Li-Rite

PATENTS PENDING

Stenographic Notes

No. 101-G

LI-RITE LOCKBE NO. 1

No. 6

From April 10 (Saturday) 1943

To April 26 Noon (Monday) 1943

Thursday, April 15.

Revision of Symbols for Computing Snow Melt:

J = jug influence. Fixed factor, 2.45 g.

M_W = mass of water (hot) oz.

T_H = temp. hot (water + jug) °C

M_S = mass of snow oz.

T_F = temp. final (water) °C

C = calories, heat to melt snow.

$$C = \frac{\overset{2.45g}{J} + M_W}{M_S}\left(t_H - t_F\right) - t_F$$

Calories = $\dfrac{2.45\,g + \text{Water } oz.}{\text{Snow } oz} \cdot \left(\text{temp}_{hot} - \text{temp}_{final}\right) - \text{temp}_{final}$

- Essential Data -

No of Test	Dens. %	Crystal Size mm	Temp. of Snow °C	Weather wet, moist, dry	Mass of Water oz (in)	Temp. hot water °C	Mass of Snow oz (in)	Temp. of Water final	Calories computed.

Thunderstorm at Reno. 80° F. said someone.

Friday April 16 -

Fog from Floriston to Prosser Creek even higher than highest part of road.

Donner Lake has risen to normal high stage.

Donner Peak scarred with soft snow-slides and brown cornices, but rain and melting has removed sharp contours.

Paths look like cog-wheel marks — not due to leaping of snow fragment but to angles behind penetrated deeper and naturally reduced its speed.

8:45 a.m.

Found barograph stopped. Did I fail to wind it? Resumed now.

Smoking trace straight.

Lieut. Benson will be eager to meet the Russian Mission.

Chris offers me his saw and tools.
Is in carpenter shop no more.
"Did not freeze last night" – Chris.

Melting: "At Crystal Lake snow is melting far more rapidly than for two years. An 18-in. culvert for bridge but water is times heavier and has washed out the road" – Lieut. Benson

10:15 am. Hotel Clear. Wind NW. very light breeze.
H-T 48.5°; min. 48.5°F
Min. last night 27°F (mine)
" " " H-T 28°F (max. yesterday 59)
Sunshine column 1/3 in below contacts.

Dry bulb 49°F
Wet " 42°F

Shook-up sunshine recorder.
Reset at same angle – 45°

10:50 am. Pasture
Dry 47.2°F } Taken on snow.
Wet 41.0 } So colder.
For period { Min. 23.9° – reset 50.2°F
{ Max. 66.0 – " 50.4°F

– Gages –

Gage No. 7 (Stevens Q)

Apr. 9 . . 7 in.

" 16 . . 6.98 in

Sufficient ink.

(8)

Left level of instrument unchanged – cable half down.

Snow Stake . . 55 in.

Dirt on snow – due to heavy war traffic on railroad.

→ What is quantitative effect of soot on melting?

Noon –

No. 3	Liquid	13.18 in.	by staff.
" 2	"	13.16 in	"
" 4	"	10.1+ in (21.1")	by weight.
" 5	"	Stirred. Changed sheet only.	

1 p.m. Cavilland came up. Oil, mano, gasoline.

"Will change instruments all summer irrespective of salary." But will ask Expt. Station to replace $10 withdrawn by U.S.W.B.

Dwers will probably pay into July.

Snow board -
my reading 55 in.
Gaillard's 53 in.
He sights over area - size only of a room.

Snow Melt - last 4 days.
Apr 12-15 . . . 13 in.
Last two days 8 in.
Apr. 14 . . . 4 in.
" 15 . . . 4 in.

"Tiny crust" Buick
"Crust forms below surface but flakey on top. Also where hardened by tractor snow is growing soft. Below 12 in. snow is watersoaked." Gaillard.

Skiing.
In early morning or late in evening. Snow too soft and heavy at midday. Webs heavy with stiering and some wet snow picked up.

No. 6 Wt 9.38 (20.38) in. Liquid - stirred.
One line on plate of shield unloose. Hooks too short. Set-screws uneven.

No. 8 Wt 8.53 (19.53). Liquid, stirred.
No. 9 Wt 10.22 (21.22) - Stirred.
Platform far above snow (2-3 ft.)

No. 10 Wt 10.47 (21.47)[ins.]

Snow very coarse at trestle and towers 9 and 10. On south and west side of No 9. Insolation? and south and east sides of No. 10.

Later: Due to calcium chloride [solution] thrown out or used from cars?

Photo of Telethermo. thermal units at 6ft. Opening No 3 - 1/50 sec.

Lake Ice –

→ Showed sergeant Sci. Mo. He is a lineman and patrols Donner (Hander:?) Lake. Crosses slush at night on skis.

Snow and water on ice. Soon ice will rise and break up. In 105 mi. gale. Herringboned to keep from being pushed forward.

Loves snow sports. Suggests miner's lamp for night travel – to see contours.

Snow Survey 5 pm to 6:15 pm.

Snow soft to ankles but has become suffocating deep tho broke thru in midday. "Crust above freezing" – Sergeant.

FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS

State: California
Drainage Basin: South Yuba
Snow Course: Soda Springs No. 1
Party: J.E. Church
Date: April 16, 1943.

*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	Bare						
	2	50 -1	42.2 -1	82.2	105.6	23.4		
	3	47	41.5	82.6	110	27.4		Water ran from core
	4	39.6	39.6	82.6	108	25.4		"
	5	Road						
	6	51.5	48.1	82.6	109.8	27.2		"
	7	50.7	48.2	82.6	110.6	28.0		Rode spindle thru ice at bottom, also - coarse or sleet.

Steady water drip and flow.

*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______

- 2 -

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
	8	47.8 -.3	43.8 -.3	82.6	105.2	23.6		Wet but no drip
	9	49.5 -.5	47.7 -.5	82.6	107.6	25.0		Soft very wet. No drip.
	10	50.3	48.7	82.4	108.5	26.1		Ice in all. No drip here.
	11	48 -2.0	44.2 -2.0	82.4	106	23.6		Wet soil. No drip.
	12	56.5 -.5	53.7 -.5	82.4	111.3	28.9		Wet ice at bottom
	13	No meas.						
	14	No meas.						
		10 meas. total as Eddy did.						
Average		48.7				25.76		Dens 52.9

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

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

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

49990 8-37 12900 G.P.O.

