

J. C. Church, Jr.
Library.

Homer's *Odyssey*
Sec. Sem. 1891.

Book XIV.

23- [άρ] fit ἄραρα

ἀρίστω ἀρίω [ἄρα] ἄραρα

28- [Χορ] χυρέννευι { $\chi\omega\rho\acute{\omega}$
 $\chi\omega\rho\eta\acute{\omega}$

ἐχώρησα κεχώρηκα

135- φιν - termination gen. or
dative, sing or plural.

336- ἀνδάνω ἀνδάνω ^{ἄνδρα} εἶδα εἶδατα

350- φαν ἔλκω drag.

Expenses

4 lbs cream .25-

~~2 lbs~~ Bacon .50

2 loaves bread .15-

1 box berries .10

1 single loaf of raisin bread .20

1 1/2 doz oranges .40

University of Michigan, 188

M

has passed in

credit

Photographic Expenses

Panorama

Jan 2 - P.F. 3/4 pm

Roll I - No. 1 - View of Crest

from Red Hill - Snow remains
in pockets of steep hillside -

After beneath sharp escarpment
when snow has become

deeper than elsewhere in
drift. Such drift in small

I 1 - in southern part
of Amster's Creek off. Cabin -

I 2 - View of S.W. Crest from ^{the} ridge
north
~~east~~ of lake. View toward S.W.
Jan 2. P.M. 4:30 p.m.

I 3. [2 in - 14 in] 5 pers. 2 Feb P.M.

Meadow + main source of creek
trick to Hunter's Creek. View S.

Cornice Snow - Steep slope cause

Timber has had little if any effect
on all this slope in forming the deeper
fields of which remnants are seen.

Slope contours, crests etc. are widest
cause. Slopes ~~are~~ in these places
seem all to dip strongly + toward north.

Basins often present but escarpments
are rather strong contours.

Sunday - July 14 -

Left camp at Reservoir at 9 a.m.

[I 2 - ^{Small} snow storage, deep ravine blown full,
fill from above flows into ravine
and pines beneath snow. Meadows in
middle part of ravine blown.
Depth of snow (15 ft. max.) has covered it along

I 4 - P.M. 8 a.m. Jan 2 - Basin of S.W. source
of Hunter's Creek with Martin's Ridge
Timber has had no effect ^{small} on snow -
and may have served to preserve it.

See especially line of cornice snow
high up in trees on left of picture (East)
Cornice features are however predominant.

I 5 - P.M. 27 Jan. 10³⁰ a.m. - View of Big Meadows
from north of creek. Cornice in perspective
Snow almost gone. But large remnants of
barns in timber back to crests no snow on

Meadow or low dam. ^{Look} Success later
than last year. Shadow of forest
aids in preservation of snow. Its
snow on level slopes of similar
elevations. Forest necessary

II 1 - Big Meadows Fan 20
Similar to I 5.

II 2 - View of S.W. arm of Hunter's
from Big Meadows side. ^{Snow at peak N.E.}
Martin's Range left & behind camera.
R.F. Fan 1. 11 a.m.

Evidence of ~~some~~ snow covered
by timber. Note bare patches -
where timber has been cut.
Bare spots in timber due to
lateness of season. Only deeper snow

now remains.

Note snow on crest, retained
high up where weather is cooler.

What percentage of gain by forests
on conics as against bare
conics? Could fields be measured
at least snow retained on
windward side ^{as well as} & toward, as
only certain amount of snow
blown over will ground.
Rest may fall upon ^{slope} exposed
to sun as in II 2. (on slope
of ravine) and be melted,
(unless heavy timber here catches it).

III 3 - View of Big Meadows & Slope
from Ridge to S. E. S.
Scrub to President asking for Pictures

III 4 - Features S. of Meadows,
View west of Glass Hill &
Summits of Sierra R.F. Fault.
Scales. See * Features S. of Meadows
under Small Owens
^{from Carson Range S. of Meadows}

III 5 - View to S. of Effect of Fringe
of timber on western edge
Rt. of ridge in building west
Fault dome of snow, on apex
of range where cold storage
is called there below.

