Absolute Zero – Revealing the Void

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Abstract: *Which comes first, the walls or the space? The discussion in this paper explores the significance of the void in the development of innovative architectural space. It challenges the traditional perception that only 'positive' elements, such as walls, generate meaningful form; the void being diminished in the role of resultant 'negative' space. If our design process concentrates on the object as the generator of interior space, then, as is proposed in the paper, our ability to develop and communicate our ideas is limited by the inherent meaning of that object. If, however, we come to accept the symbolic language of materiality, then, as interior architects, we will invert this process and explore the subject meaning of our ideas before defining their form. This proposal is illustrated with reference to Daniel Libeskind, Coop Himmmelb[l]au, Michaelangelo, the vanishing point, the blank page, and the absent North Pole. Oppositional relationships are noted as existing within the symbiotic framework of the void; a place where we strip away preconceived meaning in order to find the zero-point of our ideas. In so doing, the negative is inverted and the void becomes a meaningful generator of architectural form, in a design process that enables us to define our intentions beyond the inherent influence of the tangible object.*

Keywords: *Architecture; void; zerocube*

Introduction

'Clay is formed into a vessel.
It is because of its emptiness that the vessel is useful.
Cut doors and windows to make a room.
It is because of its emptiness that the room is useful.
Therefore, what is present is used for profit.

But it is in absence that there is usefulness.' (Lao Tze, 640 BC).

This paper will demonstrate that the void is not only significant as a meaningful source of architectural form; it is also a critical component in an innovative design process.

The discussion begins with the significance of objects in the cultivation of our sense of self, and creates a link with the traditional concept that *positive* elements, such as walls and floors, are the generators of architectural space. The problem with an object-centred design process is that we are limited in our ability to develop form and communicate our ideas by the inherent meaning projected by the object.

The discussion continues with a focus on the significance of the void within the design process. Examples are presented where the void is seen to possess both organisational and symbolic properties that are as tangible as any solid wall. Excess/austerity; positive/negative; interior/exterior are all understood to exist within the symbiotic framework of the ultimate void, zero, the infinite mid-point between opposing states.

It is suggested that an innovative design process will benefit from an exploration of this zero-point between solid and void. Flexibility in the development of form can derive from our ability to focus on *what* is not, and by concentrating on the intangible we can reveal the complete form of our intent before we define the skin. In other words, we are free to develop and communicate our ideas without interference from the inherent influence of the tangible.

Where do we start in an exploration of nothing? Perhaps, to come to terms with the intangible, we must first examine our fascination with things.

The meaning of things [The problem with stuff]

'The things of the world have the function of stabilizing human life, and their objectivity lies in the fact that... men [sic], their ever-changing nature notwithstanding, can retrieve their sameness, that is, their identity, by being related to the chair and the same table. In other words, against the subjectivity of men [sic] stands the objectivity of the man-made world rather than the sublime indifference of an untouched nature' (Arendt in Csikszentmihalyi & Rochberg-Halton, 1981).

The object or 'touchstone' reminds us of who we believe we are, and connects us to others who share a common perception. In their book, *The Meaning of Things*, Csikszentmihalyi & Rochberg-Halton (1981) suggested that self is not a state of being, it is a dynamic process of becoming; a place where the self is, to a large extent, a reflection of the things with which we interact. The relationship between the person and the object is viewed as a transaction between two parties: we invest meaning in the object, and in turn, the object helps define our sense of self (Csikszentmihalyi & Rochberg-Halton, 1981, p. 3). The authors argued that a Cartesian approach aimed at discovering the so called 'real me' or the original self inside, ignores the significant idea of cultivation, an activity that is only possible because of the human ability to focus attention in the pursuit of goals. We use objects to cultivate our intentions and without these intentions we would have no meaningful interaction with our environment. We would not learn. We would not evolve (Csikszentmihalyi & Rochberg-Halton, 1981, p. 6).

As a result of this relationship objects and materials also develop an inherent meaning, a symbolic language of their own. An artifact from an ancient people, for example, can still convey an image of the ideas of that culture, even though there may be no record of how those people spoke or what they believed.

If the tangible elements of architecture possess an ability to convey meaning through their own inherent qualities, it follows that the choice of materiality and form is critical to the communication of our conceptual intent. If, in our design process, we concentrate on the object as the generator of interior form, then our ability to develop and communicate our ideas is actually limited by the inherent meaning of the object itself. However, if the object is not the source of meaning, it is merely the *container*, and as interior architects, the *contained* is our subject matter. In the search for form we must turn our attention to the formless. We must look to infinity and the void.

