STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

EARL WARREN, Governor

C. H. PURCELL, Director of Public Works

A. D. EDMONSTON, State Engineer

REPORT ON WATERMASTER SERVICE IN COW CREEK WATERMASTER SERVICE AREA

Shasta County, California

1950 SEASON

Sacramento, California

March, 1951

SUBMISSION TO, AND ADOPTION BY
DEPARTMENT OF PUBLIC WORKS

I, L. C. Jopson, Supervising Hydraulic Engineer, Division of Water Resources, Department of Public Works of the State of California, hereby submit the within contained report entitled "Report on Watermaster Service in Cow Creek Watermaster Service Area, Shasta County, California, 1950 Season".

/s/ L. C. JOPSON
Supervising Hydraulic Engineer

I, Gordon Zander, Principal Hydraulic Engineer, Division of Water Resources, Department of Public Works of the State of California, hereby approve the within contained report entitled "Report on Watermaster Service in Cow Creek Watermaster Service Area, Shasta County, California, 1950 Season".

/s/ GORDON ZANDER
Principal Hydraulic Engineer

I, A. D. Edmonston, State Engineer and Chief of the Division of Water Resources, Department of Public Works of the State of California, hereby approve and adopt the within contained report entitled "Report on Watermaster Service in Cow Creek Watermaster Service Area, Shasta County, California, 1950 Season", as a report of the Department of Public Works.

WITNESS my hand and the seal of the Department of Public Works of the State of California, this 10th day of August 1951

DEPARTMENT OF PUBLIC WORKS

By /s/ A. D. EDMONSTON
A. D. Edmonston
State Engineer

SEAL

ORGANIZATION

C. H. Purcell . . . . . Director of Public Works

A. D. Edmonston . . . . . State Engineer

P. H. Van Etten . . . . . .Assistant State Engineer

Gordon Zander . . . . Principal Hydraulic Engineer

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This report was prepared under the direction of

L. C. JOPSON
Supervising Hydraulic Engineer

By

G. M. VICKROY
Assistant Hydraulic Engineer

T. R. Merryweather
Administrative Assistant

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INTRODUCTION

The Cow Creek Watermaster Service Area, Shasta County, California, was created by order of the Division of Water Resources, entered October 17, 1932, to include the water rights on North Cow Creek and its tributaries and on Oak Run Creek and its tributaries, in Shasta County, California. These water rights were established by decrees entered by the Superior Court, Shasta County, California, on April 29, 1932, in the case of Charles L. Lemm, et al., vs. John Rutherford et al., No. 5804 and on July 22, 1932, in the case of F. A. Colby, et al., vs. L. O. Strayer, et al., No. 5701, respectively.

The boundaries of the service area were enlarged by order dated January 21, 1938, to include the water rights on Clover Creek and its tributaries, as established by decree entered by the Superior Court, Shasta County, California, on October 4, 1937, in the case of Millville Ditch Co., vs. Jesse Hufford et al., No. 6904.

Watermaster service as provided in Part 4 of Division 2 of the Water Code covered the regulation of diversions from the streams within the scope of the area in accordance with the rights set forth in the various decrees. The service extended over the period from July 1 to October 15, 1950. G. M. Vickroy, deputy watermaster, administered the distribution of water during the period under the supervision of P. E. Stephenson, Senior Hydraulic Engineer.

WATER SUPPLY

Precipitation

Data on precipitation at Shasta Dam, a relatively new station, as compiled from records of the U. S. Weather Bureau are presented in Table 1 of this report.

The total precipitation for the 1949-50 seasonal year was 20.43 inches at Shasta Dam. This is about 30 per cent of the normal at the abandoned nearby Kennett station.

Stream Flow

Records of the discharge of North Cow Creek, Cedar Creek, Oak Run Creek, and Clover Creek as determined for each stream by summation of the amounts of water diverted therefrom by the various ditches plus the flow in the stream below the lowermost ditch, are shown in Tables 2, 3, 4, and 5, respectively.

Hydrographs, plotted from the data contained in the above tables, together with a graph indicating the decreed allotments on the respective streams, are presented in Plates 1, 2, 3, and 4.

DISTRIBUTION OF WATER

Distribution during the 1950 irrigation season followed the methods and practices initiated in past seasons with little or no modification. The resulting distribution on each of the several streams is as follows:

North Cow Creek

The amounts of water available for distribution are set forth in Table 2 submitted at the end of this report.