III 1 - View similar to above but
to west from same point

III 2 - View like III 5, the center
of this view, Rt. Fault.

Snow domes and houses
back of fringe on saddle
between Glass Hill & Carson
Range - But this on level
apex of Carson Range splendid
example of fringe timber.

However signs of
evidence, however carried
furnish any evident part
of snow accumulation
of snow.

N.B.:- But if crest is a
broad plateau, so

the fringe at a mill hill snow field
only a proportional distance back

of it, as actually is the case here. The fringe should be broadened to cover the plateau to attain the best results.

The slope East of forest north of Big Meadows is bare, it is lower than this and apparently exposed more to the sun.

To south as crest narrows the fringe covers the plateau completely -

There where crest is narrowest and fringe is at apex, the fringe of cornice snow combines. As the cornice broadens

~~more~~ ~~barred?~~

Sec # 2: Smaller Camera

III 3 - 3:30 p.m. R.F. Fair 1.
Panorama of Mt. Rose
embay, Mt. Rose & Saddle;
Study Timber, Peak & Snow

5 p.m. R.F. 1 -
III 4 - Panorama Mt. Rose,
White's Canyon, Rose Peak,
& Wild Saw Tooth Range,
Study areas in ~~unprotected~~
Rose Peak

III 5 - View of Rose Peak, etc.
Study Timber & snow

10:30^{am} R.F. Fair 1

IV 1-3 - Views 3. from
Mt. Rose Study timber & snow
south of Slide Mt.
Fam 1, 11 pins

IV 4 - MISO M. R. F. Fam 1 -

Remnants of Mt. Rose,
Snow remaining conical
snow accumulated(?) by
tree made forest belts,

Small Camera

R.F. 2 1/2 3145 ft

- I 1 - Snow remnant under
escarpment - South branch of
Hunter's Creek opposite Collins
East
crossed Young's range.
R.F. 3 1/2 - 7100 ft
- I 2. Snow storage in S. arm of Hunter's -



- I 3 - View of S. W. corner of Hunter's Creek.



Practically where
to snow in timber island - Island almost
bare because of slope. Heavy snow on
either side due to gully on east of island
and cornice slope to west. Snow elsewhere
in timber as well as in gullies.

To later
corner
not in timber
fallow
when there is cornice & low drift bench

I 4. 9 am. R. F. $\frac{1}{2}$. View of N. Point
of Martin's Ridge from n. side of
Martin's Pass. Effect of Rocks to
build cornices is immense.

Snow in Pass formed largely by
timber - for where timber is not, there
the snow is shallow or gullied out
by the winds. See for ex. base ~~of~~ through
n. of snow bank in Pass.

N.B. - Bareness of timber between
snow in Pass & cornice snow
due to less obstructed approach
of wind from Big Meadows.
Here the wind sweeps through with
considerable violence since the
pass is lowest here. But the

effect of the timber is evident
just below where the hill dips down
more abruptly. [Dip more steeply].

Remark:—

Dip almost too late in season.
The heavier masses of snow are
almost without exception purely cornice
snow, formed by large escarpments
and sharp peaks.

Evidence of effect of timber seen
in western part of Pass also.

~~Timber~~
Snow

Trough
of snow
if any has

Timber
Snow

I.5. Vertical View of Snow in P. from East
& below. R.F. $\frac{7}{10}$ (Kearney) 9:20 a.m.

