DEPARTMENT OF PUBLIC WORKS

STATE OF CALIFORNIA

REPORTS OF THE

DIVISION OF WATER RESOURCES

Edward Hyatt, State Engineer

REPORT ON WATER MASTER SERVICE ON BURNEY CREEK SHASTA COUNTY, CALIFORNIA FOR SEASON OF 1929

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By Harrison Smitherum, Water Master

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Sacramento, California
May 1930

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STATE OF CALIFORNIA

Department of Public Works

SACRAMENTO

DIVISION OF WATER RESOURCES
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER
CHIEF OF DIVISION

May 15, 1930

Mr. Edward Hyatt,
State Engineer,
Sacramento, California.

Dear Sir: Attention: Mr. Gordon Zander, Hydraulic Engineer

There is submitted herewith a report covering water master service on Burney Creek, Shasta County, California, for the irrigation season of 1929.

The report describes the methods and practices followed in the distribution of the waters of Burney Creek in accordance with the Black vs. Grinnell, et al. decree, and presents the results obtained by this distribution.

Respectfully submitted,

Harrison Smitherum
Water Master

REPORT ON WATER MASTER SERVICE

ON

BURNEY CREEK, SHASTA COUNTY, CALIFORNIA

FOR

SEASON OF 1929.

INTRODUCTION

Water master service on Burney Creek for the 1929 Season covered the period from May 13 to October 10. The rotation schedule however was not put into effect until June 14th and was discontinued on October 2nd. During this latter period the waters of Burney Creek were distributed in accordance with the Black vs. Grinnell, et al. decree, entered by the Superior Court of Shasta County, California, on January 30, 1926. The provisions of this decree are discussed in the "Report on Water Master Service on Burney Creek for Season of 1926" by U. B. Gilroy, Water Master.

A petition, signed by three parties to the above mentioned decree, requesting the appointment of a water master for Burney Creek for the 1929 Season was received at the office of the Division of Water Rights on April 25, 1929. Upon investigation it appeared that necessity for such appointment existed, and on May 11, 1929, Harrison Smitherum was duly appointed water master for Burney Creek for the 1929 Season. The water master assumed his duties in the field on May 13.

PRECIPITATION

Precipitation records applicable to the Burney Creek area are kept by the Pacific Gas and Electric Company in co-operation with the United States Weather Bureau at Hat Creek Power Plant No. 1. This station is located below Cassel, at an elevation of 3010 feet. The records as published in the climatological reports of the United States Weather Bureau, cover the period from 1921 to 1929. This period embraces the years during which water master service has been in operation on Burney Creek, and, also covers the greater portion of the cycle of dry years which has been prevalent throughout the State since 1916. The record is of such short duration that the mean or normal precipitation computed therefrom is of little or no weight, but it is here presented for the purpose of comparing the precipitation during the 1928-1929 Season with that for the other years of record.

A summary of the available records is submitted at the end of this report in Table 1.

In Table 2, also submitted at the end of this report, the precipitation for the seasonal year 1928-1929 has been compared with the mean precipitation for the seasonal years 1921 to 1929.

From Table 1, it is to be noted that the season of 1928-1929, with a total precipitation of 12.99 inches, was the third dryest season of record. The season of 1923-1924 with 7.81 inches of precipitation was the dryest season, while the Season of 1925-1926, when 12.69 inches of precipitation were recorded, was the second dryest.

From Table 2, the total precipitation for the seasonal year 1928-1929 was 81 per cent of the mean seasonal precipitation for the period of record. The precipitation for the period October 1 to May 1 for the seasonal year was 88 per cent of the mean precipitation for the same period, while for the period May 1 to September 30 the precipitation for 1929 was only 51 per cent of the mean for that period, despite the fact that the rainfall for June 1929 was 145 per cent of normal. May was practically rainless and no rainfall occurred during July, August and September.