Snow Crusts

Temp. on trestle still 48°F, but in the shade a crust is forming.

at 7 pm the crust is dry and firm.

→ What is the temperature?

Saturday April 17.

Crust hard. Ice on water before total but ceases readily. Melting.

Frost on instruments. Drops of frozen water on direction rod.

→ Pogonip and ice on anemometer recorder*. Column 1/4 in. below contacts. Clear metal was wet. Min 23°F but 34°F at 10 pm

Ice frozen 3/16 in and 1/4 in. Water film beneath.

→ * No pogonip in wind-direction case. Frame triple register.

Snow Pits

Fallen insulated dark paper wire is 1/4 in. deep in snow. So snow melts faster than wire can sink. yet wire black.

Wire sloped in melting in by density of snow and moisture. Fine pebbles on Greenland ice. When crust is dry, melting in of opaque objects is more rapid. Why? Because snow is not melting?

- Snow Crusts -

8 am. Crust Snow 21 in. Frozen thermometer

Top [illegible]
crumbles. The bottom pairs slightly.
Trace of moisture on glove.
Soil wet and plastic.

Query: Is coarser snow more plastic?
Try Barnes' plan of testing the
presence of moisture by calories.

Temp. in Snow:
32°F.. 1 ft to probably 18 in.
30.8°F at 6 in.
35.5°F at ½ in.

Rearranged: ½ in. . . . 35.5°F
6 in . . . 30.8°F
12 to 18 . . 32.0°F.

Min. temp for night in snow 32.0°F?

Sunshine Recorder

Column almost at contacts at 8:30 am
→ Sun 35° high. Pogonip now melted.
Drops of water on glass.

Weather Record

	Max.	Min.	Prec. in	Snowfall	Depth	
Apr 8	41	21	0.52*	2.3	70	SW

*Snowing off and on all day.
Wind 590

" 9	40	20	0.06		68	E clr

Wind strong. Lost record sheet.
Wind 731

April 10	42	24			67 E clr
		W. 596			
" 11	50	24			66 E clr
		"W. 1176"			
" 12	55	31	159 mi.		63 NE clr
		W. 285			
" 13	62	25	95 mi.		61 SE clr
		W. 380			
" 14	66	26	26 mi.		57 NE Ptcldy
		W. 406			
" 15	62	26	115 mi.		53 W clr
		W. 521			

Cloudy wind with melting. Not so heavy last temps. 12 to 16° F higher than 50° F Apr. 11

" 16	57	27			50 SW clr
		W. 604 3/4 mi.			
" 17	59	21			47 W clr
		W. 668 mi.			

— Dyes (Aniline)

Test conducted on snow mound in area between hotel and filling station.

1. Purple (Methyl Violet)
2. Indigo (Victoria Green)
3. Yellow (Naphthol Yellow)

4. Black insoluble. Good for showing strata (Oil red. Red Sudan)
5. Blue (Methyline Blue)
6. Red (Fuchsine. Fine crystals)
7. Black insoluble. Good for showing strata (Oil Black)
8. Blue grey (Nigrosine)

Nos 1, 2, 6 most visible.
" 3 5 8 dimmer.
" 8 (black) might be mistaken for coal dust or soot.
" 4 and 7 insoluble. Good to mark strata, whether wet or dry — as in settling snow.

All penetrated snow — even thro' thin ice crusts.
All travel mainly vertical

→ An area of powder 2-3 in. diameter on surface corresponds to 8 in. diam. at depth of 18 in.

But this is old snow. New snow, on basis of last season's experiments, carries dyes far laterally — like Persian kibitka patterns.

Evidently melting is vertical. Crusts can readily be penetrated, but dyes do not penetrate ice when solid.

Query: Does dye go by its own power thru interstices or does it affiliate with moisture? No. 5 does not penetrate evenly but seems to bypass areas of very coarse crystals.

→ Nos 2 (Indigo) and 6 (Red) are very powerful for their volume of powder — and only a portion is dissolved.

Crystals seem to drain slowly clear of dye tho crystals remain wet. Strong dyes therefore desirable.

→ Can therefore dyes penetrate upward? i.e. upward capillarity apart from capillarity water? The red dye (No. 6) seems to have drawn upward ½ in., but slowly.

- Sampler -

Shellacked snow sampler and toboggans. Chris unscrewed the sections for me. He was afraid of breaking not the couplings but the wrenches. He should be in the tank corps to swing the turret if the motor fails.

Further test of Dyes

4:30 pm.

Put Nos 2 and 6 on snow in Pasture; also No. 2 over coarse crystals. Testing intensity and distance of spread.

Lisca camera: head of pile of dope, tail gets dust blown by breeze. Extreme length of tail: No. 2 . . . 15 ft, No. 6 . . 17 ft.

Temp. in Snow 48 in. Ref.

At 20 in. . . . 32.8°F (column slightly brown)
Top of tube comes within 1 in. of surface of snow.

At 32 in. . . . 33.2 (column slightly brown)

At 42 in. 34.2 (two tiny bubbles)

Note - Of the remaining 5 (2 days) thermometers only one has unbroken column.

Max. temp. so far to date (today) 58°F
H-T 57°F.

Rel. humid for 7 hours 100%.

Belt of floating vapor over pasture near this morning. Min 22°F, H-T 23.5°

Sunshine Recorder

6:10 pm
Sun 30° above horizon but column of recorder is 1/16 in. below contacts. Yet at midday column rose 1/4 in. above contacts. Should it be more?

Air Temps over Snow

Sat Friday April 17 1942. Thermographs exposed for night at Intel Tower - the longer ones on the snow, the smaller ones on

Temps.
on snow.

shelf 6 ft. up on leg of tower. The third in the series is the H-T in the instrument shelter above.

All thermogs in shade. Awnings tomorrow. Temp. of thermographs now 53°F. Min. 54°F.

Melting Rate

Snow Settling and Melting

Snow settled today 3 in. instead of 4 in. Temp. in the 50°Fs, not 60°Fs.

Rather 13, 14, 15 (Tu., W., Th) 62°F, 66°F, 62°F. and Fri. and Sat. (16-17) 57°F and 59°F

On Friday (16th) tho only 57°F, runoff as heavy as on 14 and 15th. at 66°F and 62°F. Accumulation of effect? Snow heavy and wet.