I.6. Horizontal View of Same

Notes: -

Snow when trees on the pass is thin &
also that snow where island of trees
is stands high on lip of pass.
Usually snow comes snow low
its greatest depth below the lip
of pass or escarpment. Trees on
lip hold snow higher. As gradual
face snow blown down much
farther (?) &

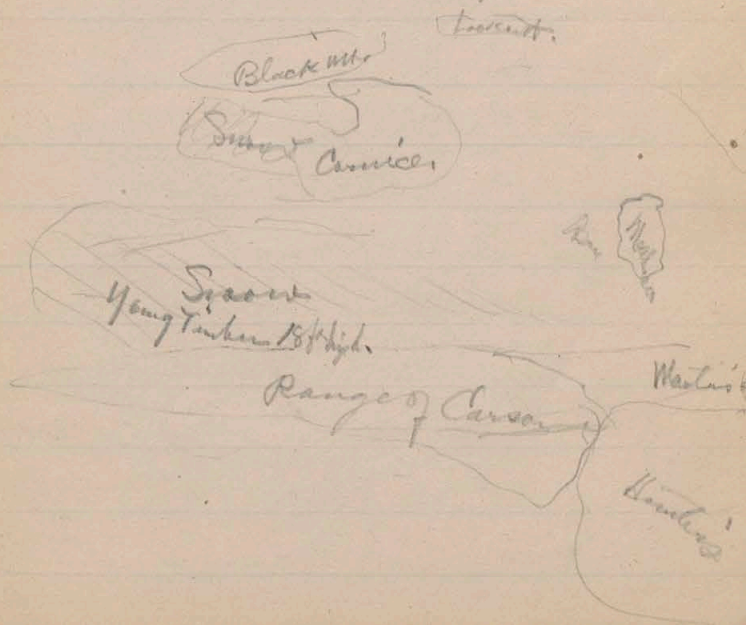
Trees in Martin Pass have had
anchored the snow. ~~S~~ *

Enough (snow) on lip of picture
Snow banked from just below where camera

stands.

Snow evidently deeper in Pass
because of trees than it would
have been without trees.

* Snow Features S. of Meadows



W. Slope of Carcan Range - slope
faces W + N.W. but trends
north to Hunter's Co. Possible
for wind to drive it into Hunter's
Basin - or so far as slope is
concerned. But timber anchors
snow at higher elevation than
most Terraces in Hunter's Basin.
Apparently More snow anchored here
than in ~~any~~ gullies of Hunter's Basin.
Some snow must find its way out
of this timber to the Basins.
But if all were to go there,
the conservation would be less long.
Even on the slopes, ^(wind) ^{usually} checked by the
afternoon sun, the effect has

been lessened by the shade of
the trees and by the damping
of the snow. West slopes with
timber better than even steep north
slopes with gullies + cliffs alone.

~~RE~~ ~~100~~ 100 p.m.

II 1 - "Fringe + dome on timber
S. of Meadarr. Same as page

III 1. 12:15 p.m.

II 2. View of mansoning crest
plateau. Mt. Eschberg in vista.

II 3- View N. of cornice on Thomas Snow.
Timber cornice almost exclusively
built above mountain crest.
Shaded by channels + depth of timber
in the snow.

~~III~~ 4 - View from same point
east - Here earth & timber
cornice combined

N.B. Timber fringe holds snow
in domes in timber & slides it,
builds a cornice, and
prevents cutting of earth's
cornice down

Timber + rock = more
than rock alone.

But timber down Thomas
cañon (i.e. below cornice)
holds snow that falls there &
has perfect reservoir
[Of course s. exposure of cañon]

amphitheatre somewhat but have
now but ^{most} ~~other~~ slopes heavy
with snow. South slope is
a large natural cornice
throughout, because of
sharp slope protected from
winds.

In III 4 - cornice is largely
earth - but fringe has had
influence in part.

cornice
Open snow
sambles
Heavy snow
Tundra

Where timber is scanty, earth
is nearly bare. Snow has gone
over crest into cornice & below,

} Compare cornice here with
timber cornice above &

Farther south but adjacent open
flame full of crest snow -

Why? See ring down of
timber back of it. ~~Snow~~

Wind most roaring in its branches
but current calm on the surface
of this channel snow.

