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RICE UNIVERSITY

CRASH MOTEL, PERCEPTION AND PROCESS:
MACHINES FOR PEOPLE WHO STILL WALK

by

BLAIR H. SATTERFIELD

A THESIS SUBMITTED
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE
MASTER OF ARCHITECTURE

APPROVED, THESIS COMMITTEE

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Houston, Texas
April, 1995
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ABSTRACT

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"The Machine has not divorced us from nature. By means of the machine, we have discovered a new, previously unanticipated feature of nature."¹ Human Beings are divine because they participate in the movements of the world. This was the belief of the medieval person. It was around the time of the industrial revolution that this perception and understanding began to change. The universe was no longer centered on the earth. Humans ceased to be the image of the divine. The machine as an extension of the human being became the machine as an improvement on and subsequently a surrogate for human beings. This thesis investigates the physical machine(vehicle) and its effects on our understanding of space, place, body and relationship. Can the machine foster a new architectural awareness and understanding? An awareness that is lost? What are the ramifications of living in a machine(car) city? What new possibilities are presented?

ACKNOWLEDGEMENTS

A thesis produced without collaboration and support is rare. This is especially true in the case of this project. I wrote this acknowledgment to express gratitude to all that helped me complete my project. The assistance, encouragement and friendship of my professor and advisor Yung-Ho Chang was, and is instrumental in the development of my own work. He provided needed insight and drive. I would like to thank Lars Lerup, Dean of the RSA for providing an atmosphere that allows for the exploration of ideas; affording me the opportunity to pursue my own. Albert Pope provided timely criticism necessary for the progress of my project and was a terrific help when I needed a fresh look at my work. Elysabeth Gamard helped frame the project in a critical and historical context. I would also mention Stephen Fox for providing inspiration. Thanks to Kathleen Roberts; Elaine Sebring, Terry Schomberg, Dwigh Dear and Micaela Salce, without their help and knowledge, graduate studies in architecture at Rice would be an impossibility. Next I must express thanks to my cohorts at Rice. I have been fortunate to work with a strong group of people who I am happy to have as friends and colleagues. Lastly I would like to express my devotion and gratitude to Peter Chen, Mark Kroeckel and Jonathan Greene for their friendship and collaboration, my parents Robert and Mary Ellen, without whose support, love and encouragement I would be lost and to Tracy Rhodus for her patience, tolerance, support and encouragement.
INTRODUCTION

This Thesis is executed as a process of drawing and building. It is a an exercise in experimentation, distillation and interpretation. Ideas are taken from a series of studios and projects that concern living in a car culture. The phenomenon known as the automobile is crucial in understanding the spaces explored in this thesis. Also crucial is the forced juxtaposition of two separate programmatic types and the car.

A motel and a toll plaza are arguably two entirely dissimilar entities. The problems of scale, autonomy and function limit a literal translation between them. It is this understanding that emphasizes a potential diagrammatic harmony between the two spaces. It also pushes the exploration of new types. The quality of enclave, the incorporation of the automobile and the similarities between (results and effects of) an automotive check point and a planned building complex designed for the user of the automobile provide the fuel necessary to drive this thesis. Houston, Texas is the backdrop for this body of work. It serves as stimulus for many of the ideas that are developed within it and because of it.

Houston is a city of lanes and transitional spaces weaving within an urban milieu. It is on these arteries, coursing through the seemingly endless sprawl of city and suburb known as megalopolis Houston that this project takes place. The actual site for the project is the road. The freeway and the street; both
settings that are all at once nowhere and everywhere, transitional spaces and destinations in and of themselves.

In 1967 Michel Foucault delivered the paper "Of Other Spaces: Utopias and Heterotopias" at the Centre d'etudes architecturales in Paris. It is a treatise that explores the understanding of spaces created and inhabited in modern society. As documented in George Teyssot's article titled "Heterotopias and the History of Spaces," the heterotopic space is described as follows.

"(The heterotopia is) '...a kind of utopia where any real cultural space is contested and inverted in the process of representation; places that are, therefore, outside the spatial boundaries conceived by society, but whose actual position can be effectively determined.' In this manner the space acquires a dual significance--spatial as well as temporal. It signifies a 'discontinuity' in time, an interruption of sorts, a sudden rupture within the order of 'knowing' and--at the same time--a detached heterogeneous place disposed against the background of the spatial continuum."¹

The concept of the heterotopia is interesting when considering the freeway and the motorized vehicle.

The automobile is a temporal machine. It mediates the varying speeds of the outside world through a static frame (discontinuity in time). The shifting of experience occurs largely within the temporal dimension. Outside space compresses or expands at varying rates determined by the speed of the

automobile (a sudden rupture within the order of knowing). The body itself remains relatively static regarding its exterior surroundings. These observations call the very nature of the automotive experience into discussion. Although the idea of heterotopic space is not central to this project, it is present as a rudimentary theme. One underlying question is whether the freeways and streets of Houston are indeed heterotopic sites. Do they remain such when program is placed directly on the street? Is the specificity of place within the American city becoming less conspicuous? These questions seem especially pertinent when dealing with Houston, Texas.

View from Houston medical center looking towards downtown.
SPREAD CITY

Transportation and cities evolve together. Following a national trend that began in the 1980's, jobs have moved outside the city. Now for the first time ever more people work in suburbanized areas than in downtown urban centers. Outside the sphere of rail and other public transportation systems, residences and jobs are now only accessible by way of the automobile. White collar workers have shifted their lifestyles, moving away from densely populated urban centers. Left behind are the large numbers of blue collar workers that used to thrive in the formerly industrial Metropolitan centers. The relocation of businesses to edge cities and foreign countries has effectively stranded many working class citizens, locking them into a geographic area because of a lack of appropriate transportation. Driving an automobile is rapidly becoming a prerequisite for survival in the United States.

As jobs move to suburban areas, opportunities slip away from those who do not have cars. Along the belt ways of America, edge cities grow. There is some concern that the new peripheral city centers will not be able to substitute for the social fabric of the older cities that they invariably replace. Ours is a society that places a nearly limitless value on individualism and independence. This fundamental belief goes straight to the topic of transportation and mobility. Mobility presupposes that people are able to get around. As Americans we have
equated the issues of speed with that of mobility. We want to be able to get on the freeway and go. The difficulty lies in the fact that the freeway never quite fulfills the promise of what it symbolically represents. It is the automobile that is the ultimate freedom for the American. It is also the automobile that has played a large part in permitting segregation and the break down of society. This thesis does not look directly at the social aspects of the rapid suburbanization of American cities, but rather the spatial, organizational and phenomenological implications that result from this urban trend and the automobile.

Houston presents itself differently from the industrial centers of America’s east and midwest. It is more akin to the cities of America’s sunbelt. Like Phoenix and Los Angeles, Houston is a metropolis of sprawling and decentering. It is a spread city, a polinucleated contrivance that deals with a burgeoning urban population by moving out and not necessarily up. Houston lacks a single specific focus. It presents itself as a shifting matrix of highway, home, commerce and industry.

It is instinctive to think of the car as the key developmental factor when considering the urban spaces of Houston. Although the current incarnation of the city revolves around the automobile, it is important to note that the city began with no connection to this technology. "There is a mistaken impression that the structures of cities such as Houston and Los Angeles are the deterministic result of automobile technology. Yet both cities were originally laid out, to a substantial
degree, as streetcar and street railcar (municipalities). As late as September 1909 Houston, then a city of only 78,000, had 51.4 miles of street car lines. By the 1940s Houston had lost its railway system and the city was becoming auto centered.\textsuperscript{2} This auto centering is what largely defines the current experience of interacting with the city of Houston.

