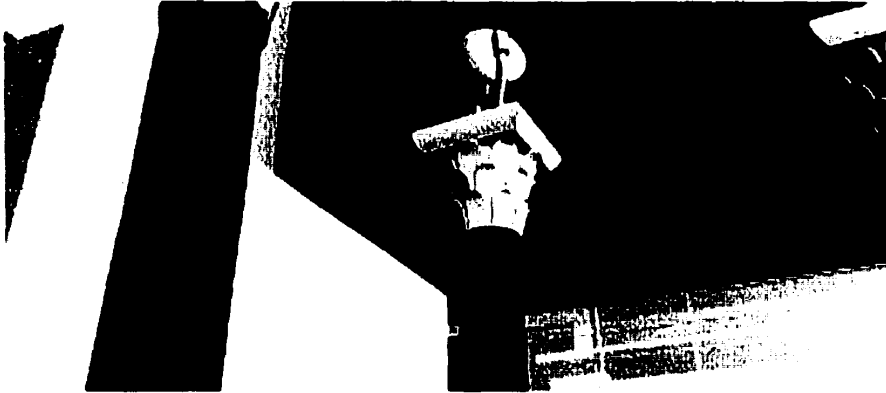


TITLE PAGE

the visionary architect in practice: a memory palace



The University of Calgary

The Visionary Architect in Practice: A Memory Palace

Chadwick Allan Oberg

A Master's Degree Project submitted to the Faculty of Environmental Design in partial fulfillment of the requirements for the degree of Master of Architecture

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ABSTRACT

the visionary architect in practice: a memory palace

It is clear that
our ability to
imagine archi-
tecture far
outstrips our
ability to build,
so far (Marcos
Novak)

If anything is
possible, then
nothing is
interesting
(H.G. Wells)

This project proposes that it is possible for visionary architects to establish a viable professional practice through the means of digital architecture. Architects have an understanding of placemaking and the phenomenological experience of dwelling, two aptitudes that are critical in a cultural context where reality and simulation are heading for supercollision. This understanding goes beyond what merely can be built in the physical world. A visionary architectural practice can hence be understood as it reconfigures our current notions of practice in the face of an existing industry and market economy. Such an examination will guide not only the process of project development but also what begins to constitute an appropriate architecture for this new spatial medium. The project culminates in the design of a memory palace, representing one example of the kinds of architectures that are manifest in these investigations. Such architectures will in turn serve to re-contextualize the world from which they have emerged, reclaiming the significance of the architectural profession.

Key Words

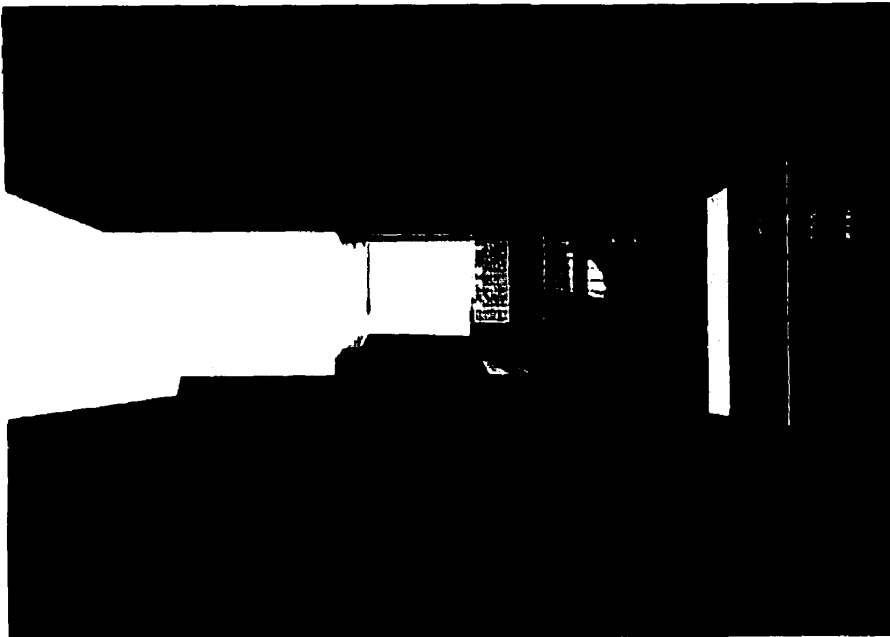
architectural practice
visionary architecture

cyberspace
digital space
virtual reality
virtual architecture

memory palace
mnemonic device

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the visionary architect in practice: a memory palace



Arlene and Ralph Oberg for the forceps scar
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Christopher Fission for getting Lucky
and...
My classmates for getting my jokes.

TABLE OF CONTENTS

the visionary architect in practice: a memory palace

MANIFESTO PERSONIFIED 2

MANIFESTO EVISCERATED 4

the visionary architect in practice

The Development of Representation 4

An Architecture of Representation 6

Representation in Architecture 12

An Architecture of Ones and Zeros 13

Digital Tectonics 41

Virtual Terrain-Vague 47

MANIFESTO ENTOMBED 50

a memory palace

Evidence 50

Execution 58

MANIFESTO FOSSILIZED 73

The Digital Trojan Horse 73

APPENDICES 76

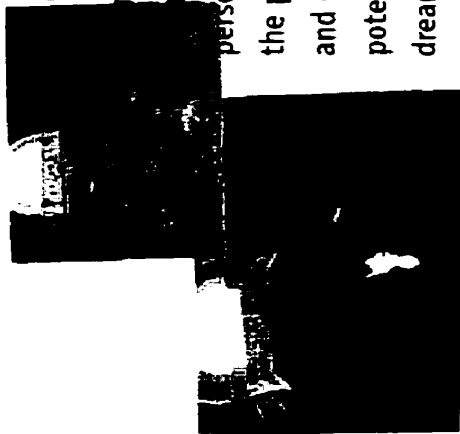
A Guide to The CD-ROM 76

Technical Notes 76

WORKS CITED 82

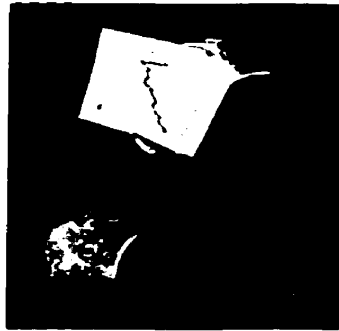
IMAGE CREDITS 86

MANIFESTO PERSONIFIED



Digital Architect, I consider my life as those going beyond what can be built in the physical world. I'm not a high-machinist, sublime visions of the human imagination. Individuals whose visions existed at the time when people still bought in to the power of construction. The master mason as lightning rod of a god's personal quest for verticality. The architect as possessor of secretive knowledge, holder of the keys to unlock the prime order and reason of the human endeavor. The significance of an investment in toil, of perspiration and labor. Balance, order, harmony, stability, at the risk of imbalance, disorder, discordance, instability. The potential of the human endeavor and its relationship to the transcendent. To reach these places. To dream the dreams of creamy papyrus. To build the living machine.

The machinations of architecture as strap-on dildo for men. The transcendent doubled over with its legs spread. We have become our own gods, skull-fucking eyes of the hurricane, certain constructions now possess their own atmospheric conditions. We can build most anything. Construction itself becomes solidity, a permanent flare of activity. If anything is possible, then nothing is interesting," so says H.G. Wells, author of *The Time Machine*. Most of us refuse to pay for just anything, however. Lines between the real and unreal are more like stretch marks on the skin of gestation, expanding the continuum of image outward and fusing together simultaneously. We need to remember and understand the nature of the breach, the incision, the emergent surgical tactics. Yet most of the time we just end up resigning ourselves to praxis as: Thalidomide, horrible defects and in the name of economy, functionality. A little morning/afternoon/evening sickness. We're not doing anything to why we just don't kill ourselves, when we're already in a station. We are consumer culture. We do our thing. The real thing is seemingly obvious to the effectual quality of the built environment. Because it is just the same as us. Like a clone.



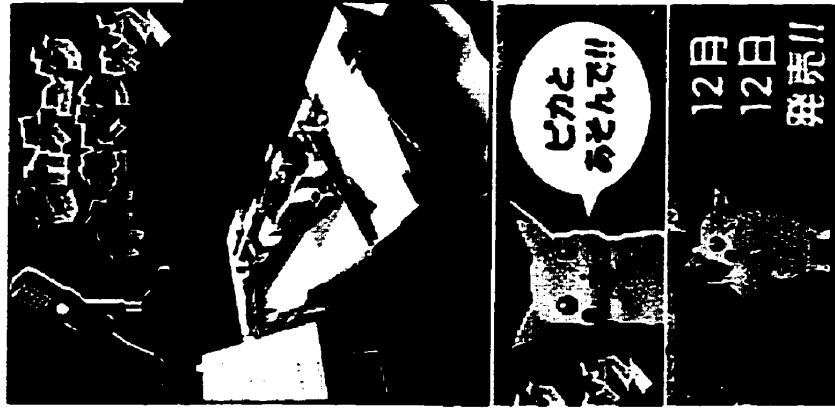
MANIFESTO PERSONIFIED

the visionary architect in practice: a memory palace

three

Give us shelter from the bombs. Give us pleasure a seldom sense of aesthetic accomplishment in the world of unchecked capital, the race for the centrally capitally planned lowest common denominator. Something more than doctors and lawyers. Eyecandy brings the customers in, spend the money. Cranial lollypops like the simulated flavor of ourselves. We work, because it gives us a sense of belonging. It allows us to acquire the things that nobody else has, that everybody else has. It allows us to express ourselves, spout our logo poetry argumentative, to be unique, just like everyone else. It allows us to sublimate ourselves into a larger whole. It allows our soul to be captured and to be free, the simultaneous dissipation and creation of longing that cancel each other out.

Following the collapse of the dialectic, we dance on rubble in burned out hollow shells, baptized on the dogmatic altar of style and the total lack thereof. Any discussion of authenticity sits at the level of something being authentic if we can buy it, if we can put it on our tongue. It all becomes one big hallucinatory existence the mirrored line between a bad trip and its opposite are all up to us. Our trips through the memory palace. Thresholds we have crossed. Doors yet unopened. Grasping for, detoxing without architectural metaphor to neck. Work and be entertained. Cellars and basements and cathedrals and just big spaces, we inject them with meaning. Giving thanks with turkey baster extensions of our perceptions filled with objects that trigger the flow of chemicals, racing from one lobe to the other, until they grow weary, and things start to get interesting. This is our site condition. It is the breach position from which arrives the virtual imperative, and the hypothesis from which my practice has emerged. With an understanding of what it means to dwell, placemaking as more than the embodied words of trade publications, not to pass judgement but merely placemaking above it all. To a place where we roll up our sleeves and hang our water coolers, operate with scalpels, and make definitions for the sake of those to whom we serve ex nihilo, make places for recovery, jack into our hardwiring, slash our wrists with Ochim's Razor. Bold new pieces of eyecandy to be chewed, long sugary ribbons to be traversed like conveyors to emancipation. Ride parasitically off the structures of capital. Spoon out our sugar. Make the medicine go down.



MANIFESTO EVISCERATED the visionary architect in practice

The Development of Representation

*Architecture
becomes the
separation of
drawing from
building.*



For centuries following our first forays out of found inhabitations such as caves and into free-standing structures the architect and the builder were the same person. The process of architectural thinking took place through the direct experience of making, and incorporated the knowledge of trial and error. By the gothic era the knowledge of the builder came to be imbued with spiritual significance, as though this person had a direct access to the abstract world of the gods and the cognitive spaces in which this world was made manifest. This abstract world came to be the site condition of the architect, who was no longer the builder, but one who employed techniques of symbolic communication to empower others with the knowledge of what was intended to be built, a kind of construction in and of itself in the this world. The most significant enabling advance for this new definition of the profession was the development of the architectural drawing. The intention of building as conceived in the abstract and communicated through representation has come to be known as design. It is thought that this represents the "work of the mind...divorced from the labor of the hand" (Nordhaus, 256).

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

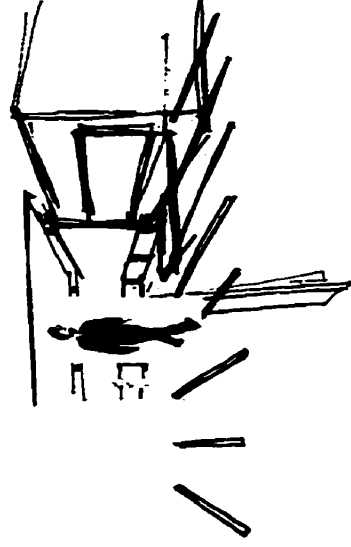
five

Architecture discovers the principle of perspective.

Abstract representation was for the years following its inception limited to orthographic projection. A mental inference was required to visualize the experience of inhabiting the physical manifestation of the architect's mind and the builder's hand. The prerequisite for a more fully developed idea of architectural intention was a form of representation that would graphically depict from the first person rather than the god's eye view.

The renaissance development of perspective drawing was the technical advance required for such a posture. The principle tenet of perspective drawing is that all lines of information converge in one or more vanishing points. The vanishing point of perspectival space establishes a sensory analogue with the way most people have been conditioned to acquire visual information. It places the representation in synchronization with our physiological processes, and establishes the base for a more subjective, perceptual experience rooted in a form of presence.

This presence is framed by virtue of the vanishing point in dialectical relationship to absence, an absence from that which lies beyond the vanishing point. The vanishing point establishes a relationship to the world in terms of human limitation. The vanishing point is simultaneously stationary and transient. Omnipresent and unreachable it represents the portal between the physical and the abstract world. Physical because it is present on canvas or paper, abstract because it represents a place of the imagination. This place of the imagination serves to contextualize our relation to the vanishing points of physical space.



MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

SIX

An Architecture of Representation

The constraints to building in the physical world are considerable. Some of these limitations are understood by virtue of an innate hard-wiring to the sensory processes of the body and hence obvious to our understanding, such as those posed by the force of gravity. The significance of built structure is felt in relationship to our own fallibility. It is possible to ascertain the kinetic consequence of structural failure as encapsulated by potential energy. Therefore potential energy is something which does not present itself to our senses, as once potential energy is converted to kinetic energy it no longer exists. It represents a phenomenon which is perceived yet does not present itself in any sensory form. Through light, shadow, texture, smell, and sound we can ascertain the forms which are believed to contain this energy, but not the energy itself. It is an abstraction which manifests itself in the physical world. The vanishing point as a portal for potential energy serves the function of allowing the physical to manifest itself in the abstract world of representation.

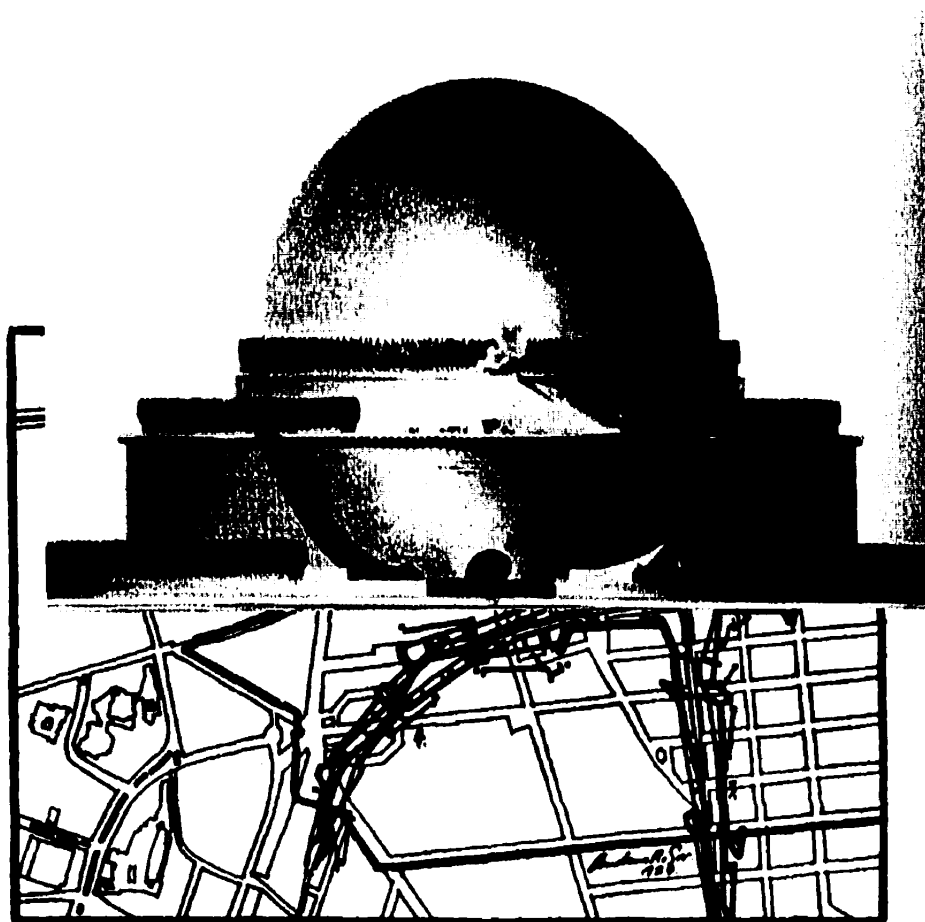
At this point we should be careful not to limit our understanding of potential energy to one which is linked to its empirical, scientific origins. While held static in physical structures, it represents not only the potential for physical motion but in broader terms stands in service of a larger potential, the potential for the poetic. It is this potential that the architect must understand if a built work hopes to inflect itself upon the human endeavor in the face of its limitations.



MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

seven



Many architects have recognized this potential in the relationship of architecture to human limitation and in doing so have produced works of architecture which could not be built in the physical world or if physically possible were willed to remain unbuilt. These individuals in traditional architectural discourse have been regarded and referred to as “visionary architects” or “paper architects” in an effort to categorize the creators of unbuilt, theoretical works. In spite of this differentiation the intentions of visionary architects were such that the effectual qualities of their works were to be judged on a similar instrumental level to built architecture and that their meanings are felt in relation to a point of departure:

Just as poetry differs from prose in its controlled intoxication with meanings to be found beyond the limits of ordinary language, visionary architecture exceeds ordinary architecture in its search for the conceivable. Visionary architecture, like poetry, seeks an extreme, as in extreme: beauty, awe, structure, or lack of structure, enormous weight, lightness, expense, economy, detail, complexity, universality, uniqueness. In this search for that which is beyond the immediate, proposes embodiments of ideas that are both powerful and concise. More often than not these proposals are well beyond what can be built. This is not a weakness: in this precisely is to be found the poignancy of vision (Novak, 1991, 244).