Carriac formed by rocks of soil
probably layers. See last view
because more snow heeled far
over ridges. Timber makes
more yielding resistance(?) and
holds back snow.

But see the E. Embury

Little pinnacle in foreground
has but little snow either side.
But saddle this side with
timber has stronger
combined cornice.

See timber on west of Embury

See cornice where rock is
timberless

II 6. Small cornice between
two southern knobs of Mt. Eisen-
enberg. From N. $\frac{1}{5}$ to 4 p.m.
Timber does not obstruct
snow here. Saddle bars
both sides except for cornice

III 1 - 4 p.m. $\frac{1}{4}$ - Cornice S. of
Mt. Eisenberg - Timber fringe
thinner - Effect is rounded
scalloped cornice line.
Outer edge of scallop where
wind has broken through

Effect of bare hilltops not
yet altogether clear.

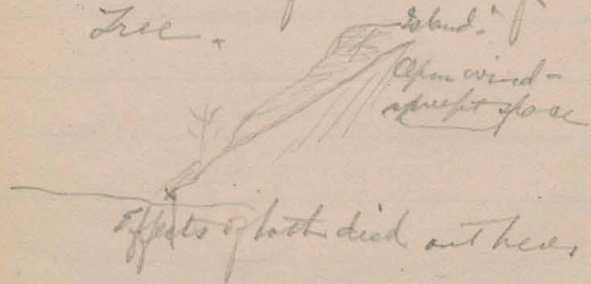
III 2 - View of cornice in s. 1/2 of
west branch White's Canon -
1/60. Leaving S. Step ravine,
Cornice sharp. Long tongues
of snow. But has disappeared
as fully below or beneath
where slope is more gradual
and we ^{look in photo} find
funnels are bad -
See photos of last year
of this funnel.

III 3 - View of S.W. and W. branch of
White's Canon - No timber. Steep
funnel - Amphitheatre below -
Elev. 1/50 - Snow tongues large, compact

+ deep. Corvise triple low

III 4. View of Amphitheatre from
above. Shalams. Basin almost
empty of snow as in other
arms to north. The damming
of snow has effected ~~only~~ but
little - No snow above, little
below - Snow in tongue north.

III 5 - View of Corvise ^{near} of Alexander's
Tree + ^{Island.}



Open wind -
drift of ice

Effects of hot dead out here.

III 6 - 1 p.m. 15 ft. P.F. $\frac{1}{6}$ sec.
View of Road cranked out at ~~down~~
mill site by Chinook Winds View to West.
Went above Meadow not noticed

IV 1 - View of East Side of Range at
somewhat above ^{snow} trees in Whites +
showing how little of snow thrown
from bare rocks on west side
has been preserved in crevices
on the east. Note, however, trees
on east. Fairly large domes
of snow still unmelted
in small timber on west
sides

N. B. -

Snow in timber above
little have scarcely affected
by sun - at least ground
dry, air cool under trees
& snow compact. But
small exposed bank above
aspens in exposed place
wet with melting.

Snow in timber partly cornice
but domed with every bunch
of trees.

Davy - Wall cornice
snow [in proportion] ~~remain~~
~~unmelted~~ melt more
slowly than tree snow?

One has greater depth in
ravines but an slope
is shallower.

|| Forest cover has proportional
greater depth & larger area?

Evaporation is large part of
problem.

1909-

Sackville
Sep. Means 0.22

Seas. 0.1

Defic. -0.21

Tamarac

Means 0.97

Seas. 0.33

Defic. -0.64

av. Basin

Means 0.60

Seas. 0.17

Defic. 0.43

Run-off

Normal 2,468 a.f.

Seasonal 1,905 a.f.

Defic. 563 a.f.

Perce of Normal 77.2

35,831

14,469.0

40,3

14,332.4

13,660.0

10,749.3

2,910.7

Precip + Run-off

Carson Basin 1909 + 1916

Refigured -

1916 -

Surplus - 2.54 in. x

632,320 acres = 1,606,092.8 acre-inches

= 133,841 acre-feet.

