Measures and Wishes

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Architecture has always been bound up with measure, yet I've often wondered how dimensions can be so obvious, so simple and so treacherous. Greek mythcredits Hermes, themessenger with winged feet, as inventor of measures, musical scale and games of chance. God of business and of thieves, his mutability is apparent in the daily work of an architect's scale. In thecontext of design, afixed standard of measure, even a single dimension seems to change constantly and formal decisions quickly become discussions of size and scale, will something fit or not, and do the numbers add up? Scale rule, and the compass are icon's of the trade inextricably identified with architects long since they have been replaced by the computer 's numerical dimensions.' In fact, the elusiveness of scale in computer drawings and our distance from the traditional instruments of measure open the question to inquiry and make it yet more pointed.

In this spirit second year undergraduate students were asked to consider measure not as a set of given standards but as a chance to speculate on relationships of body and place that might be measured or investigated and to invent new instruments for the task. They were asked to find a place nearby that they liked, to draw it and articulate the particular qualities that they found attractive, to investigate those qualities in that place and elsewhere and finally to invent and build a device that would measure or demonstrate the qualities that they discovered. The students worked over several weeks with a fair amount of coaching and class discussion. We began with the question: What do you want to see or know better about this place?

We considered measure as a game that did not have to have a scaleable outcome but might take almost any observed phenomenon, abstract it and manipulate it. Two general approaches emerged. Instruments were conceived as models of their own bodies: representations of the body that could be duplicated, cut up, transported and compared with other things and places as literal scale figures. Or devices could modify or extend the senses, allowing us to see qualities that we normally couldn't or didn't notice. Above all we could question an assumption that measure was a fixed technique that rides above the thing measured as a universal concept immune to the vagaries of place, time and their own desires.

Let me now digress to recover some of the theoretical background that supports these ideas, and I will return to the studio later. In particular I draw on ideas of Gilles Deleuze and Felix Guattari in A *Thousand Plateaus* as they might be extended to questions of measure and on Henri LeFebvre's more Marxist discussion of the social uses of dimensioning systems.

In the first few pages of A *Thousand Plateaus*, Deleuze and Guattari define an idea of a "rhizome" multiplicity, a series of relationships between things, ideas, people and places. They stress that such relationships stand opposed to traditional logical trees of cause and effect or hereditary similarity in that they are non-hierarchical and disregard boundaries of family, type and genre,

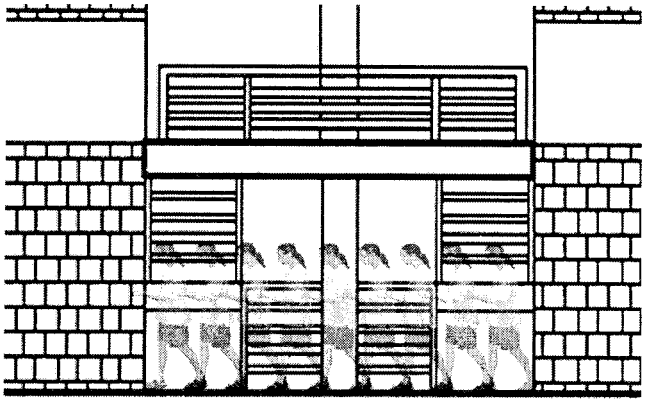

Fig. 1. Andrew Spaulding, pacing the hall. In a preliminary exercise, Andrew overlaid images of himself overa section of the main hall of the Architecture building, then distorted those images and overlaid them again to see how a differently sized or proportioned body would remeasure the space.

subject and object.? As an example they describe a relationship between an orchid and the particular wasp that pollinates it. The orchid evolves to produce a flower with a pattern resembling the wasp on its petals and the wasp evolves a long proboscis to fit the throat of the flower. Utterly dissimilar to one another, wasp and flower desire each other and enter a relationship in which they move together as a couple.[3] Wasp and flower have no hierarchy between them nor is there a sequential narrative; which came first? But they depend on, and reach toward one another across their differences, and because of their differences are attracted.

Deleuze and Guattari go on to deconstruct other relationships of dominance including those between concepts and things. Number and measure are denied their universality, "The number is no longer a universal concept measuring elements according to their emplacement in a given dimension, but has, itself become a multiplicity that varies according to the dimensions considered. We do not have units of measure, only multiplicities or varieties of measurement." Each number or each unit of measure is part of a flourishing bundle of associations, stories, and situations that swamp any single origin or logic.

