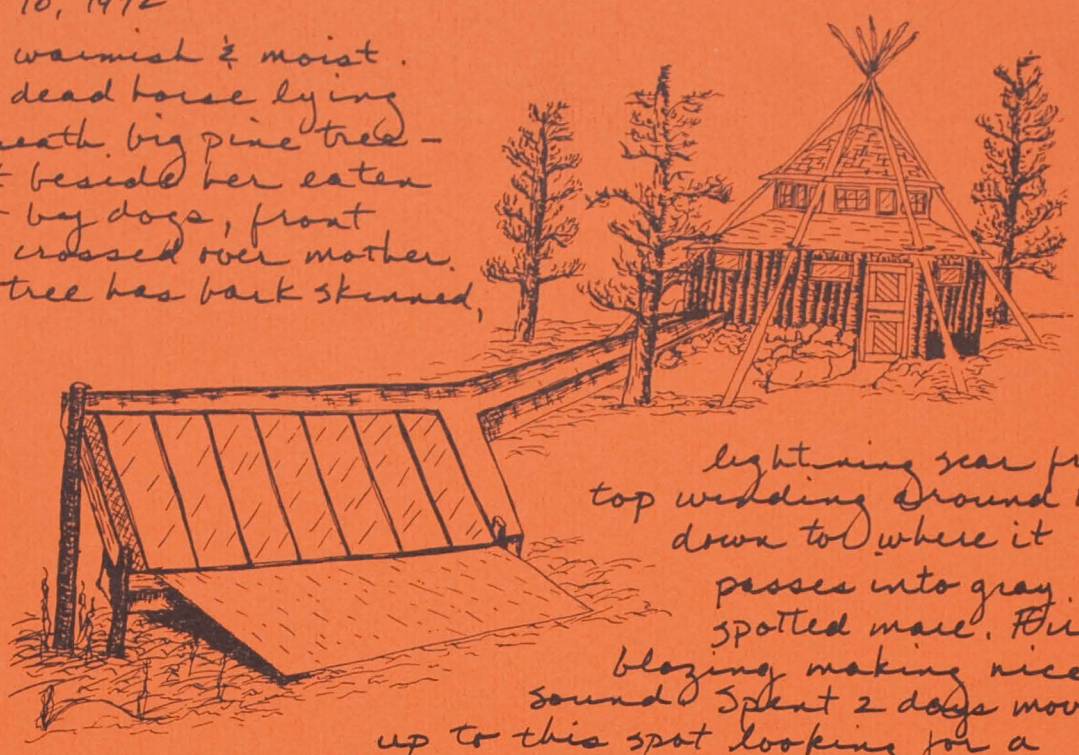
Sept 10, 1972
Air warmish & moist. One dead horse lying beneath big pine tree – colt beside her eaten out by dogs, front foot crossed over mother. The tree has bark skinned,



lightning scar from top wedding around 180° down to where it passes into gray spotted mare. Fire blazing making nice sound. Spent 2 days moving up to this spot looking for a place to build. Turns out Melody's grave is right up there behind the rocks. Learned today a Tibetan tradition that people coming down from a retreat sit & meditate around grave. So can't build here.

A HOUSE AT 8000′ ~A Journal

Paul Shippee worked fall 1972 through spring 1973 building a solar heated cabin out of native and salvaged materials at a Buddhist retreat high in the southern Rockies. These notes have been edited from his working journal.

Sept. 12

Morning notes. Coffee and a cigarette, a fly and ashes in the cup. House uphill. Anger (getting started in the morning). The long walk from bath house. Sun takes a while getting up here. This slope goes downhill to the west. Far ridge to the south 26° up (winter solstice sun angle supposed to be 22°). Wind seems to blow from all directions, changes a lot – hard from the west, then hard from SE, then, quiet. Can hear it blowing in the higher pines – sounds like distant ocean.

