

Participation Mystique

By Erik Nelson, P.E., S.E.

I came home from a busy week at work one Friday. Thoughts of overturning and base shear consumed me, and even when I was changing my son's diaper, I thought, why can't I use the friction under my baby to reduce the wind base shear demand? He isn't falling off the changing table after all. Why are we tying spread footings with grade beams? And I asked my 2 month old son, "What do you think Kinan?"

At that moment, he raised his arm, looked at his hand and got scared. He didn't know what that thing (his own arm) in front of him was doing, waving all around. His arm, apparently, wasn't his. So I lifted him to the mirror so that he could see himself. In the mirror, he didn't look at himself, or me, or even my eyes. Rather, he looked at everything. What I learned was that Kinan does not comprehend the world the way we do. He doesn't have the ability to separate himself from the objects around him. His arm was as much his as it was mine. He didn't look at me in the eyes, because he has not yet discovered himself as an

autonomous being. In other words, I don't think Kinan knows he is a little boy with two eyes and a body that is "his". There seems to be no "self" in the ordinary sense of the word. He believes he is everything around him, everything he perceives.

So, still in engineering mode, I wondered how buildings are considered or imagined in the mind of a child. What can a 2-month-old teach an engineer about buildings? It occurred to me, he already has. The answer to the question is simple. I need to see him as he sees me, that is, I need to attain participation mystique. The answer, my friends, is blowing in the wind; the answer is blowing in the wind.

There is a French anthropologist and philosopher named Lucien Levy-Bruhl who wrote extensively on the mentality of preliterate peoples. In his "Primitive Mentality", published in 1922, he wrote about inferior primitive men who suffer "participation mystique". Primitive men, for example, can listen to the trees. It is not simply trees blowing in the wind; it is trees talking to them and they listen. The trees are extensions of them and humanlike, and engage them in dialog as they wonder and learn from each other. Those with participation mystique can not distinguish themselves from the objects around them, but are bound to them. They are one.

Although Levy-Bruhl would disagree, I see this as a blessing not a limitation. My son Kinan qualifies and doesn't believe in our modern dichotomy between subject (himself) and object (the sink, his own arm, me). He is, or becomes, all that he perceives. There are no mental or physical (the skin) boundaries. Kinan can become everything and any-



Tapered ends of the brickwork at the column and spandrel intersection. Courtesy of Steven Szycher.

thing around him, with a psyche completely detached from the bondage of subject and object. You might say he is a master of Eastern Yoga. No meditation required.

We as designers of buildings can learn from this. We can have visions of the whole and "participate" within the object (building or material). If you have seen the movie about the famous modern architect Louis Kahn called "My Architect", you may remember him participating with bricks in dialog. It goes something like this...

*If you think of Brick, for instance,
and you say to Brick,
"What do you want Brick?"
And Brick says to you
"I like an Arch."
And if you say to Brick
"Look, arches are expensive,
and I can use a lintel under you.
What do you think of that Brick?"
Brick says: "... I like an Arch"*

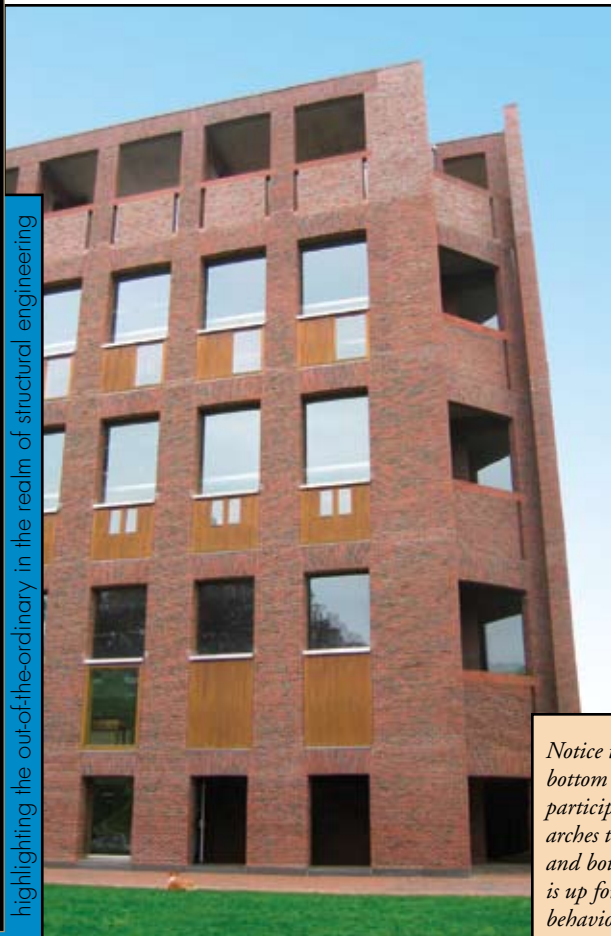
Here, Louis Kahn believes his students should engage with bricks, and ask them what they want to be when they grow up (and become a building). To answer this