In this scheme, numbers must be considered less as members of a sequence and more as independent qualities. Each takes on new meaning in each new context. For example, having one child or one parent is not simply half of having two children or two parents but a completely different experience. Similarly the first mile of a running race is utterly different than the 26th and every mile in between has its own story. Numbers, like other words, shift accord-

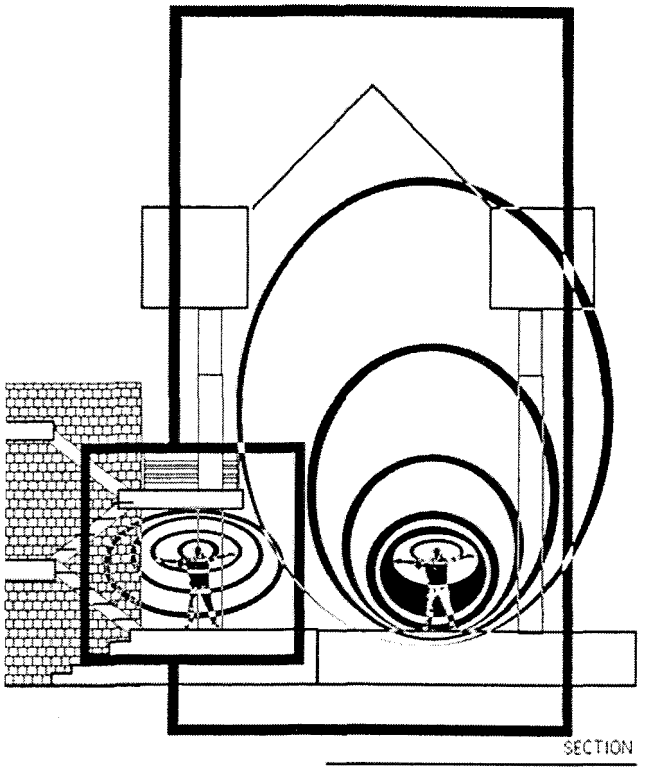

Fig. 2. Andrew noticed that his voice felt larger but his body smaller in the open area of the hall compared with an adjacent space under a stair landing.

Fig. 3. Michael Lippnrd, framing device transforms a perspectival scene into a picture. Device included an adjustible wing to measure angle of recession lines.

ing to their situation, in a "nomad science." Their beauty is that they do maintain sequential and mathematical relationships beyond all reason.

Dimension too are nomadic. traveling among real things, i.e. real bodies and landscapes, to make new couplings. Each new pair forged in the flight of number touches each other across their difference in a third arena foreign to both. Neitherone of the pair is dominant, yet, desiring one another, they arrange to meet in an abstract space of measure. Hermes travels for business, games or thievery. Measure traditionally is a projection of the body, a kind of effigy, abstracted into a yardstick that is laid across a landscape equally reduced to quantities: square footage or acres. Body and land leave their respective material states to meet in the realm of number. The body as yardstick, meaningless as a thing in itself, is defined by its use in relation to other things: land, fabric, buildings. It flies away from the corporeal body to connect with other multiplicities to find definition only away from its origin.[4] Thus estranged, it brings disparate things together into new assemblages so body and land meet in an act of math and magic.

Using this theoretical model, we can reread traditional architectural measuring systems, and I will take as an example Vitruvius' description of measurements of the body. Vitruvius describes proportional correspondences as the basis for beauty and order in the orders and in buildings, noting that the hand from heal to the tip of the middle finger is the same dimension as the face from chin to hairline. Hand and face fly together through measure as an assemblage, hand becomes face and face hand, calling out their desire for one another. Are they attracted by each other's expressive skill, or as they complement oneanotherin the process of making? Similarly the foot and body compare as 1:6, body becomes foot and foot body, both corporeal instruments of the will; and three parts of the face: mouth, nose and forehead.' The body is dissected into pasts and folded together again and again to form new relationships. Vitruvian man is then laid out and pierced with a compass to become a circle then a square so great is his desire for that geometry and the ideas already associated with it.[6] Man and circle fold together as a new universe that reaches toward architecture. Stretched and folded. pierced in the navel the body made its fit into a square and circle as if it had no substance. Vitruvius drew the body out of itself to draw it toward geometry.