WATER SUPPLY

The record of the daily discharge of Burney Creek above all diversions for the 1929 Season is given in Table 3 submitted at the end of this report. This is a composite record obtained by adding the flow of the Haynes Ditch to the flow of Burney Creek at the stream flow measuring station located on the Haynes ranch below the intake of the Haynes Ditch.

The flow of the stream was about normal up to June 14th, at which time it became necessary to put the rotation schedule into effect. The heavy storms which occurred on June 15 and 16, however, increased the stream flow to such an extent that the rotation schedule was discontinued until the opening of the sixth irrigation period (June 24 - July 4). Following the June storms, the flow of the stream decreased rapidly and in August reached the most critical stage experienced since water master service was undertaken in 1925.

DEMAND ON WATER SUPPLY

West Side Users' Periods

The demand on the flow of Burney Creek for the West Side Users' periods is 27.4 cubic feet per second, comprising 25.9 cubic feet per second irrigation allotments (Schedule I of Decree), 1.00 cubic foot per second minimum flow (Par. 10 of Decree) and 0.50 cubic foot per second channel loss in delivering the Desmond Allotment down the channel of the creek or in keeping the creek channel wet when the Desmond allotment is being diverted through the Cayton Ditch.

During the 1929 Season, the Desmond allotment was carried in the Cayton Ditch, hence, the 0.50 cubic foot per second above mentioned does not appear as channel loss in the water deliveries set forth in Table 4, submitted at the end of this report. It, however, was necessary to pass a flow of 0.50 cubic foot over the Greer-Cornaz dam to keep the stream bed wet to the State Highway bridge to prevent the Burney wells from going dry.

East Side Users' Periods.

The demand on the water supply for the East Side Users' periods is 27.7 cubic feet per second, comprising 25.3 cubic feet per second irrigation allotments (Schedule II of Decree), 1.00 cubic foot per second minimum flow (Par. 8 of Decree), 0.90 cubic foot per second channel loss, and 0.50 cubic foot per second to be passed over the Greer-Cornaz dam to prevent the Burney wells from going dry.

The 0.90 cubic foot channel loss represents the mean loss for

six periods as set forth in Table 4, above mentioned.

Surplus Water Allotments

In addition to the above first rights to the use of Burney Creek waters, Schedule III of the decree provides a second right allotment of 5.90 cubic feet per second to certain of the water users named in Schedule I and II and in Paragraph 14 of the decree provision is made for a third right to Ella P. Braden. However, during the 1929 Season, it was not necessary to prorate the flow of the creek, as long as the available water supply was in excess of the amounts required to satisfy the first rights of the West Side and East Side users, consequently, the surplus water allotments have not been included as a part of the demand on the stream insofar as this report is concerned.

CHANNEL LOSSES

West Side Users' Periods.

To determine the channel losses encountered in distributing the West Side Users' irrigation allotments, simultaneous measurements of the flow of Burney Creek above all diversions and the combined diversions of the ditches at the points of measurement specified in the decree were made throughout the season. The average of sixteen measurements indicates that the channel losses during the West Side Users' periods were offset by return flow from irrigation. The measurements further indicate that this return flow at times exceeded the channel loss, dependent upon the flow of Canyon Creek and use of water on the Haynes lower meadow. It, however, was found necessary to pass a flow of 0.50 cubic foot per second over the Greer-Cornaz dam to keep the Burney wells from going dry, which amount of water is chargeable to channel loss during the West Side Users' periods.

East Side Users' Periods.

From fourteen measurements made during the 1929 season, the average channel loss in Burney Creek during the East Side Users' periods was found to be 0.90 cubic feet per second. A flow of 0.50 cubic foot per second required to pass over the Greer-Cornaz dam for reasons given above, is also chargeable to channel loss, consequently, the total loss was 1.40 cubic feet per second for the East Side Users' periods.

The average channel loss for each of the ten irrigation periods from June 24 to October 2, 1929, is given in Table 4 submitted at the end of this report.

