TRU-LINE

STENOGRAPHIC NOTES

No. 17

From Tuesday November 7 1944

To Saturday, December 2 1944

No. 26-G

Nov. 7 - Recharged

No. 4 - 7.25

6 - 6.35

8 - 6.30

9 - 10.80 } 22 in. reserve

10 - 10.80 } but ice below

Charge Stations 2, No. 4, No. 6, No. 8
with double normal precip.
Normal 6.80 = 13.60 in.
i.e. as alc. - 43% = 5.85 in.
Water - 57% = 7.75 in.
13.60
+ oil

8.77
+ 1.77

Tuesday, Nov. 7, 1944.

Clear at Reno. At Donner Observatory fog, visibility 3/8 mi., ceiling 100 feet. Snow on ground 10 in.

Police Bulletin: "Light snow, chains required".

Their trucks had 4 in. snow on top.

Voted at 8:10 a.m. Jeff took me to the bus. Greyhound at 8:30 a.m. Small Reno-Sacto Bus from Pioneer Hotel left at 11 a.m. Took former which was delayed till 9 a.m. "for driver".

Road almost dry to Mystic. Then snow on pavement and on trees. Fog to Bog Station. Then snow slightly deeper. Slush. Temp. there 27°F

At Truckee snowplow had been busy. Center of street sloppy. Parked cars snow covered.

Donner Lake unfrozen. Fog or vapor rising from water in shade of hills on south side.

WILL YOU TAKE THESE THINGS TO SODA SPRINGS?

Hands off the everything in room: blankets, toilet articles clothing etc in this room! They belong to Becky D[illegible].

Tuesday, Nov. 7, 1944.

Clear at Reno. At Damner Observatory fog, visibility 3/8 mi; ceiling 100 feet. Snow on ground 10 in.

Police Bulletin: "Light snow, chains required".

Three trucks had 4 in. snow on top.

Voted at 8:10 am. Jeff took me to the bus. Greyhound at 8:30 a.m. Small Reno-Sacto Bus from Pioneer Hotel left at 11 am, Took former which was delayed till 9 am "for driver".

Road almost dry to Mystic. Then snow on pavement and on trees. Fog to Bug Station. Then snow slightly deeper. Slush. Temp. there 27°F

At Truckee snowplow had been busy. Center of street sloppy. Parked cars snow covered.

Donner Lake unfrozen. Fog or vapor rising from water in shade of hills on south side.

Road met with very thin slush. Sun bright.

Festoons on telephone wires dropping rapidly but only beginning to fall from trees. Is the snow thinner on trees? Is radiation from needles less than from wires? But wires are gray.

At Donner grade, bus puts on chains. The Thornton weaver is stationed here with a full set of chains on all four wheels. But some cars seem to ignore the warning "Cars without chains prohibited."

View down on Donner Lake is Christmaslike.

Road shoveled but wet and almost bare. Elev. of Pass 7135 Ft.

Snow now rapidly falling from trees in sun or where snow is in sun. Snow dust rises when bunches of snow fall, for snow is evidently

No. 2. Stevens W.

Depth

West 13.9, 13.9, 13.9+ in.

East 14.05, 14.1

South 13.9

North 14.05, 14.1+

Last storm as recorded by pen 0.8 = 1.6 in.

By R.W. Goendel

Contents before Recharging			Nov 7. 1944 Contents after Recharging	
No	Stick	wt	Nov. 8, when cooled depth Stick	wt
No. 3 USED	1.75	—	To liquid 44.9 in; of " 14.8	90.5"
R (Reducing Collar)	15.3		Nov. 8 depth to liquid 9.0 32.3; " of liq. 8.9	
P	8.0	7.65	discontinued	
PC	13.2	13.80	discontinued. Plastic found to weather badly.	
4	12.4	12.70	5.7	7.25
6	12.1	12.30	5.1	6.35
8	11.3	11.60	4.9	6.30
9	11.7	12.75	7.7	10.80
10	12.4	13.65	7.8	10.80

Pastures

2:25 pm.

No. 6. W. 12.3 in.
D. 12.1 in.
Slush from new snow.

Rechgd
W. 6.35
D. 5.1

No. 7 Stevens R
4 in. cone of ice.
Reset 3:15 pm. W. 8.0 in. by pen.
Change Change for Nos. 7, 9, 10 was 10.0 in. because longer than Nos. 6 and 8. Planned to recharge as soon as dilution becomes sufficiently great to cause freezing.

No. 8
W. 11.6 in.
D. 11.3
Slush from new snow.

Rechgd
W. 6.3 in.
D. 4.9

Snow Temp Thermo. by resistance meas. Still difficult to get necessary materials. Plan to make it portable and capable of penetrating the snow wherever desired.

Photography. Bernard has granted money for black and white films and is looking for a small color camera.

Hoar Gage for measuring contents of bottles used in studying quality of snow. Perhaps better than the beaker meas. proposed by Wilson and Bernard.

Kendel now proposes 100°C. therm. estimated to 1/10th rather than 50°C graduated to 1/2° (?). Can thus have the water hotter and contrast between hot and cold greater.

— Progress —

No. 7. Weather strips have been riveted on. Staffy surprise.

Triple Register and Sunshine

Shelf built for Friede changer and water jug.

Found that vibration from trains transmitted thru the rock was cause of the rattling of the columns of the sunshine recorder and minimum therm.

New windvane awaiting installing.

If wire can be procured Ashton wants to erect anemometer on top of dam to avoid effects of Hotel and dam.

New Gages. 11 under construction with towers and sturdy wind shields. One or two between Hotel and Pasture, another in bend of road by end barn, others above Lake Hardeau. Some 20 ft. high. Seasonal gages.

A rebuilt Friez recorder will be placed on tower near trees by end the track.

A Gaimeter, home-made, is planned near the Pasture.

Order:-

Pamphlet on "Dowflake Calcium Chloride for Refrigeration"
The Dow Chemical Company
Midland, Michigan.

Temperature and Crust

5:15 pm Current min. 36.3°F
H-T 36°
5:20 pm. Telethon 37°

Crust forming where snow is wet, but the slush is still soft where water is more abundant. Sun on horizon.

Ice and snow are greater radiators of heat than water.

On way to Donner Summit Lodge -

Water on pavement unfrozen. Is concrete still warm?

Then water on concrete frozen. Had the concrete been in shade?

at 8pm, water on soil still unfrozen.

Radiation-active Substances

Snow and ice
Wet snow
Sheet
Concrete
Earth
Water

On Nov. 8- Crust from yesterday's melting.
Top crust from melting in mm 1.4 in.
Snow in shade yesterday is still feathery and entirely without crust.
The sheet and water are frozen hard. Min. temp. 14°F.

Wednesday
Nov. 8 10:30 a.m.
Min. 14.6°F Current. min. 32.0°F

Measurements of depth when liquid in cel

No. 3. Army Engineers
Depth to liquid 44.9 in.
" of " 14.8

Reducing Collar
Depth to liquid 32.3 in.
" " 8.9

Wind Shield

No. 4

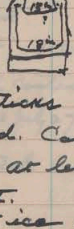
Diam. of shield ring 41 in.

Height of top of shield above top of can 4 in.

No. 2 - Stevens W-

Neck is flaring not vertical !

→ Noticed by Gendel. Thus even more expansive at upper end than Army Gage.



6 rubber sticks approx. 6 in. sq. hang in the liquid. Can the area be estimated? At least error will be constant.

Thin sheet ice on the surface.

Two holes in bottom of platform cut in order to insert hand to valve and piece of hose to the outlet. Short section of pipe screwed into valve to prevent spreading of stream.

Weights of liquid drawn off (No. 2)

Bucket balanced at 0 in.

1st. bucketful		11.3 in
2	"	12.5
3	"	12.1
4	"	12.35
5	"	12.15
6	"	12.10
7	"	3.25
Total		75.75 in.

Hot water poured in to melt ice and flush tank. 8.75 in.

8 bucketful 9.80 in.

Net 1.05 in.

Net total contents 76.80 in.

Orig. obs. July 27. . 30.89

Precip. catch 45.91 in.

Recharging No. 2

1.	Bucket of	$CaCl_2$	9 in.
	"	of water	11 in.
2.	"	$CaCl_2$	11.9 in.
	"	Water	11.1
	"	"	5.9
		Total	48.9 in.

Summary

$CaCl_2$	20.9 in.
Water	28.0
	48.9 in.
No. 10 oil	0.75 in.
Total	49.65 in.

[Charge July 27, 1943 W. 30.89 in.
D. 4.8 in.]

Removed sheet. Reset 2:30 pm.
Gerdel, Cadel, Church.

"Counterpoise weight may be too heavy or too low or twist the fulcrum: All agree that response is sluggish the pen responded to the charge of oil (0.75 in.) poured into can later. Had been forgotten earlier.

