

## Gadgets

In a recent Scientific American there is a picture of a Neanderthal man; huge head and features, very hairy and pictured with a sea shell on a cord around his neck.

The article judges him to be one of the early humans because he had the shell around his neck. So, how does that make him human? Gaudy, useless jewelry? Is nonsense all around us? Maybe this relates to another problem I have. I think we live under a kind of spell. People are somehow stricken. How can they not notice most of the new shopping centers use no daylight, no windows, no skylights, only electric lights, yet the public believes they are entering a solar age? How can they watch the collapse of Building #7 of the World Trade Center on 9-11, obviously done with pre-set explosives, and believe the story the administration tells of all this?

In the Solar business 30 or 35 years ago we solved many of the problems of heating and cooling buildings by just using mass walls, windows and orientation. Today the DOE ignores the energy leaks in the house and instead builds expensive power lines from even more expensive solar power plants in the desert to heat and cool faulty buildings.

Ray Bliss, one of our great solar pioneers, wrote an article in the Journal of Atomic Scientists in 1976 titled "Why Not Build the House Right to Begin With". Bliss outlined what attention to orientation and windows could do. Cut energy use in half. It could be cut in half again today, the same way.

Of course, this is what we should be doing; it is what we were doing 30 years ago. New Mexico was prominent in all this because of the precedent set by the ancient Cliff Dwellers in our Land of Enchantment – the Indian Cliff Dwellers and later those who built with adobes. The passive solar adobe was our synthesis and triumph and did it ever work! While we are in this wonderful house let me go farther.

The Passive Solar Adobe can be vastly improved if there is a layer of insulation on the outside of the adobe walls – the north wall particularly for the shady winter weather where it will lose so much heat. The foam can be sprayed or nailed right on to the wall then plastered over just the way those experts on fake adobes know so well. But, I have forgotten something. I have assumed the house will be laid out close to a north/south grid and more that the long axis will be east and west so there can be enough south windows, with no bushes or trees shading them, to provide the vast majority of heat during our cold winter. North and south are rarely mentioned now – as if proper orientation were an unnecessary quality, regarded as an uncalled for prejudice. The layout of communities is now done more as if the earth did not spin on an axis, rather merely tumbled in space, all orientations equal as justice demands. As long as TV and radio are on schedule, what does anyone care?

So, back to the old Solar Adobe dream; some liked an add-on greenhouse along the south wall. Much of the south wall can be masked with a greenhouse where windows could be opened or closed to let the hot air pour into the house or remain. At Zomeworks we liked such houses because we once sold plastic double glazing with which to make the green houses (today check out Plastic Supply) and also we sold Big Fin™ passive inside solar water heaters. These were 8” wide aluminum

extrusions that clamped on ¾” copper pipe and circulated to a tank above them where hot water was stored and where supplemental heat could be supplied during cloudy weather. We sold hundreds of these in the 1970s and 1980s and dozens are still at work around Albuquerque. We plan to make Big Fin again. Only decades later did Chuck Marken explain to me what was best about our inside water heaters: the ¾” pipes were so large they did not become clogged with deposits. Thirty years later they still work.

A greenhouse floods your adobe with warm air on sunny days, heat is stored in all the internal adobe walls, or perhaps in a massive adobe wall clad in selective black – a “Trombe” wall - or, as in our 1972 house, in which Holly and I still live, a wall of water filled 55- gallon drums. Take your pick.

What if the weather is gloomy, even cold and gloomy, as can happen even here in sunny New Mexico? You may need a fire. We hope you have a wood burning stove. You see, as Ian Lloyd explained succinctly to me as he fixed up our house, there is always scrap, “wood happens”. Even in the yard, that limb that broke is not trash – it is fire wood! In New Mexico it is a rare winter day that a properly done Trombe wall, drum wall or south window doesn’t gain a lot more heat than it loses. Of course, your roof must be stuffed with so much insulation you could use it above the Arctic Circle. R-50 roofs are common today, a great improvement over 30 years ago.