Today (17th) at 59°F much less melting, snow not so wet, arising much better and snow firm all day except for occasional break-thru.

But the minimum this morning is 21°F while the others (Apr 12-16) were 31, 25, 26, 26, 27. Did the 31°F start the melting?

Not min. but max. that counts.

Sunday April 18

Frost

Up at 6 am

at 7 am Min. 24°F. Pogonip.

Temp. diff. between ground, midway, and platform 1/2°F. Glass on thermographs frosted.

Also frost o[illegible]

Column 1/2+ in down. Triple register
→ missing - frost in the wind-direction
ball?

9 a.m. Pogonip melted off sunshine recorder. Column almost at contacts. Retracted last night 5/8 in.

Pogonip melted in ball of wind direction recorder but heavy film of water on wall of ball.

Likewise film of water on glass of anemometer (but outside only).

Dyes

Dyes faded on frozen surface. New
→ dyes are inert on frozen snow.
A good test of the absence of an "invisible" film of water. Better than colorimetry. Follow dyes today.

Thermogs

Awnings placed over thermogs on snow and shelf - Need heavier cloth for shelf.

Telethermoscope

Decided to leave telethermoscope in place for Major Lvov and place new telethermoscope at north end of trestle in Pasture.

Pride

Breakfast at 9:30 a.m. 11 a.m. clouding up, sultry. Rain streamers over summit.

Dyes

Captain Pr
Russian's coming. "This is the place
he should visit. I may be gone.
Can't tell. Ready to go."

Cat from Ice Lakes noisily coming
down hill.

Wind rising. Thermographs well shaded.

Snow soft. Too hard to hammer
stick into it at 7 am.

Studying Dyes Today

Upward capillarity not large. Red dye
has melted snow or ice risen — ½ in. seems
maximum. Lateral spread 6 in. at surface.

Right measurement of dyes.

7 am. crust solid.

11 am. crust soft 1½ in. deep.

NB. — Red dye better than blue for
blue confuses with atmospheric blue
in snow, especially where dye is
weak.

But red dye (No. 6) has penetrated
1¼ in. or ⅓ of total depth. So crust no
criterion alone. Side spread by
capillarity not in excess of 4 in.

Blue dye (No. 3) penetrated 1¼ in.
Evidence of descent of water, not
temperature alone, for dye is

water borne. Dye dust on cold snow did not show at all until snow became moist.

Pattern of travel is a marble area. Crystals at times eroded and ice strata brought.

Project: Use dyes all winter to show current percolation and rates. Does this explain softening in center of snow each day? Why the rapid and almost sudden deepening?

All Night Tests of Dyes

No. 6. Placed on snow at 4:30 pm Total penetration last night 17½ in. Snow then must have frozen. Crust forming on top by 8 pm at +0° F.

Today from 8 to 11 am. with increasing temperature dyes penetrated 14 & 14½ in.

Thin ice strata have taken the dye but yesterday dye did not penetrate clear ice. Did the strata melt and refreeze? Not probable. Coarse ice crystals beautifully and uniformly colored like opals.

Capillarity - In the core lying flat on the snow, the dye quickly descends in the crystals (1-2 mm) as much as

1/4 to 1/2 inch. by gravity and sinks quickly into the snow beneath.

No. 2. 48 - 29½ white = 18½ in. penetration at 6 in. depth blue concentrated and stopped at crust 18½ in. down.

No, the ice does not absorb dye. The intensely blue crystals are aggregates filled by frozen dye-filled water. As soon as aggregate is broken up, the water flows away with the color, and the crystals remain pure white.

Therefore, capillarity of dye depends upon capillarity of snow water. The crystals are 1-2 mm in simple forms but any size in the aggregate.

The drops of water from melted snow carry the dye like "bluing". Thick or thin as may be, it concentrates in spots.

A Fairy World - a blue-dyed cavern under a magnifying glass. A nebula of indigo depth deep down and white luminescent crystals where touched by the sun. Large and small crystals, individual and in masses — a cavern or summer cloud masses — in tones of blue.

→ Cannot color views be made of ice? Must be magnified.

fine crystals close together (high density snow), with fine capillaries. Not in coarse snow.

Capsules of dye to place at any depth by sampler to avoid staining snow around. Will capsules melt when moist? How much moisture necessary? Need only slightest or should melt at slightest!

Trains and Dirt. Trains – happy trains speed by and helper engines hurry back like exultant lads for another load.

Of course, snow is dirty. Does it melt faster or slower because of it? Depends on thickness of dirt.

Siding switch cut out lest someone shunt a train to wreck?

Large flakes of soot but small particles between. Effect on melting composite?

Skiers – 75 on Beacon Hill. Next Sunday than last.

Need – pad (5 pf) for [illegible]graph; pay a. [illegible] for 3 amp oil.

3pm. — Corn snow? Like that on Nugssuaq Glacier in August (1928) and as deep.

Plainly made up of crystals 1½ mm up with maximum size of agglomerate crystals of 10 mm. Most of 5 mm. Structure of original crystals (1½–2 mm) can be

seem as pattern in large before they finally melt and lose identity. Some large crystals look like a blackberry with its individual cells.

Contours of agglomerate crystals irregular but rounded — possibly like the original small crystals when weathered except that larger ones may frequently be elongated.

Built by moistening, cohering, and finally melting completely within the composite crystal. Sometimes tiny adhering crystals can be picked loose from the large one — rescued to melt into own tiny individual life instead of blending with and moistening its large absorbing companion.

When the large crystals finally cohere and melt, clear or nearly clear ice results. Thus the secret of glacier ice.

And these crystals are forming on or near the surface, where freezing and melting alternate. Yet a smooth surface does the same each day. Why are these different? They are merely larger grown.

One composite, full of smaller crystals is 35 × 50 mm

a visitor - Red-headed guard - on return from ski jaunt to Ice Lakes. Interested in natives. Soldiers less venturesome than Sunday crowd. Showed him the gages.

Day Test of Dyes

4:30 pm. Morning's Dye.

(5) No. 2 Blue. Snow 46.5 Core 44

Dye condensed from 24 in. Stopped abruptly at crust which it highly colored. Then 7½ in. of scarcely stained snow, followed by marble veins of blue condensing toward bottom. Heavier melting in top 24 in.? Test this in morning.

