Nov. 30 – Jan. 3
1945 – 46

The SPIRAL

NOTE
BOOK

No. 41

Made Under One or More of The Following
U. S. Patents 2188680-2051477-1985776
and Other U. S. Patents Issued

Friday Nov. 30

Started 8:30 am
but got stuck + boards,

Into fog Boca to Truckee
Road dry + o

at Hirshdale frost
on forest trees.
In canyon frost on
W or upstream side,
Cause: Down draft
of cold air Toward
desert,

At Truckee-Donner
frost more evenly dis-
Tributed.

#10:15 D. 41 in.
Pumped 1.4

Min +10° F
10:20 am 18.8° F

10:30 Reset
Min 20°
Clear 26°
W-T 19.5°
Humid. 98% ?
Hairs stuck,

Get new set of hairs.

Two Dye Stations
1. In sun
2. In semishade,
near dressing

Donner Summit Lodge.
Min. today 6°F

Diam. of Army Gage
18 in.
base.

[illegible] for Arthur

2:40 pm
Pasture
Drip pan 0.78 in. (=7.8)

3pm.
T. J. Stopped. To Reno.

Max 47° Reset 31°
Min -3° " 31°

Anem. 290 mi.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
401 PUBLIC WORKS BUILDING
SACRAMENTO

CALIFORNIA COOPERATIVE SNOW SURVEYS

SNOW SURVEY NOTES

Drainage Basin.......................
Snow Course Snow Gages
Party J. B. Codd
Date Nov. 15, 1945

*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
Gage No.	Wt		Depth.			Remarks.		
7	20.2		Chart Reading					
8	19.4		Snow Filled gage					
	8.5		6.5 Recharge.					
6	21.72		Full of snow					
	8.1		6.3 Recharge.					
9	25.6		Freeboard 2" ice + snow					
	11.0		8.0. Recharge					
10	25.9		Freeboard 2" ice + snow					
	11.0		7.8 Recharge					
5	23.35		Full of snow.					
	9.07		4.7 Recharge.					
4	20.42		1" Freeboard Ice + snow					
	10.60		8.4 Recharge.					
All gages had a large hunk of ice								
some loose ice. (See over)								

*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.................

83536 2-40 300-25 SPO

Where Weights show over 22"
The gages were weighed.
piece meal pouring out.
sufficient To Read on scales
Then obtaining Tare wt. of
Bucket. and obtaining the
True weight of the poured off
portion. Then adding this
To the weight of gage
sample:

6.5 wt of pored off portion
.9 Tare wt. Bucket
5.6 True wt of portion.
20.3 First portion in gage can.
25.9 True wt or. precip.
Caught. since charging
Last time. Oct 5.?
Figuers From gage #10

[illegible]

Donner Summit Lodge,
Min. today 8°F

Diam. of Army Gage
18 in.
base.

Reset frig for Arthur

Fence post – 6 in. sq.
Use 2 – 2x6" as filler.
ladder 10 in. inside.
15 ft high of 11x4"

Johnny agrees to work D-day but is eager to earn the high wage for next few days.

Wednesday, Dec. 12/45

Paul + Arthur injured last night by skidders and crashing them. Paul's knee very stiff this morning.

Woodman get transport at 6:30 at Dominion Summit Lodge. 16 P there today. Went down.

Clear day, E wind. 14°F at Johnnie's. 3 in snow yesterday.

Practically dead. Triple register stopped.

New H+T here + needs sticks.

Electric heater has one coil dead. Other coil not quite sufficient. Must keep it running constantly.

Meals - Lunch 80¢
Dinner $1.40

Getting cold - feet, hands. Even a move from locomotive slides along surface of ground of Pasture. Sink down -

Time to leave, Even my nose runs without feeling and blocks as I climbed to higher ground at Hotel. But I had to massage my nose with my bare hand. The glare would not serve. Zero tonight?

Wages
J. J. - Tues by Omer
$5.00

Today, Wednesday, $12.00

Thursday - Dec 13 -
8 pm last night +10° F
8 am this morning +3° F
at Donner S. Lodge,

Frost clouds over Pass.
Wind E.
Nippy on face -

Electric Heater burns now in 2 coils!
Just cleared reflector

Battery 1100 a. Dead?
Or trickle charger gives the power?

Strength of batteries
Tues. (Left & right)
1175 1180
1160 1145
1155
Thurs. 1180
1100

Only E wind recorded by tripple register - none other.

Caught 2:03 pm bus to Reno.
☆ Snow all way.
4½ in dry snow at S. Spgs,
3 in at Reno, Streets icy,
Cold - 0°F.

Ordered new batteries.
Got soap, brushes, wash cloths.

→ So cold that snow did not fall from trees even in sun.

Clyde will bring me up to S. Spgs.
Heard Dr Durant.

Friday, Dec 14 -
Lv. Reno 8 am.
Icy but chains not need.
Trees (pines) heavily laden with frost.
Fog over Truckee and very dense over Donner Lake
But sun at Donner Hotel and up Donner Grade.

On Tues. in storm between Boca and
at 8 pm. Bixby and Boardman and student got onto shoulder of road and broke

Dec. ... [illegible]

Put Arthur's small raingage into white box, preparatory to nailing it up on Hotel Platform. He loaned but did not ask me until tonight. So storm of Tuesday was only approx. measured.

Frost has left the needles of the pines. Max. shade temp. 35°F (?) is cause. But bunches of snow still resist. Temp. too low?

— Sat. Dec. 14 —

Diary to date.

Overcast, snowing lightly, Feels warm.

Batteries (one test) 1290. Full charge.

Forms for records — needed.

Pasture —

7ft H-T is 1°F too high at 30° tho 0°F at 70°F. Reset finally at 29°F (0°F correction)

Thermo. Tr within 1°F, really correct.

Took stove and kerosence (5 gals) to pent house.

Scale for tank needs chalk? Illegible.

Fixed ladder for 11 Ft H.T.

Supported roof for 7 Ft H-T by Two cross sticks.

Dug sticks out and placed them under the Platform floor.

Discovery –
The snow on roof of Pent House and on Therm (14 Ft) Shelter will be good snow mounds to study insolation on – Rear and front.
Need only a balcony back and front.

Study frost disappearance.

Wind with Elevation
This morning anemom, at No 11 (Sacto) running much faster than at No. 9 and 7 & 10. How about amount of precip.?

Temp.

Stewart Q marked at 1:15 pm Snow lies on surface of liquid.

No. 8 has snow lying more deeply in case ~~stah~~ No. 7.

—

Do: Erect markers, Meas. drip ~~lamus~~,

Expenses:
✓ Lunch Dec 13 80¢
" Dec 14 50¢

Meals

Temp. at 7 pm. 29-30°F in 7 FT. shelter.

When I entered un-heated basement of Ski Room at Hotel, snow began to run off like water.

Melted quickly because temp. of snow was nearly 30°F?

Phoned to Winifred. John J's time $5-3 [16] but will be paid only Jan. 1, not in time for Christmas

#

\# Pasture Drip Tank

0.85 of in,

bottom 8.5

Shoveled platforms

Sunday Dec. 16

a warm day - Max 40°F

Snow dripping and falling from trees.

Slight (dust snow. Watery wads and gobs of wet snow, with water dripping heavily from branches.

Three days or phases of melting.

1. Mild sunny day with much dust snow on sunny side, with tiny water droplets on needles.

2. Cold, sunny day - almost no fall of snow, still powdery

3. Warm sunny day (Max. 40°F). Snow falling in chunks with top dust snow floating down - Profuse water dripping from branches.

Make temp. tests -

Office with blinds open, much too warm in direct sunlight with electric heater.

Precip. Gages

8" x 2" gage that

appeared solid yesterday is sufficiently melted today to be emptied. But no time.

Same is probably true of 8"x4" ole oil tank.

Rearranged the storeroom - Now much more understandable.

Removed Sacto anemometer support for straightening.

At 5 pm went to Reno with Beeny and Miss ——.
Margaret McLaughlin

went with us to Truckee to catch it for Utah. "Standing room only".

Snowing Saturday Marysville to Reno. Today clear. But tonight fog and frosting of windshield from Soda Spring to Hirschdale where clouds rose up sides of canyon. Icy road to Verdi + snow farther toward Reno

Batteries

One meas, only 1260

Water O.K.

Not getting too strong. So trickle changer left on.

Birth and Citizenship

Johannes Indahl
(John) Johansen

Born March 18, 1901-
at Oslo, Norway.
Came to America Nov. 1923 (Thanksgiving Day)
Granted American citizenship
June 16, 1943
at Auburn, Placer Co.
California.
Record there, copy at
Truckee.

Return affidavit to
John

Friday, Dec. 21
Rain last night -
freezing to glaze.
Almost as slippery
as Greenland Iceland Ice.
Dangerous.

Called for cover for bed.
Sewing $1.00

Clyde H. brought sampler
set to Bus Station.
Departure delayed till
9:20 pm for our bus
was sent out to bring
another into town.

Rain and wet clear
road to Boca. Then
wet large flakes of
snow and snow
accumulated on the

2 Noon -

Coffee on Gages

No. 1 cap rebuilt

2 - Stevens W -

Slope encrusted

3 - Engineers

Snow poured in

wind shield. -

Coffee Can - Shield -

Piled high -

2 x 8 - High cap -

No. 15 - Frig

Low cap -

Anem

3:30 pm

No. 11 204.3 mi

Just Installed

Precip. Tank 8.89 #

Anem.

No. 7/857 mi 3 50 PM

Thermometer, in Pasture.

Min US 402779 -11

Max 44043

No. 9 3039.1 km 4 10 PM

No. 10 5921.9 km

Observation of Precip. Gages. -

No. 6 - cap complete.

No. 7 - Stevens Q

[illegible] diam. 64 | Orifice completely clear. Outside crust has settled to shoulder of tank

No. 8 Well cleared

No. 9 - Pipe clear. Open about 8 in to solid contents.

No. 10 -

No. 11 - Sacto can - Wind slats fairly clean - some dust toward base of can. But a wreath around the throat diam. Orifice only 3½ in.! Only hope now is heating - Gas? The straight throat is a weakness.

NB - The depth of the contents is not the sole requirement in Nos. 7, 9, 10(?), but not in No. 11.

At Hotel
No. 1 Standard replugged today tho cleared last night.

No. 12 Stevens W has a heavy crust on shoulders but also over throat.
Wind shield has moderate load.

sharply this afternoon
is now slowly rising

Record

Nov. 9.47 N. 4.62
Snowfall 93" on ground
Nov 30 – 43 in

Dec. 1-22 8.54 N 6.80

Total 18.01 N. 11.42 = 157.7?

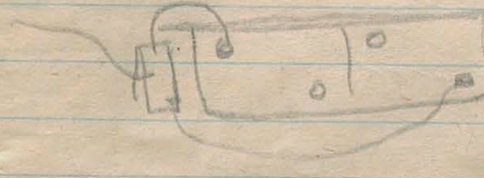
Room 72 to 68°F.

Nov 30 7.8
Drip pan Dec. 14
8.5 in
Dec 22
8.9 in
= 0.04 in
melting?
Nov. 30 – Dec. 14 = 0.07 in.

Sunday Dec 23 –

Batter 1160, 1150, 1150!

Why? What's the matter?
In a single day.
Electrician says
trickle charger connected wrong – So
he changed wiring



at 5 pm. batteries
slightly stronger we
hope.

12:55

No 10 6018.4 km

No 9 3231.8

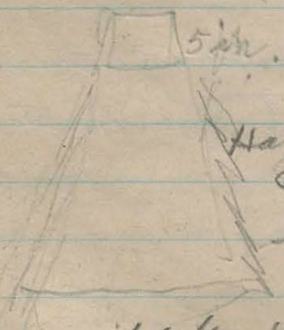
No Cap: 13 1/4" to content

13" to sheathe of ice

Shields clear

1:12 pm

NO 11 340 mi



5 in. a tar place

Has cleared itself

10 1/2 in. to sheathe of ice -

None left on shield

Air chamber aided clearing?

Drip tank 8.9 in. #

But almost undiscernible

1:40 pm

No. 2 989 mi

Snow D. 78 mi

Drip tank 8.9 in

Tried "pumice" i.e. draughtsman's power and draughtsman's wax. Not very

Dec. 22 - 23

No. 11 — 133.2 mi

" 2 — 122.0 mi

" 1 —

" 9 — 118.5 mi.

" 10 — 58.7 mi. (snowed up?)

No, but runs quite slowly. Why?

12:55
No 10

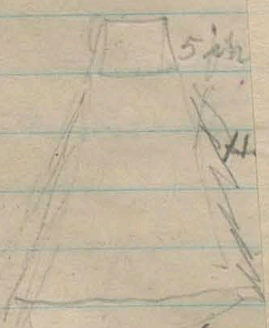
No 9

No c

13 ...