Surplus Run-off ~~19.128~~ 10,369 acre-feet. =

7.7 per cent.

1909 - Surplus - 5.97 in. x

632,320 acres = 3,774,950.4 acre-inches =

314,579 acre feet.

Surplus run-off 7,568 acre feet = 2.4 per cent.

1916 - Refigured for Sep. - Oct. - Nov.

Precip. Surplus = ^{0.68} ~~10.66~~ in. (sum of excess + deficiencies)

x 632,320 acres = ³⁵⁸³¹ ~~34,778~~ acre feet.

Normal Run-off 18,815 acre-feet.

Excess 14,469 acre-feet = ^{40.4} ~~41.6~~ per cent.

NB. Large deficiency in Nov. included.

Treat Nov. as normal. what percentage then?

1916 - Refigured on basis of run-off Sept. Oct. - Nov. - but excluding deficit of Nov.

Precip. surplus 2.54 in = 133,841 acre feet

Run-off " 14,469 acre feet = 10.8 per cent.

Retention of Effluents.
Any flow into Sep + Oct into Nov.
Nov. - more s.e. - sand water
than elsewhere.

Tammarack (8,000 ft) Aug. Sep. Oct. Nov. Dec.

Normal - 0.55 0.97 2.81 5.60 7.36

1909 - - - - 0.33 3.99 14.36 = 18.35

Surplus over Normal
9.94

1916 - - - - 1.45 1.26 6.35 3.10 = 7.61

3.83

Waukeganville (5,500 ft)

Normal - - - 0.38 0.55 1.73

Surplus over Normal

1909 - - - - 0.20 1.70 5.16

4.58

1916 - - - - 0.74 1.72

1.53

Gardnerville (4,830 ft)

Normal - - - 0.22 0.44 1.45

Surplus over Normal

1909 - - - - 0.01 0.07 3.82 = 3.89

2.00

1916 - - - - 0.52 1.38 0.35 = 1.90

1.24

Surplus
W_x for Basin (Tam. +
Gardnerville).
1909 - 5.97 in.
1916 - 2.54 in.

Sept - Oct. 1916. Carson B.

Surplus precip. $1.53 \times 150\% = 2.30$ in.

$\times 632,320$ Acres ~~feet~~ = $1,454,336$ acre inches =
 $121,195$ acre-feet.

Run-off $19,128$ a.f. - Normal $8,759$ a.f.

Surplus $10,369$ acre-feet.
= 8.6% of expectation.

Oct - Nov, 1909.

Surplus precip. $4.58 \times 150\% = 6.87$ in.

Summ rain.

$\times 632,320$ Acres = $4,344,038$ acre inches
= $362,003$ acre feet.

Surplus Run-off $7,568$ acre feet.

= 2.1% . But some runoff paired with
ice. Amt not easily determined for precip. in Dec
(at Gardnerville 4.80 - Normal 1.99), ~~Residual amount on~~
ground ~~of which~~ 26 in. ~~was~~ ~~run-off~~

so far as my records show

86,514 | 11 292.0 | 1306

86,514

264060
259542

451800
~~9084~~
432570

680460 | 786
605598

748620
692112

565080
519084
45996

86,514

6614.00 | 76
605598

558020
519084
38936

86,514 97806
154560
105180
79900

2-1,5

86,514 | 18666.0
17302.8

~~736320~~
~~86514~~
498060
432570
65496

86,514

6614.00 | 76
605598
558020
519084
38936

97806
86514

11292

154560
86514

68046

105180
86514

18666

86,514
79900

6614

76.70

100
57.18

42.82

1910

1911-

— 1911 —
Temperature at Camp

Excess or Def.