(3) No. 6 Red (a) Snow 44 in. Core 44 in.

Last trace 18 in. from ground. Heaviest first 16 in. stopping at coarse crust. Clear to sand 1 in. Lower where it stops completely.

(b) Snow 43 in. Core 41.5 in.

Again dense for 16 in. Then traces with heavy zone 2 in. deep. Clear 5 in., then moderate color to the bottom.

→ The difference between the two indicates how much error in the lateral spread or movement of water.

Yesterday's Dyes

(a) Snow 47 in. Core 45 in.
Dense 18 in; zoned or ringed for 25 in. Bottom 3 in. clear.

→ Will dye be more intense with depth tomorrow with more melting? Abundant dye still at surface.

Snow core moist and coarse, but beginning to under pressure. Some ice chunks near bottom.

No. 6 Snow 47 in. Core 45 in.
Dye dense 15 in; thin 8 in; 20½ in zones of 2½ in, 1 in, 5 in; bottom 1 in. clear.

→ Will dye be more uniformly dense tomorrow?

Temperatures (Portable)

5:15 pm.
Min. to date 22.2° F; max. 58° F
Rel. humid. 12 hrs last night 100%.
Wy red head station said there was fog here locally. Not as moist at Hotel.
H-T: Max. yesterday 57° F, today 55° F

Min. yesterday 23.5°F, Today 25.5°F
Snow firm all day. Melting not strong.
Snow Stake 46 in (48 C)
43 in (42 C)?

Planted more dyes to south of others.

Pits

18. Large melt bowls where dirt was thrown from swinging. Dirt much like railroad dirt. Chunks do not melt as fast as scattered dirt. Of course railroad dirt not so thick.

Broken Columns

Only one of six F. thermos has column unbroken. Take others to physics laboratory for revision.

Temperatures (Hotel)

6:30 pm.
Current temp: Min. 48°F ; H.T. 48°F.

Sunshine recorder 1" in. below contacts.
Sun 15° above horizon.
Sun pen on triple register reset loose.
Bar. high. Wind E.ast.
Overcast today. Lenticular clouds in East.
Felt like rain. Clear tonight.

Monday April 19 -

Weather

Clouds low. Min. H-T both stations 30°F
8:15 a.m. 36°F Wind fresh Humid. 88%.
Crust, but it yields readily.

Dyes

// Planted more color to south.
Crust firm but crystals moist to the hand.
Color takes immediately. Every blown particle registers. How long to bottom of snow?

Last Night's Dye

No. 2 12 in. to thin crust.
No. 6 $10\frac{1}{2}$ in. " "
Snow cover 44 in. deep.

Snow moist. Second foot packs, but remainder crushes.

Query: Will color descend if water does not?

→ The lower core will stain. So crystals must be wet. But the color does not spread beyond a tiny distance. All the better for our purpose.

#

The Coarse Snow

* Chemicals?

Found a still larger piece than 35 x 50 mm. Almost a cenem below. Are these crystals due to drainage? Limited drainage possibly.

Sunshine Recorder

Column 9/10 below contacts under thinly overcast sky. Note humidity and temp. Trace, Humid. 80%, temp. 36°F.

Lundberg - my red-haired scout - a sergeant. "Hurry, fabricator" - Beer.

Flyer

10:45 a.m.

New dye has penetrated.

No. 2 . . . 8 in.

No. 6 . . . 9 in.

* The snow that is colored packs somewhat. The snow below crushes. Both moist to touch.

Moist snow will take color but largely superficially.

Raining very lightly. Started about 10 a.m.

Snow firm for walking yesterday, hideous today.

Temp. 36°F on snow at Hotel.

Snow Survey

Snow survey Nos 1-8. Taken down into mud 9 in. Came back to reshellac Tube. Sampler sticks. Is it mud or cold snow?

FEDERAL AND STATE
COOPERATIVE SNOW SURVEYS

State California
Drainage Basin South Yuba
Snow Course Soda Springs No. 1
Party J. W. Church
Date April 19, 1943.

*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 Base							
	2	45 -.8	40 -.8	65.8	86.8	21		Snow light
	3	40.5	37	65.2	88	22.8		Snowing and raining. Snow firm at bottom
	4	36 -.3	34.8 -.3	66	87.8	21.8		Drifting. Ice crystals
	5	Road						
	6	45.5	43	66	89.6	23.6		Water covered ice crystals
	7	45 -.3	42.3 -.3	66	90	24		Wet crystals
	8	46.5 -.5	38 -.5	66	84.8	18.8		

*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.....

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
	8a	50.5	44.8	66				Soil 9 in.
	Sampler too clogged now. So back to shop to reshellac it.							
	8b	41 -.5	40 -.5	65.8	86.6	20.8		
	9	43	35	66	87.8			
	9a	42	38.5	66	88	22		
	10	43	40.6	66	88.2	22.2		
	11	42 -1.2	36.4 -1.2	66	84.8			
	11a	42 -3.5	41.5 -3.5	66	86.8	20.8		

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

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

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
	12	46	42.2	66	88	22		
	Snow Stake 42 in (h.c.) 45 in (gage)							
Average 10 meas.		42.1				23.1		
	Insufficient core snow NE of Trestle.							
		44	41	66	87	21		
		-1.5	-1.5					
		2.5		66	67	1		Size 1½–2 mm

Cannot cut coarse crystals. They squeeze out and because of "coreness" cannot hold up, but break down before the weight of the sampler.

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

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

12 Noon Hotel

Temps

Thermog. on platform 37.5 *

* Wind NW - Fresh alone on platform.

Thermog. midway 40.0°F

" on snow 40.0°F.

Sunshine Recorder

Sun all but coming thru clouds.
No disk visible. Column 3/10 in. below contacts.

1:20 pm.

Last Evenings Dyes

No. 2. Snow 40 in.
Dye has penetrated 30 in. or 10 in. from bottom
The 30 in. snow packs but contains frozen capital lumps.
A zone of 6½ in. at 13 in. down is bypassed by dye except on one side of core. Water descent from vertical is uneven.

No. 6 Dye penetrated 21½ in.
Packet ¼ in. thick at depth of 20 in. is loaded with dye. Brilliant.
Held up by ice crust.
But snow 1½ in. thick below packet is evenly dyed with an intensity only

half that of crust.