While the works themselves were consistently to be seen as means to more closely represent an ideal architecture, the nature of this ideal has historically found itself serving different ends. Many visionary architects practicing at the end of the 19th century attempted to elevate existing building typologies to a level which evoked a sublime or transcendent notion of formal potential to reinforce programmatic function, as exemplified by Boullée’s attempt at the hyper-funerary:

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

eight



Boullée, in these terms, might well have invented, if not the first architectural figuration of death, certainly the first self-conscious architecture of the uncanny, a prescient experiment in the projection of "dark space." For by flattening his shadow, so to speak, on the surface of a building that was itself nothing but (negative) surface, Boullée had created an image of an architecture not only without real depth, but one that deliberately played on the ambiguities between absolute flatness and infinite depth, between his own shadow and the void. The building, as the double of the death of the subject, translated this disappearance into experienced and spatial uncertainty (Vidler, 171).

These forms of potentials could only be realized through a medium which allowed for the manipulation of physical laws, for only on paper could shadows be rendered "blacker than black" (Rosenau, 14). This form of programmatically sublime architecture has gone on to become the vehicle for other, revolutionary political ideas such as those of the Italian Futurists. They emphasized an ideal future based on the development of enabling industrial technologies with the capacity to transform their architectural visions into reality, conjuring images of "factories hung from the clouds by the twisted threads of their smoke..." (Marinetti in Frampton, 85).

Other visionary architects have abandoned the idea of functional requirement altogether in the creation of spaces

imagined to exist in a world beyond gravity, against gravity. Created as an architecture without functional program or physical constraint, they are also studies for an absolute architecture, in the same sense that we speak of absolute music, architecture for the sake of architecture (Novak, 1991, 245).

In a space of this type, the absence of a function leads one to question whether it can be thought of as architecture at all. It is only redeemed by

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

nine



the absence of function becoming a function in and of itself, whereby our own meanings are infused in the space. That said, the idea of such an absolute space is important to consider, as the relationship between the architecture and what it transcends in its absoluteness is in danger of breaking down in the absence of some consequence to be felt in terms of its structural and programmatic potentials.

Perhaps most interesting are the visionary representations of spaces which are not only exclusive to cognitive space in their construction but also in their very programmatic function, forging new typologies of visionary buildings. The most vivid examples of such spaces are seen in Piranesi's *Carceri* etchings. The etchings depict the architectural spaces inhabited by a prisoner of the mind, "ample enough to contain what can be conceived" (Novak, 1991, 245). The viewer is caught within a web of vanishing points which acknowledge the rules of perspectival space, yet go on to break those rules such that our perceptive apparatus is racked by a hyper-realism that is only possible in conceptual space. The etchings could only until recently be apprehended for the purposes of dwelling through the medium of two dimensional representation.

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

ten

In all of the above incarnations be they humble or heroic, visionary architecture represents the human attempt to reach the vanishing point, to place it inside of a structure of such immensity that it seemed never to end, or perhaps with an endwall placed just behind the vanishing point. These visionary works achieved their significance and are regarded as ideal by the very nature of their being unbuilt, or unbuildable. It is the nature of this ideal, however, that one must place into question. We have thus far been able to give the creators of visionary architecture the benefit of the doubt, as the ideal is by its very nature an unreachable place, meaning most of us (in western, cartesian societies) have yet to get there. If the ideal always happens to be where we are not, and if it is tied to various religious, philosophical and architectural perspectives, one might suggest that a singular ideal does not actually exist yet this does not stop us from trying to reach it. Therefore an ideal becomes less like an end and more like a means to express ideas about where we are now, and where we could be. The works of visionary architects as made manifest in renderings are not ideal in and of themselves, but instead express ideas which by challenging or affirming our current situation reach toward an ideal, a sum of parts greater than its whole.

Each of the above is also an example of expression as developed within the confines of various representational media, which were in themselves to allow greater degrees of expression than could be achieved by built form. These works were literally an architecture of representation, as they could only exist on paper and on a direct sensory level play only to the eye. They often featured impeccable renderings of light and shadow, working within

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

eleven

the limitations of the medium, yet allowing the viewer to more fully understand the potentials inherent in the forms. These potentials appealed to a perceptive dimension, the appearances that are associated with all of the senses. But these forms would never move beyond two dimensions. Visionary works have been understood more readily as artistic rather than architectural forms. The techniques employed are the same as those of the landscape artist or the cubist painter, and the product of these techniques is also the same. To the architect this product is seen as secondary, as having some artistic merit, yet only in the service of a built construction which it will never rise above. For the artist, a representation serves as a construction in and of itself. A normative understanding would assume that one dwells in architecture, where one dwells on a work of art.

Many visionary works might have been relegated to the role of artworks, if not for the fact that many of the individuals who have created visionary architecture have also conceived of projects which were realized in the physical world. The lineage of these individuals as architects has allowed visionary projects to be conceived of not only as art, but also as paper architecture. While seen as secondary, the role of paper architecture is recognized as important as it was an exercise for theoretical positions which would go on to influence built form. In much the same way that Jules Verne pre-empted our trip to the moon in his literature, theoretical architecture has foreshadowed a structure large enough to assemble the Saturn V rocket.



Representation in Architecture

One can look to other historical examples which highlight the significance of the visionary architect. As it continues to present day, the practice of the paper/visionary/theoretical architect has consisted primarily of publishing and exhibiting works as well as lecturing and academic endeavors. Representations are communicated in spaces such as lecture theatres and galleries, which are understood in their role as set aside specifically for the communication of abstract information, and as places where we contemplate the outside world. These types of spaces are not only suited to a discussion of the practice of the visionary architect's representations, but also by virtue of their functions are in a unique position to be sensitized by architectures of representation on a more physical level:

*Bramante and the
Trompe l'oeil
Tradition.*

An early example of the use of media representative of architectural space as an architectural product is Donato Bramante's Santa Maria presso San Satiro in Milan, Italy (1478). Due to site constraints, Bramante was unable to include a choir, so he contrived a "virtual" choir in fresco, using the relatively new technique of one-point perspective...Using a fresco as the media of simulation, Bramante simulated physical space to enhance the spiritual and symbolic content of the chapel (Bertol, 204).

An unadorned chapel is already an example of a space 'set aside' such as the gallery or lecture hall. The chapel represents a place where we consider the rest of the world from an abstract spiritual perspective. Hence, it is understandable that architectural representations such as frescoes possess a greater potential of being translated not only as abstract thought but also as a physical part of the space. By breaking the perceptual barriers of the wall, these frescoes served to represent the human attempt to transcend our

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

thirteen

limitations and make contact with our gods, our vanishing points, the limitations of our understanding. In such a space, art is fused with architecture for a singular perceptual experience, using technology to create an image of space, material and light when real materials could not be used. Therefore it can be suggested that it is possible for a physical structure to contain within it visionary elements, which are themselves more suggestive and evocative when framed by a building typology which is itself dedicated to conjuring and housing the spaces of cognition, such as combinations of abstract thought, ontological otherness, and poetic imagery.

An Architecture of Ones and Zeros

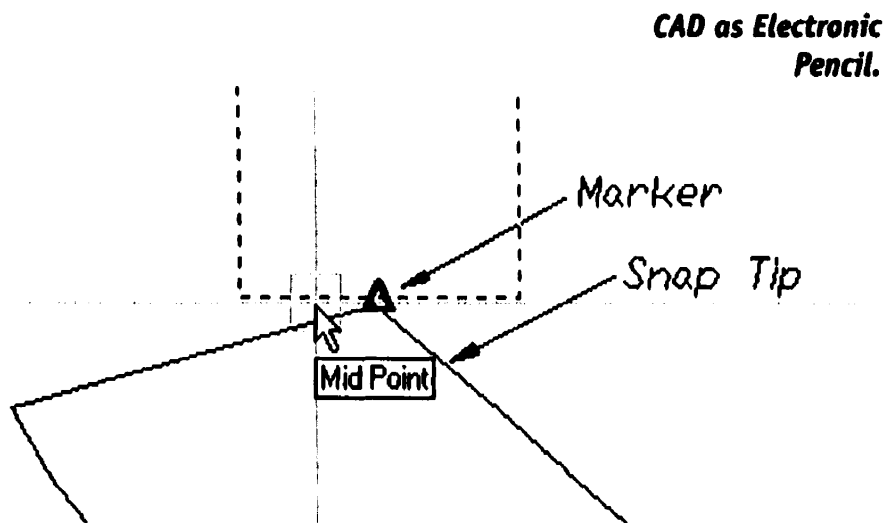
The digital dialectic.

The development of computer technologies has enabled all representation, architectural or otherwise to be reduced to its most essential abstract ontological elements of presence or absence. Based on the binary number system, it would seem that any phenomena can be considered as a combination of ones and zeros, creating a dialectic relationship of being and nothingness. A number as it is expressed symbolically is seemingly arbitrary given the multiplicity of spoken and written communication systems, however the meanings inherent in ones and zeros remain. An architecture represented by mathematics would appear to be the only transparent medium, as the materiality of marks on paper that constitute drawing are themselves loaded with their own meanings. Ones and zeros simply replicate the concept in as fine a detail as possible, only limited by the smallest divisible interval from which to sample a source or subdivide a line. In spite of the fact that computers cannot divide by zero the process of digitization is thought to be

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

fourteen



more accurate or pure than any of our current representational methods. This purity however, also leaves the digital medium in a higher state of liquidity, prone to new mutations and distortions unknown in an original drawn image. The issue of digital space then turns from one of presence and absence to one of pattern and randomness (Hayles, 86).

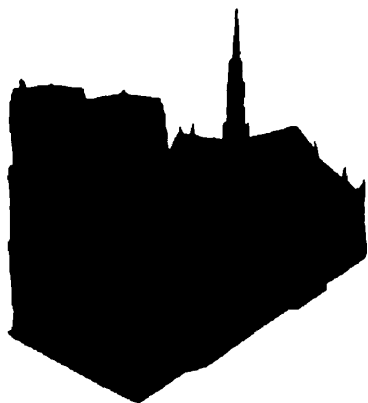
The development of digital representation has been taken advantage of by the architectural profession, however it would seem its implications are not fully understood. While the essence of ones and zeros would seem to be composed of some transcendent purity this information still must arrive through a filter of computer hardware and software, which is not a value-free medium in and of itself. CAD as a medium has differential effects on the final design product as compared with manual processes. The medium represents a different way of thinking about architecture, yet architects have been largely unreflective about the nature of CAD. They have used it primarily as an electronic extension of the pencil, taking advantage of the ability to make rapid modifications to drawings as well as to efficiently store and transmit files to sub-consultants and the various trades. These factors impose greater degrees of order and control over a design, yet at the same time make them inherently unstable given the ease with which alternatives can be generated. The knowledge that a draftsman could change a drawing at any moment and with minimal effort tends to ephemeralize the decisions associated with the design process.

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

fifteen

From CAD to 3d Modeling.



As CAD packages have developed, so too have architects capitalized further on the fluidity of digital information, including functions which allow for the extrusion of two dimensional drawings into a cartesian conception of space. Thus the digital representation becomes less like a drawing and more like a model. From this model both orthographic and perspective viewpoints can be generated. The computer screen acts as a window into three-dimensional space, until such time as the viewpoints are flattened into two dimensions when plotted for the purposes of presentation or construction. Multiple first person viewpoints can be rendered and the frames placed together to animate the view as one moves through the spaces which are to be built. This ability allows the designer to more fully visualize not just from the perspective of static forms but how the architecture relates to an experiential narrative.

The Emergence of Digital Culture.

The role of computing technology in architectural practice has developed almost in parallel with a broader cultural conceptualization of digital space that goes far beyond simply using CAD as a tool in architectural practice. Since the beginning of the personal computing revolution, the technologies associated with it have been spoken of in architectural metaphors (Iconoclast, 29). For example, someone who is primarily concerned with the structure of computer hardware is said to be interested in the architecture of the computer. The development of the networked computer has led to the creation of spaces in-between computers which have been injected with spatial metaphor and put to a variety of uses. Issues of territoriality and privacy have led to data structures that act as containers and data spaces which act as partitions between those spaces. The abstract world of imagi-

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

sixteen

nation in which architects have designed structures has become an abstract world of inhabitation for the general populace. This simultaneously contained and infinite space “blurs the borderlines among communication, entertainment, work, and artistic production” (Thomsen, 170). Yet architecture, as the business of designing buildings, has used computers in the same way as any other business, to create, store, and communicate data with other users, unaware of their innate connection to the spatio-cultural potential of the medium and its ability to shape and transform the medium. Architectural practice must not only consider how it is affected by digital tools, but also how it is affected by a digital culture.

Cyberspace as Cognitive Construct.

When science fiction author William Gibson coined the term Cyberspace and constructed this “consensual hallucination” (1984) through the medium of words one wonders whether he could have predicted how broadly accepted his concept would become when referring to the spatial nature of networked computers. Largely ignorant of the work of scientists and their research in the field, the public only became aware once the idea was placed in a medium upon which it could impact popular culture. Cyberspace has been a part of North American vernacular vocabulary ever since. It has by extension become not only a fictional idea but a cultural construction, as we have continued to apply the metaphor to whatever our current level of enabling technology happens to be at the time, yet all the while bringing us closer to Gibson’s vision:

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

seventeen

Although cyberspace has been popularized by Gibson's books, it is neither a pure "pop" phenomenon nor a simple technological artifact, but rather a powerful, collective mnemonic technology that promises to have an important, if not revolutionary, impact on the future compositions of human identities and cultures (Tomas, 31).

The degree to which a user interacts with cyberspace is on a continuum, with each point on the continuum relating to a greater degree of immersion in three dimensional space. Projected on a wall or on a computer screen that surface becomes a window into a three-dimensional space which we acquire for the purposes of dwelling, but the screen as threshold can never be crossed. On a pair of stereo-lithographic goggles, the computer generated world fills our entire field of vision. We would appear to be present in a world which responds to our movements, however the image still has to make the translation between the surface of the goggles, to the retina, and finally to the optic nerve where the physiological sensory information is transformed into a perceptual, subjective experience. At the most extreme end of this continuum of immersion are experimental display systems where a complete visual reality is formed by connecting the computers output directly to the optic nerve. When this direct connection is extended to include the remaining forms of sensory receptors the portage to cyberspace will be complete. Yet no matter where a particular digital space appears on this continuum of immersion, the idea of inhabitation" is taking on a new meaning, one that has less to do with parking your bones in architecturally defined space and more with connecting your nervous system to nearby electronic organs" (Mitchell in Betsky, 90). What remains to be seen is what kinds of worlds we will inhabit, as well as who will create them.

*Continuum of
cyberspace as
spatial medium-
degrees of im-
mersion.*

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

eighteen

One of Jorge Luis Borges' stories describes royal cartographers who created a full-scale map of the kingdom in such detail that, when overlaid upon the terrain, it was accurate down to the last blade of grass. Virtual reality offers us this paradox: the map is the terrain. (Anders, 1993, 21)

As technology has brought us closer to the end of this continuum the techniques by which one has come to describe three dimensional worlds has moved from its origins of a textual expository base to its current level of graphic development, a state where cyberspace is put to various uses in various sectors of society. In some of these uses architectural metaphor in textual terms has been replaced by graphics representing architectural forms. Other uses did not exist prior to our current level of graphic development. Borge's story describes a map which has become the terrain. One must consider whether the buildings on that map become architecture:

A legitimate question can arise: Why do we call these virtual worlds architecture? Because they respond to one of the most basic tasks of architecture, the creation of a space which can be inhabited, which can surround us or which is defined by and defines boundaries creating an inside and outside. We can experience closeness or openness, enjoy proportions, and react to different scales – in a word, all the qualities which we associate with an architectural space (Bertol, 305).

Bertol's suggestion is well intentioned, if not underdeveloped. Perhaps the mere fact that architectural representations in digital space exist and function in ways analogous to physical architecture is enough to bear the burden of proof. One would assume that this is enough to consider the individuals who design these works of digital architecture as the architects of digital space. Such individuals would manipulate factors identified above such as closeness or openness, proportions and scales to create an experiential

Preface to a virtual architecture.



MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

nineteen

rather than formal or image-based experience.

Contrary to these ideas, digital spaces in their current forms are designed primarily by individuals who are trained as artists and illustrators, makers of form as opposed to space. Despite Bertol's claim, many digital spaces described as "architecture" would not stand up to the scrutiny of professionally registered architects who have abandoned or complemented their traditional practices by designing such spaces, let alone the possibility of such spaces expressing any notions of the visionary. Digital architects need to reconsider their methods and the products of practice for new clients and a new medium. Such a practice represents a natural evolution, from drawing, to CAD and three-dimensional representation, to a state where the three-dimensional representation of architecture is the architectural product itself.

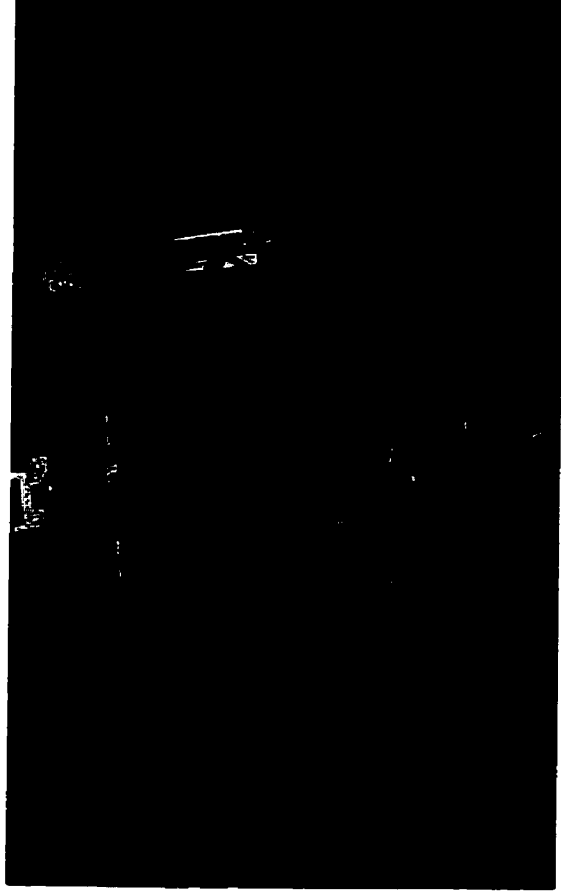
The 3D model as visionary architecture.