AVAILABLE WATER SUPPLY COMPARED WITH DEMAND

The mean flow of Burney Creek for the period from June 24 to October 2, 1929, when the rotation schedule was administered, was 10.0 cubic feet per second, or approximately 36 per cent of the average demand of 27.55 cubic feet per second.

A comparison of the flow of Burney Creek above all diversions with the demand on the water supply for the 1929 Season is shown graphically on Plate 1, submitted at the end of this report. The graph representing the flow of Burney Creek was plotted from the data presented in Table 3, while the demand curve is based upon the data contained herein under the chapter heading "Demand on Water Supply".

DISTRIBUTION OF WATER

Determination of Percentage of Irrigation Allotments Available.

The stream flow measuring station installed and maintained by the Division of Water Resources on Burney Creek on the Haynes ranch is used as the control in determining the amount of water available for distribution. This station is located below the intake of the Haynes Ditch, consequently, to obtain the total flow of the creek above all diversions it is necessary to add the flow of the Haynes Ditch to the flow of the creek at the measuring station. The amount of water available for irrigation during any particular period is the difference between the discharge of the creek above all diversions and the fixed demand on the water supply. The fixed demand is the sum of the minimum flow allotments to the users of the opposite class and the channel losses. The ratio of the amount of water available for irrigation to the total decreed irrigation allotments gives the percentage of the aforesaid irrigation allotments that can be delivered.

Distribution of Irrigation Allotments.

The day prior to the opening of each ten day rotation period the flow of Burney Creek above all diversions was determined and the percentage of allotments available for distribution to the class of users entitled to irrigation heads of water was computed. These water users were then notified as to the percentage of allotments, the amount of their allotments, and the gage readings on their measuring devices necessary to deliver the proper allotments. On the day of the change

the ditches were first regulated by the water users and afterwards inspected and reregulated by the water master, except on the Greer-Cornaz Ditch. Regulation of the Greer-Cornaz Ditch was attended to by the water master. Inspection of the ditches was made at frequent intervals during each period for the purpose of obtaining data relative to channel losses or to reregulate diversions when changes in the flow of the stream indicated that an adjustment of allotments was required.

Summary of Distribution and Resultant Water Deliveries.

The water master took up his duties in the field on May 13, 1929, however, it was not necessary to put the rotation schedule into effect until June 14. On June 14, the waters of the creek were distributed to the West Side Users on the basis of 100 per cent allotments, but heavy rains which occurred June 15 and 16 made it unnecessary to enforce the rotation schedule for the remainder of the period. On June 24, at the opening of the sixth irrigation period, the rotation schedule was again put into operation and was continued until the close of the fifteenth irrigation period, on October 2, after which date there was no demand for irrigation. On October 2, the available water was allotted to the various users on a continuous flow basis. Water master service was discontinued on October 10, with the departure of the water master.

The West Side Users in five irrigation periods were delivered an average flow of 8.6 cubic feet per second, or 33 per cent of their total irrigation allotment of 25.9 cubic feet per second. The maximum irrigation allotment distributed to the West Side Users for a ten day

period was 48 per cent, while the minimum irrigation allotment received by this class of users was 26 per cent.

The East Side Users received an average of 8.7 cubic feet per second, or 34 per cent of their total irrigation allotment of 25.3 cubic feet per second, for their five irrigation periods. The maximum ten day average delivery to this class of users was 64 per cent and the minimum delivery 21 per cent.

A summary of the water deliveries on Burney Creek for each of the ten irrigation periods from June 24 to October 2 is presented in Table 4, submitted at the end of this report.

USE OF WATER

Table 5, submitted at the end of this report, gives the irrigated area to be supplied and the decreed irrigation allotment for said acreage of each water user on Burney Creek. The acreages and allotments are further segregated as to the West Side and East Side Users. The total irrigated area of the West Side Users is 1031 acres while that of the East Side Users is 969 acres. The combined areas of the two classes amounts to 2000 acres. The acreages covered by the surplus water allotments (Schedule III of Decree) are not included in Table 5.