Distribution during the 1950 irrigation season was made on a continuous flow basis throughout the entire season. There was sufficient flow available to supply 100 per cent allotments prior to about July 25. After this date the available flow gradually decreased to about 58 per cent of all allotments on August 28. Subsequent thereto and until the end of the season an average of about 58 per cent of all allotments was available.

was available.

A summary of the distribution of water made during the 1950 irrigation season is set forth in the following tabulation:

Month	Average Discharge North Cow Creek c.f.s.	Per Cent of Allotment Delivered 1st. Priority
July	21.6	100
August	14.8	72
September	12.0	58

Cedar Creek

The amounts of water available for distribution are shown in Table 3. The available water supply was in excess of decreed allotments up to about July 7, but gradually decreased to approximately 23 per cent of full allotment by August 20. Subsequent thereto and until September 30 an average of about 23 per cent of all allotments was available.

A summary of the distribution of water made during the 1950 irrigation season is set forth in the following tabulation:

Month	Average Discharge Cedar Creek c.f.s.	Per Cent of Allotments Delivered 1st. Priority
July	4.6	66
August	2.2	31
September	1.6	23

Oak Run Creek

The amounts of water available for distribution during the 1950 season are shown in Table 4. Sufficient flow was available to supply 100 per cent allotments during the entire season.

A summary of the distribution of water made during the 1950 irrigation season is set forth in the following tabulation:

Month	Average Discharge Oak Run Creek c.f.s.	Per Cent of Allotments Delivered 1st. Priority
July	7.0	100
August	7.0	100
September	7.0	100

Clover Creek

The amounts of water available for distribution during the 1950 season, are shown in Table 5. Sufficient flow was available to supply 100 per cent allotments prior to July 1. After this date the available flow gradually decreased to about 72 per cent of all allotments on September 1. Subsequent thereto and until the end of the season an average of about 72 per cent of all allotments was available.

A summary of the distribution of water made during the 1950 season is set forth in the following tabulation:

Month	Average Discharge of Clover Creek c.f.s.	Per Cent of Allotment 1st.Priority
July	21.7	92
August	19.2	81
September	17.0	72

CHANGES IN OWNERSHIP OF LANDS AND WATER RIGHTS

The changes in ownership of lands and water rights, which have occurred subsequent to filing "Statement for Cow Creek Watermaster Service Area, County of Shasta, State of California for 1950", and which have been included in the statement for said watermaster service area for 1951, are listed in the following tabulation:

Tract No.	Name of Water Right Owner Appearing in 1950 Statement	Name of Water Right Owner as Changed in 1951 Statement	Amount of Water c.f.s.
4-14			
4-25	E. B. Peers	Charles Johnson and Maria Johnson	0.65
4-53	Carl E. Cunningham and Madge H. Cunningham	Rudolph B. Bucholz and Louise C. Bucholz	0.86
4-11	J. G. Hadley	Lloyd W. Parker	0.40
4-55	Charles A. Miller	Ben Warner	0.395
4-45	Wilbur J. Weber	J. E. Montague	0.25
4-33	R. M. Murphy	C. R. Brewer	1.15
4-54	Harry L. Perkins and Elizabeth B. Perkins	Ernest C. Volbrecht	0.24
4-56	E. C. Frisbie	George D. Rickert	0.90
4-58	E. C. Frisbie	George D. Rickert	2.40
4-5	Le Roy West	Edwin E. Charles	2.00
4-73	T. J. Driver and Verdona Driver	Mrs. Marion Canady	0.10

TABLE 1

Precipitation - Shasta Dam

Shasta County, California

Month	Precipitation 1949-50 Inches
October	0.02
November	2.66
December	2.06
January	1.24
February	4.61
March	5.15
April	1.56
May	1.62
June	0.98
July	0.0
August	0.0
September	0.53
Total	20.43

The length of record at Shasta Dam being short, no monthly or seasonal normals are available at present. The old Kennett records indicate a normal seasonal precipitation of about 60.50 inches.