Shields

1:12 pm
No 11-



10½
of ice
None

...mber aided

8.9 in.

...ost undiscerni...

98.9 mi

78 mi

8.9 in.

" i.e. draught

and

...vax. Not very

1943 - Soda Springs

Nov.	1.94	- 2.68	4.62
Dec.	2.44	- 4.36	6.80

1944

Nov.	10.32
Dec.	7.51

1945

Nov.	9.47	Snowfall 93.0	Ground. Mar 30 43 in
Dec. 1-22	8.54		
Total	18.01	N. 11.42	= 157.7 %

No 11 — Scots

Outside snow
built up without [illegible]
bottom support
But [illegible] [illegible] hang
resting on cross bars
Within 10 in of [illegible].
Top [illegible] [illegible]
against [illegible] [illegible]
[illegible] [illegible]

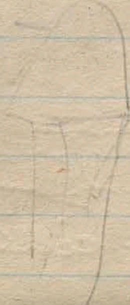
[illegible] [illegible] [illegible]
for [illegible]

No. 6 —
Tall cups [illegible]
as high as can

No. 7
Snow 7 in from top
Fully [illegible]
Snow [illegible] of [illegible]
of [illegible]

Next [illegible] [illegible] [illegible]
[illegible] [illegible]

No. 8 —



Good
support.

"Fair & clear [illegible]"
No more [illegible]

No. 1 shoveled and
Stevens
Cap 8 in tall
Snow bank above
base of cap.

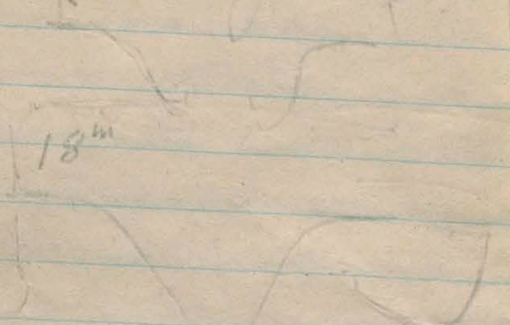
No. 2 W
Shield almost
entirely clear
cap 10 in high x
21 in. wide
Snow built up
from railing
but not from
shield.

Sides slope in more than No. 2

No. 3 Engineers
Shield packed in
full – Squeezes 2"
in thru spaces
between slats
Great cauliflower
10" above shield
and over orifice
vertical air holes
3 x [illegible] in diam

No. 4 Can covered
with adhering snow
cap 10 ½ in
Cornice 17 in long x
[illegible] in broad
Shield clear except
on SE

Coffee pot
Snowed full
Piled high on



Basket 3 ft wide
Cornice + cap 5 ft
18 in. above top
of shield
Along and cornice
Two storm
lines

2 X 8 Gage

Encrusted on E side
except 8 in at base
Cap + cornice approx
10 in. high. Cornice points
E -

No. 5 Frig

Cleaned + reset on
Friday: Possibly 6 in
accumulation on
shoulder of cam.
Rim still about 3 in
above snow

Bkft 87¢
Lunch 35¢
Dinner $1.60

Thurs. Dec. 27/45 -

Continued storm Dec 25 and 26 - Forecast no clearing before afternoon of Dec. 27! Clearing & cold,

Today (Thursday) sky still overcast.

→ Taxi 45 ¢

Road clear to Donner but rain. Trees clear of snow until Boca where top of hills was white.

Trees white beyond Truckee, snow places met.

Blocked - So back to Truckee to wait,

Phone at Truckee

Dec 20

Bo 4R

Cannot hold earphone & book and still write. (water just flowing from snow into tanks)

So gave up. -

I had failed to give readings on Nov. 30 to Mr White

D. 4.2 Pumped 1.4

Phoned morning to Bocay then Clyde & Winfield.

Lunch 36 ¢
Phone 10 ¢ (U.S.F.S.)

To Donner Lake a second time. Other busses continued but we waited for a tow. Then returned to Thornton's

Garage in Truckee
for aid in putting
on a fourth chain,
Driver kindly
transferred one
a che of 3 pm bones,
But we were delayed
at Donner Grade
putting on four chains.
Raining - Snow water
laden. N2 bottom.
Sine Cap.

Grade the worst
I've seen. Snow wet,
rutty, rough -
One snow slide
bottle neck - Nearly
stuck,
Plows many but
soggy snow difficult

to excavate,
Came down west
slope slowly.

Rain at Soda Spgs
since 11 am

Johnnie has kept
an excellent record
of winds

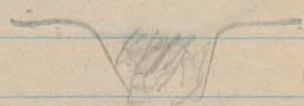
Cans 7 and 11 open,

Room 54-58°F, but
shades are all up.

Dysentery today. Why?

Battery
E 1165 W 1170
Improving

Tea-Kettle



In nest of shield is
only remnant of snow.
J. J. shoveled the
floors. He misunderstood
but this did not
affect snow on the
gages. Black metal
expedited disappearance
Water content of snow
32.2. Loss .06 in.

Saturday Dec 29

Donner Lake

\# Driplank .15
Road .15

2)64.5
32.

Nov. 28
Bkft 87¢
Lunch 80¢
Dinner $1.60

Nov. 29
Bkft 87¢
Lunch (2) $1.54
Dinner 1.64

—

Batteries

E 1200 W 1190

—

Drainage lines

East side of D. Pass
full of them.
Not wind. Rain? Yes,
says H. J. Snider. Can
be seen at R.S. in
small opening.

Sunday Dec. 30 -
charging cans
but only preparatory -

Donner Pass

Erosion marks..
Ever down hill in
most direct route -
"always scours when
rains" - J. J.
But the tiny scours
or saucers, overlying
the drainage lines!

Wreck!
\# Top of ladder shows
today. Snow has sunk
2 ft since -
Valve rod is bent

over and turned.
Caused by snow slide?
Could skiers possibly
have done it? Must
be corrected.
No freezing.

Sampled snow - Is
20.5 ft balance correct?
Tension? Dens. 44 to 48%?

\#
Drip tank
12.2 in ([illegible] 1.22).
Wood 12.2

Nov. 21
Drip tank 1.092

Gain 0.128

Gages

Stevens S. 23.62 Pt 4 in

No. 2 S. W. 15.38 NW edge
(2 Ft can)

No. 3 Engs 16.5 NE edge

2 X 8. 32.2 S edge
(34½ in tall) Pt 2½ in.

No. 4 (2 ft tall) Pt ½ in

all liquid.

NB:- Frozen this morning - Most are liquid at 4 pm.

"Donner Lake frozen half over" - Tobacco merchant stopping at Soda Sprgs

Expences

Dec 30. - Bkf 87¢
Lunch 80¢
Oil #70 37¢
Dinner 1.50

Dec 31 Bkft 87¢
3 Lunches 2.25
Dinner 1.54

Tues. Jan. 1, 1946

Recharging cans

Pasture

5 gages

Nos 6, 7, 8, 9, 10 -

Total prepared

Calc. 17.0 Water 23 = 40 in.

8 in. to each + oil.

Dye - of yesterday

(a) Total D. 18.5"

Top 1 in 90%

(b) Total D. 1 in 90%

12:30 pm

Gage No 11 (Santa) Merely reads

D. 7.1" (Noida) Collar 5 in deep

Drip tanks 13.5 in.

Recharge -

No. 9 W. 8.98 + oil 9.03

D. 6.5

No 6. W. 8.1 D. 6.6

Lip bent in slightly -

Tips of shield bent up

Wed. Jan 2/46

Over cast - T snow last night.

Recharged

9:56 SS - W. 11.34

D. 8.62 in (N. side)

(2 Ft tall)

No. 4 W 8.27 D 6.5 (S. side)

(2 Ft tall)

No. 2X8 W. 15.95 (net)

D. 6.3 (S side)

No. 4X8 D. 6.35 (E side)

W. 13.6 cl 6.3

18.4 W 6.25 Rough bottom

oil 0.11.

32.1 in

Battery E 1205 W 1200

Water full.

Driptank

12:10 pm 13.8

Gain Jan 1-2 0.3 = 0.03

" Dec 31 - Jan 2 = 0.08

Temp. (min current) 34° F

Recd

2 New glass for dial of anem, No. 9 - 3 in diam

Arthur's anemom. substituted for it temporarily -

Snow thermog.

Set 2:50 pm.

at 45 in. bottom or extreme depth.

In line S of Snow pole and in line with flag pole to N - with transformer

Lower thermom to check thermog.

Jan 2/46

Brkfst 87 ¢

Lunch 82

Dinner $1.54

Peggy Taylor ran into tree at Sugar Bowl. tried anemom. glasses.

—

No 9 69.5 65.5 82 113 31 2 in w.a.

10 73.5 70 82 115.5 33.5 1/2 in

moist pg

—

Get magnif. glass

1. Old dye 1 ft down.

2. New dye 2 in down.

No. 2 Stevens W

Batteries dead?

Upper contacts are uneven. No response when bar is low. Weight has shaken down. Did this drain the batteries.

Clock still running.

Weight rehung.

—

J.J. is making a table of gages and anemometers.

Thurs. Jan 3/46

Dammer Lake?

10 am

Drip tank 1.5 (0.15)?

No leak?

Snow survey.

2 - 43.5 42.5 30 47 17*
-.8 -.8

Moist pack

3 45 43.5 30 47 17*
-1.2 -1.2

Bottom 2 in. wet pack coarse crystals - Remainder moist pack -

— Dye —

Dec. 29 dye

Dye to within 1 in of bottom 75%. 38 in depth of snow.

New snow 6 in.

No penetration of dye

*Precip at Tamarack 0.52 in. Old snow 16.48 in. Dec. 29 -- 17.7 in.

upward

New dye Jan 3 -

On new snow -

Remains green except for tiny spot and few more appearing.

11 am -

Damper Pass

Drip Tank 12.39 (1.239)

Wood stick 12.39

Snow moving slightly downhill - Guard.

— Dye —

New snow 20½ in.

Dec 28 Testing dye on core

1 - (Heavy rain - night)

Old snow 1.4 in. above

Penetration 18 in. below

Monday Dec 30 ~~29~~

2 - ? New snow
~~20~~ in - above old snow

~~Dye from old surface~~
~~penetrated 19 in deeper~~

Old snow 12 in farther -
Then dye begins +
penetrates 22 in farther

New dye Jan 3 -

On surface of new snow
Snow dry and puffs under
pressure of foot. ~~11 in~~ ⟶

Defg. Key to valve.
Ice above pole. J.J. thinks
it pressure,
drove next crooked
and bent down like
a hinge from the pole

* "Dye not turning
red even in sunshine". -
J. J.

~~2pm~~

~~Soda Sfgs Pasture~~

~~Drift tank 13.9~~
~~14.0~~
~~14.0 (1.40)~~
~~Wood 14.0~~

Arens,

9 — 7408.9 km
Replacemt
11 — 459 mi
10 7490.3 Km
2 8 mi (Relat [illegible])

Temp, Max. 31°F.
Snow white (very) + dry
all day –

4pm Dye on new
snow – Remains
completely green

~~Get~~ – tiny pliers for
hammock.

Also precip at
Furnace R.S.

Jan 2–3 (~~night~~)

9.65
9.54
8.9
.64

Form No. 144 September 1945

FEDERAL-STATE COOPERATIVE SNOW COVER SURVEYS

FEDERAL, STATE AND PRIVATE AGENCIES

SURVEY NOTES

Snow Surveying is completely explained in Miscellaneous Publication No. 380, United States Department of Agriculture.

Brief Directions and Suggestions for Snow Cover Sampling

(1) The usefulness of snow cover surveying depends primarily on the care and honesty of the men actually doing the field work.

(2) The work of the snow cover surveyor is often laborious, especially in stormy weather, and men willing to undertake such work can usually be depended upon to do their best and record the results faithfully.

DIRECTIONS FOR USING THE SNOW SAMPLER

A. Care of Sampler:

(1) In transporting sampler, extreme care should be used to guard it against injury; it can be easily dented.

(2) When sampling on steep slopes do not cling to the sampler to avoid sliding down hill; the tube is easily bent.

(3) Keep the sampler covered inside and out with a thin coating of shellac or paraffin. The inside coating can be applied by pulling through a swab soaked or wet with shellac.[1] This coating not only prevents corrosion but tends to keep moist snow from adhering to the tube.

(4) Since ice and rock sound and feel alike when struck by the sampler, be careful to determine what the substance is; ice will not blunt the cutter, rocks will.

(5) Keep the cutter sharp and the orifice true to its original diameter (1½ inches inside in case the Mt. Rose Steel Tube is used; and 1.485 in case the improved Utah Aluminum Tube is used).[2]

B. Measuring for Samples:

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. Note any irregular spacing between samples. Care should be used in spacing by tape measurements, so that the samples taken different years on the same course will be at the same spots.