Over two thirds of the area irrigated from Burney Creek is devoted to the production of meadow hay. It is the practice to irrigate the meadows heavily up to about haying time or as long as there is an abundance of water. As the water supply fails, irrigation is limited to smaller areas of more valuable crops. The meadow areas receiving water during the critical period are greatly contracted, or are entirely neglected, consequently, the area being irrigated is constantly changing throughout the season. For the 100 day period from June 24 to October 2, 1929, it is estimated that the average area irrigated was approximately one third of the total irrigable acreages shown in Table 5.

The average amounts of water delivered to these areas during said 100 day period are as given in Table 4.

A summary of the use of water which obtained, using the areas

as estimated above and the data presented in Table 4, is given in the following table.

Class of Users	Irrigated Acreage	Amount of Water Delivered			
		Total Acre Feet	Acre Feet per Acre	Acres per C.F.S.	*Miners Inches per Acre
West Side	344	853	2.5	80	0.50
East Side	323	863	2.7	74	0.54
All	667	1716	2.6	77	0.52

* Measured under a six inch pressure.

A portrayal of the use of water for the 1929 Season on the assumption that the water delivered, as shown in Table 4, was spread over the entire area provided for in the decree, follows:

Class of User	Irrigable Acreage	Amount of Water Delivered			
		Total Acre Feet	Acre Feet per Acre	Acres per C.F.S.	*Miners Inches per Acre
West Side	1031	853	0.83	240	0.17
East Side	969	863	0.89	225	0.18
All	2000	1716	0.86	232	0.175

* Measured under a six inch pressure.

CROP PRODUCTION

A summary of the crops produced on the lands irrigated from Burney Creek for the 1929 Season as taken from the crop reports submitted by the water users is presented in Table 6, submitted at the end of this report.

MEASURING DEVICES

Haynes Ditch

This ditch is equipped with a 3 footrectangular weir, which is very satisfactory. The zero datum of the staff gage on the weir is at gage reading 7.0 feet.

Haynes Creek Laterals

The three small ditches which serve the Haynes Lower meadow are not equipped with measuring devices. Two of these ditches divert from Burney Creek and one takes out of a small branch of the creek which traverses the meadow.

Erickson Ditches

The Erickson ranch is served by three ditches diverting from two small branches of Burney Creek. These ditches are not equipped with measuring devices.

Snooks Ditch

This ditch is not equipped with a measuring device.

Cayton Ditch

This ditch is equipped with a rated staff gage located in a rating flume approximately 700 feet below the head of the ditch. Mr. Bue planned to replace this structure with a Parshall Measuring Flume, but due to failure in securing the services of the local carpenter the device was not installed in 1929.

The location of the measuring device on the Cayton Ditch at

this point has been critized due to the fact that considerable water is lost between the head of the ditch and the point of measurement. This water, however, returns to Burney Creek, a part thereof becoming available for diversion by the Greer-Cornaz Ditch and the remainder becomes a part of the flow that must be maintained in the creek channel below the Greer-Cornaz dam to keep the Burney wells from going dry.

Greer-Cornaz Ditch

This ditch is equipped with a rated staff gage in a flume section just below the head of the ditch. This device is satisfactory in regulating the flow at the head of the ditch, since, the allotment of each user from this ditch is measured at the head of his lateral from the ditch.

Greer Lateral (Greer-Cornaz Ditch)

A 2 foot rectangular weir was installed in this lateral in 1929. The zero datum of the gage is at gage reading 4.0 feet.

Cornaz Lateral (Greer-Cornaz Ditch)

This lateral is equipped with a rated flume section. A check gate structure in the main ditch below the head of the lateral serves to regulate the flow. During the 1929 Season a gate was installed at the head of the rating flume to act as a submerged orifice.

Black - Red River Lumber Company (Greer-Cornaz Ditch)

The combined allotments of Mrs. Black and the Red River Lumber Company are measured by means of a 3 foot Parshall Measuring Flume

located in the Greer-Cornaz Ditch at the north line of the Cornaz property.