TABLE 2

Daily Discharge in Cubic Feet per Second
NORTH COW CREEK
July 1 to September 30, 1950

Day	July	August	September
1	23.0	19.0	12.0
2	23.0	18.0	12.0
3	23.0	18.0	12.0
4	23.0	18.0	12.0
5	23.0	17.0	12.0
6	23.0	17.0	12.0
7	23.0	17.0	12.0
8	23.0	17.0	12.0
9	22.0	16.0	12.0
10	22.0	16.0	12.0
11	22.0	16.0	12.0
12	22.0	15.0	12.0
13	22.0	15.0	12.0
14	22.0	15.0	12.0
15	22.0	15.0	12.0
16	22.0	14.0	12.0
17	22.0	14.0	12.0
18	22.0	14.0	12.0
19	22.0	14.0	12.0
20	22.0	14.0	12.0
21	21.0	13.0	12.0
22	21.0	13.0	12.0
23	21.0	13.0	12.0
24	21.0	13.0	12.0
25	20.0	13.0	12.0
26	20.0	13.0	12.0
27	20.0	13.0	12.0
28	20.0	12.0	12.0
29	20.0	12.0	12.0
30	19.0	12.0	12.0
31	19.0	12.0	
Total Sec. Ft. Days	670.0	458.0	360.0
Mean Sec. Ft.	21.6	14.8	12.0
Total Ac. Ft.	1340	916	720

Total Acre-Feet for 92 day period - 2976

TABLE 3

Daily Discharge in Cubic Feet per Second
CEDAR CREEK
July 1 to September 30, 1950

Day	July	August	September
1	6.0	3.0	1.8
2	6.0	3.0	1.8
3	6.0	3.0	1.8
4	6.0	3.0	1.8
5	6.0	3.0	1.8
6	6.0	3.0	1.8
7	5.0	3.0	1.8
8	5.0	3.0	1.8
9	5.0	3.0	1.8
10	5.0	2.0	1.8
11	5.0	2.0	1.8
12	5.0	2.0	1.8
13	5.0	2.0	1.8
14	5.0	2.0	1.8
15	5.0	2.0	1.8
16	5.0	2.0	1.8
17	4.0	2.0	1.8
18	4.0	2.0	1.8
19	4.0	2.0	1.8
20	4.0	1.8	1.8
21	4.0	1.8	1.8
22	4.0	1.8	1.8
23	4.0	1.8	1.8
24	4.0	1.8	1.8
25	4.0	1.8	1.8
26	4.0	1.8	1.8
27	4.0	1.8	1.8
28	4.0	1.8	1.8
29	3.0	1.8	1.8
30	3.0	1.8	1.8
31	3.0	1.8	
Total Sec.Ft. Days	143.0	68.6	48.0
Mean Sec. Ft.	4.6	2.2	1.6
Total Ac. Ft.	286	137	96

Total Acre-Feet for 92 day period - 519.

TABLE 4

Daily Discharge in Cubic Feet per Second
OAK RUN CREEK
July 1 to September 30, 1950

Day	July	August	September
1	7.0	7.0	7.0
2	7.0	7.0	7.0
3	7.0	7.0	7.0
4	7.0	7.0	7.0
5	7.0	7.0	7.0
6	7.0	7.0	7.0
7	7.0	7.0	7.0
8	7.0	7.0	7.0
9	7.0	7.0	7.0
10	7.0	7.0	7.0
11	7.0	7.0	7.0
12	7.0	7.0	7.0
13	7.0	7.0	7.0
14	7.0	7.0	7.0
15	7.0	7.0	7.0
16	7.0	7.0	7.0
17	7.0	7.0	7.0
18	7.0	7.0	7.0
19	7.0	7.0	7.0
20	7.0	7.0	7.0
21	7.0	7.0	7.0
22	7.0	7.0	7.0
23	7.0	7.0	7.0
24	7.0	7.0	7.0
25	7.0	7.0	7.0
26	7.0	7.0	7.0
27	7.0	7.0	7.0
28	7.0	7.0	7.0
29	7.0	7.0	7.0
30	7.0	7.0	7.0
31	7.0	7.0	
Total Sec. Ft. Days	217.0	217.0	210.0
Mean Sec. Ft.	7.0	7.0	7.0
Total Ac. Ft.	434	434	420

Total Acre-Feet for 92 day period - 1288

TABLE 5

Daily Discharge in Cubic Feet per Second
CLOVER CREEK
July 1 to September 30, 1950