These Vitruvian correspondences are poignant because his measures are full on both sides of the fold, body with body and with building, so the body travels as number into the fabric of construction as an other within the self.' In becoming architecture the body seeks strength and immortality while the building in becoming body envies the other's beauty."

In this sense Vitruvian measure as geometry might be seen not as a remote ideal but as immediately referential, a story told each time it is used. Through these measures one body folds into another intertwining layers of correspondence to create new multiplicities. Each act of measure constructs a different story from the landscape and projects its story and structure back onto the land as architecture to carry a pregnant cosmology. From this perspective, metric measures also carry a story, but this one refers not to the body but to the equalizing force of market exchange like the euro. By means of measure and money, vastly dissimilar things can be reduced to a comparable basis and sold. Measure acts in the world, redefining materials in other terms.

Henri LeFebvre, in *The* Production of *Space,* acknowledged the power of measures to construct social space, and to define the body within it. He imagined a time long ago and far away when each small tribe invented their own systems form an idea of their bodies and their own particular uses... "space, along with the way it was measured and spoken of held up to all members of a society an image and a living reflection of their own bodies."" He laments that such immediacy has been lost to conquerors and the equalizing forces of trade. "The adoption of another people's gods entails adoption of their space and system of measure. Thus theerection of the Pantheon in Rome pointed not only to a comprehension of conquered gods but also spaces now subordinate to the master space, as it were, of the empire and the world."

Now, of course, all localisms have been absorbed, but the same power that upholds aglobal standard also opens the way for infinite innovation below that level, within specific fields. New forms of measure are invented constantly to answer specific situations, particularly in fast changing fields like computer science. Architects too create new modules for new construction standards as need or

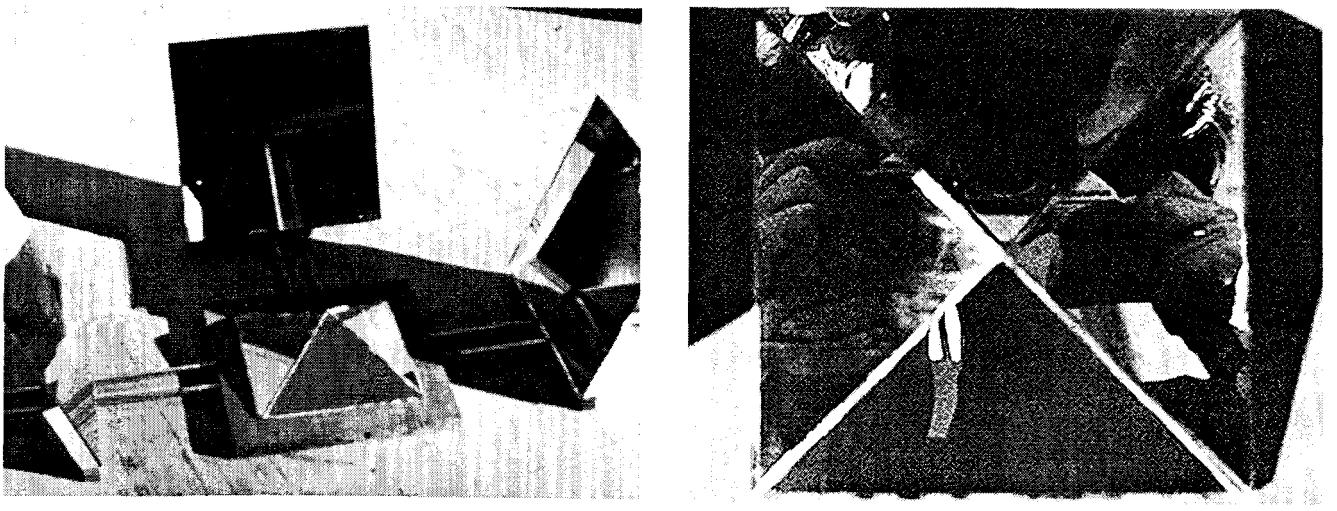

Fig. 4. Matt Suarez, collage mirror. Project made from observation of the fragmenting quality of multiple reflecting windows on building facades. This device reflects and splits apart the face, reassembling it as collage. Mirror angle and distance can be adjusted to test effects.

