

South Fork Humboldt River.

Cramer's Pasture Sat. (5553 feet)  
[Elevo 5063 feet].

Wednesday, July 8, 1908.

5 p. m.

Stake set. Upper notch  
at high wave crest,  
lower notch at low  
wave crest.

Two nails. awash at  
high wave crest.

Note - From marks on  
millstone, water has been  
1 inch higher today.

Temp.  $13.4^{\circ}\text{C} = 56.1^{\circ}\text{F}.$

Current 60 feet in 9 sec. =  
4.54 mi. per hr.

Wednesday

7:55 p.m.

Stake - High wave  
 Crest -  $\frac{1}{16}$  in.  
 Nails -  $\frac{1}{16}$  in.

Thursday, July 9, 1908.

7:30 a.m.

Stake - High Wave Crest +  $1\frac{1}{4}$  in.  
 Nails - +  $1\frac{9}{16}$  in.

Note - Nails subject more  
to surf than is stake

7:45 a.m.

Temp.  $10.4^{\circ}$  C. =  $50.7^{\circ}$  F.

Current - 6 feet in 9 sec

Thursday.

70:30 a.m.

Stake - Crest +  $\frac{11}{16}$  in.Nails - " +  $\frac{10}{16}$ Temp.  $12.4^{\circ}\text{C} = 54.3^{\circ}\text{F}$ .Current 60 feet in 9<sup>+</sup> sec.

1:10 p.m.

Stake - Crest +  $\frac{1}{8}$  in.Nails " +  $\frac{1}{16}$  in.Temp.  $14^{\circ}\text{C} = 57.2^{\circ}\text{F}$ .Current 60 feet in 9<sup>+</sup> sec.

Width est. 45 feet.

4.

Measurements made about  
2 p.m. by aid of Charley Case  
on horses

Width measured with rope  
49 feet.

Depth 2.5 feet.

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4:45 p.m.

Stove - Crest -  $9\frac{1}{16}$  in.

Halls - Crest -  $10\frac{1}{16}$  in.

NS. - The water appears to be  
 $9\frac{1}{16}$  in. lower than at  
about this time (approx.  
5 p.m.) yesterday.

This represents largely  
the seasonal fall which

5.

has amounted since  
it began (approx. June 23)  
to 9 in. or about  
.64 in per day, practically  
the  $\frac{9}{16}$  in. loss of the past  
twenty four hours.

Temp.  $13.2^{\circ}\text{C.} = 55.76^{\circ}\text{F.}$

Current 60 feet in 9 sec.

Thursday 7:30 p. m.

Stake - Crest  $-\frac{9}{16}$  in.

Nails - Crest  $-\frac{4}{16}$  in.

Temp.  $12.4^{\circ}\text{C.} = 54.32^{\circ}\text{F.}$

Friday, July 10, 1908.

5:15 a. m.

Stave - Crest  $+ \frac{9}{16}$  in.

West Nail  $+ \frac{8}{16}$  in.

East Nail  $+ \frac{6}{16}$  in.

Temp.  $9.2^{\circ}\text{C} = 48.56^{\circ}\text{F}.$

Current 60 feet in  $8\frac{1}{2}$  sec.

Measured just beyond  
the shoal line or one-  
half from shore to midstream

7:30 a. m.

Stave - Crest  $+ \frac{3}{16}$  in.

West Nail - "  $+ \frac{6}{16}$  in.

East Nail - "  $+ \frac{6}{16}$  in.

NB. - Water is falling, etc. and

7.

probably highest sometime  
preceding 5 a.m. and  
the highest level was  
probably  $\frac{3}{4}$  in. higher  
than level recorded  
at 5 a.m.

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Temp.  $9.8^{\circ}\text{C.} = 49.6^{\circ}\text{F.}$

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10:30 a.m.

Stake - Crest -  $\frac{10}{16}$  in.

Nails - Crest - 1 in.

Fall is  $\frac{2}{16}$  in. below level  
recorded at 10:30 a.m.  
yesterday or  $\frac{10}{16}$  in. in  
excess of seasonal rate  
of fall.

Cause - yesterday sky  
was overcast and  
mountains were shaded.

NB. - Irregularity of melting  
is followed by irregularity  
of seepage flow. The  
hemorrhoids can not maintain  
the same flow, it finishes  
when the melting is constant.  
How soon would seepage flow  
cease after melting is complete?  
Temp.  $12.2^{\circ}\text{C.} = 53.96^{\circ}\text{F.}$

- Table of Temperatures -

of Water in Steam -

~~7:30 a.m.~~  
7:30 p.m.

5:30 a.m.

7:30 a.m.

10:30 a.m.

1 p.m.

7:30 p.m.

July 8 -

July 9 -

July 10 -

48.6°F.

50.7°F.

49.6°F.

54.3°F.

54°F.

57.2°F.

55.8°F.

56.1°F.

54.3°F.

NOTES

But little timber on  
Rocky Mountains. Some  
noble pines near summits  
and a small amount  
of cedar.

The mountain cover  
consists chiefly of aspens  
and bull brush which  
resembles manzanita.

