PROJECTION
ARCHITECTURE *of* INTIMACY

By Penelope Katherine Revie

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A 120 point thesis submitted in partial fulfilment of the requirements for the Masters of Architecture (Professional) Victoria University of Wellington, School of Architecture, 2012

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Thank you to my Supervisor Dr. Peter Wood for his help in guiding and moulding my thoughts into 'research'.

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ABSTRACT

This thesis unravels ties between the individual and architecture. Offering an architectural demonstration of and for the body. The primary goal is to challenge the conventional relationship of architecture as a form of housing for the body, exploring the possibility of the body's dynamism in respect to movement, transformation, and reaction, informing an intimate architecture of the individual and highlighting the importance of a personalised architectural condition.

The boundary between the individual and architecture is explored through the idea of intimacy. Intimacy becomes the goal of a relationship that is intrinsic to the body. Through intimacy this provides security and comfort for the individual. The individual is projected upon architecture to create an intimate environment.

The research is grounded by three main themes: Firstly 'proximity', the degree to which the interface between the body and architecture can become intrinsically tied. Secondly 'speed', the movement of the body in relation to architecture as a static form. And lastly 'duration', the flexibility and adaptability of possible architectural solutions. Each of these themes is developed in the research chapters and explored from both a written and visual narrative. The 'Chair' is adopted as a familiar object which allows for discussion and development of ideas. The chair becomes a means of developing the argument, and demonstrating these ideas through imagery and text.

A train carriage is the apparatus which will be used as a vehicle for the design exploration. A train carriage has been identified as being a transitory zone for the individual, and therefore, employed as the point of departure for further design experiments, tying the three themes of proximity, speed, and duration together. The train carriage acts as a conceit; a way of describing and demonstrating ideas through extended metaphors. The design is revealed through diagrams of components used within the housing of the individual, then further presented with varying scenes exploring the dynamic possibilities of an architectural interpretation.

This research informs and demonstrates a design initiative which emphasises the poetic form of individuals and their bodies within the architectural discipline. Bringing to light the importance and possibility of the fluctuations of the body, in constant movement and evolution to the discipline of architecture. Allowing for intimacy of the body to be defined in unison with architecture, a growing spatial relationship with the individual.

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INTRODUCTION: EMBARK

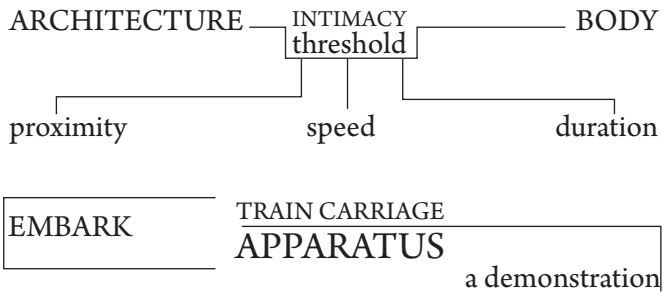
THE CONDUCTOR

The conductor directs the characters towards the carriage grabbing his lantern and describing the destination; he has done this many times before. It is exciting to guess and wonder what the outcome of the journey will be and how the next passenger will view the experience. As the train departs and he swings his lantern he can only wonder what each passenger's unique view of the world may be, one of a kind.

The train carriage is established as a conceit to discuss the architectural exploration. A conceit provides a platform for discussion and comparison, and could be described as a conceptual base for this exploration.

Figure 1. 'Experimental', photograph. Author unknown.
The camera projects back upon film capturing a singular moment in time. 'Frozen' a projection of an individual an angle never seen before and that which can never be captured in the same time and place again. On reflection a heterotopia.

INTRODUCTION



The human body, and its extents, is our view of the world. It could be described as 'our' own purpose built window through which we seek a spatial understanding and personal relationship. This window is unique to each individual's needs and dependent upon the individual's condition. An issue which arises is the lack of consideration for the personal physical needs of the individual. The body is in constant flux, a nomadic form. The un-shifting state of architecture is ill equipped to balance with that of the individual.

"It is precisely because architecture has the very concrete and useful vocation of building shelters for dwellings that it also has the duty and right to re-examine itself incessantly."[1]

This research demonstrates the potential of architecture intimately connected to the individual, a personal architecture. The individual is established and investigated as a dynamic 'entity'.

This thesis explores the opportunities afforded of a projection of the body's dynamism upon architecture, a possible heterotopia, and in return demonstrating dynamic

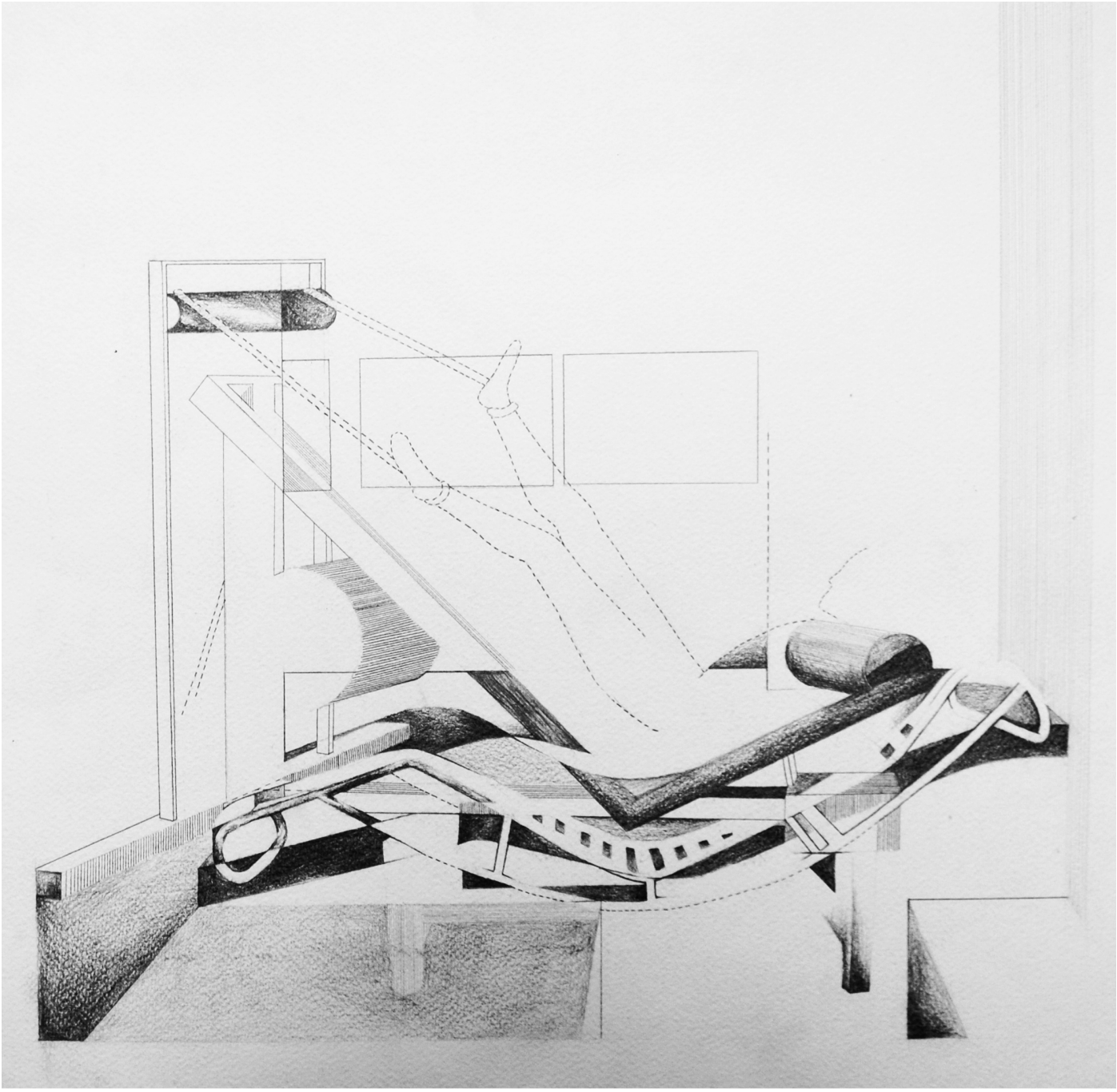
forms of housing for the body. This is discussed through the concepts of space and time. Architecture understood and discussed as space. The body as being temporal (of time), each interweaving with the other *"The two sets of interests are defined in reciprocal terms for bodies are always understood within a spatial and temporal context and space and time remain unconceivable only in so far as corporeality provides the basis for our perception and representation of things."*[2] The two, as Grosz a writer on architectural theory highlights, must be understood as one, and are in dualistic dialogue and relation.

Mechanization Takes Command by Siegfried Giedion[3] is used as a key text in support of this treatise. Primarily by ideas of balance and dynamism which Giedion refers to on multiple occasions throughout the text. Balance only becomes achievable if at some point there becomes the possibility of imbalance and therefore there have to be opposing elements or what could also be called relatable components, two elements which can work in unison to create balance. This is emphasised throughout *Mechanization Takes Command* via the human machine dualistic battle. Giedion hints towards a dislike of machines. Perhaps this stems from the tension and imbalance of humanity established through the Second World War: the time which the text was written. His point of view is "objective" similar to the attitude of a doctor towards a disease. Manifested as a result of him having seen and experienced the overpowering negative nature of death caused by machines in the First and Second World Wars. He was unlike the Americans who took machines for granted; he was in awe of, and less likely to regard the machine as innately antipathetic to everything humane.[4]

The figure showing the architectural intersection Villa Savoye, Le Corbusier Chaise Lounge, and Medieval torture devices (Figure 2.'Tension Ensues') is an early study which endeavours to establish the tension between comfort and discomfort of objects that service the form of the body. It also highlights how designs can be so similar but at the same time serves the body in many discrepant ways. The geometry of each of these designs weaves in and out of one another and as a result the image is of interest reinforcing the topic of discussion. It has a soft beauty to the style, yet the subject becomes lost creating discomfort for the viewer. The outline of the body is strung in tension separating as though it is floating in turmoil.

"Every generation has to find a different solution to the same problem: to bridge the abyss between inner and outer reality by re-establishing the dynamic equilibrium that governs their relationships."[5] This closing statement of *Mechanization Takes Command* has created a point of departure for this research, a new stance with regard to architecture and the body. A readdressing of the boundary in the hope of re-establishing a balance: equilibrium.

Intimacy becomes an important point of discussion throughout the text. The aim of the research is to engage with an individual form of architecture. This must be approached by creating an intimate relationship between the body and architecture. Intimate in terms of a close and intrinsic affinity to the individual but not one that is necessarily small in scale. However it must have a strong tie to the individual, and therefore be an intrinsic relationship where there is a mutual understanding. The intention is to demonstrate an intimate form of architecture. Architectural



work of Diller and Scofidio's highlights an understanding of the multiple dimensions of the body within society. This must be understood with relation to this research and used as an approach for investigating the body with relation to an architectural condition. *"It is not a matter of simply applying physiological, biological, psychological, or even anthropological theories of the body to the realm of architecture, in order to determine an environment that conforms to new standards of comfort and security"*[6] Comfort and security develop through understanding and knowledge in relation to architecture. Spatial conditions and perception must be examined to gain greater understanding of individual perceptions. The form of the individual becomes the challenge as with 'each body' varying relations and understandings develop.

The purpose of this proposal is to highlight, by means of explorative demonstrations, the capability of the physical body and its nature - nature in terms of how we use our body and how it is used to inform architecture. The primary ambition is to challenge the existing relationship of architecture as a form of housing for the body. The goal is to then further dissect this threshold in order to explore the possibilities of the body's dynamic form and nature with respect to movement, and the transformative, reactive form of the body creating an architectural identity for the individual.

Figure 2. 'Tension Ensues' Villa Savoye, Ega Shira, and Le Corbusier Lounger Composite Drawing, Graphite on Paper. Image by Author
Images have been overlaid to create tension between the viewer, the body, and architecture. A challenge confronted of preconceptions of what architecture entails and the individuals place within space. A play upon comfort and discomfort.

The investigation is grounded by three main themes: 'proximity', how intrinsically tied the body can become to architecture; secondly 'speed', the movement of the body in relation to architecture as a static form; and 'duration', the flexibility and adaptability of possible architectural solutions. Each one of these themes is explored in the research chapters. Characters are introduced to the reader throughout the text. Each character highlights how their attributes have influenced the design and demonstrated architectural possibilities of individual. Studies have been introduced throughout the thesis in which successful contributions to architecture are discussed allowing for intimate identification of such attributes as adaption, embodied, ergonomic, modular, and reactive architectural relationships. Each relationship seeking the formation of multiplicity through constant reassessment and questioning of the individual's comfort levels[7]. Each of these types of relationships contributes to the grounding of this thesis and they are introduced as design initiatives and parameters.

The chair is used as a tool for discussion, similar to the way in which it can be considered as being a tool for the body. It is of interest, because although it is often considered the realm, or the arena of the industrial designer there are numerous examples of chair designs by architects. Whether the allure of chair design lies with the movable and producible form; or the intimate touch by that of the body to the chair; the chair in the case of this investigation is used for its familiarity and therefore its commonality. Examples of chairs, and the

development of the chair with relation to class, culture, and society, allow for a discussion of thought throughout the research. *"The chair has a strong anthropomorphic aspect to its structure, with legs, arms, back and seat."*[8] The chair itself is a body. This tension of the relationship between the body, and the body that is the chair, a prosthesis, highlights the intimate ties which exist within the realm of architecture.

The train carriage is the apparatus which will be used as a vehicle for design exploration. The train has been identified as being a transitory zone for the individual, and therefore employed as the point of departure for further design experiments tying the three themes of proximity, speed, and duration, together through mobility. The carriage also acts as a part or component within a greater system, a module. The carriage is towed by an engine and is connected at either end to other carriages. The carriage becomes part of a collective, a system. The train and the train carriage have a strong tie to the early years of the machine age[9] it was one of the first cross country forms of travelling via mechanical means and developed at an extremely fast pace. The rail race could be compared to the space race but with more profitable outcomes and with a more common relationship to the masses.[10] The train carriage becomes the site or could be considered the stage, to project the narrative. Giedion discusses the premise associated with travel by train, which endures even today, that every person who travels is entitled to a minimum standard of comfort. "*No other shall have any better than I."*[11]

The design is presented through diagrams of components used for housing of the individual. Varying scenes are further presented, exploring the dynamic possibilities of the architectural interpretation, emphasising the poetic form of the individual within space. The development of the train as a machine, and the comfort needed for travel is of the most interest to this research. It is the base, the core of design which has always been an essential characteristic of the train and travel. The tracks have not changed in gauge[12] therefore the dimensions of the train have become standardized. The train becomes a 'container' for the body, a conceit;[13] a metaphor to describe the dynamic form and subject of the body within the realm of the objectively concerned discipline of architecture. A meeting of the two halves.

Elizabeth Grosz identifies many concerns which are attempted to be explored within this work. Grosz highlights the reflections upon the architectural discourse today separate themselves through a subjective view where the architecture is concerned with the physical objective matter, this highlights the boundary and separation ensues between the sectors of architecture. Grosz proposes using dynamism and movement to breach this boundary. Grosz begins to set up a series of questions for investigation *"Can architecture inhabit us as much as we ourselves inhabiting it"*[14] this goal of dynamism is constantly reassessed throughout the text to form a architecture of the individual and intimacy. Furthermore demonstrating the potential of an intimate and personal form of architecture.

This introduction leads the discussion on to Chapter One - 'proximity'. Due to the monumentalised form of architecture (buildings), the consideration placed upon time and the body becomes pushed to the nooks or the outer reaches, the nooks become intimate places as they do not interfere with the monument and therefore form intrinsic relations with the body.

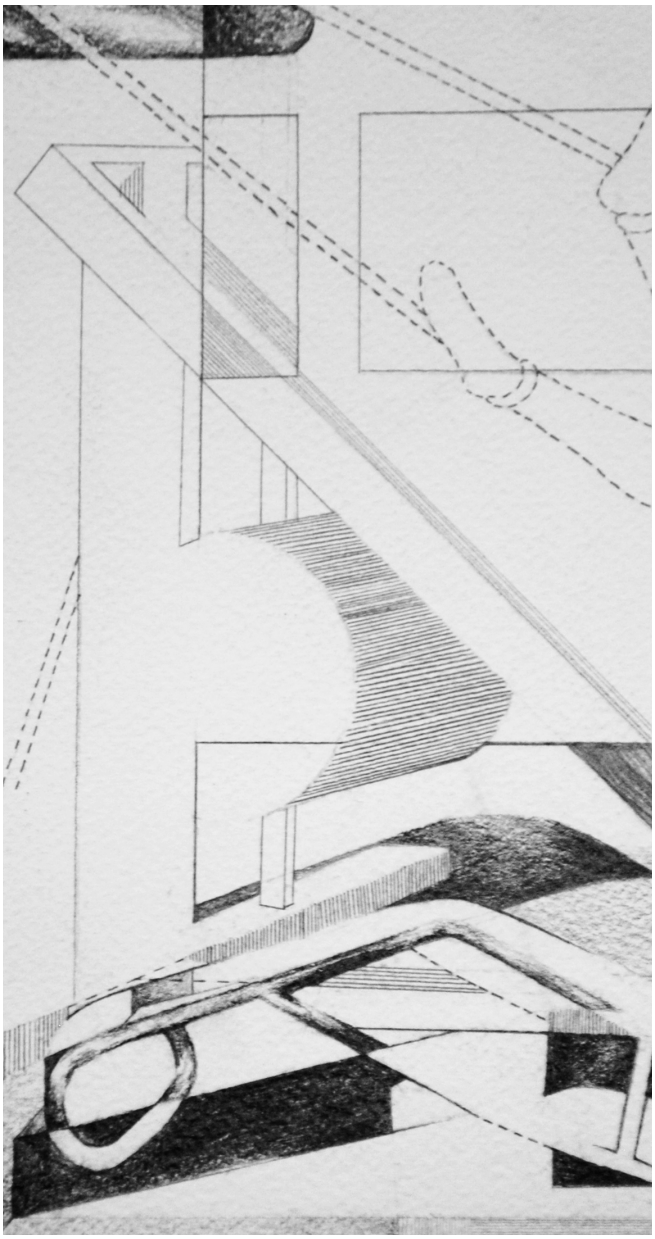


Figure 2. 'Tension Ensues' (close-up) Villa Savoye, Ega Shira, and Le Corbusier Lounger Composite Drawing, Graphite on Paper. Image by Author.

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10. Keith Lovegrove, Railway: Identity, Design and Culture (London: Laurence King Pub., 2004).

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12. Gauge refers to the spacing of the train tracks, these are standardised within most continents, therefore creating a form of standardisation in terms of the widths of the carriage which can run upon the rails, yet still allow for variations within the length

13. Conceit' refers to an extended metaphor and in the case of this research the train is used as a metaphor to describe the dynamic form of the human body and the relationships which have developed over history that relate to the body and have developed for the body.

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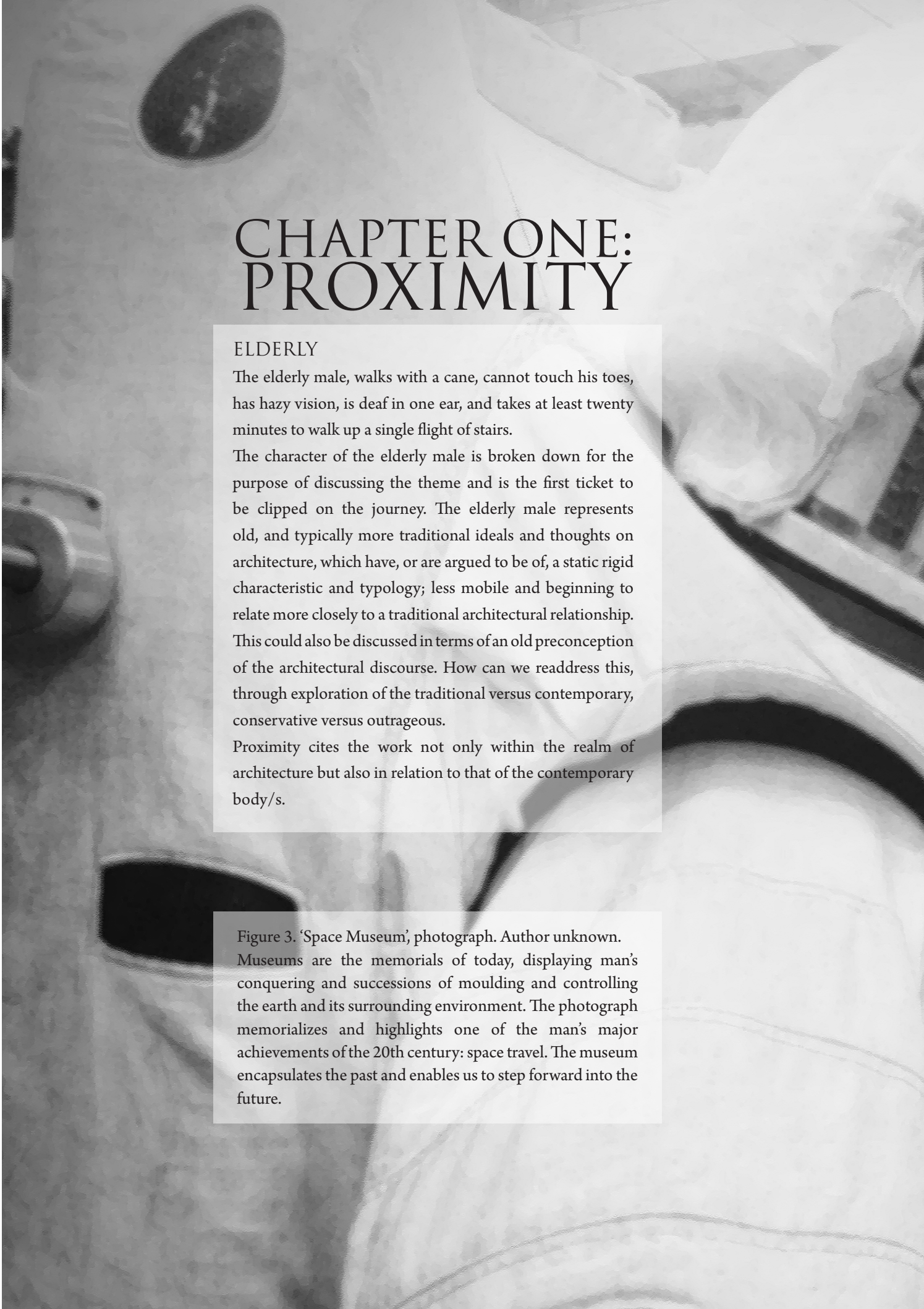


CHAPTER ONE: PROXIMITY

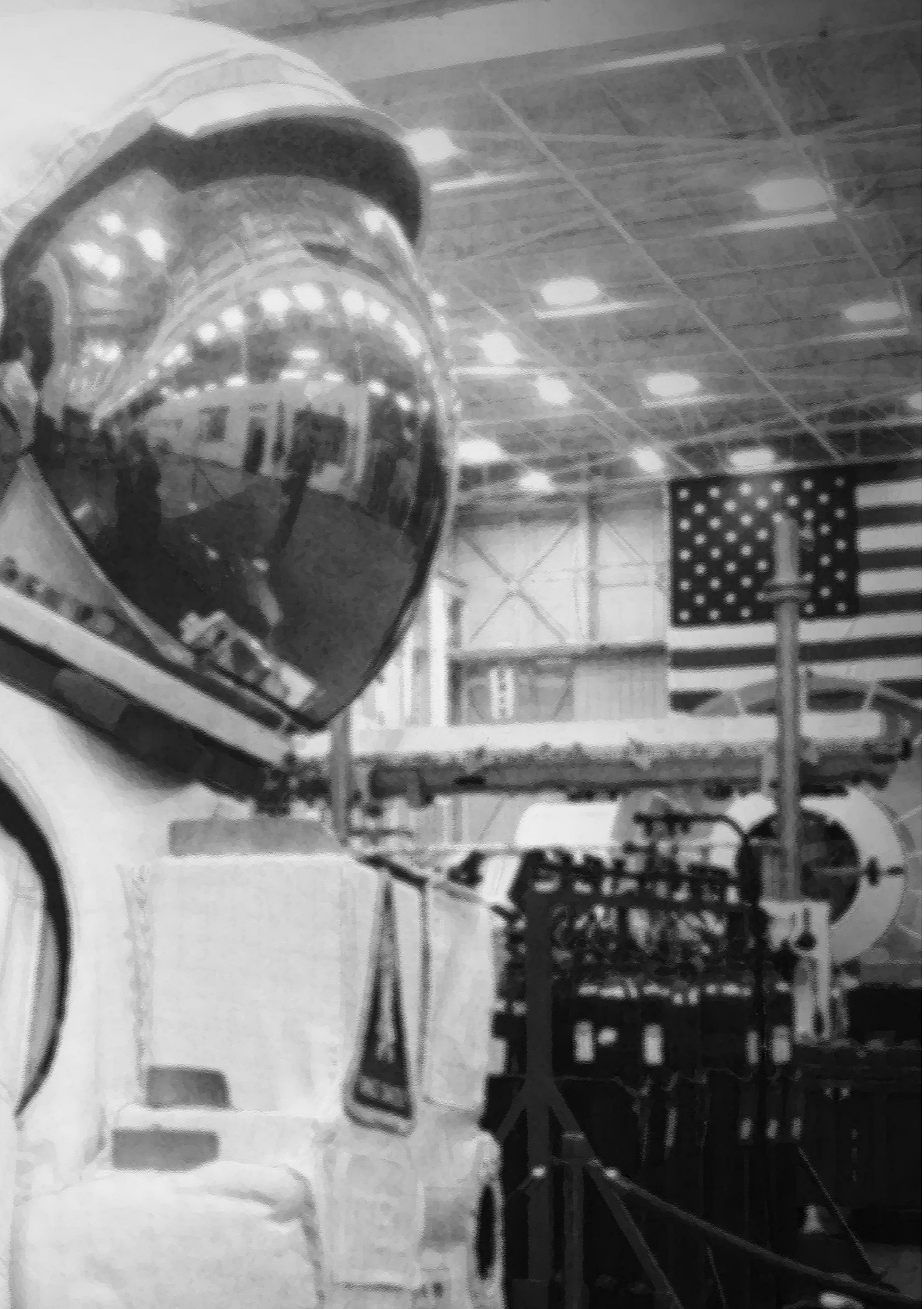
ELDERLY

The elderly male, walks with a cane, cannot touch his toes, has hazy vision, is deaf in one ear, and takes at least twenty minutes to walk up a single flight of stairs.

The character of the elderly male is broken down for the purpose of discussing the theme and is the first ticket to be clipped on the journey. The elderly male represents old, and typically more traditional ideals and thoughts on architecture, which have, or are argued to be of, a static rigid characteristic and typology; less mobile and beginning to relate more closely to a traditional architectural relationship. This could also be discussed in terms of an old preconception of the architectural discourse. How can we readdress this, through exploration of the traditional versus contemporary, conservative versus outrageous.

Proximity cites the work not only within the realm of architecture but also in relation to that of the contemporary body/s.

Figure 3. 'Space Museum', photograph. Author unknown.
Museums are the memorials of today, displaying man's conquering and successions of moulding and controlling the earth and its surrounding environment. The photograph memorializes and highlights one of the man's major achievements of the 20th century: space travel. The museum encapsulates the past and enables us to step forward into the future.



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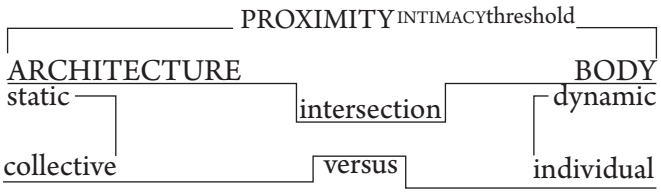


PROXIMITY

The aim of Chapter one is to address the 'proximity' of architecture with relation to the individual body. Proximity initially discusses the lack of dynamism within architecture, arguing that architecture is currently stuck within a static realm, and the disconnection this creates with relation to the body as an organism in constant flux. The development of this theory emphasises the threshold or boundary of exploration. The boundary is approached as a place which must be in harmony and balance.

"The human organism requires equipoise between its organic environment and its artificial surroundings. Separated from earth and growth, it will never attain the equilibrium necessary for life."[1]

Here I introduce the idea that architecture has addressed the collective as a design tool but often forgotten, disregarded, and marginalised the individual as a legitimate site to create design initiatives. This is not to say that designs have been unsuccessful in creating architecture which is intimately tied to the individual, but to suggest that this could be harnessed to a much greater degree. Through these discussions designs are highlighted which intersect with the threshold established between the individual and the built. The chair is used to describe architectural scenarios intimate to the body, and the shift of architecture to a more flexible form. 'Proximities' exploration is formed to ground and position the research within the discourse of architecture.

STATIC VERSUS DYNAMIC

The traditional form of architectural shelter allows for dwelling of humans. As technology has achieved new heights architecture has followed, forming monumental buildings which draw attention to man's achievements, his grasp upon technology, and his ability to mould and manipulate physical matter. This has resulted in architecture today being explored as a static form with limited ties to the individual. It is my intention to investigate architecture in such a way that the essence of housing the human, 'the body' is reinstated to the forefront of architectural exploration. The body is in essence an organism that is in constant flux, blood continuously flowing through the veins; a variable. The body, 'plus architecture', should be discussed as a dualistic relationship with opposing qualities. What this thesis proposes to interrogate is the meeting of the two halves. To what degree can proximity and propinquity develop between the two halves and how closely can the two exist?