Core looks like scarlet-veined marble or alabaster. Do the denser veins hold more water and more discoloration?

→ Ryan on surface melting slowly but # seem to hold bulk well

Below the dye the snow crushes rather than packs.

Two chance spots of No. 6. Both have descended 19 in. evidently today's melt. 3/11

Today's Dye

Snow 42 in. deep.

No. 2. A trace has reached the bottom.

→ Top 10 in. intense indigo. Second 10 in. 50% intensity. Remainder 10%.

→ Grade the intensity. Of course more intense at top. More bulk there.

→ No. 6. Percolation to bottom unmistakable. Crimson is more identifiable than blue, especially in white snow.

Top 10 in. intense. 100%

Second 12 in. 50%

Bottom 25%.

Bottom snow of Nos. 2 and 6 pacific

but crushes some. Ice crystals form.

Original Planting of Spec

at north end of series.

No. 2 Only tiny side spot 100%.
Upper half 50%, Bottom 10%.
Percolation to bottom, but faint.

No. 2 Density Top and Bottom 75%.
Midway 25 to 50%.
White zones between and one purple.

→ Dose. 2 small screwdriver bladefuls.
For depths beyond 42 in. more may be better.

No. 6 uniformly colored — 50% at bottom. At Top leaves like rosettes.

Temperatures

Max. Temp on trestle (Pasture) today 42°F except for momentary Temp. 48.5°F at 2:45 pm.
Humidity now 2:45 pm 50%.
Rain ceased at noon. T or possibly 1/10 in. in can.

In snow at 36 in.
(a) 31.8°F in one hole.

Corrected	Centigrade	(−0.1°F)	average
2:45 pm (a)	−0.2°F	(b) +0.15°F	0°F
3:45 (a)	+0.2°F	(b) 0°F	+0.1°F
	average 0°F	+0.1°F above freezing.	

(b) +0.2°C in adjoining hole 1 ft. distant.

Exchanged thermos. & holes:

3:45 pm

(a) hole +0.1°C

(b) hole 32°F

Note — (b) hole seems warmer than (a) hole.

→ Test thermos. in same solution, as below:

In bucket of water

Fahrenheit thermo. 42.0°F

Centigrade " 5.6°C = 42.1°F.

Clouds creep over Beacon Hill. Cirrus overcast.

a few skiers. Same sit and eat and rest in their parked autos. Eastern Week. The tow will run this week.

A 500-mi. plane speeds west.

Snow Settling

Very little settling of snow and very sluggish descent of water as shown by dyes. 42 in. quite rapid

Try a warm day next time.

Corn Snow

Corn snow near Precip. Gage No. 9

Dpth	Core	Sampler Total	Net	Dens.
35.3,	27.5,	66, 86,	22,	62.3 % *

1–1½ mm frozen into clumps of 5 mm+ on.

Query: Do solid grains with large interstices contain more water than finer grains? Is the density of the coarse and small grains the same?

* 35.3 depth | 22.0 wt. | 62.3 % density.

Weather Record (Cont.)

	Temp.				Dpth		
Apr. 18	57°	14°			44 in.	NW	cldy
	Wind 732 mi.						
" 19	56	30	0.01" T	10am–12N.	42 in.	NW	cldy till noon. pt. cldy.
	Wind 846.1 mi.						

Stevens Type W

Buck back from Crystal Lake. Did not forget. Took motor apart.
Coil spring ~~on~~ ~~one~~ brush lost elasticity then heating up. → Need new one.
Runs when tied into an extra battery of 18 volts held in reserve.
Good news.

Insolation

In cloudy weather, the relatively warm, melting seems slow compared with effect of sun direct.

→ Try dyes in sunshine.

Tuesday, April 20/43.

7:15 am. Weather and Snow

Min. 30°F Snow firm and dry. Moonlight all night but very quickly clouded this morning at sunrise.

Good Radiation Temps.

Snow	Mtn. Shelf	Platform
24°F.	26°F	27°F

Frost and ice frost on sunshine recorder. Ohmm 8/10 in below contacts.

Stevens H dry at orifice.

Army frosted at orifice.

But body of H is becoming wet.

→ No frost in wind-direction bell. Triple register direction pens perfect all night.

Air Pasture humidity high all night. Temp. 26°F? Clear N.T.

Planted Dyes

No spread on hard snow.

Melting

8 a.m. Natal.

Overcast. 32° F. Parsnip dripping on ~~in thick~~ film of water. Humid, 50%.

Started ~~to~~ melt under dim sun.

Usually freezing at 32° F but melting.

Why? Insolation on opaque objects? But sunshine recorder is glass.

But snow still frozen.

Measurement of Precipitation Gages

No. 2* Exactly same depth as on April 16.

No. 3 Practically same depth – at best difference not measurable.

Need large funnel for rain measuring tube of No. 1

* Spread up paper in No. 2. Stevens W.

No. 4 WC 10.12 (21.12) in.

Recharge 2.705 (13.705) in

1 can calcium + 1 can water = 2 cans by volume

No. 5 Reset 10:15 am

Note slight increase yesterday.

Est. in No. 1, .01" ± T

1 (calc. + water)* (Rel. 1/2 2 cans calc + 2 cans water)

* 2 cans calc. + 2 cans water = 3 cans volume.

Snow Settling in Shade

Snow under arming at thermograph sank 2½ in. since thermograph was set out. Apr. 18 morning.

And the pendant or fallen electric wire now lies mostly above the snow.

Max. depth ½ in.

11:30 am. Pasture

Metal mixture for 5 gages is 5 cantons calcium + 5 cantons water.

No. 9 Wt 10.20 (21.20) in.

Refilled 2.80 (13.80) in (1½ cans)

No. 10 Wt 10.45 (21.45) in.

Refilled 2.84 (13.84) in.

Snow pellets falling. Ice pellets.

Melt has started.

No. 6 Wt 9.37 (20.37) in.

Recharged 2.17 (13.13) in.

No. 8 Wt 8.53 (19.53) in.

Recharged 2.03 (13.03) in.

→ Need a serving board at No. 4, 9, and 10 to set buckets and cans on while filling. Preferably 10 in. wide and reaching across top of towers Nos 6 and 8 have the stairs.