So far we have examined digital architecture as it exists by virtue of its analogous relationship to built architecture and as it is created by individuals who have adapted the paradigm of normative architectural practice to suit this new medium. We have also inferred that the three-dimensional model is the primary product of digital architectural design services. Such an examination gives rise to a possible inversion of conventional thinking about the relationship of the physical and the virtual. Digital architecture is no longer merely a model but a construction in three-dimensional space. From this point forward any physical manifestations of such a work of architecture would be considered merely as a representation of an abstract space. Hence digital architecture cannot be built in the physical world, only repre-

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

twenty



sented. Marcos Novak conceives a definition of Avataarchitecture as “that which can so far exist only in the computer” (Betsky, 90). In this case, he is referring to works which by their nature cannot be physically reproduced in the physical world. What is common to both instances is that they correspond to our definition of a visionary architecture. The difference between the visionary architects of yesterday and the visionary architects of today is the possibility of design practice:

Because architecture is fundamentally an act of making, practice assumes a special role in our profession. It is practice that becomes the ultimate test of any theoretical position we may take in the creative process we call design. Practice is the way in which design is translated into professional service, and into something concrete (Eribes, xi).

The visionary architect has the potential to interact with clients, and conceive works of visionary architecture which like Piranesi’s *Carceri* represent a typology which cannot exist in the physical world, yet contain a programmatic intention and are inhabited by a public in a manner which, through the feedback responses of virtual reality, are more fully developed than static two or three dimensional representations. This paradigm shift represented by the visionary architect in practice is consistent with the changing role of the architect, the changing role of the client/consumer, and changing concepts of what we consider to be ‘real.’ Throughout the history of the discipline architects in mainstream practice have always needed to adapt to advances in technology and the new building types which technological change has brought forth. Scholars such as Robert Gutman have studied the profession from a sociological perspective, noting as an example that “the use of architects for secular and commercial buildings types is a considerable

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

twenty one

An Architecture of Astigmatism.



switch from practice in the 19th and earlier decades of the 20th century” (Gutman, 17). The practice of visionary architecture provides a snapshot of the discipline as it moves into the 21st.

In order to contextualize the visionary architect in practice it is useful therefore to not only consider developments which have enabled the architecture of digital space, but also to examine challenges to normative architectural practice which precipitate entry into the digital landscape. Rather than see visionary architecture as fleeing from the constraints of the physical world as well as the realities of practice and commerce, the visionary architect in practice should be understood as an effort to extend and reclaim the significance of the profession.

Borys and Friedman, as practicing architects and critics of the discipline, have identified the main issues facing normative practice. They note that the traditional role of the architect has come into question not only by the profession itself but by the public which it serves:

The market treats architecture like a commodity; business principles shape professional services; profit dominates office culture; liability law compels the architect to give up responsibility to specialists; program management and budgets dictate practice; resulting in the proliferation of trivial buildings; trivial buildings weaken the cultural credibility and self-esteem of the profession; professional esteem collapses under the weight of a contemptuous public (Borys & Friedman, 30).

The above represents a loss of control by architects over a built product. The response to this condition is for architects to consider their work as a

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

twenty two

service, implicitly justifying the loss of design in the realities of the process. In a large firm duties have been segmented and bureaucratized to the point that few projects emerge as the original designer had intended. In such a process the designer may not even be aware of the changes that are being made and may not even be concerned as that individual's role in the organization is simply to design whatever comes through the door, and whatever happens to a project after that initial point becomes the responsibility of some other staff member. The enormous scale of the overall undertaking required to execute a project from conception to occupancy would seem to require and justify such segmentation of labor and is seen as a justification for an architect's effort in and of itself, when the same amounts of exertion are required for interesting projects as those which are mediocre. Most of these labors (typically 50% of a project's total budget (Rubeling, 173)) are dedicated to phases of architectural services that are beyond design.

Construction documents in hand, building contractors have been known to bid projects on the basis of little or no profit margin. They depend on the additional fees obtained by correcting situations identified as mistakes in the construction documents which have been produced under high pressure to meet deadlines and reduce overhead costs (Ledaire, 1998). Hence the relationship between the architect and the contractor is one of folly and antagonism. The only solution to the potential of such a situation seems to be the introduction of other interested parties into the building process:

the visionary architect in practice: a memory palace

Prior to this process, however, the primary consideration in normative architectural practices appears to be going to whatever extent necessary to land a commission (Pressman, 180). This has involved forms of fee cutting which exist in the face of professional regulations to the contrary. This is in response to the commodification of architecture in the eyes of the client, yet perhaps justified by the profession when architects view themselves as offering a service as opposed to a product, such that mediocre architecture might be justified. With a slim or non-existent profit margin the fee cutting architect now has to find ways not to lose money, which means that compromises need to be made. The same compromises would be required of any

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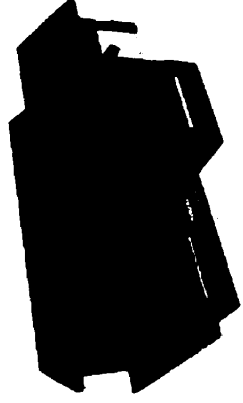
the visionary architect in practice: a memory palace

twenty four

other fee cutting architect to receive the job, and virtually eliminates the possibilities for firms interested in a higher standard of design as born out of a higher fee. This higher fee would conceivably put the client into a position of receiving spaces which lack the degree of standardization and homogeneity that is often a result of recycling designs in the interest of the firm. However, the normative architectural client trusts that the firm he or she has chosen, as a member of a profession subject to professional regulation, is honorable, and that in employing a fee cutting architect he or she will receive the same high standard of design. Of course there exists a high likelihood that such clients do not receive the built product they had hoped for. Architects are devalued by society when they devalue themselves (Rosenfeld, 186).

The visionary architect in practice is in a unique position to respond to these challenges. As the design and delivery of a project are integrated, the possibilities exist for such spaces, by their nature of being virtual, to go beyond the limitations placed upon normative architecture with respect to the cost of construction. The architect and the builder are once again the same person. Therefore any monetary compensation can be directed exclusively and without compromise to the services that the architect provides, keeping certain considerations regarding the medium in mind (see technical notes, Appendix B).

Digital architecture in and of itself does not escape the trappings of commodification. One need only look to on-line data bases such as View-



MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

twenty five

point Datalabs (www.viewpoint.com) to download 3D models of such building types as the gas station and the burger restaurant, digital spaces analogous to the building types considered in the Heideggerian sense as standing reserve in the physical world, and contributing only to the general bombardment by images that we all face. Included in this stream of images are those of the traditional visionary architect. The products of visionary architecture, the pieces of paper that can be framed or bound, are commodified to varying degrees. For those informed by architectural discourse the renderings become fetish objects by virtue of the fact that they are one-of-a-kind, and any mechanical or electronic reproductions refer to this original object. This fetishization is further influenced by the limited availability of the objects and their reproductions relative to other consumer objects such as video games, Norman Rockwell paintings, or toasters.

Digital architecture employed for visionary means, however, presents the possibility of circumventing the diminutive aspects of commodification because it is the very content of the design, the spaces as opposed to objects, which give it significance, no matter how many perfect copies are made and distributed. In this sense commodification is not seen as a reduction of the spaces themselves, but as a way in which the spaces are made more accessible to the public. Visionary architecture is given the chance to move out of its cloistered community. It extends a discussion which had been previously limited to those within the profession, as exemplified by Lebbeus Wood's influence on the movie *12 Monkeys*, to those viewers who feel its significance even in the absence of wordy underpinnings. The



MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

twenty six

significance of the architect is felt as a maker of spaces, regardless of the "stuff" which is used to give form to their content. The experience of a space as it is apprehended by each individual transcends the considerations inherent in its production, if not totally independent of its medium of delivery and/or the window through which it is viewed. The opportunity for an architectural solution closer to the ideal, and in service of ideas not possible through physical means is presented to the visionary architect. Such architecture, while having the potential to meet the needs of a client, surpasses our everyday limitations to become available as a space inhabited by the end user.

As well, the market pressures which force normative architecture to be ubiquitous have the potential to force digital architecture to its opposite extreme. To maximize cost effectiveness and hence maximize profit a real estate developer will place arbitrary limits on the extent to which a project has been invested with design thought. Architectural design in this sense is linked only to its corporate image. On the other hand, digital spaces have the opportunity to flourish based on how far they are able to be developed. The more unique, the more sublime a space is to the imagination, has the potential to influence its likelihood of being purchased. Visionary architecture as pure image becomes not only a means to itself but a means to an end. Entertainment, escapism, and/or greater productivity, the reasons many of these products are purchased in the first place, are merely stops along the way.

With this in mind, however, one must be careful when participating within

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

twenty seven

the same realm one is critiquing. The technology itself that proposes to deliver the consumer into the fulfillment that comes from the appreciation of a poetic also runs the risk of destroying this very capacity for appreciation. What is required is a careful examination and response to consumer culture as well as the individuals which form its constituents. This examination will expose the conceptual dangers which need to be overcome for meaningful architectural expression in digital space, an expression sensitive to considerations of a digital tectonic.

The cold fusion of image and reality.

A preface to such a consideration of the visionary architect in practice also requires an examination of the cultural milieu in which such an individual will participate. The contemporary dweller is one for whom image and reality have collided. Their body is bombarded with textures, smells, and flavors which are intended to resemble other materials. The dweller is forced into compartmentalized spaces to which the only transparency afforded is an electronic one, and summarily fired upon by streams of electrons as the products of a rational understanding, energized with the multiplicity of perspectives and beliefs enabled by the capacity of a mass media for global surveillance. All assumptions have come into question, including those of science and religion.

Technology has acquired the ability to alter what our senses acquire and recontextualize what was thought to be a permanent unwavering ontology outside ourselves. Our collective memory and consciousness has become source material for these technological transformations. Image has become reality, and reality has become image, shaping who we are by shaping who

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

twenty eight

we were, as

...the world is not some reality outside ourselves, but is the result of an interior process that makes and sustains our body image and its relationship to a world, and that the investigation of virtual reality and its accompanying social space is an exploration of the construction of consciousness (Woodrow & Dunning, 47).

Reality as Cultural Construct.

Virtual reality is both a reaction to the post-modern condition and a force which precipitates its advancement. Right or wrong or neither, it is an appropriate response to a world which is becoming increasingly more abstract in nature. In response to this, it has been thought that "Artificial Reality is the authentic postmodern condition, and virtual reality its definitive technological expression" (Wooley, in Anders, 1993, 23). It gains its authenticity in that it exposes "non-artificial" reality as a construction of society, and makes lucid the only bastion left to the experience of being, the perceptual processes of the individual which make us unique beings in the world, as

through its deficient rendering of the world virtual reality allows us to perceive our perceptual apparatus and representations that construct the world. It suggests that the world is a virtual construction; that the development of consciousness, selfhood, is a function of its capacity to represent the world's contents symbolically in the face of a constantly shifting and exponentially multiplying material world. The natural, the normal are cultural constructs (Woodrow & Dunning, 47).

Hence the cultural will to make cyberspace a household word is also that which places virtual reality on an equal footing with physical reality. All are equal in a world of perceived images, where one does not know what to believe in except the capacity for belief: "Cyberspace, as a world of our

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

twenty nine



Reality as construct of consumer culture.

creation, makes us contemplate the possibility that the reality we exist in is already a sort of "cyberspace," and the difficulties we would have in understanding what is real if such were the case" (Novak, 1991, 243). The images of cyberspace are not merely an extension of the physical world. On a perceptual level they are the physical world, as within the altered relation of signified to signifier all that remains is perception and the unwavering nature of the perceiver, the reader of signs.

A globalized conception of ourselves would seem, if no longer contingent upon the views put forth by science and religion, to be one that is mediated by mass media itself, and the messages contained within which have the strongest presence. In western culture these are primarily advertising messages, as the main generator of revenues and hence guardians of the continued survival of the transmission. These advertising messages are driven companies who sell any product or service for which a market can be created, such as those which contain works of digital architecture. The continued survival of these messages require that the audience adopt these ideas of what is considered natural and normal. The assumptions that create the notions of the natural and the normal are stable only to the extent that they are dependent on constant change to drive greater and greater levels of consumption. For western society the existential experiences of being in the world have come to be undergirded by consumptive terminology, with most of the rest of the world either using us as a benchmark or not far behind. We consume objects, experiences, memories. Monetary purchase is analogous to definitive possession, to have, possess, take ownership, remember forever. Before one is allowed to take stock of these possessions, the no-

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

thirty



tions of normal and natural change such that it is now something we no longer have, and forever ceases to be such a long time. In order to be natural and normal, an individual needs to obtain these products and services before the next major shift occurs. In order to provoke a reaction to our changing selves the solution seems to be to provide more of what we want in something we don't currently have. More shocking, more violent, more bizarre, more grotesque, more beautiful, faster and slower, bigger and thinner. The promise of something new and entertaining and beautiful is created to replace the age, boredom, and ugliness of what we have. Consumer culture creates its own world of forms against which we will always be imperfect in our perceptions of self. Our ideals of happiness or self-actualization must appear to be within our grasp but never ultimately attainable. These extremes are unlike visionary architecture, as they do not reinforce who we are in relationship to our limitation, but simply who we are not if we are without them. Knowing what we are not in this case undermines the concept of an identity. In its relationship to product the body itself becomes constituted as a form of information, therefore "when bodies are constituted as information, they can not only be sold but fundamentally reconstituted in response to market pressures (Hayles, 86).

Cyberspace is the highest expression of a reality as constructed through consumer culture, where "simulation is no longer that of a territory, a referential being or a substance. It is the generation by models of a real without origin or reality: a hyperreality" (Wooley quotes Baudrillard in Anders, 1993, 23). It is the place where our ideals are made manifest but unreachable. A simultaneous generation and dissipation of longing which everyone can

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

thirty one

consume, as in age of electronic reproduction these hyperreal models do not suffer the traditional challenges to the authenticity of the object. Infinitely saleable, software reads itself so perfectly from a foundation of ones and zeros that each new imprint of itself on a medium is not merely a copy, rather it represents the expansion of a singular sphere of influence upon the marketplace, running the simultaneous risks of ultimate stardom and ultimate ubiquity.

Paul Virilio goes even further in his analysis, stating that Virtual reality is not only an extension or simulation of our reality, but rather a complete substitution for the physical world:

I disagree with my friend Baudrillard on the subject of simulation. To the word simulation, I prefer the one substitution. When I hold a virtual glass with a data glove, this is no simulation, but substitution. Here lies the big difference between Baudrillard and myself: I don't believe in simulationism, I believe that the word is already old-fashioned. As I see it, new technologies are substituting a virtual reality for actual reality. And this is more than a phase, it's a definite change. We are entering a world where there won't be one but two realities, just like we have two eyes or hear bass and treble tones, just like we now have stereoscopy and stereophony: there will be two realities: the actual, and the virtual. Thus far there is no simulation, but substitution. Reality has become symmetrical. The splitting of reality in two parts is a considerable event which goes far beyond simulation (43).

As the sector of North American society which promises to cash in on our post modern developments, the independent forces which constitute a wave of consumer culture generate their own momentum by finding these symmetrical universes in which they seek to replace the physical world. Consumer culture, in constantly creating the ideal image for its individuals to

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

thirty two

attain runs the risk of going too far, to the point that the nature of the perceiver/consumer itself is changed, thus modifying the relationship between a culturally constructed view of the normal and a consumer which believes in the relationship enough to want to participate.

Humans from all societies have engaged in forms of bodily modification for religious or cultural reasons. The attempt to reach a point outside of one's normal state of being through pharmaceutical or ritualistic means is also well documented. These practices inflect on the experience of being. It is only recently that this modification of the body has become a product to be bought and sold. The current body image preferred by a society that is influenced by consumptive forces can be obtained through cosmetic surgery. Products which alter the neurochemical balance so as to make the perceptive outcomes of being in the world tolerable have become staple food items. Cyberspaces do not require their inhabitants to assume a gendered human form. In constantly changing its norms consumer culture not only creates a new ideal which must be attained, but also the promise of satisfaction gained from escaping the embarrassment and pain of the old. It can only continue this perpetuation when change does not happen too fast, such that we forget what it was we are escaping from. Experience can only become so ephemeral and so hyped before it ceases to exist at all.

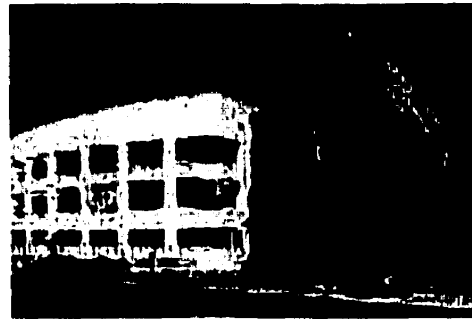
Normative architecture in its historical and contemporary contexts has done little to regrade this slippery slope. Architecture has existed not only as the product of abstract thinking as represented through drawing, but also as the product of abstract ways of understanding the world. Many traditions of

***Architecture and
the Vitruvian
Manhunt.***

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

thirty three



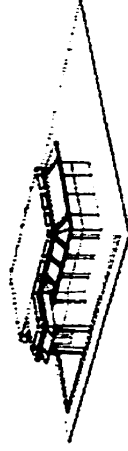
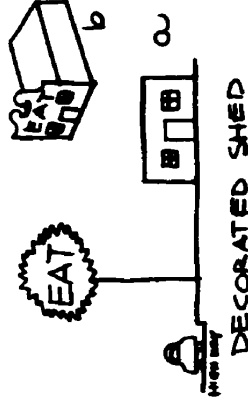
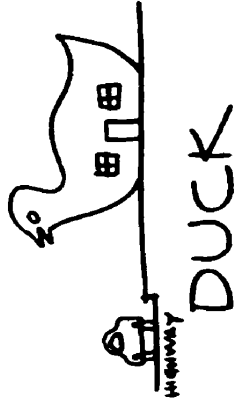
architecture have been designed for an experiential nature of dwelling only in so far as it existed in the face of physical manifestations of a cultural ideal. Architecture based in cosmological models of space and time such as number theory already depict architecture as an abstraction in and of itself (Betsky, 17). Much of the modernist movement architecture was not based on spatial characteristics but rather the societal image of a machinistic, rational, behaviorist, and predictable lifestyle. Contemporary architects build the corporate skyscraper which is less like a building and more like "a giant architectural logo," making the company conspicuous in the urban landscape" (Gutman, 18). Put another way, form and function are no longer seamlessly integrated in a practice which has come to be known as "facadomy" (Annett, 1998). The permanence of architecture which ignores the phenomenological experience of dwelling is merely tied to a consumptive cultural context, which has made its abstractions manifest and through individual perceptions projected various meanings upon it.

