ARCHITECTURES OF VIRTUALITY

Emergent Technology vs. Residual Humanity

Andreas Luescher
Bowling Green State University

INTRODUCTION

Of the numerous techniques and manners which have dominated architectural drawing during the last century none has affected architecture and the way it is taught in academia as significantly as computerism. Computers offer representations, which embed possibilities for sensual engagement, virtual exploration of material and a connection with the electronic images and animations of the designer's imaginary vision. However, this potential for immersive dimensionality—once touted as one of the computers most revolutionary potentials—remains screen-bound, small-scale and impenetrable. In evoking architecture's visual qualities alone, digital images foreclose on the possibility of representing not just the objects of architectural experience but the qualities of that experience which emerge from a synthesis of touch, sound and movement. Screen-based computer images can never be embodied spaces. Still, these representations require the participation of the user and the experiences may enhance intellectual, sensual emotional and even bodily understandings.

Movement may take place in any space and is understood as physical bodies moving in space, the projection of body and movement into a space by person, the movement of physical objects in space. But movement of bodies in space becomes irrelevant when talking about visual communication because visual communication and interaction has as a prerequisite immersion and this immersion is psychological. When representations are not just visual but material and the interaction is both physical and psychological the experience takes visual communication out of the spectator or observer perspective and into the perspective of the actor —interacting with physical material (Nielsen, 2002). My discussion here moves around the simulation of a full spatial experience with horizontal, vertical and temporal extension. Historical evidence of visualization techniques of environmental representation which incorporate possibilities for sensual engagement, material exploration and a connection with the real provides a counter to the diglossia spawned by promoters of digital culture. In attempting to historicize immersion techniques I wish not only to deflect the condescension of the digerati which positions all analog media as anachronistic and innocent compared to the fundamentally and necessarily new digital media, but to encourage an embrace of all representational techniques in which the idea of dynamic, physical involvement in the process of creation results in bodily, sensual, emotional and intellectual understanding. Of course, space and movement may be perceived as physical or virtual space. For an architect to render "place" as a physical, concrete instance—a visualizable example—bears no shame. An interest in addressing the tangible in no way renunciates the purely conceptual space of the human faculties: imagination, cognition, and judgement. I hope to contribute to the discourse which argues for creative use of the interplay of different orders of drawing in attempt to extend the dimensions of flat, dematerialized projections of the computer and reintroduce what might simply be called existential dimensions into an representational agenda that has become predominantly conceptual as opposed to physical, rationalistic as opposed to experiential, production-oriented as opposed to purely investigative. My perspective is architecture and educational models (design representations) as opposed to those of the computer, or interface design, thought it is clear that understanding the relation between physical space and the movement of objects is important for the design of dynamic representations (virtual or tangible) which may embed possibilities for sensual and emotional engagement. The relationship between the physical spaces architects' design and the ways in which people move through them is the core focus, and, by extension, improved functionality —as seen from a user's point of view.

PHYSICAL EXPRESSION OF INTENTION

For architects, understanding the relation between physical space and the movement of objects is essential for the creation of dynamic representations, which embed possibilities for sensual and emotional engagement. After all, we live life and understand it from an embodied point of view. We are immersed in life, whatever actions we engage in—we are not outside it (Winograd and Flores 1984). The psychologizing of spaces and the physical relationships among people in them, the dramatization of behavioral factors: these are dynamics with which all designers of space contend. How can we investigate the way in which various behaviors modify spatial perception? If we

are concerned with the experience of architectural space as opposed to the ossification of ordinary movement, what medium is most productive? If the goal of design education is an appreciation of the ontology of space; the phenomenology of space; the shifting perspectives and temporal dislocations of space, then representational media which can translate the experience of objects as perceived by dynamic, temporal vision—old or new—are welcome. All designers of space contend with the psychologizing of that space and the physical relationships among people in them. For a room to become a dynamic frame, actively directing and guiding observers without aspiring to an over-control of the environment; to dramatize the behavioral factors, we must take opportunistically from whatever representational palette suits our need.