Here is the problem. The public doesn’t want the simple stuff that works; they are human beings and they want gadgets. Remember that Neanderthal? Today our guides don’t care how many bison he killed or children he fathered, only we, his descendents. They want to see the shell amulet around his neck, useless, gaudy

stuff and most Americans are the same way. They want heat pumps with motors and copper coils, photovoltaic systems with inverters and wires. They want the kind of stuff for which they conned all of us to give solar tax credits, stuff to make you human, something to keep you from being a mere animal, like a toad hibernating in the dirt. The gadgets are certainly expensive, and the right ones do work and, of course, you have tax credits for gadgets. Some are just trying to stay warm and cool – other, evidently more important members of our tribe, are attending to ceremony which means gadgets. If this is difficult to grasp it is for me, too. Why gadgets?

Kevin, at our shop, was near mournfulness as he repeated the facts revealed to himself and Josh, our student solar whiz. People just like gadgets. And, moreover, Kevin and Josh know how to keep these gadget people happy with their new universal passive heliostat that is in the works.

I am stuck in the past, a mere animal as dull as a hibernating toad. How can people today not appreciate what we did 30 years ago? Today we even have people like Marjorie Mullany and her thermal shades, almost as good as a Beadwall, which stop nighttime heat loss. What else do you need for your house?

What about summer - no problem, it always cools off at night in Albuquerque. Shut the sun out and let the cool night air through. The adobe walls cool off. Then close it up in the day. Finally people's eyes light up – a chance to be human, to put in electric motors, to have computer controlled fans that turn on at night when the temperature drops and drive cool air through the house.

Did Neanderthal man stare out of his cave as easy- to-get game drifted off as he was reminded to put on his damned trinket? Not and stay alive. Maybe we could deliver junk AC units, gleaming broken copper heat exchangers and purposeful, but shorted out, electric motors. Duct work leading nowhere, hanging somewhere noticeable in our passive solar house, useless gadgets to make us human.

The Scientific American seemed particularly pleased when they detected paint on the sea shell amulets. Another distraction from the necessities of life, but who is in a better, more disinterested position to judge you than one of your kind who digs you up with your stuff tens of thousands of years later? It is not what you did that matters; it is your ornaments. How can such opinions run our society?

If you want to also stay cool in summer that is easy – at least in Albuquerque and points north above 5,000'. Just do what the old timers did. Open the windows at night. A cool breeze through the house will sweep heat away. You do need mass walls like adobe or block. To check your efficiency, take two jugs of water and place one within your house and the other sheltered from the cold sky somewhere outside. Equally warm in the evening, they are anything but equal by dawn. The average house can almost certainly benefit from better ventilation. You need a high up exit for hot air, a second story is perfect. A fan is not necessary. The vents and windows should be large, a percent or two of the exposed area of the wall and floor which are to be cooled.

The citizens and the market place know best how to divvy up the energy resources. Use the market place. We won't need a Smart Grid and power plants in the desert. We will settle for smart people who turn the lights off. We can use simple passive solar at the site. The market place, not the DOE, would leave us such wealth we

could later even pretend we never used it. We could have ceremonial solar kings and lab directors if no one allowed them to direct our economy. We could bury them with elaborate puzzling machinery.

“I bet that old boy only wore those damned shells when they buried him.” Just as I gather no one pays much attention to the Leeds folks any more – “expensive and bureaucratic”. We will let you have your trinkets and platinum awards if you first let us run the energy economy by what works and pays. What about the investment bankers? What about the government loan guarantees and grants that make the new businesses rich? How could anyone get as rich making plain old windows and adobe bricks? The self confessed solar visionaries are ruining our economy. The only match for the splendors of their dream is the vileness of their scheme to have you, the taxpayer, not themselves, pay everything.

Steve Baer

June 2010