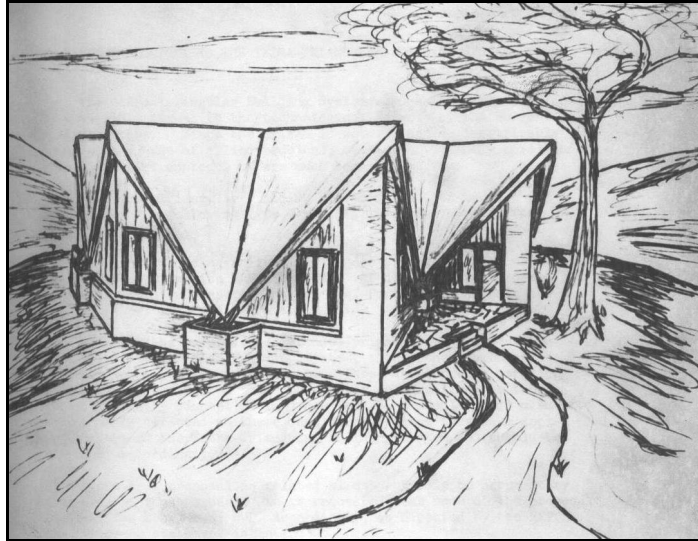


Tetra Triangular Building System

One does not go naked down the path to glory (which passes through the valley of the shadow of death). A costume is required.



The Tetra Triangular Building System was one of my most elaborate guises. I wore it off and on from 1967 until 1972, when a patent attorney charged me \$300 to answer a letter. Then I put the props (the models, the patent application, and the submission to Operation Breakthrough) in a box.

I first tried on this costume in the Celanese machine shop. The shop was located down the hall from the knitting lab at the west end of the basement. It had an entrance to the parking lot adjacent Park Road across from the Eastern Airlines reservation center. Sometimes, after lunch, we came back that way, past the lathe and the big hack-saw that squirted milky-white cooling fluid on the piece being severed. Returning one day in November from the S&W cafeteria where dressed-up old people gathered for lunch and dinner, we were greeted by a laughing technician named Bill who said that Kennedy had been shot. Bill didn't know if the president was dead, but he hoped so. My wife's father died earlier that month, forcing us to move in with her mother who couldn't be by herself.

(There was a billboard on US 74 near Kings Mountain that said "Impeach Earl Warren". And for state workers, like my wife, Confederate Memorial Day was a holiday.)

I don't know what I was doing in the shop in 1967. Maybe the machinists were fabricating a device for me. More likely I didn't have anything to do and was just killing time until 5:00 when I could get in my yellowish-green Volvo and return to Shelby.

I do remember inventing the building system (it wasn't called the Tetra Triangular Building System until Operation Breakthrough, when I needed a name). Feeling both

bored and grand, I willed myself to invent something. It was like flipping a switch. I noticed three triangular snippets of sheet metal lying discarded on a bench. This reminded me of Buckminster Fuller's geodesic domes, which are constructed from triangular panels. Picking up the machine shop snippets, placing them together in various ways, I wondered if they could be assembled into structures. That was what I would invent – another building system that used triangular members, but better than Fuller's system.

Wearing my costume now, oblivious to anyone who might have wanted to talk, I walked quickly down the long hall, past the break room, through the pneumatic doors into the yarn lab, between the aisles of spinning frames to the corner where my hosiery lab was located, and then into the little office that had been carved out of a corner of my lab. I shut the door to the sound of the machines that George, the technician who thought I was his boss kept running, and spent the rest of the afternoon sketching triangles and visualizing. I saw a parade of structures, from sheds to rambling mansions, apartments, office buildings, warehouses - all using triangular elements which I invented. Occasionally George knocked on my door with questions. At first, he just glanced at my sketches. Then, finally, he asked what I was doing. Outwardly modest, but inwardly seething with grandiosity, I murmured, "Oh, just messing around."

That night at home I cut out paper models. My wife and her mother, who had bestowed upon me the gift of benign indifference walked by the bedroom where I sat on the floor surrounded by scraps of paper stapled and taped together in odd ways, looked in, smiled and walked on.

The basic configuration emerged pretty soon. Combine triangular members side-to-side or base-to-base according to basic joining criteria. Following simple rules, an infinite variety of structures could be constructed from a single type of module. At the time I did not articulate the joining criteria. The rules seemed obvious - just like the correct combinations for assembling masonry blocks seem obvious now.

The first models were two-dimensional, made from flat sheets of paper. Folding the paper to create three-dimensional panels was trickier. It was an exercise in structural origami (which I had not heard of at the time). However, it turned out that one set of edge angles would allow the same module be used in all joining combinations.

These edge angles also seemed obvious, although 30 years later I am not sure. If my triangles were just another kind of building block, then perhaps the 90 degree edge angles between the sides of bricks and cinder blocks would not seem obvious to people living in tee-pees, yurts, and wickiups.

After a week or two the basic invention was done. I took off the tetra-triangular building system costume for the next year. I did not put it back on until I heard, while working as a Patent Investigator for W.R. Grace, about Operation Breakthrough.

However, I still crawled, walked, ran, and stumbled down the road to glory, wearing any one of the several other costumes available to me.

Copyright © 2006 Tom Weathers