(1) Plunging the tube should be avoided. In driving, a steady downthrust is preferable to twisting, because with the latter a small amount of snow enters the slots. However, a minimum amount of twisting aids in the driving and also facilitates the quick cutting of the thinner crusts. Plunging should be entirely unnecessary. In case the sampler sticks or freezes down, a light twist will usually release it.

(2) The presence of temperatures below 32 degrees F. in the snow, while the temperature of the air is above freezing, often causes the snow to adhere firmly to the orifice of the cutter after a depth of from 10 to 12 feet has been reached. This difficulty can be met in three ways.

(*a*) Withdraw the sampler when cutter becomes clogged and clean cutter and tube thoroughly. Push the tube rapidly through the snow without stopping until bottom is reached but do not plunge tube. Repeat until a complete core is obtained.[3]

(*b*) In case sampling is being done in the forest, keep the sampler in the shade as much as possible to keep it cold.

(*c*) The best method of all is to sample when the temp
the air is at or below freezing, or late in the season when t
ature of the deep snow has risen to 32 degrees F. At t
sampling is easy and rapid.

In some cases, where not too far from a night's lodging, time can be saved by taking the samples in the morning or evening instead of during the warm part of the day.

C. Weighing the Sample.

Before taking the sample, place the empty sample tube in the cradle hanging from the scales. If the Mt. Rose scale is used, turn the pointer back to zero. If the standard tubular scale is used, record the weight empty in proper column in field book. When the sample has been taken, place the sampler in the cradle and record the weight for tube and core. For the Mt. Rose scale this reading equals the water content of the snow core. For the standard tubular scale the water content is given by the difference between the reading empty and the reading for tube and core. The zero setting in the case of the Mt. Rose scale, and the "empty" reading for the standard tubular scale should be checked at frequent intervals (not more than 5 measurements).

If dirt is picked up by the cutter it should be cleaned out with knife before weighing the sample, and proper deduction made before recording length of core or depth of snow.

D. Recording:

The snow cover survey sheets are made in pads of two sizes, the smaller being white and the larger pink. Only the white waterproof pads are to be used for field notes. The larger pink pads are to be used to make copies from the white field sheets as soon as possible after each survey. Instructions regarding the disposition of the pink copy sheets will be issued for each State and where necessary for each drainage basin, since the needs will require some variation in this respect.

Appropriate covers are to be provided for protection of field notes. Sketch maps showing points of observation are pasted to the inside of the covers.

Use pencil only for recording field measurements. Fill in complete description of course, party, date, etc.

If the depth of core is very much less than the depth of snow, the reason should be determined and noted under "Remarks." In case of doubt regarding the core, determine the density (water content divided by depth gives density) and compare with that of other adjacent measurements about which there is no doubt. "Remarks" should include special items as to the character of snow, nature and condition of soil or other bottom reached by the cutter, whether wet, dry, frozen, etc.

Any extended remarks as to weather conditions at the time of survey or shortly before the survey, unusual difficulties encountered, etc., may be placed on the back of the sheet, as one side only is to be used in recording the snow measurements.

---

[1]Or paraffin.

[2]If the cutter is broken or badly worn, send first tube section with cutter attached to your regional snow survey office for repair or replacement.

[3]A complete core is evidenced when length of core compared to snow depth is approximately the same throughout a course.

FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS

State ....

Drainage Basin: All Gages.

Snow Course: [illegible]

Party: [illegible] - [illegible] - Johansen

Date: Sept 6, 1943 N

*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								
2 W.		53.04	8.7 (M) 8.7 (NW)					
3 [illegible]		45.11	3.0		56.6			
4		23.2	21.2		2.2			Tare wt = 1.1
5	{24.5[x] {24.25[xx]		19.7		4.5			
6		21.82	19.9		3.6			± 0.25
7								
8		19.75	17.8		5.6		Tare	
9		15.67	13.1		21.8			
10		14.73	12.3		22.7			
8 x 2 gage		22.33	16.5		23.9			
8 x 4			9.6		26.7			
Tare #1			1.2					
~~Beyond Pasture~~								
x	By bucket for excess							
xx	By gage itself				24.25			

*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 No. 3 13.06 WE - 0.28 = 12.78

Drainage Basin 2.61 0.28 = 2.33

Snow Course 15.11

Party No. 17 (a) 16.61 - 0.28 = 16.33

(b) 19.82 19.54

Date (c) 17.45 19.11

*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	53.04 Remarks
-0.20			5.26					
			.20					
			5.06		6.0	=	7.1	
9.60		16.1			1.1			
.20		7.8			4.9			
		23.9			12.1			
11.06		23.2		21.0				
16.76							11.8	
5.06								
21.82		17.9		8.5				17.9
		6.7		1.8				9.85
		24.6		6.7				27.75
		17.9				7.85		
		6.35				3.5		
		24.25				6.35		

*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 — Recharge — with oil No. 10

Drainage Basin Soda Springs

Snow Course For Precip. of 8 in. total.

Party

Date Sep. 6, 1945.

*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
	Wt in.			Dpt				
No. 4	8.50			7.1				
S	11.55			7.1				
2(W)	60.40			9.8 (SE) 9.75 (NW) 9.82 (SW)				
9	10.97			8.1				10 in. charge
10	10.97			8.0				" 0.15 in. oil
7(Q)	[Wt 9.40] Sheet 7.22					Removed		10 in., chge
6	8.10			8.6				8 in. chge
8	8.35			6.7				"
6, 7, 8 in one day.								
8 x 2 gage	16.80			6.9				16 in. chge
8 x 4				3.1 (E) 3.3 (W)				

*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
No 2 -			10.0					
Stn, W			10.0					
			10.0					
			10.0					
			10.0					
			10.40					
X2 -			8.77	+ 1.05	=	9.82		
			9.45	+ 1.05	=	10.50		
			1.16	+ 1.05	=	2.21		
						22.53		
			wt			Depth		
Next above			16.30			69		
			-0.20					
			16.10					

*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.....

0.30

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
				Dpt.				
No. 3		Wt 9.14		1.1				Shielded
		0.30						
		8.74						
No. 5		Wt 11.14		1.2				Unshielded
		0.30						
		10.94						

*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.....

Form No. 144 June and Dec. 1945

FEDERAL-STATE COOPERATIVE SNOW COVER SURVEYS

FEDERAL, STATE AND PRIVATE AGENCIES

SURVEY NOTES

Snow Surveying is completely explained in Miscellaneous Publication No. 380, United States Department of Agriculture.

Brief Directions and Suggestions for Snow Cover Sampling

(1) The usefulness of snow cover surveying depends primarily on the care and honesty of the men actually doing the field work.

(2) The work of the snow cover surveyor is often laborious, especially in stormy weather, and men willing to undertake such work can usually be depended upon to do their best and record the results faithfully.

DIRECTIONS FOR USING THE SNOW SAMPLER

A. Care of Sampler:

(1) In transporting sampler, extreme care should be used to guard it against injury; it can be easily dented.

(2) When sampling on steep slopes do not cling to the sampler to avoid sliding down hill; the tube is easily bent.

(3) Keep the sampler covered inside and out with a thin coating of shellac or paraffin. The inside coating can be applied by pulling through a swab soaked or wet with shellac.[1] This coating not only prevents corrosion but tends to keep moist snow from adhering to the tube.

(4) Since ice and rock sound and feel alike when struck by the sampler, be careful to determine what the substance is; ice will not blunt the cutter, rocks will.

(5) Keep the cutter sharp and the orifice true to its original diameter ($1\frac{1}{2}$ inches inside in case the Mt. Rose Steel Tube is used; and 1.485 in case the improved Utah Aluminum Tube is used).[2]

B. Measuring for Samples:

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. Note any irregular spacing between samples. Care should be used in spacing by tape measurements, so that the samples taken different years on the same course will be at the same spots.

(1) Plunging the tube should be avoided. In driving, a steady downthrust is preferable to twisting, because with the latter a small amount of snow enters the slots. However, a minimum amount of twisting aids in the driving and also facilitates the quick cutting of the thinner crusts. Plunging should be entirely unnecessary. In case the sampler sticks or freezes down, a light twist will usually release it.

(2) The presence of temperatures below 32 degrees F. in the snow, while the temperature of the air is above freezing, often causes the snow [illegible]here firmly to the orifice of the cutter after a depth of from 10 to 12 [illegible]een reached. This difficulty can be met in three ways.

[illegible]thdraw the sampler when cutter becomes clogged and [illegible] tube thoroughly. Push the tube rapidly through the [illegible]pping until bottom is reached but do not plunge tube. [illegible]plete core is obtained.[3]

[illegible]pling is being done in the forest, keep the sampl[illegible] as possible to keep it cold.

[illegible]hod of all is to sample when the temperat[illegible] freezing, or late in the season when [illegible] now has risen to 32 degrees F. [illegible]d rapid.

In some cases, where not too far from a night's lodging, time can be saved by taking the samples in the morning or evening instead of during the warm part of the day.

C. **Weighing the Sample.**

Before taking the sample, place the empty sample tube in the cradle hanging from the scales. If the Mt. Rose scale is used, turn the pointer back to zero. If the standard tubular scale is used, record the weight empty in proper column in field book. When the sample has been taken, place the sampler in the cradle and record the weight for tube and core. For the Mt. Rose scale this reading equals the water content of the snow core. For the standard tubular scale the water content is given by the difference between the reading empty and the reading for tube and core. The zero setting in the case of the Mt. Rose scale, and the "empty" reading for the standard tubular scale should be checked at frequent intervals (not more than 5 measurements).

If dirt is picked up by the cutter it should be cleaned out with knife before weighing the sample, and proper deduction made before recording length of core or depth of snow.

D. **Recording:**

The snow cover survey sheets are made in pads of two sizes, the smaller being white and the larger pink. Only the white waterproof pads are to be used for field notes. The larger pink pads are to be used to make copies from the white field sheets as soon as possible after each survey. Instructions regarding the disposition of the pink copy sheets will be issued for each State and where necessary for each drainage basin, since the needs will require some variation in this respect.

Appropriate covers are to be provided for protection of field notes. Sketch maps showing points of observation are pasted to the inside of the covers.

Use pencil only for recording field measurements. Fill in complete description of course, party, date, etc.

If the depth of core is very much less than the depth of snow, the reason should be determined and noted under "Remarks." In case of doubt regarding the core, determine the density (water content divided by depth gives density) and compare with that of other adjacent measurements about which there is no doubt. "Remarks" should include special items as to the character of snow, nature and condition of soil or other bottom reached by the cutter, whether wet, dry, frozen, etc.

Any extended remarks as to weather conditions at the time of survey or shortly before the survey, unusual difficulties encountered, etc., may be placed on the back of the sheet, as one side only is to be used in recording the snow measurements.

---

[1]Or paraffin.

[2]If the cutter is broken or badly worn, send first tube section with cutter attached to your regional snow survey office for repair or replacement.

[3]A complete core is evidenced when length of core compared to snow depth is approximately the same throughout a course.

FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS

State Cal

Drainage Basin Lake Van Norden

Snow Course

Party John Johansen

Date 6-7-45

*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	42	41	84	110			
	~~2~~		~~63,5~~	~~84~~	~~124~~			
	2	72	62,5	83	115,5			
	3	67	56	83	124	÷	1½"	Dirt Removed
	4	58	48	82,5	114,5			
	5	63	52,5	82,5	121		2'	Dirt Removed
	6	39	37	83	103			
	7	67	54	82	113,5			

*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.....

6-7-45 Planting Dyes

On this course we have not been successful with dyes [redacted] the course is on a hill and Prof. & I found by digging that instead of sinking straight down the dye follows the contour of the hill. We did not get to do any research on this area before Dr Church left for the East on 5-9. Now I have planted dye at each stake in a confined area of 1'x1' by using the dye-shaker inside a frame I made of 1'x12" the object being that now I may be able to measure the wandering of the dye from the spot where I planted it. Measure its wanderings with the some accuracy. Before when we sprinkled dye we had no definite lines from which to measure.

John Johansen

FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS

State .....
Drainage Basin .....
Snow Course .....
Party .....
Date 6-12

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		32	29	82.5	99			
2		28	27.5	82.5	101.5			
3		45	43.5	82.5	110			
4		29	28	83	100.5			

*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.....

6-12-45

Dye planted 6-7 penetrated to the ground and also ran down hill. In strata 1' below surface dye is faintly visible [10%] 8 ft down hill from where planted. In strata 22 inch below surface dye strongly visible 39 inch below where planted

FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS

State California
Drainage Basin South Yuba
Snow Course South Yuba No. 1
Party J.E.C. + J.J.
Date Dec 28/45

*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	85	25.5	45.1	78.2		32.6	
		88.5	27.5	45.6	77.5	31.9		
Snow Stake			86	J.J.				
			88	J.E.C.				
Dye		Core in shade.						
		Dye red immediately except at bottom where it turned red slowly.						
		Bottom 6 in. moist packed						
		Present loss by melting or rain 0.04 in.						