### Something from nothing [A useful absence]

About three years ago I was talking with a friend about her postgraduate research on the subject of light. Her intention was to explore the characteristics of natural light from five distinctly different locations around Australia, and then transfer her findings to a central location – in this case Melbourne. Her dilemma was that the tangible qualities of natural light are obviously reliant on their context, making any transfer of the experience impossible. Given the significance of context, I suggested that she might fabricate a series of identical, opaque vessels that could be ritually exposed in each of the five locations. The vessels could then be transported to the location of her display where the contents could be clearly identified according to the origin of each sample. The participant is asked to accept that through the process of ritual the light has been contained and, if they engage with this concept, then we do not bring the light to the participant we bring the participant to the light.

As has happened many times since, I was greeted with a raised eyebrow, a tilt of the head and a quizzical look that suggested I should go away. I did, but I have not been able to shake the idea since.

Although similar to the work of artists such as Roslyn Piggott – who has collected samples of air in test tubes – the significant difference here is that we encourage the *container* to communicate an idea of the *contained*. From an external perspective the vessel can be hollow or solid without affecting the basic transaction between it and us. We *objectively* experience the presence of the invested meaning. The vessel is both the void and the uncarved block. The void is as significant and as tangible as the material that defines it. There are only two problems.

First, the object must work on the premise that it communicates only the meaning that we intend for it. The object itself must be free of inherent meaning. Second, the object must be capable of containing multiple or new meanings without any trace of the previous. We call this idea the *zerocube* and it represents the start in our search for architectural form. It is not where we begin; it is the beginning that we must find if we are to create new and meaningful work. *Zerocube* is not an object; it is a process.

In the transition between objective exterior form and subjective interior space, the transaction between the object and the participant is completely altered. This idea informed the central thinking behind our competition entry for the Martin Luther King Jr. Memorial. The brief required a design that communicated three ideas about the man, the message and the movement. We discovered that these ideas were in fact one; that the human rights issue was personified in the man – Dr Martin Luther King Jr. History allows us the luxury of perceiving connections from an objective distance, where previously fractured ideas become unified at a single point in time. During the event, these moments often go unnoticed. The young reverend Dr Martin Luther King Jr was asked to speak to a small gathering because nobody else could. From this point on, everything changed. Our design response was born from the need to focus attention on this unnoticed but significant point of convergence. Our singularity was suspended in the tension that we created between two substantial, converging glass forms (Figure 1). In this contained space the participant can reflect on the powerful fragility of an instant, a point where movements are born and history is irrevocably altered. From this point of departure, the entire form grew. For the participant, the significance of the memorial was not predetermined, but was wholly dependent on the individual's ability to thoughtfully occupy space.
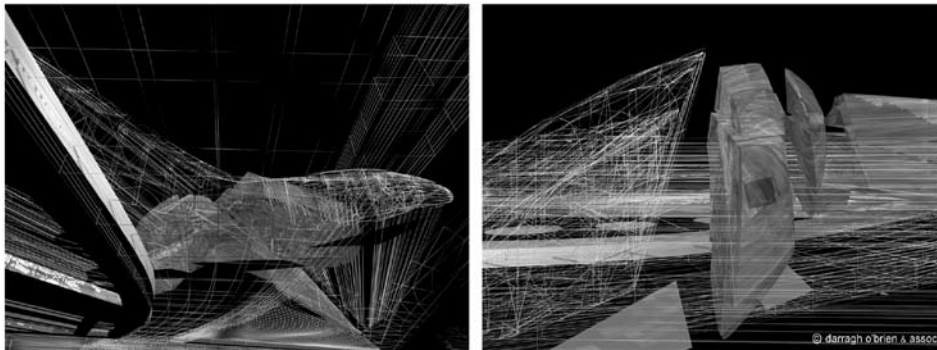
Figure 1: Details from a design for the Martin Luther King Jr. Memorial
(Drawing: Author)

For the design of the Jewish Museum in Berlin, Daniel Libeskind struggled with the challenge to communicate the potentially indescribable impact of the holocaust, not just on the Jewish culture, but on all of humanity. His response was to present the holocaust as a complete erasure, to be experienced as an absence in the centre of the museum. To achieve this end it was necessary to create an organisational framework that enabled the participant to experience not only the void itself, but also the *presence* of the void (Libeskind, 1991, p. 87).

'The void and the invisible are the structural features that have been gathered in the space of Berlin and exposed in an architecture in which the unnamed remains in the names which keep still…. this void is something which every participant in the museum will experience as his or her absent presence…. a new type of organization which really is organized around a centre which is not, the void, around what is not visible. And what is not visible is the collection of this Jewish Museum, which is reducible to archival and archeological material since its physicality has disappeared' (Libeskind, 1991, p. 87).