In so far as architecture expresses its image by violating the tectonic relationships of materials in the real world it also inadvertently places into question the nature of the perceiver. In appearing to defy physical laws it also violates principles of potential, and thus the individual who attempts to understand them. Attempting to substitute one material for another brings such architecture in spite of its built form to a state which is already more "virtual," and hence just as ephemeral as cyberspaces which do not necessarily correspond to physical laws. This is indicative of a general level of development whereby the constituents of representation in architecture and that which constitutes an architecture of representation are themselves

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

thirty four



coming under scrutiny. If Benedikt refers to cyberspaces as “permanently ephemeral,” (1991, 11) one might prefer to think of physical architectures described above as “ephemerally permanent.” Architects have employed technology as a means of servicing architecture which embodies a consumer paradigm: more shocking, more violent, more sublime, more bizarre, more grotesque, more beautiful, faster and slower, bigger and thinner. This technology does not only have profound effects on the outcome of our designs but also in our perceptions of them. It begins to be understood as inconsequential, such that neither Venturi’s duck, the decorated shed, or Viewpoint Datalab’s burger restaurant come to resemble anything because their capacity as signifiers have been undermined. Their functions have become more than disassociated from their forms but also from the bodies of those who inhabit them.

The only way in which built architecture can contain any relevance is if it is contextualized and influenced by a digital architecture in the tradition of the visionary. Rather than attempt to more clearly draw lines between what is physical and what is virtual, delineating what is chapel and what is fresco, the concern of the architectural profession should be to create “authentic” spaces, be they virtual or physical in their form. These spaces must work through the paradigm of product to overcome its destructive recursion into post humanity. They must acknowledge and exist on the continuum of our perceptual experiences, preserving the nature of the perceiver by regarding the body as primary to the polarization of the geometry of experience (Perez Gomez, 1986, 3). Authentic spaces consider the relationship of the body to its potentialities and its consequences. Real

spaces extend significance to spaces physical and virtual, humble and visionary.

Previously we have considered the paradox of the CAD program as that which gives the appearance of order and decisiveness yet is inherently unstable in nature. This paradox is tied to the broader nature of technology in general, the same technology which has been used to perpetuate the post-human context. As the CAD program is dependent on its source code, technology in general is dependent upon a rational order of the abstract universe;

Building in the Abyss.

...computers still require precise and stable definitions of objects and processes, while the emerging worldview is that all definitions are, at best, definitions of convenience and convention, contingent on whim or circumstance. This creates a fascinating problem: how to reconcile the precise formalization that computers require with the will to transgress boundaries that characterize both our times and our disciplines. Solving this problem is by no means a narrowly construed technological problem; it is, rather, a deep challenge into the very heart of what it is to be human, because the questions raised are central to humanity's main activity: making (Novak, 1993, 25).

Much of the research about cyberspaces, virtual realities, digital spaces, and the like has existed in two separate realms which couch themselves exclusively in the technical or theoretical terms. The technical discussion is seen as the paving of the runway from which depart theoretical flights of fancy. In actuality the discussion should not be fragmented in this manner. A technical discussion should not take place without consideration to theoretical issues, nor should a theoretical discussion take place without a knowledge of the practical issues involved in its articulation, for the two are synergistic to each other. For the visionary maker of space practicing in the digital realm this discussion culminates in professional practice.

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

thirty six

Theoreticians expound on a digital world where anything is possible, the only limits being those of our imagination which may never be reached, as virtual realities may expand our possibilities as humans and not be defined by them. Technicians work hard to enable such an expansion. They make sure that devices which connect themselves directly to the body's sensory apparatus will work properly and that the computer renders virtual events fast enough to be apprehended by the senses at the same rate as sensory information associated with physical events. This eventuality begins to resemble the predication by Peter Cook whereby technology and the body which apprehends this technology not only contextualize each other but have merged into a unified presence:

At this point one can look again at the interface between man and machine and the possibility that the responsive environment may not stop outside the body. If we are able to predict a pill or a piece of furniture which so closely responds to our psychological demands that it is affected by the nerve system itself, then we can also predict a true symbiosis of the person and the artifact (Cook, 136).

This symbiosis of the body with the power of technology would imply that we can harness the ability of the computer to make anything possible.

This places us in a difficult situation. We know from the words of H.G. Wells that "if anything is possible, then nothing is interesting." We also understand that architecture attains its meaning in relationship to the experience of human limitation. If there are no limitations to what can be done then one would assume that such activities have no significance. As virtual reality has no limitations it also has no consequences. If it has no consequences then it actually has no potentials. Without potential there is no

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

thirty seven

relationship to the body. Without a relationship to the body there is no architecture. Without architecture to define it there is no body and no capacity for imagination. Without a capacity for imagination there is nothing beyond the vanishing point, simply ones and zeros.

In order to appreciate a world which allows us to surpass our limitations those limitations must then be present in some form. Michael Benedikt puts forth some principles which should guide our development of cyberspace. For instance, if cyberspace is to have any significance he suggests that we must conserve certain ideas about movement, such that the cyberspace dweller cannot instantaneously transfer from one point to another but there must be some apparatus which represents or encapsulates the movement of the user:

If instant access to people and information were to become endemic to cyberspace, gone would be the process of progressive revelation inherent in closing the distance between self and object, and gone would be a major armature in the structuring of human narratives: the narrative of travel. Destinations would all be certain, like conclusions foregone. Time and history, narrativity and memorability, the unfolding of situations, the distance between objects of desire and ourselves - the distance, indeed, that creates desire and the whole ontology of eroticism - would be collapsed, thrown back, to existing in this physical world only, and only as lame, metaphorical constructions, here and there, in that one (Benedikt, 1991, 170).

In the physical world these narratives are formed and contextualized by a relationship to architectural events one moves through and past and in so doing define human experiences by virtue of their settings. In order to be apprehended as architectural events one must also consider a necessary conservation of the concept of scale (Benedikt, 1991, 162). It is the role of



MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

thirty eight

digital architecture to establish a scalar relationship of the user with the architectural events which allows separate destinations to be linked by potentials of movement.

These principles once established do not necessarily go far enough to establish architectural objects with potentials relating to a poetic. One must still consider other principles of conservation with regard to the assumed nature of the user. Humans have continually modified perceptions of themselves in relationship to space as it has developed from being sculpted out of caves to being encapsulated by freestanding structures and finally existing in its most dialectical nature of ones and zeros. Humans present themselves in digital space as avatars, assuming whatever physical form one wishes. Yet this form only gains its significance in relationship to the other objects present in the digital space, be they works of architecture, other avatars, or both. The person who presents themselves as an avatar of a certain scale or proportion only feels the significance of this presentation in relationship to that individual's baseline of existence. This baseline needs to be conserved in order for ideas of scale or movement in digital architecture to have any impact, just as the impact of a surrealist painting is felt in how convincingly it presents a reality which it can then alter or surpass.

The dualist nature of the body can also be seen as analogous to Novak's depiction of technology. If there must be an inherent order to the way in which the computer generates the experiences which we take to be posthuman there must also be an inherent order to the way in which these experiences are transferred to the sensory apparatus, at which point the

processes of perception take over. In order for the spaces of digital architecture to have impact they also must be communicated in a manner which is consistent with the way the body apprehends physical spaces. This suggests the presence of an inherent “hard-wiring” of the body which technology must respect before input can be translated into experience:

I believe that our best hope is to intervene constructively in this (post-human) development is to put an interpretive spin on it that opens up the possibilities of seeing pattern and presence as complementary rather than antagonistic. Information, like humanity, cannot exist apart from the embodiment that brings it into being as a material entity in the world; and embodiment is always instantiated, local, and specific (Hayles, 91).

With this in mind one might also consider David Levin’s suggestion that no matter how much simulacra an individual encounters the nature of the human is preserved by virtue of the body as a common denominator from which all other experiences are derived (Levin, 73). Levin suggests a phenomenological embodiment which transcends the definitions afforded by metaphysics, and upon which the posthuman presence is dependent for its apparent erosion or violation.

In light of this the avatar is seen less like a loss of human identity and more like a Halloween costume. The users of digital spaces designed with the phenomenological experience in mind can assume whatever identities they wish, yet remain tied to a self which, for the time being, evaluates the world in relation to a bodily experience. Digital architecture which recognizes this allows itself to have structural consequence, starting from a level which is pre-reflective. For an instant we can apprehend the significance of a space and its tectonic established in relationship to the human body through its

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

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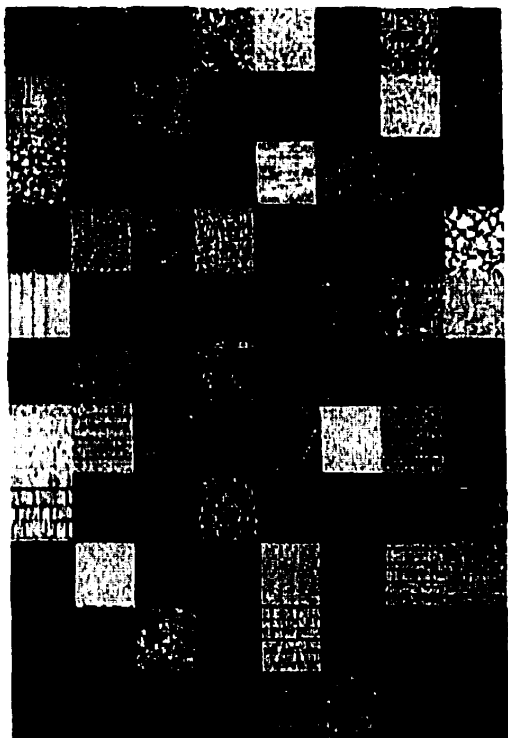
potentials, the same potentials understood in the first person representations such as the *Carceri*. From this baseline the dweller is given a position from which he or she can suspend disbelief and therefore be more able to accept the nature of the space on a higher cognitive level. Even though the dweller is aware that a space is not physical and there are no consequences to structural events, an architecture composed of a tectonic which plays to our understanding of potentials as felt through the body will have the potential for greater significance. From this baseline the digital architect can bend or break the rules of tectonics to create an expression that is visionary, in that it preserves a relationship to that which it transcends.

Having established a consequence as related to structure this will facilitate a programmatic usage of the architecture which also gains significance because of its relationship to the scale of the body. Let us consider the unbuilt spaces of first-person video games. While largely unexamined by the architectural profession, the players of such games assume a human form in spaces, which while unbuildable reflect human scale, and are therefore perhaps more apt to feel the consequences of the game with respect to winning or losing. As an example one may sense the vulnerability of being alone in a large space when other players are in sniper positions, and the potential consequences of being shot, beyond the mere ending of the game. A player may also feel the experience of being stalked down a narrow corridor, lending itself to the possibility of an ambush. The user is able to suspend his or her disbelief about the virtual nature of a space because of how the outcome of game is dependent on its characteristics. Beyond the apparant triviality of games are examples which have the potential to under-

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

forty one



score the apparant seriousness of the human endeavor, such as the way in which an inhabitant of a visual database might feel the consequences of fluctuating financial data. These consequences of usage may reinforce the consequences of structure in a dynamic manner, as if the walls of a virtual stock exchange come crumbling down in the event of a market crash. Therefore as a setting for events digital architecture which is significant establishes itself in relationship to the existential nature of what it means to participate in these events. Although the product is purchased by an individual for the purposes of utility, escape, distraction, or fashion, it presents an opportunity for the digital architect to reconnect the user with the experience of being human, whatever that happens to be. Through the paradigm of consumer product the visionary architect creates a poetic, which by its very nature is cultivated by the phenomenological perception of each individual consumer, and therefore cannot be commodified. As authentic space it serves to reaffirm the nature of the perceiver, rather than strip it away. In this way does it come closest to reaching some sense of the ideal, an ideal that is unique and intersubjective to each one of us.

Digital Tectonics

In the attempt to attain this goal one must now examine how these ideas are expressed through the nature of the stuff that is the building material of cyberspace. This examination serves to highlight the issues surrounding a tectonic which uses these materials in a manner deemed appropriate and authentic for the purposes of the medium.

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

forty two

spirit/acceptance of new materials.

As we have seen, new materials always tend to push architecture forward in directions which may or may not be appropriate. Some violate existing tectonic ideas, while others contribute to the formation of new ones. Certain constructions are subsumed by the novelty of their material, while others in their passing fancy somehow manage to transform our ideas about architecture, and are incorporated into forms which are seen as more enduring. The architecture of cyberspace as defined by 3D modeling software is in a lineage of works enabled by new materials. As Peter Cook notes

the glass house and the dome house are also one-technique inspirations. The first goes back to the 1920s when glass was seen as the great gestural material. To be able to see through substance became more and more magic as techniques of production were able to give larger and larger uninterrupted spans. The glass house is no longer such a dramatic object and as such has anyhow been overtaken by the pneumatic structure. But there is still something to work out about transparency: the idea that is there and then not there is still a wish-dream of designers, and once again we cannot disassociate wish-dreams as gestures and ultimates from more methodical approaches (Cook, 63).

Materials are merely means to spatial and experiential ends. Certain materials are used because of the scale and shape of the spaces that they can achieve or for the ideas about architecture which they express, such as transparency, solidity, fragility, solidity and others. These ideas, as expressed through materials are not only central to the form of a space, but also inflect on the meaning of the space which it forms. Materials which express the meaning of a space also express the meaning of the architectural endeavor as it existed at the time. Any new development places the architecture before it into a contextual relationship. The development of digital architecture raises important new questions that to this point we have had

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

forty three

no need to consider.

Physical materials behave in certain ways which relate to laws of gravity and our abstract conception of equilibrium. We understand the potentials inherent in the interactions between these materials and the laws which govern them. Digital space is devoid of these inherent relationships, and the material of digital space has no inherent nature. We know that a digital space which is designed to human scale taps into our hard-wiring, allowing us a brief moment where our disbelief is suspended and we are affected in a perceptual way. This is primarily the outcome of a spatial experience, where the ideas about a space are enhanced by the nature of material. One of the issues raised by this is whether or not a space which relates itself to human scale should also relate itself to physical materials which have influenced our spatial experiences thus far. In our current conceptions of digital space generated forms themselves are largely mere wireframes, and given shape by the application of a texture to each of its surfaces. This raises a subsequent question relating to whether the designer of digital spaces should, for the purposes of enhancing a spatial experience, attempt to simulate the materials of the physical world, such as designing structural members with webs and flanges to simulate steel, or mapping a woodgrain texture onto those materials which are to behave like wood:

*possibility and
limitation .*

Technically speaking, a material is fake when it displays some but not all of the qualities of the material we take it to be . And it is the selecting of qualities that “will do” from the complex of qualities properly belonging to the real stuff that, together with the dissemblance, indicates what Sartre would have called “bad faith” on the part of the designer/provider toward the user/appreciator...unless, that is, the deception is framed as such (Benedikt, 1987, 46).

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

forty four

As it expresses an architectural idea the materials of digital space need not necessarily replicate in a photorealistic way those of the physical world. If we consider digital architecture to be a polarization of the body in space as inflected through materials whether they be real, simulated, or virtual, what is important is the establishment of a dialectical relationship with the physical world. Therefore what needs to be emphasized is a differentiation between the different roles of tectonic elements in digital space, "to use materials, no matter how allusive, as allusive, and to seize upon the genuinely unique properties of the material...This addresses the issue of authenticity by framing, by making fakery honest, as it were" (Benedikt, 1987, 46).

The materials of digital architecture while not needing to resemble physical materials still need to express ideas about structural consequence. Materials need to be differentiated such that the user can apprehend the assembly of elements in the formation of an architectural equilibrium. This serves to establish the legitimacy of the ground plane as well as a reciprocal relationship between this ground plane and the architecture, suggesting certain ideas about gravity. With this baseline one can then attempt to create conditions which appear as transcending structure but keep the idea of structure in tact, perhaps even "structurally stressing materials so that, in feeling "their pain," we are drawn to consider their substance" (Benedikt, 1987, 46). A tectonic of digital space therefore starts to reflect and inform our ideas about a preservation of bodily experience. The significance of a dweller's ability to either walk through a structure or fly over it is dependent on this sense of gravity that is subsequently overcome to achieve a new perspective on the architecture. By extension the significance of structure

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

forty five

and usage applies to the perceived meanings of other materials, which while not serving a directly structure role suggest other spatial ideas such as enclosure and transparency, which rise out of structural formation.

One final note about a consideration of digital tectonics involves discussing the role that light plays as the giver of all forms. A central issue in such a discussion is the degree to which the properties of light in digital space correspond to its naturalistic behaviors. One could suggest that the significance of light in a digital space must not merely be felt as an ordered thing, such as task lighting in an office building. As it models the forms and textures of digital space light should be considered with the same sensibilities that a theatre designer uses to light a stage. Through a high degree of lighting control, the theatre designer allows the viewer to reconsider forms which are perhaps taken for granted. Lighting designed for digital spaces, however, can provide even greater possibilities. One way in which it can extend the ideas of the theatre designer is through the placement of lights in a scene. For example, the fact that any digital light source can be rendered invisible allows for lighting positions not possible in the physical world, as the desired profiles or silhouettes of the objects in the scene could be obscured by the lights themselves. Beyond the configuration of the stage itself, one can also investigate the properties of digital materials in a scene which pertain to lighting behavior, such as reflection and transparency. These parameters can be altered in ways not associated with natural materials. One can make a digital pane of "glass" more transparent than an actual pane, in much the same manner as one can change the direction of a woodgrain texture map but not the grain of an actual piece of wood.

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

forty six

We are now in a position to see why Daniela Bertol's answer to the question of digital spaces as architecture is underdeveloped. To achieve "the qualities we associate with an architectural space" (305) is not a matter of simple translation from the physical world. In the same manner that visionaries such as Boullée, Piranesi, and Woods are influenced by paper as a medium, tectonic considerations are to be made by virtue of not only what digital space itself means to the perceiver, but also in light of its "source code," the rational basis that allows a computer to generate perspectival space. With these issues in mind the architect needs to carefully consider the programmatic aspect of the space and the ways in which the dweller will interact with it to determine the highest level of tectonic development that can be achieved. The architect needs to strike a balance, such that on one hand the tectonic development enhances the experience of the structure rather than detracting from it. On the other, the use of the structure should justify the level of tectonic development and enhance the experiential nature of the space. A more specific discussion relating to how our current technologies impact a spatial tectonic occurs in Appendix B, as these issues will undoubtedly be spurned into obsolescence as technology advances.

Independent of such a succession, one can make a general observation regarding our increasing levels of technological development. As the power of computers has continually increased, this increased power has not necessarily been used to provide greater tectonic development to a space, but rather to embellish its formal characteristics. To ignore the development of the spatial in favor of the formal gives rise to an architecture which is not unlike the Deconstructivist movement, whose interests

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

forty seven



are neither in the building as an object of inhabitation nor as an object of beauty, but as an object of information, a collection of ciphers and "moves," junctions and disjunctions, reversals and iterations, metaphorical woundings and healings, and so on, all to be read (Benedikt, 1991, 17).

Spaces are more accurately textured and rendered but this does not directly translate into a more meaningful design. It becomes more and more important for the architecture to be in fashion, for the walls to be wearing the right clothes. Such forms become obsolete, however the spaces contained by them do not. Hence the spaces of architecture retain their significance in relation to a degree of texture and rendering, which is scalable to available technology, yet one must note that the perceptions of a space may change in a manner which is dependent on the degree to which technological development allows one to be immersed.