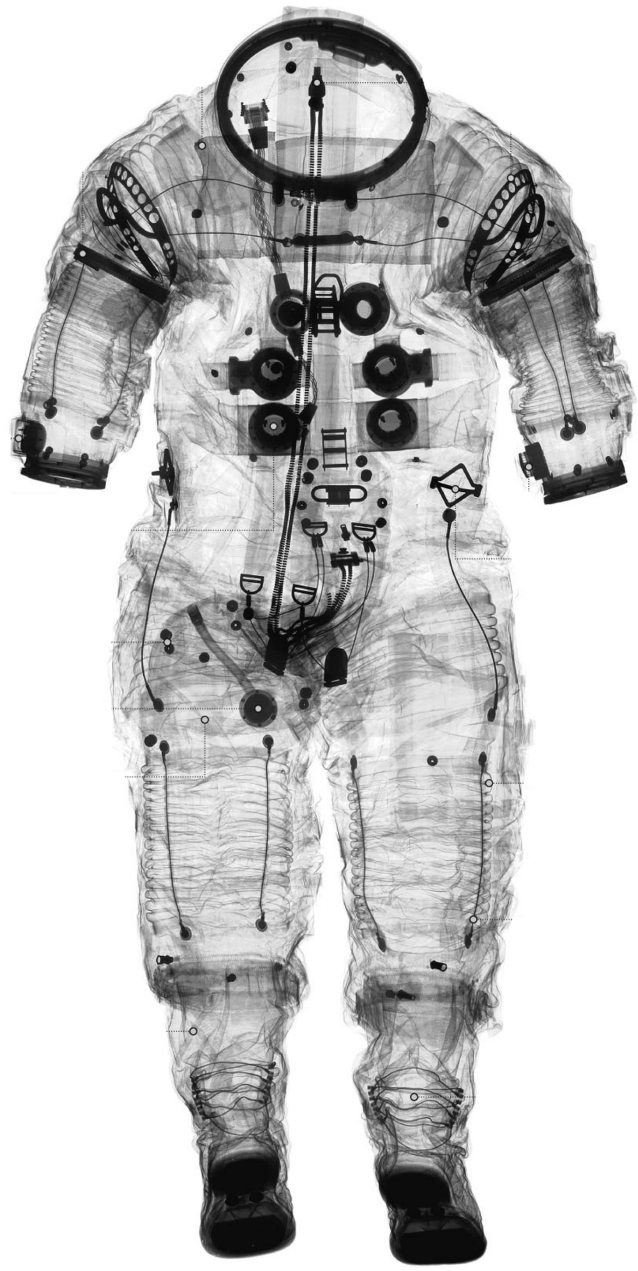


Figure 4. 'Exposure', Alain B. Shepard Spacesuit X-Ray. Author unknown.
The X ray image of the space suit brings to light the sophistication of the technology needed in housing the body for space travel. The layers of dynamism which occur within the spacesuit each catering for differing customized needs of the body. The space suit acts in a similar fashion to organs elements join to form the system or web which is the suit each working in unison as well as each having a specific purpose.

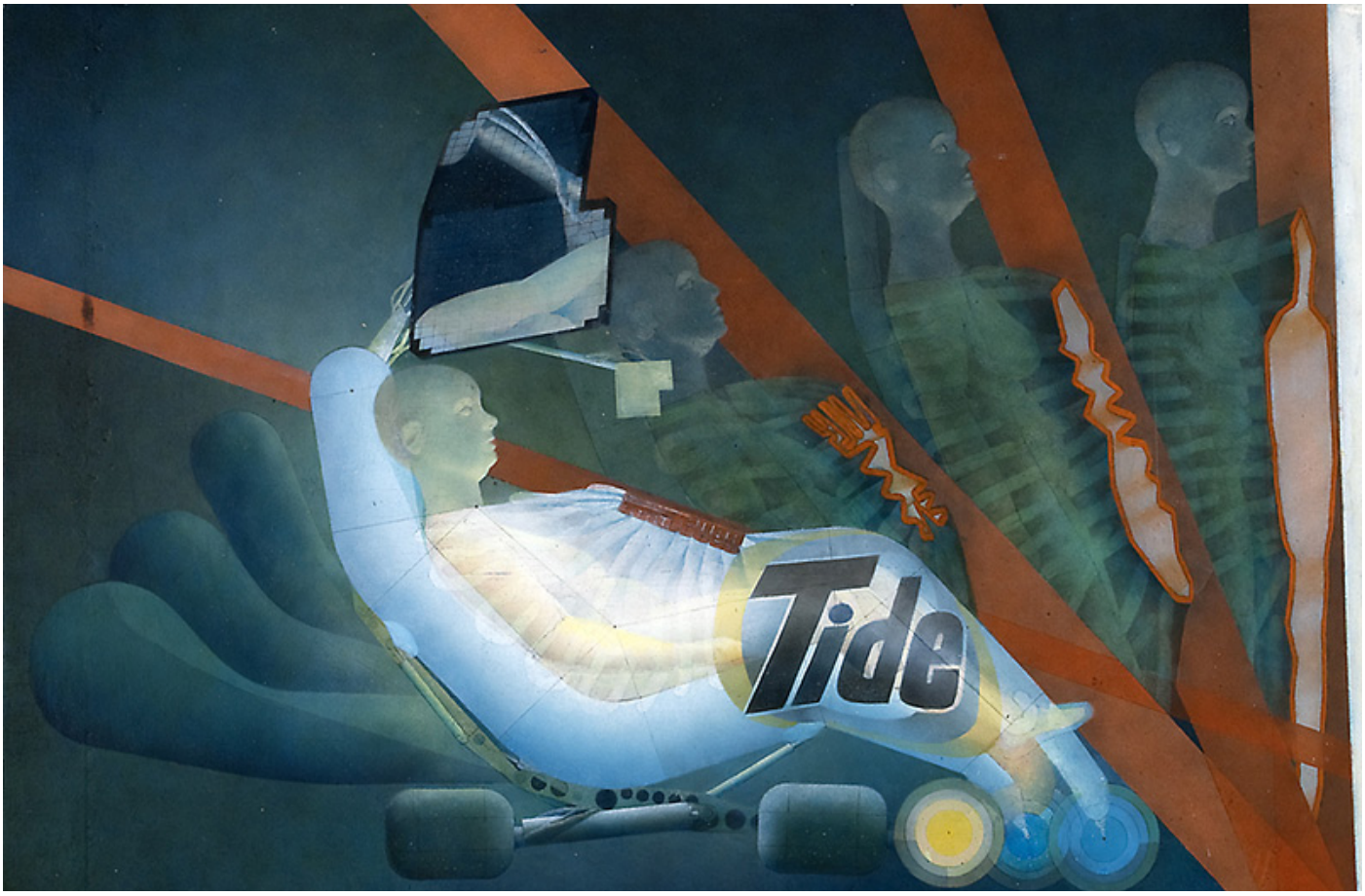


Figure 5. 'Cushicle', mixed media. By Michael Webb of Archigram.
Cushicle also known as Suitaloon was designed under the radical architectural group Archigram, around the same time as the space race was occurring. The design emulates that of a space suit a form for nomadic existence a design which lives on and with the individual's body. The Suit caters to bodily needs and desires through a series of mechanization's which extend, inflate, and hide within the suit.

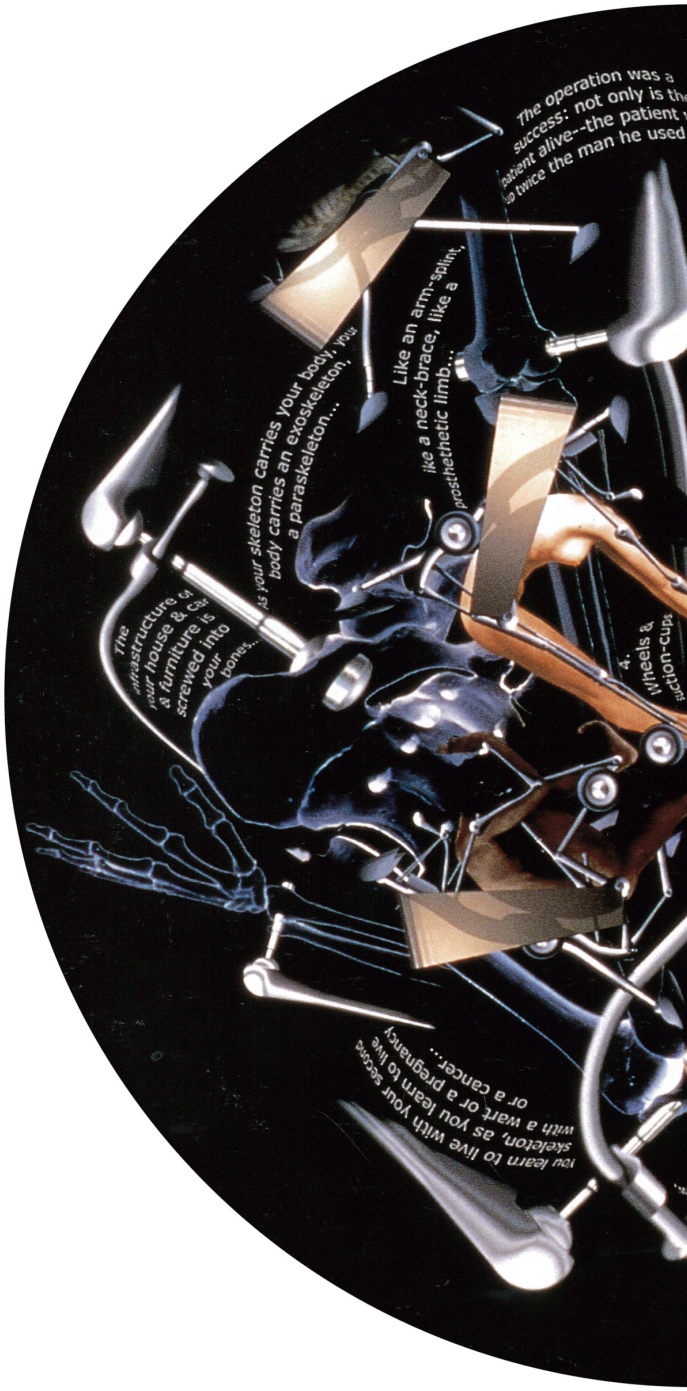
This allows for a breakdown of the 'boundary' and allows for the individual to become intimate. We can begin to understand this through a projection of the body upon architecture as Grosz describes the projection can be thought of as a mimicry *"The mimicry characteristics of certain species of insects has to do with the distinctions and confusions it produces between itself and its environment including other species. Mimicry is a consequence of representation of space, the way space is perceived."*[2] Static and dynamism, intimacy, comfort, and security: there must be a projection of oneself to understand this clearly.

The lifestyles of today call for a move away from the *elderly* towards a responsive architectural condition of the individual. What this means is a response which provides comfort, security, and intimacy, all of which follow the dynamic body, move with the body, respond to the body, and support the body. The lack of dynamism within the current condition of architecture creates a disconnection from the body of the individual. As Sadler observes *"Early observers of modernity from Marx to the futurists, considered the nature of the modern world to be of 'dynamism' wrought by mechanization, economic liberation, social upheaval, and new insights into the physical world."*[3] Elizabeth Diller brings to light the variability of the body. The dynamism of bodily functioning creates a constantly diversifying relationship with space. The body acts as the variable. *"Within the controlled environment of the space race, the body proves to be the uncontrolled variable."*[4] There must be a consideration of the bodily needs, the constant flux, and as Elizabeth Diller proclaims, the uncontrollable. The spacesuit becomes an adaptable form of architecture, a creation of possibility which bridges the divide between clothing and architecture. The spacesuit is a portable environment, pressurizing clothing for human survival in space. The spacesuit can be discussed further as a technological advance within architecture, and it can help us in the investigation of the structure of architecture in terms of less conventional means. The suit becomes a series of mechanizations *"Designed to mediate what is literally uninhabitable."*[5] The spacesuit is an unfamiliar house for the body designed to aid the dynamic movement of the body through cloaking, or through adding to the already existing layers of the body. It could be described as another skin or organ. Thus the spacesuit is a perfect example of an intrinsic relationship to the body. Architecture has become disconnected or removed from the static, rigid form by which it is conventionally understood. The architectural concept of the spacesuit is an unfamiliar one and perhaps positioned at the fringe of the architectural discourse, however can we deny that this is not a form of human occupancy and a shelter for the body, the essential function of architecture.

Archigram's 'Suitaloon' (Refer: Figure 5: 'Cushicle) is an unrealised development of the spacesuit for within an urban condition. Perhaps this highlights the need for familiarity, in order to understand and allow for physical creation to move from a vision to an actuality. The Suitaloon, however is presented as an intimate and intrinsic habitation that is linked to the body's form. The work of Diller and Scofidio[6] deals with the body in society, and begins to deal with the ideas of familiarity in terms of experience which mould the body and world together. A projection of the body's dynamic qualities upon architecture to emulate the needs, comforts,

and form of the individual must develop. This is highlighted within the text of *Mechanization Takes Command*. Giedion writes of the importance and need to "*establish a new balance between the individual and the collective sphere.*"[7] The necessity for equilibrium between the body and architecture, with architecture becoming the collective and the body the variable, this dictates that there must not be tension as it will disrupt the comfort and occupancy of the individual. We must constantly strive towards a state of balance. This premise leads us on to the question of how we can begin to design for the body of the individual yet allow it to be relative also to the collective, the masses (of individuals).

Archigram put forward the argument that architecture must move away from physicality and place importance on fluidity and as Sadler writes in reference to Archigram, the view of the future is that *"Concrete mass or mass of any kind had no part"*[8] within the construction of the future. Archigram always pushed the traditional understanding of architecture towards the possibilities of future conditions. Architecture can go beyond static mass and begin to establish grounds of indeterminacy which surround the body. The fact that the body is in constant fluctuation is what the space race[9] so clearly identified as a variable of the individual, and thus developed the architecture around that of the individual. The investigation now moves on from the idea of designing for a singular individual, and looks towards designing to be influenced by the individual and his needs. In other words design must be responsive to the individual in defining the space.



INDIVIDUAL VERSUS COLLECTIVE

The essence of architecture primarily becomes a means to house the body, intimately linked to security and comfort. Should architecture's role encompass that of an intimate relation to the individual? Architecture and the collective society on mass have governed how architecture has been designed and considered over the past century. You have to look no farther than personal hygiene habits. Alexander Kira describes the habits of the bathroom *"our individual behaviour becomes a matter of group concern and ultimately of group regulation."*[10] In the case of the bathroom in modern society, you must conform to hygiene standards to be accepted within the greater community. If one was to live outside the community amongst the wilderness then it would shift to that of personal concern. Within greater society there will always be a level of conformity if we as individuals want to live together as a community. Today's society has changed and evolved with a focus on the flexible, the movable, and the nomadic in order to work and sustain today's lifestyles. Due to this constant interaction we must always be readdressing the lifestyles of today's culture and the way in which we live as individuals and as a collective.

Figure 6. 'World in your Bones', mixed media. By Vito Acconci.
The title of Vito Acconci's art series highlights the ever constant search for a house that lives and breaths, moving with the individuals body, a prosthesis, literally attached screwed into the body. An extendable contraption, a third arm.

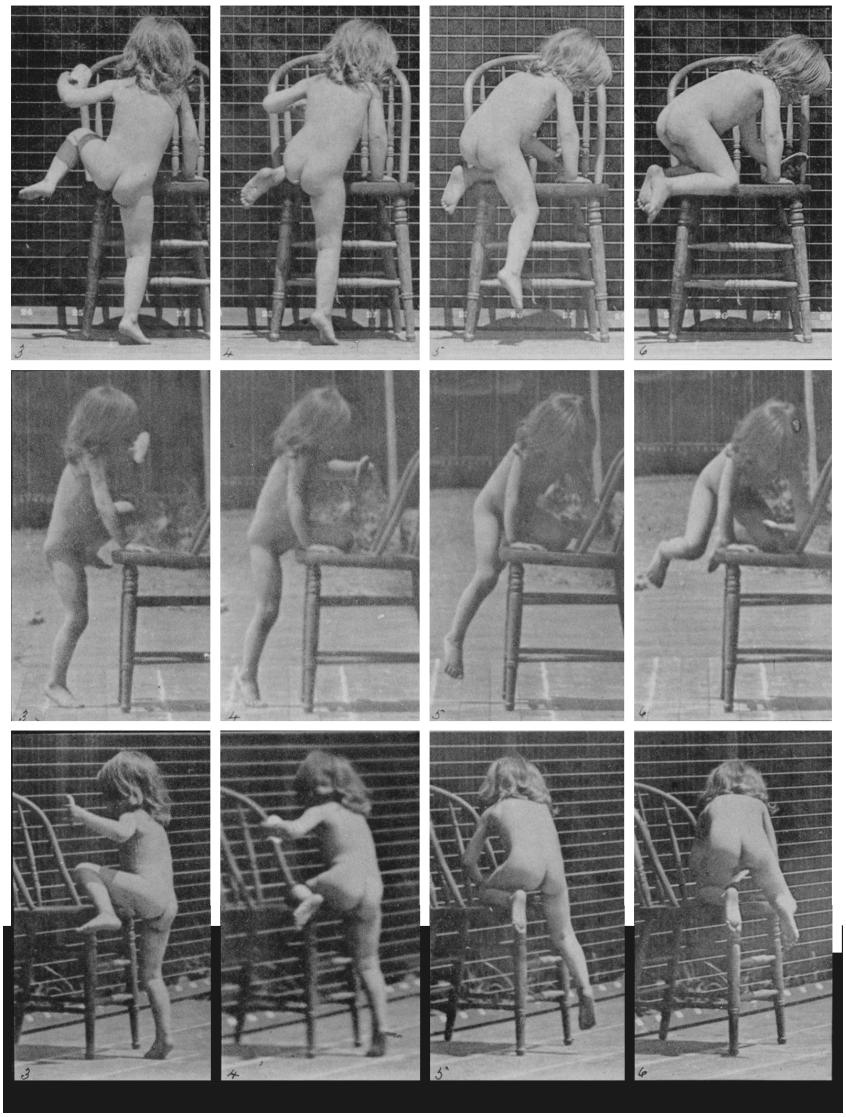


Figure 7. 'Child Climbing on Chair, Movement Series', photograph series. By Eadward Muybridge.
Muybridge's photo study series, maps the movement of the body in action. The child moves up towards a common chair the movments are mapped form three camera angles. The angles highlight the dynamism of the body, the body does not move in one singular linear motion. What this series brings to light is the dynamic form of the body ever changing growing tweaking its movement to adjust to arising situations, relative to both time and place.

Siegfried Giedion discusses the development of the chair with relation to the individual: *"The table has become fixed and the seat movable. The chair is pushed up to the table, not the table to the fixed bench as before ... now everyone has his chair at the table. The chair has ceased to be an honorary seat, a symbol of unusual distinction, and is placed in series around the table."*[11] This historical reference highlights the development of architectural elements which aid the individual and have the possibility of personalisation, a personal form of architecture. The chair has developed to suit individual needs, and every individual can therefore position themselves around the table. Where the *elderly* man may need armrests on his chair to help him stand up after being seated for an extended period of time, this is now possible. This could be discussed as an architectural reinvention of Einstein's theory of relativity. Einstein emphasises the issue by trying to understand an experience which can only be relative to the individual, or of differing relevance to varying individual. Therefore, how can we as architectural designers understand the needs relative to the individual body? Should we try to accommodate as many varying elements as possible in the hope that each person will relate intimately to at least one element. This gives rise to a new dilemma. What are the elements which are most intrinsically needed by the body? In response I have developed a principle showing the major needs, or perhaps what could be called habits of the body For the purposes of this thesis I have labelled these, the 'actions' of the body.

The actions all contribute in one way or another to the functioning of the body; up – doing, working; down – sleep, rest, recovery; in – eating, drinking, hydrating; out – cleansing, excreting, bathing. These actions are tied to the collective, as they are elements that the 'each-body': everybody needs to function. Still, to a varying degree there is a personalisation of these 'actions', as a result of individual wants, needs and conditions. This shifting of needs is an important concept with reference to this thesis. *"We don't merely have a body, we are our body."* [12] The actions are integrated with, or become linked to the reaction and expression of the individual, their character, and thus personality. A step towards intimacy is established. (Refer: Figure 8: 'ACTIONS')

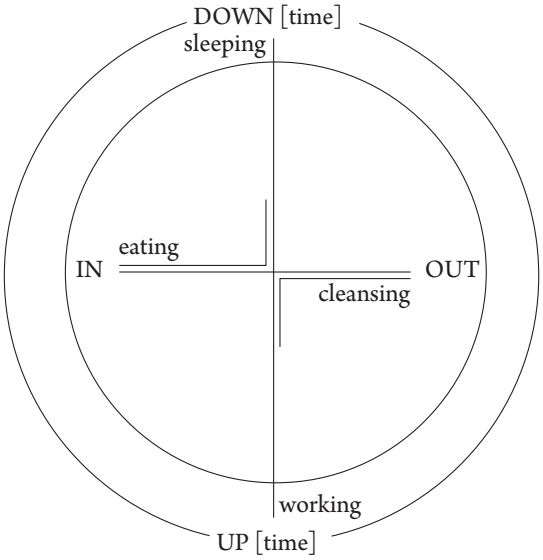


Figure 8. 'ACTIONS', vector diagram. Image by Author.
The Actions diagram represents the break down of the bodily cycles which 'each-body' must conform to. Eating, sleeping, working, cleansing, each represent the most basic of human needs and instincts. Each of these actions architecture aims to emulate and help the body to achieve with ease, comfort, and security.

INTERSECTIONS WITH TENSION

Intersections is defined as the point at which 'things' meet. David Leatherbarrow discusses the relationship between the body and the built as ever shifting. *"I want to see the body emerging out of the lived world, but also disappearing into it, testifying to the world's ontological priority."*[13] Leatherbarrow writes of the intersection between the two as a blurred boundary a subjective form is established as the boundary. Such discussions begin to set up parameters which define the boundary, and look further towards exemplifying this.

Rebecca Horn's work highlights the possibilities of constant examination and extensions of the body into space and claims that *"A boundary is always in reach."*[14] In other words a boundary which is established, through the collective and individual, static and dynamic can be breached. The boundary or threshold between the two opposing elements is in tension. Instead of architecture conforming to the norm why does it not become an interrogator and questioner of the 'norm', as Diller and Scofidio describe: *"Given the technological and political re-configurations of the contemporary body, spatial conventions may be called into architecture. Architecture can be used as a kind of surgical instrument to operate on itself."*[15] Diller and Scofidio set about demonstrating an approach to the threshold, a breaking down between the relationship of the body and architecture, as well as in terms of technology, and cultural lifestyles.

If we use Diller and Scofidio's descriptor of architecture becoming a 'surgical instrument' we can begin to discuss the breaking down of architecture into elements or components, which have strong ties to the dynamic individual body. This would form a controlled environment. The body must control the mechanization in this case the architecture.

In order to develop comfort and security there must be a level of control that the body can emulate upon it's surroundings as Giedion describes: *"Man shall order and control his intimate surroundings so that they may yield him the utmost ease."*[16] The chair can be used to further understand this. If we understand the chair as dictating the body's behaviour then the chair can be considered as a controller of the body. Yet at the same time it must also be understood, that although the chair is created in the image of the body it is not a mould of the body. Nonetheless the chair can be considered conformed by that of the body, and thus a dualistic relationship is created between the two, a dialogue established.

A chair may be defined as a form of architectural 'haute couture' constructed in a tailored manner for an individual. It can be crafted and fashioned. No longer is the chair considered a fashion piece rather it has gathered meaning through identity. Rykwert reiterates that *"Memory is to a person what history is to a group. As memory conditions perception and is in turn modified by it so the history of design and of architecture contains everything that has been*

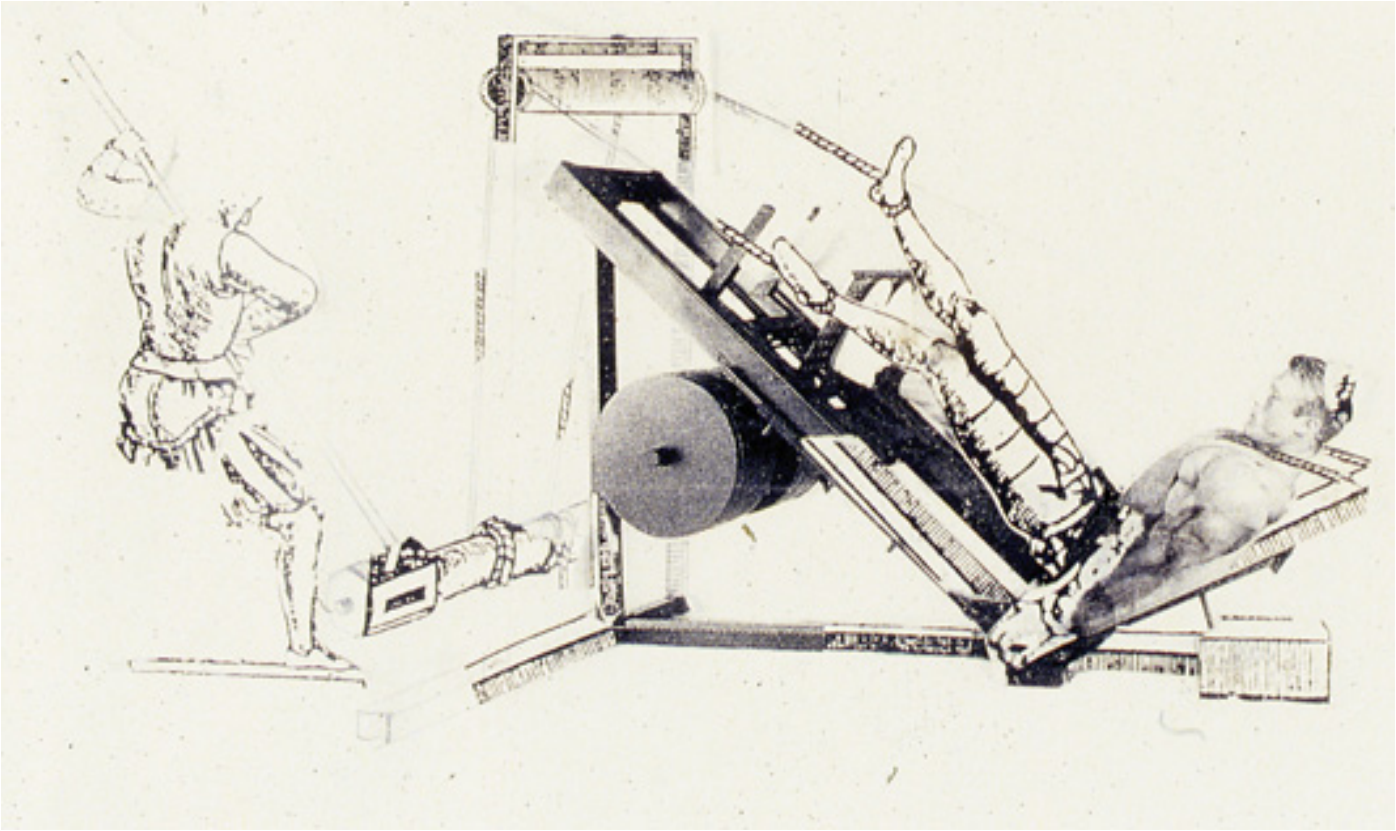
Figure 9: 'Umbrella House' Graphite on Paper. Image by Author.
The 'Umbrella House' is a study of the shelter formed through mechanization. The umbrella is composed of a mixture of soft and hard materials . It is a familiar intimate form of shelter and housing. It forms an extendable barrier of the body and has security spikes at its perimeter. The umbrella becomes an extension of the body..

designed or built and is continually modified by new work."[17] Small components need to be stitched together to create a space which caters to personal needs, and houses the body; and as Opsvik describes *"The chair should work as an intermediary between dynamic body and the static architectural surroundings."*[18] It begins to embody that of the dynamism of the body but can still be viewed as an object, static and rigid.

Through investigating the meaning and relations of something as common as a chair we become aware of the unlimited possibilities of the architectural discourse and the multitude of relations that people have with their built environment. We could go as far as discussing the architecture and intimate ties people have with umbrellas or even raincoats for that matter; they shelter, house and in the case of the coat can be specifically designed or tailored to fit the 'inhabitant'. Ultimately they are built or manufactured with the intention of protecting the 'physical body' from environmental conditions; wind, rain, and sun. Each becomes an informal shelter a form of intermediary architecture.

Figure 10: 'The Ghost of Bert' photograph overlay. Image by Author.
Bert is a wooden figurine which has movable ball joints. The joints contort similar to that of a real body, the figurine has been used to study the pivots of the body in multiple directions and to understand the movable nature of the body. The study becomes that of an investigation into the uncontrollable in contrast to Marey and Muybridge task specific studies of the body.

pivot joints
limbs extendable



CONCLUSIONS: PROXIMITY bum on seat!

This chapter has grounded the research and highlighted the investigation. A threshold between architecture and the body has been established, and further defined as the area of exploration. The purpose of this chapter has been to establish a stance on traditional forms of architecture and the lack of ties to the dynamic form of the body. Proximity has begun to develop an initiative towards demonstrating links between the built and the body. The 'actions' begin to draw attention to a cycle of movement that sits with the collective and the generic needs of humans. Within this cycle there is the opportunity to look towards the subtle shifts, *"The circle is capable of being traversed infinitely, in repetitions that are in some ways different and in other ways the same"*[19] an ever shifting yet repetitive cycle which separates the collective from the individual, the public from the personal, a house from a home.

The following chapters go further to develop these thoughts, and begin to explore the body as a dynamic entity and what this has to offer to the discourse of architecture. The intention is to now move forward from the *elderly* stance towards a demonstration of individual forms of architecture.

Figure 11. 'Beauty of our Pain', Collage, Torture exercise machines study . By Shin Egashira.
Beauty of our pain emphasises the relationship between torture machine and the body, the intimate yet confrontational relationship established between the two.

ENDNOTES

1. Page 721,Siegfried Giedion, Mechanization Takes Command (Oxford: Oxford University Press, 1955).

2. Page 89, Elizabeth Grosz, "Space, Time, and Bodies," Space, Time, and Perversion; Essays on Politics of Bodies (St. Leonards, N.S.W.: Allen & Unwin 1995).

3. Page 93, Simon Sadler, Archigram: Architecture without Architecture (Cambridge, Mass: MIT Press 2005).

4. Page viii, Spacesuit: fashioning Apollo, Foreword Elizabeth Diller

5. Page viii, Spacesuit: fashioning Apollo, Foreword Elizabeth Diller

6. Elizabeth Diller and Ricardo Scofidio, Flesh Architectural Probes (New York : Princeton Architectural Press, 1994).

7. Page 721, Giedion, Mechanization Takes Command.

8. Page 91, Sadler, Archigram: Architecture without Architecture.

9. Space Race is in reference to the 1960's where many countries and corporations were striving to send the first human body to the moon, in the context of this discussion it is identified as a time where the body and limits had to be addressed to survive in hostile conditions.