Is battery sufficiently strong? the motor works but quite silently.

Stevens W will now receive abundant attention from all.

4:30 pm.

Depth of Solution in No. 2 W.

Depth to liquid West side 6.1 in.

Sinks from air mans meas. difficult.

Depth of liquid.

East side	6.8 in.	
West "	6.2	
South "	6.7	
North "	6.1	
Patrial aver.	6.45 in.	

East side	7.4, 7.3 in.
West "	6.5
South "	6.5
North "	6.1
aver.	6.62 in.

Note - Bottom made irregular when draining cam?

Better use only one measuring point as West side which is more accessible.

Thus depth is 6.5 in. (incl. rubbers)
for total weight of 49.65 in.
What is catch per inch depth?
Should have covered floor of can first, then measured weight of residue against rise above base line providing measuring point was at the shallowest point viz. North side and the rubber stones reached so far down.
Can the content for the irregular bottom be approximately computed?
Depth July 27, 1943 was only 4.8 in.

At average of 6.62 in., each inch of depth = 7.5 in. precip.
Each 1/10 in. depth = 0.75 in.
Scale is therefore rather coarse.

Towers

Gerdel and Codd sped in prospect of storm the laying of foundations of towers. Clouds settling on peaks.
Ties were granted by mass on railway velocipede. He seemed

at 5 pm. took observations of weather for Arthur Lendel going to Reno.

0" 0 12 SW Pt cldy

#1 120 mi.
2 980

to know me.

Aug 30 for tower foundations laid south of railway tracks in timber. But rising wind blew snow from tree tops beyond ranges of tower. So it may be subject to snow blown from tree tops even if not from ground.

Other ties (12 in number) placed farther east, as far as head of Lake Norden.

Snow and slush freezing. Crust began to form in snow even at 35° F.

Took weather observations for Arthur Coulland who went to Reno.

Sky at 8:30 pm. seemed clearing the moon was still aloft.

Thursday Nov. 9

Heavy rain in night with soughing of the wind.

This morning new snow, heavy snowing, some wind, barometer steadily falling. Storm may last thru tomorrow.*

So I am writing up my journals and Gendel and Codd are building a 20 ft tower in the garage. "Is this winter snow, come prematurely?" I offered to invite Tucker to bring his Sno-Cat over to haul the towers.

Gendel also is anxious to get his wires up for telethermoscope measurements before the winter snow in order to avoid disturbing the snow.

Splendid of them to help me rearrange the gages. I can now carry the rest of my plans thru by shoveling.

* Wires festooned with snow; cable from Hotel to Filling Station has festoon 3 in. approx. in diameter.

- Plans -

Gage at Devils Rock.

1½ mi. Base.

Alignment at Nos 9+10.

Box for No. 1 apparatus

Stations at Summit No 1 —
Cornice
Diamond
Traverse
Lyminster

Crystals + voids by water to saturation

Dont pass inner tube full,

Sfd 4 — 4-6 — Nov 14

Approx. 3:30 pm.

Shoveled paths

Dye on Snow

1. On new snow, green.
2. On snow slightly trucked, turns red slowly.
3. In depth of path on trampled snow, turns red quickly.

Green dye remains green when covered by new snow.

No variation

Thermometer	32.3
Wind	31.0
H-T	32.5 to 32.0

4:40 pm. - Snowfall 11 in.
No. 1 gage 1.95 in

"Head built up from top of rim 8 in." like a mouse's hat. Cut it loose. Fell in and left lots of room inside. Evidently adhesion only at top.

Anemometer cups chockfull of snow and ice. Instrument freezes stiff. Dial 203 mi. Wind SE. Wind movement must have been more than 83. "Never before frozen" - Cuilland. Rain turned to snow, froze with ice and snow on cups.

Dye. Tried again. Results same as before. Even star points dry.

16/7

Q: Can a quantitative test of feeble dye-change be made by colorimetry?

Capping X

Stevens S. Not only had a high snow cap on the cylinder but the outside wall of the can was covered with rime ice which had to be scraped off including the paint.* Hot water would have been quicker and less harmful.

Cap was trimmed so as to fall in. Evidently bridging occurred at top but not deeper down.

W. 10.40 in. Rechgd 8.37 in. Gain 2.03 in.

Snow Sampling on Platform

Depth	Wt. of Tube		Water Equiv.
12.5 in	67.0	68.5	1.5

Summary:	
No. 1	1.95 in.
Stevens S	2.03
Snow Survey	1.50

Survey again in daylight tomorrow.

[Later: More snow during night prevented this.]

* Hot water [illegible] can to remove ice, but no [illegible] in weight.**

** Metal still so cold that wet cloth of glass froze immediately to it.

Dye. Tried again. Results same as before. Even star points dry.
Query: Can a quantitative test of feeble dye-change be made by colorimetry?

Stevens S - Not only had a high snow cap on the cylinder but the outside wall of the can was covered with film ice which had to be scraped off including the paint.* Hot water would have been quicker and less harmful.

Cap was trimmed so as to fall in. Evidently bridging occurred at top but not deeper down.

W. 10.40 in. Reshyd 8.37 in. Gain 2.03 in.

Snow Sampling on Platform

Depth	Wt of Tube		Water Equiv.
12.5 in	67.0	68.5	1.5

Summary:

No. 1	1.95 in.
Stevens S	2.03
Snow Survey	1.50

Survey again in daylight tomorrow.
[Later: More snow during night prevented this.]

* Hot water poured on can to remove traces of ice, but no difference in weight. **

** Metal still so cold that wet cloth of gloves froze immediately to it.

Hoods evidently caught all of the snow on their crowns. So in light wind or calm snow bridges cause little [illegible]. The [illegible] fall in

* See H-T record.

Other Gages

all capped whether slanting or vertical without any aid from wind shields, tho shields also were loaded with snow.

Begin

No. 2. Stevens W had one-half orifice,

No. 3. Engineers had none.

No. 4 and Reducer had possibly 2 in. diam. holes.

The caps had a protuberance or Pontiac crest on NW side, due to SE storm.

Hoods evidently caught all of the snow on their crowns. So in light wind or calm snow bridges cause little loss for they finally fall in.

Hoods due to wet snow just freezing together and frozen firmly to metal that was cold by radiation.

Temp. for night time today appears to be 34° F. 35° F 32 to 31° F.

Rain in night changed before morning to snow. Slush beneath on ground.

Other Gages

all capped whether slanting or vertical without any aid from wind shields, the shields also were loaded with snow.

No. 2. Stevens W had one-half orifice,

No. 3. Engineers had none.

No. 4 and Reducer had possibly 2 in. diam. holes.

The caps had a protuberance or Pontiac crest on NW side, due to SE storm.

In case of No. 2 Stream, the railing on west side offered additional foothold for snow to build. So keep all shelves or supports low.

→ Tomorrow study inside of throats.

Flood.

"Raining heavily all day at Sacramento Grand proved.

October Total 3.73 in. Normal 2.30 in.
Nov. 1-9 " 6.19 in. " 4.62
Snow on ground = 1.22 in.

Snowing as far down as Emigrant Gap, rain beyond.

Gerdel may make a forecast for American River the the Yuba has much potential storage.

Sno-Cat

If we can get Tucker to haul the towers with his snow-caterpillar, Gerdel will recommend it to Bernard. Bernard wants a snow meter for next week.

Friday, Nov. XX 10

Weather Record November (Cont.)

Nov. 10 33 26 2.0 14 34 NW Stormy
#1 374
2 255
Stevens S. 2.17 in.

Nov. 11 31 22 0.48 8 38 SE Stormy
#1 432
2 306
Stevens S. 0.56 in. [12.57 to 13.13 in.]

" 12 31 22 0.30 5 40 NW Stormy
#1 482
2 366
Stevens S. 0.28 in [13.13 to 13.41 in.]

" Pasture.
For Period Max. 44.8°F Reset 35.5°
Min. 13.0 24

Butt sheet changed Nov. 10

" 13 33 22 0.15 1 38 N Pt cldy
#1 558 mi
2 446
Stevens S 13.55 - 13.41 = 0.14 in.

Nov. 14 33 11 0 36m E clr
#1 730m
2 623

Nov. 15 30 19 0 SE clr
#1 987
2 903

Nov. 16 34 19 0 33 E clr
#1 231
2 790 ~~3/sec.~~
190 sec. (Nov. 17 at 1:15 pm
263.5 mi./sec.)