In light of the above discussion one must realize that formal or spatial characteristics alone do not express to its fullest a convincing consequential experience. Digital spaces require that they be developed for the purposes of being placed in and inflecting upon a meaningful context, a site condition, if they are to present the possibility of being understood in a relationship with architecture on the physical end of the perceptual continuum. Only once such a relationship is established the opportunity is presented to evaluate the virtual realm as "authentic" space.

Virtual Terrain-Vague

The site upon which a work of digital architecture is considered as an entity unto itself relates back to our discussion of the legitimacy of the ground

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

forty eight

plane. Just as the apprehension of structure lends itself to ideas about a ground plane and the gravity which the dweller can transcend, so should the entire architectural expression lend itself to the site, such that it cannot be determined which came first. For the site to be significant it should not be perceived as an afterthought.

These individual sites as they interface with physical spaces can be considered a form of terrain-vague, at least to a greater degree than the manner in which physical architectures are currently ephemeralized. Take for example a computer sitting in one corner of a rumpus room, or virtual reality equipment in an institutional basement. While existing as with other objects in a space they contextualize its meaning, but as interfaces they become inert, creating portals which, by nature of their simultaneous virtual and physical natures, are actually neither.

This is compounded by the disassociation of the worlds themselves. While digital structures can exist either free of other structures, within a fabric of buildings already established in a networked world, or immersed in a context which is more like a collage of images, they are all separate. Even though one can jump from web site to web site to CD-ROM the graphical content of each has a boundary, a fixed infinite loop of ground plane and sky past the limits of the architecture which goes on forever but never reaches any other place. The site gains significance not merely by a connection which is of a graphic nature but also by its uses. Visionary architecture of a digital nature not only extends the significance of the profession to the public but also becomes more fully enmeshed when one considers public usage and cultural

MANIFESTO EVISCERATED

the visionary architect in practice: a memory palace

forty nine

significance as that which stitches together these disparate, vague spaces. When spaces become public they begin in an intersubjective manner to attain definition as a site, giving definition to the architecture which resides upon it:

Neither a dematerialized, infinitely malleable cyberspace, nor a reticent, inanimate extension of material objects, the place for architecture is the site where technology may be cracked open by the imagination, the marginal and liminal spaces in our post-industrial culture, places where humanity may become aware of its capacity for true understanding in the dark and silent space of metaphor, yet also spaces within technology, revealing the actual presence of mortality, the imminence of being.

We must engage a perceptual faith aiming to discover the exceptional coincidences we call order, to discover, through our making, that connections do exist, and that they may be shared with the Other. Estranged sites are particularly rich to exercise this faculty. Such sites often include artifacts that, disconnected from their use value, may bring about moments of recognition in spatio-temporal forms that are completely new, yet strangely familiar. Understanding these forms of specific embodiment and articulating their lessons in view of our own tasks, we will have a greater chance to construe an appropriate architecture, an intersubjective reality that might fulfill its social and political task as an affirmation of culture (Perez-Gomez, 1996, 278).

The site of cyberspace as a whole to which Perez-Gomez is critical can be transformed such that it contributes to what he is suggesting, an architecture which is a space within technology and yet questions the nature of technology as that which threatens the body. The possibility of digital architecture which preserves the vanishing point is such that it allows us to reflect on the idea of a transcendent in relation to own mortality. It attempts to allow the user to develop new ideas about the human possibility for intersubjective experiences in sites which are both public in nature and those which are solitary, the silent space of metaphor.

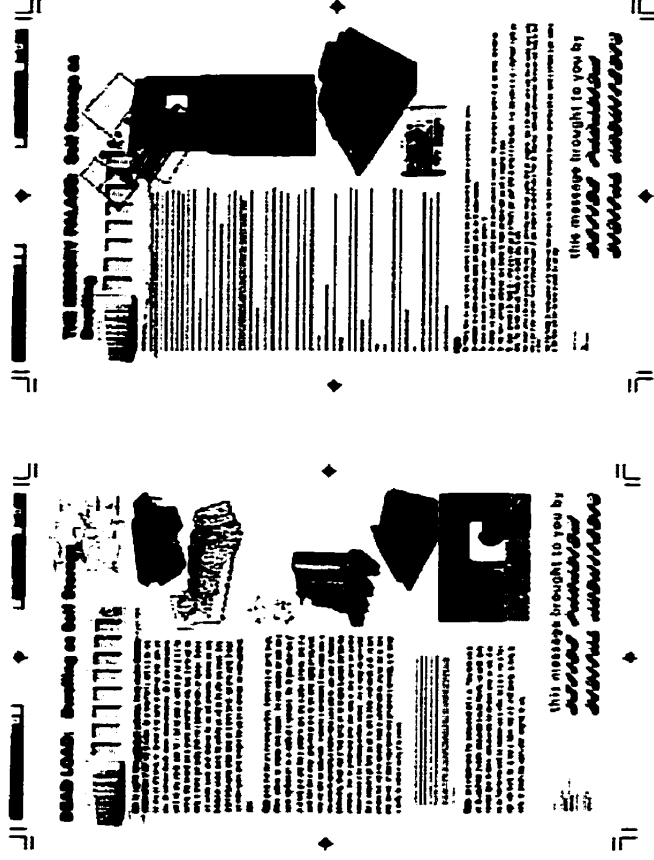
MANIFESTO ENTOMBED a memory palace

Evidence

The architect's historical role has been to create a theatre for actions, to survey and mark out boundaries, to design a theatre of memory for culture, capable of embodying truths that, no matter how culturally diverse and specific, make it possible for humanity to affirm life and contemplate possibilities of a better future (Perez Gomez, in McLaughlin, 1996).

The discussion of the visionary architect in practice has been intended not only to make sense of our manifesto but also to set the scene for the materialization of the inherently immaterial, in a project which brings together the traditions of visionary architecture and the fluctuations of contemporary consumer society. Such a project would be an effort to extend and reclaim the significance of architectural practice, as well as offer the dweller an unique, intersubjective experience of meaning through a poetic expression of programmatic function such that the two attempt to be inseparable.

Such a project would be and should be visionary for several reasons. In so far as it represents a building typology which is exclusive to cognitive space and not merely a programmatic extension of physical space the project would be visionary. In so far as it expresses its architectural nature in a seamless relationship to a programmatic function associated with cognitive building types it should be visionary. The manner in which it expresses itself should take advantage of its position as cognitive and hence virtual, yet relate its significance to lived, bodily experience. Thus such a project would explore cognitive space as that which relates itself to the physical



MANIFESTO ENTOMBED

the visionary architect in practice: a memory palace

fifty one

world and is reflected in its programmatic function.

At this point one must raise the question of the relevance of such a project if the programmatic function of cognitive space is being served by the cognitive space itself. Perhaps rather than framing the question as one of if the programmatic function is being served, it is more fruitful to question how well it is being served. The project we are now to consider must by bringing a cognitive space of the imagination into the digital realm be able to enhance and extend the significance of such a space. Such a transition must be related to the reasons the significance of an imaginary space may be seen as diminished. Perhaps our ability as individuals to imagine and utilize these spaces has been lost, ignored, or forgotten. Our project acquires significance as a means to reintegrate these cognitive spaces with our bodies and cultivate the power of digital space, rather than be subsumed by it.

*the cognitive
space of
memory.*

Academics, scientists, religious officials, and as we have discussed at length, architects, regularly work in the cognitive space of the imagination. However, such spaces in the consumer culture to which most of us belong are primarily associated with the escapism and fantasy inherent in daydreams. In a western context spaces of imagination are seen to service our need for entertainment or the all important need to "think outside the box," to create innovations which are assumed to improve our quality of life as they are bought and sold. One could suggest that cognitive spaces are currently regarded as secondary to the functioning of society, which while enhancing it are not directly dependent upon it.

MANIFESTO ENTOMBED

the visionary architect in practice: a memory palace

fifty two

This has not always been the case, however. Prior to the development of technologies such as literacy and the printing press cognitive spaces were the very medium which allowed societies to exist, acting as storehouses for the experiences and memories of an oral culture:

In the earlier of these cultures (oral and manuscript based) human systems of artificial memory were crucial to the maintenance of social cohesion; that these memory systems were essentially visual, being designed to create complex virtual spaces (imagined architectures of both two and three dimensions) within the mind of each person so making it possible to store, retrieve and share vast tracts of information, to have histories, imagine the future and be bound by common cultures...(Brown, 33).

With the advent of electronic storage and mass media our memories leave our bodies to be absorbed into the turbulent fluidity of digital space. Our memories as a lived, embodied, existential experience have been subordinated to the digital in favor of its apparent accuracy or poignancy. With our memories abstracted as information our bodies are formulated in a similar manner, and we become vulnerable to the decay that is inherent in a posthuman age. In a broader sense this means that a culture is now defined by the biases or simply the exclusivity of those with access to the technologies that shape and define the collective memories forming a history that we as individuals passively observe and involuntarily respond to in a seemingly predictable manner. As we molt our skins multiple times, each defined and redefined by the products and images that surround us we lose our capacity to conjure, to imagine for ourselves, and think outside the box.

Since the development of literate technologies and the subsequent loss of memory to media and technology there has remained a relatively small group

MANIFESTO ENTOMBED

the visionary architect in practice: a memory palace

fifty three



of individuals who were and remain to be not only aware of this phenomena, but concerned with helping others reclaim or otherwise improve their bodily capacity to store information. These individuals have been largely regarded with varying degrees of contempt, and charged with anything from pseudoscience and hucksterism to outright heresy (Davis, 1998). Contemporary memory improvement techniques are offered in books and seminars as ways to impress people or succeed at business, and are largely regarded as party tricks or gimmicks, nice to know but useless.

In the context of these poorly respected individuals and methods is the topical memory device, its historic origins documented extensively by Yates in *The Art of Memory* (1966). She describes the development of architectural metaphor in the classical age as a manner in which to organize information and highlights its significance to the rhetorical traditions:

The assumption of the Art of Memory is that we are predisposed to remember things in the context of place, even where there is no significant connection between the thing remembered and the place where it is located, so that recalling the space is a powerful trigger to the recall of the associated information (Davis, 1998).

Such rhetorical traditions were important formative elements in the development of western culture:

Two thousand years ago Marcus Tullius Cicero used to make two-hour speeches in the Roman Senate, without notes, by constructing in his mind a palace whose rooms and furnishings, as he imagined himself roaming through them, called up the ideas he wished to discuss, ideas were made memorable by locating them in space. (London and Moore, xi)

MANIFESTO ENTOMBED

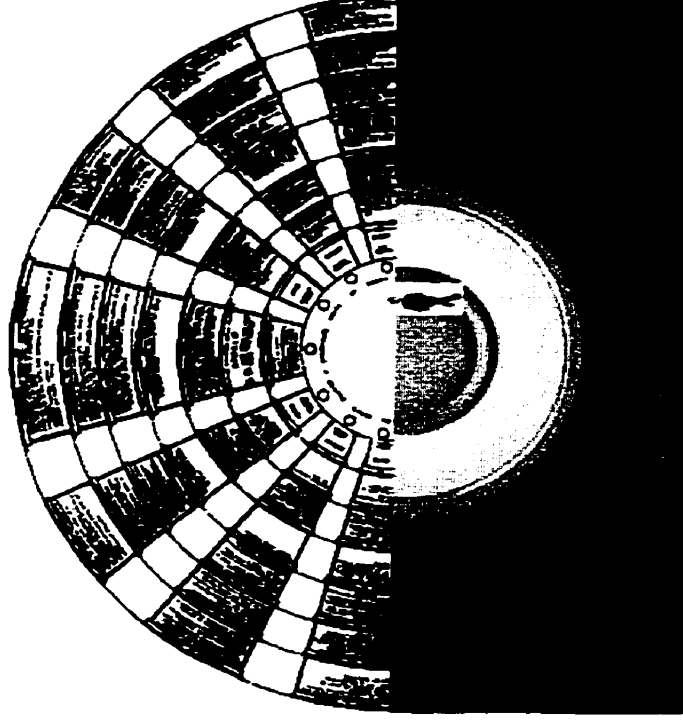
the visionary architect in practice: a memory palace

fifty four

The Memory Palace is a largely overlooked if not forgotten cognitive building typology which serves to contextualize memory and give it significance by placing it in architectural space as opposed to the abstract symbolic codification implied by alphanumeric characters, names and numbers best written down on paper or stored in the computer. The information is linked to the significance of moving through the spaces and hence the significance of memory as a bodily yet cognitive experience.

While digital media are to be held responsible for a loss of human identity, we have discussed previously a digital architecture which acknowledges and preserves a relationship to the phenomenal experience of space. Electronic storage media to this point have also been largely dependent on a symbolic rather than spatial organization, however as we have suggested digital spaces present an opportunity for information to be rendered in a visual, immersive, and interactive manner. Digital spaces have the capacity to be inhabited representations of cognitive spaces, if not their electronic extensions (Anders, 1997, 33). This presents the possibility of digital architecture to reclaim the lost significance of these cognitive spaces, by working through electronic means which are themselves bodily experiences the possibilities for spaces of the imagination may be revived or hybridized with the digital. The possibility exists for memories to not only be moved between the physical and the virtual by means of the body but to grow and become more profound by virtue of their having done so.

Thus a project that concerns memory will be visionary because it relates to a building typology which is purely cognitive. Such a project will not only be



MANIFESTO ENTOMBED

the visionary architect in practice: a memory palace

fifty five

an aid to those who have lost or never discovered the significance of cognitive spaces but extend in a more meaningful manner the ways in which digital media are currently utilized in a way which, while subject to questions of access to technology, attempts to move beyond technology as a commodity ordered and forced to behave and react in a certain way as dictated by the user. The user becomes dweller, no longer ordering the environment as a mere tool but coexisting with it, replacing the device paradigm with the poetic. Such a project would not only be a tool, but a place, allowing an individual to find his or her voice, his or her history, and be able to more fully share this voice with others in a manner which begins to simultaneously undermine and enrich the generalities of a culture.

With the above principles in mind one now begins to understand the project in terms of its meaning and intent. The question at hand is one of how this meaning and intent will come to be manifest in an architectural space, and more specifically a work of visionary architecture. To simply be digital space, as the modified software engine of a 3D shooting game is not enough. It is a question not only of a visionary program or building typology but also the tectonic expression of this program, inseparable from its intention. Our project concerns a contemporary reinterpretation of the classical memory palace, transforming the characteristics of a mnemonic device into a tectonic of place. Thinking about this question is the process of making. The process of making is thinking.

MANIFESTO ENTOMBED

the visionary architect in practice: a memory palace

fifty six

*spatial and
tectonic
principles of
the mnemonic
device.*

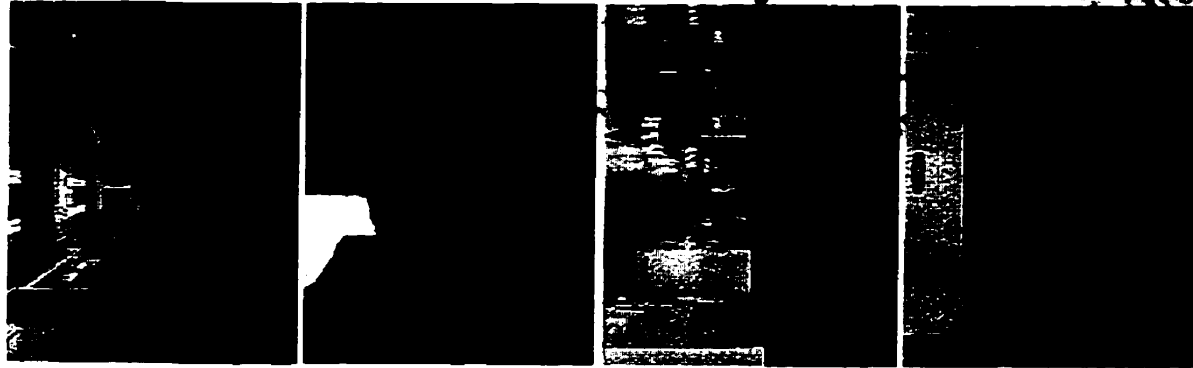
To consider the relationship between digital architecture and cognitive space requires an understanding of the mnemonic device as it pertains to a relationship between movement, scale and consequence. One central issue is the degree to which the metaphors present in a speech are literally represented. One might suggest that the most appropriate locus for a speech about the jungle would be the jungle itself, rather than the more traditional palace employed by Cicero, featuring furniture with carvings of highly ornate jungle scenes. One is required to determine the relationship of the environment to the objects within that environment.

Architecture has the greatest mnemonic potential when it simply acts as a container of ideas, rather than as a literal recreation of the imagery associated with these ideas, or as attempting through a composition of architectural elements to represent the ideas themselves. The locus should not be too specific to one particular thought or idea, as it will only be specific to that idea. As a container for ideas the architecture can be known in greater and greater detail with each visit, as the objects are modified and reconfigured for different speeches and concepts. To compose the ideas themselves out of architectural elements themselves would require the development of a new language, where two columns mean yes, one column means no, etc., to the point where the space would be reduced once again to a realm of abstraction. The experience of such a space would be simply trying to remember the syntax above all. As a container for ideas architecture creates memorable spaces which effect the body in a way which is beyond language, allowing the objects contained within to be experienced in terms of movement and scale as well as their content:

MANIFESTO ENTOMBED

the visionary architect in practice: a memory palace

fifty seven



Images must be lively, active, striking, charged with emotional affects, so that they may pass through the door of the storehouse of memory, says Giordano Bruno in *De la causa, principio, et uno* (Paris 1966 p286). Nothing in the intervening 400 years has led us to believe that Bruno was wrong, and if we are to construct Virtual Environments with educational purposes in mind, we need to ask ourselves what would constitute the lively, active, striking and emotionally charged equivalents for our own time (Davis, 1998).

The manner in which digital spaces create memorable imagery is in their capacity for the surreal, to go beyond the typical surroundings which perhaps precipitated the formation of cognitive spaces in the first place. The ability of digital architecture to bend the rules yet preserve the significance of bending those rules creates visionary spaces which are innovative and novel, yet speak to a phenomenological dimension beyond novelty and commodification. At the same time such spaces are integral to the ideas of the mnemonic device. One technique employed by the topical memory techniques dependent upon visualization of objects at scales which are

in their everyday uses. For example, if one is trying to remember a person's name, one technique suggested is to imagine that name in a certain place. In digital space, the scale of an object or person is only relative to the scale of the virtual space. Objects necessarily depend on their scale, and this is in question in their own right. The scale of an object is only relative to the scale of the virtual space. The scale of an object is only relative to the scale of the virtual space. The scale of an object is only relative to the scale of the virtual space.