10. Page 6, Alexander Kira, The Bathroom, New and revised Ed. (New York: Viking Press, 1976).

11. Page 269, Giedion, Mechanization Takes Command.

12. Page 4, Alberto Perez-Gomez, "Polyphilo's Thresholds: Alternatives for Nomadic Dwelling," Transportable Environments 3 (2006).

13. Page 270, David Leatherbarrow, "Sitting in the City, or the Body in the World," Body and Building: Essays on the Changing Relation of Body and Architecture Ed. George Dodds and Robert Tavernor (Cambridge, Mass: MIT Press, 2002).

14. Page 26, Doris von. Drathen, Rebecca Horn: Moon Mirrors Site-Specific Installations 1982-2005 (Ostfildern-Ruit: Hatje Cantz, 2005).

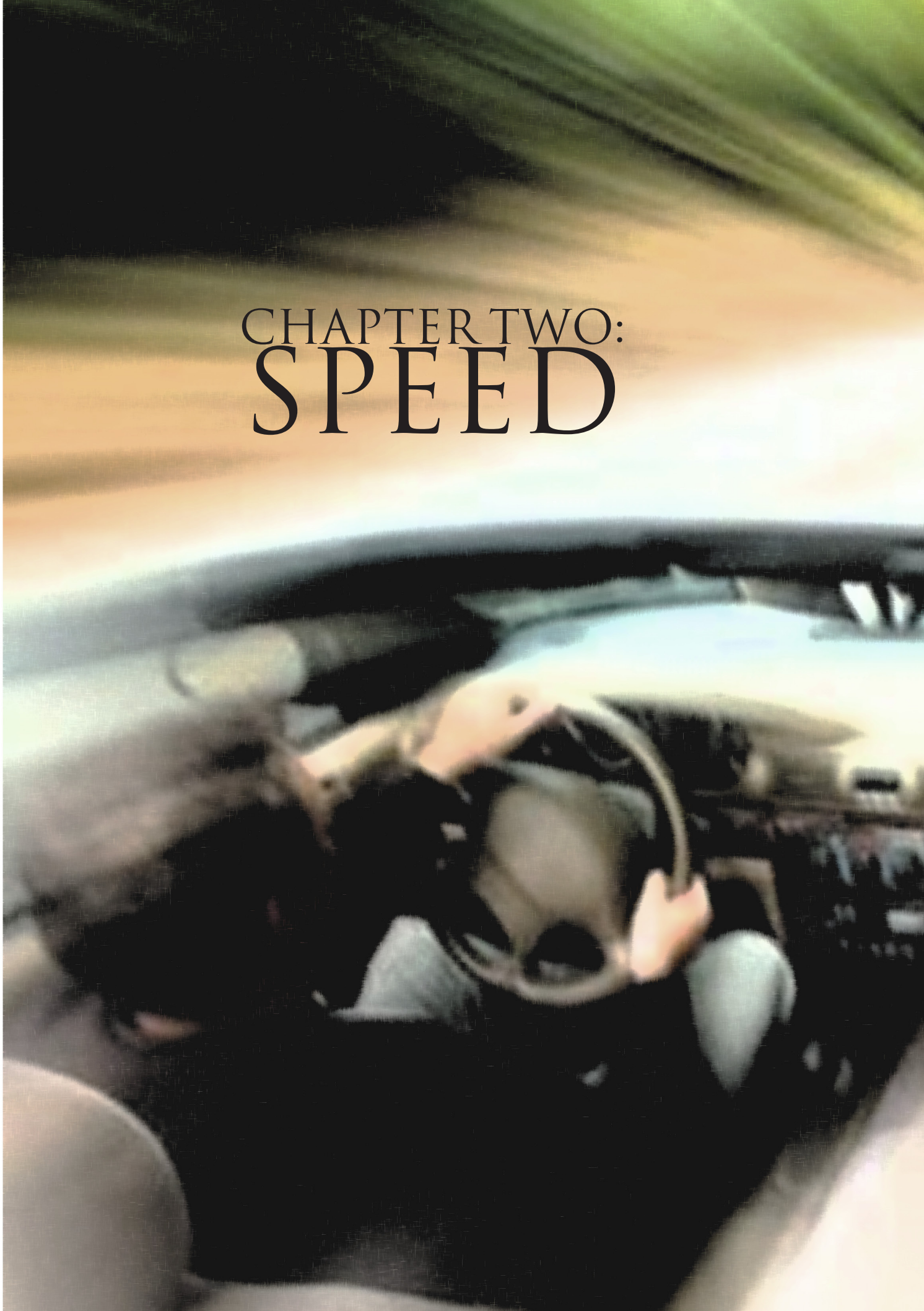
15. Elizabeth Diller and Ricardo Scofidio, "Keynote Address," National Technology Conference (Phoenix Arizona: 1993), vol.

16. Page 260, Giedion, Mechanization Takes Command.

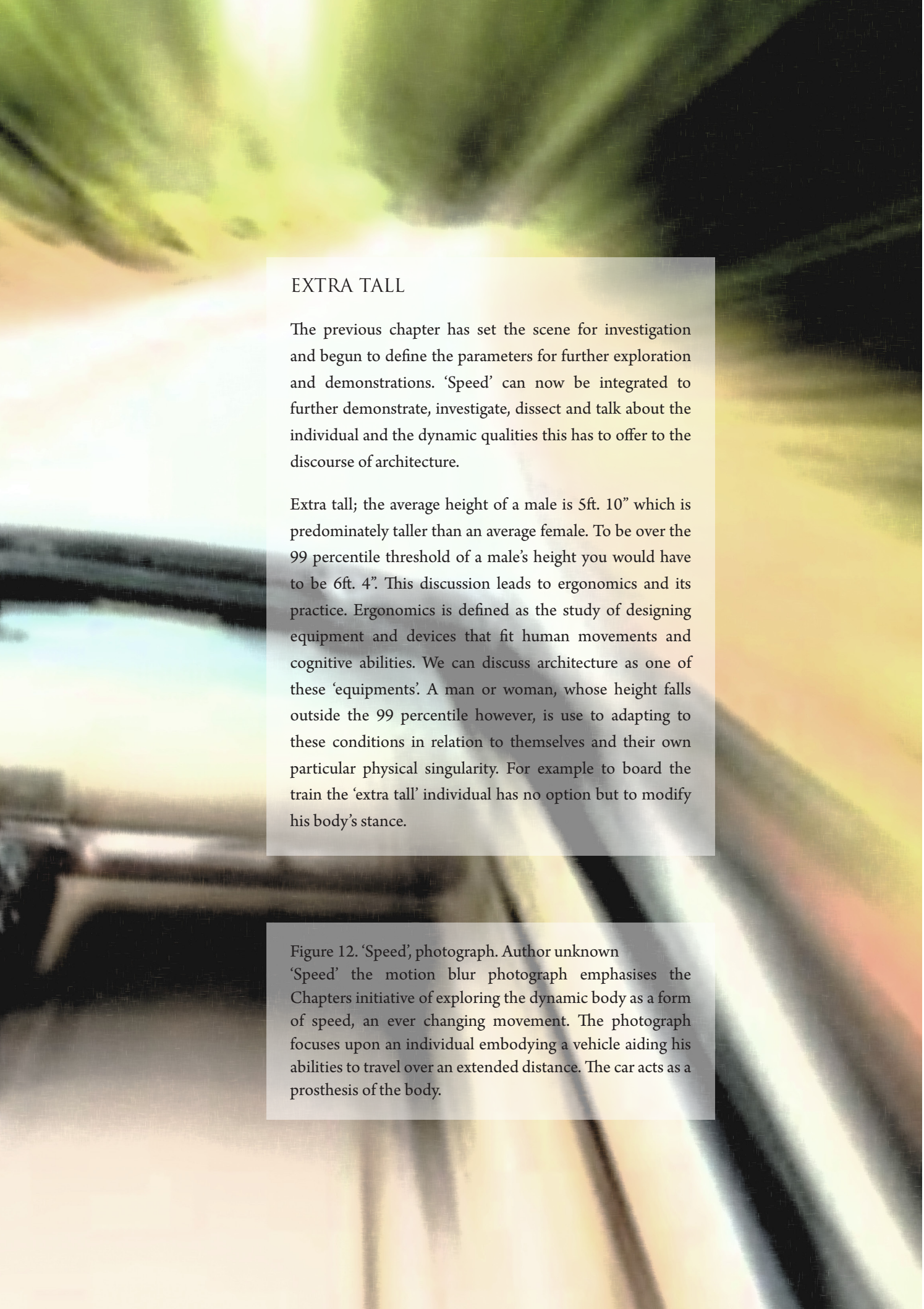
17. Page 31, Joseph Rykwert, The Necessity of Artifice: Ideas in Architecture (London: Academy Editions, 1982).

18. Page 40,Peter Opsvik, Rethinking Sitting, vol. 1st American Edition (New York: W.W.Norton & Co., 2009).

19. Page 98,Grosz, "Space, Time, and Bodies."



CHAPTER TWO: SPEED



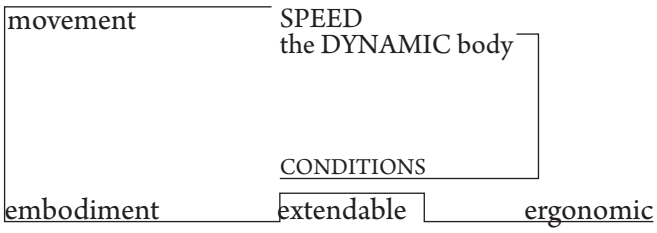
EXTRA TALL

The previous chapter has set the scene for investigation and begun to define the parameters for further exploration and demonstrations. 'Speed' can now be integrated to further demonstrate, investigate, dissect and talk about the individual and the dynamic qualities this has to offer to the discourse of architecture.

Extra tall; the average height of a male is 5ft. 10" which is predominately taller than an average female. To be over the 99 percentile threshold of a male's height you would have to be 6ft. 4". This discussion leads to ergonomics and its practice. Ergonomics is defined as the study of designing equipment and devices that fit human movements and cognitive abilities. We can discuss architecture as one of these 'equipments'. A man or woman, whose height falls outside the 99 percentile however, is use to adapting to these conditions in relation to themselves and their own particular physical singularity. For example to board the train the 'extra tall' individual has no option but to modify his body's stance.

Figure 12. 'Speed', photograph. Author unknown
'Speed' the motion blur photograph emphasises the Chapters initiative of exploring the dynamic body as a form of speed, an ever changing movement. The photograph focuses upon an individual embodying a vehicle aiding his abilities to travel over an extended distance. The car acts as a prosthesis of the body.

SPEED



THE DYNAMIC BODY

The body is dynamic; it is organic, living, breathing; one of a kind. *"We don't merely have a body, we are our body."* [1] We only understand our surroundings through our body and our understanding is relative to an individual's 'point of view'. Speed investigates the body's dynamism by its ability to change and move with ease, and with 'speed'. Speed begins to challenge the architectural discourse to the meet the body in the middle and blur the two both adopting the ideal of 'speed'.

Firstly I will consider the study of ergonomics in order to better understand existing standards that address the body, the goals of these initiatives, and overall aim. How far do the standards of ergonomics extend, and are these adequate to address the dynamic qualities of the physical body? Does ergonomics ask for conformity rather than diversity? Through the embodiment of space, objects become a point of departure from ergonomics, highlighting the design of objects which have intrinsic embodied relations with people and their physical body. Embodiment goes beyond a merely physical relationship. It demonstrates emotional ties of trust, emphasising the extensions, or possible projections of the body. Embodiment shifts to fit needs, adjustments ensue

and individuals change through evolutionary movement. As Grosz highlights: *"The body is, so to speak, organically, biologically "incomplete"; it is indeterminate, amorphous, a series of uncoordinated potentialities that require social triggering, ordering, and long term 'administration.'"*[2] These movements and their transition are what will be discussed as an embodiment of the dynamic body: flux.

This chapter explores the dynamic relationships between objects, space, and architecture, in their varying forms. The hope is to gain a greater understanding of the scope of relationships individuals have with their physical environment and the tension that is created through the constant movement and transition of the body through space.

Figure 13. 'Finger Gloves', photograph of installation. By Rebecca Horn.
The Extension of her fingers through Rebecca Horn's gloves can be described as a form of embodiment, the installations talks of being able to feel what the gloves were touching through an embodied experience. "Rebecca Horn's work has cast a broad arc from the outset and is characterised by cross-referentially and exploratory disregard for boundaries."
The Gloves push the boundaries of space and the body's spatial understanding beyond that of common recognition.

ERGONOMICS AND ITS EXTENTS

We must look at the body as extents, for example what a male 6ft 4" tall is capable of doing as opposed to what a female of 5ft 4" is capable of doing. The physical body must be thought of as extents rather than conforms. The 6ft 4" tall male is used to slightly leaning his head to the right or the left when passing through a doorway. He is used to being asked to reach for a book on the top shelf at the library. He will also take pleasure in the fact that it is no problem for him to see over the heads of crowds at a concert.

Ergonomics is defined as the study of designing equipment and devices that fit the human body, its movements, and its cognitive abilities. It is a scientific discipline concerned with understanding interactions among humans and other elements of a system; comfort and efficiency of use for the 'user/s'. Bodily measurements are associated with ergonomics and defined as a percentile of a group, or otherwise known as a mean measurement. This mean is taken by collecting a series of measurement from a group of people, then adding them all together, and dividing back by the number of the group. This in turn creates a 'mean', a form of average. Ergonomics is based on extents, and severe limitations exist for individuals who are close to the extents of this spectrum, when design becomes over-involved with the so called average or norm, shape or person. There must be a concern for those who fall outside this norm. We must begin to take the extremes into consideration. As Henry Dreyfuss designer and scientist in the field of ergonomics, states it is *"our job is to make Joe and Josephine compatible with their environment. The process that I would call human engineering."*[3] We must substitute the average

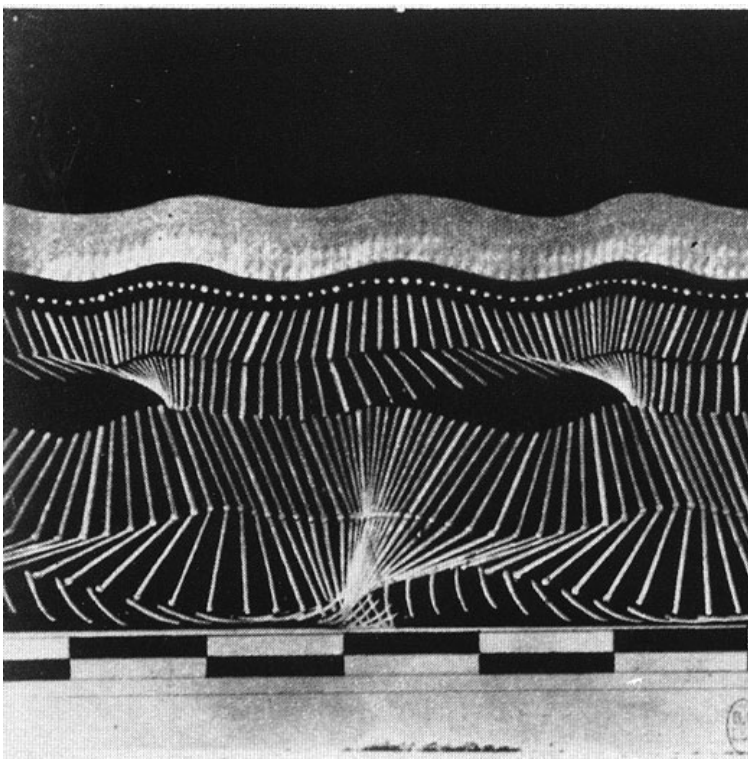
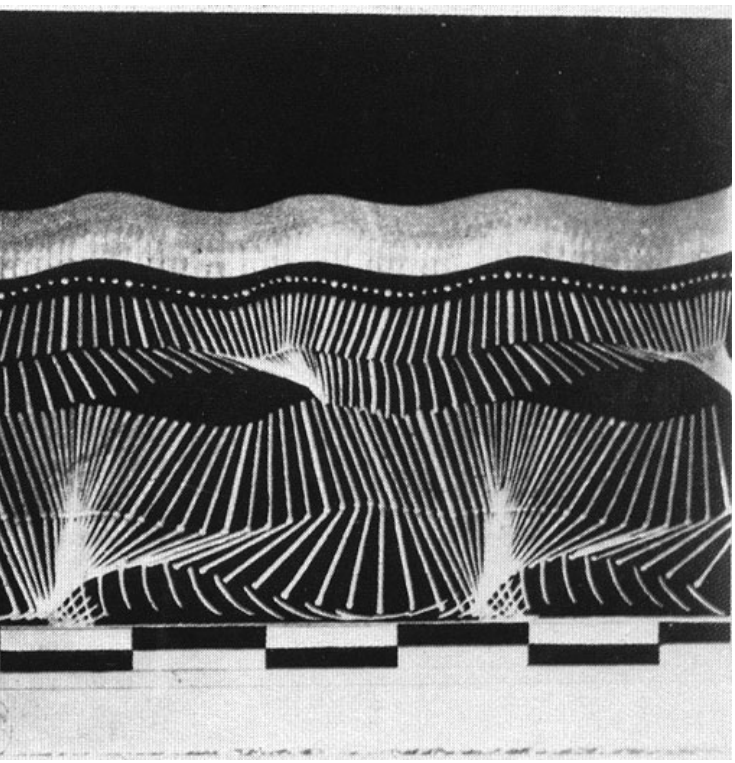


Figure 14: 'Motion Study', diagram. By Etienne-Jules Marey E.J. Marey was a physiologist and leading investigator of motion of the physical body. His studies highlight the pattern of movement of the body over time. Emphasis when talking of his studies with relation to this work must be put on the subtle shifts within these patterns as can be observed in the ghostly image above. This reiterates the argument that the body is relative to time and space and is in an ever changing cycle of fluctuation.



Joe and Josephine for the individual you or me. Restrictions arise as a result of the ideals established within the theory of ergonomics. This idea must be expanded upon in order to develop an understanding, not just from an objective point of view, but also from a subjective one. Henry Dreyfuss begins to draw attention to this in his mission statement where he writes, that if design makes people more comfortable, safer, and happier it is successful[4]; however in many respects the rules which Dreyfuss' *Measure of Man and Woman* has established contradict this ideal. Less and less attention is paid to those who do not fit the perfect module, and there is no place for the 6ft 4" tall male.

This work proposes researching conditions rather than averages. What happens to an *elderly* male who can no longer bend his knees with ease, an *obese* female who cannot touch her toes and is the width of the average doorway, a petite female *gymnast* who can contort her body into forms unnatural and impossible for the majority of people? By adopting physical extents of movement, and examining how people use their bodies as a device, we may begin to investigate the possible architectural elements which aid or mimic these movements, and create forms which ultimately connect the individual to the built.

As Anne Massey debates in the case of the ergonomics of a chair many problems arise when a sitting position is only understood as a static form an idealised form there is failure, "*Sitting in one position for any length of time is not good for the spine or the body as a whole.*"[5] This further reinforces the problematic solutions prescribed by the parameters of ergonomics. There is a lack of consideration, not only for the varying forms or what has become labelled the 'conditions'

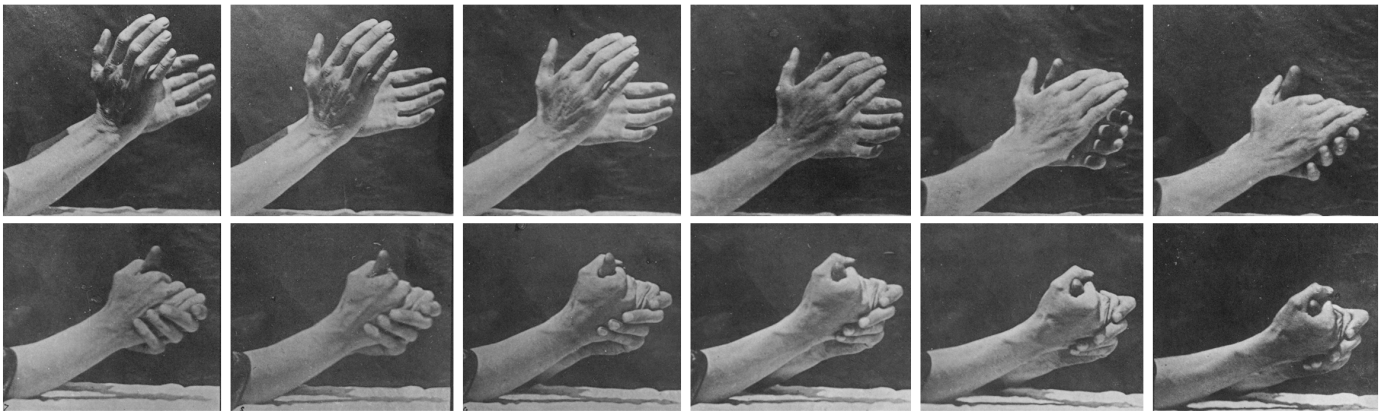


Figure 15: 'Hands', photograph series. By Eadward Muybridge.
The hands series brings to light all the minute movements and the structure that makes up the human hand. A complex and sophisticated system.

of the body, but also for the fluctuations of the body as a living, breathing, primarily moving form; an organism.

There are certain parameters of the body to which all bodies must conform. These have been discussed as the 'actions' of the body. Giedion talks about these 'actions' as the limits, or what may more correctly be described as the limitations of the body: "*The human organism can be regarded as a constant. It is by nature confined within narrow limits of tolerance. It can adapt itself to a variety of conditions and it is physically in a perpetual state of change: but the physical pattern has changed very little, as far as science can record.*"[6] If the 'actions' come to be considered in terms of the individual 'condition' a new form of analysis has been established. It is not a case of disregarding ergonomics altogether, but rather a case of stripping back ergonomics to cover diverse, indeterminate, physical and individual conditions.

To further highlight Giedion's importance in this exploration we have to look no further than his description of the hand upon the production line. The hand can be trained like many aspects of the body to a refined degree of automation, however it is highlighted that the hand cannot perform the exact movement repetitively,"*That is precisely what mechanization entails: endless rotation.*"[7] Ergonomics tries to break down the body into a series of idealized parts. As it is pointed out by Giedion in *Mechanization Takes Command,* the hand may repeat a pattern however it does not do this with exactness. The physical body is a subject to time; it is constantly changing and should not be considered a mere object. This must be clearly understood *"Ergonomics is the science of adaption of the environment to the body."*[8] The issue established by ergonomics is the breakdown of the body into that of idealized functions. This is not a true representation of the individual body. The subtle changes and variances are what give us our identity and individualism. If this was to be stripped from us, what would be left is a world of robots and robotics.

EMBODIMENT

Embodiment can be discussed as the embracement of 'inadament' objects to enhance or substitute bodily abilities. Through embodiment, an 'object' can become an extension of oneself and the body-object relationship is no longer viewed as that of separate entities, but as a series of elements which create a greater whole. The most familiar example of this would be the wheelchair which acts as a prosthetic. Embodiment of a chair, as Merleau-Ponty discusses, the relationship is one of inter-connectedness, *"he introduces the idea that the body 'extends' an object"*[9] the extension of synthesis is the bodily extension. The body now encompasses that of the chair and thus the wheelchair becomes part of the person and persona. It becomes an extension to the body, serving as a substitute for the non-functioning legs of the crippled person. The wheelchair, in this way, becomes a form of advancement.

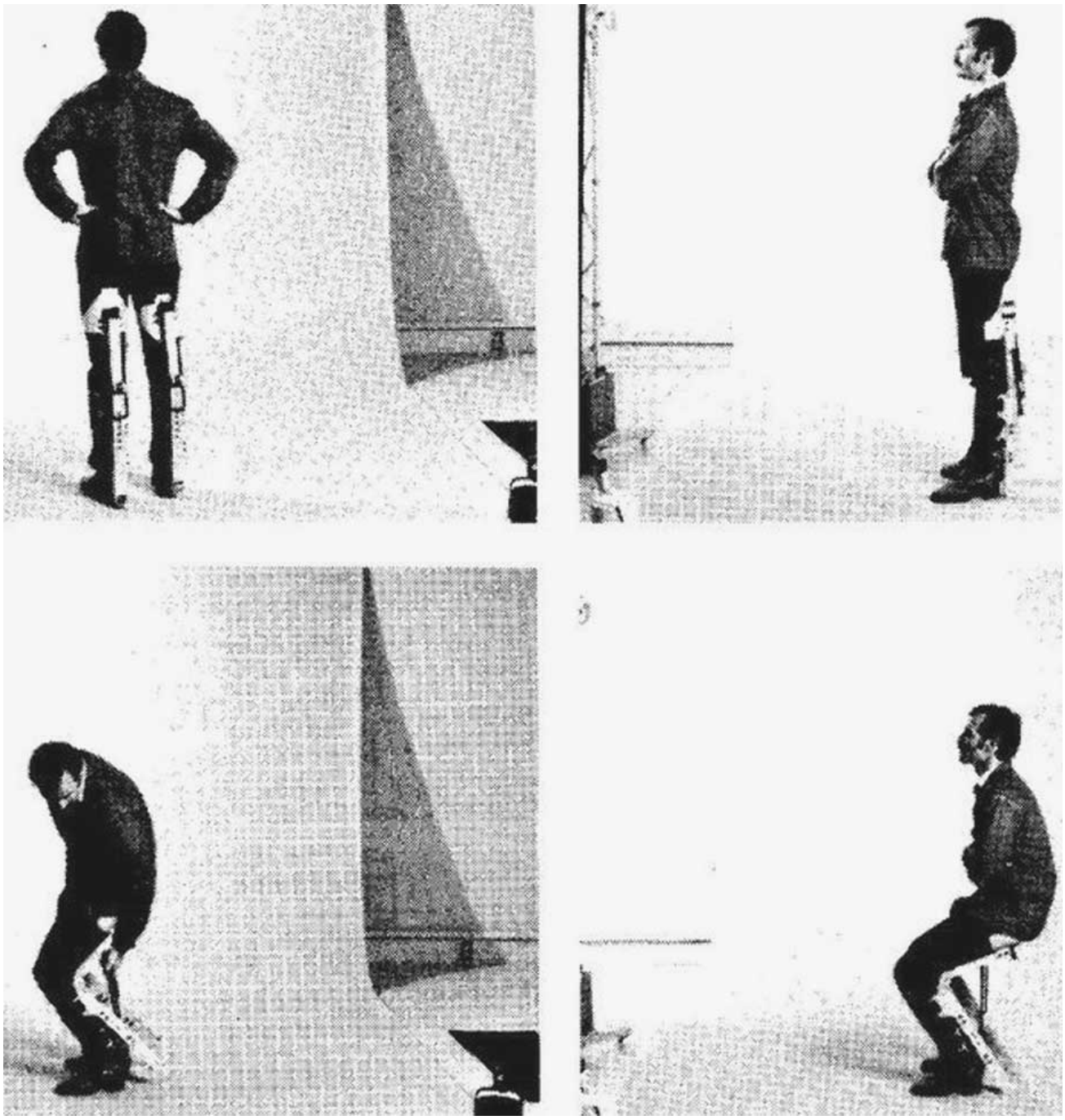
"The chair outer's the human posterior. The squat position is translated into a new matter, namely wood or stone or steel. The temporary tension of squatting is translated and fixed in new matter. The fixing of the human posture in solid matter is greater saver of toil and tension. This is true in all media and tools and technologies. But the chair at once causes something else to happen that would never occur without the chair."[10]

Mark Kingwell considers the translation of body to chair through matter, and the impression of a chair formed through the body. This shows an example of how the chair can be thought of as a prosthetic of the body squatting; it acts as a substitute. This dynamic relationship of transference promotes trust, and allows for security between object and body, a form of housing but not in the traditional sense. This trust can be considered an intimate relationship between the individual and chair, as shown by the Ascot seat demonstration. (Refer: Figure 26: 'Ascot Seat')

With the example of the wheelchair we must also conclude that the personal 'bubble' of the occupant includes that of the chair, as it empowers them and in so doing embodies them and vice versa. This is true in the case of individuals with physical disabilities, as components such as wheelchairs, are designed to enable them to be mobile. However if the individual does not accept this, it becomes the exact opposite, an encumbrance. Again the ideas of subject object are brought forth. If the subject of the individual only understands object as that of an 'object', there cannot be an embodied relationship. Once this perception is overcome however, intimate and personal relationships can be developed.

By understanding this further in relation to architecture, does the most common example of embodied space mean the difference between house and home? The home portrays the personality and individuality of the body. It is an extended 'personal bubble'. Where a house can be considered as a shelter for necessities, the intimate relationship and

Figure 16. 'Wearable Chair', patent 1977. By Darey R. Bonner.
The wearable chair patent was a design created in 1971, a prototype for a movable form of architecture which is attached to the body. An era which is of interest throughout the thesis. The wearable chair emphasises the obsession with evolving body and enhancing ergonomic technology.



construct of memories is lost. How does this identity with space begin to be developed within a nomadic public form of architecture? The networking tool of 'Facebook' could be described as a virtual example of embodied architecture of today's society. 'Facebook' is concerned with portrayal of persona and individuality. How could this begin to be translated within the physical public realm, and no longer constrained to that of a virtual world?

This exploration adopts the potential of public transport to formalise a design. By taking a train carriage and using it as the platform for design we can highlight the inclusion of domestic amenities within such facilities, and no longer be thought of as a segregation of the body from the construct of a home. The train allows for identity within the usually barren zone of the public arena to be challenged, and reconfigured, as a projection of the individual upon architecture.

Figure 17. 'Wheelchair', photograph. Author unknown
The wheel chair is a prime example of a bodily replacement or prosthetic, which enables movement for the body. The occupant of the wheelchair must accept the chair or the chair will become an encumbrance rather than an aid.