*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 California

Drainage Basin Truckee River

Snow Course Donner Lake

Party J.E.C. and J.J.

Date Dec. 28/45

*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
used flash light -								
	41	101	98.2	65				lost core
	44	104	98.5	65	81.8	16.8		
Dye -		Planted						
		Core turned red quickly.						
		Bottom met packed						
		like favorite snowballs.						
	Drip	Tank				1.5		
			Wood			1.5		
	Nov. 20	tank				0.25 (2.5 ?)		
Temp. 45°F.								

*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 *California*

Drainage Basin *South Yuba*

Snow Course *Donner Pass*

Party *J. E. C. and J. J.*

Date *December 28, 1945*

*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

In dark and wind - Flash light

Drift tanks buried - Top of braces at surface of snow. The depth at Soda Spgs is only 88 in.

Dye - up and down hill to adapt it to gravity.
Core at 90 in. approx.
Dry pack to crunch -

Tomorrow must dig down to drift tank -

"Drainage lines" show down slope - Wind erosion?

Need extension pipe.

Nov. 21 - Tank 1.073 in.

*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 California

Drainage Basin Truckee

Snow Course Truckee R.S.

Party J.E.C. + J.J.

Date Dec. 29/45

*Description 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
1:20 pm Drip pan				1.81				
				1.81				
Every 25 W to E,					18½ ft to E. [illegible]			
	1	28.5 -1.5	27.0 -1.5	65.9	74.1	8.2		
	2	26.5 -1	23 -1	"	74.1	7.2		
	3 a	32	23	"	72.9	7.0		Brush
	4 a	34	24.5	"	73.0	7.1		
	5	32 -1.3	28 -1.3	"	77.0	11.1		
	6	30.5	21.5 +3.8	"	73.1	7.2		

*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 California

Drainage Basin [illegible]

Snow Course Truckee R.S. (Cont.)

Party J.E.C. + J.J.

Date Dec. 29

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
	7	28	25.3	65.9	76.1	10.2		
			-0.2					
	8	26	22.5	"	73.5	7.6		
	av	29.3				8.20	28.0	
	E.							

Dye 1, in sun. To bottom – Moist [illegible] zone 8 in above bottom.

In shade W. 2. 4 in zone 10 in. above bottom.

Seems not to have penetrated. Snow moist packs and crushes.

NB. – 2 sticks used in pairs at 1 and 2. Dye spread between them.

*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.................

Mrs Walter Pratt
Florence

21.8) 11.80 (.54
10 90
900
872

State
Drai[nage basin]
Snow [course]
Part[y]
Date

*Description or Number of Course								Remarks
			75 %		"	at bottom		
Snow-[illegible]	E to W -	Every 50 ft.						
	1	40 -.8	39 -.8	49	66.8	17.8		
	2	39	35	49	67.7	18.7		
	3	41.5 -1	39.5 -1	49	65.7	16.7		

*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..................

Mrs. Headley
34-8397

FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS

State California

Drainage Basin Truckee

Snow Course Donner Lake

Party JSC + J.J.

Date Dec. 29 '45

*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
Drip tank					1.4			
	Wood				1.4			leak?
Dye - Gone full way to bottom,								
		90% intensity top						
		75% " at bottom						
	E to W - Every 50 ft.							
Snow sampling	1	40	39	49	66.8	17.8		
		-.8	-.8					
	2	39	35	49	67.7	18.7		
	3	41.5	39.5	49	65.7	16.7		
		-1	-1					

*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 California

Drainage Basin Truckee

Snow Course Donner Lake (Cont)

Party J.E.C. + J.J.

Date Dec. 29/45

*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
	4	39	38	49	63.3	14.3		Over stream?
	5	47.3	43	"	66.9	17.9		
		-.8	-.8					
	6	48.5	44.5	"	65.9	16.9		
		-1	-1					
	7	42	39	"	66	17		
		-.5	-.5					
	8	45.9	43	"	65.9	16.9		
		-.2	-.2					
	9	49.0	46	"	65	16		
		-.3	-.3					
	10	35.5	23	"				
	10a	37	29	"	62.3	13.3		
	10b	38	29	"	60.5			

*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: California

Drainage Basin: Truckee

Snow Course: Donner Lake (Cone)

Party: J.E.C. + J.J.

Date: Dec. 29/45

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
	11	38	31	49	62.3	13.3		Core = [illegible] free
	12	41.5	34 +.5	"	65	16		
Av.		41.8				16.23	38.8%	

*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..................

FEDERAL AND STATE

COOPERATIVE SNOW SURVEYS

State California

Drainage Basin S. Yuba

Snow Course Donner Pass

Party J.E.C. + J.J.

Date Dec. 30/45

*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	215	203	87	140 *			~~53~~
					+2 5/8 in. →			→ 105
								Dens. 48.8 %
		215	192.5	87				
				(a)	38			
2 separate [illegible]				(b)	61.0			
					99.0			
					140			
Core [illegible]		215	192	87 +	2 1/16 →			→ 94.2
								Dens. 43.87 %
		Scale not accurate						
	* 1 in. length = 20 in. Weight							
	2 5/8 " = 53.0 in.							
			Total 192 in.					

*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 California

Drainage Basin S. Yuba

Snow Course Donner Pass (Canc)

Party J.E.C. + J.A.

Date Dec. 30/1945

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
	1st - piece			11.5*				*under [illegible]
	2nd	"		50.5				
Both				11.7		= why?		

*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 California

Drainage Basin So. Yuba

Snow Course Sodla Springs #1

Party JSC and JJ

Date Dec. 31/45

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	Mean,		24½ ft			To	End [illegible]
1	1	75	71.5	82	114	32		Bottom 6 in. water soaked
	2	75.5	70	82	118.3	36.3		Bottom 8 in. wa. Water can [illegible]
	3	65	57	82	115.7	33.7		Last 10 in. completely wa.
	4	62.5	55	82	119	37		Water running out. Last 18 in. wa.
	5	62.5	57	82	115	33		10 in. wa.
	6	72.7 -1	—	82	117.8	35.8		12 in. wa. water running from end.

*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: California

Drainage Basin: S. Yuba

Snow Course: Soda Springs #1

Party: [illegible] and [illegible]

Date: [illegible] 31/1945

*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
	7	65	54.5	82	108.4	26.4		Bottom [illegible] wet [illegible].
	8	72	61	82	116.2	34.2		10 in [illegible]
	8a	71	66.5 +2.7	82	116	34		12 in [illegible]
	9	70.5	64	82	116.2	34.2		14 in [illegible] [illegible] [illegible]
	10	77	72.3	82.5	117	34.5		11 in [illegible]
	11	80	—	82.5	115	32.5		Water [illegible] out
	12	76	73.5	82.5	111	28.5	37.5	[illegible] 6 in wet [illegible] Wet [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....................

6229.1

6227.37 ft Jan 4/46

1.73 rise.

Normal rise 1.68 in.

2-2031

Snow Survey

~~8.20~~

	1945 (~~1944~~) april 1	1946 (~~1945~~) Jan 1	% of N.
Truckee R.S.	10.1	8.20	
Donner L.	14.9	16.23	—
Soda Spgs	23.8	33.16 (~~31.86~~)	Nev. Calif. 75.9 ~~83.5~~ 85.9
Summit Valley	~~23.~~ 24.9	31.86 (~~32.20~~)	66.7 76.8

Humboldt R. ————

	Mch 1	1946	
Tahoe City	10.5	5.41	44.3%
	32.1	10.4	
Marlette		Dens 32.4	= 65.4% of N
(Schorvochay)	60	D 33.3% 20	= 72% of N.

Precip. Soda Spgs

	1945	% (N)
Nov.	9.53 in	4.62
Dec.	15.89	6.80
	25.42 in.	9.09
		7.92
		7.55
		35.98 in.

= 222.6% of Nov-Dec.

= 70.6% of N.

FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS

State California

Drainage Basin S. Yuba

Snow Course Soda Springs #1

Party JMC and JJ

Date Mar. 31, 1945.

*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	79.5	69	82	115	33		lost core
		29½ ft to pole.						
	13a	80.5	69	82	115	33	41.0	Moist – pass to crush
Av.		71.7				33.16	46.2%	

Note - Snow overheavy with flood water?
On basis of 12 and 13, density is only 39.2. Therefore water equiv. of 71.7 = 28.11 in = 72.8% of N.
Better make another survey.

*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.................

DIVISION OF WATER RESOURCES
401 PUBLIC WORKS BUILDING
SACRAMENTO

CALIFORNIA COOPERATIVE SNOW SURVEYS

SNOW SURVEY NOTES

Drainage Basin South Yuba River

Snow Course Summit

Party B Eddy A Chase Dr. Chruch & J.J.

Date 12/31/45

*Description or Number of Course (1)	Sample Number (2)	§Distance Between Samples (3)	Depth of Snow Inches (4)	Length of Core Inches (5)	Water Content Inches (6)	Density 100 x (6)/(4) (7)	Remarks
Key	15	25'	81.5	80.5	29.8		Needles
	16		80	79	31.5		✓
Course	17		90.5	88.5	37.5		Slush
	18		84	83	30		Wet snow
	19		87.5	85.0	31.5		✓ ✓

*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 by the circles. Particular care should be taken to note any *irregular* spacing between samples.

No. 2 of 2 sheets. Comp. by.................. checked by..................

60280 7-38 200-25

STATE PRINTING OFFICE

DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
401 PUBLIC WORKS BUILDING
SACRAMENTO

CALIFORNIA COOPERATIVE SNOW SURVEYS

SNOW SURVEY NOTES

Drainage Basin South Yuba River

Snow Course Donner Summit

Party B. Eddy, R. Chase, V. Bruch, JJ

Date 12/31/45

*Description or Number of Course (1)	Sample Number (2)	§Distance Between Samples (3)	Depth of Snow Inches (4)	Length of Core Inches (5)	Water Content Inches (6)	Density 100 x (6)/(4) (7)	Remarks
	1	35'	36	24	12.5		Rock
	2		70.5	37	15		"
	3		166.5	59	22		"
	4		90	85	31.5		"
	5		455	425	12		"
Av.	6		905	87	40.5		"
	7		211	207	90	42.7%	Dirt
			used 1.5" balance on 1.48" tubes. Cancel.				
Av.			61.5"		23.25"	37.8%	

*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 by the circles. Particular care should be taken to note any *irregular* spacing between samples.

No.....of.....sheets. Comp. by.....checked by.....

60280 7-36 200-28 STATE PRINTING OFFICE

CALIFORNIA COOPERATIVE SNOW SURVEYS

SNOW SURVEY NOTES

Drainage Basin S. Y. River

.52 in Jan. 3/46

Subtract from Dam Levee Nov 2+3.

.26 Today. Jan. 4/46

R.S. Drift Tanner

Dec. 30 1.81

Jan 4 2.20

Runoff 0.39 in.

No. 1 of 1 sheets. Comp. by ..... checked by .....

60280 7-36 200-25

STATE PRINTING OFFICE

September - November
1945

Li-Rite

PATENTS PENDING

Sep. 15 - Nov. 28.
1945

Notes

No. 518

LI-RITE LICENSE NO. 1

Mrs. R. Reynolds
Soda Springs Ida

Letter to Smyth re plumbing

Lumber
Malthoid
Wrench
Paraffin
Kerosene
Bucket
Can for paraffin

Valve & handle.
Meas. stick.
Waste for wiping insts.

Jack Ryan -

3 drip pans
Knocker
Stevens Q
Toilet paper holder.

U.S.W.B. rulers
Staff

Q [illegible]

1:45 –

Stevens Q. –

Smooth ~~curve~~ —

Oil cured friction.

1 3/4 in

1/2 in

Hole for 1/16 in wire.

Get cotter pins.

Temp. House –

Empty except broom

and ash-shovel.

Lumber Soda Spgs

3 — 2x3 14 ft long
3 — 2x3 10 ft "
3 — 2x3 12 ft "
8 — 2x3 10 ft "

6 — 1x12 12 "

2 lbs 8 penny box nails

Beaverboard
6 — 4 ft wide x 12 long
Total length

9-15-45

Materials Required for basement room in Soda Springs Hotel; Height of wall: 8' by 13'2" + 8'7" + 12' of Beaver Board

2"x3"

3x 34 = 102'
8x 9 = 72'
200 ~~774~~ linial feet

2 pounds of 8 penny box nails

1 set hook & eye, 1 lock + keys

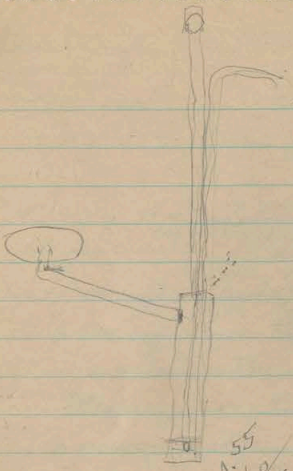
1x12 for shelves 72 lineal ft

Get Prices on
Shades.
38" x 7' 4 and 1 48" x 5'
1 Small writing Table
1 Bureau

1.50 2.75

4 – 38" x 7" @ $1.50 $6.00
1 – 48" x 5' @ 2.75 2.75
$8.75

1/3 off $5.84
1/2 off $4.38


0.55
2.69
0.5
0.2

Wed. Sep. 26/45

10:30 am Stevens 11.55 m.

