, 1959, Decree No. 6395 was entered by the Superior Court of Modoc County. This decree defines all water rights on the Pit River stream system between Canby gage and Muck Valley gage and supersedes water rights set forth in the Big Valley agreement previously referred to. The Big Valley Watermaster Service Area has been amended to include water rights from Pit River as set forth in Schedule 4 of the decree. Ash Creek stream system water rights were eliminated from the Big Valley area and established in a separate Ash Creek Watermaster Service Area. During the 1959 season watermaster service will be furnished to a larger number of users on Pit River. Service provided to Ash Creek stream system users will be no different than in past years.

CHANGES IN OWNERSHIP OF LANDS AND WATER RIGHTS

The changes in ownership of lands and water rights which occurred after the issuance of "Statement for Big Valley Watermaster Service Area, Counties of Lassen and Modoc, State of California, for 1958", are listed in the following tabulation:

Tract number	Name of water right owner appearing in 1958 statement	Name of water right owner appearing in 1959 statement	Amount of water in second-feet
6-63	Whaley, L. S.	Iest, Cornelius	14.66
6-83	Yowell, J. E. et al	Garbut, Gary	0.35
6-87	Stevenson, Violet	Stevenson, W. A.	0.60
6-60	Monchamp, L. H.	Monchamp, L. R.	1.14
6-2	Campbell, Walter L.	Campbell, Glen E.	0.91
6-37	Studley, Frank	Wright, Norma and Wright, Marie	3.20
6-42) 6-44)	Niles, S. J. and Niles, Myrtle	Van Allen, Loren and Van Allen, Ilda	1.60
6-45	Parker, George C.	Bragg, T. L.	0.40
6-43	Auble, E. M. and Auble, Ivy	Brown, Fred	0.40

APPENDIX A

RECORDS OF WATER SUPPLY

TABLE A-1

PRECIPITATION AT BIEBER, LASSEN COUNTY, CALIFORNIA

1957-1958

In Inches

Month	Mean Precipitation	1957-1958 Precipitation
October	1.80	3.13
November	1.75	3.11
December	2.21	3.07
January	2.44	2.52
February	2.35	3.20
March	1.86	2.07
April	1.28	0.90
May	1.28	1.94
June	0.41	3.51
July	0.23	1.32
August	0.14	0.43
September	0.48	0.57
TOTALS	16.23	25.77

TABLE A-2

DAILY MEAN DISCHARGE OF PIT RIVER NEAR CANBY

April 1 to September 30, 1958
In Second-Feet

Day	April	May	June	July	August	September
1	726	534	346	191	39	50
2	804	492	444	204	82	72
3	930	534	389	280	108	144
4	912	546	492	300	90	105
5	930	582	636	250	155	90
6	950	630	660	204	163	78
7	846	630	570	179	88	96
8	792	624	468	155	96	200
9	750	600	378	148	99	179
10	720	594	400	130	130	148
11	708	654	412	120	114	93
12	678	726	450	114	159	82
13	594	834	462	90	179	85
14	636	951	552	80	120	85
15	672	1,070	612	90	105	96
16	702	1,010	576	75	120	96
17	732	995	450	72	130	93
18	798	894	356	96	114	93
19	876	810	270	127	90	102
20	924	750	260	148	85	102
21	930	708	305	134	85	99
22	943	648	428	148	124	99
23	956	618	265	213	130	111
24	943	624	231	236	114	120
25	906	552	444	167	96	163
26	846	588	444	159	105	167
27	756	618	351	179	99	151
28	660	594	295	141	96	127
29	594	516	167	111	90	111
30	570	245	167	68	63	102
31		195		34	54	
Mean Sec.Ft.	793	657	409	150	107	111
Runoff Ac-Ft.	47,170	40,400	24,360	9,210	6,590	6,620