Nov. 17, 46 6 33 SE clr
#1 322
2 270

Nov 18 45 7 32 SE clr
#1 361
2 297

Nov. 19 38 7 32 SE clr
#1 451
2 373

Nov. 20 37 17 31 SE clr
#1 613
2 517

* Dimensions of K-T frame in Picture:

E-W (c to c)	34 1/4 in.	N-S	16 in.
" (inside)	32 1/2	"	19 3/4
" (outside)	36	"	23 1/2

Nov. 21	44	12	0 0	30	SE	clr
	#1	749				
	2	618				
Nov. 22	48	3/		26	SE	clr
	#1	945				
	2	876				
Nov. 23	46	18		24	SW	Pt Cldy
	#1	1.016 = 16				
	2	976				
Nov. 24	34	13		24	SE	clr
	#1	172				
	2	111				
* Nov. 25	42	14		23	SE	clr
	#1	292				
	2	250				
Nov. 26	37	24	0.32 in #1 5 am to 1 pm	24	NW	Stormy
	#1	330				
	2	312				
Nov. 27	49	11		24	SE	clr
	#1	367				
	2	335				
Nov. 28	53	10		23	SE	Pt Cldy
	#1	438				
	2	400				

[Over]

Nov. 29 41 29 0.57 8 31 SE Stormy
Hamil/fm
#1 520
2 497

Nov. 30 37 21 0.81 1 81 NW Cloudy
Regan 8pm
#1 567
2 562

Dec. 1 34 26 1.38 11 42 NW storming
7 pm Nov 30
to present
#1 646
2 671

Pasture for period (11:50 am)
Max. 50.2° F Reset 31°
Min. 7.5° " 30°

---

* Gages No. 1 and Stevens S clean but some snow adhering inside.
No. 2 Stevens H has orifice 4 in. diam.
Nos. 3, 4, and Redue. Cellar O is closed.
No. 3 reaching.
Shields entirely separate from cans. Can run forearm between them.

Fri. Nov. 10 (Cont.)

- Telephone Line -

Wires down from Exit Tor D east of Barn and Corrals. Poles, not wires, broken off, or splintered.
Linemen out since 3:30 a.m. stringing dual wire in cables for 22 (?) circuits. Working in snow.

H-T & Instruments

Blizzard on but reset H-T & easily.
Clock in Pasture stopped again.
Traded cylinder with H-T & Office.
Will be taken to Seattle for cleaning.

* ↖ Hotel
12 Noon. Reset. Temp. 28° F
Humid 84 %. Snowing.

Pasture
12:40 Reset Temp. 27° F Humid 90 %

Snow Stake 34 in.

Intakes of gages -
Nos. 6, 8, 9, 10 completely capped over. No. 7 - Stevens Q orifice 6 in.

Wind Shields

all shields loaded with snow frozen to slats, but entirely separate from the hoods.

Bracket of No. 8 did not cause the hood.

Temp. in Snow

#

At Office -

3 pm (?)

No. 3	Surface	
" 6	In surface	28.5°F
" 2	2½ in. deep	30°
" 5	16 in.	30°

4:45 pm

No. 3.	Surface	28.0°F
" 6	3 in. deep	28.0
" 2		29.5
" 5		31.5

Dye bright green, turning green below. (?)

Gerdel "- No free water by Calorimeter Today."

6 pm. Min. 26°F; H-T. 27.5°

On surface of snow 26.3°F

- Gages -

5 pm.

No. 1 - 2.0 in.

Stevens S. - 2.17 in [10.40 to 12.57 in]

Weather

3 mi. down road Siedentopf ran into sunshine and cumulus cloud. So returned to spend the night with us and check Trig gage tomorrow.

Snowing has almost ceased. Skyline is luminous at sunset. Are we merely in a cloud cap?

Two planes passed over today, one morning and other in the evening.

But barometer continues low tho it has flattened out.

The phone men quit at 7:30 pm for the night. a hard day.

Saturday Nov. 11

Snowing again. Barometer falling farther.

— Tahoe Stations —

Siedentopf checked the Friez. Last Wednesday he established weather station at Echo Lake. Found new observers for Bijou and Glenbrook (at Fleischmann's). Ashton will establish them when he goes to Spooner's.

Gendel and Ashton will leave for Sacto to meet Linsley. Return next week. I shall remain until the sun returns and clears the gages.

Temps in Snow

9:30 am. Set last night.

			Gendel Thermohm
No. 3	4 in. deep	26.5°F	
6	7 in.	28.0	
2	9 in.	28.0	31.5°F (12 in.)
5	23 in.	31.5	32.0°F (24 in.)
On surface		32.0°	

Glaze on Tube
Dyle green.
Thawing to freezing

? On surface 37.5° F.
Dye turning slowly red.

11:30 am Snowing.
New snow on column. 36° F
Dye still red.

1 Snow survey chart for Nov. 11, 1944 to folder

2 pm.
1 in. below snow 34.° F.
Dye Red above / Green below in same deposit.

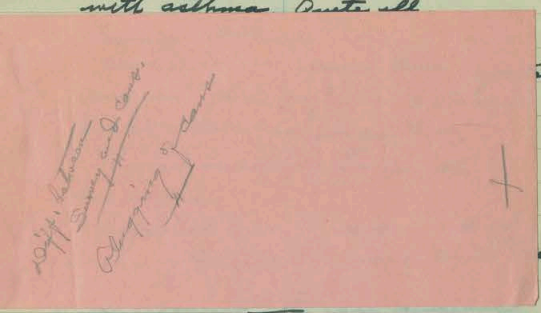
Sun filtering almost imperceptibly thru clouds. On edge of moistness.

3 pm.
3/4 in. below new snow 33° F.
But dye in the new snow is green.

Snow Survey
By Gendel and Codd. in Pasture
Depth 35.8 in. Water equiv. 7.7 in. Dens. 21.5 [illegible]
Gendel would like a chinook for forecast experiment.

- Phoned -
Lines restored, but 10 poles are being erected. "Otherwise the settling of the snow would break the cables like wires of a fence".
"All well at office. Fleming has requested Lang's plan. Had meantime arrived -
Marcha - Jo at Army airbase Hospital

with asthma Quite ill



Phoned Grass Valley but could not get Tucker.

Comparison of Catch by Instruments

Snow on Ground Nov. 5 to 11 - 36 in.

Snow Survey Nov. 11 35.8 in. Water 7.7 in.

Precip. Nov. 5-7 (No. 1) . . 1.42 in.

" 9-10 (No. 1) 3.95

5.37

By Gages Nov. 9-10-11 Loss 2.33 in.?

* No. 1 . . 3.95 + 0.48 = 4.43 in.

* Stream S. 4.20 + 0.56 = 4.76 in. } Snow survey D. 31 W.E. 6.6 in.

** Trig 9-11 2.05

* Creek cut loose Nov. 9, free catch Nov. 10 of 2.06 in.

** Creek cut only on Nov. 11. No catch yesterday.

with asthma. Quite ill.
Raining at Reno."
Phoned twice. Second time requested camera and reprints of Wilson's Quality of Snow for library here.
Winifred is sending tonic. All by bus express.
Requested her to send in bill for lease of Pasture lot farm of Dennis Jones.

Sno-Cat

Phoned Grass Valley but could not get Tucker.

Comparison of Catch by Instruments

Snow on Ground Nov. 5 to 11.	36 in.	
Snow Survey Nov. 11	35.8 in.	Water 7.7 in.
Precip. Nov. 5-7 (No. 1)	1.42 in.	
" 9-10 (No. 1)	3.95	
	5.37	
	Loss 2.33 in.?	

By Gages Nov. 9-10-11

* No. 1 . . 3.95 + 0.48 = 4.43 in.
* Stevens S. 4.20 + 0.56 = 4.76 in.
} Snow survey 0.31 W.E. 6.6 in. (check height)

** Frig 9-11 2.05 { +0.48 +0.56

* Cream cut loose Nov. 9, free catch Nov. 10 of 2.0 to 2.1
** Cream cut only on Nov. 11. No catch yesterday Nov. 10

Loss

Loss of catch due mainly to rain and freezing up of gages on the night of Nov. 8. The No. 1 and Stevens cleared Nov. 9 have not clogged since. and the snow caps are persisting on the others.

The loss in precip. will be that since the original clogging, for contrary to expectations the caps themselves are not accumulating all of the snow falling since then.

Snow Slides

Snow has been constantly sliding falling from the roofs during the storm. Exchanges are now forming. The weather and snow are near right.

But metal and glass are good radiators of heat, causing the snow to adhere except on warm roofs

— Stevens S —

Nov. 10. No. 1 . . . 2 in.

Stevens S . . 2.17 in.

Gandel: "Difference negligible, but teakettle must be used in both cases".

However, the hot water for S was to melt the glaze from the outside of the can and the movable keys of the supports of the balance. Far simpler than melting the contents of No. 1. Moreover, in cold weather there may be no glaze unless sun has melted the snow against the can.

Try graphite on movable parts.

Hotel –

Catch

5 pm. Nov. 11.