No. 1 - Since Sept 1 - T.

Stevens W - stopped.
Hygro-thermo defective.
Called Dr Landsberg to come.
Drove up in 1¼ hrs.
Tools from Ernie Mack.
Clock of W OK. Stopped
because of cable. Cable wound
too tight & weight too high.
"Wind slowly, keep cable
from kinking or pinching".
Hygro-hairs to dirty
from smoke and acid
from trains. Wind SW,
spreads smoke over
platforms.
Hairs improved by

washing with snow water or distilled water.

<u>Better</u> wash vanes with pure alcohol with very soft brush (camels hair) preferably every 2 weeks.

H-Ts in Pasture O.K. away from prevailing wind.

Clean anemometers later.

"Shelters better if placed in steps so one does not shade another."

Moving equipment today. Landsberg and Johnnie aided. Finish tomorrow. Dr L. returned to Reno.

Sep. 27.
Bad in basement and in office.
"Office warmed from boiler beneath" - Sh.
Need electric heaters?
Ashton came last night. Slept in Filling Station! Has just erected tower near Georgetown.
Will help me move today. Has the pick-up truck.

Sep 25 Expenses ✓

Reno to S. Spgs. ret. 2.01

Sep. 26

↗ Prepaid John Johansen 49.00

2 lunches 1.50 ✓

Owe Dr Landsberg

Gas

Wages 10.00

Dinner -

Sep 27 Bkft, Lunch 2.50 ✓

" " Dinner 1.00 ✓

Get

~~Buttons~~

Magnifying glass

Shaving + Tooth paste

Mirror

Pulls for 4 drawers (S. pulls)

Wash sheets

Get platforms painted

Requisition

Sold –

curtains ?

Bureau $12.00

Cook stove ?

Can leave stove. Si

will then store it in

garage pending sale.

Have window sill trimmed

to permit sash to fit tight.

Requisition for lumber

Truckee L. Co.

Wash cloth

~~Basin brush~~ ← #

~~Spray paint~~

White

1 Set of Hygrometer hairs.

— DO —

Get angle of diagonal pipe from drip pan to tank in Donner Pass.

Use bucket to empty tank.

Suggested by Dr Landsberg

Oct 7 –

Jack Ryan has found Wagner to make cabs and shields.

Bucket emptying will be too slow. So will use mechanical valve and pressure pump.

Dr L. will make a thermocouple for temp. in snow.

Oct 3

— Do —

Bring H-T record home for Dr L to see,

Shaving—etc
Razor + brush, paste
Tooth paste.
Vaseline   Nails file -
Wash cloth -
Sewing kit -

Flash-light bulbs -
Wash pillow slips.

Pure alcohol + camelshair brush -
Transparent Tops
Distilled water

Angles at Donner Summit.

Lft. Reno 3 pm, (3 busses).
Donner Lake full.
Truckee R, base flow seems good, but due to Tahoe water?

Colours of leaves now golden and some crimson -
Siedentopf and Codd already here, and table already changed to Hotel -
H-T is recording well now. Dr L was right about fumes affecting hairs.

Insolation
Geranium behind window in sun has become dried out and burned in a week,

October 4th (Thursday)

Barometer has fallen .03 in. since yesterday. Overcast yesterday but wind E and clear this morning.

Connecting the tripple register.

Urge

Sunshine Tribe

Tripple Register sheets

(Daily) Only 30 on hand.

Only 68 — H-T sheets on hand

Forms No. 1074C

(Weekly)

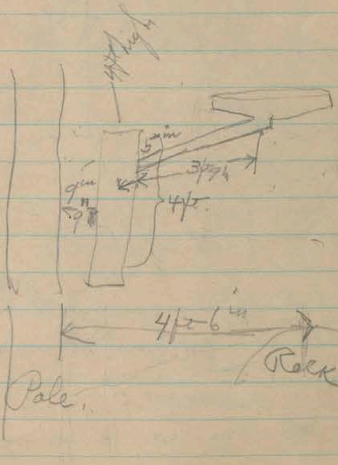
Price Precip. 150 sheets

(Weekly)

Recharging Gages

Army — No. 3 4:25 pm

D. 9.50 in W 60.46 in



Thermog. Jr. Form No. 246
0 — 100°F

(On hand only 4)

Oct 16 ordered set by air mail -

Wed. Oct 17/45 Dr. Landsberg & Church.

Reno 9 a.m.

Brought Mrs Grubnau to S. Spgs -

New remade wind shield for No. 2 Stevens W.

Tape (adhesive), brush & alcohol, glycerine

Lunch at Soda Spgs Hotel - for all three.

Sunshine recorder replaced -

New one sooty -

Put tape on clamps -

Battery full & strong.

Where is hydrometer?

1:50 p.m.

Wind shield replaced on No. 2 Stevens W.

Need clamp -o 3/4" between -o centers

Hole 5/16" but make clamp 1/4 in.

8:40 pm -

Battery. E to W -

No. 1 - 1100 - 1150 -

Spec. gravity low. No attempt of rubber cork to float.

Water to top in all.

Hydrometer poor? yet got a good spec before charger was on.

More acid needed in the cells?

4:10 pm Observations

Precip, No. 1 0.01 Snow 0

S.S. 12.82 in

Pt cldy NW Hotel 798 mi

Max. 64.2 (Reset 59.0)

Min. 31.6 (Reset 56.5)

Pasture 768 mi.

Nov. 2 - 35°F wind 20 mi

Thurs. 8 - 28°F calm.

28°F more comfortable

D. L.

9:40 pm –

Battery. E to W –

No. 1 – 1100 – 1150 –

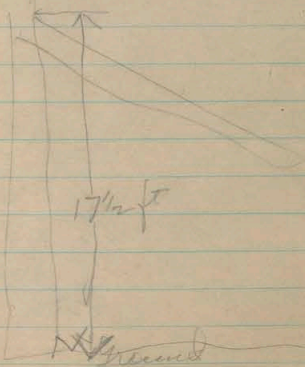
2

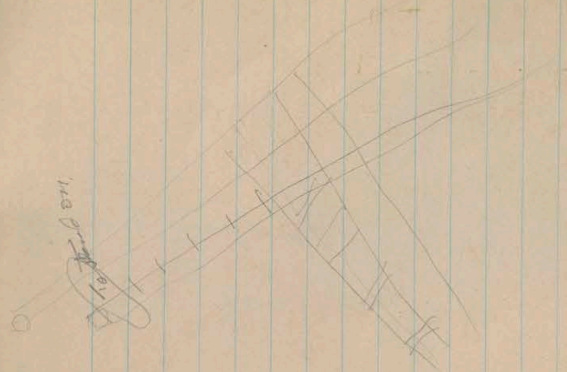
Spec. gravity test. No attempt

to rubber cork to float.

[Diam. of No 3 at bottom

19 in]





Sierra Pac. P. Co. —

Barney Bernard(?),
Line Supt. —

Anderson & Powell
assts —
Digging outfit at Gas [illegible]

— Supt.
at Norden,
from Reno

"White Swan".
at Dr Keeps.

Tues. Oct 30

Borrowed batteries -
valludes from Ernie Moor.

Bought 2 sacks calcium chloride
1 sack cement
1 - 18 ft ladder
Drip pans + flowers -

Two cars for trip.
McLaughlin -

Jr Chamber of Commerce. Todd here

— Wed. Oct 31 —

Planned to leave 8:30 a.m.
Raining yesterday + today.
Breakfast with Todd + Ruth,
Clyde + Dr L, wanted
to start at noon to unload
material + check instruments.
Todd + Clyde in truck,
Dr L + I in car.

Snow at Floriston, but
road clear nearly to
Summit - Chains required
Blocrade - Hour lost.
Storm raging - 15 in on ground
for about 8 in (?) water.

Unloaded to basement thru
front door.
McLaughlin waiting - Go to
Reno tonight. But will

dig the hole in the
pasture -

Battery - dead -
On left 1.6, 1.6, .3 volts
On right 1.1, 1.1, 1.9
New ones
6.2 each group - But
old - Only loans -
Triple register running again
Cloudy - So sunshine untested.

Stevens W - dead -
Barometer rising - So no
new storm.

No sale for cook stove.
Johansen soaked, working
at Kingvale. Worried,
$1200 contracts in wood.

Truckee R. Tammy +
active -
Lv. Soda Spgs 5 to 5:30 pm
Clyde first. Todd, Dr S.
I later -
Plans to return tomorrow -
Lunch at Truckee 57¢

Thursday, Nov 1

Batteries discarded. Will
get new ones next week,

Letter to Novicoff re invitation
to a celebration in Washington

Started 10:30 a.m.
Horizon - high fog.
Then steam fog from
pavement - Would
make movies -
and vapor from surface
57¢
77¢

(left margin, vertical:) Snow + golden aspens!

of Powder

Pillar of black smoke above Powder Lake!

Rises far into sky -

Blockade - Turned back to Truckee for lunch

→ 77¢ - Left Truckee 1:3[illegible]

Long caravan - Oil trucks & private cars buses. ambulances -

Caravans [illegible] - thru the fire - Trees burning & overturned. Tree trunks burned. Crowd.

—

All afternoon on instruments - Helping Dr L,

(1) Batteries have lost no voltage over night. Now in parallel - 6.2 volts.

Trickle charger .6 Ampere

(2) Batteries for Stevens W.

17 batteries in series

Each .8 to .9 volts.

Total 13.5 volts -

No perforations in randoms, Large batteries about 1/4 in. sq.

Motor 0.2 ampere?

—

Study crusted snow, on Porch - Temp. 37°F

Surface of packed snow 32.2 or 32.3

2 in deep 32°

On ground temp. on platform 35°

Th lag not over 5 sec. Thermocouples accuracy 0.15 °F.

H-T

H-T sluggish - Counter-weights too light? Spring sufficiently strong - Bearing loose -

Old hairs shot. New O.K.

Sunshine Recorder -

Shaken down + records now. But still records after sunset tho mercury is below the contacts. Does the lamp-black stain in the tube short the instrument?

Stevens W-

Battery tested as above. Motor runs backward when weighbeam is depressed but not forward tho beam is high! Occurred to me that Ashton and I had pressed the magnetic contacts too far down or together, Dr L followed the trail and made the motor run forward.

Pen traced backward because track or chain carried it that way but it came to point of reversal on the margin of the record. Reset at 4 pm. Motor still running when we left. Many inches ^water to record.

- Need -

Weltheid 6ft x 4ft. Nails

Reading glasses

Sheets to Trucks

"Friez gage full of water"

Arthur Caullard -

Weltheid "Recording gage for"

Starting home at 5pm
Snow nearly fallen from trees, but [illegible] of snow on west side of each large tree. Snow driven onto tree wet.
Lake Norden getting wider
Truckee River not so high as yesterday - Nearly clear now above Boca at Fly Casters Club.
Below Donner Pass flame and pillar of black smoke - Found twisted metal wrecks on both sides of road - and one trailer burst open and blazing - One driver caught and burned to death. One truck tried to pass another on the grade above 6000 ft. a private car

8-4618
caught in the jam -
Huge steam fog on Donner Lake. Smoke lies low in basin -
Return to Soda Spgs tomorrow. Must take H-T sheets to Truckee Ranger Station -

Friday Nov. 2, 1945
Dr. L. serviced insts -
Made observations with thermo-couple.
Clyde H. and I installed the drip pan - Water came within 2 ft of surface. Compacted or cemented gravel. Good aquifer. Stopped at 5 ft depth, leaving 1 ft. above ground.
Fire wreckage still along road,

#

Sunday Nov. 4 -

Dick took us to Tree House to shut off water. Perfect day, reflections on lake. Mild -

SW wall of porch washed out. Only flower box remains suspended. Water then crashes in floor where stones had settled -

Must use Noah's Pitch on crack this winter -

#

Sunday Nov. 4 -

Dr. L. took us to Tree House to shut off water. Perfect day, reflections on lake. Mild.

SW wall of porch washed out. Only flower box remains suspended. Water thru crevice in floor where stones had settled.

Must use Noah's Pitch on crack this winter.

Monday Nov. 5

Heavy gale from W. Barometer falling rapidly.

Trip by Clyde H. and J. E. C.