And No. 7! Near wreck. Lid of second drum pulled off and brass drum battered against every brace to the ground.

Screw this lid on. Need a shelf also to set cylinder on while changing sheet.

Same dents but forced all back.

No fresh ink. Set pen at 1 in.

→ Only 1 can (calc. + water) left for No. 7 but the usual oil.

Need more sheets to leave here in the case. Only one left; more at Hotel.

Level is now (8)

Found - Windshield at NE leg of trestle - Shell should it out,

At noon sultry, yet only 40°F. Airplane went above clouds.

<u>Gasoline for Calorimeter</u>

1 qt gasoline cached in snow by rack back of oil tank.
To Captain Brant: "It has a dinner name on the bottle". He: "If any fellow comes in drunk, we'll make him pay for the gasoline".

<u>Snow Remnant</u>

Snow mound under the remnants of Abbott & Costello's fake snowball on railroad. Looks like the sugar-loaf under the towel in Sci. Mo. But mound is arched beneath from melting by earth and track.

Prescrip. for Florence at Beacon Hill Lodge.

Wires for box-battery of telethermoscope.
Wire with knot ——o—— +
Plain wire ———— −

At Beacon Hill Lodge you must "climb" the stairs. You can't merely "go" up. Temporary? I hope so.

Make up a set of duplicate keys — for Arthur Comillard and myself.

Corn Snow - Final.

↗ Like Jimmie Yelland and the "tree in a Flower Pot," our corn snow is # mighty close to where we have been dumping cans of water with calcium chloride! That corn snow has been created by chemical rather than physical action. Next winter try to produce it.

Temps

Pasture 3pm.

Dry bulb 45°F

Wet " 39.4°F

Min. 44.4°F H-T 44°F Humid. 60%

For Period Min. 22.7° Reset 45.7°F

Max 57.8° " 47.0

"At Hotel max. and min. reset 2°F. apart, especially in 40's F" - A Corillard

---

Freight up - 1 puller and 2 pushers!

→ Readjusted Stevens Q to 1 in.

Dyes Today

Total snow cover 33.5 in.

No. 2 penetrated 14½ in 100% - 75% intact.
Balance of snow cover still white.

No. 6 13½ in. to crust. 100% to 75% intact.
19½ in. white.

White in both samples crumbles when squeezed. Colored core packs. Moist to wet.

Yesterday's Dye

No. 2 penetrated to within 7 in. of bottom

No. 6 penetrated entire distance.

→ Bottom of core with grass attached. 50% crimson Zone 1½ in. evenly colored. Upper 8 in. uniformly dyed. Midway alabaster.

Temp and Snow

Max. temp. today in 40's F the salty this noon.

Soft wet snow 2 3/4 in. Hard beneath.

Snow stake 44 in (JRC)
41 in ("A.R.")

Wrecked Shield Rescued

Rescued 2 slats and 1 hook with chain.

Current Temps. at Hotel

4 pm. Hotel

Min 42.3; H-T 42.6°F

Dry bulb 43.8°F.

Wet " 38.8°F

Frisz Clip

Rescued Curley's metal clip in base of Frisz tower.

Sunshine Recorder

Thickly overcast. Column 7/10 in. below contacts

Snow Shrinkage

Snow under canopy of thermograph in shade has sunk 2 3/4 in.

Compare with melting in sun.

Do - (a) Raise trellis of telethermocaper

(b) Close link on No. 6 gage.

April 21 (Rams?)

Project with Dyes

To determine presence and quantity of moisture on snow crystals.

1. Cut core in early morning and sprinkle with dye dust. See if snow is ~~solvent~~ – dry all way down.

2. Again cut core in evening and test as before.

But in both tests avoid sunshine.

Phone call from Major Bowie: Russian Mission prevented by bad weather from flying to Rams for conference.

April 22

Why not move the Telethermoscope to Pasture and erect it on four snow-poles to hold it about 4 ft. above ground?

Place one thermal unit in soil as Barnes requests.

Ask Arthur Couillard to read it each day when he reads depth of snow at snow stake.

Soviet Mission

One-half hour long-distance phone talk from San Francisco with Major Arnoldy for Major Vlasich.

April 23.

Answering 10 points of Major Vlovich.

\# Sent 6 type-written sheets and 11 lbs of literature.

Saturday,
April 24. Over to Soda Springs

Barnes came up Tues. Apr. 20 and left Thurs. Apr. 22. Interested in telethermoscope.

Arthur Caillaud readjusted sunshine recorder but it still slips back.

Good experiment in snow on south slope for two or three weeks longer.

Cat wouldn't work. Women had to snowshoe from Ice Lakes.

Weather

* Snowslides on Donner Peak almost invisible. Weathered out.

Clouds on top of Mount Lincoln.

Thunderstorm. Has been light precipitation since Tuesday.

Good breakfast at Beacon Hill Lodge

Water and Snow-melt

Lieutenant Benson trying to melt snow before Hotel with hose. But water burns thru it with scant

effect except flooding the yard.
Suggested shoveling the snow into the sunlight. Insulation best.
Cleaning grounds as far as railway tracks. Four loads of trash.
Showed Lieut. Benson how to read the barograph and triple register.

Dyes

11 a.m.

Stained No. 6 on full length of core. Moist but crushed. Dye is penetrating in semi-cm.

Planted No. 9. Brown on surface of snow. Snow soft and granular to crust 12 in. below surface.

→ Note - A crust is made up of agglomerated crystals will take moisture* if interstices melt. But clear ice will not. Shown by dye.

* color?

→ Therefore most crusts that in reality are cemented crystals are really watertight.

Resampled old dye holes. In most cases, dye shows to bottom of snow cover. But dye more intense near or at surface. In one case some of

original dye still on snow.
In two instances dye did not penetrate far. In case of one core, the dye brightened considerably in sun and became active.
Query: Do we need a greater bulk of dye? Traces persist for several days and to the bottom tho faintly. But below first foot the cores are semi-frozen.
The full length crushes more than it packs.
Min. temp. for period seems to have been approx. 30°F — cold but not low

Surface
Snow during Period

Snow has settled and probably melted.
Precip. 0.23 in. (Stevens Q)
Snowstake 3, in ("A.C."), 35 in (J.T.W.C)
At first, crust in morning and skiing good, but during last two days night temp. 40°F. Warm! Snow rotten. Melting fast. Today's min. 33°F (Hotel)
Herbert Bruner teaches skiing.
Study weather and temp. traces.