Total for Period - 134,350 Acre-Feet

TABLE A-3

DAILY MEAN DISCHARGE OF ASH CREEK AT ADIN

May 1 to September 30, 1958
In Second-Feet

Day	May	June	July	August	September
1	159	27	26	29	11
2	165	29	39	33	11
3	165	50	24	34	12
4	162	51	20	32	13
5	157	38	17	30	10
6	153	42	17	29	13
7	147	39	15	29	14
8	141	40	16	28	14
9	133	51	16	28	17
10	129	45	16	28	17
11	197	48	17	28	17
12	207	162	17	27	18
13	167	82	17	27	19
14	142	52	17	27	19
15	127	38	20	28	21
16	110	36	21	28	19
17	93	30	34	29	12
18	92	28	30	28	17
19	80	45	26	27	19
20	75	114	37	27	19
21	68	44	37	27	20
22	63	36	34	26	26
23	66	27	32	26	32
24	67	24	37	20	28
25	*62	20	40	14	28
26	*51	19	29	17	27
27	*44	17	28	20	26
28	40	17	30	19	26
29	38	24	32	21	26
30	36	20	30	21	27
31	36		30	17	
Mean	109	43.2	25.8	25.9	19.3
Runoff Ac-Ft.	6,678	2,569	1,589	1,595	1,146

Total for Period - 13,577 Acre-Feet

* Estimated

TABLE A-4

DAILY MEAN DISCHARGE OF PIT RIVER NEAR BIEBER

April 1 to September 30, 1958
In Second-Feet

Day	April	May	June	July	August	September
1	2,070	924	201	220	58	37
2	2,520	882	88	203	50	41
3	2,750	819	194	203	37	49
4	2,680	798	451	200	32	58
5	2,570	798	451	249	27	50
6	2,410	720	255	271	24	50
7	2,200	740	388	217	24	39
8	2,050	669	495	82	26	20
9	1,960	394	582	97	45	20
10	1,910	460	545	95	49	24
11	1,840	889	500	158	36	75
12	1,750	931	571	274	27	211
13	1,630	1,050	639	149	13	165
14	1,530	1,080	615	131	24	80
15	1,460	1,160	571	119	16	63
16	1,440	1,410	593	88	18	85
17	1,470	1,270	651	49	12	104
18	1,550	1,210	571	52	25	155
19	1,600	1,130	362	69	33	77
20	1,650	1,030	694	59	91	55
21	1,660	931	428	56	41	51
22	1,640	854	323	55	41	25
23	1,630	805	319	62	77	99
24	1,620	746	342	64	164	246
25	1,580	714	294	283	195	200
26	1,480	682	237	362	113	149
27	1,380	615	342	214	83	138
28	1,250	645	495	185	53	151
29	1,140	639	442	175	43	163
30	1,020	598	301	153	58	153
31		490		93	37	
Mean	1,781	841	431	151	51	94
Runoff Ac-Ft	106,000	51,730	25,670	9,300	3,120	5,620

Total for Period - 201,440 Acre-Feet

TABLE A-5

DAILY MEAN DISCHARGE OF WILLOW CREEK

May 1 to September 30, 1958
In Second-Feet

Day	May	June	July	August	September
1	27	7.0	6.1	4.8	3.8
2	25	7.5	7.0	5.2	3.8
3	22	9.4	6.8	5.0	3.8
4	21	7.5	6.5	5.2	3.8
5	20	7.3	6.1	5.0	3.8
6	19	7.8	5.8	4.8	3.8
7	17	7.3	5.6	4.8	3.8
8	16	7.5	5.4	5.0	4.2
9	14	9.4	5.0	4.8	4.0
10	14	8.3	5.0	4.8	4.2
11	27	11	5.0	4.8	4.2
12	25	20	5.0	4.6	4.2
13	17	12	4.8	4.6	4.2
14	15	9.4	4.8	4.4	4.2
15	14	8.3	5.4	4.4	4.2
16	12	7.8	7.0	4.6	4.2
17	11	7.8	6.5	4.8	4.2
18	10	7.5	5.8	4.8	4.2
19	9.9	12.0	5.4	4.4	4.2
20	9.4	9.9	5.2	5.0	4.2
21	8.8	8.5	5.2	5.0	4.4
22	8.5	7.5	5.6	4.4	4.8
23	8.5	7.3	5.6	4.2	5.0
24	9.6	7.0	5.8	4.0	4.6
25	8.8	6.1	5.6	4.0	4.6
26	8.0	6.1	5.2	4.0	4.6
27	8.0	5.8	5.0	4.0	4.6
28	7.5	5.6	5.0	4.0	4.6
29	7.3	6.1	5.0	4.0	4.6
30	6.8	5.8	5.0	4.0	4.6
31	6.8		5.0	4.2	
Mean	14.0	8.4	5.6	4.6	4.2
Runoff Ac-Ft	861	497	342	281	253