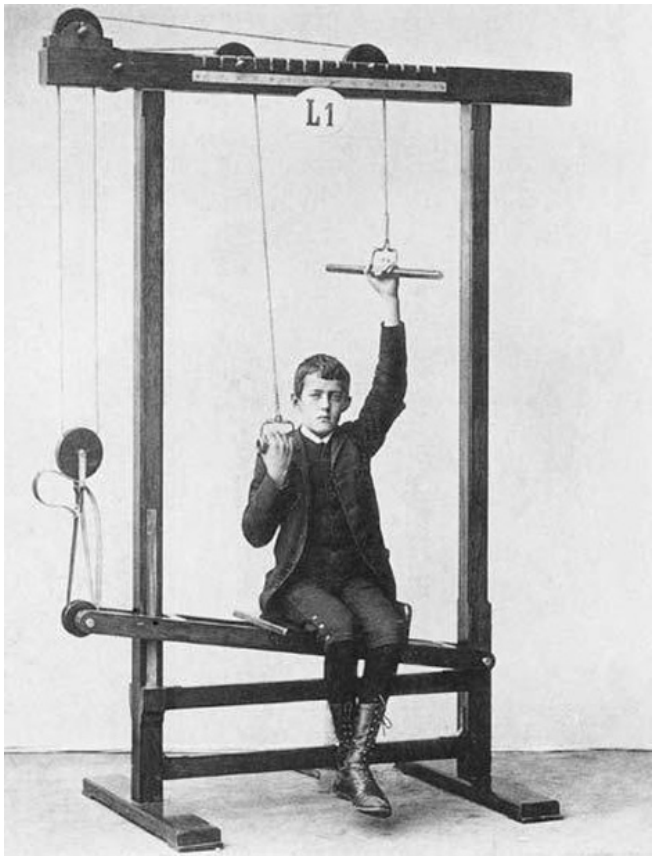


Figure 18. 'Victorian Exercise Machine', photograph. Author unknown.
The example of the exercise machine becomes interesting to discuss in terms of the fetish, it can also be considered as a form of seating in a number of cases. The exercise machine, is a relationship of architecture which challenges the body and puts the body in tension, it is an unusual example to discuss in terms of comfort as the function of the machine is to challenge the mechanization of the body.

TRANSIENT

If we begin to discuss the individual condition of ergonomics and the embodiment of objects as an intrinsic intimate relationship to space and architecture, then we must consider movement or transition as the bringing together of these two principles. The body has the amazing ability to move between places and is not constrained to place. There is a transitory nature of the body and its movements, it is never still. Though patterns and cycles occur within and around the body over time, ultimately these can never be the same or identical as they cannot occur at the same time – relativity. Therefore everything is relative to time and space. Within design or architecture this becomes an interesting point of discussion that we must develop using what we recognise, or what is familiar to us. This is necessary in order to understand this idea more fully and to comprehend the subjectivity of this concept, in addition to allowing for an objective relationship. This creates a link to the idea of embodied relationships of objects. There must be an elegance to design which draws upon need and recognition.

Mobile phones provide an excellent example of the facilitation of the transitory form of the body and the mechanizations which have developed to 'keep up' with this dynamism. Mobile phones have become an extension of oneself enabling instant communication. Nicola Green and Leslie Haddon write about the shift within society resulting from the emergence of mobile technology- *"Mobile phones raise a great number of issues relating to accessibility whether managing calling or being called on the move, or choosing where and when one makes oneself available for communication."*[11] This begins to highlight the pressure put upon personal accessibility and availability through mobile phone technology. This could also be seen as the cause of a shift in values and understanding of physicality. Sylviane Agancinski breaks down the relationship of such technologies with regard to the individual body *"Physical access to things, we must add that this access is also conditioned by the multiple instruments and machines that modify our 'physical' experience. My body's grasp of a thing passes both through sense organs and through the instruments with which they are coupled. My body is therefore not a carnal body: as the basis or means for experimenting on the world, it augments itself with artificial organs that technologies constitute."*[12] This description of the relationship which exists between something like the mobile phone and the individual physical body emphasises embodiment, and adaption of the body, created by technology. The relationship between the two automatically becomes intimate and intrinsic. If we discuss this further, but within the discourse of 'traditional'[13] archetypes, the mobile phone, and the change in the relationship to architecture due to the mobile phone', we must firstly talk about it in terms of the home. The connection or link to place, a physical headquarters; the home; is lost.

The use of mobile phones promotes a segregation of the body from the traditional form of home: architecture. The body is able to communicate, from a non-location specific base, constrained only by the extents of the signal grid. It is now a mobile community. The individual has been given the freedom from the constraints of place. Due to the fact that there is no longer a need to ground your organization at a physical place 'home', the ties and relationships the body holds with a static place begin to diminish and be questioned.

The mobility of the cell-phone; the convenience, tucked in a pocket against the skin, allows for the body to have a new freedom of movement. This is an invisible architecture which allows for flexibility, convenience, organization, and mobility. Accordingly this critique begins to demonstrate the failings and inadequacies of today's conventional architecture.

Within community today it is most unusual for a person not to own some form of mobile communication device.

"Increasingly ubiquitous digital networking and the world's rapidly growing stock of digital information is dramatically changing our daily lives."[14]

The body can now be considered to be the environment serving as the head quarters of operations. As a result of digital networking via the mobile phone, a nomadic type of existence has developed which is creating a loss of physical tie to place.

Not only does the mobile phone play a pivotal part in 'our' everyday life, but it also affects the space beyond the physical body. There is the role that the mobile phone plays in a societal sense: through the mobile phone the body can project beyond its physical surroundings. Ringing can occur and the sound is not confined to the individual and as a result affects surrounding occupants of space. As well as the lack of connection to fixed structures there is also the system of physical towers (cell sites) to be considered. This physical network of cell towers is essential for the workings of the mobile phone, but these towers, together with telephone lines, go unnoticed and unconsidered. These structures are the fixed architecture of the cell phone taken for granted with respect to their use.

The architecture of the cell phone is an integral part of the way we interact within the built environment and affects the spatial conditions in which we place ourselves. The physical structures which allow for cell phone connection go unnoticed. There is a freedom that goes hand in hand with owning and using a cell phone. However we become inevitably tied even more to the landscape which houses the cell towers; you can be triangulated and located in the same way that you are in a game of battleship, (Refer: Figure 19. 'Cell Phone' network diagram), becoming a point on a grid. It is a primary example of a relationship to the dynamic body when something becomes part of the body and also part of a person's abilities (It could even be called a skill). The cell phone acts in a dynamic manner made possible via its mechanical structure, towers, plus signals. There is a new form of speed and interaction with people and their environments; as well as a new form of fixed structure; the cell towers.

By understanding the transition and movement of the body using examples such as the mobile phone, we begin to reinforce the search for forms and technology which enable and enhance[15] the flux of the body, and the need for shifting space. Grosz reiterates this relationship of space and time to object and subject which can be understood as the boundary which must be transitioned between.[16] Through transition we can begin to understand the form of the body as in transit. The connection with the train as a form of transit allows for these ideas to be developed within the architectural realm similar to that of the mobile phone.

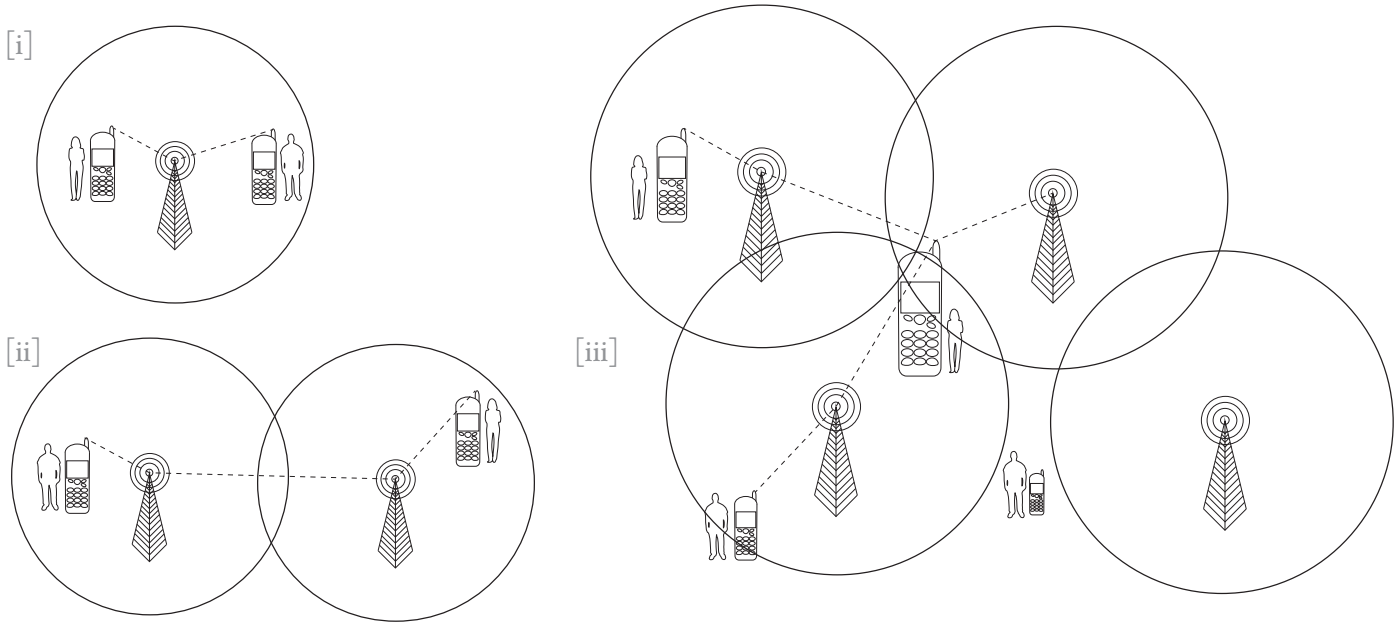


Figure 19: 'Cell Phone,' network diagram. Image by Author. The network diagram shows the mechanism of cell phone signals and the relationship between the fixed cell phone towers and the nomadic form of the cell phone itself, how this also can be a positioning system on a grid.

[i] Demonstrates a cellular transaction through a singular cell tower. Each phone has to sit within the range of the tower with strong signals to allow for a call to be connected.

[ii] Shows a call transaction which is conducted via two cell towers. The two towers range intersect with one another allowing for the call to be transferred to the receiving phone through the overlapping zone.

[iii] Diagram shows a number of caller situations. The figure has four cell towers, and highlights how a person can be triangulated through the range that they sit from each tower. The diagram also shows how a caller can be stuck out of range (a rouge outside the community) between to cell towers, and a caller with a weak signal at the edge of the cell tower range. The bodies are able to shift anywhere within the tower ranges to be able to send and receive calls.

Note: cell towers are nodes which allow for calls to be connected to one another, and are also linked back to the service provider.

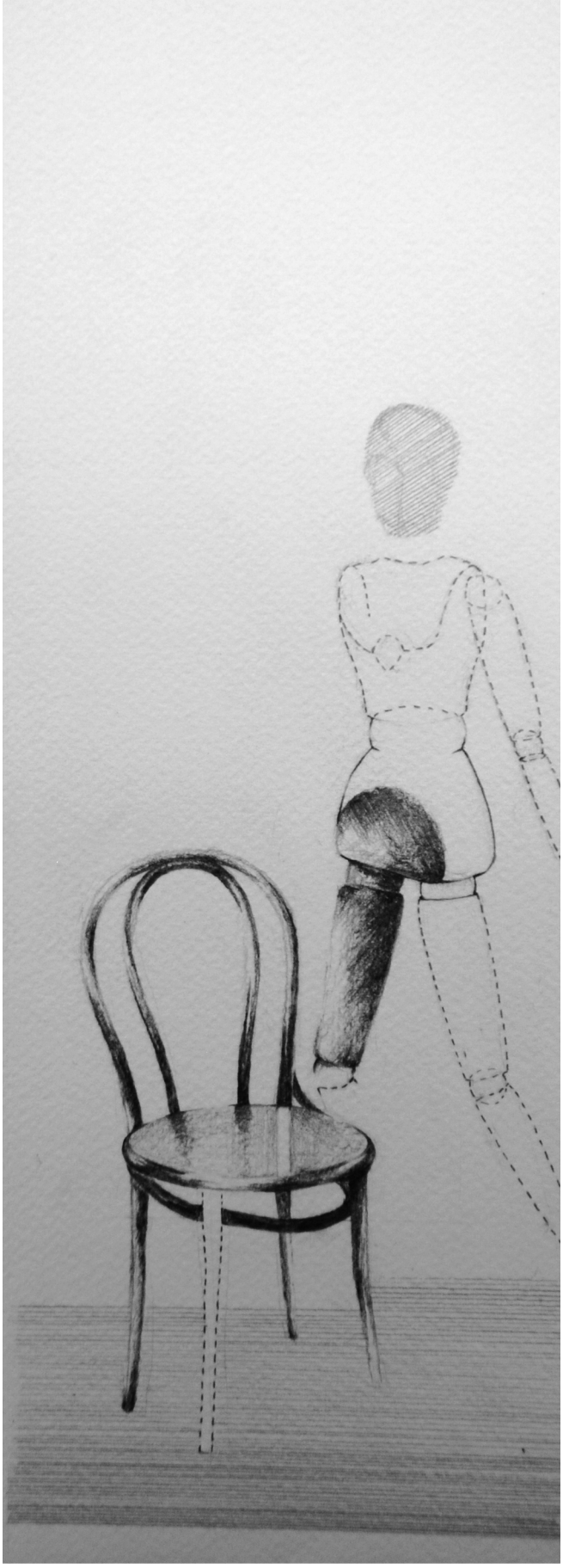


Figure 20: 'Thonet Reflection', graphite on paper. Image by Author.
The Thonet chair reflects the curves and contours of the human form: the body. The chair is an architecture which has stood the test of time perhaps through its successful projection of the body upon its form as well as its recognisable ubiquitous shape.

Figure 21: 'Planning', vector diagram. Image by Author.
The plan diagram depicts a layout of a train carriage. The carriage is linear, a rectanglar form and can quite easily be understood as architecture. However it separates itself from conventional architecture through its emphasis upon the space within the plan, the interior, the components and the shifts that these create. (facing page)

CONCLUSION: SPEED

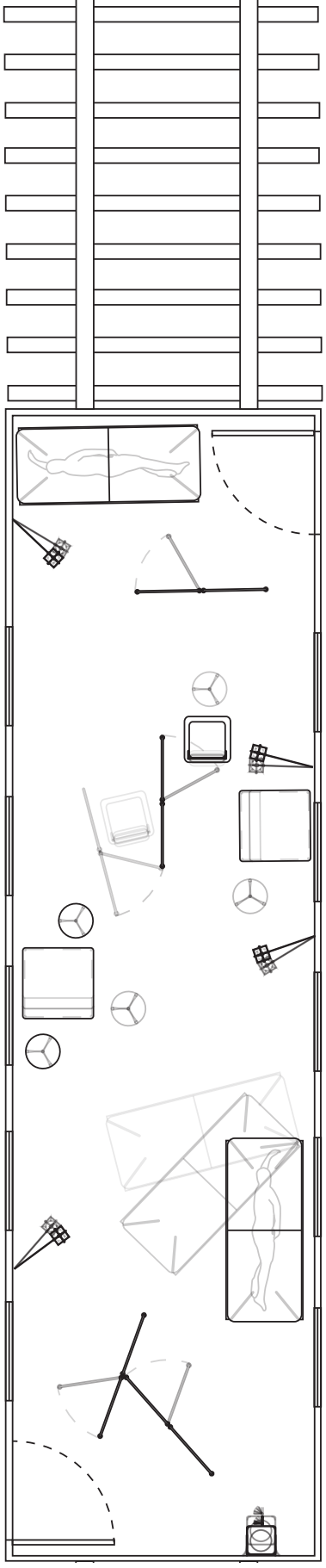
can architecture keep up?

Speed; adaption; the body as a dynamic and individual form. This chapter ultimately sets forth to explore the dynamic body within society, and to investigate the multiple dimensions of the body.

The body is individual, custom, and therefore this factor should be addressed. The individual and the relationship with space develop in a subjective manner intimately tied to experiences of the body, in forms of comfort and security[17]. Discussion of this has been initiated in this chapter relating to speed, using the home as an example of a possible embodied space.

Giedion states that there must be discrimination between that of the individual domain and that of the collective[18]; however with the advent of constant new technologies and virtual access to personal information such as 'Facebook' this separation may no longer be possible. The body is now on the move at a rapid speed. Can architecture, as a physical condition, become responsive to the body's movement? For this to occur, space has to be seen as a form of transition.

This is not to say that actions of individuals can be condoned but to allow for personal understandings of space to develop and project creativity and imagination of the individual body upon architecture.[19] In response this can begin to define intimate ties to architecture and society through comfort of embodiment and freedom of transition.



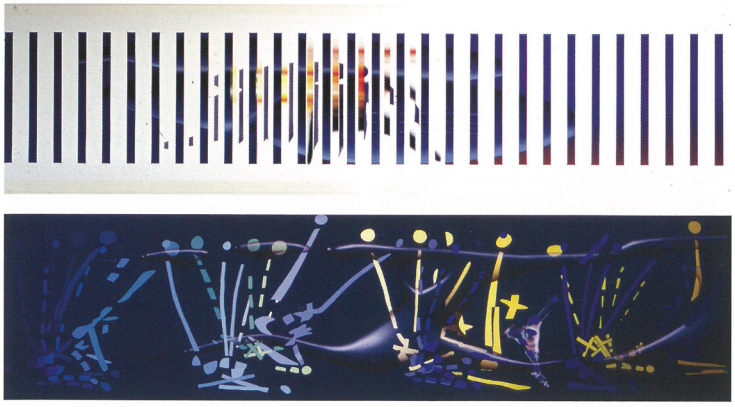


Figure 22: 'Foot Movement' mixed media. By Nat Chard. The Foot series is a contemporary response to movement studies undertaken by Marey and Muybridge. Nat Chard representation uses colour to emphasis the movement and diagrams the breakdown of the foot as a singular component of the body. Pattern is evident throughout the images.

ENDNOTES

1. Page 4, Alberto Perez-Gomez, "Polyphilo's Thresholds: Alternatives for Nomadic Dwelling," Transportable Environments 3 (2006).

2. Page 104, Elizabeth Grosz, "Bodies-Cities," Space, Time, and Perversion: Essays on the Politics of Bodies (St Leonards, N.S.W.: Allen & Unwin 1995).

3. Page 27, Henry Dreyfuss, Designing for People (Allworth Press, 1955,1967,2003).

4. Dreyfuss, Designing for People

5. Page 118-119,Anne Massey, Chair (London: Reaktion Books, 2011).

6. Page 719, Siegfried Giedion, Mechanization Takes Command (Oxford: Oxford University Press, 1955).

7. Page 47, Giedion, Mechanization Takes Command.

8. Page 22, Ignasi de Sola-Morales, "Absent Bodies " Anybody, Ed. Cynthia Davidson (Cambridge, Mass: The MIT Press, 1997).

9. Page 78, Miho Iwakuma, "The Body as Embodiment: An Investigation of Body by Merleau-Ponty," Disability/ Postmodernity: Embodying Disability Theory, Ed. Marian Corker and Tom Shakespeare (London: MPG Books Ltd, 2002).

10. Page 173, Mark Kingwell, "Table, Chairs, and Other Machines for Thinking," Intimus: Interior Design Architectural Reader, Ed. Mark Taylor and Julieanna Preston (West Sussex: Wiley-Academy, a division of John Wiley & Sons Ltd., 2006).

11. Page 92. Nicola Green and Leslie Haddon, Mobile Communications: An Introduction to New Media, English Edition Ed. (Oxford, New York: Berg, 2009).

12. Pages 31-32, Sylviane Agacinski, "Incorporation " Anybody, Ed. Cynthia Davidson (Cambridge, Mass: The MIT Press, 1997).

13. Traditional within this discussion must be understood as that also of the common, a common understanding of what architecture is with relation to a home being a house.

14. Page 428, William Mitchell, "E-Bodies, E-Buildings, E-Cities," Rethinking Technology: A Reader in Architectural Theory, Ed. Jonathan A. Hale William W. Braham (Oxon: Routledge, 2007).

15. Agacinski, "Incorporation ".

16. Page 92, Elizabeth Grosz, "Space, Time, and Bodies," Space, Time, and Perversion; Essays on Politics of Bodies (St Leonards, N.S.W.: Allen & Unwin 1995).

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18. Page 721,Giedion, Mechanization Takes Command.

19. Page 721,Giedion, Mechanization Takes Command.

CHAPTER THREE: DURATION

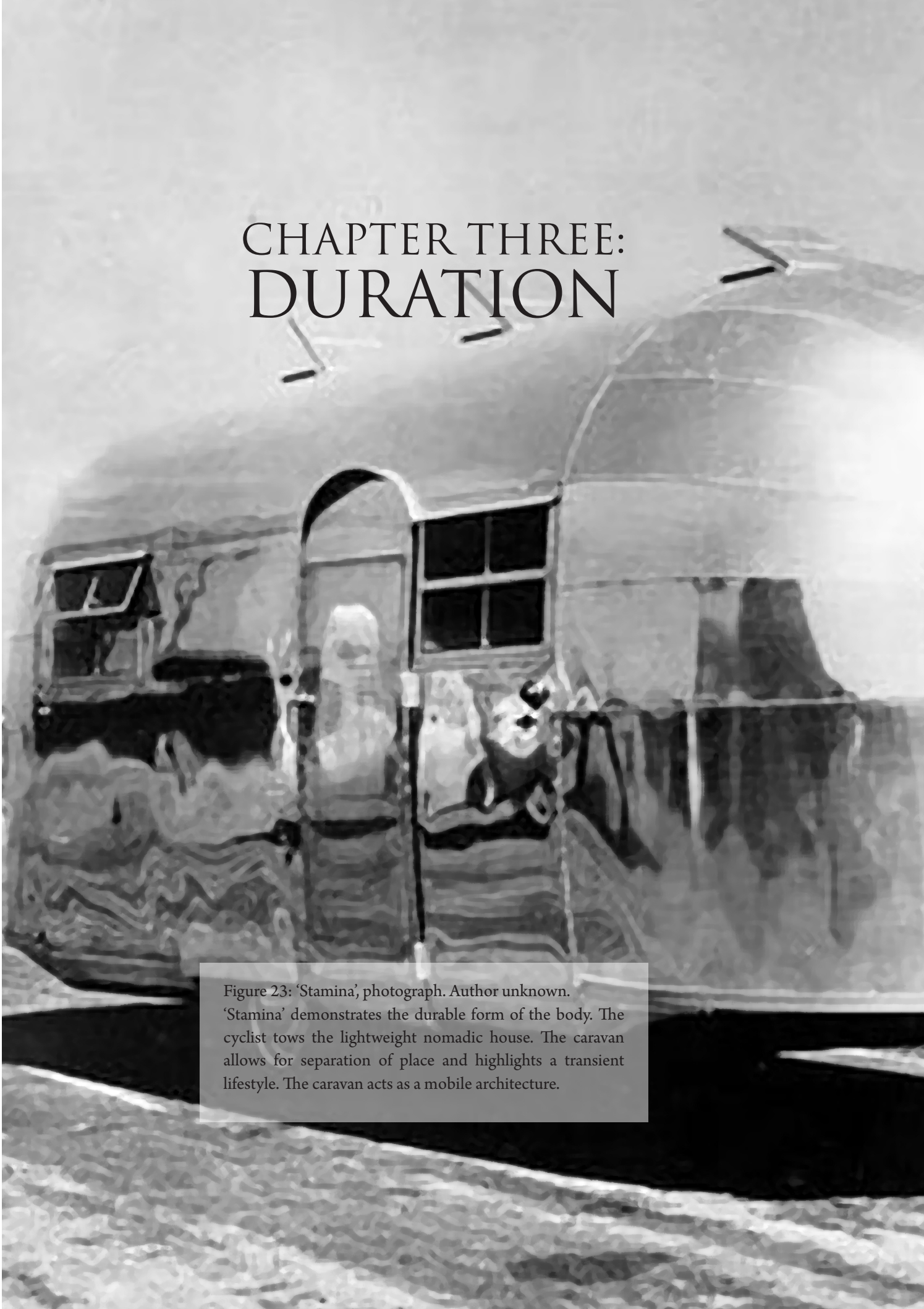


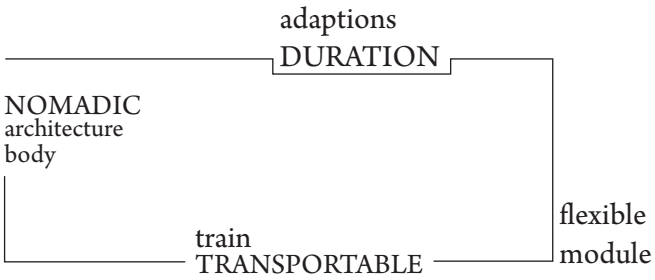
Figure 23: 'Stamina', photograph. Author unknown.
'Stamina' demonstrates the durable form of the body. The cyclist tows the lightweight nomadic house. The caravan allows for separation of place and highlights a transient lifestyle. The caravan acts as a mobile architecture.

THE GYMNAST

Speed highlighted the dynamic nature of the body as an organism within constant flux in relation to the architecturally built. 'Duration' now looks at architecture which is able to stand up to the preconceived ideas of the body within the world.

The Gymnast moves in theatrical arcs and movements. What she lacks in size she makes up for with control. Twisting and contorting her body she shows off the extremes to which the human form can configure. The gymnast has the ability to extend and flex her body forming patterns. The contortions would be considered unnatural by many. Yet it is obvious that the body is constructed to do just that: to perform extreme actions and unusual things. The gymnast's flexibility has developed through practising and refining her skills. Her perceived surroundings conform less to the labels of floor and wall, but act as surfaces; fixed, stable movable, mechanical similar to the movements of her own body. The only apparatus which may be at fault is that of preconceptions of etiquette entrenched within society; the supposedly correct or accepted ways to act within space, community and the built environment.

DURATION



DURATION

'Duration' introduces the idea of flexible architectural solutions with reference to the physical body. The dynamic nature of the body was discussed in the previous chapter. 'Duration' demonstrates the possibilities for architecture to adapt in response to the projection of these dynamic qualities of the body. The discussion begins by looking at body's nature as an organism, as a way to view the body's relationship to the built environment and architecture.

Firstly the nomad is introduced. The nomad as the traveller, the wanderer; nomadic has been a term used within architectural discipline in reference to movable communities and movable infrastructures, where there is a segregation from a set place. Place: with respect to nomadic communities could be considered to be transformative. I then move on to discuss transportability, the movable condition, which leads on from the nomadic but may be discussed in less well known architectural terms. And finally the module, the breakdown of parts or puzzle pieces which can reconfigure to form spatial environments more suitable for the individual. Modules become a set of components which can then create scenes or scenarios of and for the individual.

THE NOMAD

The Nomad begins to tie architectural discussion to the framing of the body with relation to physicality and lifestyle. Perhaps to distinguish the two we can talk of the human as a nomad, and architecture as having nomadic qualities - this can be considered to be an example of architecture reflecting the body. The nomad allows for architecture and the body to be discussed upon the same spectrum. It allows for an understanding of the distanced relationship, marginalisation and unconsidered nature of the body's dynamic qualities with respect to architecture. The opportunity for comparison begins to be established. With nomad-ism we can understand the static, monumentalised nature of architecture as a production of the body. We can then

Figure 24. 'Tent jacket' photograph. By Lucy Orta.
Tent jacket is an example of a modular architectural system, an intimate and nomadic form. Orta pushes the boundary of social structure and with her refuge wear. The garment acts as a shelter and house. "Utilizing the humans fundamental capacity to adapt to change."

reverse this into a relationship where the body is prioritized as the monument and the architectural components move and flow around the body; an adaption to fit each need.

"The modern persons inhabitation is the body assisted by technical devices and made comfortable through the choice of clothing."[1]

Clothing can be recognized as exemplifying these nomadic qualities. The body as nomadic refers to the nature of the body in constant flux or movement and shows how the body cannot be denied these qualities. Thus nomadic refers to the nature of transportability or flexibility, and how architecture can be viewed to function in multiple ways or move to create new environments.

Throughout history developments of nomadic architecture have been pin-pointed. Giedion discusses commonplace items which exemplify nomadic qualities and enable the projection of the individual: *"The table has become fixed and the seat movable."*[2] There is an indeterminacy between the architecture and the body, for example that of the chair. *"The chair is pushed up to the table, not the table to the fixed bench as before ... now everyone has his chair at the table. The chair has ceased to be an honorary seat, a symbol of unusual distinction, and is placed in series around the table."*[3] The chair sits between architecture and the body. It houses the body yet can be considered as a piece, a typology of architecture, perhaps marginalised, yet no less architecture. The evolution of this architectural nomad allows for flexibility and change. This could be explored further to create dynamic solutions applicable to modern lifestyle conditions, where there is a diminishing sense of 'home and place' as was highlighted

Figure 25: 'Personal Quarters' article. Author unknown. 'Personal Quarters' is a portrayal of a journey undertaken by an individual. A journey of intimacy and customisation. The house trailer bed was hand crafted for the personal needs of the inhabitant, creating a intimate connection to the arcihtecture and allowing for a transient lifestyle.

within Chapter Two in reference to the mobile phone.

There is the possibility the chair can define space in relation to people, where current architecture conforms and funnels the body to work within its rigid form. The role of furniture, if thought of in this manner, can become a legitimate typology with which to respond to the dynamism of the physical body.