Jan.	Temp.
March	+2.7
Apr	-1.5
May	-3.6
June	+2.3
July	+3.9
Aug.	+0.6
Sep.	-2.3
Oct.	+0.3
Nov.	-1.2
Dec.	-3.9
Jan.	+0.7
Feb.	-5.2
Ann.	-0.6

— 1911 —

Precip. at Camp

defic. of snow. Temp in
to the cold April and
May, with excess
in June and July.

+3.28
-1.22
+0.43
-0.29
-0.47
-0.02
+1.45
-0.25
-0.27
-0.30
-0.85
-1.35

Nov. 0.14 Precip. 1.59

which held back the
~~max.~~
melting and max. flow

snow, and deferred
the max

only to melt it in
excess quantities

and ^{thus} accentuate
the rel. copiousness
of the flow.

June +0.14

David M. Hill

Spoke

TABLE 44. — SNOW SURVEYS OF THE WATERSHED OF COTTONWOOD CREEK, NEAR ARROWROCK, IDAHO.

*March 1, 1913-17.
(Based on Zones)*

Elevation (Feet)	Area Square Miles	Average Depths (inches)			Average Water Content (Inches)			Density of Snow (Per Cent)			Water Content of Snow Cover March 1 (acre-feet)			
		1913-14	1914-15	1915-16	1914	1915	1916	1913-14	1914-15	1915-16	1913-14	1914-15	1915-16	1916-17
Below 4,000	5.79	4.3	4.0	36.5	1.29	1.20	12.47	30	33	34	401.6416	365.0500	3692.0004	3,030.0
4,000-5,000	9.83	29.8	19.4	46.1	9.94	6.14	16.02	33	32	35	5212.1004	3213.1000	8414.7112	5,777.0
5,000-6,000	8.50	41.3	26.3	56.8	14.43	7.82	20.87	35	30	37	6531.0700	3546.7300	9470.0544	6,640.0
Above 6,000	2.27	72.6	36.8	21.0	25.44	10.94	43.79	35	30	36	3098.0000	1332.6300	5335.4200	2,997.0
Means and Totals	26.39	37.0	21.6	65.1	12.78	6.52	23.29	33	31	36	15243.70	8457.50	26912.80	18,444.0

51.0%

31.9 11.6

*Assumed
50% ground
at 10.76*

*1917
3,030
5,777
6,640
2,997
18,444*

*9.85(3) Area
= 20,706.5 A.F.
A/S
A/S
A/S
End Total
30*

1909-

Gardnerville

Sept. Means 0.22

Seas. 0.1

Defic. -0.21

Tamara

Means 0.97

Seas. 0.33

Defic. -0.64

av. Basin

Means 0.60

Seas. 0.17

Defic. 0.43

Run-off

Normal 2,468 AF.

Seasonal 1,905 AF.

Defic. 563 AF.

Perce of Normal 77.2

35,831

14,469.0 40,3

14,332.4

136,600

107,493

29,107

Precip. + Run-off

Canaan Basin 1909 + 1916

Refigured -

1916 -

Surplus = 2.54 in. x

632,320 acres = 1,606,092.8 acre-inches

= 133,841 acre-feet.

Surplus Run-off ~~19.128~~ 10,369 acre-feet. =

7.7 per cent.

1909 - Surplus = 5.97 in. x

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314,579 acre-feet.

Surplus run-off 7,568 acre-feet = 2.4 per cent.

1916 - Refigured for Sep. - Oct. - Nov.

Precip. Surplus = ^{0.68}~~10.66~~ in. (sum of excesses + deficiencies)

x 632,320 acres = ^{35,831}~~34,778~~ acre-feet.

Normal Run-off 18,815 acre-feet.

Excess 14,469 acre-feet = ^{40.4}~~116~~ per cent.

NB. Large deficiency in Nov. included.

Treat Nov. as normal. What percentage then?

1916 - Refigured on basis of run-off Sep. Oct - Nov - but excluding deficit of Nov.