Established in the 1830's, the metropolis preceded the automobile by several decades. Its initial development mirrored that of many of its contemporary pre-industrial and then industrial American counterparts. Houston first grew up around shipping and industry. Strategic location, one of the primary advantages for the young metropolis, indicated potential for growth and prominence from the beginning.

"Nature appears to have designated this place for the future seat of Government. It is handsome and beautifully elevated, salubrious and well watered, and now in the very heart or centre of population, and will be for a length of time to come. It combines two important advantages: a communication with the coast and foreign countries, and with different portions of the Republic....In a few years the whole trade of the upper Brazos will run through this channel.\textsuperscript{3} Although Houston's reign as capital was short lived, and its climate less than thoroughly hospitable,

\textsuperscript{3} David G. McComb, \textit{Houston, the Bayou City} (Austin, TX, London: University of Texas Press, 1969), p.12.
it still partially fulfilled the prophecy by growing to be a major economic center. As a shipping hub the goods from the republics' interior did pass through the city.

Shipping and trade defined the early economy of Houston. Cotton and Lumber became increasingly linked to its financial health. Transporting these and other goods became increasingly important. This growth in trade was accompanied by a need for improved trade routes and an increase in national visibility for Houston. The Buffalo Bayou was dredged in 1870 by the Buffalo Bayou Ship Channel Company. Also in 1870 the federal government named Houston a port of entry, authorized a customs house and a survey of the proposed waterway into the city. Railroads established further links to points around the country. This focus on shipping helped define the financial center as a legitimate downtown. It was not however the only driving force behind the formation of Houston's identity and current physical manifestation.

Unlike New York, Boston, Chicago and Americas other "frostbelt" cities, most of Houston's principal development occurred after the arrival of the automobile. Census returns taken from the Chambers Encyclopedia reinforce this growth pattern. When Houston's returns are compared to those of Chicago, it becomes readily apparent that the two cities matured during entirely different eras.
<table>
<thead>
<tr>
<th>Year</th>
<th>Chicago</th>
<th>Houston</th>
</tr>
</thead>
<tbody>
<tr>
<td>1840</td>
<td>4,853</td>
<td>1880</td>
</tr>
<tr>
<td>1870</td>
<td>306,605</td>
<td>1900</td>
</tr>
<tr>
<td>1890</td>
<td>1,099,850</td>
<td>1910</td>
</tr>
<tr>
<td>1910</td>
<td>2,185,283</td>
<td>1940</td>
</tr>
<tr>
<td>1940</td>
<td>3,376,438</td>
<td>1950</td>
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<tr>
<td>1950</td>
<td>3,620,962</td>
<td>1960</td>
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<tr>
<td>1960</td>
<td>3,550,404</td>
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</tbody>
</table>

Chicago's population boom occurred during the nineteenth century. The city reached its zenith and leveled off by the 1940s. Houston on the other hand continued growing at an alarming rate. This growth pattern has continued through the present. The 1990 census shows Houston with a population of 1,630,553 individuals in the city proper. The greater Houston metropolitan area is approaching a population of four million. Chicago on the other hand has actually decreased in size within the boundaries of the metropolis. The cities population stood at 2,783,726 people in 1990, down close to one million residents from its 1950s high *(Encyclopedia Britannica)*. Interestingly, the Chicago metropolitan area as a whole posted a gain in population over the same time period, growing to nearly nine million people. Chicago, as a representative of urban centers that
developed prior to the modernization of the American metropolis in the 1920's, was not conceived as a suburbanized city. The suburbanization of the city occurred as a new technologies and life styles presented themselves.

As with many of the younger urban centers in the United States, Houston rode the wave of increased global economic participation that occurred after World War II. A unilateral increase in population, global economic participation and a demographic shift from rural to urban areas all contributed heavily to this growth pattern. The city's topography, defined by a crazy-quilt patchwork of major and minor arteries, is largely the byproduct of the development that took place in the decades that followed the World Wars. The resulting lattice armature serves as the more stable component in a shifting collage of function and urban form.

In the years following the World Wars, Houston became increasingly involved with the capitalistic world economy. At the close of the WW2, the city's own economy, although fairly well diversified, revolved primarily around the petrochemical industry and manufacturing. Involvement with the petroleum industry allowed the city to pass relatively unscathed through the great depression nearly fifteen years earlier. Support of the war effort translated into an economic shift from shipping to manufacturing. Once peace was again established it was a relatively simple task to turn the new manufacturing

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4 The 1920's marked the first time in American history that more than fifty percent of the nation's population lived in urban areas. It is commonly considered to be the time when most Americans shifted into the modern era.
infrastructure into a financial boon. These industrial shifts meant the replacement of the lumber and cotton trade as the primary economic mainstays in the city. The new financial backbone of Houston has remained of terrific importance to the present.

The government's involvement in several areas facilitated the growth of Houston. The continued support of military-industrial aid (petrochemicals and NASA), federal aid for business determined infrastructure (highways), local state aid for transport (ship channel) and local state aid for business goals (weak regulations) all weighed heavily in Houston's evolution. This "...close relationship between the state and the business elite is one of the more revealing aspects of Houston's political-economic evolution."\(^{5}\)

When driving through the freeways and interchanges of Houston's transportation system, one confronts a shifting fabric of urban development. The face of the city ranges from the glass towers of corporate big business to the shotgun houses of the poorer wards. All of these urban components are visible from Houston's overpasses and freeways throughout the environment of urban congestion and sprawl.

It is the automobile and its support structure that are key ordering elements, imperative in defining its urban landscape and its spatial manifestations. The new traffic patterns layer themselves on the old city grid and

\(^{5}\) Faegin, p.5.
push outwards into a landscape of tract houses and suburban type commercial centers. Today's Houston is the result of a total devotion to the automobile, a devotion that has cost the city much of its potential urban life and character in a traditional sense.

Subsidized highway construction was a trend that swept the nation in the middle part of the twentieth century. The climate was ripe for the automobile and its presence helped determine the spatial configuration of many American cities. In the 1950's an international highway network was proposed by President Dwight D. Eisenhower in the guise of a national defense system. This began a wave of interest in development and Houston was aggressively participating. "Private-sector capitalists, many associated directly with the auto and road construction industries, and government officials developed a major public relations campaign to generate public support for a tax-funded national highway system. In the mid-1950s a law was passed setting up a Highway Trust Fund collected from gasoline taxes to build an interstate highway system." These developments sealed the fate of many urban infrastructures as well as that of the American train network. No longer would the railroad enjoy its former status as the primary industrial life-lines of the nation nor would American citizens pass on the opportunity to function within the most democratic of all modern systems of mechanized transportation and urban living.

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6 Ibid., p.182.
This was especially true in Houston. The decentralization of office and living space in the city was imminent. The rented office space in downtown Houston dropped from 95.5% of the city's total in 1950, to less than 50% in the late 1970s.\(^7\) The offices had moved out to the suburbs with mixed-use centers often focusing on shopping malls. Lax zoning combined with the arrival of the space program in the 1960s, the development of the medical center and a relatively unrestricted pool of developers that enticed businesses to move to cheaper outlying properties did much to facilitate this phenomena.

Office parks, shopping malls, and suburban developments, all the result of a technological intervention (machine = automobile) and the capitalistic and socio-political climate that accompanied that intervention, have served to create a system of decentralized business activity centers. These centers have influenced the entire dynamic of the city, its functions and the interactions that occur within it. Houston had become the spread city. The automobile was a principal player in both administering and shaping real estate developments in Houston and its suburbs. Business, industry and housing all located themselves along the various transportation spurs that run throughout the megalopolitan area. What was once an urban hub is now a city of spokes.