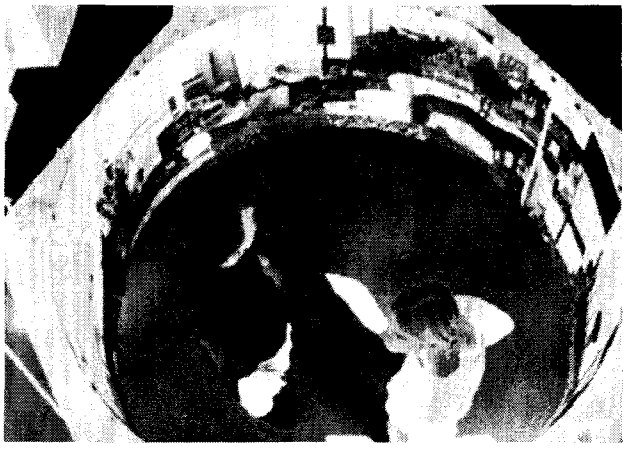

Fig.1 Under the direction of Professor Luescher, graduate students produced a 360-degree panorama installation piece, 1999.

THE UNSELECTIVE VIEW

One of the most important and unifying formulations in art of the second half of the 20th century is the idea that spectators might enter a painting or sculpture and that, in being surrounded by it they are in some way part of it. The idea is not a new one. For centuries a central issue for both artists and architects has been the representation of three or more dimensions of information on two-dimensional display surfaces and, further, the simulation of a full spatial experience with horizontal, vertical and temporal extension. Numerous combinative techniques and devices have been utilized to produce realistic images of solidity and depth in space (the transporting illusions of Baroque ceilings being just one example) and equivalent amount of ingenuity has gone into developing methods which adjust solid form to the cumulative, perspectival nature of visual perception, such as entasis and stereotomy. Prior to the development during the Renaissance of the transportable easel picture (which for the sake of discussion is analogous to the computer in the sense that it creates a disembodied visual experience) the architectural and the pictorial were inextricable. The history of attempts since then to create images not formed within a rectangular boundary but like vision, as per Aristotle "unbounded", speaks to persistence and generalization of this ambition. Among those attempts, the nineteenth-century Panorama stands out for it's unprecedented scale and the ambition of its dimensionality (Figure1).

In the mid-1780's Robert Barker (1739-1806), an Irish portrait painter and teacher of perspective in Scotland settled the mechanics of inscribing an entire three hundred and sixty-degree prospect or view. His first complete three hundred and sixty-degree picture was opened to the public on January 31, 1788 in Edinburgh. The radius of the circle is estimated to have been only ten feet, making an enclosure so small that six people could only have viewed the painting at a time. Presumably this relatively small scale was detrimental to the effectiveness of the illusion which depended on distance to reduce depth cues (subsequent Panoramas were fifteen hundred square feet and larger) but despite this and other limitations imposed by makeshift viewing conditions in halls the exhibition was an instant success. Qualitatively different from looking at a picture isolated within a frame, Barker's Panorama made it necessary to move not only ones eyes and head, but also the body in order to assimilate the vast continuous picture.

The nineteenth-century Panorama was a representational experiment in which "scenes" were understood to be not merely visual but embodied perceptual events that were, like architecture, accumulated in successive glances from many angles over time by moving participants. Likewise, "tectonics" was understood not merely in terms of the Vitruvian concept of solidatas, the tenet that architectural image is primarily built form, but in phenomenological terms as well. The Panorama supplied a stimulus for an enlarged, unconventional mode of perception and expression: namely the unselective view. These huge and hugely popular indoor spectacles provided a new, more comprehensive way of seeing the urban landscape and fostered awareness in the general population that the organization of the physical environment was not restricted to a single building, street or space.

INTERCHANGE STATION BETWEEN PAINTING AND ARCHITECTURE

The Panorama emphasized the dynamics of vectors as opposed to the static dualism of mass and space. It concentrated perception on the forces of containment and diffusion; and on the easy interchange between the visible and the tangible appeared again early in the twentieth century in the constructed quality of new representational

investigations. In 1915 his essay, From Cubism and Futurism to Suprematism, Kasimir Malevich (1878-1935) proposed a type of painting which emphasized not composition, color, or form but rather the qualities of the vector: in other words the weight, speed, direction of movement. In the early nineteen-twenties the Russian visionary Eleazar Markevich (El) Lissitzky (1890-1941), deeply influenced by Malevich's ideas, developed his own theories about painting as a precursor for architecture. Lisssitzky was interested in the experience of enclosure and movement and he went on to theorize—in a most concrete way —about the bridge he intuited between painting and architecture. During a brief stint as professor at a post-revolutionary Vitebsk Academy of Art, was renamed UNOVIS (acronym for College of the New Art), Lissitzky taught a course with the intriguing title: "Monumental Painting and Architecture." During the same period, he directed his architectural studio students to design directly on an experimental field. Instead of using a conventional scale of 1:10 on paper. Students 'drew' on a scale of 1:1 in solid materials (Lissitzky-Küppers, 1980). This experiment in fully dimensional drawing was intended to force students to feel their way, quite literally, through space, marking it out as they went.[1]

