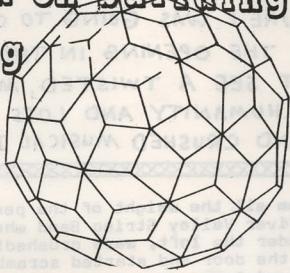


# a talk on building & living



DICK GROVER: It's been a real crazy experience building this....The essence of the history is that when I bought the property there was a mobile home on it, essentially sitting where we're sitting right now. It was a 60 ft. mobile home, fully furnished -formica counter tops, panelled walls and the whole thing. It had a big, expandable living room on it.....I knew it was nothing more than very immediate shelter and, in the back of my mind, had wanted to build a dome for a long time -four or five years. My initial concept and one that I still have and may build someday, is an underground dome into a south-facing hillside, out of cement. But...one thing led to another and we had more or less decided to build the dome a hundred yards over on the edge of the brook when a bunch of us were sitting on top of the trailer roof one day and somebody said, "wouldn't this be a great place for the dome, sitting up here in the grove of cedar?" That was the beginning of the idea and the evolution of it was that we put up 15 cedar posts and built a platform over the top of the trailer and built the dome. There were three posts that were inside the trailer. We had to cut a hole in the floor and a hole in the ceiling and drop it down through the roof to build the platform up above...all on the presumption that we would be able to get the trailer out. It was a very close fit, just with the trees, and then with the posts involved...The posts that weren't inside the trailer were only 6 inches from the outside wall. So it all started...We poured the foundations for the posts in the fall of '74...

MELLON GROVER: The first winter there were only foundations. We never got the posts up. The next spring we put the post up, and the beams...

D: Then the dome itself went up in about 6 hours -the structural part of it.

ROOTDRINKER: The components were all ready?

D: Preceded by about 2 weeks of solid cutting. There are three different strut lengths and angles...I set up a radial arm saw out in the yard and I had a pile of struts on one side of the saw and I'd set the saw-angle, and I'd move the pile from one side of the saw to the other just making a one angle-cut. Then, I'd readjust it -move the pile of struts back and forth through the saw until I got all the angles and

I JUST SORT OF WALKED AROUND SAYING "BLUE ONE HERE; RED, RED, BLUE; RED, RED, BLUE" AND THEN GREENS, AND UP IT WENT.

everything done....

D-Day finally arrived. We had about a dozen people here. Everybody had roles to play. My role was the architect, I guess. The whole thing was built by a model...all the struts were color-coded. We had stocks of blue ones, green ones or red ones and a lot of people with pockets full of nuts, bolts and ratchet wrenches and people manning piles of struts and hubs. We found where we wanted the middle to be and struck a big circle on the deck. We had an arch of south-facing windows so we spent about 20 minutes finding south and orienting that first bottom strut. Once we got that down, I just sort of walked around saying "blue one here; red, red, blue; red, red, blue" and then greens, and up it went. We got maybe 5/8 of the way the first night and had a big party and...



M: We slept under it.

D: We wanted to be the first ones to sleep under it...so we slept just under the structural elements in a sleeping bag. For sure...

R: If you didn't do it, someone else would!

D: Right. In fact, we were awakened early the next morning. Most of us were up pretty late partying. A fellow who didn't stay, came back first thing the next morning and he was climbing up the structure, ratcheting things together -he was determined to get it done- so everybody got up out of bed and in about another hour or two we finished it.

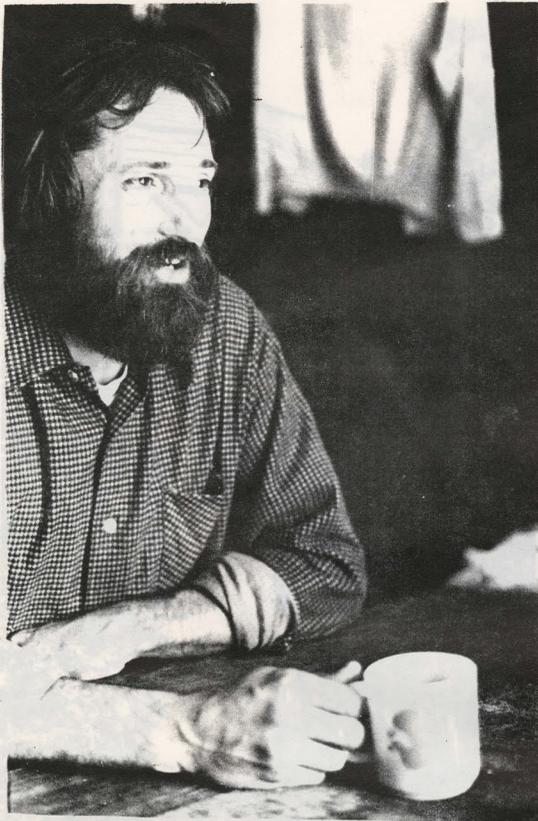
...There's a guy down in Person's Corners -Richard is his name. He built the big dome there. He and Ruth and Emod -their son, Emod, being Dome spelled backwards- came over that weekend to help us. After we got the final pentagon in at the top, it was just like a huge jungle gym. It's 16 feet tall and through the hole in the floor you'd look down and see the roof of the trailer..We were sitting up on the deck and he (Richard) said: "Well, I've christened every other dome this way, and there's no reason to stop now" -at this time Richard was about 40 to 45 years old. He jumped up on the dome and like a monkey on a jungle gym, climbed to the top of it and sprung up and did a headstand on the very top hub of the dome and held it perfectly vertical about 20 ft. from the top of the trailer.