Total for Period - 2,234 Acre-Feet

TABLE A-6

DAILY MEAN DISCHARGE OF RUSH CREEK NEAR ADIN

April 1 to September 30, 1958

Day	April	May	June	July	August	September
1	44	27	7.0	6.1	4.8	3.8
2	39	25	7.5	7.0	5.2	3.8
3	39	22	9.4	6.8	5.0	3.8
4	40	21	7.5	6.5	5.2	3.8
5	39	20	7.3	6.1	5.0	3.8
6	38	19	7.8	5.8	4.8	3.8
7	37	17	7.3	5.6	4.8	3.8
8	41	16	7.5	5.4	5.0	4.2
9	*42	14	9.4	5.0	4.8	4.0
10	*46	14	8.3	5.0	4.8	4.2
11	*52	27	11	5.0	4.8	4.2
12	*56	25	20	5.0	4.6	4.2
13	*62	17	12	4.8	4.6	4.2
14	*68	15	9.4	4.8	4.4	4.2
15	*68	14	8.3	5.4	4.4	4.2
16	*72	12	7.8	7.0	4.6	4.2
17	*75	11	7.8	6.5	4.8	4.2
18	*70	10	7.5	5.8	4.8	4.2
19	*64	9.9	12.0	5.4	4.4	4.2
20	*60	9.4	9.9	5.2	5.0	4.2
21	*58	8.8	8.5	5.2	5.0	4.4
22	55	8.5	7.5	5.6	4.4	4.8
23	50	8.5	7.3	5.6	4.2	5.0
24	46	9.6	7.0	5.8	4.0	4.6
25	42	8.8	6.1	5.6	4.0	4.6
26	39	8.0	6.1	5.2	4.0	4.6
27	36	8.0	5.8	5.0	4.0	4.6
28	35	7.5	5.6	5.0	4.0	4.6
29	35	7.3	6.1	5.0	4.0	4.6
30	30	6.8	5.8	5.0	4.0	4.6
31		6.8		5.0	4.2	
Mean	45.4	20.2	7.2	5.2	3.8	3.2
Runoff Ac-Ft	2,703	1,245	427	320	236	188

Total for Period - 5,119 Acre-Feet

* Estimated

TABLE A-7

DAILY MEAN DISCHARGE OF WATSON DITCH NEAR BIEBER

May 1 to September 30, 1958
In Second-Feet

Day	May	June	July	August	September
1	N	7.8	N	0	N
2		7.4		0	
3	0	2.8	0	0.	0
4		3.4		4.7	
5		4.4		16	
	D		D		D
6		4.8		17	
7	I	5.1	I	18	I
8		5.9		15	
9	V	6.0	V	10	V
10		6.0		13	
	E		E		E
11		6.1		16	
12	R	7.8	R	16	R
13		7.4		16	
14	S	7.9	S	19	S
15		8.4		19	
	I		I		I
16		9.0		14	
17	0	8.8	0	9.4	0
18		7.8		15	
19	N	6.9	N	15	N
20		6.1		13	
21		4.9		11	
22		3.4		10	
23		4.3		10	
24		5.8		10	
25		6.2		10	
26	19	6.5		10	
27	18	7.9		8.2	
28	19	5.6		7.8	
29	18	3.1		8.2	
30	16	0.4		8.8	
31	14	0		8.9	
Mean	17.3	5.6	0	12.4	0
Discharge Ac-Ft	208	345	0	692	0

Total for Period - 1,245 Acre-Feet

TABLE A-8

DAILY MEAN RELEASES FROM ROBERTS RESERVOIR

1958 Season
In Second-Feet

Day	April	May	June	July	August	September
1	N					37
2						12
3	0					
4						
5		R				N
6						
7		E				0
8						
9		L				
10			E			R
11						E
12			A			
13						L
14			S			
15				E		E
16					19	A
17				S	41	
18					41	S
19					41	
20					41	E
21					20	S
22						
23						
24						
25						
26						
27						
28						
29						
30					22	
31					37	
Mean					33	24
Release Ac-Ft					524	98

Total for Period - 622 Acre-Feet

TABLE A-9

DAILY MEAN DISCHARGE OF PIT RIVER ABOVE LOOKOUT

1958 Season

Day	July	August	September
1		79	87
2		96	
3		130	
4		142	
5		126	
6		115	
7		108	
8		142	
9			170
10			166
11			121
12		143	116
13			117
14	118	180	118
15	112	142	129
16	129	134	
17	108	149	
18	118	157	
19	133	129	
20	168	133	
21	174	114	
22	166	129	
23		164	
24		148	
25		133	
26		118	
27		136	
28	192	121	
29	158	122	
30	136	110	
31	102	92	
Mean	140	129	128
Runoff Ac-Ft	3,597	6,925	2,031