Precip. surplus 2.54 in = 133,841 acre-feet

Run-off " 14,469 acre-feet = 10.8 per cent.

Retardation of Effluents.
Any gages into Sep + Oct into Nov.
Nov. - more like normal rather than below-normal.

Tamaraak (8,000 ft) Aug. Sep. Oct Nov. Dec.
 Normal - 0.55 0.97 2.81 5.60 7.36

1909	-	-	-	0.33	<u>3.99</u>	<u>14.36</u>	= <u>18.35</u>	Surplus over Normal <u>9.94</u>
1916	-	-	1.45	<u>1.26</u>	<u>6.35</u>	3.10	= <u>7.61</u>	<u>3.83</u>

Manlyville (5,500 ft)

Normal - - - 0.38 0.55 1.73

1909	-	-	-	0.20	<u>1.70</u>	<u>5.16</u>		<u>4.58</u>
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1916	-	-	-	<u>0.74</u>	<u>1.72</u>			<u>1.53</u>
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Gardenville (4,830 ft)

Normal - - - 0.22 0.44 1.45

1909	-	-	-	0.01	<u>0.07</u>	<u>3.82</u>	= <u>3.89</u>	Surplus over Normal <u>2.00</u>
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1916	-	-	-	<u>0.52</u>	<u>1.38</u>	<u>0.35</u>	= <u>1.90</u>	<u>1.24</u>
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Surplus
 Avg for Basin (Tam. +
 Gardenville).
 1909 - 5.97 in.
 1916 - 2.54 in.

Sep-Oct, 1916. Carson B.

Surplus precip. $1.53 \times 150\% = 2.30$ in.

$\times 632,320$ acres ~~feet~~ = $1,454,336$ acre-feet =
 $121,195$ acre-feet.

Run-off $19,128$ a.f. - Normal $8,759$ a.f.

Surplus $10,369$ acre-feet.

= 8.6% of expectation.

Oct-Nov, 1909.

Surplus precip. $4.58 \times 150\% = 6.87$ in.

Surplus rain. $\times 632,320$ acres = $4,344,038$ acre-feet
= $362,003$ acre-feet.

Surplus runoff $7,568$ acre-feet.

= 2.1% . But some runoff paired with
ice. But not easily determined for precip. in ice.

(at Gardnerville 4.80 - 1.99)
ground $\frac{S}{N}$ Residual snow on
which 26 in. snow $\frac{S}{N}$

Let me know how
so far as my record book will permit.

Regarding typing the bulletins, your plan is very
good indeed, providing it meets the financial
situation in the State Engineer's Office. Has Colonel Seung
got pressing work for you to do, so that you
must do the typing entirely outside of hours? I am
this, because otherwise it would be fairer
to him to have you do my work officially
and then have your salary for the few days paid
from the "Cooperative
Snow Survey's" allotment. For I am
planning to pay for the typing ^{whether in hours or out of hours} from this fund.

So determine this point first. When I have sufficient
of the MS ready, then we can plan to get it
to Carson to you. If it costs you little or nothing

76.70

100
57.18

42.82

1910

1911-

- 1911 -
Temperature at Bend
Excess or Defic.

Jan. March +2.7
Apr. -1.5
May -3.6
June +2.3
July +3.9
Aug. +0.6
Sept. -2.3
Oct. +0.3
Nov. -1.2
Dec. -3.9

Jan. +0.7
Feb. -5.2

Ann. -0.6

- 1911 -

Precip. at Bend

defic. of norm. temp in
to the cold April and
May, with excess
in June and July.

+ 3.28
- 1.22
+ 0.43
- 0.29
- 0.47
- 0.02

which held back the
melt.

melting and max. flow

+ 1.45
- 0.25

snow and deferred

- 0.27

the max

- 0.30

only to melt it in

- 0.85

excess quantities

- 1.35

and ^{thus} accentuate

the rel. copiousness
of the flow.