Gages weighed but not recharged.

Malthoid gone from Tate's Tank

No. 1 — 0

Gages. Stevens S/W 20.68 in

No. 2 D. 11.4

No. 3 D. 11.27

No. (2X8) D. 15.88

No. 4 D. ~~17.93~~ 16.6 W. ~~16.6~~ 17.93

Stevens W

Running but reversed.
at least 8.4 in. –
besides reverse
— previously

Gage (488) — D. 13.0

No. 9 — D. 17.78 W. 20.55

No. 10 — D. 17.68 W 20.64+

No. 6 — D. 17.5 W 18.82

No. 8 — D. 15.35 W 16.9

No 7 — 8.2 (~~Oct 30~~ Sep. 30?) — 16.88 (Oct 31?)
2:50 pm.
Ran down — Rewound.

~~H T~~ (10 ft) Reinked:
Max 64.0 Reset 40.0
Min, 27.4 " 38.2

* Banned drip pan.
Wound and inked H-Tr & T gr.
Humid. 90 app. Clouds & bar. low. Storm? yes.
Then rain.
For home about 4 pm.

Donner Pass.
, Sand, water, rocks in abundance, at the spot.

Gale — Clouds like smoke or fog sweep thru Pass from west. Donner Lake rough with wind gusts. But earlier white caps have disappeared.
Tapioca snow!.
But out of same at Truckee.

Truckee — R.S.

5pm

Pumped out drip pan

Depth mud in tank 0.4ft

Must mound the pan and cover tank top.

Bring paraffin for pans

Lench — $1.47

Tues. Nov. 6 -

Not much snow apparent from last night except on summit of Mt Rose.

But 15" reported for Donner Pass.

Thurs. Nov. 8 - Truckee R.S.

Level	2.7 = 13 = .13
Pumped	1.2

Precip.

Oct 29 (am)	0.13	Rain + Snow
30	2.73	
31	1.83	
Nov 1	0.10	
Nov. 6	0.19	Rain + S
7	0.38	Snow (but warm)
Total	4.79 in.	

Cage catch Nov. 6-7 0.52

Pan catch 0.13 -

Snow on pan.

Lench $1.88 ✓

Tahoe L. Co. 2.23 ✓

Battery at Soda Spgs in full strength. But used trickle charger

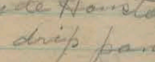
Something shorted. So wires in Triple Register pulled until new tube can be obtained.

Triple Register had stopped on Thursday. Battery too hot.

Stevens W - Stopped soon after reset by me, both clock and recording of precip. Both started again when touched by Dr. L.

Stevens Q gears recleaned. Pen is getting muddy - Must put in the extra leaves in the wind shield.

Cleaned standard anemometer in Pasture.

→ Need wrench 

Meas. made by Dr L. of snow temps in cloudy conditions.

\# Meantime Clyde Houston and I erected drip pan at pole in Donner Pass. Used toboggan from road on N side.

Water still beneath snow. Rocks shoveled out. Pan 1 ft too high, but built a support of stones beneath it. Need to build more stable support with cement. Also a cross-

next on the pole -
The sleeve for the valve missing - Misplaced → at Univ.-shop! Bring it next time.

Dark in Pass. Headlights of truck out. Wires pulled apart at sleeve-connection

Office room cold 50°F. Must have ventilator in floor over boiler-heater.

Gave cookstove to garage owner. He may give it to a camper next summer.

Engineers' station wagon along highway at entrace to Castle Peak Creek Basin, a garage near lymandar

construction. Theirs?

→ Triple Register and H-T sheets for a year left for me in the office by Wilson with a note! He has now moved to Burlingame to analyse snow data for the U.S. Engineers.

Reached Reno about 7:45 pm for turkey dinner.

Friday Nov. 10

Conference with State Engineer's Staff at Carson, Herndon and Glenn Jones (Forest's), Robinson (U.S.G.S.), Bodney, Clyde Houston, and J.E.C.

State Engineer believes that Legislature and water users will give strong support to Snow Surveying.

Will ask Colorado River Commission to pay cost of shelter cabin on Mt Charleston.

Favors a larger more representative Snow Survey Board.

Friday, Nov, 16-

Snowing - storm following storms

Forecast today: Storm will break away in afternoon - apparently clearing says Johnny Johansen by phone (7 am)

So called Richard Taylor from bed: Promised to arrive at Donner Lake by 11 am.

Took pump and gage-rod and lumber.

Snowfall increasing - Snow on road from State line west - But no chains.

$ Richard Taylor and Dick Resce dug a 6-ft hole - perfectly. Soft loam - no roots.

Johnny and I went to Soda Springs for pan and tank. Chains necessary.

Tank set in place but valve tightened when turned too much. Jack Ryan had used washers to prevent binding. Thought later that valve would serve if loosened slightly and then turned only 180°.

Night. So left unfinished.

Pines brushing the face of the moon

Monday Nov 19

Dick Pesce said it rained all day and felt like spring.

Tues Nov. 20 Left Reno 10:30

1 pm Donner Lake.

Datum 0.25 (Might call it 2.5)

Pan completed except black paint.

Lunch $1.54

Left 1/2 doz. markers.

Ready for winter.

Forest Service 3 pm

D. H.2 in.

Pumped + recharged D. 3.3

Get Dutch cleanser

Toilet soap.

Black iron paint

White chalk

Need more markers

	— Courses —	mi.
	No. 9	330.4
	" 10	146.1
Dec. 23-26	No. 2	255.5
	No. 11	388.4
	No. 9	89.2
	No. 10	35.3
Dec. 26-27	No. 2	97.3
	No. 11	98.6

for Forest Service.

Reset thermometers. Clyde measured pan and tank.

Two families have applied for Cedar Flat No. 55.

Snow in shade hard and frozen - Sun sun is melting! But air cold - Road dry.

Paid Dick Pesce $10.00 for helping. Have high platforms for tank.

Pass working well. Melting at Tenaya ?
" at Donner Lake 0

Soda Springs

No parking outside of dry asphalt and cement. So had to put on chains to get out.

Shelves in place - Brought 3 - 1 x 12 x 16 ft. But Johnny had removed 3 boards from Ashton.

Brought 8 in x 10 in register for floor - Better 10 x 12 or 12 x 14. Brought electric heater also -

Must now put basement room in order -

Brought J. J. McLaughlin's ski Shoes & Pants. Hjalmar could not identify his ski.

Return to Soda Spgs 8:30 am tomorrow Nov 21 th to complete the jams in Pass and Pasture.

Wed. Nov. 21

Took 8:30 am bus.
Slept.
Frost on trees.

Today calm + warm.
Easy to reach Donner Pass
from ~~Highway~~ Station.
Snow crusted + easy
for webs.

Placed toboggan on top
of coupé. Can we get
a frame for ski + toboggan

\# Angle sleeve binds too
much. Need diam. of 4"
+ cap. Phoned Johnny Cefan.

18 in. snow on top of pan
leaving case but
putting in foundation.

Dibble from Rock Station
On 24 hrs, 3-beds. "Come
up and talk". Will come
up for a storm if Dibble will
phone,

Fare 2.01
Distilled water $2.00 (to Johnny)
Lunch 86¢
Time —

\# D. of snow 53 in.
To lip of drip pan 55".
On rock - 2 ft above rock
D. of snow on drip pan 18"
Recharged
Calc. Cellar
~~Fare~~ 1.092 in
~~Took~~ dry from previous
storms

Crows nest completed.

But must replace sleeve on air valve.

Shielded gage at the Station "far superior" to unshielded. Easier to handle also. Would like to keep it permanently. Especially superior during snowfall.

Met a Sierra Pacific Co. lineman replacing fuses. assists ——— at Truckee making snow surveys at Independence Lake and vicinity. Also at Ward Creek, Rubicon.

Trace of melting on snow field today. Holes blown full. Toboggan ideal for our heavy load.

Feet got cold waiting for 5 pm Greyhound! But bus 45 min. late.

Shall return Friday –

Friday, Nov. 23

\# yesterday Isaac Ryan brought sleeve and cover for air valve to office.

Heavy – So he took it to Parcel Counter at Greyhound Depot.

Caught Reno bus at 8 am a home corner, at railroad bus ran into auto, crushing latter's side and gas tank. So walked to Greyhound.

Caught 8:30 bus with Walter (?) Rose again.

Johnnie was phoning when I arrived. Anxious about my arrival.

Snow by side of road melting slightly tho' air seemed cold. At Donner Summit wind strong. High clouds speeding east.

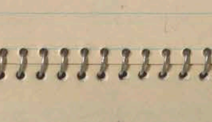
Snowshoe trail of Nov. 21 (Wed.) was almost obliterated yesterday mild. Snow on Donner Peak glistened in sun. Crust almost firm.

* New sleeve works perfectly. Two covers used. Snow passed around and over sleeve.

→ Need –
1. Plant dye at all of the drift stations
2. More markers at stations –

Triple reg. stopped. Started at 10:15 am
Removed trickle charger

Get –
Anemom.
Socket



Flashlight batteries –
Repair camera
Iron snow shovel
Duster for Fuchsine
Repair triple register

(long) Saw for toboggan and head 3 1/2 in.

Have –
2 – sections 1–31
Old style cutter

1 – sec. 61–90,
90–120
120–150
150–181
Missing 31–61
" staff –

$1\frac{1}{2} \times 1\frac{1}{2}$ angle iron

2 – holes ($\frac{3}{8}$" diam)

To top of can 52 in.

1 – mast 30 in + 50 in + 12 in
(3 × 3 in) to base of top.

Need iron paint

Plug pulled apart.
Need new one.
Melt.
Drip pan 0.32 in.
Recharged 0.64 in

Johnnie will fix (a) guy wires tomorrow and (b) bracket for drip pan and (c) wind shield and (d) support of 5 Ft shelter.

H-T's at Hotel and 8 Ft in Pasture stopped same night at 13°F.
Oil chilled – Repairs?

Monday Nov 26

Jack will make for Friday graphite oil, new plug, anemometer mast & stand.

Hasn't consulted yet about air tunnel.

Will make (a) aluminum gaging scale. (b) case for thermometer staff, (c) anemometer broken by snow.

Wed. Nov. 28

Rode with Mrs Meacham to Soda Spgs. "I shall write Ruth".

Road clear - Snow clouds at Donner Pass. Cirro-stratus.

Found Ashton, Gerdel, 2 of Army Engrs,

H-T in Sacto, "will be brought up next week."

Sacto gage now finished, Bill at once.

Gerdel does not want mast on Sacto tower - 10 ft away O.K.

Recharging Sacto gage and No. 7 (Q) today - Both need it. Only 1 in left on Q -

Pen thrown back in Q.

Johnnie's hammering?

Rewound.

All clocks of H-T running but removed for cleaning.

Pen of sunshine pen broken so being taken to Reno also.

Need snow shoveled from platforms badly.

Snow shovel.

Mast for Sacto gage.

Tucker here with 2
1946 models of Sno-cat,
for Bryant.
One for S. Calif. Edison -

another model by a former
partner and now rival
is advertised as "Blizzard"?
Motor in rear.

Done! Slats in wind
shield of Q -
Cables in place.
Drip pan completed.

To Truckee at 12 Noon -
Johnnie's car wrecked.
Tucker busy. Ashton couldn't.
Started walking to Donner
Summit Lodge. - Just
chanced to meet George
backing out from his
house with Christmas
tree - Rode with him
to Truckee -
Lunch for us two $1.54

To Ranger Station -
Snow approx. 1 ft, but
bare on south-facing slope

Nov 28 Tank D - 4.0 in.
Nov. 20 3.3
Gain 0.7 = 0.07 in.

Snow has settled and
apparently melted slightly.
Brought clock cylinder
from R.S -
Caught Burlington Bus
3:30 pm for Reno.
Delivered to Sp. Herz & Bro

Pres. Moseley ''agree''
Riv. Estero ''garaged''
Mt. R — landslides
Asphalt gash - less than
week.

Needed — Free Home —

Electric Stove

Brush for toilet bowl.

Pliers

Monkey wrench

Sewing oil

Cloth glasses

1 pr 3/4 white sheets

2 outing blankets

1 khaki counterpane

for 1/2 bed

10 Hasps for lockers

2 Guest books ?

Rupp's book house

Baptist Ladies Aid

First Tues. in Dec.

[illegible]

Snow Course	1945 Date	Depth	Dens	W.C.	Nevada 4/1 Norm	Nevada % 4/1 Norm
Fremont Flat	2/26	83.9	39.3	33.0	(59)	55.9
Fordyce Lake	2/27	75.7	35.4	26.8	(51)	52.5
Soda Springs	2/28	68.1	35.0	23.8	(42)	56.7
Don. Summit Key Cs.	2/28	75.8	32.8	24.9	47.8	52.1
Donner Lake	(5900) 3/1	~~45.3~~	32.9	14.9	no normal	
Tnk R.S.	6000/3/1	29.8	33.9	10.1	"	"
Mt Rose	4/1/45	101.5	40.2	40.8	(45)	90.7
Boca	3/31/45	13.2	41.7	5.5	(9)	61.1

Drift Pan

1946 - Mar. 5 " Donner Pass

" Mar. 9 - Truckee R. S.