M: Something else that's funny about all this is that Richard is hysterically terrified of heights. Richard would not get above the first four ft. level and to see anybody up there...he just shook. However, through the progression of the building...

D: I think I've overcome that. So that was the dome and from there on it was downhill because of the ease of putting up the dome which went so quickly. We shingled it the summer of '75, and pulled the trailer out October of '75.

R: What about the trailer?

M: The trailer is in Parishville as part of a trailer park owned by the Donovan's.



I WAS SURE I WAS GOING TO COME UP THROUGH THE OPENING IN THE FLOOR AND JUST SEE A TWISTED, MANGLED MESS OF HUMANITY AND LOTS OF BROKEN LIMBS AND CRUSHED MUSICAL INSTRUMENTS

snapped from all the weight of the people and the St. Regis River Valley String Band who were standing under the loft, were crushed!!! I went racing out the door and started scrambling up the ladder and I was sure I was going to come up through the opening in the floor and just see a twisted, mangled mass of humanity and lots of broken limbs and crushed musical instruments. It was running through my mind that I didn't know what kind of insurance I had and I was thinking of torching the whole thing. About 2/3 of the way up the ladder I heard the music still playing; no one had stopped playing their instruments so I quickly realized that everything was o.k. I got up there and everybody burst out laughing. I guess I came up through the ladder with terror in my eyes. What had happened was that from strumming on the ropes, all the snow that was up on the dome gave way at once and just slid down the arch of the dome so a couple tons of snow slammed down around us.

....The second winter after we got the trailer out, we got the downstairs closed in but not insulated. We had a round oak stove downstairs but with no insulation we just couldn't keep the place warm. So essentially, we lived upstairs. That was the year that my son Rich decided to move back up with us so there were three of us living up there and it was pretty cozy. We had a kitchen, bathroom and bathtub up there...

M: Of course, we didn't have running water.

D: There was no running water for the better part of the winter so it tended to be a little primitive but I think that winter proved something about domes in that I didn't, and I don't think anyone else did either, experience any feeling of confinement despite the fact that there were three people living in a very small amount of space...

M: with umoteen million articles of junk. Everything we owned was up there.

D: Yet there was no claustrophobic feeling. It was spacious - a good feeling. This past winter was the first winter we had both the upstairs and the downstairs to live in.

We've got a couple of unique things, I think. The pride and joy is the composting toilet. That was partly out of necessity. Being close to the brook, there is a sceptic tank that the trailer was hooked into but I was determined to do something better than that. So I got turned on to composting toilets but wasn't into spending \$1,000 or more. So I did some research on it and designed and built our own. It's essentially a 2-chamber plywood vault lined with fiberglass and tarred again over the fiberglass. It's vented

D: We had to chain-saw out one post and had to temporarily relocate 2 others and when we did that, the whole upper structure sagged some and it had to be propped with makeshift stuff -but we got the trailer out. We're about 3 or 4 feet off the ground now. We're in the floodplains. We haven't had water under the house yet but it's designed to take it. That was a really good experience getting the trailer out -there was always the shadow of a doubt that maybe we weren't going to be able to get it out in one piece... The dome is skinned on the outside with cedar shingles -and we learned, not to our surprise, that they don't bend around corners. You can't go more than four feet on this thing without hitting a ridge so we had a heck of a time putting up shingles and making windows... We got glass from salvage, Postsdam Urban Renewal. In fact, there's alot of salvage materials in this dome....For that first winter we had a wood stove up there with a chimney so we could more or less heat it but we really lived downstairs. We had a ladder going back and forth so one could go outside the trailer and climb up the ladder onto the trailer roof and then jump up onto the dome....The first party we ever had in the dome was a birthday party for Mellon who had 20 or 30 people over. The kitchen, again, was down in the trailer. I think Mellon was down cooking pizza in the trailer and everyone else was upstairs. There were a bunch of people over with musical instruments; there was alot of music being played and there were about 10 people sitting up on the wall on the dome...