$No. 1 . . . 0.48 in. but meas. too approximate.

Stevens S 12.57 to 13.13 = 0.56 in.

Needed only slight wash of hot water to clean Can of Stevens S of all rime.

Snow Survey

D. 31	W.E. 6.8 in	
D. 31	W.E. 6.4	
31.0	6.6	Dens. 21.3%

FEDERAL AND STATE

COOPERATIVE SNOW SURVEYS

State California

Drainage Basin South Yuba

Snow Course Ann Hatch Photo

Party J. E. C.

Date Nov. 11 for Nov. 9-11

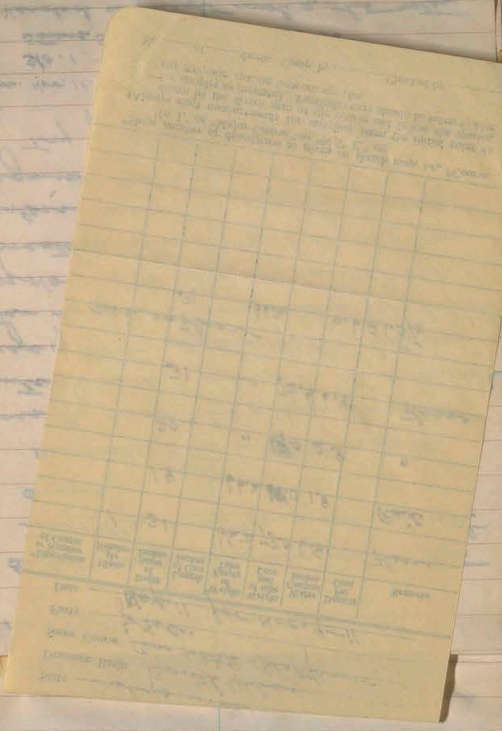
*Description or Number of Course	†Sample Number	Depth of Snow Inches	Length of Core Inches	Weight of Empty Tube	Weight of tube and Core	Water Content Inches	Density Per Cent	Remarks
	1	31		66.2	73.8	6.8		Floor
		18		66.2	68.0	1.8		Rail
		20		"	68.8	2.8		"
		31		"	72.6	6.4		Floor
Aver. on Floor		31		66.2		6.6	21.3%	

*Show number or description as given on sketch map, *i.e.*, "Course No. 1," or "Major Course," or "N 5° E," etc.

†Always start measurements for sampling from the *initial* point as shown by the sketch map of the course and follow the spacing for samples as indicated. Particular care should be taken to note any *irregular* spacing between samples.

No.....of.....sheets. Comp. by.....Checked by.....

ledger below.



Snowfall after 2 pm. - on porch 3 in.
Barometer falling. At 10 pm. snow oscillating.

Orifices of Cans

Nov 2. Stevens W. now fully capped over. The shield has partly cleared. Snow building up drift on slope of can but is accentuated where supported by ledger below.

Begin No. 3. Army Engr. Icicles hang from shield but bridging now covering

Page 26
Balloon
No. 3

'— Glaze —

The snow sampler glazes readily.

The anemometer cups became filled with snow and ice, which later melted and slid half out of the cups, then solidly refroze.

 ← Cup. .... is ice.

Cause: Aluminum, which is great radiator of heat or conductor of heat and radiator of cold.

H-T Stopped immediately again last night, dirty clock. Restarted at 5:30 pm. Should have been 6 pm.

Begin

No. 3. Army Engr. Icicles hang from shield but bridging now occurring between windshield and cap on Cone. Much the same condition with Nos. 4 and Reduced Cone.

All are now tightly covered except No. 1 and Stevens S.

Fine gage was cleaned and recharged today, but snow is already piling up on shoulder of cone to level of throat.

— Glaze —

The snow sampler glazes readily.

The anemometer cups became filled with snow and ice, which later melted and slid half out of the cups, then solidly refroze.

c = cup. .... = ice.

Cause: Aluminum, which is great radiator of heat or conductor of heat and radiator of cold.

H-T

Stopped immediately again last night. Dirty clock. Restarted at "5:30 p.m." Should have been 6 p.m.

Snow Temperature

6 pm 5 in. beneath snow 29.5°F
air temp. on platform 28.0°

9:30 pm 3/4 in. below snow 25.5°F.
Taletherm 31.6°F.

Sno-Cat and Towers

Phoned the Tuscaroras tonight. He has a 20-passenger trailer and will be glad to haul towers anytime after Tuesday. I offered expenses and as much more as we can. Also recommendation & Demand. He has regained our color film and will bring it with him.

Donner Observatory

Called B.Y. Andrews at Tuscaroras, but he now moves from noon till noon. Mrs Andrews says that he sees no objection to having an additional gage there.
So shall climb my way up tomorrow.

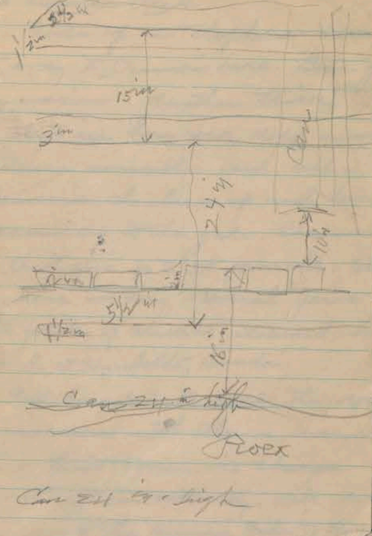
* During the night the entire roof load on west side of filling station had slid off, piling up floors of snow ~~snow~~ in auto trail and burying the thermometers.

November 12
↓

Sun

Nov. 12

Dimensions of Railing at Damien Rock



... on
i... ...anted
f...
... ,
c... The
...
... s?
... ...udy.
... ...in
... the
... and
... house
... but
... ...ite
...
great ... ... for. Possibly I may be permitted to visit during storms - but still war times!

Hiked home.

Snowplow bare very warm so as to melt incrusted ice from plows.

// * ... roof
load... had
slid... r
snow... the
Then...

November
↓

Sunday, November 12

Nov. 12 To Donner Peak.

Rode up in Telephone pickup on its way to Donner Lake. Boss granted permission. Weather thick.

Sleet ice, bare rock, soft snow, contours invisible. Used "webs." The observers clamber up and down according to the gale. Chamois?

Andrews 30 to 35 years old. Sturdy. 10 years in Navy, several years in all parts of Alaska. Stationed in the alkali at Humboldt, Nevada.

Will be glad to read the record of gage can with other - every 6 hours. Time limit 1 year. No charge but must obtain authority. Will write and send the "Human Side of Snow" given him. Only a few days. Possibly I may be permitted to visit during storms - but still near times.

Hiked home.

Snowplow base very warm so as to melt encrusted ice from plows.

Passages from Winifred by bus - express. Medicine, Wilson's Quality of Snow; camera. Arrived at Hotel Saturday night.

Kiski Lodge seems too high above railway as stepping point in surveying Donner Summit 1 Course. Must get Blair Eddy to show me the way.

Bought supplies at Norden. Road surface too smooth. One fall. Must acquire the athlete's technique of spilling.

My pack and snow mantle not attractive to motorists. Only chance is the tail of a pick up. So learn bus schedules.

Road Cut to Barn

Rotary snowplow is cutting a full road to telephone line to aid access of trucks with poles.

Cut to bridge and barn, but has excavated the north end of Soda Spgs Snow Course No. 1. Must now restrict the snow survey to pasture end.

At least the rescue of horses and pigs. Boys have been carrying water in stew kettles.

Capping of Gages
Classic

4:15 pm Thermometers in Snow
Buried deep - 2½ ft -
Temps. 28.3°F, 28.3, 29.5, -.
Dye had turned red. Presume or warm day? But buried in the night.

— Gages — a Piled-up Accident —

This is a "Slaughter of the Innocents". Every gage except No. 7 Stevens Q is capped higher than ever, all from the sleet and damp snow on cold metal Wednesday night (Nov. 8)

// The No. 1 and Stevens S have never plugged since being cleaned No. 9. and No. 5 Friez since cleaned by Siedentopf Nov. 11.

→ But Stevens Q was clean except for the apron of ice on the windshield. Did not try to look down lest I disturb the shield.

5 pm. Measurement.

No. 1 . . . 0.30 in. [Snowfall 5 in.]

Stevens S. 13.41 - 13.13 = 0.28 in.

Hot water again desirable to thaw out masts and clean film of ice from outside of can.

5:30 pm. H-T's both running. One at Hotel was stopped again last evening.

at Pasture

Max. 44.8°F Rest 25.5

Min 13.0 " 24.0

Gages in Pasture

No. 6 Snow sliding from shield.

" 7 (Stevens Q) Orifice clear. Shield loaded.

" 8 Snow cap from melting up - in form of square  Snow cap.