"Furniture numbers the utensils most intimately bound up with man's existence. With it he lives day and night. It assists his work and his rest. It is the close witness of his life and his death."[4]

Giedion highlights the ubiquitous form of furniture A unique relationship evolves as a result of the interaction the body has with furniture over a life time. The forms become heirlooms representing the past but do not lose their functionality over time. This could be described as a nomad through time, withstanding the test of time. Furniture, or furnishings, which allow for multiple uses and adaptable forms may be considered the nomad of space formed through movement and flexibility. When they converge they bring together time and space, each of which acts relative[5] to one another. This establishes a relationship which both architecture and the body share. The flexibility which furniture encompasses reflects the body's flux and nomadic existence. Furniture allows for mobility and the flux of the body therefore it is kept and treasured through time allowing for development of intimate relationships with its forms.[6]

Giedion speaks of the difficulty of moving large bulky items of furniture around in comparison to the easily 'meuble' movable furniture such as the 'X chair', a type of folding

chair which was light and practical and easily recognisable as a nomadic friend of the body. As Adolf Loos discusses in his essay *Furniture for Sitting 1898,* one cannot dispute the beauty of an object if it fulfils complete function, and in the case of the chair, comfort. This is demonstrated through the individual or owner of the chair. If a chair is completely uncomfortable to a guest yet comfortable to the owner the beauty cannot be disputed[7]. The same principle may be applied to the architectural nomad whose function lies completely in being transposable to multiple environments in an easy fashion. The nomad draws attention to the close ties of the body as a mobile form, and architecture which adopts similar types of conditions. This leads to consideration of how similar the components are, and how flexibility will help with the 'durability' of design.

Programme is established through personalisation, the shifting of the actions of the individual; the programme becomes defined through individual interactions. The innate character of a standard passenger train is, that its function is for communal public use. There is a very fine line where one is able to identify a personal ownership over such a public commodity. The fact that the train carriage is for public use together with the accepted rules of etiquette, govern the way in which the train carriage is used. The train acts as an architectural nomad, and the carriage which is essentially a room on wheels is established as a room for the body, for the individual.

"Man shall order and control his intimate surroundings so that they may yield him the utmost ease." [8]

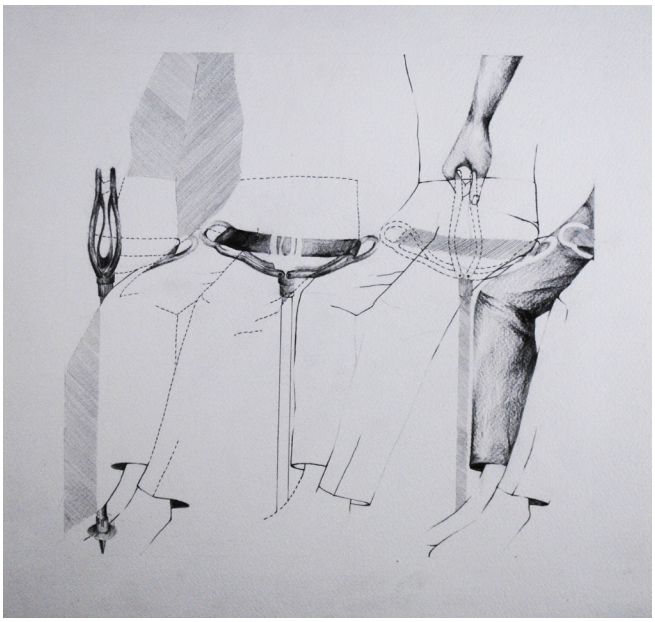


Figure 26. 'Ascot Seat', graphite on paper. Image by Author. The ascot seat is designed to be a movable form of outdoor seating the spike at the bottom allows for the seat to be placed within soft ground and the leather seat to be lent against,the body to be rest its weight upon it. It acts as a third leg, the seat has moulded handles which fold together to allow the seat to act as a cane when it is not being sat upon, this transformable nature allows for easy transportation of the object and a intrinsic relationship between the body and the seat. A movement pattern is created through space through the use of the ascot seat.

Through occupation of the carriage on a domestic level, intimacy and comfort become of the upmost importance. The visual studies of the ghost photographs begin to capture the essence of the carriage and its importance as a conceit in this research (Refer: Figure 27 & 28: 'Ghost Train'). The images investigate the viability of the train as a space for the individual because, although sited within the realm of public transport, there has to be a firm allocation in terms of space. The images show the adaptability of historical carriage components and the movement of the body in relation to this, hence the description of the ghost, capturing a moment, an aspect of the body trapped in time.

Finally the train has been defined as a form of architecture and a legitimate site to use in order to further demonstrate and represent intimate architecture, highlighting the attributes of a nomadic existence through space and time.

Figure 27 & 28. 'Ghost Train' mixed media, Images by Author.
The ghost images highlights the temporality of the transport imagery with bodies constantly moving through the space, this image also hopes to show the relationship of the movement of the body in relation to the components which can transform within the carriage in this case it is the flip seat and walkover seat which allows for the benches to face either end of the carriage. Emphasising the carriages history of adaption, for comfort of travel.

THE MODULE

"Nineteenth century furniture was dissected into separate elements, into separate planes. These movable elements, which in governing mechanism linked and regulated enabled the furniture to change in adaption to the body and various postures. The furniture was thus endowed with flexibility unknown before, and ceased to be a rigid, static implement."[9]

Modules and components can be talked about in relation to movable and adaptable. The module is defined as an element which can be put together within a series to create a whole, or a system, and it could also be described as a narrative or scenario. "*Considerations such as performance and durability are far more important than the delicacies of style and 'good looks"*[10]–The module should be capable of sitting on its own apart from the collective, as an individual component. It is now possible for us to see individual parts collaborating to form a design which therefore adapts to multiple needs. This can be shown through a series of configurations. If they are able to form different scenarios then we begin to understand the importance of the module (Refer: Figure: 29. 'Scene')

As Sadler describes, the work of Archigram highlights the modules and kits as systems, and the creation of a system as evolutionary; they "*have to evolve to manage emergent situations not established ones."*[11] If we understand the individual as the situation, and the architecture as the system that must allow for variability, the module becomes much more important as a proposal to inform the architecture that projects individual scenarios.

Scenarios can be described, in terms of the module, as the bringing together of components for a specific purpose. The

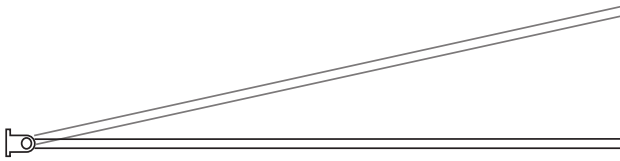
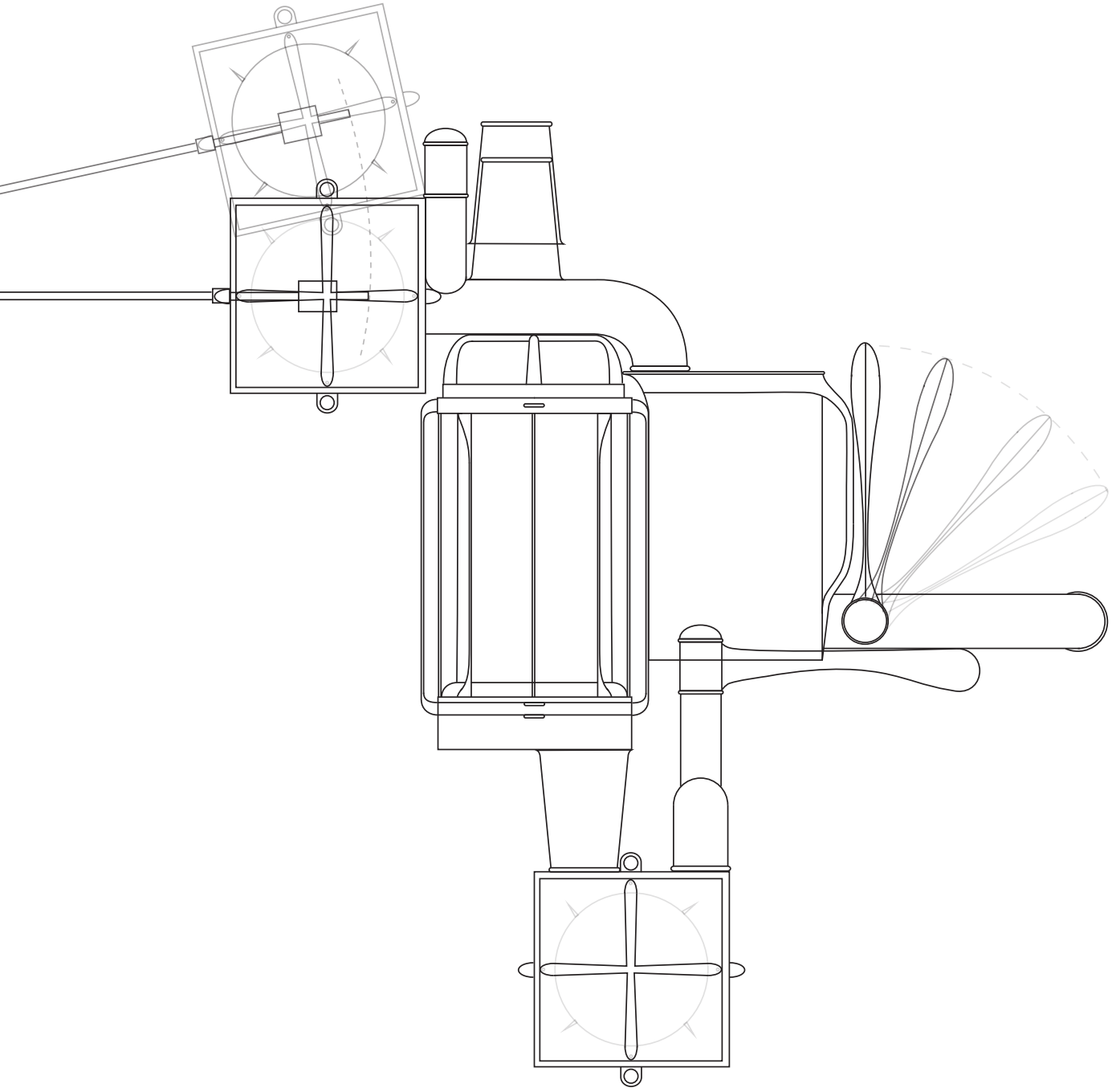


Figure 29. 'Diagram SCENE hydration', vector diagram. Image by Author.
Each diagram describes a narrative of how a series of elements, components, or objects, can come together to form a new meaning and create a scene. One cannot function without the other there would be a breakdown of the system. The scene brings together designed elements highlighting the ties between each component. The lantern is lit to lead the way to the tap hung upon the hook in order to fill the decanter with water from the tap conclusively allowing for hydration of the body from the glass.



scenarios can become reconfigured with different variations of modules to create specificity of the individual. The module allows for individual flexibility and the bringing together of architecture for personalisation. Giedion states that metamorphosis is the key to the bridging of categories "*They dissolve into one another. Multi-formity and metamorphosis are part and parcel of being. An armchair that changes into a couch, a couch that changes into a cradle, can justly be termed combination furniture, as can a bed that turns into a sofa, into a chair, into a table, into a railway seat."*[12]

The interaction that is formed between that of the body and component creates the metamorphosis, the use and function. This can go on to be understood as the programme. The programme becomes module in that it is a virtual element only confined through the inhabitant's creativity or lack thereof. Public transport can become interchangeable with 'domestic' private transport. The issue of individual personalisation and intimacy in the public arena arises, impersonal and designed for the norm or average person, an ever changing inhabitant. However this thesis demonstrates the possibility that the individual, the nomad can enrich space.

Module in the case of furniture highlights flexibility of space as well as use. *"Everything is collapsible, folding, revolving, telescopic, re-combinable. "*[13] To understand the potential of the module as a movable condition reflecting the dynamism of the body, we have to look no further than Giedion's description of reconfiguring furniture, and understand that the singular piece of furniture acts as a module itself through the potential forms of interaction. It becomes a singular entity, yet is also able to act in a system.

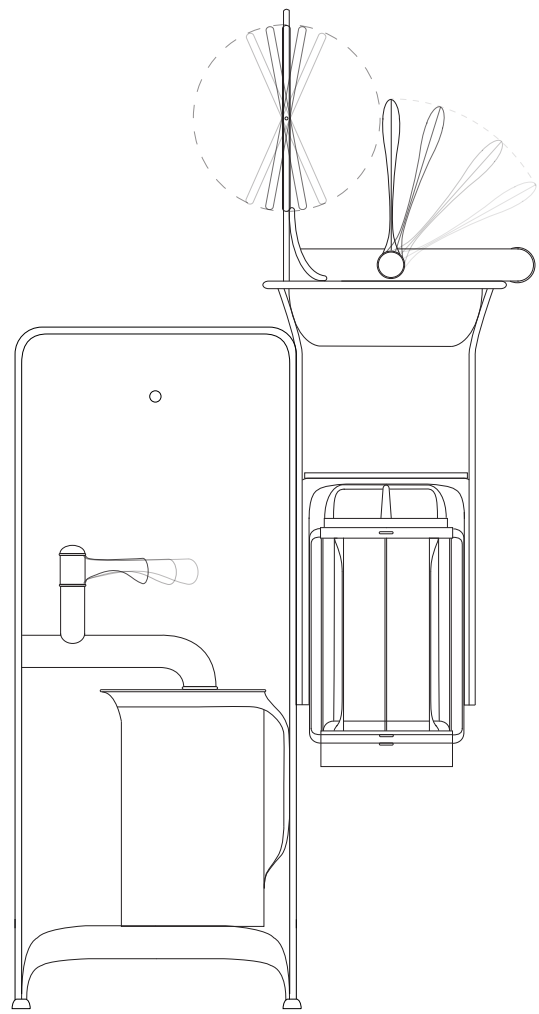


Figure 30. 'Diagram SCENE cleansing', vector diagram. Image by Author.
Within the scenes you begin to be uncertain of where one component begins and the other ends – the edifice of a system.

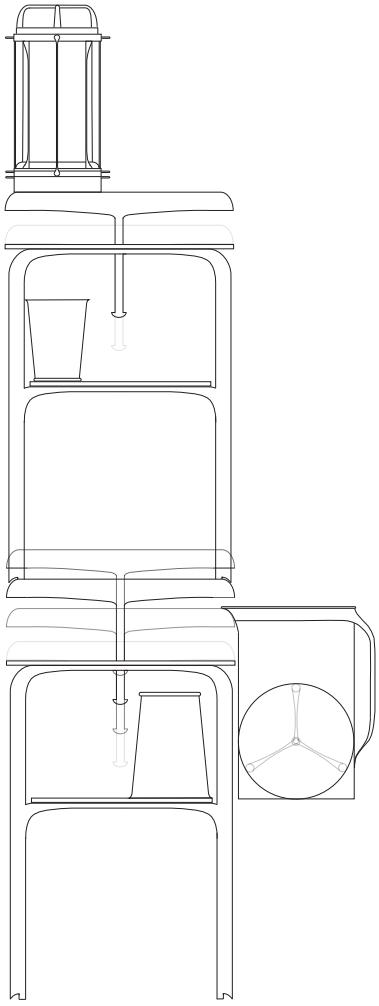


Figure 31. 'Diagram SCENE resting', vector diagram. Image by Author.

TRANSPORTABLE

"Designers and engineers are now exploring new public transport concepts, which are more capable of competing with the car offering quicker, and in some cases individualised, transportation."[14]

Transportability, mobility, flexibility, adaptability; these attributes all begin to convey and speak of the dynamic conditions which architecture must strive for in order to respond to the body. The movable condition of the body, which so obviously segregates the body from architecture, should be further identified as a condition that must be projected upon architecture if we are to bridge the threshold between static and dynamic. We can begin to break down the condition of movement and the role it may play within architectural design. This can be achieved if they are approached in terms of design components to create what may be considered a transportable environment, or spatial condition; an environment which may change to form an intimate relation to the individual body.

"*Today our level of mobility determines whether we remain integrated within the social network, and how we are viewed and accepted by others."*[15]

I have identified three primary elements of design movement. Firstly, and one of the most closely allied to that of architecture, is kinetics. I have established this as having a point of difference, as it is physically tied to a point but able to be configured around this point - a simple example would be a door. A door can be shut recreating a complete wall, or partially open, hinting that something lies beyond. The

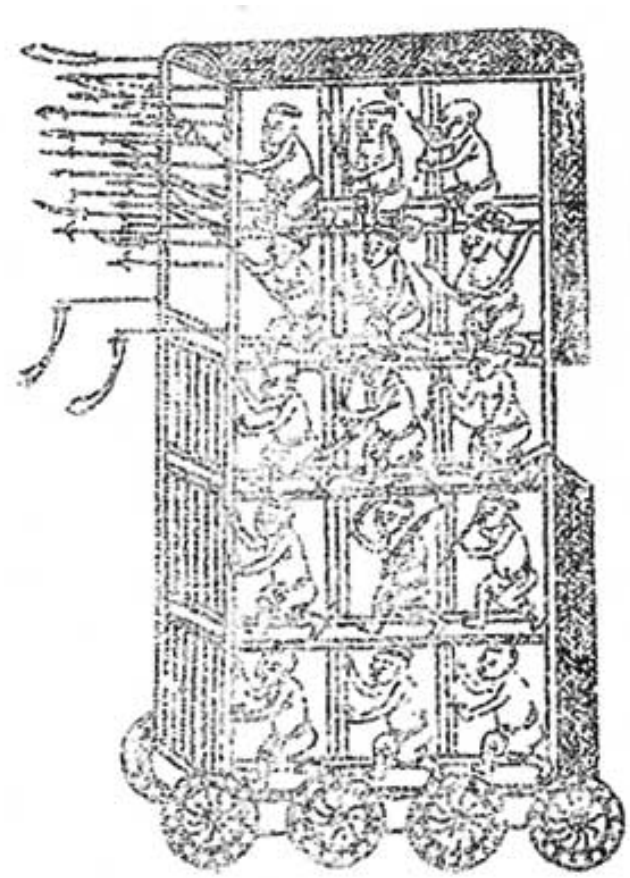
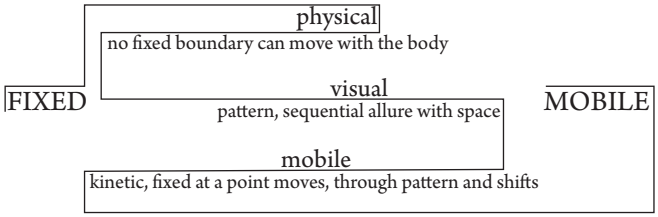


Figure 32. 'Chinese Assault Tower', drawing. Author unknown.
The Lin Chou Lu Gong Che "Duke Lu's Overlook Assault Cart" or better known as a mobile Chinese assault tower, developed as a siege tower which elevated its members above the fortified walls to penetrate the cities. The cart housed anywhere up to a hundred bodies. The bodies would have to work with the cart to stay alive and use the device to greatest of their embodied ability.

Figure 33. 'Truck Apartments', mixed media. By Aristide Antonas .
The transportable, nomadic design highlights relationships to the environment and the freedom that comes with mobility. It also shows the capability of such architecture to come together to form communities. This project forms an interesting relationship to this thesis through its representation and ideals.

second element is physical movement. A door can therefore be described as an object that is not linked to place through a physical connection, but only to what is familiar. Another example is a chair. A chair can be placed on a table, however our subconscious accepts, without any thought, that a chair sits next to a table on the ground plane. This is the positioning of the chair that is accepted and seen as unremarkable. Taken out of context the chair may be seen as something else altogether, perhaps a form of sculpture. Finally there is the element of visual movement. I would suggest that this is the broadest element and possibly connected most strongly to the individual in terms of perceptions. However I will attempt to describe it in relation to pattern. A pattern triggers movement, and as it is sequential and continuous this can be compared to the nature of the body; the movement of blood through the veins as well as the continuous beat of a heart. Also pattern as a visual element of architecture allows for a progression through space, a triggering spatial movement.



Together, these three components with which we can link the body and architecture more intimately, will inform the design initiative. The translation will allow for an intrinsic interaction between both the body and architecture, rather than that of architecture as just housing the body; a dialogue between the two is discovered.

The train is primarily a vehicle which allows for ease of transportation. It is not fixed to a place and thus it may be considered placeless and nomadic in its existence, confined only to its rails. It moves from location to location and establishes itself as a place of transition for the body, a spatial and temporal container. Though the train is not directly constrained to a place there are extents which it exists similar to that of the body. The body can only survive in conditions which are not hostile to its health and existence. There are the common needs of the body as discussed earlier in the definitions of 'actions' and in terms of the carriage this is also true as it is tied to the rails. The rail car has always been strongly tied to technological development and the machine age. The development of mechanics begins to compete with the body as a replicate, but there must however be balance, and by moving towards replication it does not address the need for equilibrium but it works opposing the body.

Movement and temporality of the carriage becomes an important factor in the reasoning for use. As a nomadic quality evolves it is a transition in itself in terms of travelling between point A and point B. The concept of transport is essentially linked to that of movement in quite a literal manner. Whether it is a body or a machine, transportation is a form of moving through space using a mechanism to do so. Giedion describes this in a very poetic manner and highlights the need for new approaches and tools to do so, "*Ever in flux and process, reality cannot be approached directly. Reality too vast and direct means fail. Suitable tools are needed, as in the raising of an obelisk.*"[16] With respects to this work public transport can be seen as an idealized version of this.

Bodies exist as agents of exchange; a transportable form of liquids and blood. No longer just flesh they become an organism; living, breathing, excreting.

"Bodies or rather their tracks, constitute the only access to a language which is no longer that of subjectivity or objectivity but rather a chain of circulating episodes that evokes them, records them."[17]

The body becomes a form of transport, a continuous cycle of liquids and movements of bodily functions (Refer: Figure 41. 'Actions' diagram) similar to the function of the train carriage as public transport of the body itself continuous.

Figure 34. 'Rail Carriages' , photograph series. Image by Author.
The photographs aim to portray an experience of vintage carriages from New Zealand railway. The use of structure geometry and form. A dying form of public transport within the New Zealand countryside. (top of facing page)

Figure 35. 'Carriages', illustration. Author unknown. (bottom of facing page)

RAILWAY
NRL
WORKSHOPS

PASSENGERS are WARNED
of the DANGER in
Leaning out of the Windows
when the Train is in Motion

DO NOT
LEAN OVER CAR GATES
DANGEROUS

CONCLUSION: DURATION

Without objects within space there is no way to recognise your own position within the environment. As Grosz reiterates it is through objects in space that we are able to as a subject coherently identify ourselves within a spatial condition. As well as enabling the body to establish 'its self' and 'its place' within space and therefore manipulate 'itself through space or in other words move. *"However space does not become comprehensible to the subject by its being the space of movement; rather, it becomes space through movement."*[18] Therefore the more movement the more flexibility of space and comfort of the body is created within this new understanding.

The demonstration has begun to unravel the possibilities of flexibility within the discipline of architecture, and how this could create and inform intimate relations with the individual body; a flexible *gymnastic* architecture, responsive; an architecture which contorts to form and create space.

Not only do the concepts of nomadic, transportable and module support the argument for flexibility, but they also allow for the development of design parameters, goals and aims. Bringing together these three key terms, all unravels the underlying theme of movement and mobility, a physical condition conclusively developing three architectural forms of movement, and setting up further investigation towards a transitory site of the train.

It is through the establishment of balance and response that we will succeed in addressing the ability of architecture to develop an affinity with the form of the individual, and therefore allow for intimacy to be found, and duration to be established. Through identifying the module as an architectural convention which responds to the body as a system we can also further develop designs which respond to the system of the body and the body as a nomad through time.

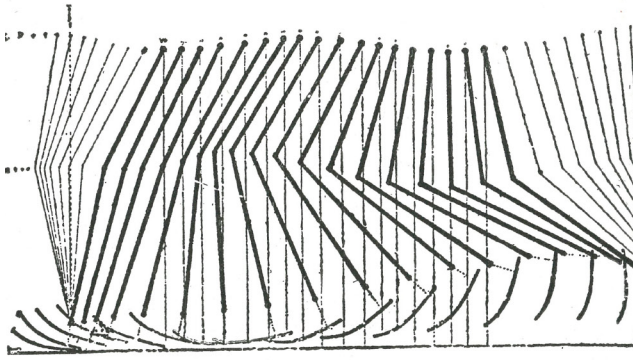


Figure 36. 'Motion', diagram study. By E.J. Marey.
Motion study of the human form, showing the shifting pattern of the body while moving.

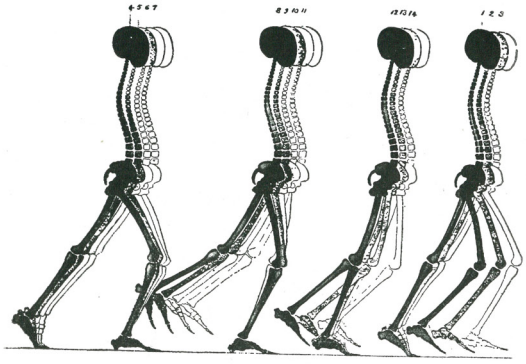


Figure 37. 'Structural Motion', diagram. By E.J. Marey.
Study of the skeletal structure of the body especially the spine and legs in motion.

ENDNOTES

1. Page 96,Bradley Quinn, The Fashion of Architecture (Oxford: Berg, Oxford International Publisher Ltd., 2003).

2. Page 269, Siegfried Giedion, Mechanization Takes Command (Oxford: Oxford University Press, 1955).

3. Page 269, Giedion, Mechanization Takes Command.

4. Page 270, Giedion, Mechanization Takes Command.

5. Relative in the sense that each moment in time is relative to the individual perception of surrounding space – Einstein uses the description of a train to describe the theory of relativity

6. Page 10, Joseph Rykwert, The Necessity of Artifice: Ideas in Architecture (London: Academy Editions, 1982).

7. Adolf Loos, "Essays on the Occasion of the Vienna Jubilee of 1898: Furniture for Sitting " Adolf Loos: Spoken into the Void: Collected Essays 1897-1900 (Cambridge: Mass: The MIT Press, 1982).

8. Page 260, Giedion, Mechanization Takes Command.
9. Page 390, Giedion, Mechanization Takes Command.

10. Page 21, Keith Lovegrove, Railway: Identity, Design and Culture (London: Laurence King Pub., 2004).

11. Page, 117, Simon Sadler, Archigram: Architecture without Architecture (Cambridge, Mass: MIT Press 2005).

12. Page 423, Giedion, Mechanization Takes Command.

13. Page 423, Giedion, Mechanization Takes Command.

14. Page 120, Paul Schilperood, Future Tech: Innovations in Transportation (London: Black Dog, 2006).

15. Page 133. Oliver Herwig, Universal Design: Solutions for Barrier-Free Living (Basel ; Bosten: Birkhauser, 2008).

16. Page 14, Giedion, Mechanization Takes Command.

17. Page 24, Ignasi de Sola-Morales, "Absent Bodies " Anybody, ed. Cynthia Davidson (Cambridge, Mass: The MIT Press, 1997).

18. Page 92,Elizabeth Grosz, "Space, Time, and Bodies," Space, Time, and Perversion; Essays on Politics of Bodies (St Leonards, N.S.W.: Allen & Unwin 1995).

CHAPTER FOUR: PLATFORM

OBESE LADY

A shift evolves where there is an over indulgence of information. As with the Obese Lady who continues to eat even though it is not a necessity, she indulges because she can. The train becomes the stage for the indulgence in order to display the thoughts and ideas discussed throughout this thesis. It becomes excessive 'fat' with ideas and aesthetics and dramatised upon the stage; an expansion, a bloating of the BODY.

There is now a basis for an architectural investigation through design experimentation. The previous chapters have begun to set up design guides and outlines which enable an argument through design to develop. In order to facilitate a design experiment or demonstration a train carriage has been employed.

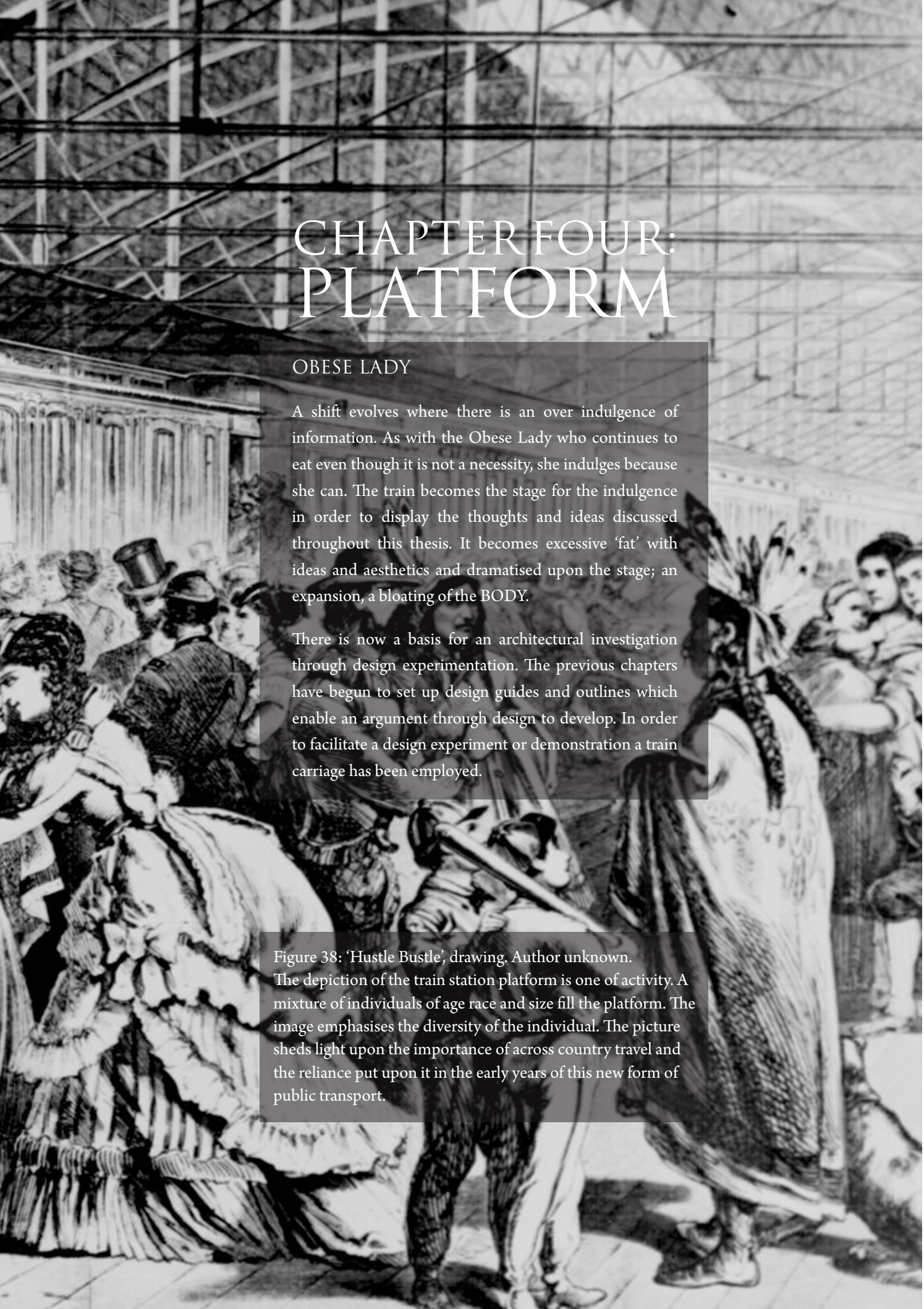


Figure 38: 'Hustle Bustle', drawing. Author unknown.
The depiction of the train station platform is one of activity. A mixture of individuals of age race and size fill the platform. The image emphasises the diversity of the individual. The picture sheds light upon the importance of across country travel and the reliance put upon it in the early years of this new form of public transport.