These observations are critical when examining urban spaces in Houston. The placement of neighborhoods, shopping and other various support networks

hinge largely on the automobile and its accessibility to and from specific locations. It is also contingent upon views from within the vehicle. Houston is a city that drives. It is estimated that the average Houston motorist drives about twenty-four miles each day⁸. This level and type of interaction with the city is what defines the public experience of living in Houston.

The interactions with the freeways of Houston and the automobile itself lies at the heart of defining and understanding spaces like that of the toll plaza. The direct relationship of building type to the automobile and the automotive lifestyle have dictated the formal development of architectural types that include the motel. What links both of these models is the automobile, road and the ideas of spatial, social and urban phenomena that have resulted from it.

The crashing of types is a challenging problem because it deals not only with urban context and development, but also with issues of scale, speed, time and process of development. What is probably most important is the understanding that analysis need not be taken at a completely literal level when involving ideas of scale, shape and relationship. Potentially it is the less obvious readings that can express ideas and create new interpretations.

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⁸ Ibid., p.223.
"Soon after three o'clock on the afternoon of April 22nd, 1973, a 35-year-old architect named Robert Maitland was driving down the high-speed exit lane of the West-way interchange in central London. Six hundred yards from the junction with the newly built spur of the M4 motorway, when the Jaguar had already passed the 70 m.p.h. speed limit, a blow-out collapsed the front near-side tyre. The exploding air reflected from the concrete parapet seemed to detonate inside Robert Maitland's skull. During the few seconds before his crash, he clutched at the whiplashing spokes of the steering wheel, dazed by the impact of the chromium window pillar against his head. The car veered from side to side across the empty traffic lanes, jerking his hands like a puppet's. The shredding tyre laid a black diagonal stroke across the white marker lines that followed the long curve of the motorway embankment. Out of control, the car burst through the palisade of pine wood trestles that formed a temporary barrier along the edge of the road. Leaving the hard shoulder, the car plunged down the grass slope of the embankment. Thirty yards ahead, it came to a halt against the rusting chassis of an overturned taxi. Barely injured by this violent tangent that had grazed his life, Robert Maitland lay across his steering wheel, his jacket and trousers studded with windshield fragments like a suit of lights."⁹

A crash implies an act of violence, a sudden, intense and unnatural interaction between bodies, objects, ideas... In such a situation, new relationships are born, and perceptions are altered, twisted by the manipulations of unexpected force. It is the unanticipated that is the greatest potential of the crash. The opportunity to discover the new relationship or, maybe more

importantly, the ability to perceive existing reality as the result of a sudden upheaval, the perceiver having been thrown into an unexpected point of view.

The crash program should not be confused with the hybrid building. Crashing looks at the collision for its ability to alter perception and to foster new ideas. The hybrid building, born out of the urban and industrial boom of the late 19th and early 20th centuries, grouped programs together with economic viability as the key criteria.\(^{10}\)\(^{11}\) This thesis does not deal with hybridization, as such.

The real experiment lies in the crashing of architecture. The hope and aim of such an exploration is that the crash (of program, type, function, perception, experience, man, machine, etc.) may provide the genesis for new ideas and new questions, while revealing existing experiences and situations not readily apparent prior to the event. By crashing over the trestles of the Westway Interchange, Robert Maitland was unexpectedly forced into dealing with a set of circumstances he had obliviously raced past just a few days before. It is the effort of dealing with the consequences of the manufactured crash that will propel this thesis project.

This project explores investigations and developments born out of a semester's work dealing with the concept of crash and the phenomena of the

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automobile. It is supported by subsequent research that looks at historical reference and establishes possible precedent for the pertinent ideas. The following section will explain the basis for this particular crash program.

_The toll way/tollbooth, motel, automobile and individual crash._ "The machine has not divorced us from nature. By means of the machine, we have discovered a new, previously unanticipated feature of nature." ¹² A tollbooth is a place at which an individual pays a fee in order to _go_ on the road. The motel is a place at which an individual pays a fee in order to _stop_ on the road. This relationship inspired a crash and, subsequently, a comparison of these architectural types. In an attempt to express the experience of the aforementioned relationship, the following "equation" was derived:

\[
\text{Toll way} = 60 \text{ mph} - (0) - 60 \text{ mph} \\
\text{Motel} = 60 \text{ mph} - (0) - 60 \text{ mph}
\]

This simplistic representation, though limited, indicates one intrinsic quality in the relationship between the toll way and motel. A relationship that involves elements of both function and perception. They are duration, location and speed. The rate of approach and departure are similar in both cases. It is

the duration and nature of the stay that varies. Further thought has indicated that it is the vantage point provided by the machine, in this case the automobile, that makes these experiences manifest themselves. Mohaly-Nagy made the statement that "space is the relation between the position of bodies." This quote not only gives an interpretation of the nature of space, but also implies that space can only be experienced as a union of all the human senses. Is this the case while inside a moving vehicle?

Toll booth on Hardy toll road, Houston, Texas.

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QUESTIONS ABOUT SPACE AND MACHINES

The crashing of programs (tollbooth and motel) and user/occupant (automobile and individual) has led to a series of questions and explorations. These inquiries include the following:

1. **SPACE, spatial perception and thus spatial conception.** The manifestation and expression of space.

   "Can a geometrical spatial concept be replaced by a concept based on man's experience of space?"\(^\text{14}\)

2. **SPEED (rate) in relation to space (1.).**

   How does speed affect perception?
   
   Is space different at different rates and vantage points?
   
   Is movement within a space the best way to understand it?
   
   Is it the only way?
   
   How does this relate to the relationship of body-to-automobile-to-road?
   
   Is this relationship applicable in an architectural exploration?

PLACE (location, reference, containment) in relation to space(1.) in terms of object and architecture(3.)

3. **The MACHINE (vehicle) and its effect on physical and conceptual understanding of space, time (1. & 2.) and place.**

How does the artificial enhancement/alteration of our abilities affect how space is perceived?

How space is conceived? How space is expressed?

How does the machine define its own space? What are the ramifications of the machines definition of space when combined with our relationship to the machine?

Does the machine create or define a place?

What are the relationships between the temporary and the permanent place?

*Can the machine as an extension of man give a new architectural awareness or understanding?*

*Does the machine direct how we interact with or inhabit a space?*

4. The building **program and type as they relate to concepts of space, speed (time) placement and machine (vantage point)** (1., 2., & 3.).

These inquiries and ideas lead to the ultimate question of any design thesis:

*How do these questions manifest themselves in an architectural response?*
NEW INVENTIONS

"New inventions...will bring about a new reality."\textsuperscript{15}

El Lissitzky (1928)

New inquiries into existing inventions have the potential to do the same. Investigations relating to this project have inspired an interest involving concepts of time and perception in relation to space. It also has opened up inquiries that include the following: scale, placement, vacancy, gaze, transience, the temporary vs. the permanent, portability and the phenomena of center and place. In addition to these ideas, questions present themselves concerning the autonomy of experience and element, framing and containment of object and view as well as the fundamental relationship of subject to object.