Nos 9 & 10 - Loaded.

Although still overcast, the air warmth is causing the snow and ice on the thin fins to melt and slide down. In some cases nesting in bottom of shields.

Monday?
Tuesday, November 13

Rested nearly 12 hours but have touch of flu.

9 am. Sun! after nearly a week.

Recording too, but tail of sunshine bulb is projecting from snow drift. But too willing. Sun has recorded sunshine all day despite overcast much of the time. Stopped only at 5pm sundown.

Barometer steadily rising. Cloud cap?

Photos

Photos made of present accumulation of snow on gages - 1 doz. views - stopped by overcast.

10:30 am. Sun on Snow

Snow already falling from shields.

Page 24

Page 23

~~Monday~~ Tuesday, November 13

Rested nearly 12 hours but have touch of flu.

9 am. Sun! after nearly a week.

Recording too, but tail of sunshine bulb is projecting from snow drift. But too willing. Sun has recorded sunshine all day despite overcast much of the time. Stopped only at 5pm sundown.

Barometer steadily rising. Cloud def?

Photos

Photos made of present accumulation of snow on gages - 1 doz. views - stopped by overcast.

10:30 am. Snow on Snow

Snow already falling from shields. No. 2 (Stevens VII) has shield almost entirely clear.

No. 3 (Army Engrs.)

Large clumps of soft snow are falling from shield like avalanches from branches of trees.

Nos. 4 and Reducer Collar still have mass of accumulated snow.

Metal Effect

No. 1 copper can warm to touch. Practically empty. Snowflakes in night only 1 in.

Stevens S only one-half as warm but contains liquid, always in this stem containing thin slush. Color olive green and base metal.

Stevens W. Galvanized iron especially of wind shield chilly to touch.

Anemometer cups (Hotel) entirely clear, the had shell ice frozen in cups last evening. (aluminum)

Also anem. cups in Pasture entirely clear. Painted black inside. Little ice on them last evening.

End

Query:- Shall we try dead black?

Ice-snow on Cables

Most of the festoons have been falling thruout the storm, but today the more obdurate fell rapidly in the sun. Cut themselves thru the wires by weight - warmth.

1. Cable of Triple Register

Length.	Diam.	Weight	
15 1/4 in.	1 3/4 x 2 1/4 in.	15.4 ozs.	Used Utah balance. 1 ft = 3/4 lb.

2. Wire on road to Ry station

9 in.	2 x 2 in	8 oz	1 1/2 ft = 1 lb 1 ft = 2/3 lb.

3. In Pasture

8 in	1 3/4 x 2 in	5.7 oz	1 ft = 1/2+ lb.
7 1/4 in	1 3/4 x 2 in	5.3 oz	1 ft = 1/2+ lb

Weight on Spans of Telephone Line

44 wires in line, spans average 150 ft.

= 3,300 lbs per span (1 1/2 tons) not including weight of wire.

" Near Dunmore Lane festoons 6 to 8 in. in diam. or possibly he said [illegible] yes.

Dr. S.P. Ferguson thinks — Was there wind with that rain? Did the wires fall early? Wind must have blown spans down. Then called out at 3 am? Could hear the gust. Also poles in forest did not fall. He had one wire [illegible]

* 8 p.m. dye still green. Also the red dye in the snow has turned purple.

Dye on/in Snow

Last evening and night
dye being covered by new snow remained green.
Snowfall 1 in.
at 2 p.m. dye beneath the snow had became red in sunshine.
So can expect crust tonight

New dye today
dye on snow has turned red tho sun has been out only few minutes at a time.
What is effect of filtered or veiled sunlight?
Snow melting from shields even during overcast, stormy days.

5 p.m.
Along a cut wall of snow the red dye has percolated 2 to 3 ft by strata. Where not cut, the dye has merely penetrated a single stratum or three packets.

New dye on surface just as much behind the hill is still green*.

Dye Tests:-

1. Plant dye in snow storm so it will be beyond reach of sun.

2. Plant dye after storm in sunlight & see penetrating distance of sun-caused melt-water.

3. Use dye to determine melting and crust.

Thawing and Freezing

air temp. in shade today was max. 27°F to 30°F. But slush in road turning at 2:30 pm to crust.

So melting and freezing may occur at shade temp. before freezing.

Question therefore of insolation as shown by dye.

Snow on Roof

Snow has been sliding all day from roofs. Because painted black (graphite)?

But only where heat was in building. For example, no slide from the porch of filling station tho' much from main building. And none from steel oil tanks

Insolation.

Pasture –

4:30 pm Anemom. 446 mi.

Snow Stake 38 in.; in cut 39 in.

No. 7. (Stevens Q) entirely clean except two small clumps of snow on shield.

Reset Nov. 7 . . . 7.95 in.

" 13 . . . 12.88

Total 4.93 in.

Fallen Cape: Nov. 9. 0.4 in

" 11 1.85

2.25 in.

Hotel

5:00 pm Stevens S 13.55 – 13.41 = 0.14 in.

* Snowfall 1 in.

No. 1 0.15 in.

Contents of No. 1 liquid. No melting required to bring Stevens S.

No. 2. Stevens W.

Throat entirely clean. Slush in liquid. Snow settled down on outer slope but is still present.

All cans will be clean tomorrow. Evening very clear. Barometer up and steady.

Photos - Rolls 1-3 and 4 (expos. 1-4). Tomorrow take views of descending snowscape.

6 pm. Hjalmar Bergman came twice today to help me set stakes. Will come again tomorrow afternoon.

Because highway is smooth he insisted on taking me to dinner and bringing me home.

Storm Over

Barometer higher and steady. Last cloud gone. Beacon shines brightly and a bright planet joins it just beyond.

A cold night predicted by all.

+13.0°F in past ten days. The 2.5 to [illegible]

Nov. 9-11 12-13

No 1 4.43+0.30+ ?

Stevens S 4.76 +0.28+0.14 = 5.18 in.

Stevens Q . . . 4.93 in. !

Loses only 0.25 in.

But Snow Survey depth on ground

Nov. 5-8 = 12 in.

@ 21.5% = 2.58 in. (?)

By No. 1 . . . 1.42

Photos - Rolls 1-3 and 4 (5 expos. 1-4).
Tomorrow take views of descending snowscape

6 pm. Hjalmar Bergman came twice today to help me set poles. Will come again tomorrow afternoon.

Because highway is smooth he insisted on taking me to dinner and bringing me home.

Storm Over

Barometer higher and steady. Last cloud gone. Beacon shines brightly and a bright planet joins it just beyond.

A cold night predicted by all.
+13.0°F in past ten days, tho 25 to 30 during storm. 10°F in morning?

New dye turning red,
all other melting.

Sunshine recorder
working except in shade

27
28.5°F } Pasture.

5 pm. New dye after setting
in ammonia? setting
remains green.

Ice in water been forming
since 8 pm.

Tuesday, Nov. 14

10:15 am.

Fresh east wind, cold, clear. Snow drifting. Barometer high and steady.

Max. 11°F. Present temp. 24°F

Gages

Stevens S. Clear.

Soft ice 1/2 in.

[By afternoon was 28°F shade, ice had become clear]

Sunshine bulb is now practically clear. Only a bit of shell ice on upper part.

Anemom. and vane clear except around stems

No. 2. Stevens W.

clear around and inside throat

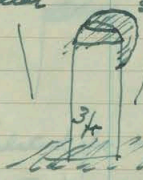
Snow chamber.

Shield clear.

No. 3 Army Engr.

No. 4

Reduce Collar



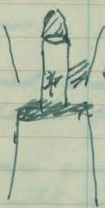
No. 6

Snow banked and massed in bottom of shield

No. 9

Shield clear
Can nearly clear except up from base.
Shelf loaded

No. 10



Simple cap.
Shield clear.
Snow on north plank.

Too ventilated for metal to melt snow. If wind went down, heat would be effective.

Snow drifting over dam and pasture.

Dye and Snow Melt

11 a.m.

Test of melting in wind.

1. On level snow dye remained green but finally began to turn red.

2. In sun-struck pocket protected from wind, dye turned red quickly.

3. Somewhat more slowly the dye turned red on slopes turned toward sun.

4. 3. Remained green on opposite slope shaded from sun.

3. 4. Likewise green in shade of house until struck by sun.

Query: How much does snow surface melt in sun and wind?

Wind crust. What causes it?

– Crust –

Slush in tracks of road about 3pm freezing even in the sun. Max. shade temp. today at Hotel 33.0°F.

Dyes and Temps.

1:30 pm — 2:30 pm H-T 28°F

1. In warm pocket
   In shade 36.5 . . 31.0°F
   In sun 49.0 . .

2. On top of level snow 48.0°F 41.8

3. 2 in. deep 38.0°F 41.5*

* Snow porous or has holes near bulb.