PLATFORM

DESIGN
TRAIN Architecture movement
PLATFORM mechanical
DYNAMIC BODY

TAILORING

"Space makes possible different kinds of relations but in turn is transformed according to the subject's affective and instrumental relations with it."[1]

The subject's relation to space and time is not passive, but rather, the ways in which space is perceived and represented depend on the kinds of objects positioned "within" it, and more particularly, the kinds of relations the subject has with those objects.

We have now arrived at the platform. The platform setting has been established within the three proceeding Chapters; Proximity, Speed, and Duration. Using the platform setting I would like to discuss first the concept of action as the most dynamic aspect of the body. This will then move the design on to the architectural response of flexibility, and finally the impact this can have on the intimate relationship which the body can develop with architecture. It could also be discussed with reference anthropology terminology such as: arm, leg, back, bones, and blind, which have all been employed within design for decades, emphasising the relation where the built is recognised reflecting the body.

We now come to the formal introduction of the train. A train carriage acts as a conceit and a site for design, and in addition it functions as a container, or stage on which to investigate the architecture of the individual body.

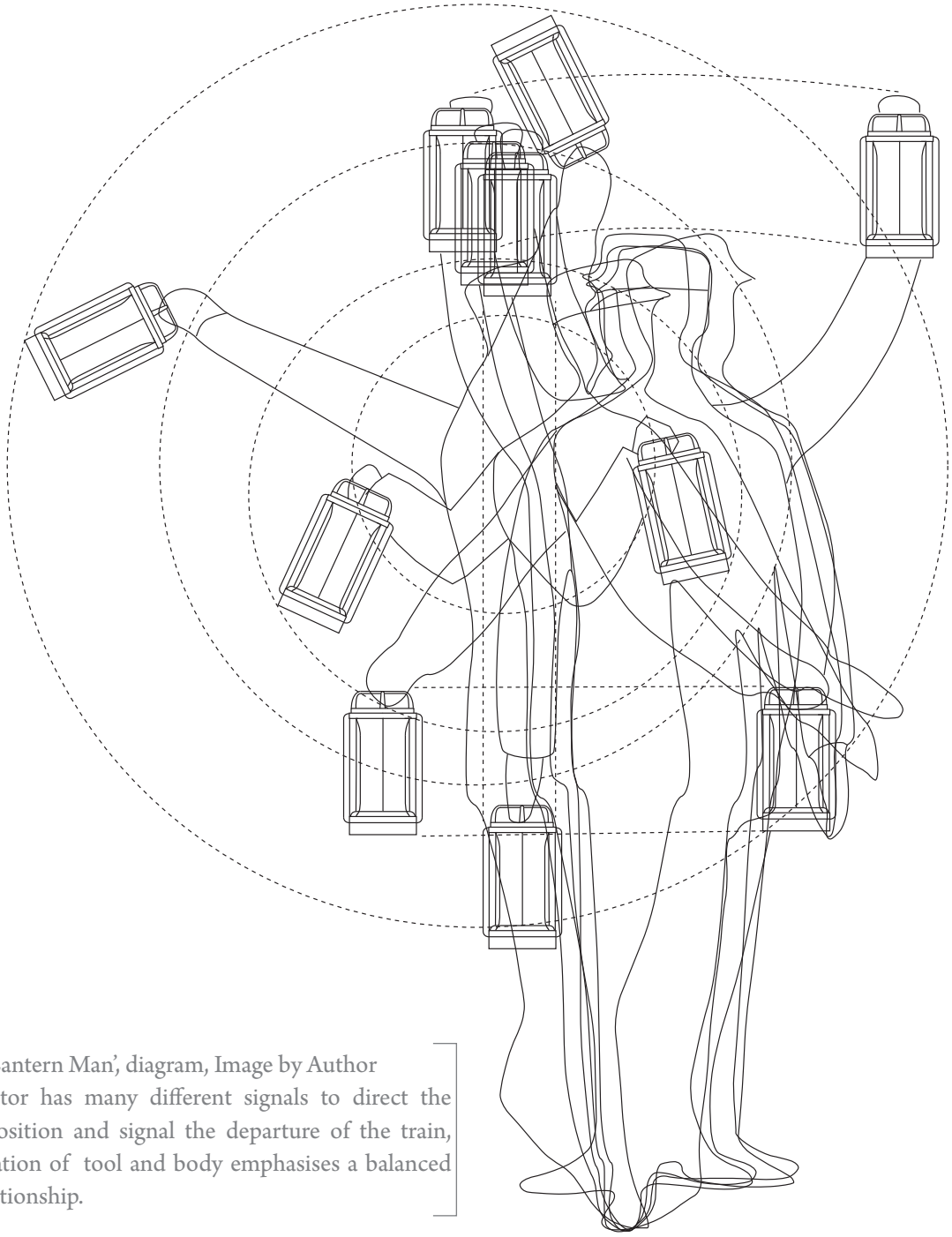


Figure 39. 'Lantern Man', diagram, Image by Author
The conductor has many different signals to direct the train into position and signal the departure of the train, the combination of tool and body emphasises a balanced intimate relationship.

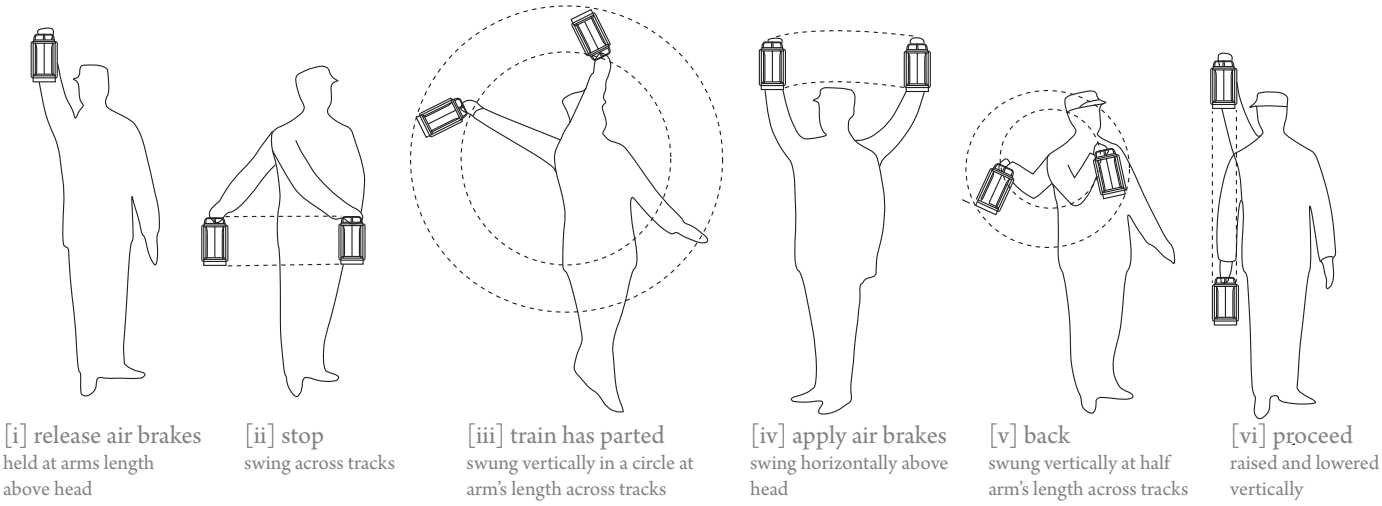


Figure 40. 'Lantern Signals', diagram, Image by Author.
The lantern signals have been broken down to highlight the language of the body, and the dialogue created between the architecture of the lantern and the conductor.

ACTIONS AS DYNAMIC – MACRO

The Actions of the Body have been established as dynamic. The body is indeterminate in constant movement requiring constant ordering and administration[2]. The 'actions' refers to, not just the body which is in constant flux, but the habits to which all bodies must conform in order to exist. These have been broken down into four major trajectories, UP, DOWN, IN, & OUT. A constant pattern of the body, a sequential form. Each is a necessity, and an essential part of the bodily cycle. The actions become a form of a domestic programme which the carriage must encompass. The carriage adopts the fifth action, that of individualism of the passenger upon the carriage at anyone time, this becomes the condition. The action of the individual is reference to the train as a form of public transport, which has ongoing and ever changing occupancy. The importance of this, with relation to design, becomes the response of the architecture to adjust to these varying bodily conditions.

The carriage, and the diagrams which relate to the collective and have not been established personally, have become the macro scale of design, the so called site plan which emphasises how the collectives all have similarities in terms of bodily functions – the actions of the physical body.

Each of these actions is able to be addressed through the combinations of the components reiterating the system and pattern that the Actions form, a type of module which enables varying individuals to personalise the programme (actions). This becomes presented further within the 'Mechanical Response' of the Scenes and Scenarios, and the 'Intimacy and Personalisation', the micro scale.

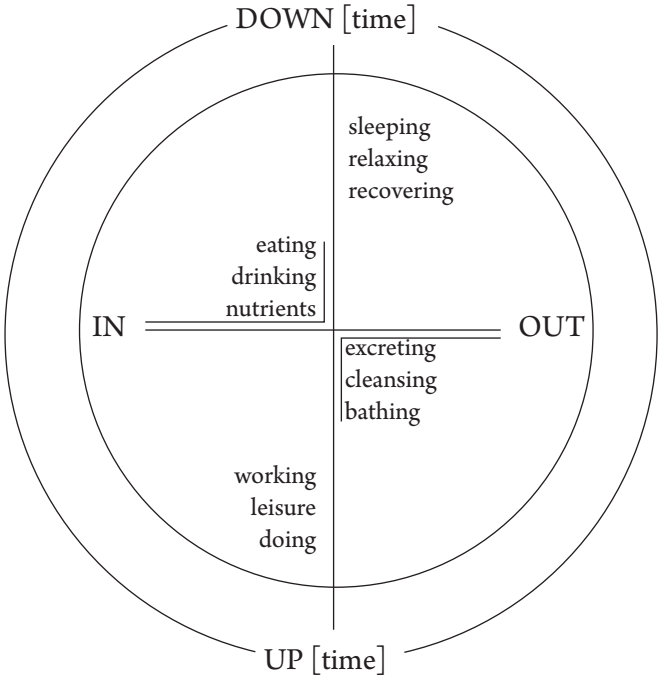


Figure 41. 'ACTIONS', diagram, Image by Author.
The 'Actions' diagram highlights the inner workings and needs of the body, emphasising the pattern which everybody in some way conforms too. This can become considered as the macro scale of the design, the general overview of the body.

MECHANICAL RESPONSE: FLEXIBILITY

Mechanical response is directed towards forms that react and respond to the ever shifting form and organism of the body. The aim of flexibility is to break down the cycle at an individual level. This is where shifts occur; movement and adaptability are of the upmost importance. For the sake of design, clients have been adopted. The clients have been specifically chosen taking into consideration physical variances or conditions. The petite gymnast, the obese female, the extremely tall male and the elderly impaired male.

An index of components has been drawn up which encompass the necessities of living, as well as growing. These components need to be accommodated as individual shifts within the necessities of life, through specific privileging of items, or specific space construct.

A number of scenarios have been constructed, to test the components of design. Through these scenarios it is hoped that the versatility of these components will be highlighted. The scenarios do not, at this stage, have a condition of body applied to them and in this sense have been constructed in a crude manner; they are purely to test the potential of the components.

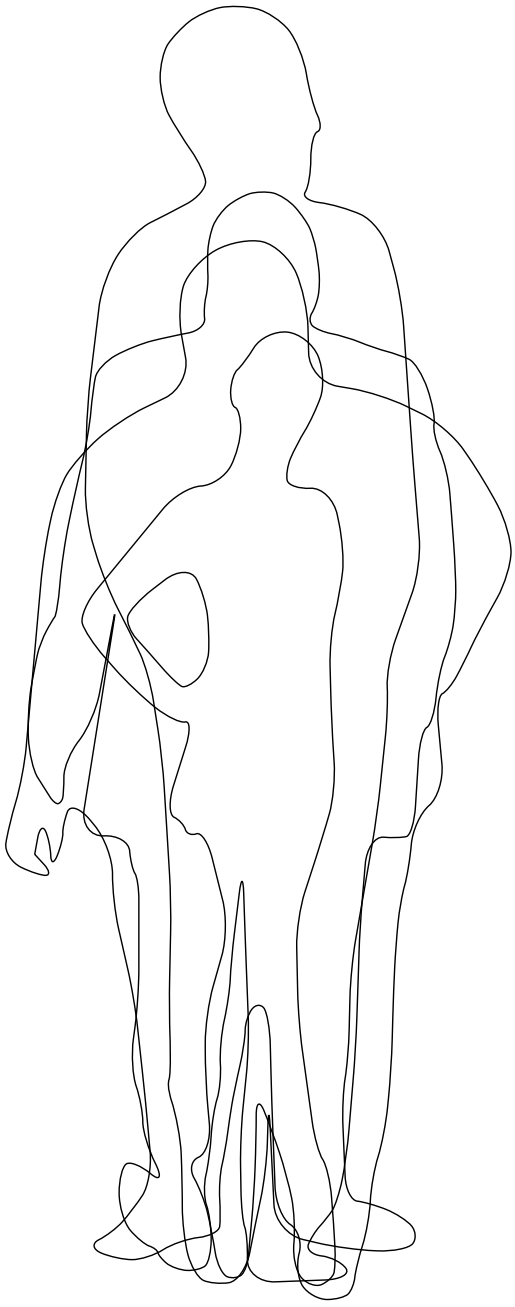
Scenes have then been developed. The scenes bring together the scenarios and the conditions, and by using an overlay of characters and components the intention is to emphasise the diversity of the design outcome. The container, in this instance the train, is intended to be shown as a component in its own right through representation of movement on the tracks.

As put by Jennifer Bloomer speaking of World In Your Bones *"Were there drawings a conventional set of architectural drawings, we would be expected to understand it as the projection of an as yet un-built construction."*[3] This design has a similar conclusion. It is not a projection of the un-built: it is an exploration of possibilities; a search and demonstration of the understanding of contemporary society, or lack thereof

CLIENTS CONDITIONS

The Clients also referred to as the Conditions have been chosen for their differing physical conditions. Assumptions have been made to assess how these physical conditions may hinder or change the way in which their bodies interact with spatial conditions. The clients sit beyond the 99 percentile body measurements of the ergonomic guide *The Measure of Man and Woman.* Each client brings personality and individual needs to the design process. It must be understood that each of these characters is fictional and not based upon a real person. On the following pages the client descriptions and profiles are presented to begin to have a greater understanding of the needs that the design must encompass.

Figure 42. 'Clients Conditions', vector diagram. Image by Author.
The client condition diagram begins to highlight the physical variance within four individuals which have been dreamt up in hope that they provide a huge cross spectrum of physicality within the human form. (opposite page)



CONDITION PROFILE 1: Obese Female

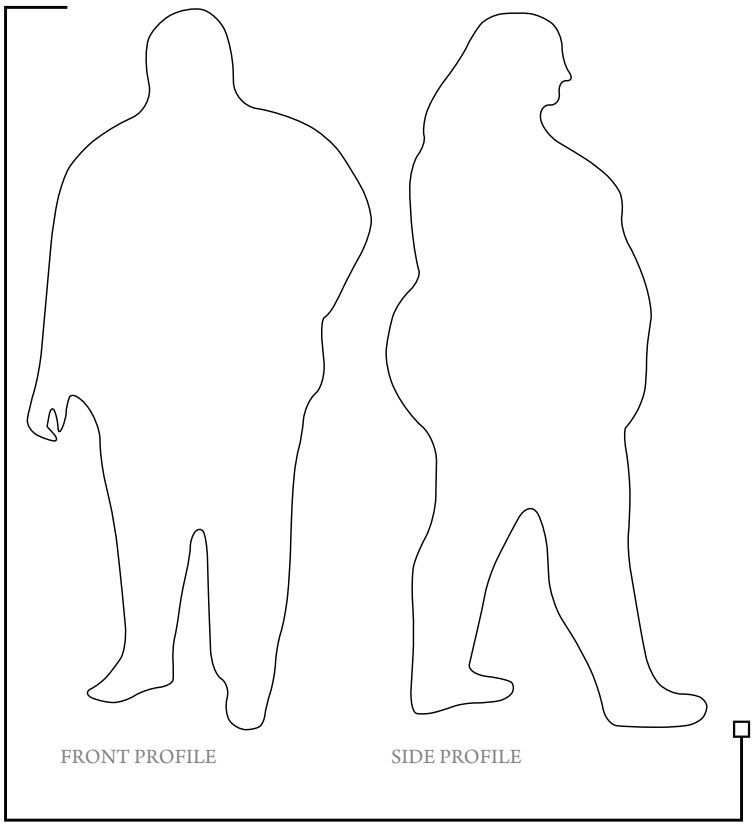


Figure 43: 'Obese Female', diagram. Image by Author.
The Obese Female is particularly wide which hinders her physical ability to stand for a long length of time, as well as making it hard to stand up from a lowered sitting position. Her width makes it difficult to manoeuvre around confined space, challenging her relationship to architecture.

CONDITION PROFILE 2: Elderly Male

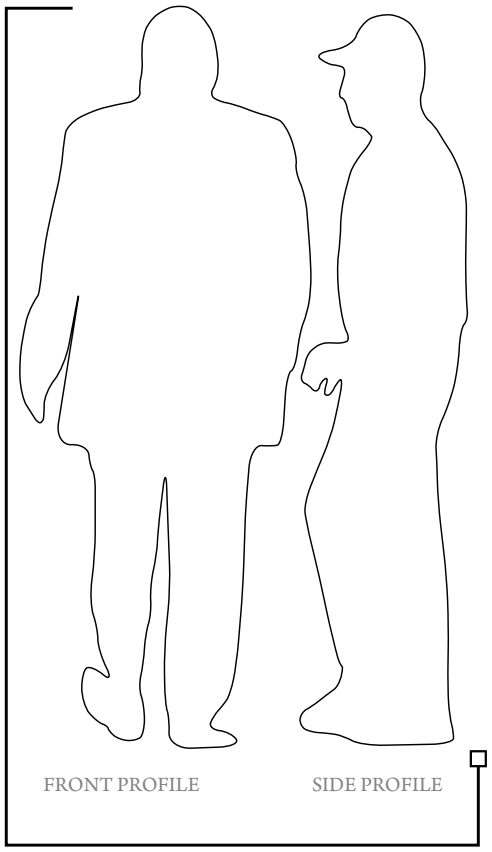


Figure 44: 'Elderly Male', diagram. Image by Author
The elderly has surprisingly similar issues as client one with manoeuvring as it relies upon the cane to help it get leverage and stability. He also is not able to see as accurately as he used too, his visual spatial awareness hindered. His primary understanding of space is based upon previous memory.

CONDITION PROFILE 3: Extra Tall Male

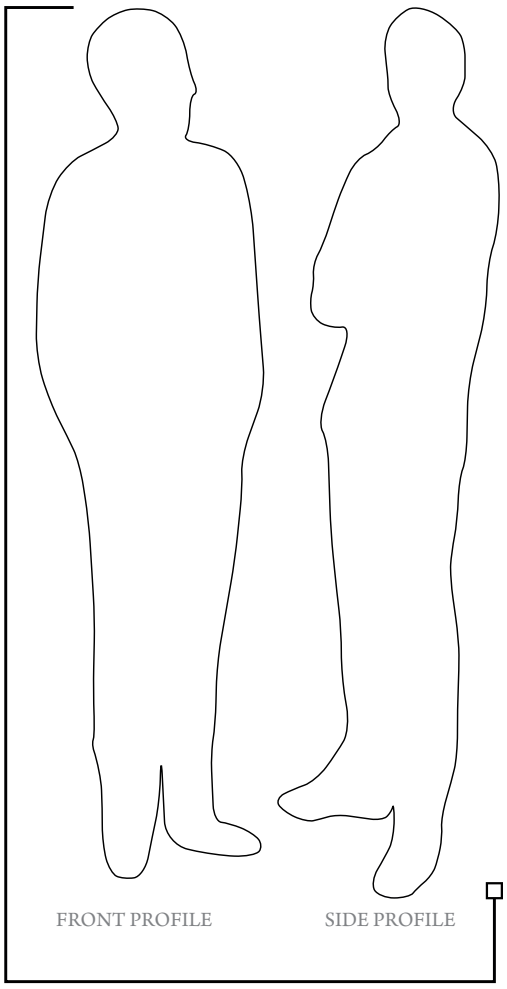


Figure 45: 'Extra Tall Male', diagram. Image by Author.
The extra tall male is more aware of the vertical conditions of a space. He has adapted to duck below door frames and is used to becoming cramped in standard public seating such as air planes and buses. His form challenges conventional comfort levels.

CONDITION PROFILE 4: Petite Female Gymnast

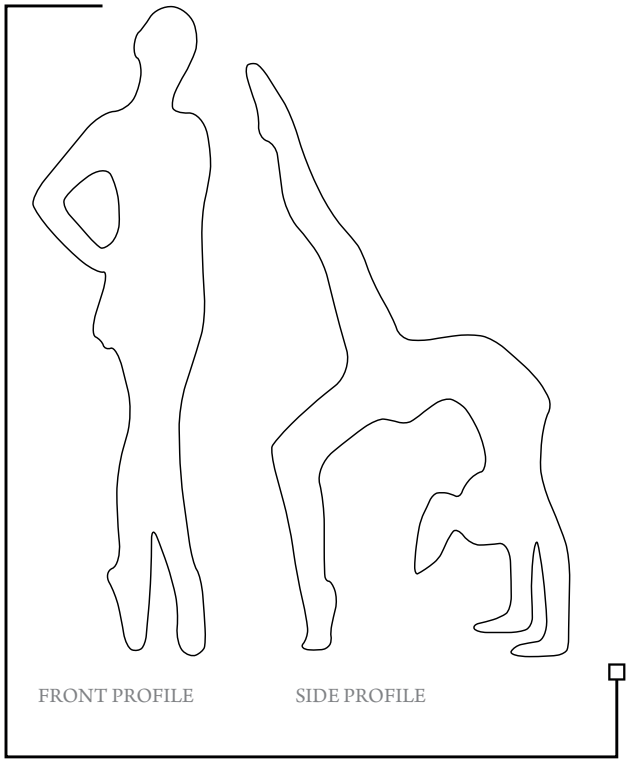


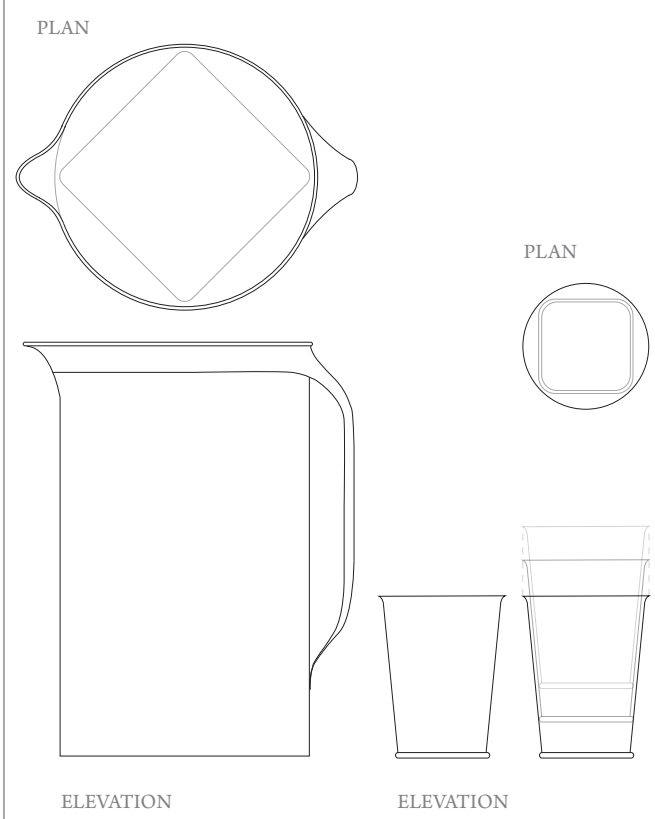
Figure 46: 'Petite Gymnast' diagram. Image by Author.
The female gymnast has a highly attuned relationship to her body and due to her training she is able to control and contort her body with a extremely high level of precision. She finds comfort in many different poses and has a high awareness of her body's positioning.

INDEX OF COMPONENTS:

The index of components has been composed in order of scale, from the micro the macro. Each component is shown to expose a relationship with the body of a varying form, as well as addressing a necessity with relation to the body and society . Each component is therefore employed firstly to play a role within the greater spatial environment of the carriage, as well as allowing for diversity and creativity to develop between the components, each is able to become part of a greater scheme or system.

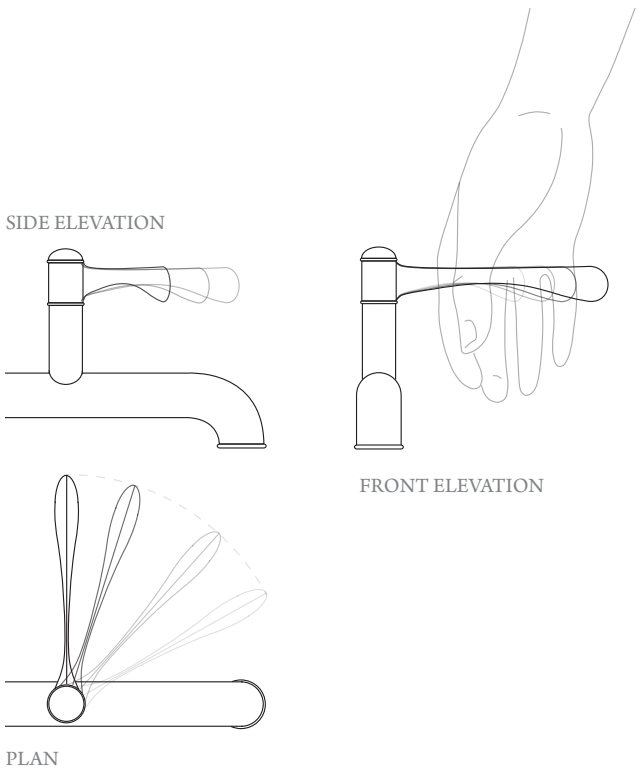
COMPONENT 1:

Figure 47: 'Decanter and Glass', diagram. Image by Author. The decanter and the glass act together the glass becomes a folly to the decanter. The decanter is created in mind of hydration as well as the need for cleansing. The decanter can also pair with the basin to form a bathing situation.



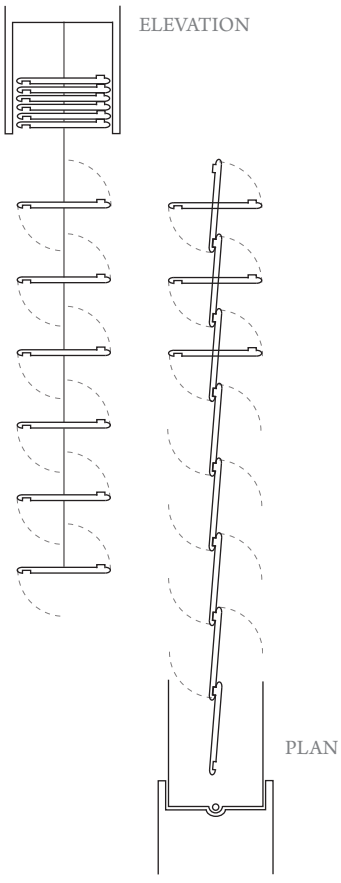
COMPONENT 2:

Figure 48: 'Facet', diagram. Image by Author.
The facet has been composed separate from the water tank due to its intimate relation with the hand. The facet has been formed to mould to the hand and perform the task of releasing water for consumption or cleansing; a triggering system based upon individual necessity.



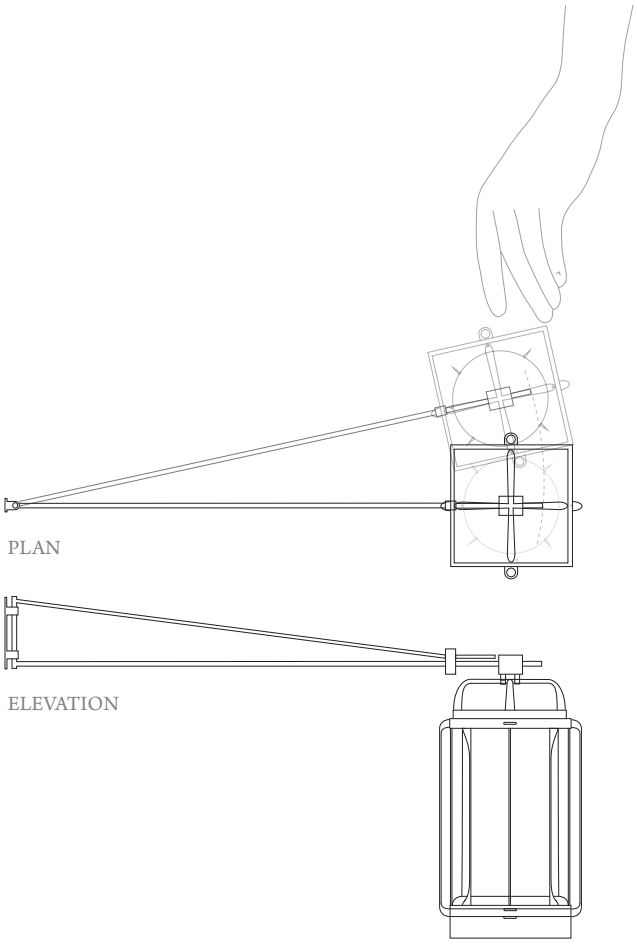
COMPONENT X:

Figure 49: 'Venetian Blind', diagram. Image by Author.
The blinds act as a control mechanism for light. A formal screening of what is exposed within the carriage. The blinds are inset within the construct of the carriages windows and have the ability to be manipulated by the inhabitant; a closing and opening of the eyes of the carriage. The blinds give the ability to expose one self beyond the carriage or create a seclusion from the extended surroundings.