"Crust forms at sunset (4:30 pm)

Meas. 4:30 pm and 10 a.m. at first.

Mar. 2 - Snow dpt. (shade) 28 in.
Dye has penetrated in shade as well as sun to the bottom.

Truckee R.S. Pan No. 2

Mar. 9, 1946.

Site suggested for new Drip Tank in sun?

"E of N. of Therm. Shelter Ralph Trask will observe best spot."

Mar. 9. Photo of Drip Tank at Donner Lake.

		Drip Tank
Mar. 9 - Donner Pass		2.14
4pm. Cool breeze.		
	Mar. 1	2.10
	" 5	2.15

Drip Tank Trucree R.S.

Mar. 2	1.4
" 6	1.3
" 9	1.3, 1.35, 1.4

Taken by Billy.

Fri. Nov. 23.

Sleeve + cover for Donner Pass.

Nov. 28.

Drip pan Ranger Station

D. 4.0 ins

Nov. 20 3.3

Gain 0.7 = 0.07 ins.

Donner Pass

Dec 28 Drip tank buried ~~by~~ to ~~upper~~ braces.

at Soda ~~Spgs~~ only 88 ins.

Tues. Dec. 29 –

Snow at drip tank melts

Details

Also power Lakes.

Soda Springs

Aug. 19(?) 1948

Dr. Church: - 3/9/45

Newt & I are planning on being here the 30 & 31st of March to measure the Courses for the general survey. If this doesn't meet with your

Mar 21

L ? Ramo

Test of Thermo apr 1/45

58 59.3 59.2

58 59.2 59.2

(Sling psych) 58.5 - 60° (5012) 59.8

61° (23009) 60°

~~61° (23009)~~

Test at exactly same level.
(In Shelter at Hotel)

Apr. 18, 1942

8:30 pm.

Mercurial therm.	40.2°F	41.0	41.6
Thermog.	42.0	42.0	42.6
→		1.4°F	
		0.6°	

Apr. 20

8 pm.

Thermom 38°F

Thermog. 40°F

Melting Day 9 am to 8 pm

Dec. 22, 1942.
Temp. & Rain on Snow.

Dec. 30.
Temp. 14 Ft above Snow
+ 1 in. above. 1° Diff.

Snow Melting and Crusts
Jan. 10, 1943
5 in. crust in shade 39°F
Snow depth 32 in (?) at 14 Ft.

Jan. 11 –
Ice Window panes.

Jan. 31 – Crusts. Pores at 34°F

Feb. 13 – "Ice glaze on snow
especially where ski have
pressed it down."
"Eye turns red" –

March 11-12

Snow Hoods

" Crusts at 4pm -
43.5° F; H-T 46° F

Crust - Glass Ice.

March 26 -

Snow Ball on Beacon Ridge.

March 28

Snow Pits - Wires in snow.

April 2 -

Snow Rollers

April 3 Pits in Snow.

" 16 - Snow Crusts
at 48° F (in shade).

Sun pits with wire.

Crusts + Temp.

Dyes + Colors + movement.

Temps. in Snow.

Air Temps over Snow.

April 18-

Temps. snow to platform ½° off.

Dyes better than calorimetry.

Penetration of Dyes.

Capillarity

Fantasy of Dyes

Corn Snow

Day Test of Dyes.

April 19-

Dye Penetration Studies.

Gradation in Intensity?

amount necessary?

Temperatures

Test in water of Thermos.

april 20.

Radiation Temps.

Snow 24°f Wax Shelf 26° Platform 27°F

Humid. high all night.

Melting

Snow Settling in Shade.

Dyes Today, yesterday's Dye.

Snow shrinkage.

April 21

Project with Dyes.

Water and Snow Melt

Hose on snow.

Dyes on snow at Filling Station

Comparative Temps of air

April 25

Temp, and Snow.

Dyes

Moisture in Snow.

Compar. Air Temps.

Dyes

Mercurial Temps.

Crusts

Drift thru Snow Banks and Overhangs.

Drift Pans

April 26 6 to 10:45

Dyes - Color movie ?

on Crust 12 in dep.

To 12:45 p.m.

Breaking-up Snow Banks in front of Hotel.

April 27 Comparative Temps.
Aming distorts temp.

May 1- Landscape to Deaf and Dumb.

Dyes Noon
" 3pm
"Patent, enduring".

May 2- → Awakening of Color
= of =

in dye on frosty crust.

Quote -

Moisture in Snow Cover

10 am. Snow Crust

Dye
Temp. and Runoff

Temp. + crust + dye

May 7 → Dyes fail to penetrate the soil.

May 15 — Trip to reset H-T's.

→ "I will reset on the first of the month."

Halsel 3:30 pm

Min. 30°F; H-T 29.5°F

June 1 "Mrs Halleck carries the weather in her face"

Steamboat Ditch a guest of faith in Washoe.

July 10 Re-regulated H-T thermo. at Halsel H-T accurate with sling psch.

Pasture H-T. old sheet
corroded +4°F.

5 photos of Nos 2 & 3 and
Hotel Platform.

October 7-
Evaporation from
Precip. Gages Aug-Sep.

October 31-(Sunday)
Dr Gardel, Mrs Gardel, and
Charles.

Nov 7- Reset H-T s

Nov. 18- Temps in Soil and Snow
by Gardel.

* Dyes-
administration

Dec. 2 – Sentry Box for Gerdel. (i.e., penthouse).

Dec. 7 – Back broken

" 9 – Kingvale uprooted, by gale.

" 11 – Screaming Storm

Letters from Gerdel.

Jan. 16. Held up for repairs to back.

Jan 13 – Rain and sleet

Rain at 26°F. (See letter by Gerdel and of Book 10)

Temp. with elevation.

Jan 18 – 19.

Air temp. and crusts.

Feb 11 – 19 –

Lack of Evap. in Rocky Mts.

Feb. 29- Conference with
Koch at Reno
re Snow Laboratory.

March 3- Trip to Soda Spgs
Message from Lindsay for
Bernard.

" 4- Blockade
Passengers in low shoes,
Snow on Trees.

" 5. Snow Textures
Fuchsine red if snow is
pinched.
Crust where not moist

" 6- Frost from trees,
Fuchsine

* Cohesion and rigidity
Thin plate for out.

March 7 — Fuchsine purple.

" 8 — Stevens & the ideal Can.

" 9 — Movement of water in snow crystals.

" 10 — Temp. above the Snow

Protest from Gendel.

Crust

" 12 — Dye on the Snow.

Problem: "Water in Snow.

" 13 Fuchsine

How snow permeated with moisture?

" 14 — Drainage Marks in Snow.

Dye on new snow and on crust.

March 18, 1952

Wind Channels.

" 19 - " " by Ernie Mack.

" 20 Dyes and Melting.
Packing and crushing.

* Temperature with Elevation

Dyes
Cores

** Temps. at Heights
Crusts
* Temp. + Moisture of Snow Cover

March 21 - Night Temps.
Dye and Crust
Melting.
Temps. in Snow.

March 21

Melting back of Hotel

Crust at 36°F

* Temps. with Elevation.

March 22 -

Temps, with Elevation,

" 24. Snow Melt

* → Temps. and Elevation

Temps and Dye.

March 25.

Temps at Elevation,

* Temps in Snow

→ Test of Thems.

Dyes in Pasture

" " "

→ Temps with Elevation + Freezing

March 26 Melting

Color Cores Temps (See yellow)

Snow-Melt Project

Melting Mch 18-25

→ Snow Cores in Pasture.

Temps. above, on, and in Snow.

Temps. + Dye.

March 28- Temps.

Enigmas?

Dyes.

" 29— Test cores

Old Dye

Temps by Gerdel.

" 31. Temp. in Snow

by Gerdel.

Crust + Temps.

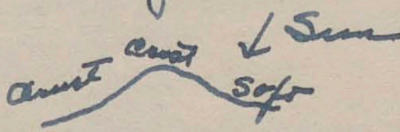
Melting

April 1, 1944

Temps + Crust

Dye Movement.

Melting

→ 

" Penitente by Max Demorest called uneven melting" –
Becky.

Temps + Crust

April 2. Temps.

Snow Melt & Dyes.

Crusts

" 3 – Dyes

Temps.

→ Air-propeller sled.

The Human View.

April 4 Night Temps + Crust

April 5-

Continuous Tests of Dye,

New snow wet or frozen
when trampled.

April 10-

Test of freezing by Packing

Radiation .. Checked

Percolation

April 11- Dye on New Snow.

Melting.

Quality 90.? %

Dens 43.9 %

" 12. Temps in New Snow.

Dye on Snow

Dye Dust 7/8 in at distance
of 25 feet,

→ Radiant Power of Fuchsine.

April 12. Opening the Pit.

Percolation

April 15

* Night temps

Crust.

Dye

Dye Planted + Covered.

Temp. + Crust

April 16.

Temp. + Crust.

Dye acts as accelerator of melting.

Dyes

Crust beneath new snow 1 1/4"

" " Canvas 4 in.

* Dye moved up and down

Dye on new snow.

Pressure and Melting.

April 16-

Dyes + Temp.

Dyes Buried.

Temp + Crust

April 16-22. No melting.

April 23- Temps + Crusts

Types of Crusts

* Dye (Tests).

→ 1, 2, 3, 4,

Percolation or film transfer.

Query.

Crust Melting

Density of Snow Cover.

Rate of Melting.

Temp. Inversion

April 24- Temp. Inversion (Conc.)

Dyes in Snow.

Temps + Crusts

April 25 –

A cold night on snow.

In snow at 12 in: 32.0°F

→ Dyes + Penetration

6 Tests.

Red Dye

→ Dye! descended 13 in. despite crust

April 28

Dye on Gravel.

Fendel on Dyes

Three New Tests

April 29

Temps., Dyes, Textures

→ Diffusivity of Dye!

Kitchen Test

April 30 -

Temps & Crusts

Dyes

→ Dye (Near Plantings)

"Dye brilliant where snow is very wet."

(See May 1)

May 1 -

Temps in air & Snow.

Dye Melting [Make a chart]

May 2 - Dyes - Sinking.

Snow Cover Lacs Apr 29 - May 2.

W - Dye
N - Dye
" Study "

35 in. Overnight
Day only.

May 6 -

Temps & Crust.

Night dye.

" 7 " "

* New Morning Dye.

Old Dye - last night
at 6 am. 1/4 in deep
at 9:45 22 in with
Traces to ground.

New Morning Dye
6 am & 9:45 ... 12½ in.

→ Loss of Snow Cover,

→ Temp. + Crust.

→ Dye

May 8 — Crust
Temps
Melting at surface.

→ Dyes!
In sun and shade.

May 9 Temps

→ Telethermoscope 25 ft
above ground.

Melting 1.6 in. daily.

May 9.

Melting in Sun and Shade

Dye on Dyke.

Nov. 7, 1944

Temp + crust

Ice + snow greater radiators of heat than water.

Nov. 9 — Dye on snow.

Nov. 10 — Telephone Wires and Poles down

Temp. in snow.

" 11 — Temps in snow.

" 12 Cutting trail to barn.

Snow gage planned for Donner Pass

Therms in Snow.

Ice-snow on Cables.

Dye on/in Snow.

Nov. 14 - Storm Over -

※ Caps on Gages.

Dye and Snow melt.

Nov. 17 - Dyes

Dec. 4 - Dyes - In warm room.

Crust + Temp.

" 5 - Dye in Pasture

" 10 - Sunburn from beneath in Montana.

Intense cold in pockets.

" 30 New Snow - Air woofs out of snow.

Jan. 3 - Dyes at Summit.

" in Summit Valley.

" 4 - Dye at Donner Lake

"Spread dye more thinly and finely" - Ashton Codd.

Installing Gage at Truckee (?)

Storm of Dec 18-22. "Rain"

New Snow 23 in. deep. No loss.

Snow Survey Test: Dye.

Dec. 31 ※ Crust Today. Angle of sun.

Jan 10 – Dyer – Codd + Gandel.

→ Jan. 1

Temp. 4 Ft 38°F
10? Ft 36.5 } See 4:15 p.m.
1 Ft = ?

Dyer

Crusts

Jan. 2 Dyes.

Crust due to melting from dyes opaqueness.

Artificial melting.

Cover with snow.

Jan 3.

Crust and pogonip.

Ripening of pogonip.

→ Dyes in Summit Valley.

Jan 4 - Crust + Temps.

5 pm 42°F (14 Ft) Hotel
Crust forming.