Vedder Lateral (Greer-Cornaz Ditch)

The Vedder lateral diverts from the main ditch just upstream from the Parshall Measuring Flume above mentioned, which device also serves to measure the Vedder allotment.

Desmond (Creek Channel)

In 1929 a 2 foot rectangular weir was maintained on the Greer-Cornaz Dam to measure the Desmond allotment.

Elling Ditch

This ditch is but seldom used after the rotation schedule is put into operation. During times of use the flow in the ditch is determined by current meter measurements.

RECOMMENDATIONS

(1) It has been found necessary to rerate the measuring station on Burney Creek on the Haynes ranch each year due to changes in the natural, loose, boulder control caused by the winter floods. Also the conditions of flow and the rough stream bed at the gaging are very unsatisfactory for current meter measurements at low discharges. To better these conditions, a concrete control about one foot in height above stream bed should be constructed below the station. The control should be of a design similar to the crest of the Greer-Cornaz dam so that a removable weir may be placed on top of the control for the purpose of measuring the discharge of the stream at low stages.

(2) A suitable head gate should be installed in the Cayton Ditch.

(3) A 3 foot Parshall Measuring Flume should be installed in the Cayton Ditch at or near the location of the rating flume now in use.

(4) A 2 foot Parshall Measuring Flume should be installed at the head of the Cornaz Lateral of the Greer-Cornaz Ditch.

FINANCIAL STATEMENT

Water master service in Shasta County during the 1929 Season covered Hat, Burney, North Cow, Oak Run, and Clover Creeks. The work on these streams was carried on as a unit, and was financed partly by subscription from the water users and partly by contribution by the Division of Water Resources.

No segregation was made in the expense of conducting the work on each stream. The total unit cost of the service on the five stream systems was $0.54 per acre of irrigated land. The cost to the water users was slightly less than $0.27 per acre, the remaining cost having been borne by the Division of Water Resources.

An itemized statement of the receipts and expenditures follows.

FINANCIAL STATEMENT

SHASTA COUNTY WATER DISTRIBUTION

1929 SEASON

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RECEIPTS

Contributed by Water Users on Burney Creek	300.00	
Contributed by Water Users on Hat Creek	700.00	
Contributed by Water Users on North Cow Creek	478.33	
Contributed by Water Users on Oak Run Creek	94.47	
Contributed by Water Users on Clover Creek	400.05	
Contributed by Division of Water Resources	2000.00	3972.85

DISBURSEMENTS

Salaries and Wages	2984.97	
Field Expenses	945.98	
Printing and Blueprinting	41.90	3972.85

TABLES

TABLE 1

PRECIPITATION DATA
HAT CREEK, SHASTA COUNTY - ELEVATION 3010 FEET

Monthly, Seasonal and Average Amounts of Precipitation in Inches.

Season	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Seasonal
1921-22	0.30	0.47	3.82	0.85	6.41	2.13	0.38	1.91	1.40	0	0.60	0	18.27
1922-23	1.58	2.26	4.85	2.36	0.32	0.03	2.04	1.18	3.29	0.17	0.30	1.70	20.08
1923-24	1.16	0.37	1.46	1.30	1.31	1.04	.73	T	T	0	0.34	0.10	7.81
1924-25	2.28	1.40	1.99	1.01	4.12	1.12	1.37	1.98	1.49	0.09	0.18	1.86	18.89
1925-26	0.58	2.26	0.48	2.57	2.45	0.75	2.39	1.06	0	0.04	0.10	0.01	12.69
1926-27	1.18	4.41	0.88	1.63	4.70	1.77	2.89	2.01	0.63	T	T	0.29	20.39
1927-28	0.87	4.84	0.36	1.83	1.36	4.87	1.05	1.76	0.08	0.14	0.14	0.16	17.46
1928-29	0.50	2.69	2.64	0.92	1.65	1.17	1.85	0.05	1.52	0	0	0	12.99
Mean	1.06	2.35	2.06	1.56	2.79	1.61	1.59	1.24	1.05	0.05	0.21	0.51	16.08

TABLE 2

PRECIPITATION DATA
HAT CREEK, SHASTA COUNTY

PRECIPITATION FOR THE SEASONAL YEAR 1928-1929
COMPARED WITH MEAN FOR SEASONAL YEARS 1921-1929.