In the holocaust void, meaning cannot be bound up in the object, as there is nothing to display. History was literally incinerated (Libeskind, 1991, p. 87). The space stands in stark contrast to the fabric of its surroundings both horizontally and vertically, however the experience differs at each intersection. On some levels, the void is discovered as an interior space; it becomes *subjective* and the participant is invited into the experience of the victim. On other levels, the participant is excluded from the void, as it has been enclosed in the envelope of its event. This is the *objective* distance of history, a place where the presence of the void enables us to consider the infinite implications of the holocaust, and we are irrevocably bound to it through time.

Libeskind's work gives us insight into the nature of the void and helps us to understand how others can perceive the meaning behind our work. Programmatically, this void becomes as tangible as any wall or surface. The difference is that meaning is contained within the void and the *materiality* of the void becomes a resultant as the envelope is only designed to reflect the intended meaning. In the context of interior architecture, the void can be both a personal experience and can bring profound meaning to the perception of an object. In either case, it is the contained that defines the container and not the other way round.

The National Gallery in Canberra contains a void that delivers diffused, natural light to the sculpture niches on the ground floor. The void is approximately 30 metres long and 1 metre wide and separates art gallery from office space on the upper levels. This organisational element would be little more than a service duct if it were not for some additional features. The long walls of this space are solid but it is open-ended. We cannot enter, but for one brief

moment the art is gently separated from its administrative support as we experience the flash created by thirty, uninterrupted, metres of reflected light.

But what design process takes the void as its object? Are we to conjure invisible forms by manipulating intangible elements? In the eyes of the public, it may sometimes seem that this is indeed what we do, but the process often requires more sweat than it does magic. We must be clear now that the void is more than the absence of substance, the opposite of form, it is the starting point that we must find; it is the place without surface, the uncarved block, the blank page. This place is revealed through an open process that owes as much to destruction as it does to creation. To explore the void is to pare away the recognisable in our search for the familiar. We find the intangible by stripping away the tangible. This design process is not concerned with the polar edges of an oppositional state; it is concerned with the formless meaning of the threshold, the grey uncharted territory of zero, a place where we are free to explore.

The presence of nothing [Feeling the edge of the void]

Seife (2000) suggested that, in ancient Greece, zero was not a number it was a terrifying place. Zero and the void were one and the same and so the existence of zero was denied (p. 19). The followers of Pythagoras had no place for the intangible. Only chaos came from the void and the Pythagorean universe was designed to impose order on chaos, to rationalise the irrational. For the Universe to make sense, everything had to relate to a nice, neat proportion. Part of the problem was the tyranny of geometry in their number system, after all what was the shape of nothing? How can you have a square of zero height and zero width? Even if there was a number for zero, it could never be included in a ratio, as it would always consume the other number (Seife, 2000, p. 27). This view of the universe became so influential in the development of western philosophy that our object-centred culture is still suspicious of the intangible, after all, how do we deal with nothing?

Without knowing it, Archimedes came close to understanding the nature of the void. Mathematicians had never been able to determine the area of a parabola but Archimedes came up with the idea of using triangles to solve the problem. After first inscribing a triangle inside the parabola, he inscribed another in each of the two gaps left over and then another in the four gaps, and so on (Seife, 2000, p. 110). Although it would take an infinite amount of triangles – and there would always be gaps – Archimedes was able to *approach* the sum of the areas of the triangles, to determine the area of the parabola. The problem is that Archimedes' resulting form was not a parabola it was an *approximate parabola* (Figure 2). His process had created a new multi-facetted form; he just did not see it.

Figure 2: Archimedes parabola
(Adaptation: Author from Seife, 2000)

Michaelangelo was well aware of the infinite potential of the void. In his fresco, 'The Creation of Adam', the significance of the work lies not in the rendition of the figures but in the tiny space contained between the languid fingers of God and man. All of infinity is condensed into this measurable space where Michaelangelo often found his inspiration. When questioned about his sculpting process for example, he allegedly replied that when carving a horse he simply cut away the pieces of stone that were not a horse. Supporting evidence for this statement lies in the images of his incomplete work, where intact figures appear as found form in the incarcerating stone.

The idea of infinity is difficult to grasp, particularly when it is contained within a single point. A point, after all, is a zero-dimensional object – it has no length width or height – and in 1425 when Brunelleschi placed just such a point in the centre of a drawing our perception of space changed forever. This zero-dimensional object, the vanishing point, is a spot infinitely far away from the viewer. Brunelleschi realised that as objects recede into the distance in the drawing, they get closer and closer to the vanishing point. Everything sufficiently distant – people, trees, buildings – eventually disappears (Seife, 2000, p. 86). The three dimensional properties of height, width and length appear to shrink, and through a process of projection, the zero-point in the centre of the drawing contains an infinity of space. Scientifically, this point is known as a singularity and although it is often approached, it can never be reached.