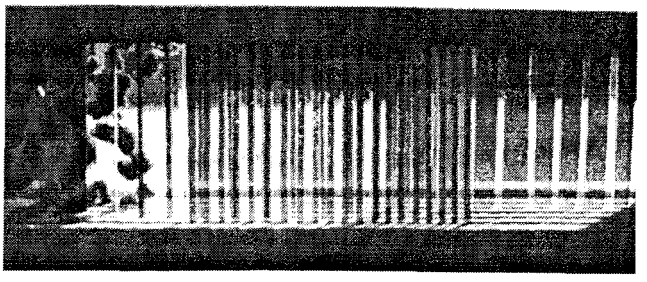

Fig. 5. Mike Lovaglio, Moiré screen. Multiple parallel screens with varying patterns can be moved in across one another creating complex rhythms that can be seen directly or as shadows on another surface. He had observed the play of shadows across a striated wall as the sun moved.

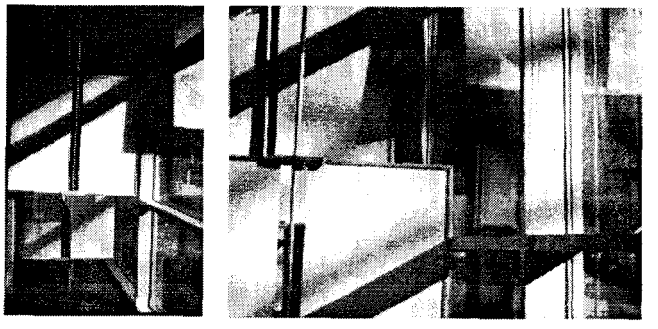

Fig. 6. : Carey Sikes, reflecting panels. Panels catch light and shadow from windowsandcan be adjusted in relation to the light and toeachother to create new patterns and to reflect light deeper into the interior.

design demand, each one carrying a different set of stories and different flights of comparison. In this sense Le Corbusier's Modulor seems less a proposal to compete with existing systems than part of an ongoing inquiry into the vaguries of architectural scale. As our situation changes, as our local landscape shifts, new forms of measure can and must take account, creating new stories.

In reconsidering its manipulations we might rediscover Hermes' flights, the quizzicalness and play of measure, its breadth, cleverness, thievery and possibility for invention. To see and measure things in aninventive way brings them back to ourselves, taking our eyes and bodies to them creating new territories for design. In a sense building is a form of measure, creating new positions to which we may fly and from which to see things anew. A building can act both as an effigy, a model or substitute for the body and as an extension of the body allowing us to do or see things differently. In both cases we are displaced slightly, off balance, and drawn out of ourselves.

So I return to the studio. Each of these devices acts on the body, taking it out of itself slightly either as an effigy or extension, prodding it into a particular position, distorting or dissecting it in order to engage a specific architectural quality that its designer found intriguing. The body, enamored with a bit of the world, lifts our of itself through a device that transforms both.

NOTES

[1] Marco Frascari, "The Compass and the Crafty Art of Architecture" *Modulus* 22, (1993): 2-15.

[2] This reminds me of Aldo van Eyck's insistence in the 1960s that "a city is not a tree" it's a network. Aldo van Eyck " A City is not a Tree" *Via I* (1973).

[3] Gilles Deleuze and Felix Guattari, A *Thousand Plateaus trans. Brian Massumi* (Minneapolis: Univ. of Minnesota Press, 1987), p. 9.

[4] Deleuze and Guattari, p. 9

[5] Book III, Chapter 1, paragraph 2 (p.72).

[6] I think of Francesco di Giorgio's drawing of Vitruvian man with feet so painfully distorted to reach the circle and Marco Frascari's insights into monsters passim but see in particular. p. 35, p. 55 andp. 111.

[7] Derrida described writing as constituting "the other as other in itself and the same as same in the other" quoted by John Leavey in introduction to p. 15.

[8] The permutations of relationship between body and column are complex and intertwined, see Joseph Rykwert, *The Dancing Column* (MIT Press, 1996).

[9] Henri LeFebvre, *The Production of Space*, trans. Donald Nicholson-Smith (Cambridge: Blackwell, 1991), p. 111.