But little timber is  
taken from the range  
a few men are hauling cedar  
from the southern ends

The fuel timber occurs  
on the lower ranges  
between Elko and the

Ruby Mountain in abundance and is practically outside the limits of the Ruby Forest Reserve. This cedar dots the otherwise bare hillsides about as thickly as a young orange orchard, and the individual trees average 6-8 feet high.

The bull brush has been destroyed in the part by sheep men because it was impenetrable to sheep and fires could be seen lighting a mouth at a time.

The cover of grass now covers very large portions of the range from base to summit cliffs.

The cliffs and the cold of the Ruby Mountains are the chief asset of the ranches along the Humboldt River. The natural meadows and the aspens and huckleberry give this asset stability.

The lower snow keeps the river plentifully supplied with water throughout the winter and spring, but the high water regularly occurs in June on the eve of the second irrigation, which immediately precedes the

cuttings of the first crop  
and ~~the~~ fresher than  
alfalfa roots for growing  
the second crop.

at Reno, the high water  
precedes even the first  
irrigations, I believe.

+ + +  
The North Fork which rises  
in the Independence Range  
is the antithesis of the South  
Fork and other Ruby streams.  
It flows from Cancer,  
wanders mountains.

The water goes down  
earlier and with a rush

## Irrigations on South Fork

Each irrigation for alfalfa lasts ten days from one end of field to the other.

First Irrigation - May 1-15.

Second Irrigation should end about three days before cutting first crop (which will be cut this year July 10-20).

Third Irrigation should occur in the middle of the growing of the second crop, or in August. Second crop is cut in September.

\* \* \*

Water is generally highest in June. This year June 20-25 but later than usual for late spring with high snow from melting.

But highest ever recorded occurred July 5, 1897.

High water comes at irrigation time but owing to natural meadows at Crane's and elsewhere the water is shut off as much as possible to reduce the high acreage of meadows, but water is used on the high grounds which forms a narrow belt along the sides of the narrow river valley.

Phase of Stream Flow

Early snow starts to run off in March and is usually gone by the end of May. The highest level then is 10-12 inches below the present level or  $1\frac{1}{2}$  feet deep in center of stream.

July 9, 1908. flow of stream was as follows



Current 60 feet in 9 sec. or 4.54 min. per hr. This shallow bed is 8-10 deep at outer edge; the remainder will average 2 feet.

Approximately June 25, 1908,  
 the stream was 9 inches  
 higher on north bank  
 and 12 inches on south  
 bank (Estimate of Chas. Crane).  
 on 3 1/2 feet deep.  
 The width was 10 1/2 feet  
 greater, the bed being then  
 57 1/2 feet wide, shallow  
 included <sup>within it</sup> but a current  
 was not known?

\* \* \*  
 Stream regularly comes to  
 least of August and in September.  
 Men at head of stream  
 have sufficient for second  
 crop irrigation, but men  
 at Lonsdale sometimes short.

Stream in winter  
nearly as high as March  
streams

x x x

Water this year perhaps  
2-3 inches below average.  
May snow in Red Mountains  
deeper than all earlier  
snow of year (Chas. Crave).  
This May snow was probably  
drifted and packed there.

NB. - High snow tends to  
accumulate each year by  
year. But some slight  
variation may occur.  
Cliffs and cold wave  
wanderers.

x x x

I marvel at the slight daily variation caused by rain. ( $1\frac{1}{4}$  inches) compared with the steady flow of  $2\frac{1}{2}$  feet. and at the slowness with which the high water accumulates. From the mountains <sup>(14 hrs)</sup> the current at Canis is  $4\frac{1}{2}$  miles per hour. This is due to the spongy bed of natural meadows and the barrier of aspens, rocks, and bell bush that serves in part to form basins and hummocks.

The strength of the floor is in part maintained by the canopy of bush

which shuts out the sun  
and the wind and thus  
retards evaporation.

When conditions are  
changed as in February 1901  
the effect is impressive.  
Then the ground was frozen  
and the brush bare of leaves  
(How well brush?). Lots of rain  
and warm weather  
occurred, when the  
river went out with  
a rush. When the flood  
started the river was  
full of ice.

\* \* \*

The main Branch at Edo rises at the wells (some spring west of the state "wells") and tho at first a seepage stream it is soon fed by snow tributaries from the Rocky Mountains. It is therefore high and rapid at Edo before the South Fork enters it.

Study —

- (1) Floods, time of rise and fall of North Fork and of Main Stream in connection with Paly streams. (2) Study Main Stream near Wells.
- (3) Study other Paly streams
- (4) Compare area of Paly uplands with flood of Humboldt in reply to Colorado Bulletin. See flooded Humboldt banks, Rivera bank full, lush meadows, wide extent of ranch lands. Verily mountain tops are far

more potent than their  
areas would seem to indicate.

(5) Study area, location,  
and present value of natural  
meadows as hay lands  
and as reservoirs,

(6) Get maps, contours, etc.,  
of U.S. Forest Reserves  
and adjacent basins.

- Expense Account -

Tues. July 7 - Sleeper \$ 2.50

Wed. July 8 - Porter fee .25

Breakfast .25

Friday July 10 - ( Stage - - - 1.50

Dinner .50

Sleeper 1.25

Sat. July 11 - Porter fee .25