During recent expeditions to the Arctic Pole, explorers using GPS have found that they are incapable of measuring beyond 89°59' north. Having come so far, they are reduced to defining a circle of approximately 7400mm in diameter. They shrug their shoulders and blame the limitations of technology, and in one sense they have a point; enhanced technology will enable us to reduce the diameter of this circle, but a trek to the pole is also analogous to converging on a singularity. Mathematically at least, it can be said that it is impossible to actually reach the pole. So, if the pole is not a point in space, perhaps it is a space; and if all of infinity exists in that space, perhaps that is where we will find our ideas.

The above examples may bring to mind our own professional void, something we are all too familiar with, the *blank page*. If the potential variations on interior space are infinite, if there are unlimited combinations of materials, forms and meanings, then where do we start? The answer may lie in how we develop our intentions. We can start where we like, but we must find the beginning.

Much ado about nothing [With apologies to William Shakespeare]

'Through our belief in the objectivity of technology and science, when something is measured, it becomes tangible – even those things that resist measurement' (Lindsey, 2001, p. 70).

Frank Gehry is a self-confessed illiterate when it comes to computers; he is suspicious of their accuracy and prefers hand drawings that cut through the paper in a *frantic search* for his buildings. For him the drawing provokes movement from one stage of the process to another (Lindsey, 2001, p. 23). Ironically, through a successful integration of computer aided design and manufacturing, Gehry has been able to extend the gestural quality of his hand drawing even further, confident that the increasingly elaborate forms are achievable. The accuracy of the digital model is balanced by the possibility for greater fluidity in the completed building (Lindsey, 2001, p. 54). Through the use of process models, Gehry is able to test the formal, spatial, and material implications of his gestural drawings, and as hundreds of these models are made for each project, the process is less about form making and more about finding the familiar. In other words, Gehry is forming the void.

Coop Himmelb[l]au start experimenting with rough, large scale models. The designs evolve from the inside out and the exterior skin is stretched beyond its limits. Horizontal and vertical slabs intersect, collide with each other, and rotate on their axes. The intense first sketches are part of a process of projecting a visceral response that attempts to purge every bit of architectural baggage, in order to plunge down to a *zero point of pre-architectural sensibility*. This process of exploration produces an emotionally charged result that retains all the energy of the void that is present in the first drawings. The work is not translated into recognisable form; the process drawing is literally built (Werner, 2000).

Architect and sculptor, Maya Lin, begins by imagining her work verbally and tries to describe in writing what the project is trying to do. 'I need to understand the work without giving it a specific materiality or solid form; I try not to find the form too soon. Instead I try to think about it as an idea without a shape (Lin, 2000, p. 3:05).

Different methods are employed here in the search for form. Although each will eventually use all three means of communication, one starts with drawings, another with rough models, and another with words. What they share is the desire to find the formless centre of the work, before they fix on the form itself. If, as in these examples, we also reject the preconceived form of our ideas then we discover unforeseen intentions contained within the possibilities of the void. We do not impose a solution; we reveal it to ourselves.

Conclusion

When a design process is focussed on the tangible elements of space, it is limited by the inherent meaning of the objects that we employ to define that space. At best, we can attempt to balance a montage of intentions derived from a recognisable palette of preconceived forms. The results will invariably contain conflicting messages that obscure our intentions, confuse the participant, and prevent us from discovering the full potential of our ideas.

If, however, as Daniel Libeskind (2001) suggested, architecture 'forever discloses its own openings but never sees its own end' (p. 17), then we need to find the unkempt form of our intent, before we define the skin. When we accept the edge of the void as the rightful focus of our attention, it guides a process that is open to the possibilities of the intangible, and to the discovery of new forms, new materiality, and new meaning. Our exploration is not concerned with the well-charted edge but with the uncharted threshold, across which we move backwards and forwards between solid and void, inside and outside, even excess and austerity.

This design process is a trek to the pole. With experience and intent we approach the zero-point of our ideas, a finite distance that can take an infinite number of steps to reach. The process is not about the achievement of our intentions, it is about the attempt, the journey that we undertake in our search for forms that we could never imagine at the start. Unlike Archimedes, we can come to see what we have, in our pursuit of what we want, or to paraphrase Louis Kahn; we reach a place where we can discover what the building wants to be.

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