3pm. – Temps. in drifting snow — 4pm (Sun almost set) — 5pm (shade)

1. In sun on snow 39.5°F — 31.8°F — 20.2°F
2. 1¼ in. deep 31.5°F
3. 8 in.? deep 25.5°F

Penetration of Dyes

North of Steps. Last 3 days
   Oldest 9 in. deep
   Next 7 " "
   Latest 5 " "

\# Dye follows leads and spreads on strata.

In tracks of trucks, dye today descended # ½ in. to ice. Traveled down slope 4 ft.

Dye Placed at Noon West of Path

Penetration by 4 p.m.

1. On Top of drift 2 in.
2. Facing sun 4 in.
3. In sheltered pit 3 in.
4. On slope nearly level but slightly uptilted toward sun 2½ in.

→ Dye has spread 1½ ft. wide and 3 ft. long down slope just beneath the wind crust.

→ Study dye movement in new windblown snow.

Inspection of Gages at Midafternoon

All still capped, but on Redwood Alp gage, orifice slightly more open on west side.

Gould and Codd

Returned with one new tower just at sunset.

Wednesday, Nov. 15 (Max. Temp. for 1 hr. 29°F)

Second day of high barometer and east wind.

Snow scud down dam and in plumes from Beacon Hill. Clouds spreading.
Castle Peak a Christmas cone.

Below freezing all day.

Assisted Lendel and Cody in erecting precip. tower in bend of road beyond the barn. Snow scud blown continuously against my nose, nearly froze it.

Telephone men making fast progress in stringing wires.

Temp. in Snow

9:30 a.m.

1. Telethermometer 23.8°F
2. In surface under film of snow 32.0°
3. 3/4 in. beneath snow 18°
4. 16 in. deep . . . 23.5°

10 am Placed them in sheltered pocket in sun.

10:20 am

	10:20 am	1:45 pm **	5:20 pm ****
1. Bulb just showing in drift snow	28.0°F	37.5°**	18.1°
2. In sheltered pocket at base of snow wall in direct rays of sun	61.0°	64.0°*	24.0°
3. 3/4 in. down	. . .	27.0°***	21.0°
4. 16 in. down	. . .	27.5°***	28.0° [14 in. deep]
5. Min. + H-T	.	.	24.0°
6. Telethermom.			24.4° air wind stirred

* Hot house effect? But both alike. Try tube with bulb-end open.

** all dyes exposed at all to sun are red, In shade still green.

*** Min. and H-T in shelter at Hotel 27°F

**** all dyes turned purple.

Dyes on Snow

9:30 a.m.

Old dyes of earlier days north of steps all green or purple. Red has completely disappeared.

Dye of yesterday
1. at right angles to sun red except where dye is thick.
Red 2 in. deep at least.

Dye planted last evening.
1. On surface green
2. Buried ½ in. under drift snow green.

New dye placed on drifty snow.

1:45 p.m.
All dyes exposed at all to sun are red.
In shade still green.

Explore dye on drift snow tomorrow.

Snow Crystals and Freezing

Could found snow crystals at bottom of tower pit coarse and that the snow froze to the shovel. Why?

Was not the snow warmer near the ground and therefore moist? The shovel was cold.

→ Test by thermometer and dye tomorrow.

Festoons on Wire and Boughs

Festoons of ice and snow have now practically all fallen from the wires but the tree branches are still loaded.

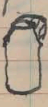
Evidently the wires have cut their way upward when the heavy load, while the boughs upheld the snow.

Snow Caps on Gages

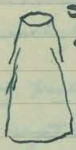
1:45 pm.

Robinson Cellar. Orifice ¾ clear.

Retracted from the rim



No. 3 Army Engs.



Snow retracted from collar.
~~Hood bare in south.~~
Collar bare on south.

No. 4 Completely capped and hooded.

Caps should fall in by tomorrow.

5:20 p.m.

→ Reducer Collar. Orifice clear. ~~Ice flowers floating~~ Very light sheet on liquid.

→ No. 8 Army Engs. Orifice clear. Very light sleet within.

No. 4. Still capped, but ice and snow wearing out.

No. 2. Stevens W
Snow and ice on shoulders becoming more porous.

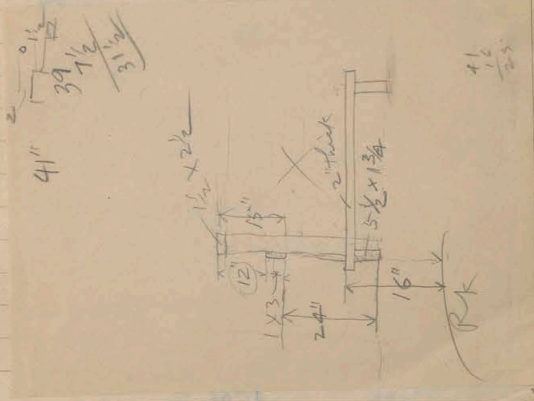
Stevens S.

Ice floating in can was resistant this forenoon, but this morning was punchable as yesterday.

Fog, frost, or Precip.?

Tonight crystals in air. Can they come from trees? Wind still fresh.

Two beacons on Beacon Hill — are rising ever higher. A cheering view.



Thursday, Nov. 16

Frost Precip.

Frost fell on surfaces last evening. Roofs white this morning. Calm.

Sunshine Recorder O.K.

Sunshine record today stopped when cloud passed. Gardel suggests that melting snow shorted the contacts the day when the sky was first clear, then became completely overcast but the record continued unbroken until 5 p.m. sunset. The top of the tube was covered with snow, but the snow froze at sunset. Water is a good conductor; ice is not.

Snow temps. and dyes

10 am

Telethermom.	25° F	
Thermom. in sheltered pit	51.0°	
" under frost film	30.8°	

10:15 am

Thermom. in pit	62.0° F	*
" under frost	36.0°	*
" 3/4 in. under	20.2°	
" 20 in. (?)	27.6°	

* Relative only, for there may be hit-heat effect of cameras on temps.

[Placed therm. at bottom of snow, 3 ft]

10:30 a.m.

Min. Temp last night 19.5°F
Present temp. 24.0°
Teletherm. 26.8°

11:00 a.m.

Rate of road, esp. where black, melting.

1:40 pm

→ Road melting in sun, but freezing in shade.
Temp. Hotel min. 32°F; H-T 32°F

→ Dyes all red.

[Dogs have torn out the surface thermo. But recast.]

Temp. 16 in (?) . . . 27.8°F
" 3 ft ? 32.0°
" in pit (in sun) 63.0°
Teletherm . . 36.4°

2:50 pm

Temp. on surface (in sun) 41.0°F
" 3/4 in. deep . . 37.5°
" in pit (now in shade) 34.0°

4:00 pm. Temp. Hotel . . . 31.0°F
Water dripping from snow on platform.
No. 4 clear except for small piece.

5:45 p.m.

Temp. in pit (shaded) . . . 26.5° F.
" on surface . . 22.0°

Roads freezing. At 6:30 p.m. ice is glassy.

Dyes :-

10:15 a.m.

Planted new dye. Remains green.

Add dye :-

1. In pocket . . red.
2. In sheltered sunny hole . . red.
3. On flat surface . . green.
4. In shade . purple.

Red caused by impingement of sun-insolation

1:40 p.m.

Dyes all red.

5:45 p.m.

Dye red where snow is still soft under crust. Purple on surface.

Query :- Tomorrow determine the depth of penetration.

Snow Caps

East wind and cool clouds but moderate

10:30 a.m.

No. 4. Cap as broad that it shades metal from melting it.

No. 6. Becoming smaller.

No. 8 - Small. Still supported by molding.

No. 10 Small.

2:50 p.m.

No. 4. Clear except for small piece of snow.

4 p.m.

No. 6 Clear

No. 8 Clear except tiny bit of snow on west side of rim. "Won't fall in" - Gendel.

No. 10 - Probably clear. Did not observe.

Period: Thurs. Nov. 9 - Thurs. Nov. 16. Started by ice storm.

New Frigg Tower -

Fastened together flat in barn and on snow, then put upright by Telephone Company workmen. South of railing.

Mr Stocker, Bell Tel. Company of Sacramento sought permission to use cable car of U.S.F.S. across S. Yuba at Osco to shorten the inspection trip of his men along the line. Knew Floyd Moffat and Chuck Boyd.

Photos

Spool No. 5 Exposure 3-6 and Spool 6 Exposure 1 — of Towers and Cops.

Snow Survey.

4-6 p.m.