Set up a workdesk, button everything up from the wind. Down below in public area sun is up early, faintest orange glow on portals at 6:30 a.m. This slope goes downhill to the west, stretches out into Ratua valley to the south. High rocks behind us (north). In the east, uphill slope. Pines close by are highest to view so the sun rises late and we see the surrounding ridges and hills get sun before we actually see the sun. The last three days have been strenuous and tiring migration westward over hills and across meadows.

The first place we picked for a home site was near Melody's grave. Too near. Nice spring there, too. I dug a hole and overnight it filled up with clear water, overflowing by morning. Spent all day there feeling confused, unsettled, crowded by the grave, the proximity to retreat road, other vibrations that had gone on before regarding that spot. Claustrophobia from the wrapped hills surrounding the spot. By the end of the day it became clear I didn't like it there. Then people came and said another person wanted that very spot and a community meeting decided it was off limits to private houses. Relief to have confirmation of confused feelings of the day.

Moved the next day over the ridge to a spot on north edge of meadow. Set up tent again. Rain while everything is stashed in truck waiting to find place to settle. Unloaded truck into tent. Marked out site with circle of wheat seeds on ground. Set up kitchen.

Just before dark. Slept in public area near bath house for the night. Cooked and ate supper and breakfast on the stove in wood shop. Came back to that place at noon with truck loaded w/ scrap lumber and other things. Finally cleaned up old summer campsite near seminar campground.

Feeling uneasy because of steep slope all around new site. No place to rest. Mountain climbing is fun but you need a place to come home to rest that is level. I need that. Sat down feeling unsatisfied, unsettled, etc. Took a walk downhill a little ways and discovered a feeling of rest come into me at a spot almost to the creek. An opening to NW and you can see into the other valley. Trees nearby. Some level ground, and it's not so far to the bottom where creek is. Not that I like to move a lot but we better move down to this spot because it gives more restful feeling. The other spot appears ridiculous now, perched way up on that slope. Also the new spot is out of sight from the top of the meadow where someone else intends to put a house. Feeling of relief now to have found a spot that feels like home. Near to aspen trees along the creek. A little more exposure to wind here perhaps. But more access with a vehicle without driving across the whole meadow and making unsightly cut through there. Probably park back down to NW and make a footbridge across creek and walk up from there. Then when some heavy items have to be brought in, can go around and come in right along creek bank at very bottom of meadow.

Back in the trees a little I leveled a spot for the tent. Dug down a foot on one side of 10-foot square and put dirt on other side to make it higher. Set tent so door faces south. This gives east and west direction on either side of door. It's important to have level place even for the tent because of feeling of rest. Took 2-3 hours to level the 10'x10' patch but it was worth it. Now we have a base from which to operate. The migration is over and I can feel it this morning. Keep changing the spot where I want to put the hut as I feel the elements more. Sunrise, wind, south exposure, sunset. Just moving around inside a 100-foot diameter circle seems to make a lot of difference in selecting from the different kinds of exposure, so I'll wait a day or two before making the final choice.

Sept. 13

Going over the road I laid out last month with Krupka, land use consultant. We finally settled on the high road I had flagged after some consideration of moving downslope a little. The bedrock is as bad there as above so might as well stay high. It's better, in fact, for balancing the steeper grades. Trying to keep everything around 15% grade, except for one or two very short sections. He helped a little but not much. Mainly near the top of the draw he suggested coming wide to the west out of the only switchback to reduce the east grade to the very top. Keeping corners to 40-foot radius and flat as possible after the turns. His suggestion of using water bars to run off accelerating drainage was good. Although Dayton probably will know about that. The best piece of advice he gave was about not engineering the road totally, leave Dayton a lot of space. To use what Krupka called his "native intelligence." That pleased me a lot because it countered my tendency to control all the space. Working with people is so much fun and richness if you learn the stance of appropriate distance. Then the play can begin and you can feel the textures.

Sept. 14

The spring at the bottom of the meadow (where the retreat road makes hairpin turn) is at the downhill vertex of an equilateral triangle, the two uphill corners of which are each located in large aspen groves.