Day	July	August	September
1	22.0	21.0	17.0
2	22.0	20.0	17.0
3	22.0	20.0	17.0
4	22.0	20.0	17.0
5	22.0	20.0	17.0
6	22.0	20.0	17.0
7	22.0	20.0	17.0
8	22.0	20.0	17.0
9	22.0	20.0	17.0
10	22.0	20.0	17.0
11	22.0	20.0	17.0
12	22.0	20.0	17.0
13	22.0	20.0	17.0
14	22.0	19.0	17.0
15	22.0	19.0	17.0
16	22.0	19.0	17.0
17	22.0	19.0	17.0
18	22.0	19.0	17.0
19	22.0	19.0	17.0
20	22.0	19.0	17.0
21	22.0	19.0	17.0
22	22.0	19.0	17.0
23	21.0	19.0	17.0
24	21.0	18.0	17.0
25	21.0	18.0	17.0
26	21.0	18.0	17.0
27	21.0	18.0	17.0
28	21.0	18.0	17.0
29	21.0	18.0	17.0
30	21.0	18.0	17.0
31	21.0	18.0	
Total Sec.Ft. Days	673	595	510
Mean Sec.Ft.	21.7	19.2	17.0
Total Ac.Ft.	1346	1190	1020

Total Acre-Feet for 92 day period - 3556

PLATE 1

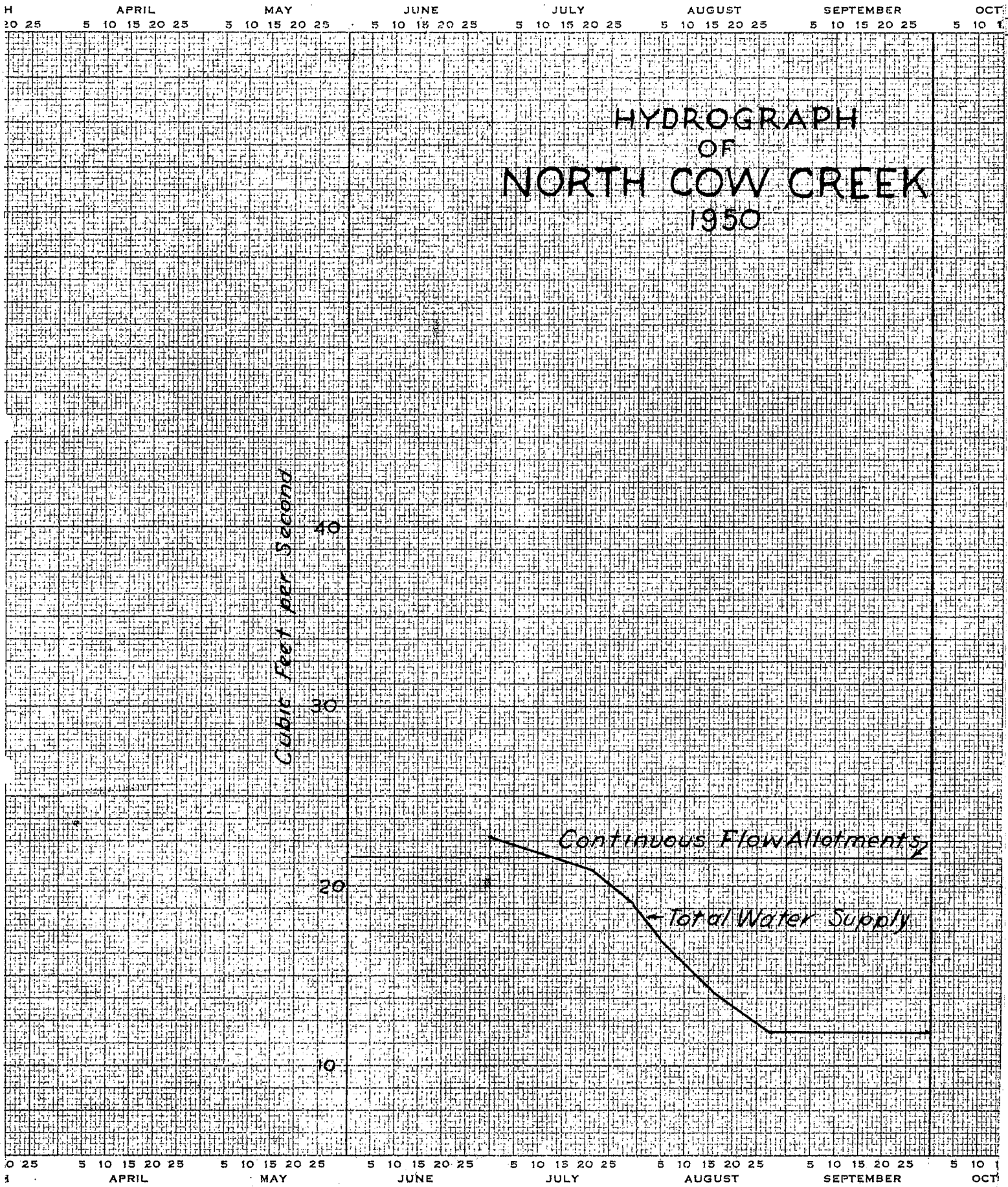

HYDROGRAPH
OF
NORTH COW CREEK
1950
Cubic Feet per Second
40
30
20
10
Continuous Flow Allotments
Total Water Supply
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCT
5 10 15 20 25

PLATE 2

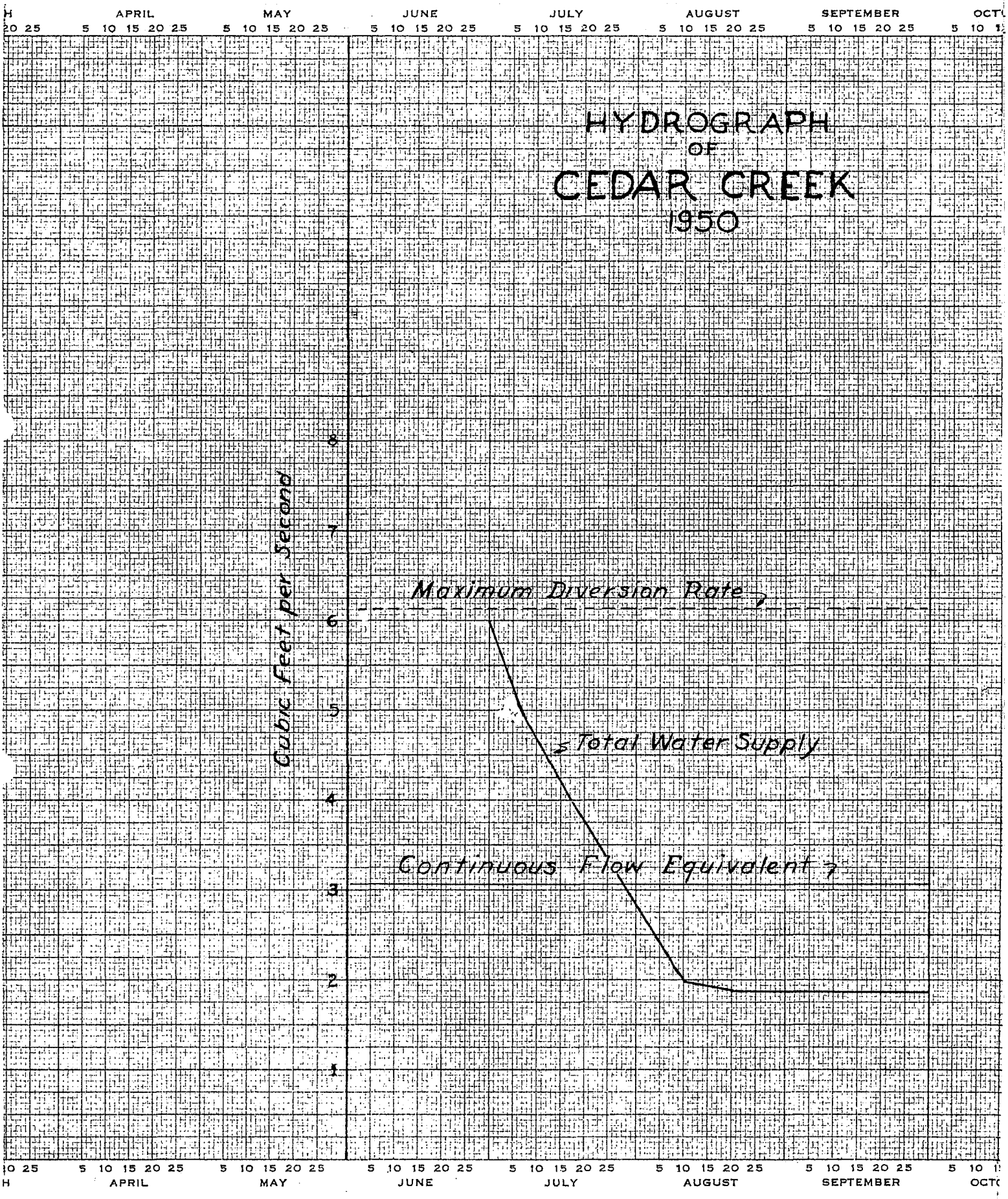

HYDROGRAPH
OF
CEDAR CREEK
1950
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
Cubic Feet per Second
8
7
6
5
4
3
2
1
Maximum Diversion Rate
Total Water Supply
Continuous Flow Equivalent