In the brief-lived Constructivist journal G, Lissitzky described the need for exhibition space that engaged spectators rather than served as a passive receptacle for paintings, objects and people. One hundred and thirty-five years after Robert Barker's first panorama was exhibited, Lissitzky (in 1923) explored the architectonic tendencies of paintings with his Proun Spaces: precisely dimensioned room which featured reliefs in painted wood on the wall, floors, and ceilings. (Lissitzky-Küppers, 1980). For Lissitzky Proun Spaces represented an "interchange station between painting and architecture"; a three-dimensional articulation of how pictorial space, which he considered capable of expressing (inexpressible) depth, could be realized in the world of embodied experience, as a construction for the body (Mansbach, 1978). Lissitzky wanted to create an architectural environment that would "make one feel as if he were inside a painting—defying both gravity and stasis" while at the same time confirming the temporality of embodied experience (Figure 2). He understood that—architecturally speaking—meaning could appear only 'in action". The primary issue for Lissitzky was 'time' as much as 'space'. He had briefly considered the cinematic medium because of the way it engaged time but ultimately rejecting it as a flat, dematerialized projection that used only one aspect of visual possibilities. Lissitzky wanted, instead, to utilize all of the objects and relational networks or *Beziehungsgeflecht* of everyday life (Luescher, 1998).

It was his intention to make drawing fully dimensional and to problematize the role of the spectator: to create 'by means of design' an active participation rather than a passive viewing. In 1923 Lissitzky

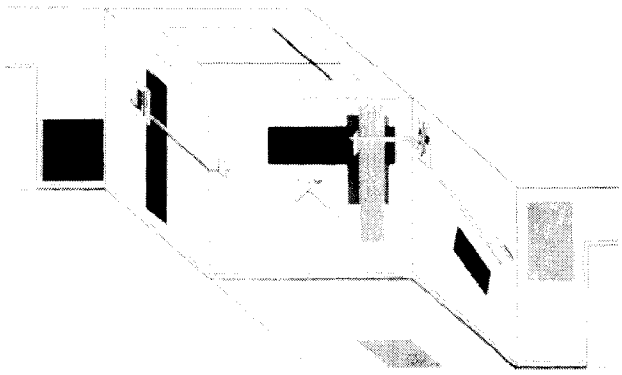

Fig.2 El Lissitzky, Proun Room, *Berlin Art Exhibition, 1923.*

explored the architectonic tendencies of painting in his Proun Spaces: precisely dimensioned rooms in which reliefs in painted wood scattered over the interior surfaces called for participation of the spectator, for a dynamic, physical involvement in the process of creation (Lissitzky-Küppers, 1980). Proun Spaces were a "three-dimensional articulation of how pictorial space could be realized in the world of embodied experience" (Mansbach, 1978). Lissitzky's installation at the Grosse Berliner Kunstausstellung (Greater Berlin Art Exhibition of 1923) was an art-architecture symbiosis which filled the space in non-objective fashion, seeming to refute any thematic interpretation while focusing solely on "intrinsic fundamental energy applied to the raw material." (Celant, 1996)

THE DYNAMIC FRAME

For a room to become a dynamic frame, in which an observer, a participant, perceives almost simultaneously the various surrounding, the visual energy depends on one's viewing point, on one's position and movement as a conscious individual. This principle of a mobilized observer was reinterpreted in sketch done by Herbert Bayer in 1936 (Figure 3). Endeavoring to imbue rooms with an optical dynamism as Lissitzky had done, Herbert Bayer's exhibition "Airways to Peace" (Museum of Modern Art, New York, 1943) emphasized the idea of an indivisible globe or "one world" (Figure 4). Bayer's globe invited a field of vision greatly extended, referencing the synecdochiacal representation of the world by Wylde's Great Globe (1851), a brick rotunda which the visitor entered to see plaster casts of the world's continents, featured at and Great Exhibition (Figure 5).