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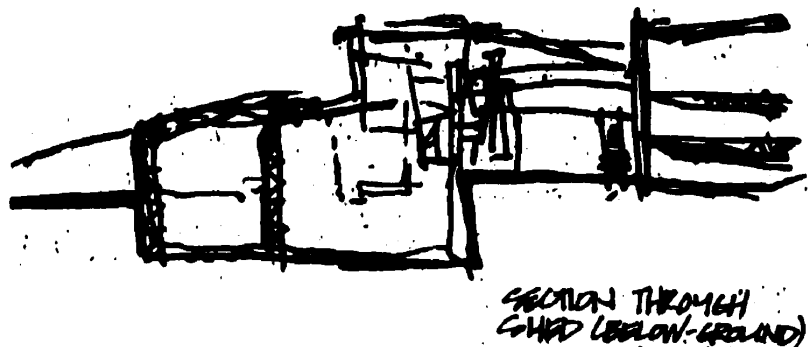
the visionary architect in practice: a memory palace

fifty eight

surreal spaces in its ideas about structure and movement. These ideas are further developed by the ways in which concepts and ideas are compartmentalized and connected by means of partition and transparency. Spaces which by their very nature engage the dweller in an authentic expression of these ideas reinforce his or her notion of presence as well as the presence of the objects, creating a form of spatial imprint. For the moment that the mind processes this exceptional tectonic condition in relation to what it knows about the potentialities of materials the characteristics of such a space are more likely to be remembered. It is this place of slippage between our waking and dreaming states that not only establishes a cognitive landscape of suggestibility but corresponds to the very essence of cyberspace (Novak, 1991, 266), as well as the essence of an authentic visionary architecture.

Execution

The client is no one specific person in this instance. The memory palace is a conception of the architect to undergo further development with an intermediating body of programmers (see Appendix B). It has been designed with the flexibility to provide meaningful experiences for a wide variety of consumers. It has been designed for anyone to dwell within and employ as a container for ideas. The user can, if he or she feels it necessary, employ the space as a tool for the purposes of more effective communication as it relates to the making and delivering of speeches, or simply as a space to keep and make memories.

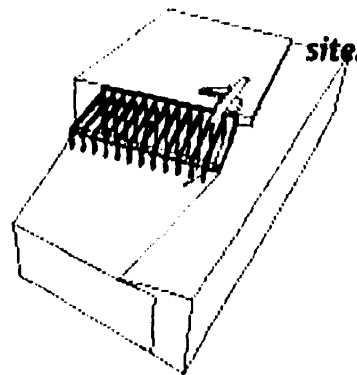


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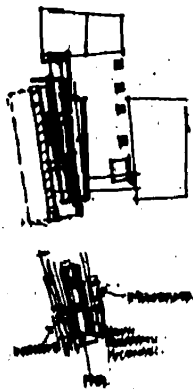
MANIFESTO ENTOMBED

the visionary architect in practice: a memory palace

fifty nine



Our model of practice considers site as the digital ground plane on which the memory palace will reside as well as the other works of digital architecture which are adjacent to it. It exists on a ground plane with localized topological features, beyond which is a finite vista of ground plane and sky, the entire space encapsulated by a celestial-type geometry which demarcates the limits of the site. On the inside of this hemisphere a landscape texture is mapped, not so much to provide the illusion of a site which is not actually there but the rather to provide images which contextualize the architecture in a broader sense. The topological conditions in this case are related to the architecture such that each comes to define the other, and it is difficult to delineate whether the architecture has shaped the site or the site has shaped the architecture.



- 1 drop zone
- 2 warehouse
- 3 corridor
- 4 chambers
- 5 shed
- 6 theatre
- 7 sculpture garden
- 8 theatre forecourt



We know programming in normative architectural practice to be the stage where the types of spaces and features present in a design are identified by the client in terms of their quantitative and qualitative nature. In a case such as this where there is no one specific client, a program has been obtained as a function of those types of spaces which would allow the dweller to utilize to its fullest extent the capacities of a topical mnemonic device.

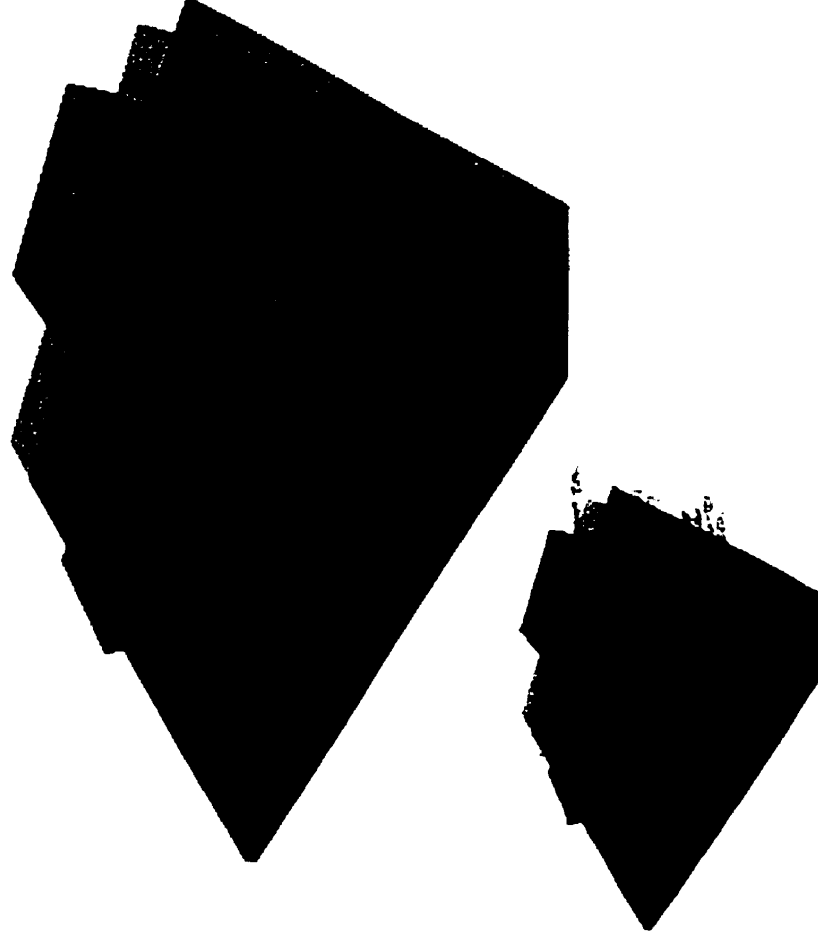
In so far as the design of the memory palace is to tectonically express embodied mnemonic ideas it considers six main spatial types. Initially, both the speaker and visitors will enter and exit the space at a common "drop zone." This space has been set aside for the special purposes as a portal, serving to make the rest of the site and its architectures feel less arbitrary. A sculpture garden and public courtyard space is framed on three sides by

MANIFESTO ENTOMBED

the visionary architect in practice: a memory palace

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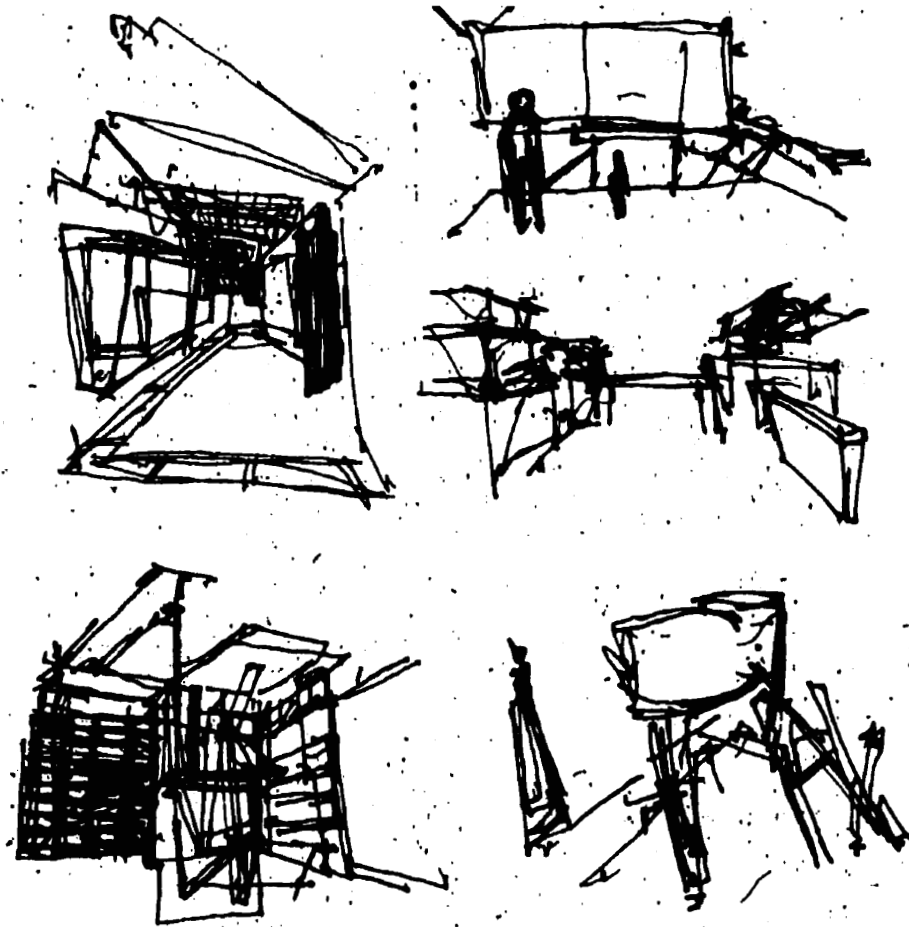
the collection of spaces that comprise the palace, as well as a fourth side which contextualizes this courtyard space by opening out to the unadorned vista as it meets the horizon. The first spatial type inherent to the palace is the warehouse. This is an open enclosure where the dweller accumulates and stores objects and images in a largely undifferentiated manner. These objects and images will be placed and projected in a meaningful way upon both the corridors and the various chambers of the memory palace. By moving and organizing objects in this manner the user is aided in developing a form of outline. These chambers vary in size and spatial characteristics such that they attempt to form a unique spatial imprint which will contribute to further sublimation of the concepts. The chambers are connected by corridors which act as vertical and horizontal circulation spaces and link the warehouse and the chambers to the shed, a very large space designed to encapsulate and provide a scalar relationship to those objects which the dweller has exaggerated in size for the purposes of greater vividness. More corridors and chambers lie between the shed and the theatre, a culmination which is analogous and provides a link to the types of physical spaces employed for the contemplation of abstract cognitive spaces and the oral tradition of ideas. As a portal the theatre takes advantage of its nature as digital to enhance the experience of being in a theatre, creating new cognitive possibilities for its physical complement. It allows the dweller in the process of sharing ideas to use both the imagined space of the palace and direct projections of his or her imagination into a physical theatre space. The digital theatre space, like its physical analog, can be inhabited by an audience who make the journey by means of the public spaces which



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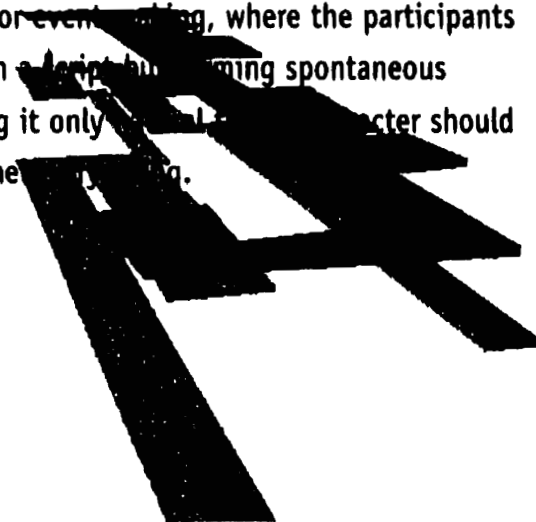
the visionary architect in practice: a memory palace

sixty one



connect the theatre to the drop zone. A visitor can enter other spaces of the memory palace at the dweller's discretion. The inclusion of other users creates opportunities for a layering of public and private uses, the individual and collective memory. A representation of the speaker's private journey through the memory palace can be projected into the theatre space for the purposes of augmenting the experience for the audience.

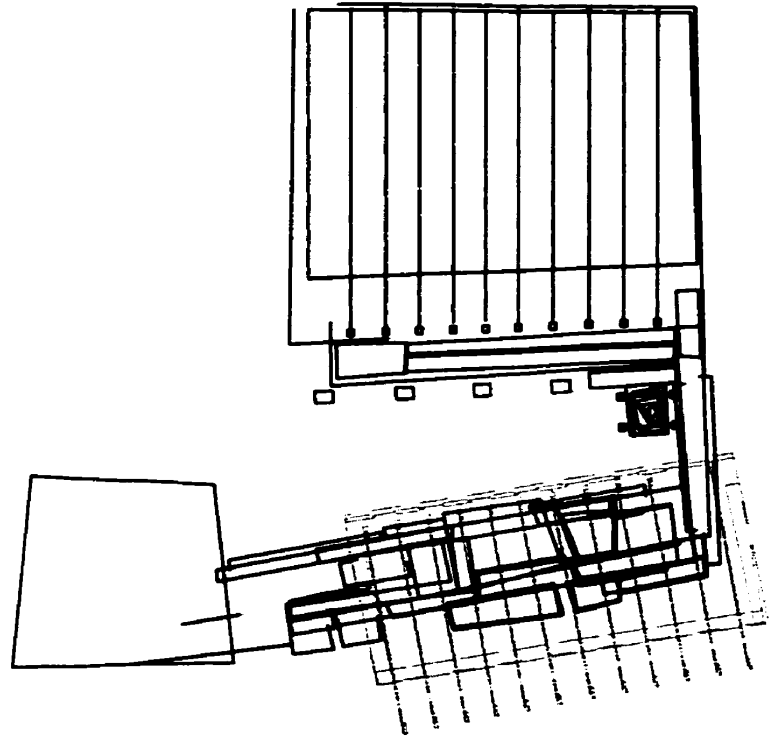
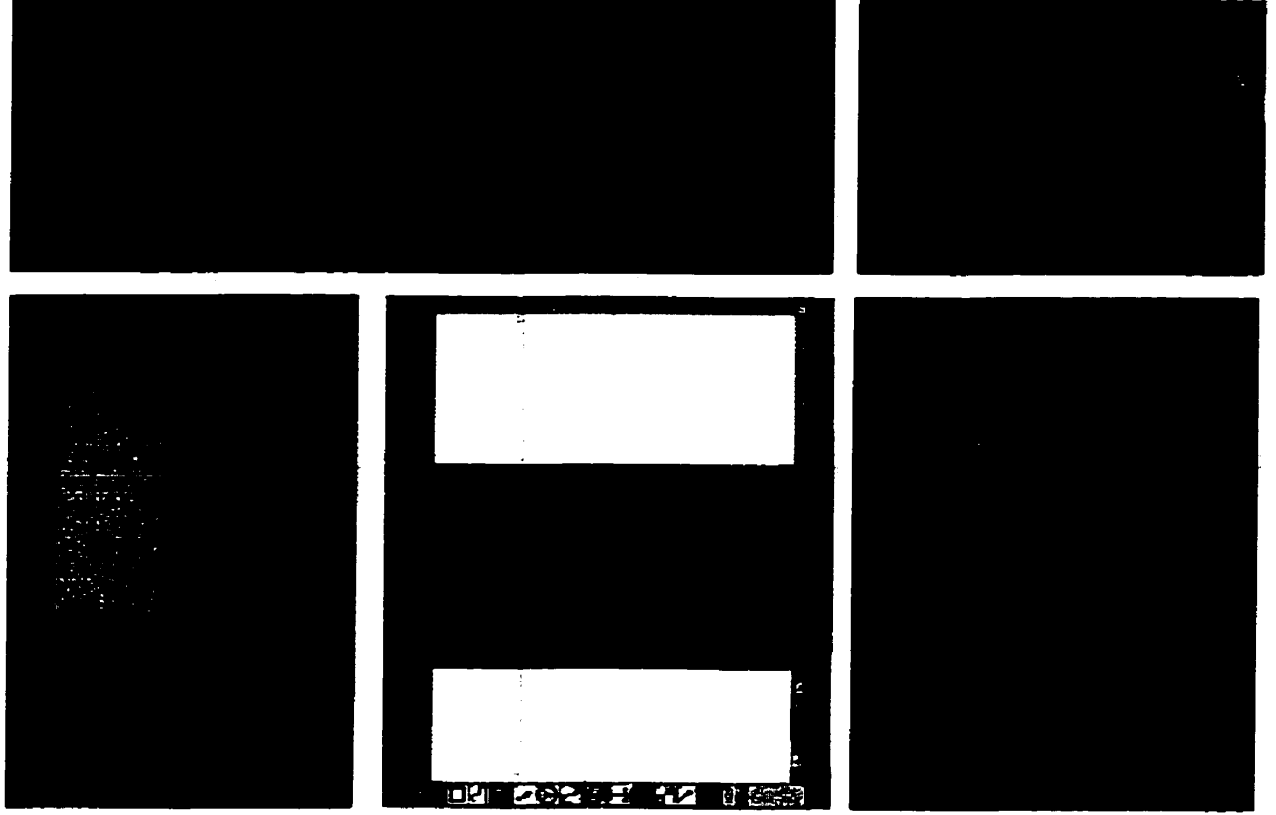
As a consumer product the memory palace is vivid, marketable and desirable. One needs only to put the right spin on it. In such a way it runs the risk of becoming ubiquitous and commodified. Yet because the memory palace as a container for ideas is perfectly reproducible it becomes a place where others can configure for themselves privately and share with each other in an intersubjective way. By suspending disbelief, by allowing individuals to be simultaneously actors and audience the memory palace as a whole becomes a theatre for existence, a setting for event-making, where the participants are not merely memorizing lines on a script but forming spontaneous thoughts from deep within, making it only natural that the actor should have such ideas. They feel it in the very air.