M: which was held up by rope. It was supported along the back of the dome but also in the middle by ropes.

D: The whole thing was skinned in black plastic the first winter. It had about 2 feet of snow over the whole deal...and it was nice and toasty up there. Everybody was having a fine time. People were sitting up on the wall strumming along with the music on these ropes. I went down to the kitchen for some reason to help Mellon while everyone else was upstairs and there was a horrible crash...I mean it sounded like the world had come down on us. I was certain that the loft had collapsed -that one of the ropes had



through the chimney system that the wood stoves are vented into. It has been a very satisfactory arrangement except for its' inability to handle large amounts of liquids. The only solution I have for that is to put a urinal in. Basically, it's just for solid matter including vegetable matter. We found that we've really got to keep adding leaves, grass and mulches to absorb moisture and keep the decomposition going. Every 6 months I'll move it from compartment A to compartment B and at the same time I'll take the second compartment and move it onto the garden compost pile so it will be 18 months before it gets to the garden compost pile.

R: There's a criticism now about composting toilets. They're really good, but there's a question about using them as organic fertilizer. The latest thing I've read is that you really shouldn't. You should take it out and bury it. And if you want to dig it up and use it in a couple of years, that's o.k. The reason is because of health problems with parasites that live inside of people and also make it into the compost. It doesn't really get hot enough - it takes something like 150° to actually kill the parasites. Some of the more technocratic designs include heaters. But I don't see any problem with burying it in the ground for a few years. I think Gil Friend said it, or people who were thinking in terms of urban area's. Here in the country we really have no problem; there are a lot of places where we can dig a hole to put it in and let it sit for a year or two and you



can't really do it in the cities. But they still have the same problem with total waste of water that occurs. So it's just a problem with large scale application; it's not really a problem out here.

D: Well, it could be. I wasn't figuring on applied technology at all, just common sense. I know that the temperature is critical. I don't think we're getting a very high temperature in the compost toilet itself. We're getting decomposition but it's relatively slow because the volume is not decreasing... I got 2 wheelbarrows full of moist peat moss but that was only 6 months so it wasn't the volume reduction. I put it outdoors where it was exposed to air and sunlight and I layered it when I put it outside - 6 inches of material from the compost toilet, a layer of garden soil, straw, more compost, more straw, some lime. I put 6 inches of straw over the top of it and in the fall I'll work that into the

garden. So it's 18 months until it gets into the garden; then it's another season before something gets planted in it. Now, in the winter it's not going to freeze and thaw so that the winter in the soil may not mean anything biologically.

It's got a lot of practical features to it just in the way you live, aside from the liquids problem. To have a disposal area for all your table scraps is really nice. You just have no worries about the garbage bag starting to smell. The second thing is because it's air-tight; it functions on the principal of a stove with a down-draft so it's probably more odor-free than a typical bathroom with a ceiling exhaust fan. It's the opposite - it puts odors down and out a stack. During the winter when the wood stoves are going, I think it aids the draft of it....

R: I'd like to know a couple things. One, how much of a builder were you when you started and how much of a builder are you now? The other question is how do you feel about the environment as a home environment? People who look at domes from the outside and don't live in them sometimes criticize them in saying that it wouldn't feel homey and how could you live in a space like that?

M: Well, when I started, I didn't know anything. I had used a hammer to pound a nail when I needed to put up a picture or plant but that's all. I took a couple courses in carpentry as we started to build which helped build up my confidence and taught me some things that I could apply here. Given a different situation I might not have learned so much because it wouldn't have been necessary. In doing this, it was necessary because Richard doesn't have a lot of time because of his job. If I wanted things done, I had to do them myself. Another thing that helped is that we got a lot of wood from a lumber auction and it wasn't as financially critical as if I made a mistake I couldn't throw it out. I like working with rough lumber which we used to build the house - it's got a much sturdier feeling than finished lumber. In terms of space - I like the fact that there are no walls; that I don't feel closed in... there are rooms but they don't have doors and walls - you can see across the house without any problem. There's privacy vertically more than going to your room and closing the door. Richard can be downstairs working and I can be upstairs.

IT'S REALLY NICE LYING IN BED BECAUSE WE SLEEP UP AT THE TOP AND CAN LOOK OUT THE WHOLE ARCH OF WINDOWS AT NIGHT AND IT FEELS REALLY CLOSE

R: It's much more three-dimensional than most American houses that are lying flat.

M: It's really nice lying in bed because we sleep up at the top and can look out the whole arch of windows at night and it feels really close. Another weird feeling is when it rains because the dome is covered with cedar and if you're upstairs you have the feeling of being in a cocoon; the rain hits on all sides. I just like to listen to it when it rains because we're so close to the outside. Also, it doesn't leak!