Ski Weather on Beacon Hill

Overheard from Woman Skier:
"Wind now at top of Beacon Hill terrific. Hot going up, cold on top. So must change midway."

Wind Shield Wreckage

Three more blades discovered found a few rods east of trestle on the snow. Two of them held together by a single line.
Take a picture of fragments.

Also found the supporting ring of wind shield at base of trestle directly below Dye No. 6.

Telethermoscope

1:30 pm.
Hans helped move telethermoscope to Pasture. No more snow at Hotel platform.

Dyes

3 pm. * Snow depth 29 in.

No. 6 Powder on core has reached bottom - 75% intensity top, bottom 25%.

No. 9 Brown, placed on crust, has penetrated. Top 75%, bottom 75%. Scant between. Stratum on bottom (ice) on bottom permeated by dye. Found the porous.

* Ground at Postoffice discolored by the dyes put on the snow Sat. Apr. 17 for Test; Strong dyes.

Cores mean pack rather than crust, the abundance of ice crystals like creased wheat thrust.

Water on Snow

In front of Hotel where they are now shoveling and attempting to flush the snow, the crystals vary from 2 to 5 mm. Water flows through with little effect toward melting.

→ Try a fixed depth of water and a fixed depth of snow (water content) next year thruout the winter.

Telethermoscope

5pm. Couillard and Hans returned. Elected Telethermoscope on timbers attached to Trubble.

Thermal units set in snow and watersoaked soil.

No. 1	Clear 50°F (max)	5pm 48.8°F
No. 2	Down 8 in; up 2 ft	32.2°F
No. 3	Down 20 in; up 1 ft	32.2°F
No. 4	2 in. beneath soil	41°F

Comparative Temps. of Air

Set up thermographs on snow, 5 feet up, and on trestle H-T to record temp. of air strata. Take photo.

6:35 p.m.

Trestle: H-T 41°F; min. 41°F

5 Ft above ground 40°F

On snow . . . 38.5°F

Snow getting firm but still packs with only a touch of crushing.

Have broken thru the snow much today.

Sunday, April 25

7:35 Temp. and Snow

Pasture. Thermog. on snow 30.5°F

Meganime 5 ft. 31°F

Trestle 32°F

Snow very hard, dangerously rough and slippery. Ground just slightly frozen but plastic and moist beneath. Cold SW wind. Clouds broken.

Dyes

Snow just illumined by sun.

No. 6 dormant

No. 9 - (Bismarck Brown) active, especially when screwdriver is pushed into

→ snow. Friction? Same effect tho slighter with No. 6.

→ Trace the spread of dyes thru snow cover.

Telethermoscope

(a)	No. 1	check 33°F (merc.)	33°F
	No. 2	"	33°F
	No. 3	"	33°F
	No. 7	"	47°F
(b)	No. 1	check 36.5°F (merc.)	36.5°F
	No. 2	"	33°F
	No. 3	"	33°F
	No. 4	"	104.05

Reversion to old action at Hotel. Good only for air?

Moisture in Snow

Cut core of snow.

No. 6 changed color in core below first 3 in. but did not penetrate. Top 3 in. dormant. Plainly frozen dry. Top colder from temp. drop last night. Slight traces of moisture lower – unfrozen tho. Core crushes everywhere. Some spots dormant and therefore frozen dry. Such are icier than

others.

→ No percolation whatever. Bottom of crust at top remained dormant for a time even in the sun.

→ Will not colder snow require longer to melt? Therefore, low minima will slow daily melting, and high minima increase it (?)

? What is the latent heat of melting in the two types today: (a) frozen top of core and (b) sub-moist bottom? a long study lies ahead -

Incidentals

Locked out of store-room. Chris on leave or detail. But Lieut. Benson found a way. Then moved house for a day to Postoffice.

Need scissors. Others gone. Mrs Jones? Daughter took them?

→ Last Friday Couillard readjusted sunshine recorder. Better now.

→ At which end of triple register cylinder should sheet be butted? Toward clock or away? Couillard from clock now because he obtains better alignment of wind-direction pens.

Spent forenoon in cleaning 4 kite anemometers from Tabea. These are four-cup instruments.

Test of Anemometers

Four-cup metric instruments on railing of platform at Hotel on level with standard ~~three~~ cup instrument attached to triple register.

1 pm.

Reg. standard . . .	411.4 mi.
No. 5	2984.0 Km
" 1	7013.7 "
" 0 . - -	7253.1 "
" 4 . — .	6484.0 "

Unusual

First time I've heard the swinging collar of Cape No. 3 Army Engineers hit the side of the tank in wind.
The wind is strong.

Comparative Air Temps

1:45 pm

Snow thermog.	37°F
Mezzanine	42°F *
Trestle	39.5°F

* Ventilation poor. Canopy close to thermograph.

Humidity 44% - wind strong.

Telethermoscope

No. 1	Check 42.5°F (mean)	43.5°F
No. 2	" " "	33
No. 3	" " "	33

No. 4* Oscillates 38, 43, 70°F

* acts slowly and finally shifts back toward more normal reading.

Snow Melting

Snow melting strong. Total depth approx. 27 in.
Very soft to 6 in. depth.
Note Humid. 44%, wind strong.

Dyes

No. 6 penetrated 6 in. Snow below crumbled under pressure.

No. 9 (Brown) penetrated 13½ in. Snow crumbles below.

→ But did No. 9 melt the snow and penetrate on its own strength? Snow colored near pegs.

→ No. 9 more active than No. 6. Melted cup at surface of 2 in., while No. 6 gave cup of only ½ in.

Is brown, being darker, more opaque and effective? Concentrated? Not safe as an indicator as compared with No. 6.

Sail Temp.

Care of sail on snow this morning frozen hard. Sail beneath trestle soft and plastic. Sail with fringe of snow on ice more solid than the bare sail.

Skiers

Very few skiers on Beacon Hill. Surface now good. Sinuous ski path glistens in sun.

"But skiers have heard that there is no snow & people have gone to Easter service."

Query: Why the "cu-ft." meters so fast? Metrics?

No. 2 Stevens W

3:30 pm Replaced brush (armature). Motor started at once but stopped soon. End of period?