History indicates that the late 19th and early 20th centuries saw a technological and cultural boom that gave birth to radically new ideas of space and time. With the great influx of technological innovations came an acceleration of life's pace. The machine offered a new medium that determined how we interact with our environment. The development of the telephone, x-ray, bicycle, airplane, cinema and automobile all contributed in laying the groundwork for a readjustment of the boundaries of human perception and thought. Ragtime,

\textsuperscript{15} Lissitzky, p.141.
Jazz, and the arrangements of Stravinsky also reflected the manic, accelerated and broken pace of modern life, and more importantly for this thesis, a new awareness of these changing conditions. The ideas of Albert Einstein ('motion relative to a practically rigid body of reference\textsuperscript{16} and cubism suggested multiple vantage points as a means of expressing the perception of time and space. Man's place in the world was not as concrete as it had been for the past five hundred years. The Futurists, Suprematists, Constructivists... all held related but disparaging views of the 'true reality'. All were exploring means of understanding and representing the world in which they now lived. A world in which convention had been shattered, causing even the mundane to be re-evaluated. It is from this period that the spirit of this thesis comes. It is our current condition and state of flux that helps inform its continuation.

This project is not purely about perspective and other representational systems. Nor is it limited to an exploration of the gaze, framing of objects, questions of time and movement, a historical discourse or an attempt to explore form for forms sake. This thesis is meant to look at some or all of these trends and use them to distill a relationship of ideas and form that explain, or even better facilitate a unique spacial and architectural understanding. It is a procedural exercise and therefore an exercise in experimentation, distillation and interpretation.

In order to appropriately establish the foundation for the work done in this thesis it is necessary to establish an initial trajectory of ideas about perception and representation. This is especially relevant because the automobile, as the subject, or at the very least the mediator for the majority of this work, is being interpreted using a historical frame of reference. The models for this framework are drawn from the realm of two dimensional representation.
PICTORIAL REPRESENTATION AND NARRATIVE SPACE

The next step in establishing a frame of reference for the project will be a critique of four paintings created by three prominent artists: Arnolfini’s Wedding by Jan Van Eyck, Las Meninas by Velazquez and Rene Magritte’s ‘Pipe’ renderings. These works were selected as examples in order to supplement the notion of pictorial representation. First with van Eyck, a fascination with the subject vs. the spectator is presented, then the development of that relationship as it becomes increasingly spatial and lastly the subversion of that space. A subversion that is not without its epistemological continuity.

It is necessary to note that the art of the Renaissance and post-Renaissance seldom deviated from the idea of looking through a window (the canvas) into another realm. Until the beginning of the twentieth century with the onset of Cubism, perspective remained the prevailing paradigm in painting. The development of linear perspective had defined a new set of relationships between the article and the perceiver. What resulted was an unmistakable detachment, a spectator oriented gaze between subject and object. The object exists as a representation through the two dimensional veneer of the image which is invariably shown in its entirety. This enables it to constitute a domain in and of itself, its narrative bound within a defined frame of reference. This is not to say that it never excluded fragments of visual information, or left portions of the
story to the imagination. Typically however, the visual narrative was contained within the picture.

What is perhaps most interesting about the development of this system is the unforeseen potential for involving the spectator in the construct. The techniques of perspective now could force a viewer's projection into the painting, thus making the spectator his or her own frame of reference. The technique of painting now indicated a subject's involvement as more than that of a mere spectator. The beholder is now able to project consciousness into the picture frame. One could also argue that the observer is drawn into the picture plane. This viewpoint operates at a more subtle level, preferring the artwork as opposed to the more proactive notion of projection.

The *Arnolfini Wedding* (1434), a pre-Renaissance work, starts to promote questions concerning the gaze and the position of the spectator. The painting portrays a wedding scene. The groom is standing on the spectator's left holding the hand of the bride who is located to the observer's right. Central to the painting and directly behind the couple is a circular convex mirror. In that mirror the observer is able to see two people, one of them the painter Van Eyck himself. This portrayal was initially intended for its literal narrative content of witness to the act of matrimony. It has had a more far reaching effect as an action that has fueled questions regarding its conceptual significance.
The mirror is positioned at the true vanishing point of the portrait. This creates an interesting situation in which the artist is all at once the object and the subject of the viewers gaze. He is also a participant in the picture by serving as witness to the act. This is reinforced by the presence of a second individual within the mirror. The presence of a second witness was mandatory in the legitimization of a wedding. The painting is now serving as a marriage certificate.\footnote{Erwin Panofsky, \textit{Early Netherlandish Painting}, op. cit., vol 1, p.201-203.}

In the space of the mirror there are now two people presented frontally in addition to the reflected representation of the married couple. These individuals are the painter and the anonymous witness. Because of this decision by van Eyck, the spectator is established as an additional witness and recorded in the painting. This act constitutes a second vanishing point. It also sets up the projected imaginary double which is to recur in the Velazquez work. The imaginary double or projected subject will again reappear and subsequently be further abstracted in Magritte's \textit{Ceci n'est pas une pipe}. The subject's gaze is now engaged within the painting. This fixes a correlative affinity between the image and the subject. The second vanishing point, the inscribed spectator, the use of a mirror as a spatial and projective decoder and the gaze of the subject are all themes that Velazquez elaborates on in \textit{Las Meninas}. 
The true canonical work that begins to dispute the characteristics of representation in the painted medium was Velázquez’s *Las Meninas*. "A representation of representation, and not of a representation,"¹⁸ here the painter skillfully engages the spectator in the narrative. He does this by inducing an act of interpretation. The illustrative content of the canvas presents a sequence of ‘tools’ with loaded symbolism; the back of a canvas, a back lit doorway, a mirror portrait and portrait of a mirror. The looks and gestures of the subjects themselves provide the next level of information. Foucault contends that the piece of work induces a flutter in attention on the part of the viewer. This means the viewer is first involved in the painting literally in its pictorial content because the observer appears to be the subject of the painter, as well as cognitively when an attempt is made to decipher the painting itself. Presented almost as a scenic curiosity, we are not immediately aware of the nature of what is being represented. That immediately forces the work into a cognitive domain as it requires deciphering, both literally in its content as well as metaphorically.

Velázquez continues to develop this dialectic by shifting the bounds of the representational system. Two frames are presented on the far wall. One is a doorway that contains a figure commonly referred to as “the second Velázquez.”¹⁹ The contents of the second frame is a bit less obvious. It contains the slightly fogged image of a woman and a man. Whether this frame represents

a mirror or painting is unclear. Convention regards the frame as a mirror containing the images of the models observed by the painted painter. This interpretation is due largely to the luminescent quality of the image within the frame. The “mirror” frame is clearly a unique condition, especially when compared to the other shadowy images that adorn the room. This explanation maintains a level of narrative complexity that would be lacking if the second frame was read as painting. Multiple readings are part of the strength of *Las Meninas*, which has been compared to a “...musical composition lending itself to multiple interpretations, none of which can be definitive.”

The reading of the figures represented within the glass is of great interest. It is commonly agreed upon that the individuals depicted are in fact the king and queen of Spain. This understanding is even more intriguing since the observer is not depicted within the same context, that is unless the role of royalty is assumed. Because the mirror falls at an implied vanishing (focal) point, the viewer might expect to be represented within the mirror as part of the cycling of gaze between object, subject and back again. This does not happen.

The canvas both displayed and implied at the right hand edge of the image serves as a spatial framing element between the observer and the rest of the narrative. This frame is implied in both directions given that several of the characters within the painting are focused on the subjects who sit outside the

20 Damisch, p.426.
canvas. Their collective gaze is trained on the position of the implied observer/subject. This gesture is compounded by the presence of the mirror. The mirror in fact is not the true vanishing point of the painting.