Perfect full spring.

Checking the levels with the hand level I find the water seep is at same elevation with three pines near flat rock right about where I think the hut will go. Going downhill west straight to the creek below us in the aspens the drop is 20 feet. So the creek develops 20 feet of head from its source to a point directly below us.

Found two other springs. One near Melody's grave and another across road from there at head of aspen grove. Good places both for spring box development. Retreat people can get water from these year round. 70° F. at 5 p.m.

Sept. 17

3/4 moon. Spent the day recovering from last night's drunk. Moved some large boulders at base of cliff behind us. Trying to locate spot for shitter. Has to be situated so that five-gallon can receives the shit and that can has to sit over a space to build a fire under it. The idea is to experiment with waste disposal in the mountains where bedrock near the surface makes leeching fields a thing of the past. If a fire under the five-gallon can once every two weeks (or one week – probably best to burn when half full) turns it into ashes then the problem is solved. It's proliferation of things in imagination mind I have to watch – like monkey jumping limb to limb.

Oct. 5

No sun. Looking at the site we leveled with morning coffee and cigarette. Brush hair, take vitamins, dress wounds with vitamin E for healing. Started digging on Sunday with Steve and Mike helping. Finished yesterday. Now have 20-foot diameter circle level. Level becomes a kind of special thing on this sloping hill.

Haven't been writing too much lately because it drains too much energy from the work. Makes me nervous and tight, too. Putting things down sets off association chain which somehow binds me. But still want a record of how things go.

Monday pick and shovel all day. Many rocks in soil. Mary getting rocks from hillside and carrying them to the site in a bucket. Packing them on downhill side as I pile the dirt. The slope is 1:5 so that makes 4-foot drop over 20 feet. We are taking two feet from one side and piling it two feet high on the low side. Tuesday all day with pick and shovel again. When we started on Sunday I thought the job would take an hour or two at the most. Now it's taken about three full days working from nine until six. Still, that's faster than pouring footings, and it probably does less damage. I keep thinking about preserving or at least working with the natural setting. Dirt I move is a building material.

Wednesday morning finished off the leveling work. Looks fine. From a distance the stonework on low side looks good. Like something growing out of the ground. Some rocks on the uphill side are too big to move. They are right on the edge of the circle so I left them. The eight-sided shape will leave most of it outside the wall so it's okay. Except for drainage which will have to be different than I planned because can't get below floor level to put drainage route.

Wednesday afternoon we hauled the lodge poles from the parking lot across the creek. Carried first one on our shoulders, then chained the rest to back of truck and drove them around. We have enough to raise the main ones. Then go cut some more. The downhill one has to be more than 30 feet. I set out the first four in cardinal directions using compass only because they were going to be put generally in that direction anyway and why not have them point N-S-E-W.

A lot of thought is being given to each aspect of the house, probably because I want to be thorough. Actually I don't hardly have a choice. I am that way. But anyway, since I'm not using conventional building materials there has to be greater care in putting things together. It's the discovering *the only way things can work inside the system of given limitations – sort of discipline in the recognition of necessity. Using the materials around I get an appreciation of the conventional milled lumber, 2x4's and such. What I get and what I give will balance with almost no margin for carelessness, wishful thinking, tripping or even the exercise of preference. Nature is severe, or at least balanced according to very definite laws, and if you try to work within that system without trying to* overcome *it too much you find yourself necessarily exercising a morality that is strict and earthy with not much room for squatting. The cold and the rain and the sun and the wind and the trees and fire and water are there but will not be subject to fancy manipulation if you do not have clever devices to exercise man power over them.*

Yesterday afternoon we set the first two lodgepoles in position for raising. Dug one-foot-deep holes in carefully measured positions so when they are raised they can be set into the holes. Tied them together tipi fashion where they are supposed to cross and hung a string with a knot 18 feet below the vertex. This knot should touch the floor at the center point. We laid the poles uphill and tied them together with ¼-inch manila rope and will pull them up from the downhill side with the long end of rope. Then as more poles are fitted into the vertex they will be tied by wrapping the rope from the ground by walking around the circle, again like a tipi.