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the visionary architect in practice: a memory palace

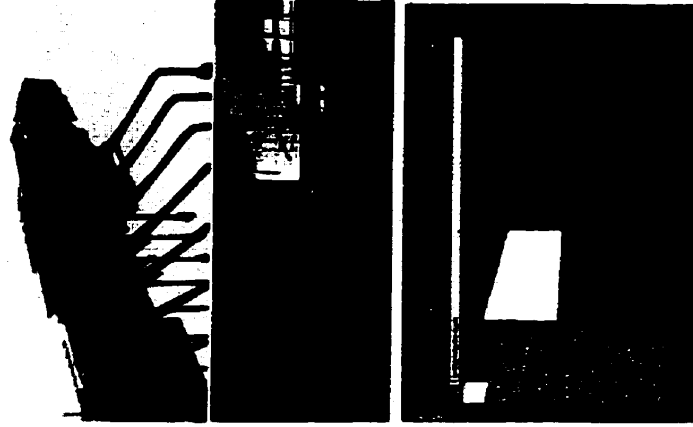
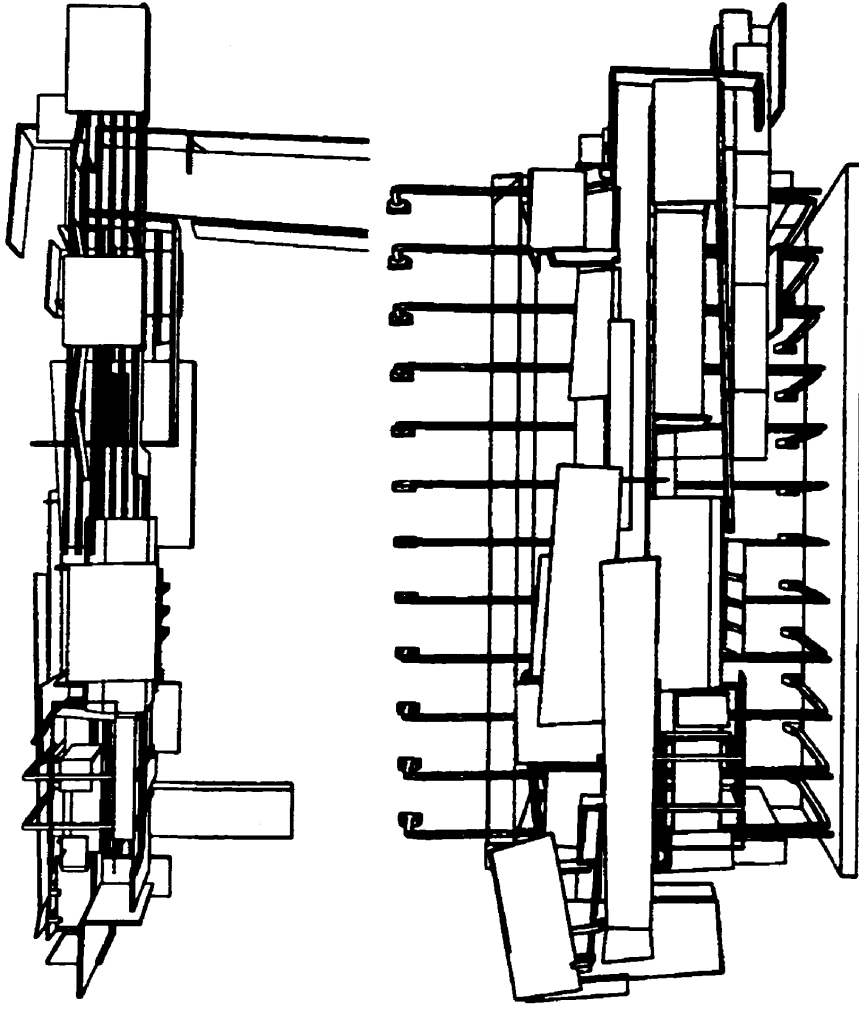
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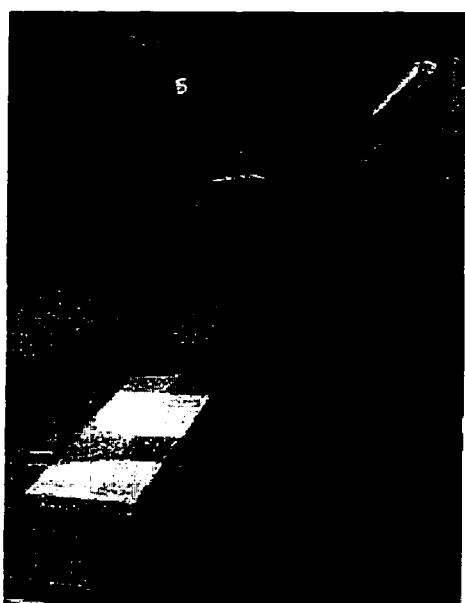
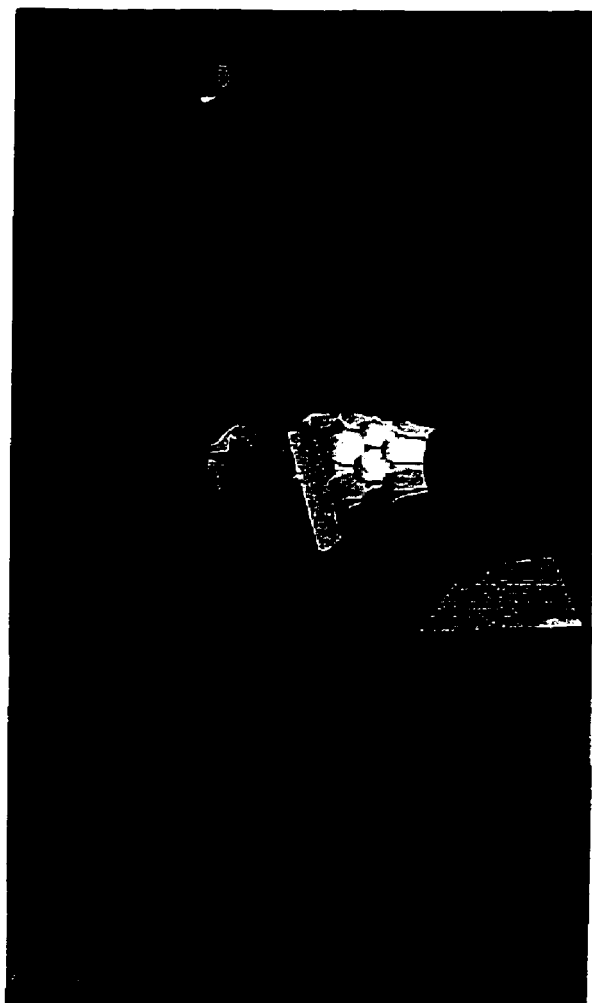
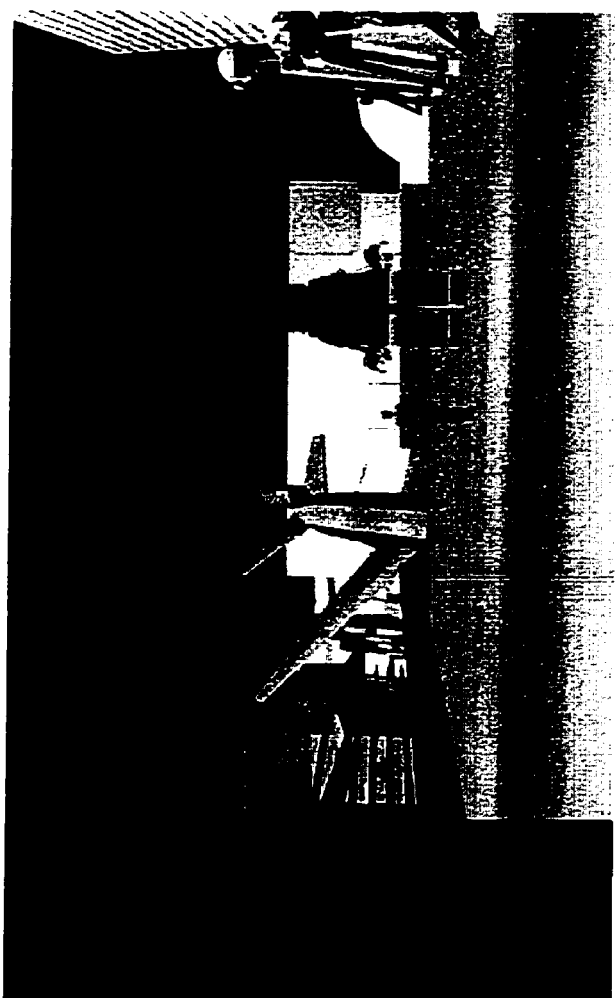


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the visionary architect in practice: a memory palace

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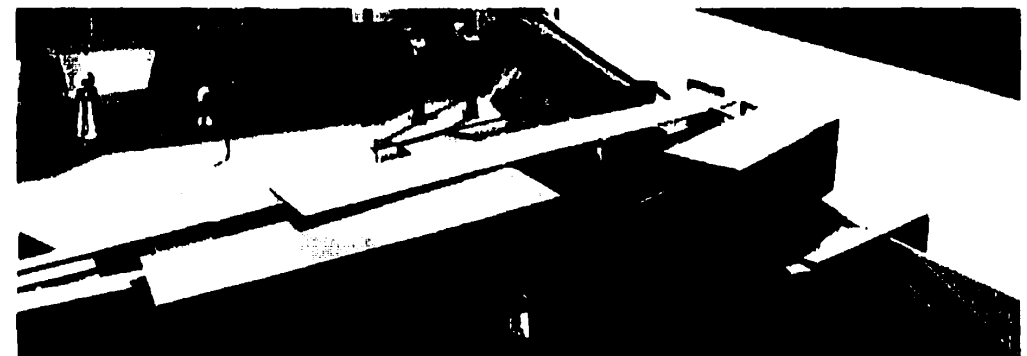
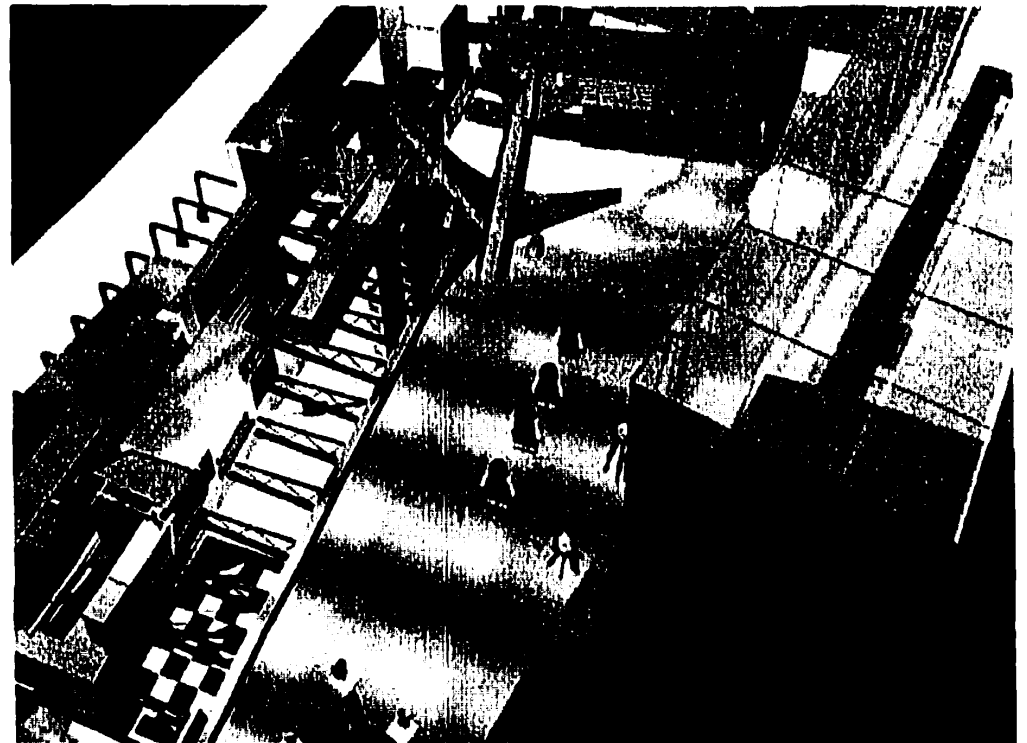
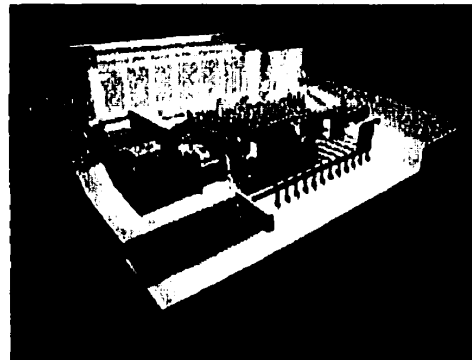
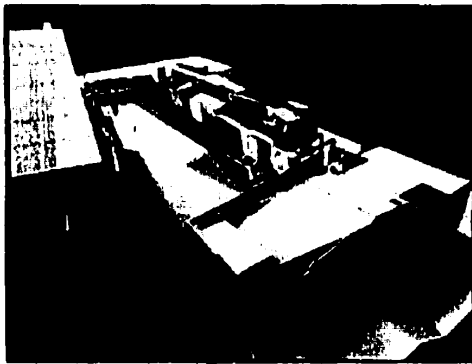


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the visionary architect in practice: a memory palace

sixty five

public space

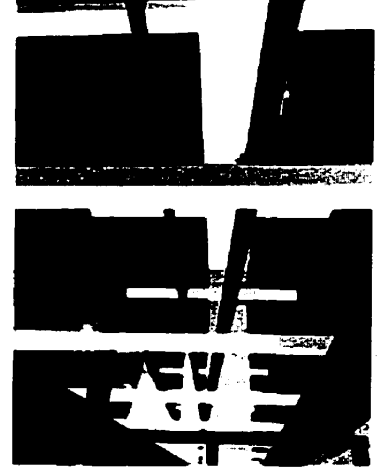
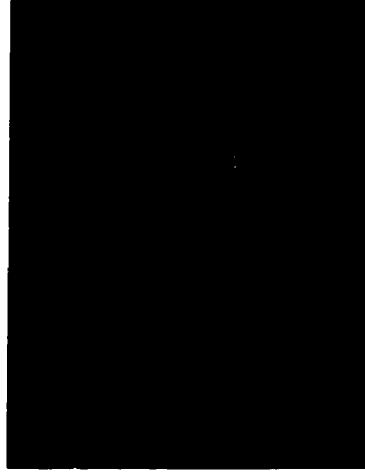
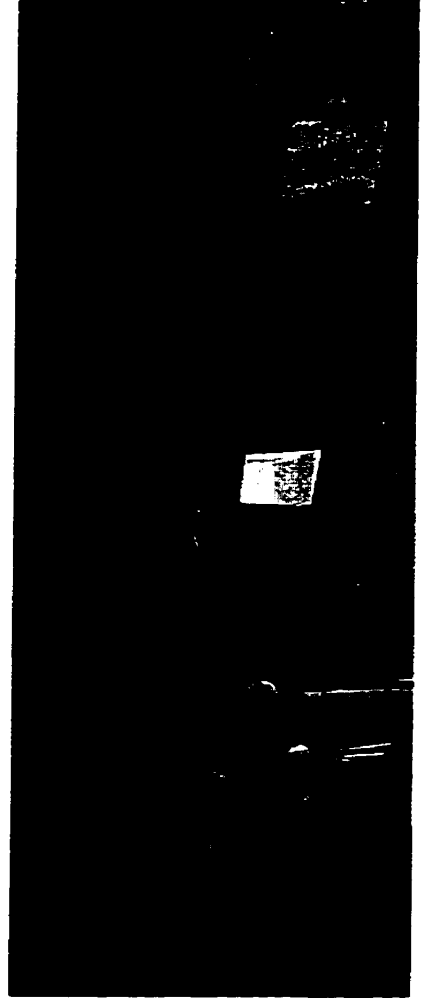


MANIFESTO ENTOMBED

the visionary architect in practice: a memory palace

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warehouse

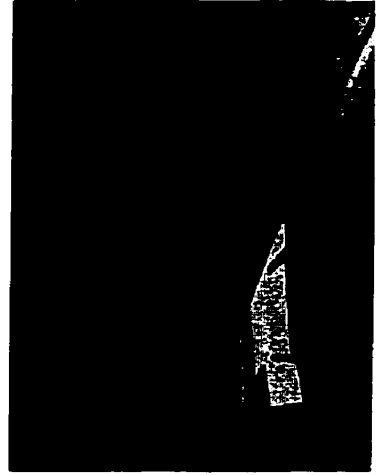
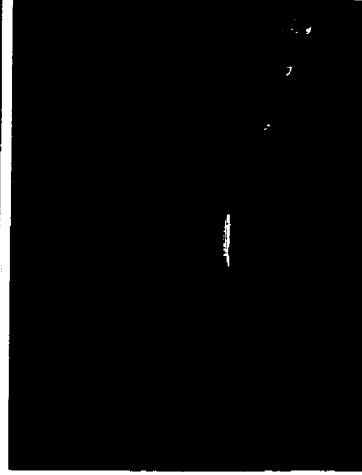


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the visionary architect in practice: a memory palace

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corridor

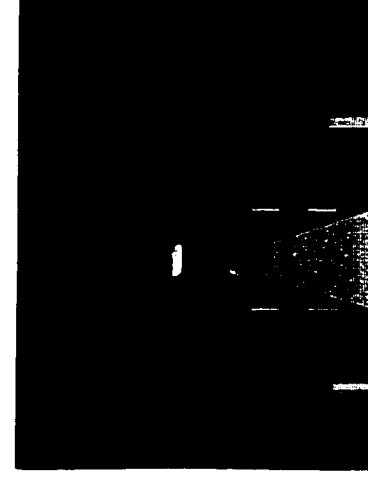
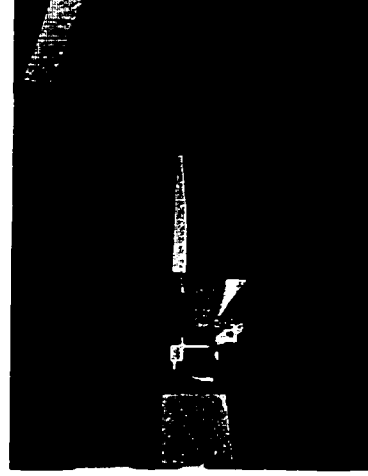


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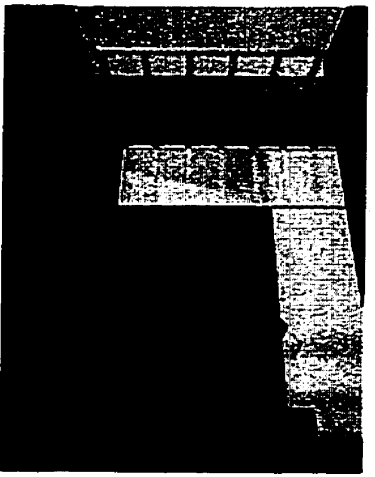
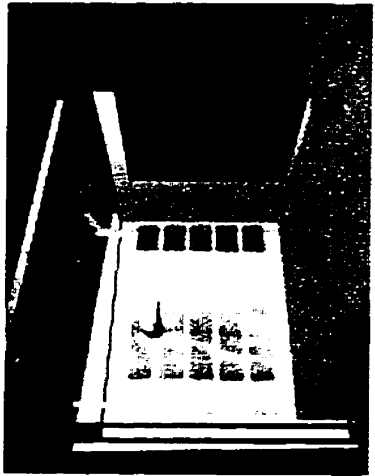
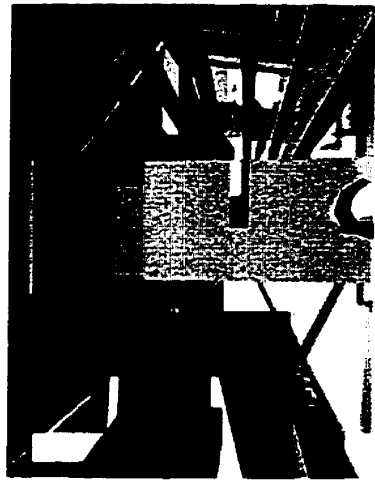
the visionary architect in practice: a memory palace