It would be too easy to assume the vanishing point to be situated at the convergence of the spectator's gaze (the mirror). The vanishing point is in fact below the elbow of “the second Velázquez” who is standing in the doorway deep within the work. Presumably this spot is indicated by the fact that it is the brightest part of the painting. In effect Velázquez sets up the narrative based on a perspective paradigm and proceeds to subvert that system through the use of visual texture. This understanding places the royal couple on the spectator's left. Geometric analysis proves that improbable because it would place the image reflected in the mirror on the canvas rather than as a reflection of represented physical subject. The attention flutter that Foucault refers to can be seen literally as the eye roams the depths of the painting. This construction blurs the distinction between that which is represented and that which is representational. This is also true of the Arnolfini Wedding.

The disparity between the perspective construction and the power of the image is a degree of subtlety that begins to undermine the *construzione legittima*. Velázquez was able to operate within the framework of the constructed linear perspective. He began to break that visual system apart through the series of complex relationships that extend beyond the limits of pure pictorial space.
The convergence of the eye to the mirror eventually would render a metaphorical or imaginary center. That Velazquez has cleverly 'moved' the center of focus and not the vanishing point from the doorway to the mirror precludes the assumption of the linear perspective as the most logical method of spatial representation. "If there is any representation in painting, the configuration of Las Meninas reveals it to consist of a calculated discrepancy between a painting's geometric organization and its imaginary structure."\(^2\)\(^1\) Despite a strict conformity to a specific drawing convention, the perception of the work is still and possibly primarily affected by the material and light that one has to take into account for its interpretation.

Another relationship occurs with the inclusion of the doorway. By placing the vanishing point beyond the door, the gaze and the vanishing point are put into "infinite flux", which is occupied by the second Velazquez. A second double that now elicits an illusory metaphor of the canvas (the real painting) as mirror. This in turn implicates a third Velazquez, mainly the physical person as the artist himself. It is almost as if he had to validate his presence in the scene by his role as witness, again similar to van Eyck's Arnolfini Wedding. Instead of being the painter with a direct gaze towards the infinity of the vanishing point, the second Velazquez looks into the picture in the hidden canvas, triangulating yet another sequence of speculative views. A work such as Las Meninas remains a

\(^{21}\) Cole, p.34.
canonical piece today, with few other works taking on as rigorous an assault on the limits of representation.

Duchamp began to deconstruct the notion of the *construzione legittima* but it was not until Cubism that linear perspective was challenged for its representational inadequacies. "...In 1957 painting was no longer in the age of representation, its characteristic game of mirrors had come to an end."\(^{22}\)

The connection between van Eyck, Velazquez and Magritte is not grounded in aesthetic content, technique or even mode of representation. It is the query into the logic of pictorial representation that is the fundamental link between these painters' work. The paintings by Magritte that are of interest specific to this thesis are *Ceci n'est pas une Pipe* (1927) and *Les Deux Mysteres* (1966). The first painting (also the first painting in the 'pipe' series) contains the image of a pipe within the amorphous space of the canvas. Below the figure, written in simple script, is the phrase "Ceci n'est pas une Pipe" or "this is not a pipe." The second 'Pipe' painting, *Les Deux Mysteres*, contains a similar pipe placed in a floating space beside an easel. On the easle is a second painting of a pipe and the script "Ceci n'est pas une Pipe" or again "this is not a pipe."

These pieces by Magritte remain ambiguous because the traditional notion of visual depiction (based upon the literal delineation of pictorial condition) keeps its inherent interpretive value through a manifestation on canvas. Magritte

\(^{22}\) Damisch, p.438.
spatially decontextualizes his work and then subverts it through text. *Las Meninas* remains such an enigma because it still extends beyond our ability to definitely comprehend its situation. Magritte managed to subvert affirmative representation by means of simultaneously offering a real representation with a (con)textual negation.

Like *Les Meninas*, *Ceci n’est pas une Pipe* is, at a simplistic level, blatantly representational. Its significance lies in its power to elicit the conscious. The lure is also partly from the apparent banality of the subject matter which does not necessarily appear immediately sensual. It can be considered that the appeal of *Ceci n’est pas une Pipe* rests primarily in the cognitive question that it poses and not the image it represents. The seductive nature of the tease draws attention.

There is a certain level of complexity involved when deciphering a narrative that is either obscured, as in Velazquez’s work, or incongruous, like Magritte’s paintings. Foucault speculates that there exists a (cognitive) state worse than the incongruous, that of the *heteroclite* \(^\text{23}\) which is described as a condition where components are...

"...in such a state, things are “laid”, “placed”, “arranged” in sites so very different from one another that it is impossible to find a common place beneath them all. *Utopias* afford consolation: although they have no real locality there is

\(^{23}\) Michel Foucault, *This is not a Pipe*, (Berkely, CA.: University of California Press, 1983), p.4.
nevertheless a fantastic, untroubled region in which they are able to unfold...*Heterotopias* are disturbing, probably because they secretly undermine language, because they make impossible to name this *and* that, because they shatter or tangle common names, because they destroy syntax in advance, and not only the syntax with which we construct sentences but also that less apparent syntax which causes words and things (next to but also opposite another) to 'hang together'. (H)eterotopias...desiccate speech, stop words in their tracks, contest the very possibility of language at its source; they dissolve our myths and sterilize the lyricism of our sentences.”

*Las Meninas* remains a piece that is greatly referenced. This is due in part to Velázquez’s representation of space and subversion of strict perspectival representation. The techniques used by Velázquez to implicate the subject and its gaze were deconstructed by the Cubists during the first half of the twentieth century. Cubism and the movements that followed attempted to break down the limits of pictorial representation. Magritte’s work, although more commonly allied with epistemology, had broken the pictorial realm and decidedly engaged a new form of space that exists independent of the image and its frame.

There has been a gradual increase in sophistication concerning the subject and how it has been re-presented to the observer. Van Eyck presented a literal subject within the painting itself. Velázquez displayed a speculative cognitive construct that existed outside of the canvas, the painting thus becoming a series of clues and various ambiguities that led indirectly to Cubism

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24 Foucault, p.4.
(experience of the car). Finally, with Magritte, the clues are overtly and intentionally ambiguous; occupying the abstracted primary role of the subject. Magritte’s works correlate strongly to the heterotopic space (realm of the car).
SHIFTING VIEWPOINTS

One of the most dramatic shifts in the realm of art and architecture occurred in the first decade of the 20th century. Born out of the turmoil of the first machine age, Cubism reinvented the means by which the world was viewed and represented. The Cubist painter refused to present the world in a traditional fashion, believing that the single viewpoint produced an incomplete portrayal of reality, the result being only a single remnant of the complete representation of a picture. Instead of adhering to the restrictive perspectival space, the Cubists attempted to use a multiplicity of vantage points in order to describe an object. Cornelius van de Ven expresses the magnitude of this development: "The most important aspect that was to influence the idea of space in architecture is the concept of simultaneity in Cubist painting, a concept that visualizes a coexistence of more than one angle of view on one and the same canvas, thus expressing the duration of the aesthetic experience in time (four-dimensional) on a plane (two-dimensional)."\textsuperscript{25} This idea of four dimensional space suggests a multitude of varied and simultaneous points of view, even though the true vantage point of the beholder to the canvas remains fixed as before. "Cubist aesthetic introduced the concept of four dimensional space in 1912.

\textsuperscript{25} van de Ven, p.182.
Subsequently the basis was formed for all later architectural arguments on space and time..."  