Like Lissitzky, Bayer carefully planned an "extended vision", based on sketches and models. This method entailed the use of a kind of guideline with precise viewing instructions for the visitors, who were escorted by an optical system of signals, complete with directional arrows. One assumes that Bayer also adopted the use of kinetic objects from Lissitzky's Pressa installation, for example, when

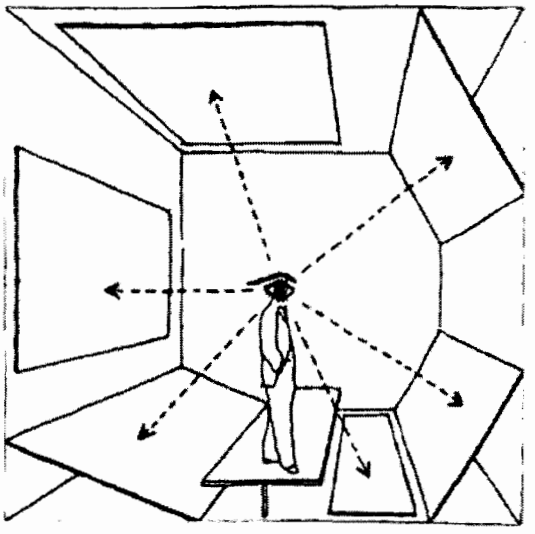

Fig.3 Herbert Bayer: Exhibition sketch, ca. 1936.

Fig.4 Herbert Bayer: Outside-in walk-in globe focal exhibit, 1943.

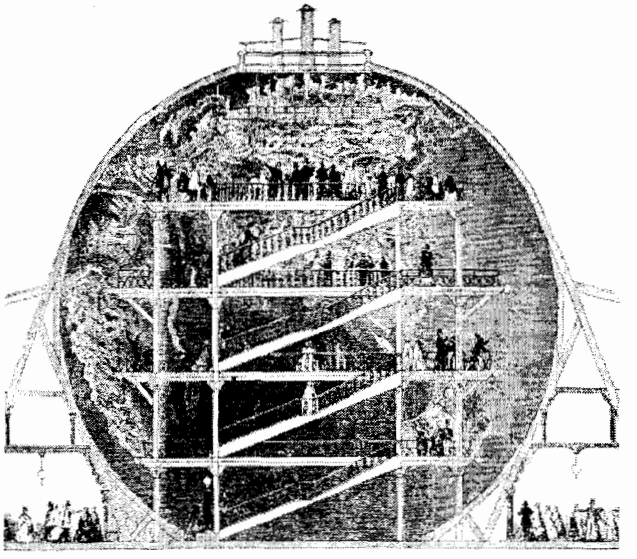

Fig. 5 A sectional view of Mr. Wyld's Great Globe, *1851.*

he mounted large-format photographs on slats kept in constant motion by electric motors, thereby creating moving supports that offered continually varying images.

DIGLOSSIA

diglossia: a sociolinguistic situation in which compementary social functions are distributed between two different varieties of a language: a.) prestigious, formal or high variety and b.) common, colloquial or low variety Gk diglossos: speaking two languages, di: two +glossa: tounge, language (The American Heritage Dictionary of the English Language: Fourth Edition. 2000)

"At a time when the vast majority of architectural representation is not the realm of a well-rounded architectural literati but of a narrowly focused digerati, the functionalist motivations of our technological world have promoted the pragmatic capacity of architectural drawing over its potential to construe a symbolic order . . . Technology may be cracked open by the imagination."

(Perez-Gomez and Pelletier, 1997)

Le Corbusier advised students to develop a loathing of drawings referring to the highly finished drawing of the Beaux-Arts manner, drawings he referred to as "a shimmering display of illustration"(Guiton, 1981). For Le Corbusier drawing was a means to an end: a powerful shorthand of searches conducted in the optical unconscious, transmitted through the sinews of unmediated experience: the body, and particularly the hand. Drawing, as a physical act, connected the design process to the physicality dimensions of architecture.