PLATE 3

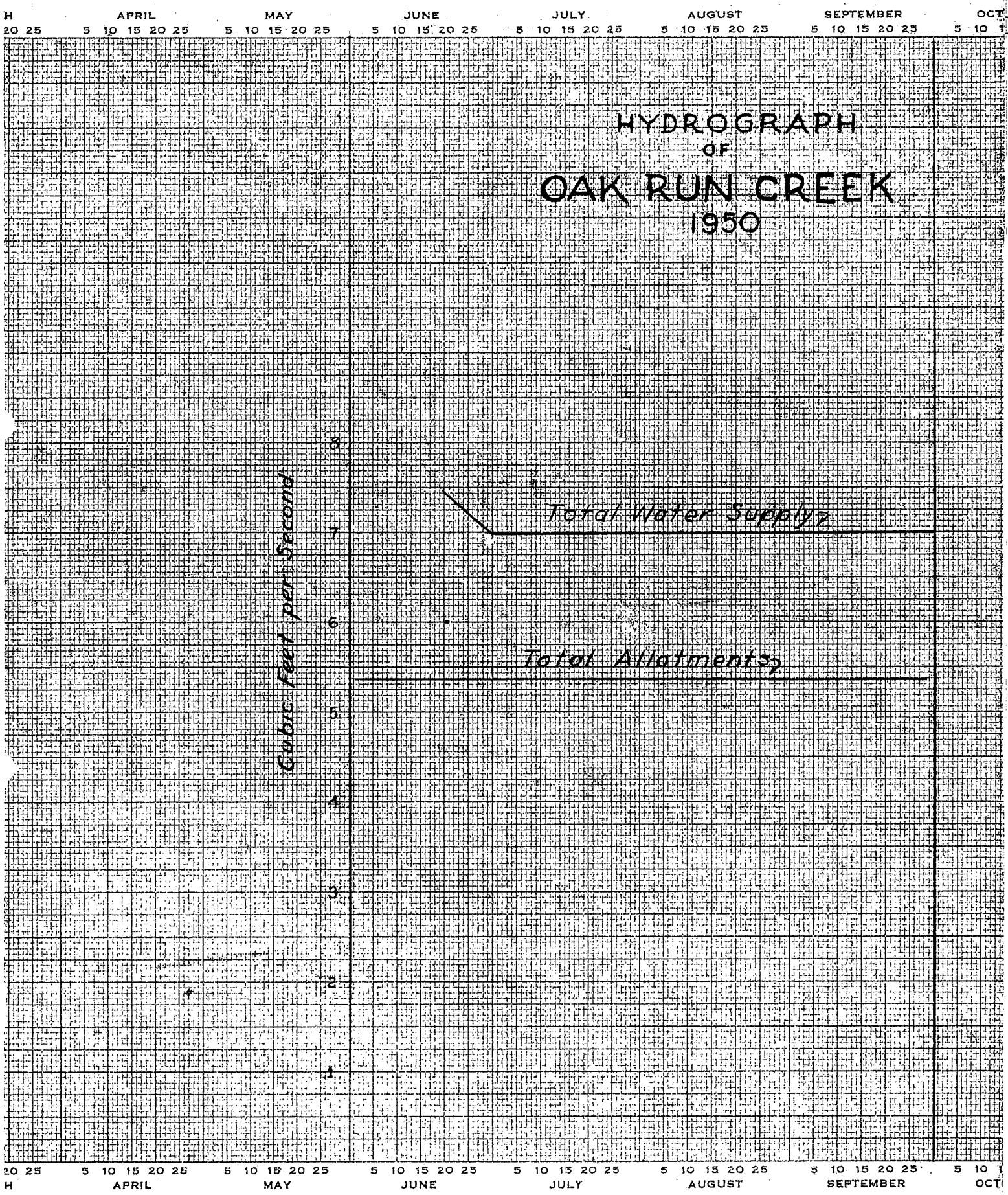
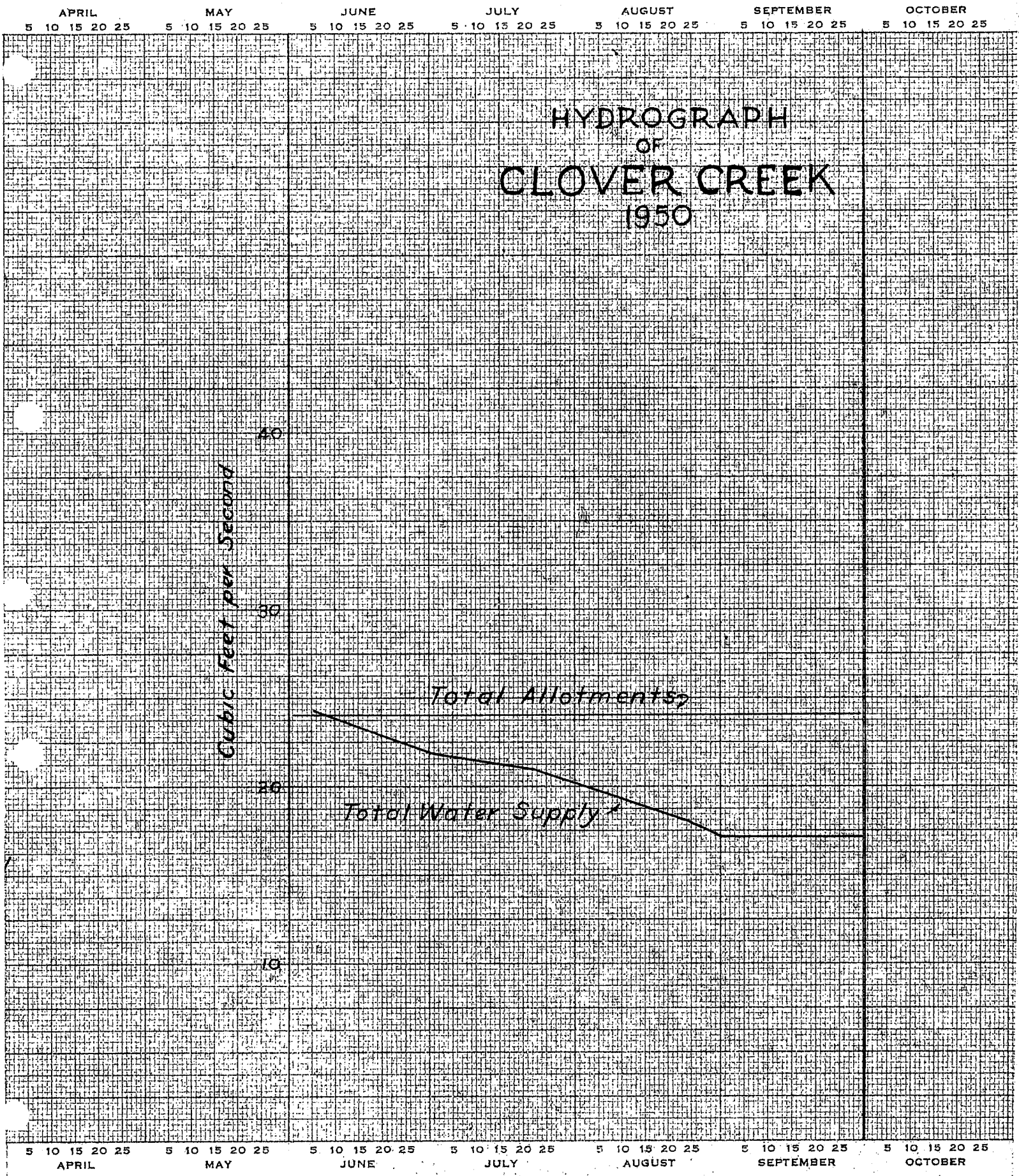

HYDROGRAPH
OF
OAK RUN CREEK
1950
Total Water Supply
Total Allotments
Cubic feet per Second
8
7
6
5
4
3
2
1
H
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCT
20 25
5 10 15 20 25

PLATE 4


HYDROGRAPH
OF
CLOVER CREEK
1950
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
5 10 15 20 25
Cubic Feet per Second
40
30
20
10
Total Allotments
Total Water Supply