The water from the creek is unsafe according to County Health. So we use it for washing dishes and mixing the dog food. Instead of throwing the water for washing and cooking away we put it into a bucket and use it to put the fire out when we go away or when we go to bed.

The shitter is built on a circle of rocks, a wood platform held down by heavy rocks. Looks quite good. Underneath is a five-gallon can which sits on fire brick so a fire can be built under the can. The idea is to burn the shit. I didn't know how much heat is required (another idea is to use a propane flame). So it is an experiment. The first burn reduced volume by more than one half. It took all afternoon feeding the fire and the smell was very bad even at some distance away. I'm sure the Health Department would never allow such a procedure because of the open emission of all that smelly stuff. Perhaps it could work out to put the shit into 30-gallon drum with table scraps and produce methane gas. The initial heat to get it working could be by a fire underneath (this is cold country) and then the gas could be burned in a flame under the barrel to keep it going. I'm not ready to try it yet because have too many other projects. Especially the solar heat. Which is going to require some experimenting before the system is constructed.

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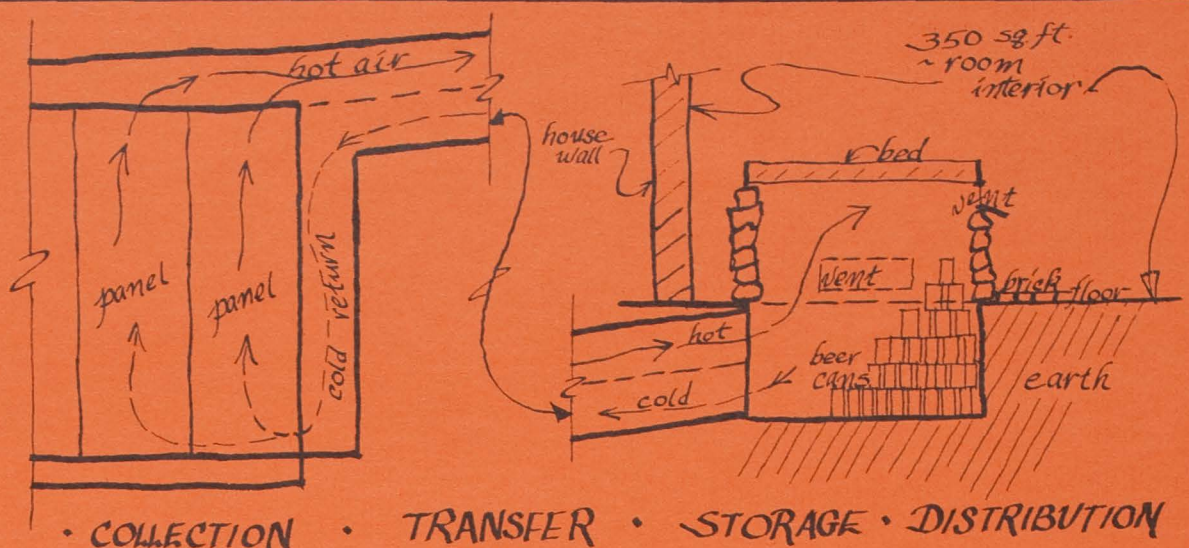

· COLLECTION · TRANSFER · STORAGE · DISTRIBUTION

- 84 sq. ft. black alum. panels
- 2 panels for 2 air flow sections
- 3" urethane insul. back & sides
- Wood frame
- 105 sq. ft. hinged reflector doors closed in summer
- collector angle 55 degrees
- outer glazing ~ clear Filon tedlar-bonded corr. panels
- inner glazing ~ 2 mil mylar

- 20 ft. long 2-way conduit box
- 5" urethane insul.
- top path hot air to storage
- bottom path cold return
- area section equal to sum of collector panel sections for unrestricted air flow