3 Snow survey charts for Nov. 16, 1944 to folder

– Summary –

Course No.	Depth in.	Water Equiv. in.	Density %	
1	16.5	4.4		
2	36.5	7.0		
3	—	—		Road cleared
4	29	10.0		Firn slush
5	29.5	7.9		
6	31.0	7.4		
7	32.5	8.0		
8	31.8	9.0		
9	30.2	8.0		
10	32.5	6.5		
11	30.0	7.5		
12	32.5	8.5		
13	31.0	8.0		
14	30.0	8.0		Hot cutter
Av. 11 cores	29.6	7.65	25.8	
13 cores	29.8	7.71	25.9	

Note - In latter end of snow course ice frags into teeth-facets of cutter. Bottom 5½ in. snow moist. Freezes to cold sampler.

Friday, Nov. 17

Temp. in Snow

9:30 am.

In shade.

(a) In sheltered pit +10.8° F

(b) On level surface under film of frost 0° F or lower. (?)

No graduations below +10° F.

Later: Believe that column was higher but difficult to discern.

10 a.m.

In sun

*(a) In sheltered pit 55.5° F

(b) On level surface under film of frost 13.5° F

(c) 3/4 in. deep 9.5° F

(d) 16 in 31.5° F

(e) 28 in Bottom 30.5 30.5° F; 29.8° F*

*Did it fall during reading?

* old cover badly frosted.

In Hotel Shelter

Min. for night 6.0° F

Current temp. (min) 20.0°

(H.T) 21.5°

11:00 a.m.

(a) Temp. in face of sheltered pit
[Therm. now placed 1 in. beneath surface]

Therm. almost exposed 36°F
Snow moist-packed

(b) On level under film of snow 36°F
(c) 3/4 in deep . . . 33.5°
(d) 16 in . . . . 26.5°
(e) 28 in. Bottom 31.8°

In wood: 1. 2. above frozen.
2. 2. on moist.

1:00 p.m.

Hotel { Min. temp. last night 68°F
Current temp. in shade 41.0°

Pasture - (1:15 pm) 41.8°

H. Fe reset

For Period Min. +5.5° F Reset 42°
Max. 45.5° " 43°

Anemom. 263.5 mi. Calm.

3 p.m. Temp. 40°F

(a) In face of pit (in sun) 38°F
[Bulb exposed to air but not to sun]

(b) On level surface under partial snow film 38°F
[1/4 in. snow over bulb]
(c) 1/2 in deep . . . 36.2°F
(d) 16 in. deep . . . 31.5°F
(e) 28 in. deep (Bottom) . . 32.2°F

NB: The above temps are proportional rather than exact. Tests will be made of thermometers (a) in sealed tubes, (b) with end of tube open, and (c) without tubes. Metal backs will be discarded.

<u>Gages</u> Reweighed.

11-12 a.m.

Reweighing of Gages

11-12 a.m.

	D.	W.	Point (to liquid)
USED	15.3		44.4
Reduc. C.	10.1		31.0
No. 2 (Stevens W)	6.9 (near side)	4.38	60.3
No. 4	8.0	9.70	15.5
No. 6	7.7	9.35	15.6
No. 7 (Stevens Q)		12.85 or 12.88	
No. 8	6.7	8.30	16.6
No. 9	10.2	13.45	24.8
[illegible] 10	10.5	13.70	24.6

R.W.G.

No. 4

No. 8.

No. 10-

Notes on Gages

No. 4. A sliver of snow size of 2 marbles overhangs rim. Jim on north side and chunk fallen from wind shield.

No. 8. Tiny overhang of snow and frost. Yesterday's fall of snow into can was still only partially melted.

No. 10. Film of slush.

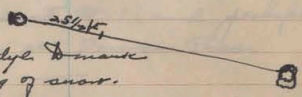
Dyes

3:30 p.m.

Seasonal dye on present snow cover in Pasture.

On line from Postal Union Sales bearing old snow-depth board S 7° E toward N edge of dead tree.

Exact point 25½ feet from Sale.



(a) Black aildye to mark settling of snow.

(b) Fuchsine at base of marker-stick to identify melting.

Percolation during Present Period

At front of office

On shoulder of snow 18 in.

On flat by steps 12 in.

West of driveway

Last 3 steps approx. 12 in.

Coagulated as in tiny pocrete, also for limited areas along sheets.

I left the wind shield and 12 in. can to be forwarded by parcel post.

Caught the Nevada-California ~~Car~~ ("Wildcat") at 5:15. Reno at 7 pm.

Saw deer on road and stopped for them. ~~One~~ little doe was caught in the cut west of state line and killed. The driver loved animals and was saddened by the accident.

I am planning to travel by "Wildcat". My best return home

Comparison of
No. 2 Stevens W and No. 3 Army Engr.
Exper

No. 3 (July 26/43 - Aug. 18/44)
44.55 in.

Precip. No. 1 (Aug. 18/44 - Nov 8/44)
8.64 in.

Total estimated
July 26/43 to Nov. 8/44
53.16 in.

No. 2 (July 26/43 - Nov 8/44) W.H. 5.91 in.
Depth only 46.05

No. 5 (Friez) (July 26/43 - Sept 30/44) 40.92 in.
No. 1 (Oct 1 - Nov. 8) 7.97
Total 48.89 in.

No. 4 (July 25/43 - Nov. 7/44) 49.72 in.

No. 4 49.72 in.
No. 2 - Stevens W 45.91 [Depth 46.05] in.
No. 5 Friez 48.89 in.

Jan. 28/45

No. 2	July 26/43	— Nov. 8/44	45.91 in.
No. 3	"	— Aug. 18/44	44.55 in.
	+ prec. No. 5	Aug. 18 - Nov 8	8.07
			52.62 in.
No. 5	July 26/43	- Nov. 8/44	48.37 in.
No. 4	"	" 7/44	49.72

Comparison of
No. 2 Stevens W and No. 3 Army Engr.
Eager

No. 3 (July 26/43 - Aug. 18/44)
44.55 in.

Precip. No. 1 (Aug. 18/44 - Nov 8/44)
8.64 in.

Total estimated
July 26/43 to Nov. 8/44
53.16 in.

No 2 (July 26/43 - Nov 8/44) WH 59.91 in.

arranged by Elev. + Shelter

No. 3	Army Engr.	53.16 in.
No. 4		49.72 in.
No. 2	Stevens W	45.91 [Depth 46.05]
No. 5	Frieg	48.89 in.

Jan. 28/45

No. 2	July 26/43 — Nov. 8/44	45.91 in.
No. 3	" — Aug. 18/44	44.55 in.
	+ prec. No. 5 Aug. 18 - Nov 8	8.07
		52.62 in.
No. 5	July 26/43 - Nov. 8/44	48.37 in.
No. 4	" " 7/44	49.72

Notes "The Absence of [capping?] is..." to folder

Friday, December 1

At Reno raining slightly in the night. Brilliant lunar halo last evening.

Left Reno 8:30 a.m. Rain clouds, rain to Floriston. Rocks strewn all along highway. Must have rained hard to loosen them.

*(Then large water flakes of snow that burst against wind shield. Then drier snow and snow on highway at Boca.

Chains at Bug Station. Trees snow-laden. No view except of near-by trees. Donner Lake unfrozen and full.

One truck in bank, a snow plow over the edge of road. Cars hugging the center of the road in precaution.

No one at Office. Gerdel left last evening. Blair Eddy waiting at Donner Summit Lodge. No freight left by Valley Express.

Storming too heavily to go to Summit. So Blair and his mate ate lunch at

office while I reset H-T's and barograph. Clock cylinder repaired and on my desk for replacement.

Called Valley Express at Reno. They are waiting for a truck from California. Should deliver tonight or tomorrow.

Call Blair Eddy when storm is over to start Summit and Pass Courses and survey them.

Till 5 pm. call Colfax 7R2 (Office)
after 5 pm 7R3 (Home).

- Gages -

H-T's. Feature 11:50 am. 30° F. Humid. 96%
Temp. for Period. Max 50.2° Min 31°
" 7.5° " 30°
Total 12:45 pm 30° Humid only 74% - Should be checked.

No. 1	Nov. 26	0.32 in	Stevens S.		
	" 29	0.57		Nov. 13	13.55 in
	" 30	0.31		Dec. 1	16.10
	Dec. 1	1.38			2.55 in.
		2.58 in			

Truey (No. 5) 2.85 in Some one left tiny door open. Snow inside.

Stick to 1/500 in. not more accurate than weight by 0.05 in. interpolated to 1/1000 in.
No. 6 Frieg is 2.85 in or approx. 0.30 in more. Because this wind shield?
"No. 8 was almost overfilled with snow today. Required 2 inner tubes of hot water to melt it." In Stevens 8 the snow was built up from the waters. Watch the Frieg. Columns collapsed only when hot water was poured on the outside of the can.

General Appearance

1. Snow resting on outside of all sloping or shouldered cans, but not on perpendicular cans.

Occasionally shell ice on outside even of vertical cans.