Month	Precipitation in Inches		Per Cent of Total Mean	
	Mean 1921-1929	Seasonal Year 1928-1929	Mean 1921-1929	Seasonal Year 1928-1929
October	1.06	0.50	6.5	3.1
November	2.35	2.69	14.7	16.7
December	2.06	2.64	12.8	16.4
January	1.56	0.92	9.7	5.7
February	2.79	1.65	17.4	10.3
March	1.61	1.17	10.0	7.3
April	1.59	1.85	9.9	11.5
May	1.24	0.05	7.7	0.3
June	1.05	1.52	6.5	9.5
July	0.05	0	0.3	0
August	0.21	0	1.3	0
September	0.51	0	3.2	0
TOTALS	16.08	12.99	100.0	80.8

TABLE 3

DAILY DISCHARGE, IN CUBIC FEET PER SECOND OF BURNEY CREEK AT HAYNES RANCH, FOR THE PERIOD MAY 25 - OCTOBER 2, 1929

Day	May	June	July	August	Sept.	Oct.	
1		32.6	15.6	10.1	7.8	9.0	
2		33.6	15.6	9.6	7.7	9.0	
3		31.6	15.6	9.6	7.7		
4		29.6	15.9	9.1	7.7		
5		28.2	15.4	8.6	7.7		
6		29.2	14.9	8.6	7.7		
7		29.2	14.4	8.6	7.7		
8		28.2	13.9	8.1	7.7		
9		28.2	13.4	8.1	7.7		
10		26.2	12.1	8.1	7.7		
11		25.2	12.1	7.9	7.7		
12		23.0	12.1	7.9	7.8		
13		22.3	11.6	7.5	7.8		
14		21.5	11.7	7.1	7.8		
15		30.2	11.7	7.1	7.8		
16		66.2	11.2	6.9	7.8		
17		55.2	10.7	6.6	7.8		
18		36.2	10.8	7.1	7.8		
19		31.2	11.2	7.1	7.8		
20		28.2	11.2	7.1	8.0		
21		24.2	11.2	7.1	8.0		
22		22.8	10.7	7.1	8.0		
23		21.4	10.2	7.3	8.2		
24		20.6	10.4	7.7	8.2		
25	36.8	19.8	10.4	7.7	8.4		
26	34.8	19.8	10.1	7.7	8.7		
27	33.6	19.8	10.1	7.7	9.0		
28	30.6	18.4	9.9	7.7	9.0		
29	29.6	16.9	9.9	7.7	9.0		
30	30.6	16.6	9.9	7.7	9.0		
31	31.6		9.9	7.8			
Total Sec. Feet Days	227.6	836.1	373.8	244.0	240.7	18.0	131 day Period
Mean Sec. Feet	32.5	27.9	12.1	7.9	8.0	9.0	14.8
Maximum Sec. Feet	36.8	66.2	15.9	10.1	9.0	9.0	66.2
Minimum Sec. Feet	29.6	16.6	9.9	6.6	7.7	9.0	6.6
Total Acre Feet	451	1657	741	484	477	36	3846