R: I thought all domes leaked! It's important to realize that if you want to have a sealed roof that is round you have to really put some time and effort into it.

D: We did. We didn't spend a lot of money on it. The cedar shingles were almost the single, biggest expense. They were a bear to put on! But that was all the result of everything I read about domes that said the only way to make them not leak was to go back to the tried methods of shingles - not seam, tape, fiberglass, or caulk because it just won't work. So we used shingles and we had a couple of leaks but they've all been around windows, in the winter when we get a snow and ice build-up and water running up under a shingle; it's rectified by brushing the snow and ice off.

R: You might talk about the siting you did; you wanted the windows south-faced, the concept of

heating with wood and using passive solar energy.

M: The south-faced windows were an obvious choice in winter even before we ever had heat upstairs. The dome was covered with black plastic except for the windows which had clear plastic. You could go up there on a sunny day when it was 0° outside and it would be 50° inside the dome. There was no insulation - just black and clear plastic - although there was alot of snow on it. But you could feel the sunlight coming in and heating that space. You can still feel it in summertime because it gets very hot upstairs and we have a vent to even it out...

D: A lot of our energy now is going into optimizing what we get out of those windows as far as heating and ventilation is concerned. We just finished the vent upstairs which is a vertical column like a duct which, in the summertime, will draw cool air from under the house and push it to the top. It works as a cold-air convection pushing the hot air up the sides and out. In the winter, I'll either reverse the blades on the fan or just turn the fan around which will draw hot air from the top of the dome where it all rises and push it down into the cold corners of the house.

There's a significant temperature difference between the top and bottom of the dome. All our stoves are downstairs and it's nice in winter because we sleep up top and the heat does rise. We can shut the stoves down at night in the winter and in the morning, it's still very comfortable at the top.

R: One thing about people I've talked to about using windows to heat their house is that alot of people aren't building houses heated by solar energy, they're building solar ovens. Without understanding what is needed, people will go too far and build a whole side of the house in windows without having a vent, for example. Another point is what's called geothermal masses which is something to store solar energy; stone and water are the most effective. A lot of houses have all the concepts but have gone too far without compensating for the fact that it does work and you do store heat from windows.

D: We haven't consciously incorporated any collection of solar heat except through plants and pots - soil is a good storage. We have alot of potted plants around and we're planning to get more. It's a marginal kind of storage. The dome was built in a very piece-meal fashion. We went to the lumber auction and wound up getting some very good quality material and that wound up adding to the insulating qualities of the house. The outside siding has about a 1/2 in. air space between it and the sheathing. .... We've got three stoves and the one thing I refused to compromise on was a warm bathroom which is the reason it's open between the dining room and the rest. We put a woodstove next to the bathroom...

M: Not only does the stove keep the bathroom warm but it heats the bathtub also. It's very nice on a winter night because you can see to the top of the dome...

D: We had a big discussion here the other night about privacy. My son Rich is the only one who really has a room of his own. He's tucked way over in a corner and was complaining that he had no privacy; he couldn't have friends over without the 'old man' eavesdropping. He went and built himself a room out in the garage. So there have been discussions on privacy lately. There is a vertical separation; often when we have parties, they tend to break up into groups of people upstairs and downstairs, instead of one big group. It's totally separated that way visually, and there seems to be a fairly good separation acoustically.

.... In total, there have been alot of mistakes made in a long, drawn-out construction process, partly because of the design, partly because of the materials. When you're covering all your walls with four and five in. boards, it takes

a day to cover one wall but when you're putting up 4 by 8 sheets of panelling, it takes 1/2 a day, so you're compromising time-wise. Everything has been custom put-together in one way or another so it's taken alot of time.

R: I'm also interested in the planning of the house. I've known others who have self-built homes and very often there's not a blue-print. It's more organic. You know what to start on and somehow the house gets built around you. How much is that true of you and your place?

D: One hundred percent! I think the architectural plans were more hand-crafted...

M: If you look at those architectural plans and you look at what we're sitting in, they don't match very well. Practical changes were made here and there. The dome was built from the cardboard model. It had no drawn plans at all. All we had was a cardboard model with colored lines on it.

IF YOU LOOK AT THOSE ARCHITECTURAL PLANS AND YOU LOOK AT WHAT WE'RE SITTING IN, THEY DON'T MATCH VERY WELL.

D: The basic configuration was done in advance. That was all dictated by the trailer. And the floor plan has been dictated by orientation... orientation to the brook, the view of the brook, and the windows. This time of year there are newly hatched coming off of the brook and we'll sit here for a long time watching the kingbirds, the warblers and the cedar waxwings feeding on these insects. It looks out to the southeast and the morning sun pours in...



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