With a well-stocked sense of possibilities (historical and contemporary), students may set to work with no restrictions except that work designed on or for a screen shoal emerge, literally, and be treated not as finished product but rather as raw material for other presentation formats. Among the multiple and diverse investigations which can be conducted in academic design studios, some of the most interesting are: impressionistic chromatic accounts; transformation of acoustic into optical phenomena; play with stereoscopic effects; use of photograms and incorporation of shadows; manually drawing over color laser-printed drawings, or cutting them apart for reassembly as collage. Anamorphosis, transparency, and montage techniques evoke spatial depth and temporal space in video displays (Figure 6). Small-scale panoramas large enough to accommodate four people at a time can be suspended from the ceiling for a view of real and proposed topographical features of the project site (Figure 1).

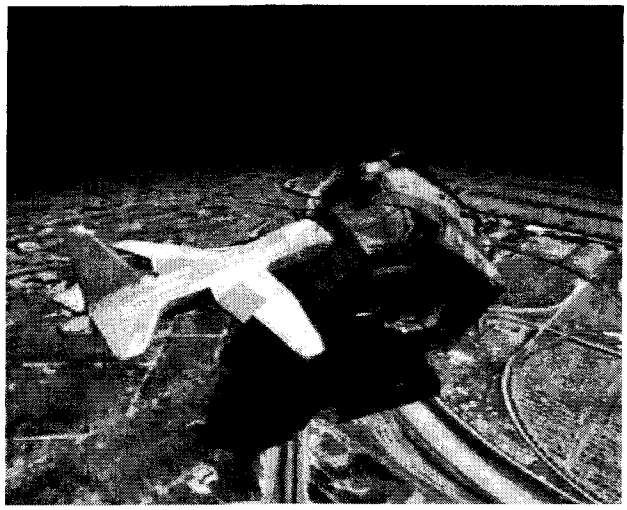

Fig. 6 Under the direction of Professor Luescher, graduate students produced 3-D computer animation; scenes bridging physical and mediated realities, 1999.

If the conditions of representation imposed on the investigative design process in design studios establish a global link among all visual and plastic elements, so that work assumes an artistically intelligible organic unity, three primary and interrelated conditions can be approached: 1.) the integration of new media with older representational techniques; 2.) a questioning of divisions, which present themselves in both architectural practice and education: specifically the minds share vs. the body's share in the experience of architecture; making vs. theory; objects of experience vs. qualities of experience and 3.) an address of the question: "What do we want/need from architectural drawings?" The interest should not be not new or old technologies and images per se, but rather the re-ordering of the overall visual field and a reappraisal of the traditions of image cultures.

CONCLUSION

Juhani Pallasmaa (1996) writes of the "everyday pathology of everyday architecture" which can be understood through an analysis of the epistemology of the senses. There is no doubt that our technological culture has ordered and separated the senses distinctly. It seems obvious that —especially in the education of young designers—we need to combine observation and participation. Certain architectural designs encourage and others inhibit people's engagement in the built environment. We don't understand the differences very well (Sennett, 1995). Perhaps by more closely linking visual and plastic elements in design education so they assume an artistically intelligible organic unity we can pursue a fully humanistic agenda. The theoretical framework of visual communication and interaction seems to need a theory of the human being. Integrating a psychological understanding of the human being as an emotive, sensuous, bodily and intellectual existential being assists understanding of how the inexpressible—that which cannot be represented but is psychologically necessary—is experienced and how that experience unfolds. It behooves us to find new ways to understand how people participate in the forms of building, how they succeed or fail in the dwelling well. Successful animation of a designer's vision requires human participation, and studying the interaction with symbolic representations which may enhance our understanding of how computer-mediated representations interact with intellectual, sensual, emotional and bodily cognitive processes.

NOTE

[1]This concrete or 1:1 'drawing' as a full-scale mock-up, was a technique utilized in the "real" world in a more conventional way by Mies van der Rohe in 1912 to test a design for the Kröller-Müller Villa Project in Wassenaar, The Netherlands. During the same period the German artist Kurt Schwitters, member of the Dada group, constructed MERZbau, a three-dimensional collage that gradually filled his living area in Hanover. From 1910 Mies made use of the enormous potential for dimensional representation using photomontage, and collage. An earlier example of this technique is Charles Garnier's use of the collage medium in 1861 for the Paris Opera.

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