2. Snow in all collars irrespective of height and even more on the thicker collars, but note on the sloping wall below. Here the wall is clear.

Query: Is upper orifice subject to greater

radiation and consequently colder?
It seems like a case of impinging snow rather than condensation.
Throat is wider, as

3. The snow builds up on liquid, on lee side, especially when liquid is frozen as slush or ice.
The major accumulation is naturally to leeward following the trajectory of the flakes.

Saturday, December 2

Overcast, with sun appearing intermittently.

Sunshine. However sunshine was recorded continuously from approx. 10 am till 3:15 pm. Black bulb was exposed but contacts were sheathed in snow. Short circuit? Try insulating the naked wires.

Snowfall last night 3 in.

Snow builds up on even an edge 3/4 in. diam.

"Gages" notes in folder

Photographs

Roll No. 1 Exps. 2-6, Roll No. 2, entire.
Waited for sun.

Gages

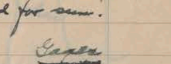
Stevens S.

Liquid firm (frozen). 12 in. reserve in can but snow built up on E. side for 10 in.

No snow on outside of can.

Skiers out on Beacon Hill.

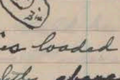
No. 2 Stevens W.



Cone is loaded with snow.
Projects slightly above orifice. Snow inside to leeward 1/4 in. thick.

→ ~~Snow~~ melting and dripping on windshield where very thin.

No. 3 Army Engineers



Upper or swinging cone covered.
Snow inside ~~to~~ leeward 1/2 in.

Full depth of black cone but none on white cone below sheltered by it.
Snow however, is built up from bottom.

No. 3.

No. 4 Slush - Reserve 12 in. but snow built up 8½ in. on SE or lee side. Can of copper.

No snow in throat or outside except 4 in. fin on basket.

Anemometer

Snow-ice in cups met & and could be shaken out.
Would it melt more quickly if aluminum cups were painted black?
→ Black graphite roofs sparting snow continuously. Try on instruments.

Reducing Collar

On shoulder snow built up 1½ to 2½ in. above orifice.
Clean inside except small accumulation of snow on slush.
→ Difficult to measure depth to surface of slush. Too rough.

No. 5. Friz.

An ledge around intake snow built up 5-½ in. to leeward.

Only flecks inside of orifice. Stuck in bucket.

Pasture

Friz cone clean except at shoulder of vertical can. Cone very tapering.

No. 8 - has snow on moulding of box containing can.

No. 9 - clean except outside at base. Slush or sawdust. Cut uncertain.

Tower near dam.

Cone has only a fin built up on NW side - half height of can.

→ Observe new conical cans in storm.

Towers catch little snow but the planks of Nos 9 + 10 and the floor of trestle retain much.

"Snow Bird"-

The Ford coupé on treads from Ice Lakes is traveling well on the snow. Has come in and returned.

Dye-

Noon.

(a) In sun the thinner edges of the dye are becoming red and dye is sinking in the snow. In shade dye green

But on metal the snow has long been moist and dripping.

Indirect insolation

(b) In shade just behind corner the dye is beginning to turn red. The sun shows dimly thru the clouds.

Is there the sun on nearby snow reflected on the spot where the dye lies?

5pm. (a) dye placed a foot or so farther back in shade did not turn color. and the other after being sprinkled with snow from a "Sno-go" turned green again.

Query: Whence the red dye on snow? Fallen from the roof or thrown by Sno-Go? Did latter pick color up from snow nearer highway?

Meandering Dye.

Strange patterns. Evidently moist snow in leads and strata ∪, even tending slightly upward, also pockets and crevasses.

Today a moist stratum (still moist) 1/4 in below surface has carried dye color its whole extent even interrupting at base of snow hillocks. The total depth was not over 5 in. and was mostly less than one inch.

In path color was found to depth of 11 ins.

Surface of snow today must have been moist. Snow dust thrown by snow-gg is already hard.

And on the untracked white snow the crust is already 1/4 in. thick.

Teletherm. 25°F. Min. in shelter 25.5°F. Max. today 34° but mostly 33° or 32°. during heat of day.

So melting was due mainly to insolation.

7:30 pm. The steps and lumber and markers have arrived. Unloaded at the garage.

FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS

State California
Drainage Basin South Yuba
Snow Course Soda Springs No. 1
Party J. E. Church
Date Nov. 16, 1944

*Description or Number of Course	†Sample Number	Depth of Snow Inches	Length of Core Inches	Weight of Empty Tube	Weight of tube and Core	Water Content Inches	Density Per Cent	Remarks
	1	17 -1.5		66	70.4	4.4		
	Shell ice on vertical space of cut							
	2	31.5	26.2	66	73	7.0		
	3	—	Road [illegible]					
	4	29	28.5	66	76	10		[illegible]
	5	29.5	27.5	66	73.9			

*Show number or description as given on sketch map, *i.e.,* "Course No. 1," or "Major Course," or "N 5° E," etc.
†Always start measurements for sampling from the *initial* point as shown by the sketch map of the course and follow the spacing for samples as indicated. Particular care should be taken to note any *irregular* spacing between samples.

No.........of.........sheets. Comp. by.................Checked by.................

Notebook 17, Nov. 16, 1944

FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS

State
Drainage Basin
Snow Course
Party
Date

*Description or Number of Course	†Sample Number	Depth of Snow Inches	Length of Core Inches	Weight of Empty Tube	Weight of tube and Core	Water Content Inches	Density Per Cent	Remarks
	6	31	29	66	73.5			
	7	32.5	27	66	74			Snow stake
	8	31.8	29	66	75			
	9	30.2	29 -0.4	66	74			
	10	32.5	31	66	72.5			
	11	30	29	66	73.5			Soil unfrozen
	12	32.5	31	66	74.5			

5½ in spongy [illegible]

*Show number or description as given on sketch map, *i.e.,* "Course No. 1," or "Major Course," or "N 5° E," etc.
†Always start measurements for sampling from the *initial* point as shown by the sketch map of the course and follow the spacing for samples as indicated. Particular care should be taken to note any *irregular* spacing between samples.

No.........of.........sheets. Comp. by.................Checked by.................

FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS

State
Drainage Basin
Snow Course
Party
Date

*Description or Number of Course	†Sample Number	Depth of Snow Inches	Length of Core Inches	Weight of Empty Tube	Weight of tube and Core	Water Content Inches	Density Per Cent	Remarks
	13	31	26	66	74			
	14	30	26.5	66	74			Wet litter
				Ice in teeth of cutter. Bottom 5½ in snow missed. Freezes to cold sample				
11 mean	29.6					7.65	25.8	

*Show number or description as given on sketch map, *i.e.,* "Course No. 1," or "Major Course," or "N 5° E," etc.
†Always start measurements for sampling from the *initial* point as shown by the sketch map of the course and follow the spacing for samples as indicated. Particular care should be taken to note any *irregular* spacing between samples.

No.........of.........sheets. Comp. by.................Checked by.................

Nov. 29 – Nov. 13 · 34°32°
Dec. 2

~~The lack~~ absence of capping fis
~~due~~ in
due to the absence of sleet
which in turn is due to
slightly lower temperature Nov. 29
than on Nov. 9.

On Nov. 9 heavy rain in
the night followed by snow

Nov. 29
3:30 pm
Thermom. 32.3, Platform 31.0

Nov 10 – 33 max 26 min
Noon 28°
6 pm 26°

Dec. 1 – drier snow at Boca
11:50 am 30°F

Trace Nov. 29 to Dec. 1
26 to 32° but
mainly 30°

From Notebook 17, Dec. 1, 1944

[Gages] From Notebook 17
Dec. 1, 1944

0.135

1.35
1.55
1.80

15
11
11
30
31

.05
.30
.45
1.80

FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS

State California

Drainage Basin South Yuba Basin

Snow Course Lake Spaulding

Party R. W. Church, E. W. Cook

Date Nov. 11, 1944

*Description or Number of Course	†Sample Number	Depth of Snow Inches	Length of Core Inches	Weight of Empty Tube	Weight of tube and Core	Water Content Inches	Density Per Cent	Remarks
	1	33.5	32	22.5	29.5	7.0		
	2	36.0	34		30.0	7.5		
	3	37	35		30.5	8.0		
	4	35	32	22.5	30.0	7.5		
	5	37.5	33		31.0	8.5		
	5)	179.0				5) 38.5		
		35.8				7.7		

*Show number or description as given on sketch map, *i.e.*, "Course No. 1," or "Major Course," or "N 5° E," etc.

†Always start measurements for sampling from the *initial* point as shown by the sketch map of the course and follow the spacing for samples as indicated. Particular care should be taken to note any *irregular* spacing between samples.

No.....of.....sheets. Comp. by.....Checked by.....

Notebook 17, Nov. 11, 1944