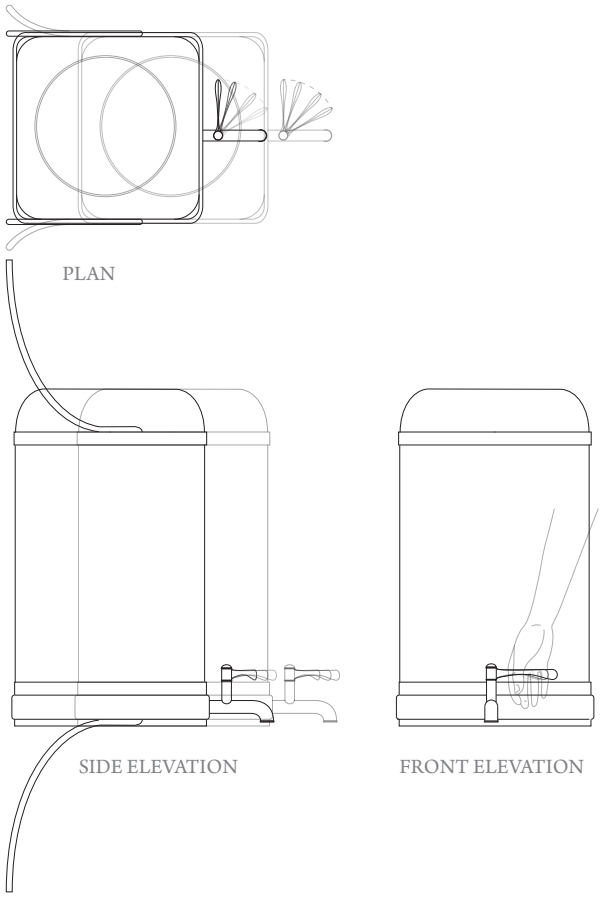
COMPONENT 3:

Figure 50: 'Lantern and holder', diagram. Image by Author.
The Lantern has been formed to shed light upon the carriage. It allows for physical interaction between the body and the lantern as well as personalisation through placement. The light exposes the carriage and the components. The lantern acts in contrast to the blinds which aid in the removal of light due to personal wants and needs.



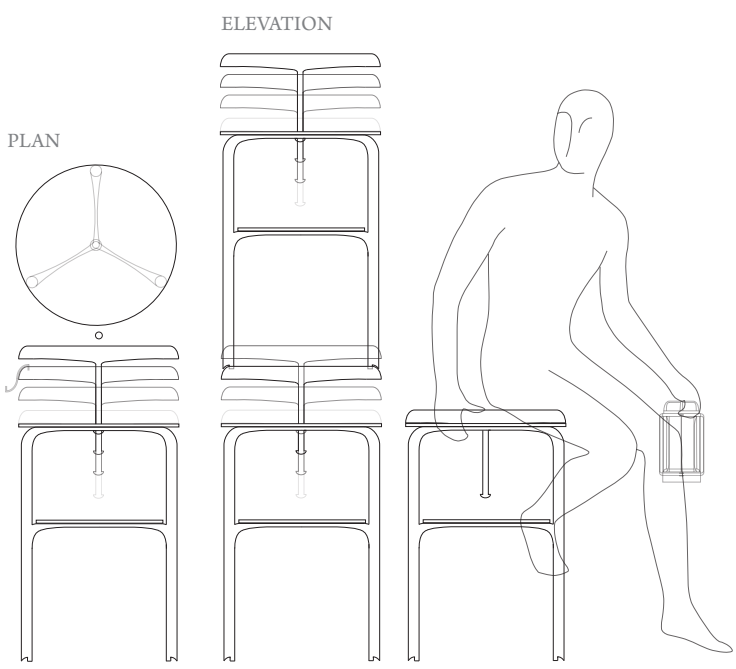
COMPONENT X:

Figure 51: 'Water Tank', diagram. Image by Author.
Water is a necessity which cannot be taken from the body. A tank has been designed to be mounted upon the wall of the carriage. The tank can be shifted from display and for replenishment at the will of the individual body.



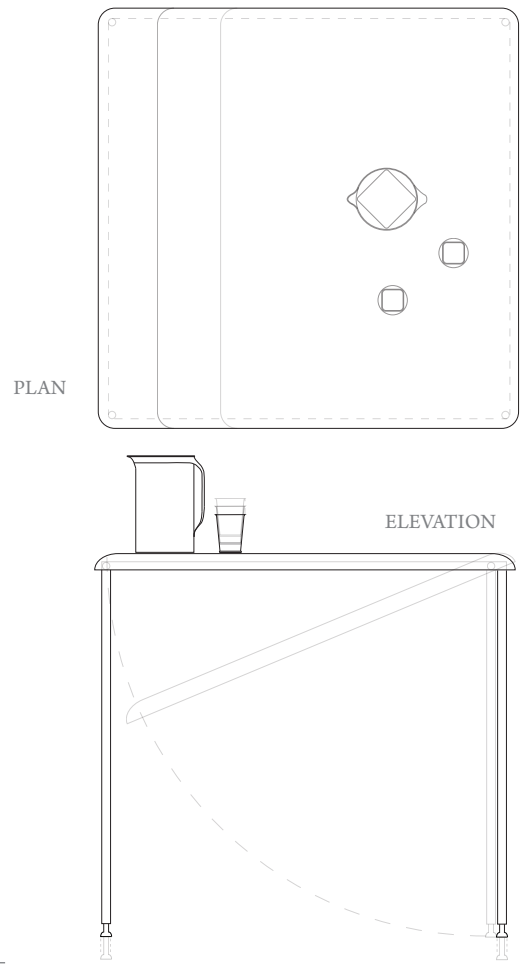
COMPONENT X:

Figure 52: 'Stool', diagram. Image by Author.
The stool is a unique component which allows for many shifting and diverse dialogues with the body. It can be used as a plinth to display oneself within space. It can also be constructed to form a type of ladder, formed from stacking multiple stools upon one another. The stool also incorporates shelves and shifting seat height. It can clip upon one another and allows for hook attachments. The stool strips back the chair to basic primary elements.



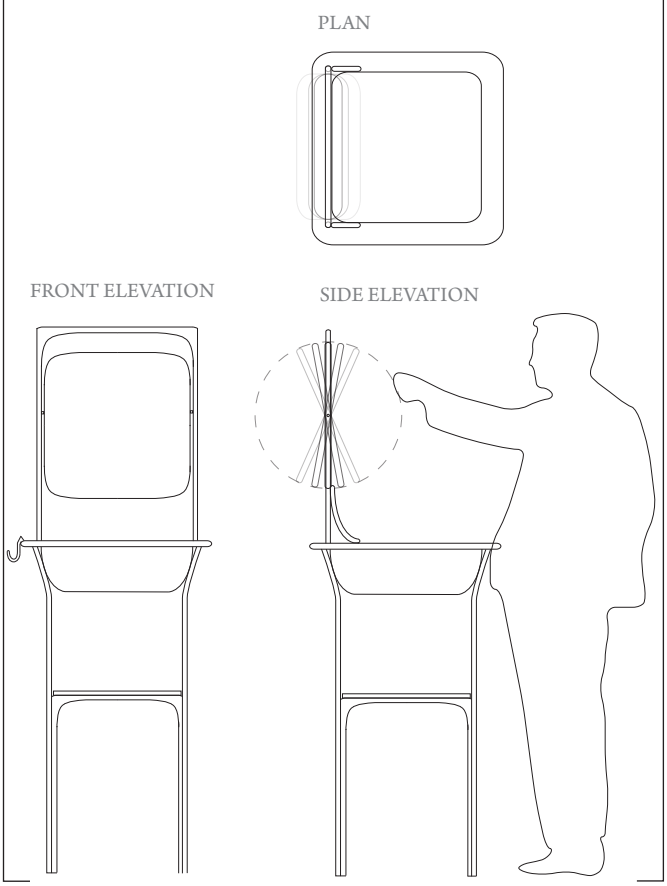
COMPONENT X:

Figure 53: 'Table', diagram. Image by Author.
The table allows for tasks to be preformed with a shifting horizontal plane, it allows for sitting or standing of the individual. The table can also be tilted or swung down into a vertical position which creates another form of boundary within the carriage, a of dividing space.



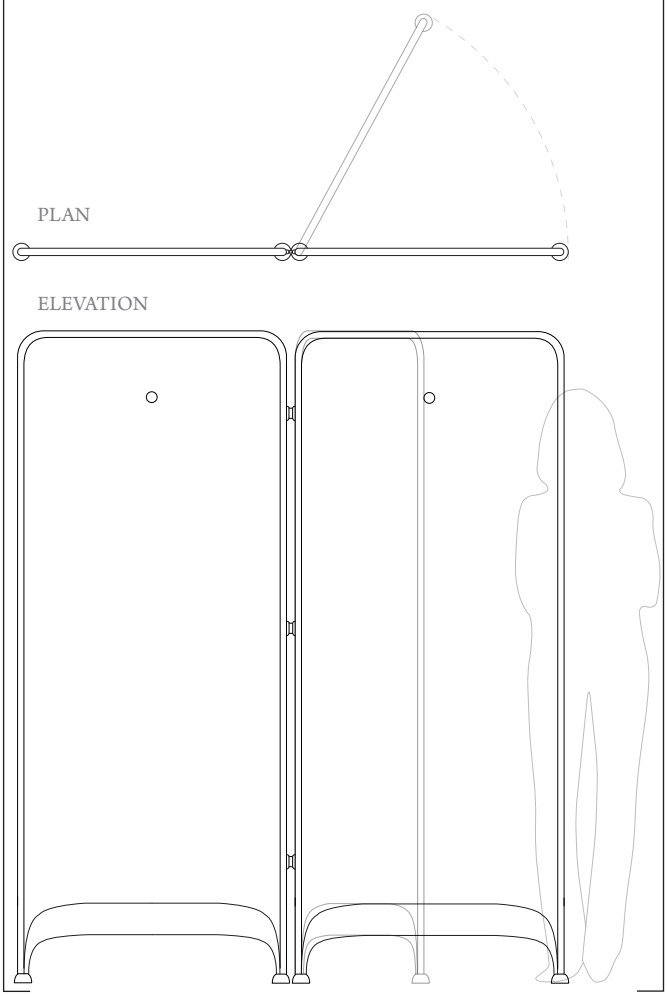
COMPONENT X:

Figure 54: 'Basin', diagram. Image by Author.
Cleansing and bathing, the basin is constructed as a portable stand with an attached mirror which can tilt or spin allowing for varying angles for the viewers use. Not only does the stand allow for basic cleansing but through positioning it can create a security system, using the mirror the occupant can view both entrances at the same time.



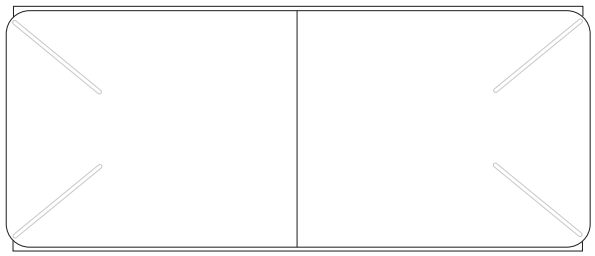
COMPONENT X:

Figure 55: 'Screen', diagram. Image by Author.
The screen becomes one of the most conventional components with relation to Architecture. The screen allows for privacy and dignity, but mainly what this highlights is a division of space a more visually defined boundary for small nooks to be formed within the carriage.

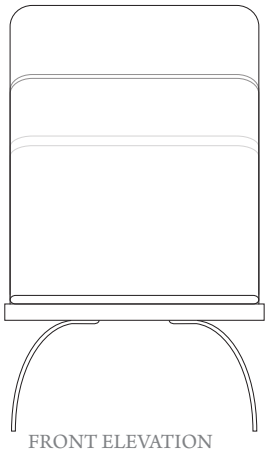


COMPONENT X:

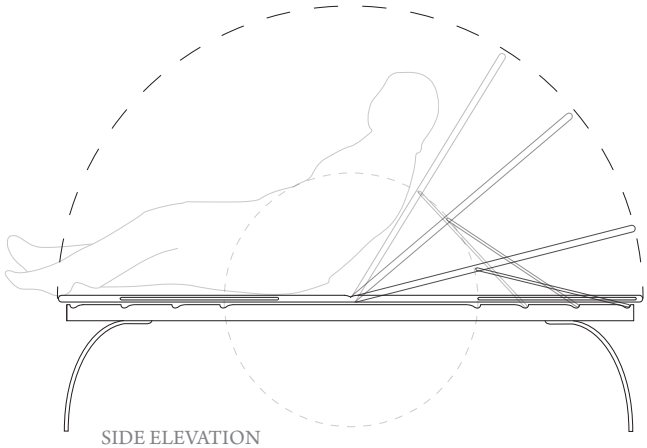
Figure 56: 'Lounger', diagram. Image by Author.
The lounger becomes the focus of the carriage being the largest of the components it evokes dynamism and movement. The lounger creates pattern shifts through its mechanism. Sitting upon four arched legs it perches within the carriage. It folds and weaves upon itself allowing for a large variety of bodily positions. The ever fluctuating form of the body projects itself upon it.



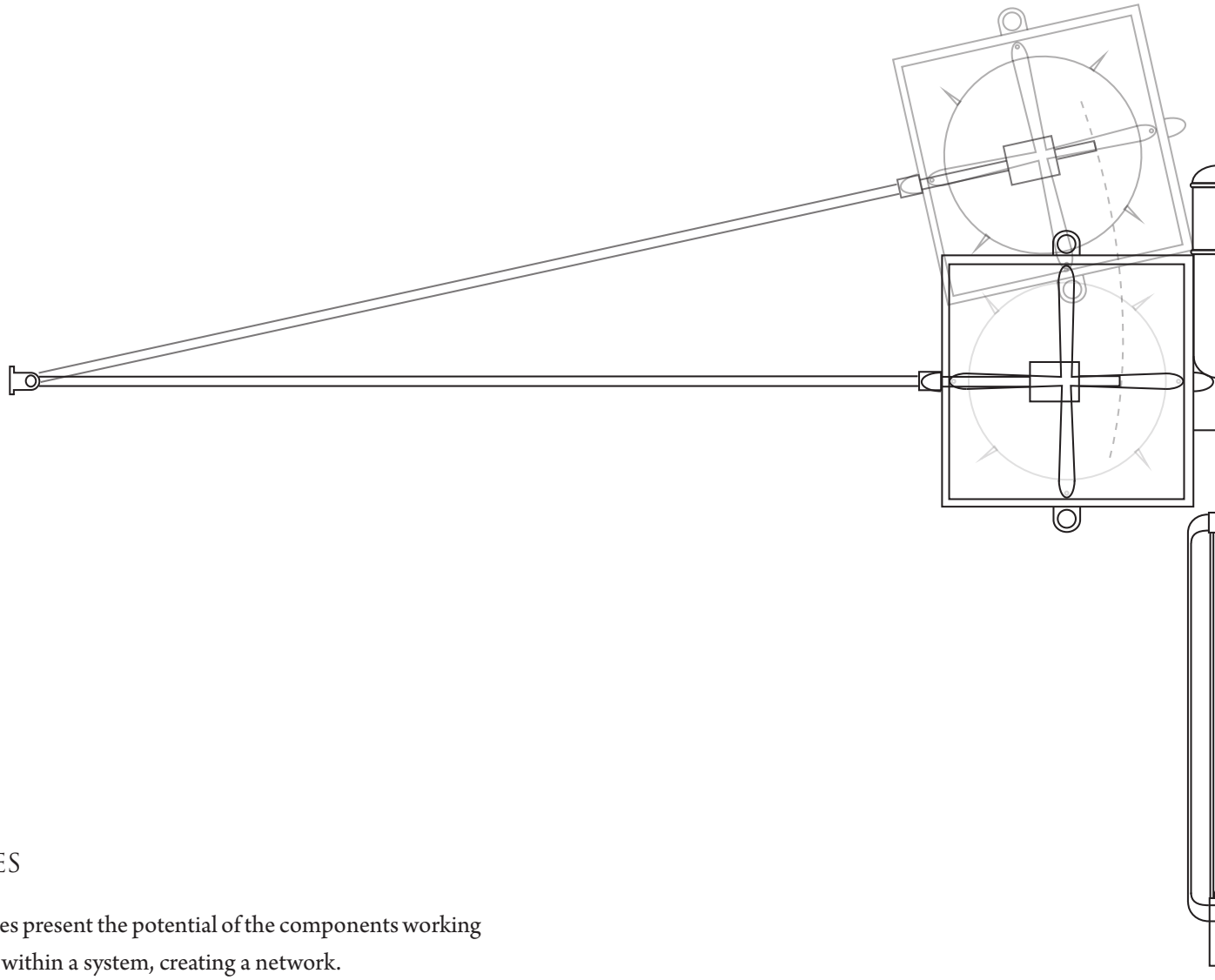
PLAN



FRONT ELEVATION



SIDE ELEVATION



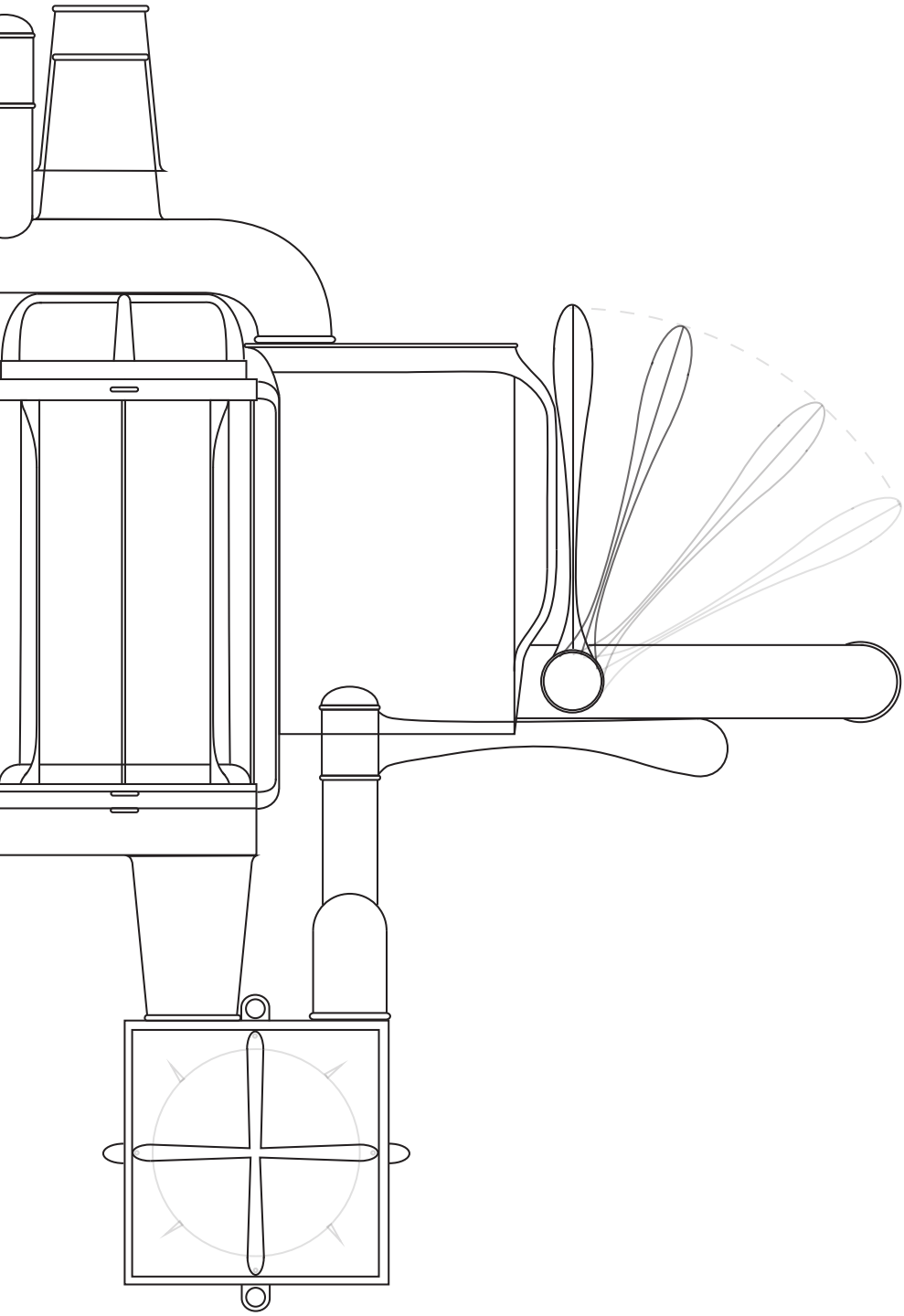
SCENES

The scenes present the potential of the components working together within a system, creating a network.

Each component has differing abilities and purposes, however the abilities can become expanded through the grouping and incorporation of many components together.

This scene portrays the bodies need for hydration in the night. The lantern is lit to lead the way to the decanter to fill upon the facet in order to pour the body a glass of water to drink. There is an established dialogue between the body and the components, each component becomes dependent upon another for the scene to work.

Figure 57. 'Hydration Scene', diagram, Image by Author. The scene highlights how the components come together to form a system.



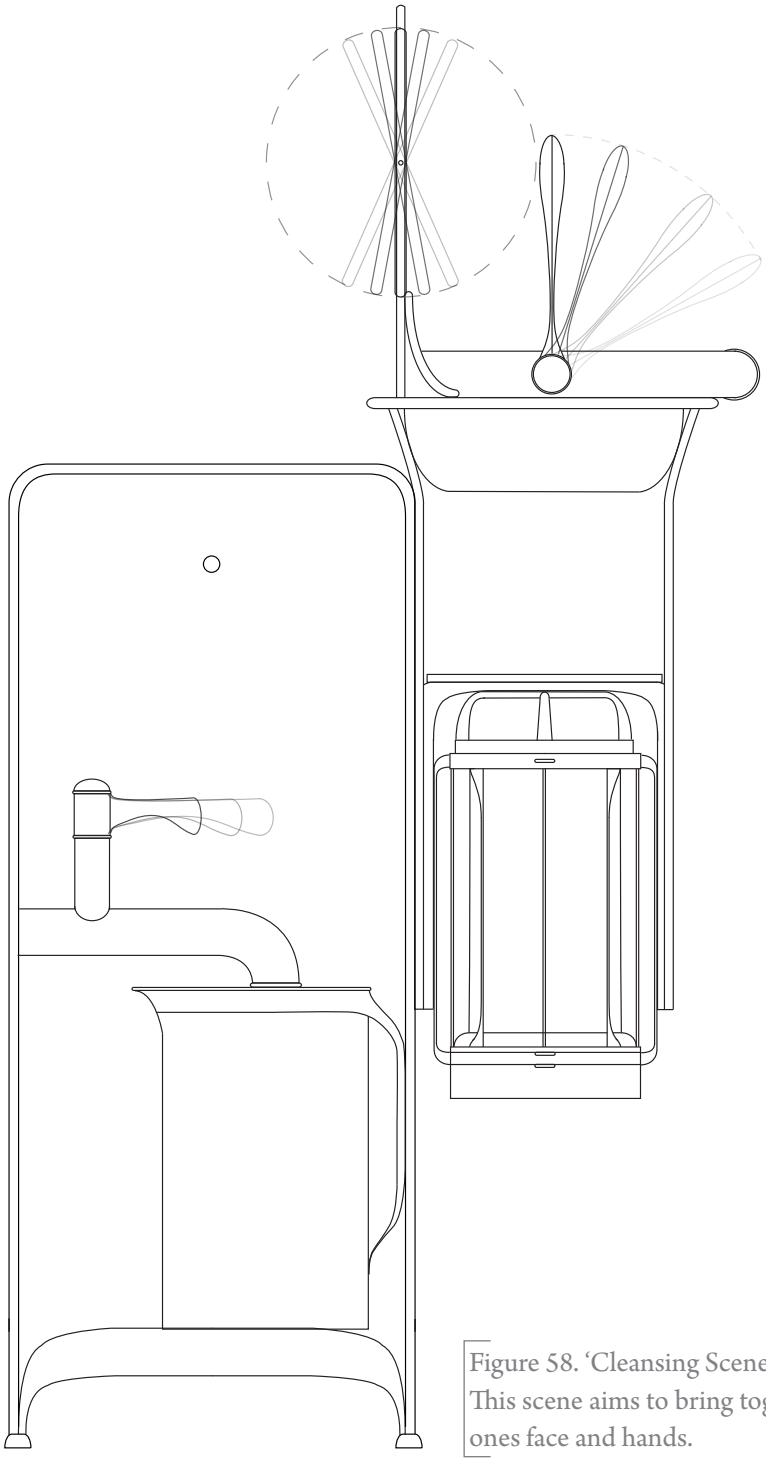


Figure 58. 'Cleansing Scene', diagram. Image by Author. This scene aims to bring together the possibility of cleaning ones face and hands.

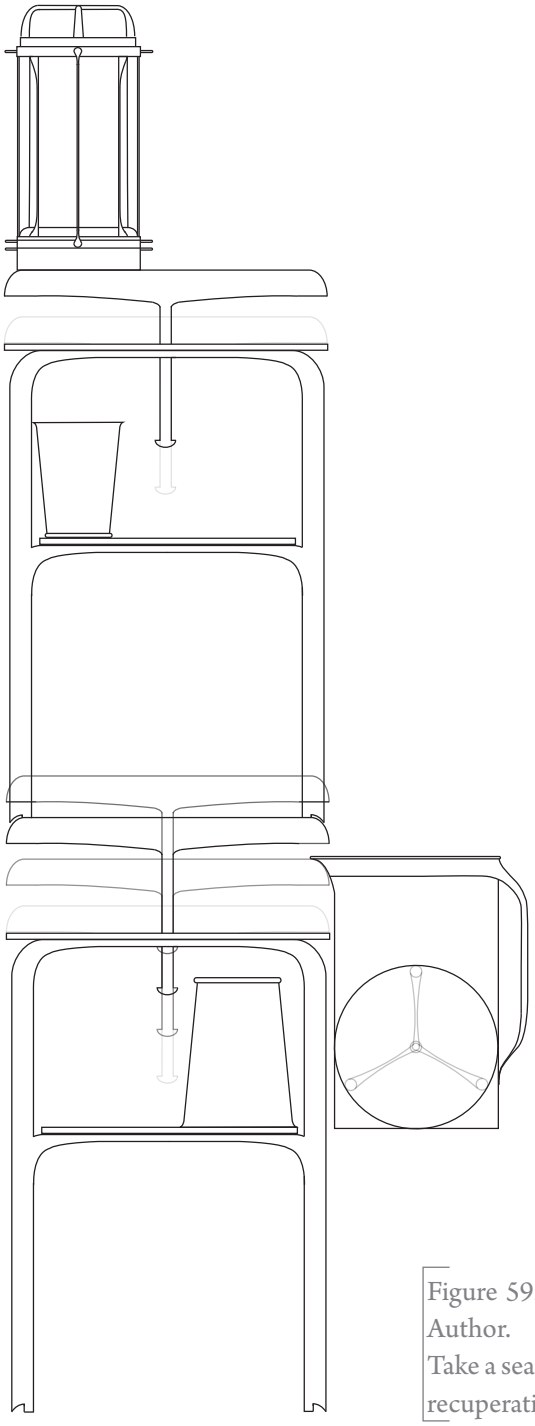


Figure 59. 'Sitting and Drinking Scene', diagram. Image by Author.
Take a seat and fill a glass. The diagram alludes to resting and recuperating while having a glass of water.