- 280 gal. water in 3100 beer cans stacked 1" apart
- enclosure: stone upper earth lower
- box dimensions 4' x 4' x 8'
- bed on top
- vents as shown

- cold air from room enters box thru vents at floor level
- warm air from box enters room thru vents at top of stone wall
- vent areas equal
- manual vent adjustment

· SOLAR COLLECTOR for HOUSE HEATING ·

free convection closed air loop to beer can water storage
no electricity on site ~ no moving parts

pws.

continued from overleaf

Oct. 19

Keep getting sidetracked (it seems) with the house. Takes half a day just to maintain the life we are living in the camp. Washing, bathing, cooking, building shelves to get things off the ground – just taking care of everyday business.

But the sidetracking springs from the complexities of seemingly simple project of building small primitive hut with sophisticated heating system. Sometimes I am thinking out three separate things at the same time. How I write into this journal is expression of generosity.

Been waiting to get together enough with chain saw and knowing what kind of dead wood log trees I need to go out and do a day of cutting. Problems of the solar collector keep coming up. I am building small 2'x4' trial panel now to get a foresight on problems before I build the big one. Test it. Feel the amount of heat. And watch how the condensation problem behaves. Spent some effort clearing up tools and tool boxes. Painting to rustproof against weather. Putting linseed oil on the iron tools. Lunch is ready.

Oct. 26

First two sections of wall up. Good feeling clearing out dead aspen from the grove and carrying it over the hill in truck and putting it together: house.

Change design of house: use two ideas I like, instead of choosing between them. Put the barn slabs on north side only.

Long nights, cold nights. Keep the kerosene lamp low burning in the tent for warmth. It's not yet much below freezing but I am on the edge of getting a cold, or else my back hurts, or stomach flu. Just yesterday sore ear and throat and eye. Keep working. Feel trapped as hell about this house – just have to keep going – pressed by cold and winter. Sometimes I want to stop so bad. Good to go through those feelings.

April 15

Looks like ten inches of snow out there, fallen all while we slept. The sprouts are coming up in the garden under the window. They were planted around March 25 and then left for ten days, covered with styrofoam, while we were away. I started watering them when I got back April 10. They had no water until then because of the cold while no one was in the dome. The thermometer stuck two inches into the soil reads a low of 38° on cold nights, up to 50° when the stove has a fire. I guess the horse shit buried in plastic under the soil four inches doesn't contribute to heating the soil. At least when there is no insulated cover. Haven't put the cover back on since I came back and started watering. The tiny sprouts look good coming up in these doubtful conditions.

Paul Shippee

The sloping site (east to west) and the unavailability of electricity preempted placement of the solar collectors on the roof or on the south side (without raising the building). It further suggested that the collector be detached (downhill and to the west) and that the fluid circulating between the collector and the in-house storage be air in a free convection loop.

Water storage capacity of one gallon per ft.² of collector in stacked coffee cans was placed in an insulated box immediately above the sloping, plastic-glazed collector.

The conduit box for transporting heated air connects the top of the collector to the storage and is insulated with 5" polyurethane foam on all sides. It is rectangular and divided into a top section for conducting hot air from the collector and a bottom section for conducting cooler air to the collector.

The storage compartment dimensions are 4 ft. x 8 ft. by 4 ft. deep. Half of it is below the level of the brick floor and half is above, enclosed by a 6"-8" thick stone wall on all sides. The top of the box is hinged so that it may be opened and is used as a bed for sleeping. It is insulated on top and on the side near the house wall. This allows some heat to escape to the ground under the floor and to the stones facing the house interior. The storage medium is containerized water rather than rock because of storage space limitations and to reduce drag on the air flow. Aluminum beer cans were filled with water and sealed with Saran and a rubber band. The storage unit contains about 200 gallons of water.

The distribution system consists of manually operated vents placed at the ends of the stone box near the house floor for drawing cool air from the floor of the house. Another pair of vents is located along the front of the box near the top, for letting warm air out of the box. The back-up is a wood-burning pot belly stove.