Notice the brick flat arches without steel lintels. Also, you can see the brick piers taper from bottom to top, expressing the truth of decreasing gravity loads. It is clear Louis Kahn had participation mystique. He used the horizontal dimension of the flared ends of the brick arches to reduce the pier size at every increasing floor level. Two disparate ideas become one and both are solved intelligently. Whether this truth-seeking creates a beautiful building is up for debate, but his understanding of materials (brick in this case) and structural behavior is not. One reason why this building is great is the depth of internal dialog one gains while looking at the elevation. You may notice in the foreground, my Corgi agrees. ■

Louis Kahn's Philips Exeter Library in NH. Courtesy of Steven Szycher 2006.

OUTSIDE THE BOX

highlighting the out-of-the-ordinary in the realm of structural engineering





want to be a flat plate concrete building. I have many walls and closets to hide all of my required columns.” The truth of the materials, along with function and form, of the building, would then be debated. You see, form doesn’t follow function, but arise together by mutual understanding of engineering, architecture, and human concerns and goals. Those with participation mystique understand this (there is no dualism between function and form just like there is no dualism between the psyche and the material). They understand buildings and materials must be listened to, and with this inner dialog comes better understanding.

With participation mystique, we can use materials in better and more creative ways. Let us remember the goal of design is the same for all of us (Engineers and Architects); we want to improve the built world. So let us participate with it, and become bricks and wide flanges!■


Erik Anders Nelson, P.E., S.E., is a Structural Engineer with Odeh Engineers and an Adjunct Professor at Rhode Island School of Design. Any comments or insights relating to this article are encouraged, and can be sent to erik.nelson@odehengineers.com.

ffectively, one needs more than a good understanding of bricks. One needs to question them like Socrates would. One needs to become a primitive Socrates.

If my son were now an engineer with participation mystique, he would ask similar questions. “Hello building, what do you want to be?” With this dialog, he would design his building with all the materials organized to expose their greatest attributes (bricks in compression, for example). The appropriateness of one construction system would appear from this inner dialog of form and function as one. The building would respond “I



Flat arches known as “Jack Arches” – notice there are no steel lintels. Courtesy of Steven Szycher.



Rapid Set®

Advanced Cement Technology


• STRONGER • FASTER • MORE DURABLE

3,000-psi in 1-hour

- 10,000 psi in 28 days
- Adjustable Set Time (From 20 min. to 2 hours)

Compared to Portland Cement

- 70% Less Shrinkage
- More Sulfate Resistant Than Type V
- Better Freeze-Thaw Resistance
- Lower Permeability
- Higher Bond Strength



A Full Line of Rapid Set® Bag and Bulk Products are Available Nationwide
800-929-3030

1000's of Uses

- ✓ Structural Concrete Repair
- ✓ Vertical & Overhead Repair
- ✓ Precision Grouting
- ✓ Slab & Pavement Repair
- ✓ Smoothing & Patching
- ✓ Precast Casting & Patching
- ✓ Bridge Deck Overlays
- ✓ Anchoring & Doweling

Go to www.rapidset.com for Test Reports, Project Profiles and Specifications.

www.rapidset.com

ADVERTISEMENT – For Advertiser Information, visit www.STRUCTUREmag.org