The Cubists tried to interpret perception by exploring the idea of the viewer simultaneously possessing multiple vantage points, thus expressing the concept of movement in space. The Futurist took a different approach. Futurism was less concerned with the idea of station point as it was with the expression of the dynamism and speed of the subject matter. "The Futurists used an approach different from that of the Cubists. They moved the tip of the visual cone outside the eye. They did not want to stand in front of the object, but rather in it."  

Futurism was a radical Italian movement in art, literature and politics that surfaced about two years after Picasso painted the revolutionary Les Demoiselles d'Avignon in 1907. The Futurists advocated the worship of the machine (expressly the automobile) and of speed, to the complete exclusion of more traditional iconography. It was the futurists that coveted an unfettered jump into the new machine era.  

The investigation of both the Cubists and the Futurists and their attempts to represent space, time and speed, seemed a logical step towards understanding and developing my work involving the crash program and the methodology born out of it. How to better understand the spatial and phenomenological implications of our physical relationship to the machine.

26 van de Ven, p. 192.
27 Lissitzky, p.144.
path has been established, but a conclusion is far from being reached. The obvious question is where does this all lead?

First of all, with respect to the history of art, it leads to the utilitarian and propagandistic work of Constructivism, the exploration of arts basic forms: cubes, horizontals and verticals, as elements of aesthetic and spatial expression via the De Stijl movement, and the "...first system of purely abstract pictorial composition, based on geometric figures," developed in Suprematism. All three of these movements played important roles in the development of architectural and spatial thought during the twentieth century. Further research eventually arrived at the work of the Russian, El Lissitzky(1890-1941) as a source of ideas. Lissitzky's development of Three-dimensional Suprematism, of the Prouns, and the spatial theory he established in the essay 'A and Pangeometry'(1925), all have provided fodder and direction for the advancement of this thesis process.

Second, in the direct context of my thesis, this investigation leads to the central problem that is explored; the establishment and use of a methodology developed through the exploration of machine and body, and the spatial and perceptual relationships that develop between and because of their interaction. The direction involves a process oriented exploration.

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El Lissitzky's theory breaks space down into four types: planimetric space, perspectival space, irrational space and imaginary space.
FURTHER CONCLUSIONS

The ideas discussed in this document were first developed during the initial stages of Yung-Ho Chang’s crash studio (spring semester, 1994). It was the crashing of programs (toll way and motel), and the search for a means by which to explore that crash, that allowed for the perception of space in a new or at least unanticipated fashion. The pursuit of this thesis became especially interesting when it was apparent that the initial processes and methodologies arrived at loosely paralleled the progression of art, thought and theory that defined much of the current century. Invariably my work deviated from the paths established during the height of this revolutionary era. I worked on developing a parallel methodology that involved modeling and building. The crucial relationship between the two is that of experience. Both the drawing procedure and the modeling eventually become intertwined, pushing the ideas of both to further conclusions.

My drawings and models, reflect an emphasis on experience, perception and inhabitation, inspired in part by the conceptual crashing of programs and ideas. The second phase of the projects takes a trajectory that leads to historical sources such as di Vinci and Diderot. This stage examines the ideas of rebellion against the automotive city and the lifestyle it spurned. It also searches for a means by which to participate in it. Finally I took ideas from both stages of
the project and used them to arrive at a potential building type. This type explores the ideas of the initial programs involved in the crash and how they might relate to the current urban context as well as the conditions they themselves create.

Working with these constructions forced me to alter my point of view, just as Robert Maitland's literal crash placed him in the middle of a new reality; the concrete island he had previously only observed in passing. Through the rigorous development of my processes, I strove to push and expand upon the ideas, both past and present, that touch upon this thesis proposal, and the materials that aided its development. These processes in turn, helped me create my own spatial constructs both in 2-dimensional and 3-dimensional sites. "The surface of the canvas has ceased to be a picture; it has become a construction....like a house..."30

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WORK

D1.01.94.01

The project begins with a section. The section is a privileged view, designed to allow the architect to see into the building. It examines the relationships of spaces to other spaces, tectonic functions to mechanical functions, and the occupant to the surrounding construct by actively cutting into the building. I chose the section for this reason; it forced the close examination of often disjointed parts, both autonomously and in relation to one another.

The section taken was through a building (Jiffy-Lube), a human body (my own) and an automobile (1987 white Honda Accord LXi 2-door hatchback). The relationship of these elements may go a long way towards establishing the understanding of Houston and the trend of suburbanization largely because the relationship established is partially from both conditions. The drawing is born out of a trip to a wrecking yard. The yard contained row upon row of vehicles in varying states of disrepair. They ranged from what appeared to be mere fender benders to twisted metal heaps that barely resembled their former incarnations.

One particular car was of interest. The vehicle in question had a collapsed driver side door, forcing the seat directly over the center line. This implied a new relationship of driver to vehicle, suggesting a central placement of the driver in the car physically. It is this relationship that inspired the correlation within the section. Pencil on Stonehenge paper.
D1.01.94.01
This drawing represents a section taken through a human body, an automobile and a Jiffy-Lube.
This model begins with slides taken of a toll-booth through the windshield of the automobile. The presence of the mediating frame, the approach and arrival to the place at varying speeds, and the compression of the space onto the glass of the windshield continues the subversion of the space of the road. Paul Verilio describes what is missing in the relationships created by the mediation of technical intervention (television, film, automobile, computer). He sights the problem as a missing dimension; "...what is false, then, is not only the accelerate perspective, the anamorphosis; it is depth itself, the physical and geophysical distance in time."31 If depth is missing, implied only through the mathematical construction of the perspective on a flat surface, then how is this space converted back into three dimensional form? It became necessary to build a tool that would provide a model base and a set platform on which to fix a slide projector.

This is the first attempt at extracting form back out of the projected image. The projected image, originating at a single point, is beamed towards the model surface. Planes intercept portions of the image as they cross certain points in relationship to one another. Because the image projected is a one point perspective, there is a vanishing point. This correlation between the projection and vanishing points, the implied receiving point and the relationship of the

layered objects as mediated through the frame all make for a fairly complex set of relationships. The formal relationships of this model are interesting, but they limit the potential complexity of the project. The work of Guissepe Terragni (Villa Bianca) and Zaha Hadid (Vitro Fire Station) demonstrate the idea of sliding spaces (Terragni and Hadid) as well as literal perspectival form (Hadid).

Construction: cardboard.

M1.01.94.02
One result of slide model.

D2.02.94.03

Because physical and spatial relationship is of primary import, the section cut is again part of the process. The cut is a meaningful tool for examining
space. It is at this point that I set a structural relationship. It is a simple connection; a given for the drawings and the imagined site on which to work. The structure of the site consists of a two-tiered section with multiple automotive lanes on ground level and repeated lanes suspended above them. This became the first drawing of the toll plaza-motel.