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chambers



chambers

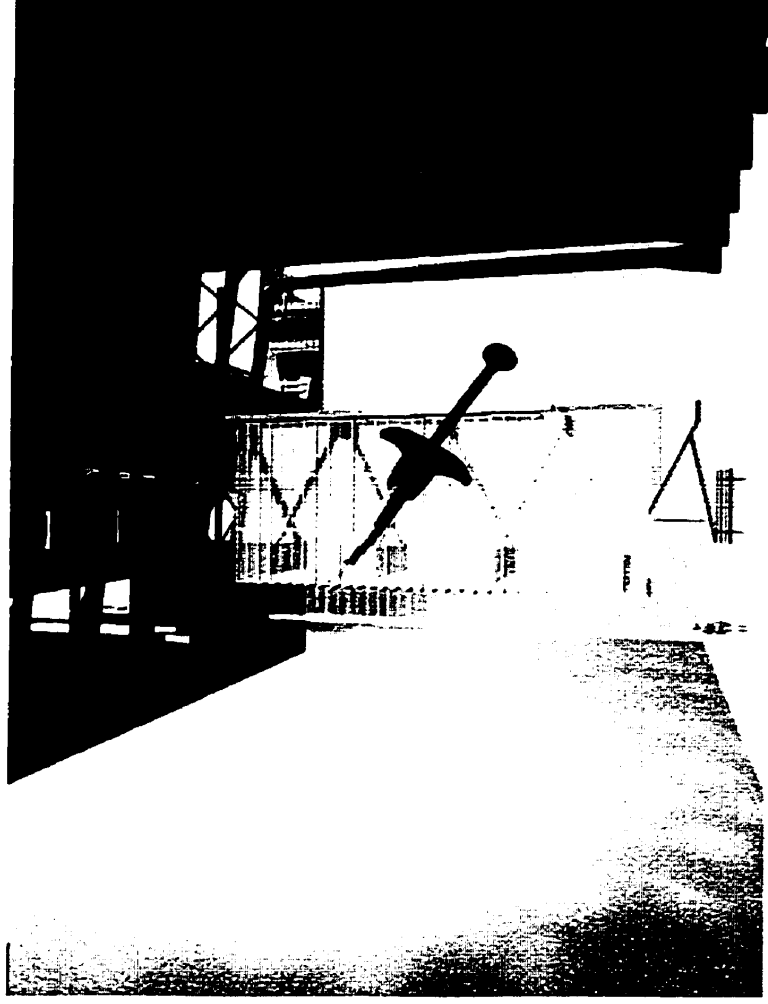


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the visionary architect in practice: a memory palace

seventy one

shed

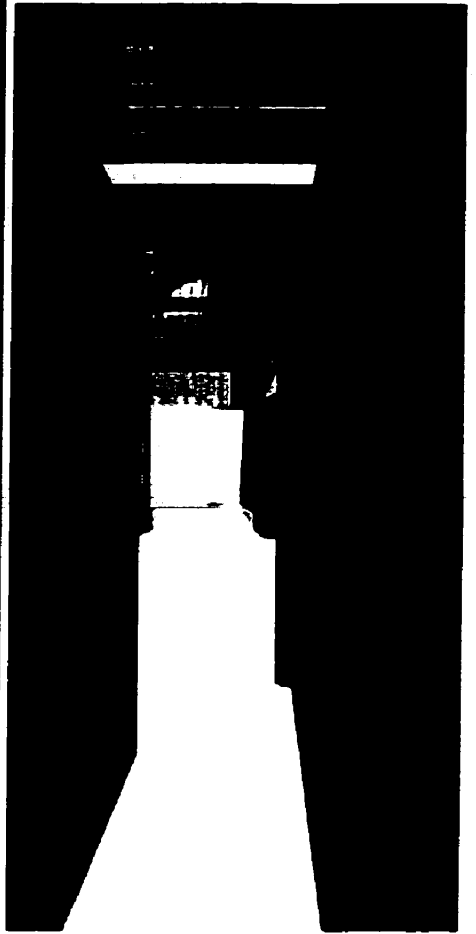
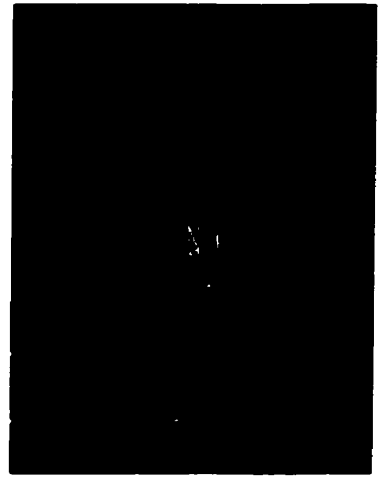
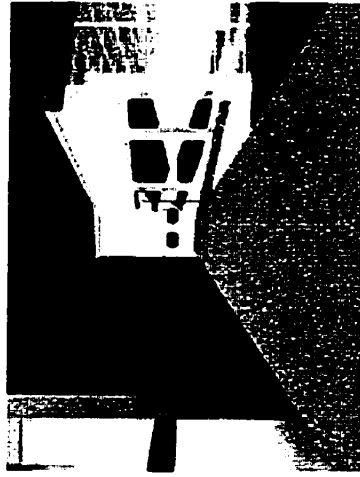


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the visionary architect in practice: a memory palace

seventy two

theatre



The Digital Trojan Horse

It is difficult to draw a conclusion to this two-dimensional endeavor when the practice of digital architecture having arrived from a breach position is barely in its infancy. To make the assumptions about the visionary architect in practice is to do so in the face of an endeavor which is changing as these words are read.

It has been suggested that a phenomenological approach to the conceptualization of space involves its significance being felt on a poetic level in a manner which is ineffable, and moves beyond commodification. In such a way we consider digital architecture as working within the limitations of its media with regard to design, yet independent of the medium in terms of its delivery. As an entity which exists as neither fully image nor fully object it at least in a localized way breaks down the need to "have, possess, take ownership." The practice of visionary architecture in digital space provides the potential to extend and enhance what it means to be an architect.

One should not, however, rest on this suggestion too long and in a manner which is unreflective. The spaces of digital architecture as we know them may merely be a "prelude to how we might evolve legible forms in the context of a user-driven and self organizing cyberspace system" (Benedikt, 1991, 18). This calls into question our continuing role as designers, predicated on technologies which have allowed us to create using the types of skills we already have as architects, rather than needing to learn how to

MANIFESTO FOSSILIZED

the visionary architect in practice: a memory palace

seventy four

program computers from their root level of organization. As these enabling technologies develop they may allow individuals without architectural or modeling skills to compose their own meaningful spaces. In some ways this is already happening, only the tools involved do not allow such user-defined spaces to be as well defined unless that individual utilizes the same tools as the architect. It is the special aptitudes of the architect for placemaking which will continue to give these spaces a more fully developed experiential dimension. Each individual possesses aptitudes which others do not necessarily share. It is a part of our intersubjectivity and the grasp for that elusive concept known as the ideal. We will continue to complement each other's strengths and weaknesses as we have for so many years. In so far as spaces are self-organizing there still needs to be some way to understand what dwelling in these spaces mean. One can speculate that these spaces will still require some sort of human intervention.

The spaces of digital architecture as we know them may also be used to directly affect the physical world. The architectural use of Computer Aided Manufacturing systems which have traditionally been the domain of the automotive and aerospace industries allow a model to be tested in reaction to accurate simulation of all physical forces. All aspects of building science could be accurately predicted and accounted for. The virtual design at this stage not only represents a construction in and of itself, but is modeled so completely to every detail that it is already in the soul of the machines which manufacture each bolt, cut each steel member, and float each pane of glass. As such the digital architect is not only a master builder of the

MANIFESTO FOSSILIZED

the visionary architect in practice: a memory palace

seventy five

virtual world but of the entire spectrum of perceptual experience, allowing the idea of an authentic space to permeate more fully all points in the continuum.

The spaces of digital architecture could possibly move in still another direction, assuming a position which is the antithesis of the perfect modeling of a construction in relation to the laws of the physical world, in fact it so violates physical laws, and limitations that it runs the risk of breaking the dialectical relationship. As our senses are more completely integrated into digital spaces unexpected combinations may occur and perhaps “reprogram” the sensory hardwiring of the body. If we wish for digital architecture to move away from its conceptions of the body and the experiential geometry which it polarizes we will need to do so in marked increments, such that the body can slowly adapt itself to these changes, just as we have adapted from caves to free-standing structures, to buildings with their own atmospheric conditions.

Appendix A Guide to the CD-ROM

The CD-ROM included with this document contains a passive animated inhabitation of the Memory Palace. It has assumed a certain configuration of objects for demonstration purposes. It is presented as a .MOV file and has been edited for content.

Appendix B Technical Notes

technical considerations in project delivery

Decisions that the visionary architect in practice makes at a technical level are primarily related to issues of project delivery, however the requirements of the end user also to some extent influence the pragmatic aspects of an "ideal" architecture. Just as historic forms of visionary architecture could only exist on paper, visionary architecture in digital form must be conceived relative to the medium in which it is to be put to use. These issues pertain to file formats, the hardware performance of the target audience, and general principles of constructing a 3D model.

If the file format which the architect has used for design is different than the file format which the client desires it will need to be converted. If this is not possible then the project would be useless and the architect if given the opportunity would need to start over with software which supports the

APPENDICES

the visionary architect in practice: a memory palace

seventy seven

client's file format. Certain file formats represent the industry standards for certain markets. Video game manufacturers often use proprietary software for level design, therefore the designer needs to use this software or devise ways of importing files from the software he or she is comfortable using.

In most immersive applications the primary consideration related construction is the frame rate, that is, how quickly the computer can update the users view of the architecture relative to their changing position within it. This is determined by the speed of the hardware which is running the application, whereby the more complex the construction, the more powerful computer is needed to render frames at a rate to properly represent the type and speed of movement. The general hardware level of the target audience must be considered. For example, a VRML model of a gallery for the University of British Columbia's School of Architecture is included with the purchase of a new Silicon Graphics workstation as part of an "Out of the Box Experience" (Construct Inc, 1998) It is significantly detailed in order to highlight the speed of the Silicon Graphics workstation relative to others on the market. Contrary to other examples of projects which let the user set a level of detail with regard to texture which corresponds to the performance of their hardware the Out of the Box Experience introduces economies of computing and patience by intentionally leaving slower machines out of its target audience, or frustrating their users to the point where they would want to buy a Silicon Graphics workstation.

Even relatively simple models can slow a fast computer down, however, if

APPENDICES

the visionary architect in practice: a memory palace

seventy eight

they are not constructed properly. There are both general considerations which should be made for all models, and specific considerations which vary from one client to the next. General issues include the use of polygonal rather than solid models, reducing polygon counts as much as possible yet still maintaining necessary information. This is an important balancing act for the architect, as certain principles which cut down on polygons also reduce the opportunities for spatial and tectonic expression. Specific considerations include those of Viewpoint Datalabs and other modeling houses which publish models on behalf of third party designers. They maintain strict guidelines for submission and cannot accept files if they fail to conform (Viewpoint Datalabs, 1998).

For the most part these requirements are taken care of by software that the architect uses to create a file, and the architect can design in a manner free of these technical issues. For example, the CD-ROM game Qin, Tomb of the Middle Temple was developed by View by View, Inc., a firm in San Francisco which produces digital architecture. They produced the construction in FormZ, (View By View Inc., 1997) and from there the developer placed the model into the code of the game. This was made possible through the enabling technologies of the developer, and represents the differentiation between creative design and software engineering:

LILT (software engine) allows LTI(the company) to focus its two pools of talent separately: the programming team can develop and refine system-level functionality like sound quality and video playback, while project development teams can organize, place, and control media assets. Advances that are made at the system level for an individual project become available for all subsequent efforts. (LearnTech, Inc., 1998)

The role of the architect and the role of the computer programmer are not mutually exclusive, however (Colleen, 1998). It can be of an extreme advantage for the architect to be able to either adapt/customize the tools which he or she uses or to develop new ones.

In the effort to achieve greater frame rates clients require their constructions to be modeled almost exclusively with polygons rather than solids. This implies that the geometries themselves are merely wireframes, and given shape by the application of a texture to each of its surfaces. In this way digital materials behave much in the same way as veneers. The designer can adjust the orientation and scale of the texture which is simply a two dimensional image. As an example in a room with a tiled floor the economies of computation are likely to suggest that these tiles are not modeled individually but a texture of a grid of tiles is applied to a continuous surface. In such a manner the computer has to regenerate only one polygon as opposed to hundreds or thousands. The tectonic consequences of this decision are that the floor is less like tiles and more like linoleum with a pattern of tiles printed on it. The material is attempting to behave like another material and represents a simulation within a world which is itself simulated. This does not enhance the users ability to suspend his or her disbelief but rather challenges it, and requires a rethinking of the floor as a modulated surface.

Other architectural characteristics such as transparency are also the result of mapping a transparent surface onto a wireframe object. Transparency is

much more complex in terms of shadow and reflection compared to solid or modulated textures. Not only does the material itself need to be generated but also the materials which are perceived to be on the other side and as such requires at least double the amount of computational intensity. This may force the digital architect into the position of limiting the amount of transparency or openings, as well as the number of lights.

technical considerations for a tectonic of digital space

In addition to an architecture considered as one of veneers on surfaces one must also understand the impact that hardware limitations have on principles of spatial transparencies. Bertol suggests that in order for models to be regenerated at rates that are satisfactory to providing the sensation of full motion they should be divided into smaller models which are only loaded as they are used (Bertol, 94). She suggests that the threshold between one "submodel" and another submodel should be separated by a door or other physical barrier so that the dweller cannot see what is on the other side of that threshold until such point as it is crossed. At this point the next submodel loads and the previous one dissolves. This modeling principle challenges the extent to which spatial transparencies can be utilized. An alternative to these separations which has been used in some instances is for the space to load continuously, simply materializing in front of the dweller as he or she moves through it. The thresholds in these instances separate implied zones of inhabitation.

In order to preserve spatial transparencies the spaces which come to form the transparencies themselves may need to have their tectonic development truncated in the interest of reducing polygon counts. Curvilinear shapes and meshes require many more polygons to generate than do rectilinear surfaces. Small pieces of connecting hardware such as bolts which might not be noticed anyway while running by at high speeds with a gun in your hand for instance might need to be eliminated.

technical considerations of the Memory Palace

The memory palace is intended to be used as a CD-ROM product on a personal computer or be connected to an immersive display. The user moves through the space with either a keyboard, mouse, or joystick, and clicks on objects and images to move and interact with them. The construction must be developed to a level which respects the ability for multiple users to connect to the space. It has been developed with the intention of being placed into a software engine for the purposes of generating and regenerating the movements and actions of the various users. The software engine also allows for the spaces to be reconfigured with different combinations of images and objects from the warehouse in order to assist with future speeches, thus giving the architecture at the moment it is being used a greater significance through its potential for subsequent usage. In this media the spaces and textures are able to be more fully developed than if the model was intended for VRML, however they can be modified for this implementation at a later stage.

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IMAGE CREDITS

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Title Page, Acknowledgements: Renderings by the Author

Page 2: Renderings from the Movie "What Dreams May Come," Computer Graphics World Magazine, December 1998. p. 44. Graphic from Online Document: www.tkai.com. Etienne-Louis Boullée, Bibliotheque du Roi, drawing by the architect in Kostof, Spiro. *A History of Architecture* (Second Edition). New York: Oxford University Press. p. 566.

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Page 6: Tower of Babel, in Kostof, Spiro. *A History of Architecture* (Second Edition). New York: Oxford University Press. p. 62.

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Page 15: Stock 3D Computer model of Notre Dame Cathedral from Online Document: www.viewpoint.com.

Page 18: Screen shot from multimedia game Qin: Tomb of the Middle Kingdom from Online Document: www.viewbyview.com, Screen shot of University of British Columbia School of Architecture VRML Gallery from Online Document: www.construct.net

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Page 21: Advertisement for Windows from *Architectural Record*, October 1993.

Page 23: Diagram of prefabricated steel construction from Online Document: www.steelcorp.com

Page 24: Self Storage Unit from Online Document: www.pinnaclestructures.com, House from Stock Model Library of Viewpoint Datalabs Online Document: www.viewpoint.com

Page 25: Screen shot from the movie *12 Monkeys* obtained from Online Document: www.geocities.com/Hollywood/Boulevard/8928/chair.jpg

Page 29: Screen shot from the movie *12 Monkeys* obtained from Online Document: www.geocities.com/Hollywood/Boulevard/8928/engine1.jpg

IMAGE CREDITS

the visionary architect in practice: a memory palace

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Page 30: Asian Coca-Cola Advertisement from Boigon, Brian. *"Fast Talk For Smart People."* In Boigon, Brian. (ed). *Culture Lab 1*. New York: Princeton Architectural Press, 1993.

Page 33: Office Building by Frank Gehry from Online Document: www.skewarch.com

Page 34: Collage by Author of Robert Venturi's Duck and Decorated Shed from Mitchell, C. Thomas. *Redefining Designing: From Form to Experience*. New York: Van Nostrand Reinhold, 1993, p. 16 and Burger Restaurant from Stock Model Library of Viewpoint Datalabs Online Document: www.viewpoint.com.

Page 37: Collage by Author including Avatarchitecture by Marcos Novak.

Page 41: Sample Textures available on CD-Rom from www.3dcafe.com

Page 47: Screen shot from movie *The Shining*

Page 50: Marketing Material collage work by Author

Page 53: the Ars memoriae, Robert Fludd's Utriusque Cosmi...Historia, Tomus Secundus, Oppenheim, 1619. from Online Document: www.research.umbc.edu/~slin1/paper/imagination.gif

Page 54: Collage by Author of Compact Disk storage medium and Giulio Camillo's diagram for a memory theatre from Online Document: www.cadre.sjsu.edu/switch/sound/articles/wendt/pics/gc1r.gif

Page 57: Screen shots from *The Shining*

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