TABLE 4

WATER DELIVERIES ON BURNEY CREEK
1929 SEASON

Irrigation Period	Dates	Flow of Burney Creek above all Diversions C.F.S.	Combined Diversions C.F.S.	Channel Loss C.F.S. West	Channel Loss C.F.S. East	Irrigation Deliveries C.F.S. West	Irrigation Deliveries C.F.S. East	Irrigation Deliveries % of Allotment West	Irrigation Deliveries % of Allotment East
1	May 5 - May 15								
2	May 15 - May 25								
3	May 25 - June 4	31.5							
4	June 4 - June 14	26.9							
5	June 14 - June 24	33.7							
6	June 24 - July 4	17.9	17.2		- 0.7		16.2		64
7	July 4 - July 14	13.6	13.5	- 0.1		12.5		48	
8	July 14 - July 24	11.1	10.1		- 1.0		9.1		36
9	July 24 - Aug. 3	10.0	10.1	+ 0.1		9.1		35	
10	Aug. 3 - Aug. 13	8.5	8.0		- 0.5		7.0		28
11	Aug. 13 - Aug. 23	7.1	7.7	+ 0.6		6.7		26	
12	Aug. 23 - Sept. 2	7.7	6.4		- 1.3		5.4		21
13	Sept. 2 - Sept. 12	7.7	7.7	0.0		6.7		26	
14	Sept. 12 - Sept. 22	7.8	6.8		- 1.0		5.8		23
15	Sept. 22 - Oct. 2	8.6	8.8	+ 0.2		7.8		30	
Mean	June 24 - Oct. 2	10.0	9.6		- 0.9	8.6	8.7	33	34

TABLE 5

ACREAGE TO BE SUPPLIED
AND
DECREED IRRIGATION ALLOTMENTS
1929 SEASON

Water User	Irrigated Area to be Supplied		Decreed Full Irrigation Allotment	
	West Side User	East Side User	West Side User Sec. Feet	East Side User Sec. Feet
Ednah M. Black		320		8.80
Salve Bue (K. Elling)	314	200	7.85	5.00
Mary Ann Cornaz	150	137	3.75	3.42
Timoth Desmond	75		1.88	
J. C. Erickson	21		0.60	
Fred Greer		87		2.50
A. R. Haynes		50		1.25
Richard W. Haynes	378		9.45	
Red River Lumber Co.		175		4.38
John Snook	18		0.50	
Raymond P. Vedder	75		1.87	
TOTALS	1031	969	25.90	25.35

TABLE 6

CROP PRODUCTION ON LANDS IRRIGATED FROM
BURNEY CREEK
1929 SEASON

Owner	Crop	Acres	Total Yield		Yield per Acre	
			Sacks	Tons	Sacks	Tons
Ednah M. Black	Meadow Hay	400		100		0.3
Salve Bue (K. Elling)	Meadow Hay	160		200		1.3
	Alfalfa	30		80		2.7
	Oats)	30	410	18.5	13.7	0.6
	Oat Hay)			60		
	Barley	20	220	11	11.0	0.6
	Potatoes	12	1000	55	83.5	4.6
	Orchard	1				
	Pasture	340				
Mary Ann Cornaz	Meadow Hay	150		125		0.8
	Wheat	3	20	1.3	6.6	0.4
	Potatoes	1		4.0		4.0
	Garden	0.5				
	Pasture	20.				
Fred Greer	Alfalfa	2.5		5.		2.0
	Wheat	17.5	Hogged off			
	Wheat Hay	20.0				
	Wheat	40.0	400	26.0	10.0	0.7
	Potatoes	5.0	400	22.0	80.0	4.4
Raymond P. Vedder	Meadow Hay	160		170		1.1
	Potatoes	0.5	50	2.8	100	5.6
	Garden	0.2				
	Pasture	20.0				

Yield when given in sacks was converted to yield in tons using weight per sack as follows:

Wheat	130 lbs. per sack
Barley	100 lbs. per sack
Oats	90 lbs. per sack
Potatoes	110 lbs. per sack