It is in this drawing that I begin to play with the vanishing point. The construction of the drawing is no longer as a rational mathematical construct. Perspectives collide as individual spaces are examined within existing perspectival constructs. Vantage point is not always that of the viewer. One inhabits the picture from a series of different vantage points (Les Meninas). Pencil on Stonehenge paper.
D3.03.94.04

Inhabitation takes more precedent within the established order of the section cut. Spaces extend from and recede into the picture plane. This breaks the less defined frame to an extent. The roads are continuous in both directions and the station point is on the center line at several points in the drawing. The bounds of the canopy and pool are somewhere off the page to the left and right, represented as parallel systems. Time presents itself as an element of this construct on a cognitive and narrative level. The structure of the drawing implies a series of divergent reads of the same overall space, taken in the temporal dimension. (Re)construction requires a temporal scope also. Pencil on Stonehenge paper.
D3.03.94.04
Motel, toll-plaza section cut #2.
D4.03.94.05

Moving through the motel room explores the understanding of space as it unfolds. One inhabits the room in a linear fashion and always views it from a station point located perpendicular to the picture plane. Views into and out of spaces define existing constructs and develop new narratives involving inhabitation. The spaces of the motel room flip and rotate because the station point is essentially fixed, shifting along an x,y axis that is parallel to the drawing surface. This forces relationships within the represented spaces that are unforeseen and potentially informative in their ability to establish new space. The organization of the drawing is analogous to a house plan unfolding into a line according to actual inhabitation. The spaces always mediated from the same relationship(frame) and vantage point, much as they are in the car. Pencil on Stonehenge paper.
D4.03.94.05
Motel, toll-plaza section cut #3.
D5.03.94.06

This drawing is an idea study. Possibly a bit literal as well as redundant, it still illustrates an idea of shifting spaces and repeated reads of the same space. Theoretically one could reconstruct a space by viewing fragments of it and constructing it in the mind's eye (Cubism). The study also introduces the windshield as a frame and the rear view mirror as a paradigm in the realm of mathematical spatial understanding. Pencil on Stonehenge paper.

D5.03.94.06
Rendering: shifting frames.

D6.04.94.07

As the viewer inhabits the space of each prior drawing, moving between station points and through the pictorial space, The organization of the whole becomes more clear. Here one explores the movements through the tectonics that define the pool. This drawing gives consideration to the sequencing of movements through the space. Pencil on Stonehenge paper.
D6.04.94.07
Motel, toll-plaza section cut #4.
M2.04.94.08

This model I view as a failed attempt to bring the drawings to a finalized form. It fails to address any of the nuances present in the constructed images. The narrative is abandoned for an exercise in perspectival form generation. The model lacks the rigor of the drawing process. It's only real importance resting in the fact that it points out the need of a less literal approach for converting drawing and story into form. Construction: Wood, Plexiglas.

M3.09.94.09

How does one construct a model of perceived relationships? This was the next challenge and first major leap of the project. Building from the limitations of the representational model of the motel (M2.04.94.08), I moved in another direction. My initial attempts at breaching the gap between representation and reality were to create physical constructions that permitted interaction on a literal level. The first mask is a simple experiment that looks at the effects of distance, scale and mediation between the individual wearing the mask and the person who is speaking (interacting) with that individual. Construction: Wood, piano wire.
The second mask looks at framing and containment. With the front panel on, the mask creates a space inhabited only by the eyes. Also built into the construct of the Room Mask is the idea of compression given the mask's capability to extend and contract. These are both ideas that relate directly to the automobile. The car allows for the heightening of certain senses (primarily vision) to the exclusion of the others. The ability of the automobile to transcend the limitations of the human being for speed also references the understanding of compression. Space compresses in relation to the frame and our pedestrian understanding of speed. Without the front panel, the emphasis of the mask shifts to one of framing. Construction: Wood, piano wire, hardware, hard-hat.
M4.09.94.10
Room Mask extended.

M5.10.94.11

The inspiration for the *Palladian Eye Piece* came from the first section drawn for the project (D1.01.94.01). The position of the body within the car is of centrality. The body shifts over and rotates down, putting the perceptual center (eye) in a position of centrality within the automobile. The glasses block the vision of the left eye. The right eye divides into fourths; vision passing through only the upper outside quadrant of the eyepiece. A polished alluminum angle reflects whatever is being viewed four times around a central point. This creates an image centered on the right eye of the viewer, giving the impression of a visual centrality. The name of the glasses is in reference to the symmetry and centrality of the occupant within the work of Palladio. Construction: Milled aluminum, piano wire.
M5.09.94.11
Palladian Glasses.

M5.09.94.11
Palladian Glasses.
A simple representation of the Palladian glasses shows construction, effects, and relationship to the head. Pencil, stonehenge paper and ditto
M6.10.94.13

The school shirt is a portable house that one wears as an exoskeleton. This construct explores the ideas of portability and ergonomics. The concepts that drive this particular piece are of interdependence and relative autonomy of form and function. The studio shirt is read as an exoskeleton when in the closed position. It has the ability to block the face of the occupant, providing a layer of mediation when needed. When the suit is unfolded it acts with the structure of the body providing shelter and shade, support for sitting, and a surface on which to work. All of these functions are contingent on, or collaborate with the bodies’ structure and form in order to serve their capacity. Plywood, basswood, bolts, wingnuts, piano wire, dowel rod.

M6.10.94.13
School Shirt.
M6.10.94.13
School Shirt in closed position.

M6.10.94.13
School Shirt in open position.
"Yet at least he had believed in the cars. Maybe to excess: How could he not, seeing people poorer than himself come in...a parade seven days a week, bringing the most godawful of trade-ins: motorized, metal extensions of themselves, of their families and what their whole lives must be like..."\textsuperscript{32}

It is at this point that I need to mention Steven Fox. Professor Fox is a lecturer at Rice and the University of Houston. What makes him important to this thesis is the simple fact that he does not own a car, he walks. His introduction to the process established a simple goal, to create a vehicle for someone who does not want one. To create a \textit{machine for someone who still walks}.

The next series of drawings takes another course; one closely linked to the building process rather than to the construction of pictorial space. Although the technique is different in this series, the aim is similar. What is being pursued is the experience of the automobile space without the presence of the actual automobile. The work reflects an emphasis on experience, perception and inhabitation. The difference is now one of conception. The drawings have become construction documents for future constructions that act as spatial and experiential reality. Portability (mobility) is still a driving factor as are the limits set by the human body, or at least the actions of the inhabitants of these moving houses.

\textsuperscript{32} Pynchon, p.13.
The *Umbrella House* and the *Rickshaw Bed* both rely on the individual for support when in movement. The umbrella house is a variation of the school shirt. In this case the construction of the roof and the seat is of less deterministic materials. This allows for compression into smaller components thus giving more flexibility to the system. The computer is the table top and operates as a separate unit.

One pulls the rickshaw chair behind the body, sharing its gravity load. In this case the simple wooden frame assumes the form of a lounge chair. The "trunk" over the axle contains space for some personal belongings as well as a tarp like cover that will provide enclosure for the occupant. Pencil, Stonehenge paper.

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The *Umbrella House* and the *Rickshaw Bed*.
D9.10.94.15

The ideas of a shifting vantage point, moving frames and body referenced dimensions are all present in this cart. The construction of the cart is primarily of wood. It provides a seat, roof, bed and table. Even a window is present, providing a literal visual frame as well as an opening for mediation. The cart presents itself as a shifting relationship of various moving and static parts.
D10.10.94.16

The Sidewalk Scooter is a three wheeled vehicle; its components are a long beam, a pivoting axle, a flip up table and a pivoting chair. The vehicle provides a scooter type mobility for the occupant. One rear wheel flips down anchoring the machine. While anchored the boom arm is free to pivot, scribing a circular territory.
Duchamp’s Stairmaster earned its name because of the paradox it creates. The car moves forward when someone tries to climb the stairs, yet the only time the individual can climb the stairs is when the wheels are fixed. The relationship calls to mind the example of Duchamps doorway. Two doors, situated in the same corner perpendicular to one another, shared a single hinged door between them. This is the first car that is propelled mechanically. The paradox lies in the propulsion system itself.
Accordion House I. This six wheeled vehicle is again propelled by the walking individual. The space exists along a rigid framing system of three parallel 2x10 beams. A box configured to the dimensions of a standing person is centrally placed on the beams and has the ability to expand and contract as use dictates. Like the room mask (M4.09.94.10) the accordion house I deals with framing and containment in a spatial construct.
Accordion House II. The accordion house combines with the sidewalk scooter (D10.10.94.16). Crossing the two begins to establish more complex relationships within the vehicle. In this incarnation there is a room that contains two separate window openings as well as a door. The second accordion house has become directional and is even better able to adapt to the needs of the person inside. This version also has the ability to anchor itself with a mechanism similar to that first seen in the sidewalk scooter. This anchoring device opens a theme that is to resurface later in the project; the understanding of the changing relationship of part to whole.
D14.10.94.20

This is a simple mapping that looks at a possible means of propulsion for the second accordion house. The user would create an inch-worming motion. This drawing also examines the space occupied and subsequently "claimed" via the movements of the cart. This drawing also conjures up ideas about sequencing and Muybridge.