Ann. + 0.14

Nov. 0.14 Precip. 1.59

$$\begin{array}{r} 86,514 \mid 11\,292.0 \mid 1305 \\ \hline 86,514 \end{array}$$

$$\begin{array}{r} 86,514 \mid 680,460.786 \\ \hline 605,598 \\ \hline 74,862.0 \\ 69,211.2 \\ \hline 5,650.80 \\ 51,908.4 \\ \hline 4,599.6 \end{array}$$

$$\begin{array}{r} 26,406.0 \\ 25,954.2 \\ \hline 4,518.00 \\ \hline \del{9,084} \\ 43,257.0 \end{array}$$

86,514 97,806

$$\begin{array}{r} 86,514 \mid 18,666.0 \mid 21.5 \\ \hline 17,302.8 \end{array}$$

$$\begin{array}{r} 86,514 \mid 6,614.00 \mid 76 \\ \hline 605,598 \\ \hline 55,802.0 \\ 51,908.4 \\ \hline 3,893.6 \end{array}$$

$$\begin{array}{r} \del{13,632.0} \\ \del{86,514} \\ 49,806.0 \\ 43,257.0 \\ \hline 6,549.0 \end{array}$$

79,900
105,180
154,560

$$\begin{array}{r} 105,180 \\ 86,514 \\ \hline 186,694 \end{array}$$

$$\begin{array}{r} 154,560 \\ 86,514 \\ \hline 68,046 \end{array}$$

$$\begin{array}{r} 97,806 \\ 86,514 \\ \hline 11,292 \end{array}$$

$$\begin{array}{r} 86,514 \\ 79,900 \\ \hline 6,614 \end{array}$$

Edward L. Wells

Spoke

TABLE 44. — SNOW SURVEYS OF THE WATERSHED OF COTTONWOOD CREEK, NEAR ARROWROCK, IDAHO.
 March 1, 1913 - 17.
 (Based on Zones)

Elevation (Feet)	Area Square Miles	Average Depths (in.) (Inches)			Average Water Content (Inches)			Density of Snow (Per Cent)			Water Content of Snow Cover March 1 (acre-feet)			
		1913-14	1914-15	1915-16	1913-14	1914-15	1915-16	1913-14	1914-15	1915-16	1913-14	1914-15	1915-16	1916-17
Below 4,000	5.72	4.3	4.0	36.5	1.29	1.20	12.47	30	33	34	401.6616	365.6500	3692.6004	3,030.0
4000-5000	9.81	29.8	19.4	46.1	9.94	6.14	16.02	33	32	35	5212.1314	3213.1900	8414.7712	5,777.0
5000-6000	8.59	41.3	26.3	56.8	14.43	7.82	20.87	35	30	37	6531.0720	3546.7300	9470.0544	6,640.0
Above 6000	2.29	72.6	36.8	21.0	25.44	10.94	43.79	35	30	36	3098.9000	1332.6300	5335.4200	2,997.0
Means and Totals	26.30	37.0	21.6	65.1	12.78	6.52	23.29	33	31	36	15243.70	8457.55	26912.80	18,444.0

51.0%

31.9 11.6 3

Overestimated
50% greater
410.76

1917
3,030
5,777
6,640
2,997
18,444

9.85 (3) Rain
= 20,706.5 A.F.
East Total 30

East of Teller Creek

*Ratio
of snow to rain etc.*

OF THE WATERBURY DISTRICT

Estimated Total Water Supply (Acre - Feet)		Seasonal Run-off (Acre - Feet) : March-Sept.				
1913	1914	1915	1916	1914	1915	1916
30393	29330		47114	9710	3400	7406

20291.2

14,386

<i>2.7</i>	<i>Of Snow</i>	63.7	40.2	37.5 53.5
	<i>%</i>			
	<i>Of Snow to rain</i>	31.9	11.6	30.5
				14406

1917

12,191.0

66.1%
31.1%

*Apply
115015 A F*