6 pm 38°F (4 Ft)
Crust 1/4 in.

Min. -6.0°F
-2.0° - 10 Ft?

Jan 5 - (at Truckee?)
→ Melt Pan and Tank

→ Dye Stations

→ Resetting H-T's.
Tidbits (current) 36.5°F
4 Ft . . . 37.5°

Dye Chart Possible?

9 pm. Misting. 36° - Telethermo. 37.4°
Crust 1/4 in.
Min. at 4 Ft 20°F.

Jan. 6 – Erected Snow Gage at Donner Pass Lookout.

Crusts + Temp.

Descent of Dye –
Green on surface
Pink still descending. 1½ in.

	Trestle Summit	Min
	38°F	21°0
4 Ft	39.5	19.5

Effect of opaque dye 1¾ in.
But total descent ?

Cold passing into snow
What radiates – Ground, snow, air ?

Jan. 7 –

Descent of dyes.

No. 1	Jan 6 ¼ in	Jan 7 1¼
" 2	– Purple –	
" 3	Red to Green	

Jan. 10.

Temp. + Crust

→ Drier snow freezes earlier than the melted providing the furnace has been melting.

yes, because less water to solidify. So snow and clay and floods. also glaze on streets.

See 8 p.m.

Snow crisp but slush soft.

Dye to Codd + Gendel.

Jan. 12 Dye. Bowl ½ in. deep due to effect of sun on dye. Better to buy dye.

Drip Pan.

9.8 : 1 or 9.77 : 1 instead of 10 : 1.

Feb. 1 — Storm. Truckee River yellow.

Test of H-T's needed.

→ Rain on Snow. Dye penetrated only 5 in.

→ Rain and Snow -
Telatherm, 38°
Wet bulb or rain 38°
How much could it melt
the snow?

Feb 2 - Rain, Sleet, Snow.
Dye down 24 in. to granular
ice on ground.
Thermo uniform because of
storm.

Feb 3 - Storm from Utah to Calif.
— Crust —
→ Incipient crust beneath ¼ in
late afternoon snow. Sunwarmed?
yes, E. of trestle was ¼ in. thick.
9 pm. slush solid and brittle.
7 pm. highway was glazed.

Feb 4 - Bernard - Towers and
gages at Norden. Shields?
Crust 1.1 in + 0.4 in frost.
Tripping trip.

Dye and Melt

Potency of dye

Scale of color. 1 part in 5,000,000 Gendel?

Feb 5 —

→ Loss by Rain and Runoff.

Feb 6 —

Dye Station — Donner Meadows

Feb 7 —

Snow-melt Tank

Dye at Truckee.

Donner Lake

Snow melt, dye.

Feb 8 Thunder-Lightning Snow Blizzard.

March 29 —

→ A Gale: Snow Erosion.

from East.

Temp. + Crust

Gendel + Cold will not return next year.

Dye and Crust

March 31 -

Dye

Warm air, cold snow.

→ Dye Studies

Crust. Caution with dye.

Dye Stations.

April 1 Dye. Hothouse effect.

Freezing of sampler

Freezing.

April 2.

Snow-melt by Drip Pan.

Dye & Crust

No loss of Snow Feb-March.

→ April 3 Test of H-Ts.

Apr. 4- Clogging of Sampler solved.

April 5. Donner Lake —
Dye to ground.
Niene penitente.
"Ski tracks and footprints frozen. Softer snow has shrunk.

New shelters for 4 Ft + Jr. H-Ts
Double H-T shelter finished.

→ Test of H-Ts.

Sat. apr. 7
Mystery of Change from Moist Snow to Frozen Dry.

Dyes Crust

apr 9 — Checking H-Ts
Dyes
Temp. above Snow
Dye
Temp. " "

April 10 Dye Creeping.
(also in 1943)

Apr 11 - Dye of yesterday.
Dye at Source
* Refrozen Snow - resembled blue quartz.
Temp H-Ts.

Apr. 15. 10 Ft, 5½ ft.
Dyes
H-Ts
Dye - Donner Summit.
Donner Pass
" Lake

April 21 -
Snow layers demarcated.
H-TS

Apr 22. Dye Studies
Crust 3" in. deep.
Dye of Apr. 15.

H-Ts

Descent of Snow

" " Snow-water

Formation

April 23.

Temps in Snow + Air

Shrinkage

Drip Pan

April 25

Snow Shrinkage

3 in. daily.

April 26.

Shrinkage

H-Ts in air.

April 27

Snow Shrinkage 25-27 ... 0.

Dyes

→ Donner Observatory. Dr Horton dead.

April 28

Roof on 5½ Ft Shelter.

Shrinkage

→ Dyes at Office.

Washed out?

Crust + Temps.

April 29

Crust + Temps.

Temp in snow.

Red

12 hr-day melt.

Snow thermog. 32° for week.

Snow Shrinkage.

Tucker Sno-Cat

Snow over cold

Dye to bottom 45½ in.

April 30.

Shrinkage Crust

13¾ – 17¾

= 4 in = melt 2 in. daily?

H-TS

Snow Stake 3 Ft

Have Dye

May 1 -

Frost Temperature

Dyes Crust 3/8 in.

Dyes - Test

Donner Summit - Dyes

May 2 - So Hot that traces had disappeared completely.

Temps at 6:30 a.m.

Crust 4 1/4 in.

→ Dye - Throughout the Day.

↗ Corrections of Heights of H-TS

10 Ft = 12 Ft

5 1/2 Ft = 9 Ft

1 1/2 Ft = 5 Ft

Glass tubes as funnels in snow

Crust

Freezing begins

May 3. Temp. Air & snow.

Snow Shrinkage

Loss of water by Sunny.

May 1-2, 1.6 ; May 2-3, 2.6 in.

all holes are rounded funnels.

Descent of Dye No. 5, May 2.

Crust 3/8 in. Stake 28 in.

May 4 Crust 4 1/2 in. Humid 98 %. Frost.

Min. 26.5° F.

Shrinkage H-T S

May 8 Shrinkage

Rates of Melting.

Crust.

May 9. Fog. Shrinkage

Dye - returned from red to green throughout.

H-TS

Crust 4½-7 in. but sod is soft.

Beneath crust ~~snow~~ ~~moist~~ pass. (but no dye).

Radiation despite humid. + clouds.

Melting

Surprise

Melting at Donner Summit. Apr 15 - May 9.

Melting Rate.

New Dyes.

May 10 - Shrinkage.

Dyes

Night Temps

Height of Insts above Ground

1½ Ft = 6⅔ Ft.

H-TS -

May 11- H-TS

28.5°F min. - Count 7½ in.

Final Check of H-TS

May 14 Min. Data plans to publish Monog. next year (1946).

May 19- Snow Freezing on Mt Washington

May 20 Dye Meas.

21- Dye Descent 23 in.

Min. Temp. 31-33°F

— Drip Pan —

Sado Spge

Date		in	
1/4/46	— —	1.436	
1/5	— —	1.467	1 day .031
1/8	— —	1.49	3 " .023
1/10	— —	1.52	2 " .03
1/11	— —	1.555	1 " .035
1/12	— —	1.555	1 " 0
1/14	— —	1.581	2 " .026
1/17	— / —	1.62	3 " .039

13 days. 0.184 in.

Daily mean 0.014 in

Drip Tanks

Nov. 30, 1945

Pasture Soda Springs

2:40 p.m., 0.78 in. (Tank 7.8")

Dec. 15 0.85 in.

Shaded platforms.

Dec. 22 0.89

Nov. 30 – Dec. 14

Nov. 30	7.8
Dec. 14	8.5
Dec. 22	8.9
" 23	8.9

Nov. 30 - Dec. 14 = 0.07 in

Nov. 30 - Dec. 22 = 0.11 in

Drip Tank

Donner Lake Dec. 29, 1945

1.4

39 1/2 in
39
Hole

dye to bottom.

Donner Pass

March 2 10 am. 2.10

NB. Contents unfrozen.

Can only 3 ft high.

Drip Pan

Rain all night.

Dec. 28 .965 = 9.65

By metal 9.54

Earlier 8.9

0.64

Photos

* Cornices badly weathered and retracted on windward side. Water dripping.

Water content of snow 32.2 equiv. in.

Loss .06 in.

Dec. 29

Donner Lake Tank 0.15

Truckee R.S.

Only 0.56 in. melt for Nov. - Dec. and very slight during recent thaw and rain.

Dec. 29

Donner Lake

2.5, 1.5, 1.4. Is it leaking? Looks suspicious.

Snow Surveys

	Donner Lake	Truckee R.S.
Apr. 1, 1945	14.9 in. W.	10.1 in. W
Dec. 29, 1945	eff. 16.0	eff. 8.0

Dec. 30 Donner Pass

Erosion mark ✓. Even downhill in most direct route. "always assumed when it rains" - J.J.

But the tiny scoops or saucers overlying the drainage lines!

Wreck! Top of ladder shows today. Snow has sunk 2ft since.

Valve rod is bent over and turned. Caused by snow slide? Could anion possibly have done it?

No freezing. Snow 20.5 ft. Tension? Dens 44 to 48%. Sea 1952(?).

Drip Tank

Nov. 21 . . .	1.092 in.
Dec. 30	1.22
Melt	0.128

Precip. gages frozen over this morning. "Damian Lara frozen half over.

Dec. 31. Min. temp. 14°F

all gages frozen again.

Drip Tank Recorder

Why not float in tank and recorder at top as on streams?

Dye. Snow pit 70.5 Penetration 16 in.

" 72.0 Possibly 12'

Were in shade.

When irrig., planting?

Drip Tank 1.3 in

1.31, 1.30

Min. temp. last night 12°F.

Drip Tank		?
Dec. 23	8.9 in.	0.89
" 28	9.6 ?	0.96
" 31	13.0	1.30
		0.41

Jan. 1, 1946.

Rye planted yesterday

(a) Total depth 18.5 in.

Top 1 in. 90%

(b) Total depth 1 in. 90%.

1/2 1:30 p.m.

Drip Tank 1.35

Cap on Rent House time.

Practically gone. Be quick next ∧

Jan. 2, 1946

12:10 p.m. Drip Tank 1.38 in.

Gain Jan. 1-2 — 0.03

Dec. 31-Jan. 2 0.08

Jan. 3, 1946

10 a.m.

Drip Tank 0.15!

Snow survey

Powder Lake? ~~4[illegible]~~

42.7	17	Worst packs
43.8	17	Bottom 2 in. Wet packs

Dec. 29 Dye to within 1 in. of bottom Depth of snow 38 in.

75%

Dec. 28 11 a.m. Donner Pass

Drip Tank 1,239

#5 snow moving slightly down hill. Guard.

Dya

New snow 20½ in.

Dec. 28 heavy rain in night.

Old snow 14 in. Penetration

18 in. above
below

New dya Jan. 3.

"Dya not turning red even in sunshine" J. J.

Refg. Key to valve (?)
Ice above pole. J.J. thinks
it pressure.

Crow's nest crushed
and bent down like
a hinge from the pole.

Soda Springs 2 p.m.

Soda Springs Pasture

Drip Tank 1.39
1.40
1.40
1.40

Temp. Max 31.0° F
Snow very white and dry
all day.

4 pm. Dye on new snow.
Remains completely green.

Form 643
(Revised Oct. 1944)

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

DAILY RECORD OF ISSUES—GASOLINE, OIL, AND GREASE

(Name or number of camp or station) — Drip Pan Record — Truckee R.S. (Location)

(Unit) Nov - Dec. , 1945 (Month)

1945 DATE	LICENSE No.	SPEEDOMETER READING	GAS	OIL	GREASE	SIGNATURE OF DRIVER
			(Gal.)	(Qt.)	(Lb.)	
Nov 2	On tank to start 1.4					
8	2.7	1.3				
8	1.2					~~after Pumping~~
20	4.2	3.0	3.00 PM			~~no reading after pumping~~
20	3.3	0.9				Pumped and recharged
30	4.2		10.15 AM			
30	1.4					after pumping
Dec 21	1.6	0.2	11.00 AM			
" 27	1.75	0.15	2 P			
28	1.8	0.05	1.45 PM			
29	1.81	0.01	1.00 pm			
Total		5.61 =	Melting of		0.561 in.	
Jan 4	2.2					
6	2.2					
9	2.21	.01				
Jan 11	~~2.53~~ 2.13	.07				
		.00				
16	2.3					
24	2.35	.05				
		.05				
Feb 4	2.30					
		.12				
	3 readings .15					
TOTAL ISSUES						

INSTRUCTIONS.—1. Do not make deliveries for use in private vehicles unless same are under contract specifying Forest Service will supply gasoline, oil, and grease. 2. Require signature of driver, operator, or other person receiving supplies for every issue. 3. Total issues and submit the report monthly or as otherwise specified.

(Signature of issuing employee)

16—41958-1

(OVER)