Total for Period - 12,553 Acre-Feet

PLATE 1

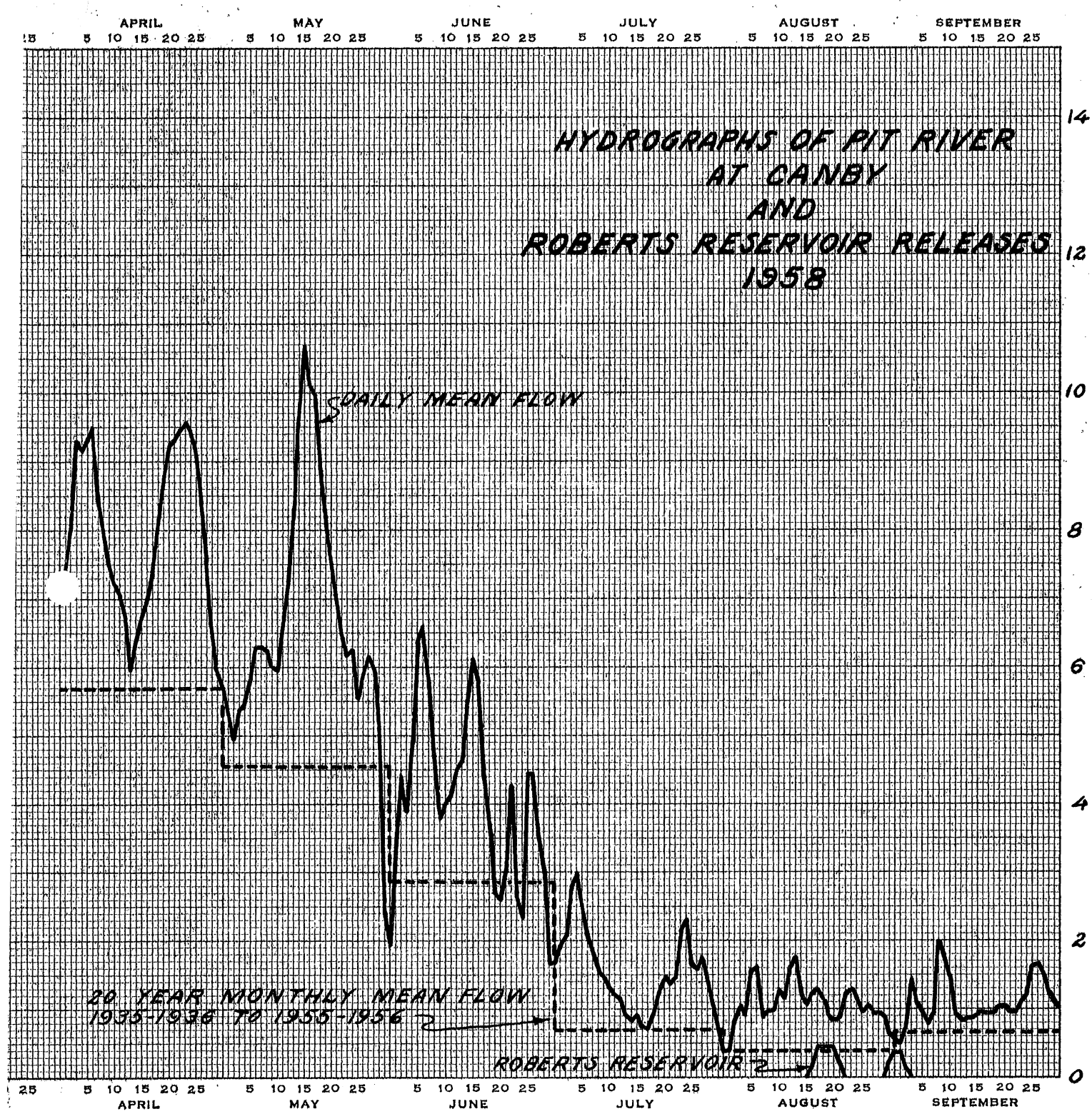
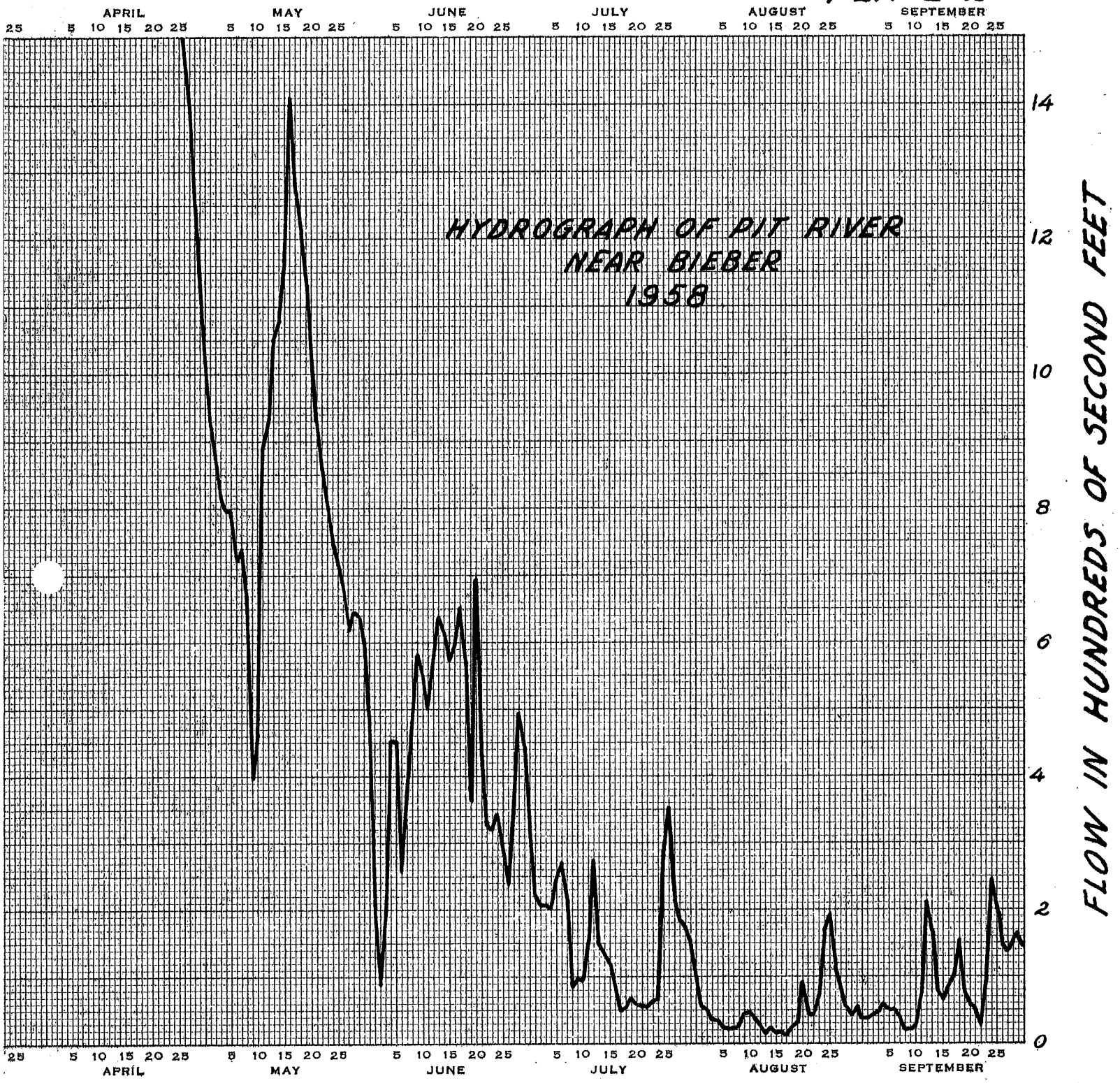

APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
5 10 15 20 25
HYDROGRAPHS OF PIT RIVER AT CANBY AND ROBERTS RESERVOIR RELEASES 1958
DAILY MEAN FLOW
20 YEAR MONTHLY MEAN FLOW 1935-1936 TO 1955-1956
ROBERTS RESERVOIR RELEASES
0
2
4
6
8
10
12
14
FLOW IN HUNDREDS OF SECOND FEET

PLATE 2


APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
25 5 10 15 20 25
HYDROGRAPH OF PIT RIVER
NEAR BIEBER
1958
14
12
10
8
6
4
2
0
FLOW IN HUNDREDS OF SECOND FEET