PLATES

PLATE 1

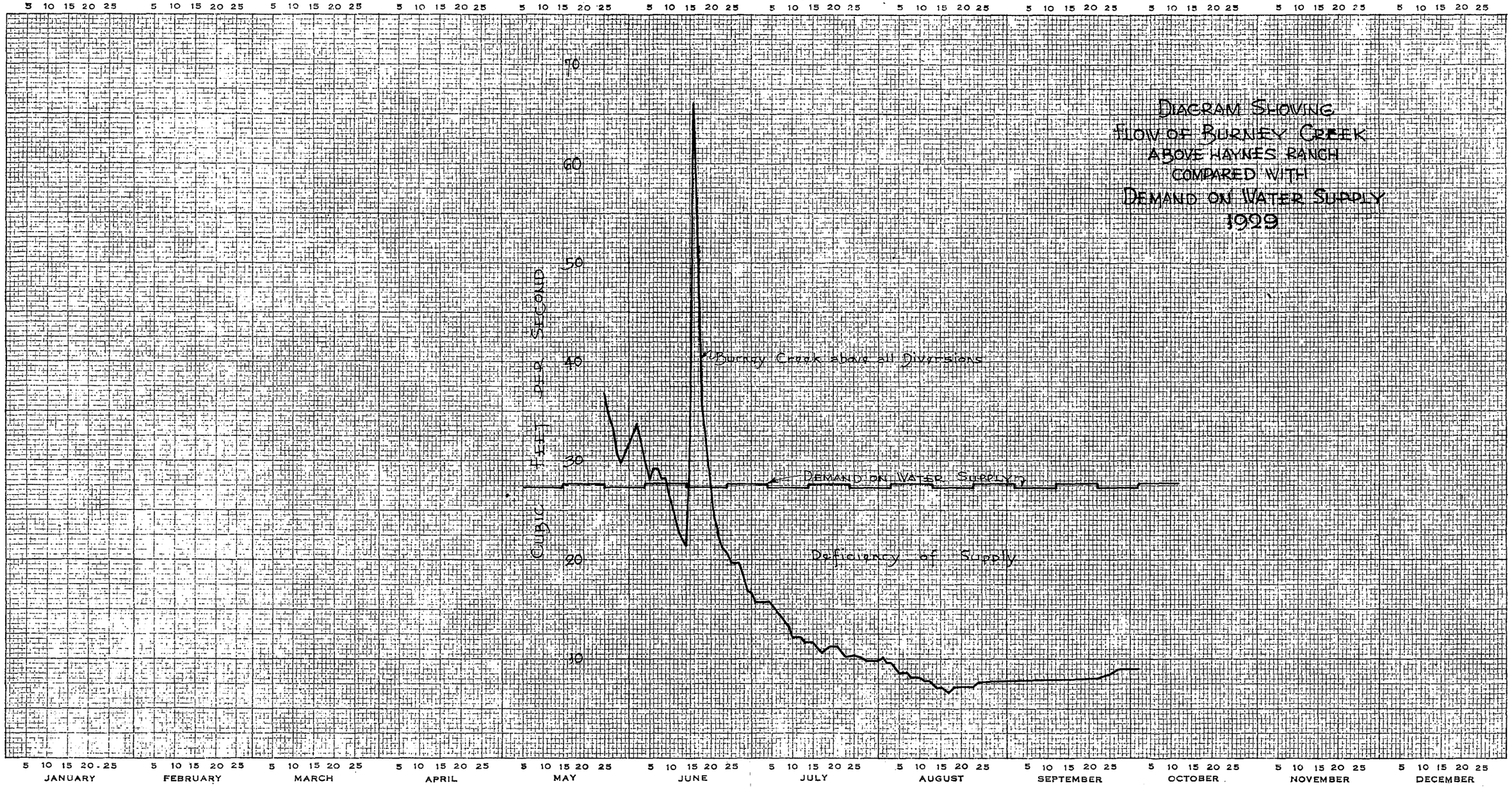
DIAGRAM SHOWING
FLOW OF BURNEY CREEK
ABOVE HAYNES RANCH
COMPARED WITH
DEMAND ON WATER SUPPLY
1929
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
5 10 15 20 25
70
60
50
40
30
20
10
CUBIC FEET PER SECOND
Burney Creek above all Diversions
DEMAND ON WATER SUPPLY
Deficiency of Supply