Balanced weights by sliding weight and started rider about 2 in. from left end of weight bar to give bar a move either way.

5:30 pm. Comparative Temp.

Thermogs
Surface 34° F
Mag 33°
Trestle 35.5° (Max for day 40° F)

Yet surface of moss looses like surf of the sea. Evaporation by high (cold) wind or by melting?

Dyes

Snow cover 2.5 in.
No. 6 has penetrated to bottom.
Brilliance 75% ± 25%.

No 9 (Brown) apparently also to bottom but only a trace there.

Cores moist but crush and break under pressure. NB: yet the water has traveled. Is it more colder then at mid-afternoon.

Tele-thermoscope

No. 1	Check 41" (max)	43.4° F
	" 39.8 "	41.6°
No. 2	. . .	33°
No. 3	. . .	33°
No. 4	. . .	54.2+ (later 40° F)*

* By merc. in wet soil 33° F

Other Mercurial Temps

An surface of snow under canopy 36.5°F
(Corrected 34.5°F)
1 inch deep in snow under canopy 33.5°F
1 ft above bottom . . 32°F

6:45 pm Thermog on surface 34°F
Merc. therm. " " 34°F

6:45 pm. sunset.

Crusts

Even in sun the crests of snow are freezing and aspec. when made firm at bottom of footprint.

In shade even made crusted.

→ Wind-raw day, but snow leeves devastated. Wind panes and pits are forming as on high windswept ranges.

→ Plan to survey morning and evening on such days to determine how. Snow surface may possibly be too irregular unless number of samplings is high.

Visitors

Liett. — and Mrs Ware called at Potter from trip down Beacon Hill to see the methods. Freezing even there on Beacon Hill.

We was my roommate last night

and adopted my method of covering my face – he to sleep better in the daylight – as I did in Greenland.

Barometer

Barometer gradually rising as it has been falling for two days. Perhaps quiet tomorrow for weighing cans and sampler.

Drip ~~Thru Snowbanks~~

Do: Find bank of drifting snow and test dyes in it. Run bank along highway tonight between Beacon Hill Lodge and Donner Pass Lodge.

Remember the snowsheds and drip during the night at Cisco years ago.

Plan: A catch pan if possible beneath snow that shows only a trace of moisture and particularly on windy days like today (Sunday Apr. 25) to shoot dyes further.

" - Place anemometer in Pasture for a week.

Weather Record

April 17	59	21		47	W Clr
			Wind 668 mi.		
" 18	57	14		44	NW cldy
			732		
" 19	56	30	.01	42	NW Stormy with snow, then cldy.
			846		
" 20	52	30		40	NW cldy
			900		
" 21	51	34	.20	39	N Raining
			1027		
" 22	57	29		36	W Clr
			1108		
" 23	60	38		33	NW Pt cldy
			235		
" 24	54	33		30	W Pt cldy
			332		
" 25	52	30		28	W Pt cldy
			442		
" 26	52	15		26	NW Pt cldy
			526		
" 27					

Precip 0.25 in
Began 8:30 pm Apr 26
Mean 11 a.m. Apr 27

Monday, April 26.

Weather

8 am. Hotel. Thick frost - melting in sun.
Min. 15.2°F; H-T 17°F
Sun 30° up but sunshine recorder
column ½ in. below contacts.

Triple Register

→ Wind direction inactive all night.
Thick frost? None felt in bath this
morning.

8:20 am Pasture

Comparative Temps

Air over	Min. 15°F.	Present	28°F
Hay.	" 13°	"	30
Trestle	" 17.5°	"	29.5

Humid. 100% for 6 hours.
Current min. . . . . 31°

Dyes

Crust 12 in deep, solid fudge.
Snow below dry and granular.

Dyes No. 6 and 9 placed on surface.
→ Only single crystals slowly took color
like sunrise on the mountains of
the moon. What a color movie it
would make!

Telethermoscope

No. 1 Clear 28°F (mercury) · 27°F

" 30.2 · · 28.8 *

* ... itions

8:... frozen color on snow.

... crystal spray.

→ ... on dry loose

... . Frozen last night.

... dye on surface

... .

... below trestle.

1¼ ... . Roughly hexagonal.

lin... Giants' Causeway.

Ice on pool 5/16 in thick. Water sunk.

Ice-bridged pool.

Instruments

Barograph reset 9:20 am.

Triple register - wind direction works O.K.

Date?

6:35 pm

AT 44°

Min 41°

Wiley 40°F

Snow 38.5°F

39.5
9:30
6.5.16

Snow forming firm but still porous with only a trace of crusting

Broken then much today

Telethermoscope

No. 1 Chuck 28°F (mercury) · 27°F
" 30.2 · · 28.8 *
" 34.0 · · 33.0

No. 2 Practically at surface 20.6, 30.8°

No. 3 · · 33.2, 33.1

No. 4 In sand · · 35.4

* Thermal unit farther back in box.

Better records in frozen or dry conditions.

Flyers

8:50 am.

Nos. 6 and 9 have taken color on snow. Moisture can be seen in crystal spray.

→ Placed dye in hole on dry loose snow. Entirely dormant. Frozen last night. But scattered particles of dye on surface in same hue taken color.

Ice

Ice pillars in muck below trestle. 1¼ in. tall 1/16 in.+ in diam. Roughly hexagonal. Like Devil's Postpile or Giant's Causeway.

Ice on pool 3/16 in. thick. Water runs. Ice-bridged pool.

Instruments

Barograph reset 9:20 am.

Triple register - wind direction wrong O.K.

now in sun. Frost gone.
But the sunshine does not get record.
Shellacked snow samples.

Alyea

10:45 am Pasture
Humid. 10%, last night 100%
Cut core to test for moistness
Core tends to pack; is moist.
No. 6 changes color
Ground wet and packs.
Hole in surface made this morning now moist like frozen and snow dry.
→ Nos 6 and 9 decidedly. Test note
→ If cold tonight, cut core early for moisture test tomorrow. Warm melting temperature test also.

Ice Layer

Cat comes in to meet auto with Mrs "Boss" and then auto sits across railway track until cat returns. Then auto goes and cat sits.

Heat of Melting

11 am - 12 Noon.
Latent heat of melting - two experiments. In first forgot exact temp. of hot water. The other is No. 1 of Melting Series
Tomorrow work in Pasture.