D14.10.94.20
Accordion House II.
This drawing presents a diversion of sorts although it grapples with a problem that bothered me for some time. The drawing is a sequencing study that examined a scene from the movie *Indiana Jones and the Last Crusade*. The scene is part of the closing sequence of the film. In it Indy is to pass three tests in order to obtain the 'Holy Grail.' The first of these tests is what interested me the most. In that test Indiana is to negotiate a machine that will allow only the "penitent man" to pass. The relationship established between the machine and the man navigating it is crucial. If the Indiana fails to conform to the predetermined movements set out by the designers of the machine he will lose his head. Without the individual to decapitate, the machine is nothing, essentially meaningless. This relationship describes the interdependence of the machine to the individual and visa versa.
D16.10.94.22

This begins a slightly more complex series of relationships between machine and person. The *Teeter-Totter House (a Library for a Book Lover)* is the first of the constructs that takes a harder look at a creating a human referenced machine space. The narrative here is simple. There exists a one room library hanging from a central axle pivot. Shelves line either side of the room and have a small lip designed to contain the books. The rocking motion causes the books on the uphill side of the space to shift. They move toward the
front of the shelves. The spines become more readily visible for reading. When the occupant walks towards the faced books the room tilts in the opposite direction. This process continues indefinitely. Located at the center of the room is a chair for reading. The room is level and the machine is in equilibrium only when the person inside decides to sit and read. This arrangement draws a connection to the Renaissance man and issues of balance and symmetry. It also looks at the ideas presented in the "Indiana Jones" movie. Ideas that address interdependence and combined autonomy.

D16.10.94.22
Teeter-Totter House, A Library for a Book Lover.
The *Palladian Stairs* also creates a narrative along with a machine. Here the ideas of symmetry and centrality are important. The cruciform shape of the stairs occupies a nine square grid with closed exterior walls. The machine is capable of moving in an x and y direction. The user only approaches the z direction when the machine is at rest. The relationships further complicate themselves because the machine can only rest when it is resting on one of the walls. The paradox here is that the central space, the middle square can not be occupied because the machine is incapable of stopping there. This renders what Palladio would consider the ideal space in the building inaccessible due to the circulation of building. The center square can only be accessed for a brief moment in passing.
D17.10.94.23
Palladian Stairs.
Leonardo di Vinci's Vitruvian man occupies the *Battering Ram House*. Here again centrality is emphasized and carried to the extreme. The purpose of a battering ram is obvious. Every aspect of the construction around the ram centers on its function: the ram itself, wheels for mobility, hinges to allow for movement, and structure designed to enable the whole system to function. Here the individual lives on the ram itself. The resident is the key to the function of the space. (S)he is the engine for the attack. (S)he lives centrally to the device. The Machine is also interesting because its purpose is to interact with other architecture (see Vitruvius' *Ten Books of Architecture*). Like the siege tower and other machines of war, the battering ram is a curious invention that truly does alter our understanding of buildings and space.
D18.10.94.24
Battering Ram House.
The *Walking Room* is a variation on the teeter-totter (D16.10.94.22). This building is an attempt to synthesize many of the ideas explored in the subsequent machines and machine inspired constructs. Drawings for this house use methods of representation similar to those developed by Diderot and da Vinci. It is a methodology of the Enlightenment; cataloging becomes crucial (see Diderot). I have become interested in how the component fits together with the whole object. How is the body effected by the physical machine (car) as opposed to the cerebral interface (computer)? How does that relationship inform the construction of the machine? How does the same reflect the life and understanding of the occupant? The machine becomes the mediator of event space. The house slowly creeps along on four wheels. What makes it move is a tilting or teeter-totter action. When the occupant walks across the floor, it pitches to one side. By pacing the floor will rock to and fro. The windows of the room offer fragments of the outside world, enticing movement to the various ends of the construct.

The machine is geared simply and only moves forward when the occupant paces to the back of the machine. Paradox. When the machine is at rest the wheels break down leaving only the memory of the machine and its actions behind. Those elements that allowed movement now anchor the structure to the
ground. The walls that confined now simply mark a territory on the ground, defining an area in a plan relationship. The roof element (which remains intact), formerly offered glimpses of the sky above. In one sense it was the sky when the machine was in motion. Now the roof is a thin reminder of a controlled sky, serving only as a precarious shelter, a shred of a barrier against a larger construct. Even the occupant's role changes. (S)he goes from being a viewer to an object of gaze but this relationship opens a much larger can of worms.
D19.11.94.25
Walking House, Plan and Elevation. First version.
D20.11.94.26
Walking House, exploded plan.
D21.11.94.27
Walking House, exploded elevation.
Walking House, sequential plan.
D23.11.94.29
Walking House, open plan.
D24.11.94.30
Walking House, Elevation, opening on top and expressing body reference.
D25.12.94.31
Walking House, Final elevations.
D26.02.95.32

This drawing is the last of the constructed perspectives. It strives to move through the space of the motel via the automobile. This exploration looks at the site of the project and the relationships of form, path and function as more concrete.
The final three drawings combine the methodology of all the work done here. Traditional plans, sections and elevations of the Toll-Plaza Motel were created in an attempt to bring the project out of its exploration phase. Working with these constructions forced me to alter my point of view. The practice of architecture involves building. The act of building requires the use of tools, either found or manufactured. Through the rigorous development of my processes, I strove to push and expand upon the ideas, both past and present, that touch upon this thesis proposal. These processes in turn, helped me create my own spatial constructs both in 2-dimensional and 3-dimensional sites. The motel has led to more ideas including issues of suburbanization, spatial expression and transportation. I view this project as an interesting beginning for more work. I have worked hard to develop my own set of tools.
D28.03.95.33
Motel, toll-plaza section cut, plans #1a.
D29.03.95.34
Motel, toll-plaza section cut, plans #2a.
D29.03.95.35
Motel, toll-plaza section cut, plans #3a.
GALLERY SHOW: The parting shot for this document is an image of the gallery show itself. The work of the entire fall thesis class 1994 was exhibited under the title *Fall 1994 Thesis Presentation and Exhibition*. The show ran in the Farish Gallery at the Rice School of Architecture between the dates of January 19, 1995 and February 03, 1995. The Following people served as guest jurors on my thesis review: Lily Chi, Sanford Kwinter, Robert Mangurian, Mary-Ann Ray and Adi Shamir. My thesis committee consisted of Yung-Ho Chang, director, Lars Lerup, Elysabeth Gamard and Albert Pope. The defense of the project took place on Thursday, 19 January, 1995
BIBLIOGRAPHY