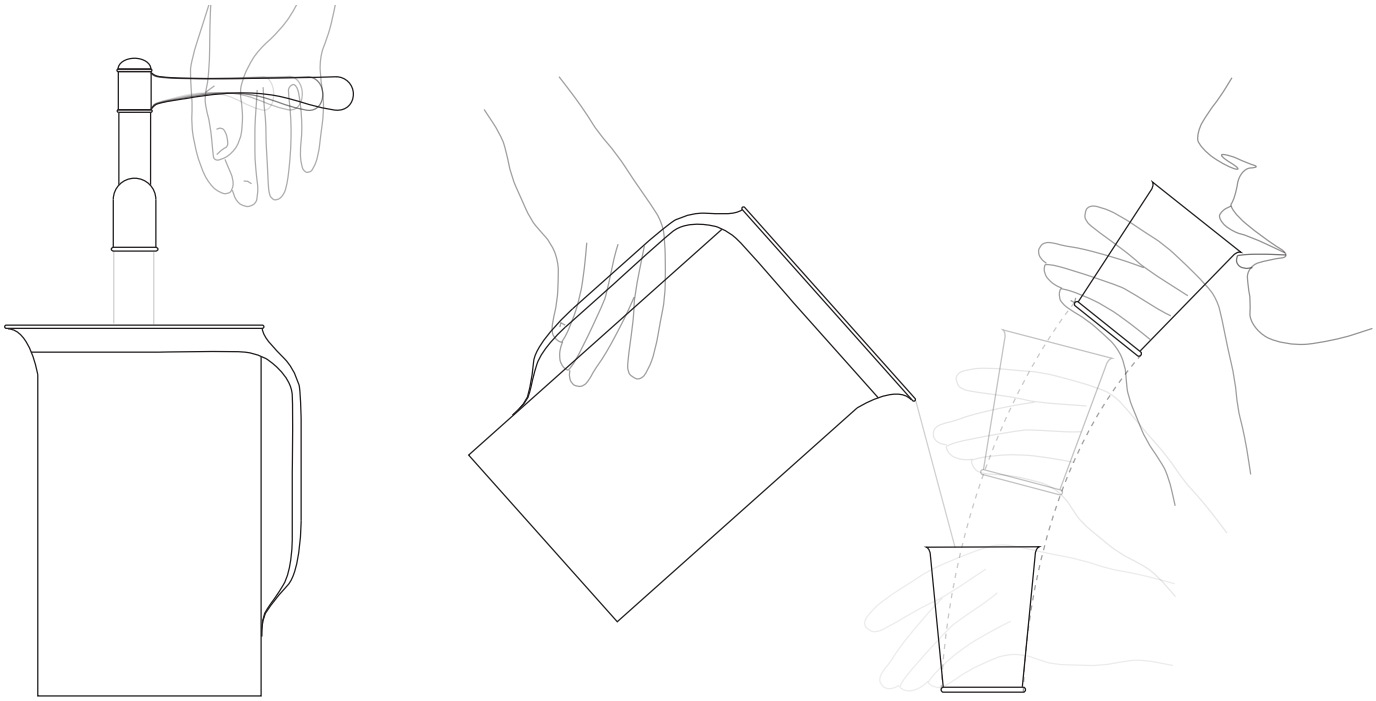


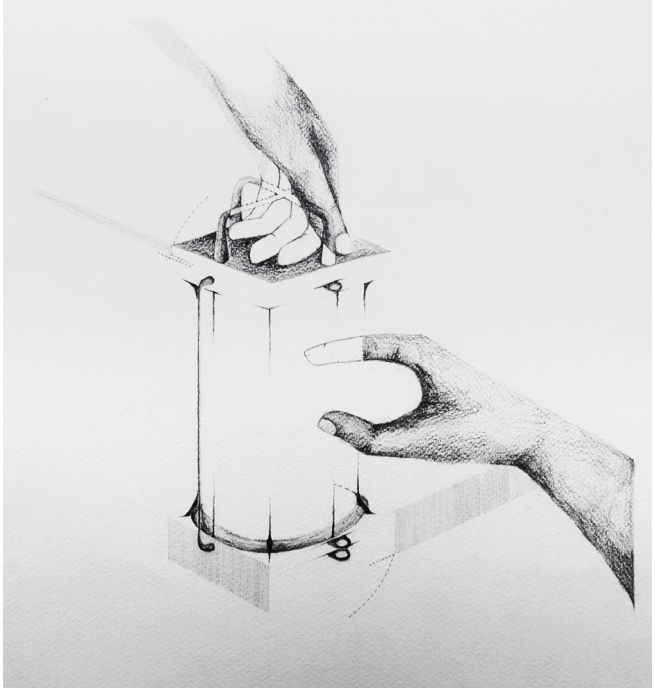
Figure 60. 'Scenario', vector diagram. Image by Author.
The scenario depicts a story of the individual interacting with a number of components in a series of events. The image shows the components working together to form a system, and highlights how the components can work as a kit. This particular image depicts the narrative of hydration and the series of events that must take place to complete this task. From filling the decanter pouring the glass with water and finally hydrating the body. This image lead through to the final part of the design section intimacy and personalisation.

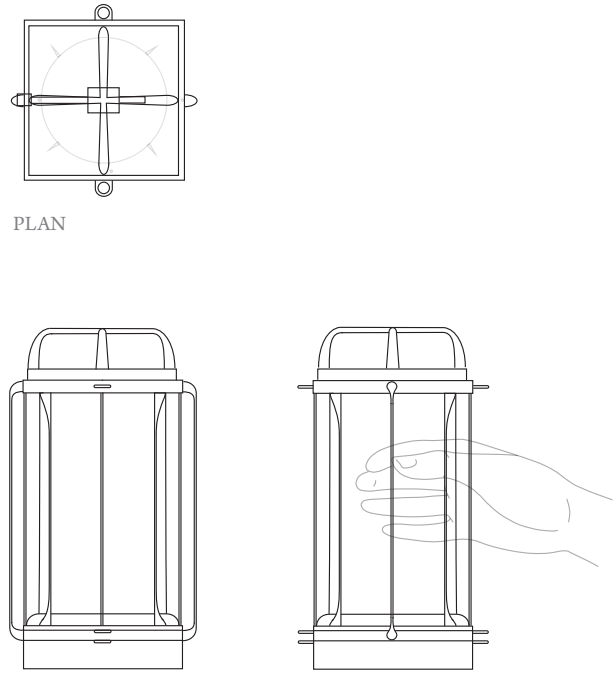
INTIMACY AND PERSONALISATION MICRO DETAILS

Intimacy and personalisation becomes that of the micro scale, the details of the design, and a poetic interpretation. The design encompasses movement through kinetics, physical shifts and visual patterns. These parameters have been established as transitions within the train, reflecting the ever changing body and the state of constant flux. The details lie within the interaction of the body inside the zone of the carriage; the adjustments of movement and the trace of the architecture in response to individual's occupancies.

These details have been depicted through drawings of the components and the intimate interactions these components have with aspects of the body. The interactions give credence to the body being a system – a series of parts. The intent is that, by alluding to a breakdown of the body similar to the breakdown of the architecture, there is the perception of multiple levels of interactions. From small scale interaction; the hand moving the lantern; to larger scale interaction; the train moving to the destination; intimacy is constructed by means of each of these personalisation steps: becoming part of the conclusion, achievements, and success of the demonstration.

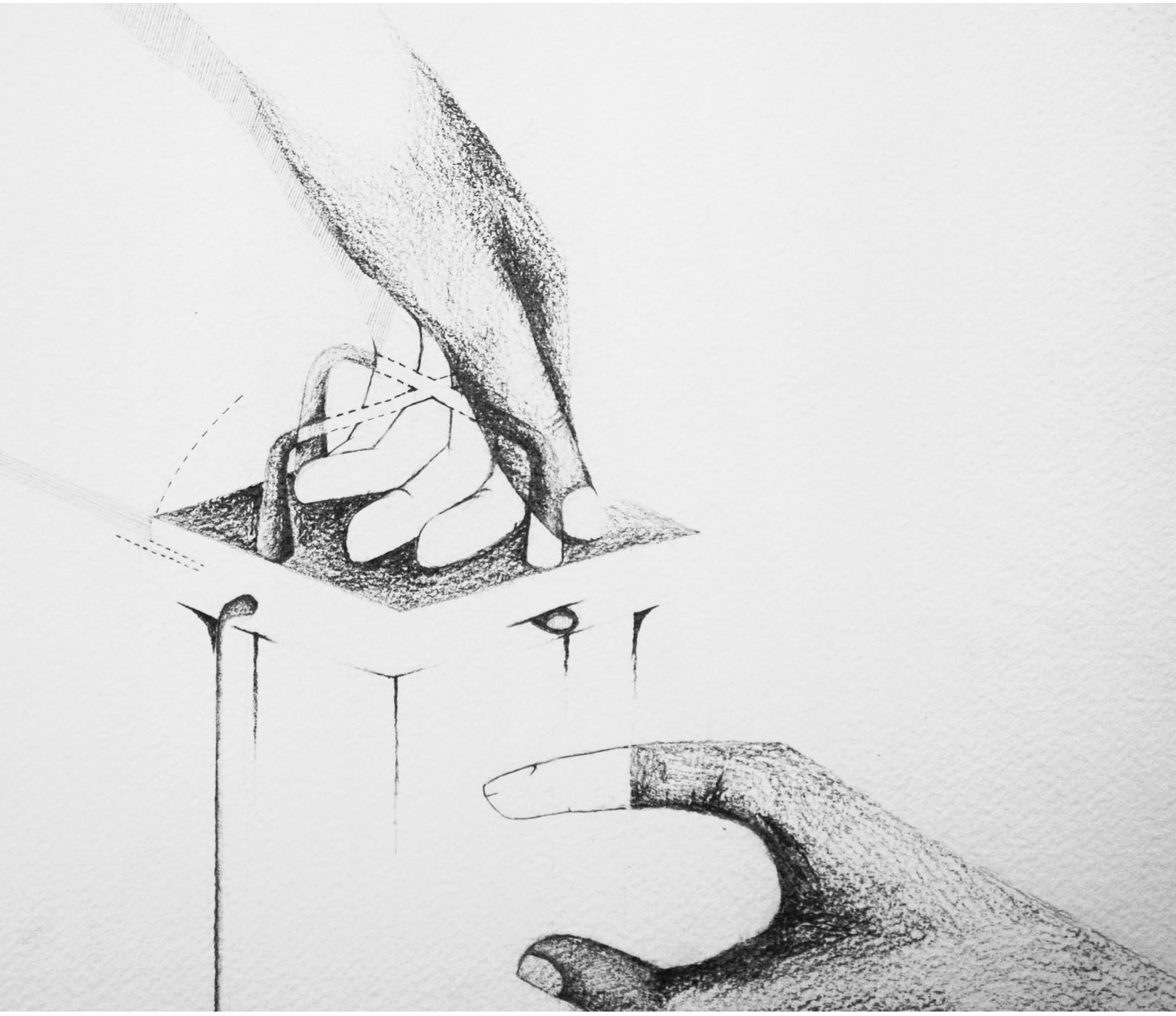
The factor of dynamism within design is used to create flexibility and adaptability. This is in the hope, that by allowing for adaption, the body can enter the space and reform and reconfigure a personalised space, an individual creation. In return for personalisation, a form of ownership is developed and a relationship has been formed between the body and space, intimacy. Dynamism allows for this personalisation to occur, and in return creates an intimate, comfortable and secure environment.

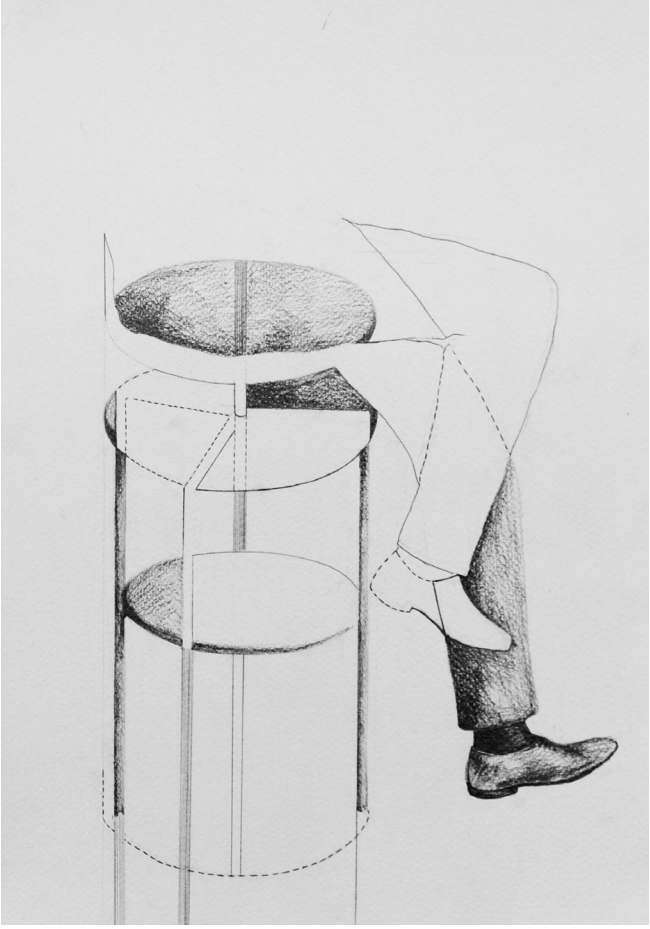


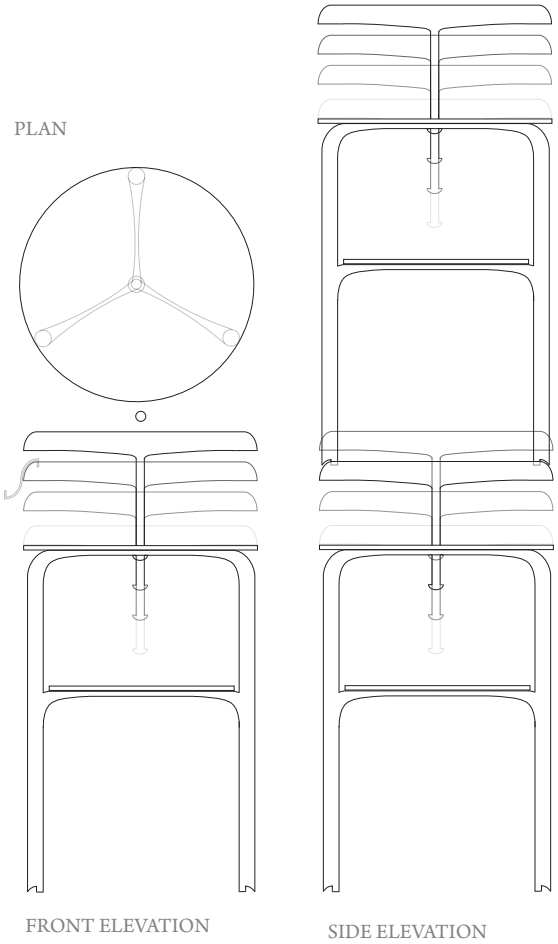


LANTERN INTIMACY SCENARIO

Figure 61. 'Lantern Drawing Set', mixed media. Image by Author.
The lantern render highlights the curves of the body, as well as the multiple forms of interaction that may occur between the body and lantern. It is personal and intimate. The lantern is held by the hand, and can be placed throughout and beyond the carriage. It emphasises the potential for visual movement and patterns to occur, as well as the physical tactile form of the lantern. The lantern sheds light and allows for illumination of the carriage at the will of the inhabitant.

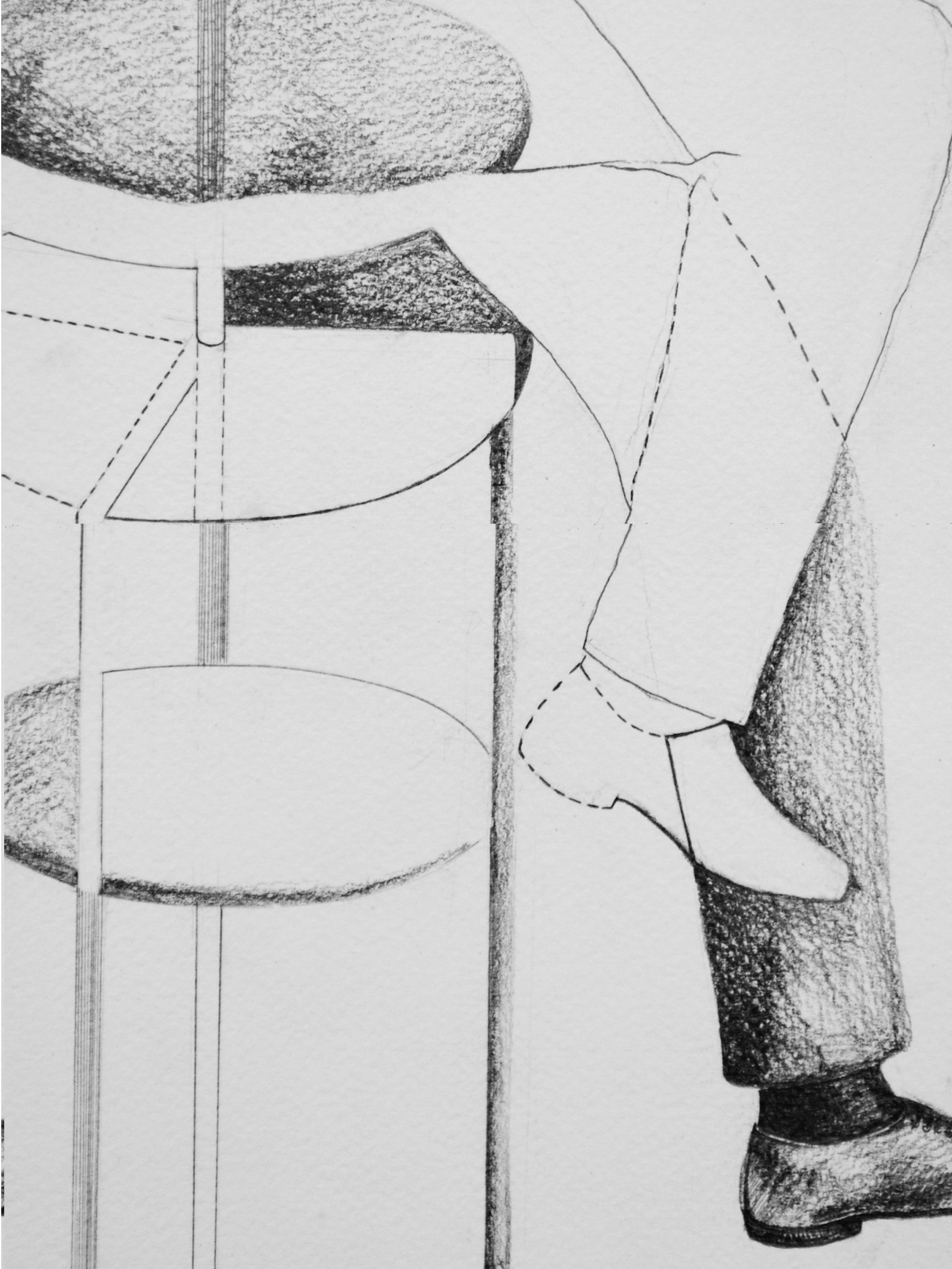


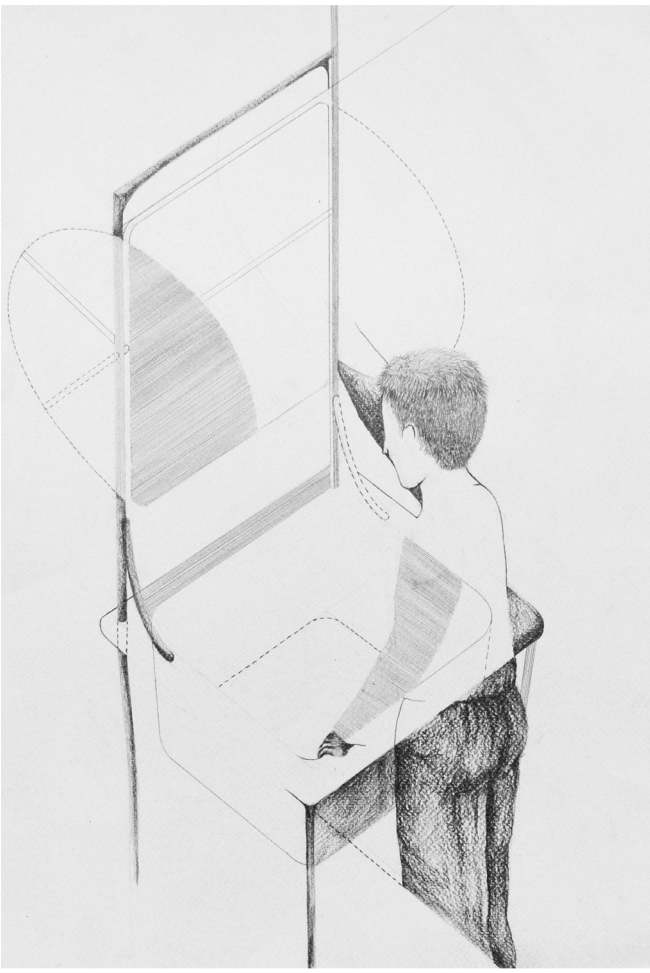


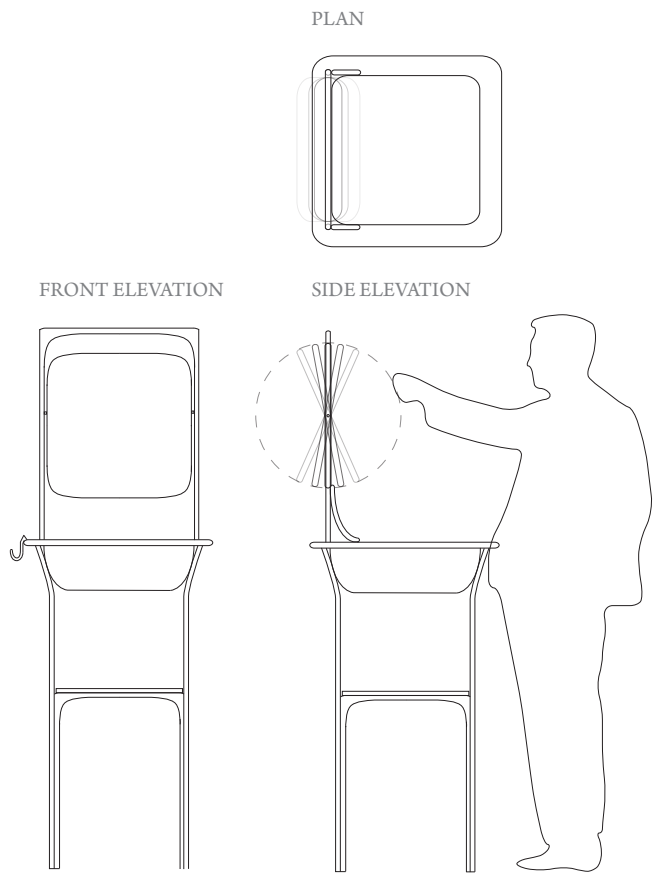


PERSONAL STOOL SCENARIO

Figure 62. 'Stool Drawing Set', mixed media. Image by Author
The stool render emphasises the bodies intimate composure when sitting upon an object. The individual must have faith that the stool can hold its weight and allow for bodily rest. The Drawing highlights the interweaving of the body to the component and the shifting form of the stool emulating the fluctuations of the body.

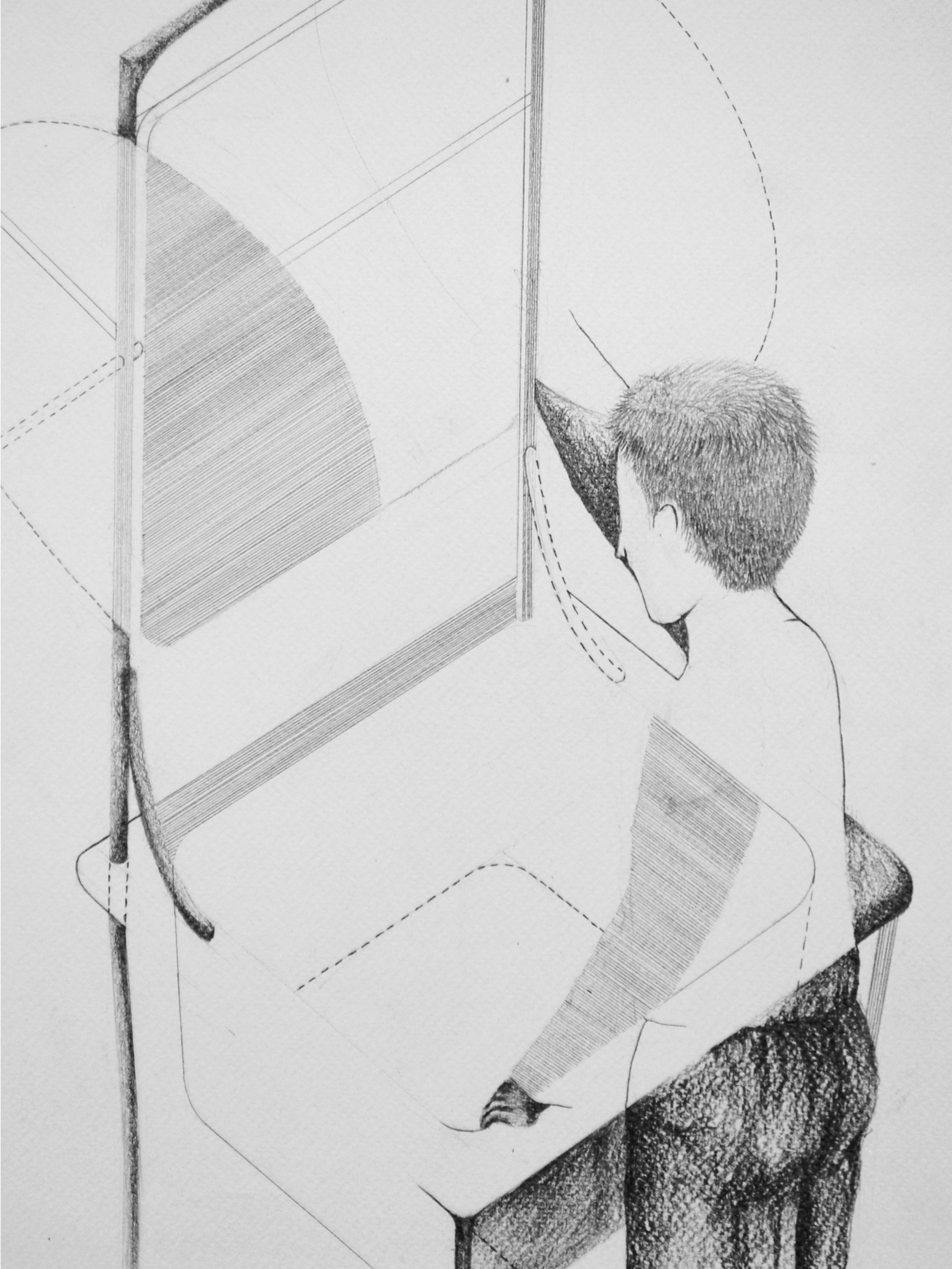


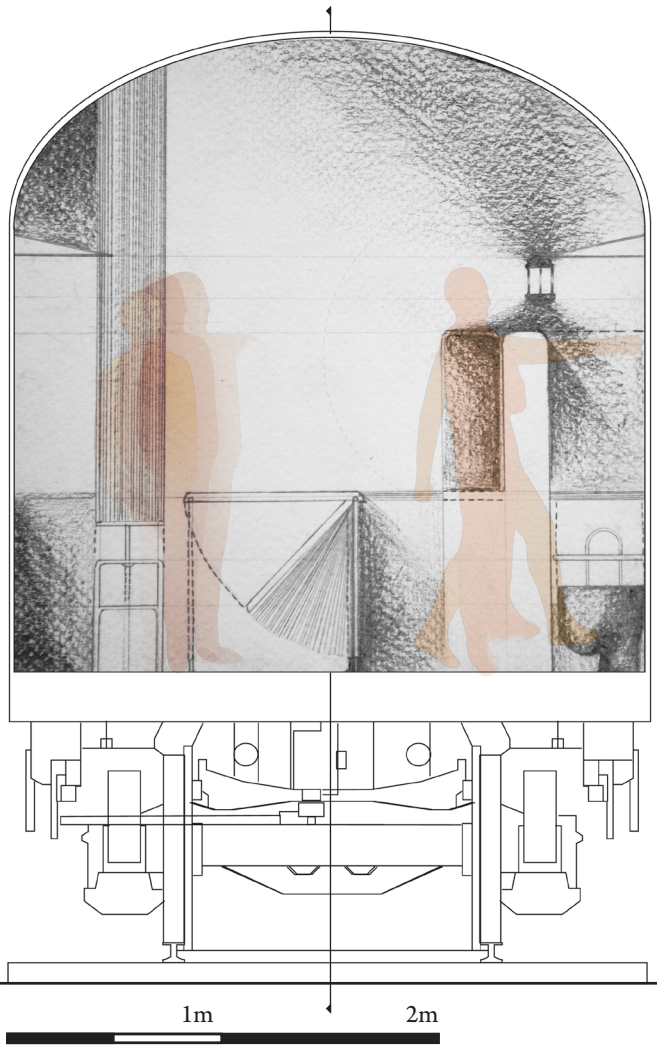




BASIN PERSONAL SCENARIO

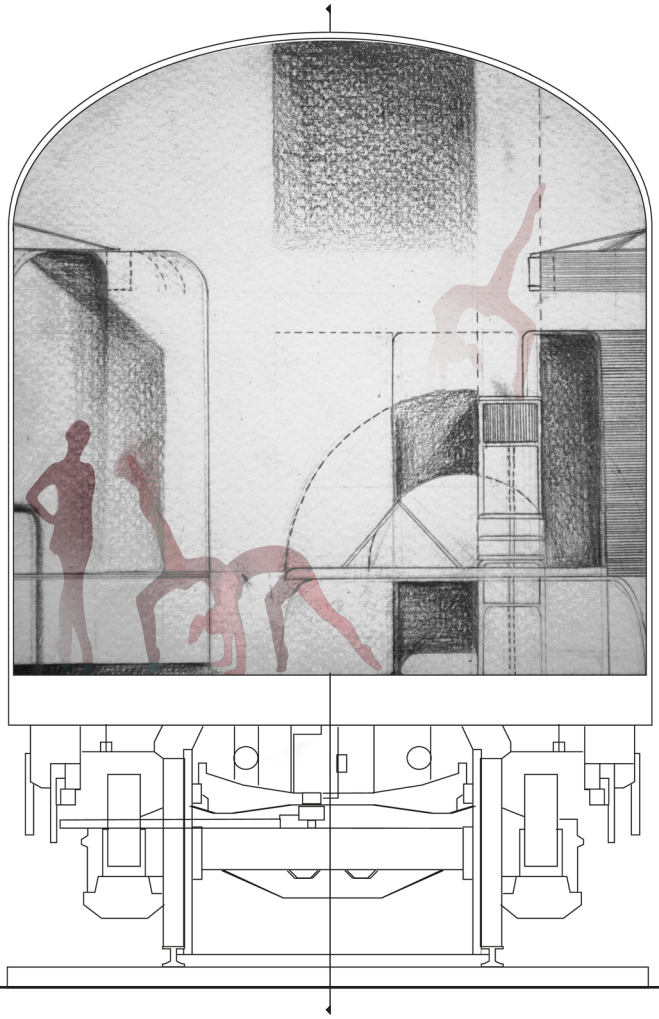
Figure 63. 'Basin Mirror', mixed media. Image by Author. The drawing aims to bring to light the self reflection and personal enquiry through the mirror and the ability to change the angle to suit the individual; this allows for a form of surveillance of space through positioning of the basin to form a reflection of space for the viewer. It could also be used to allow for constant observation of oneself a duplication of the movement of the body.





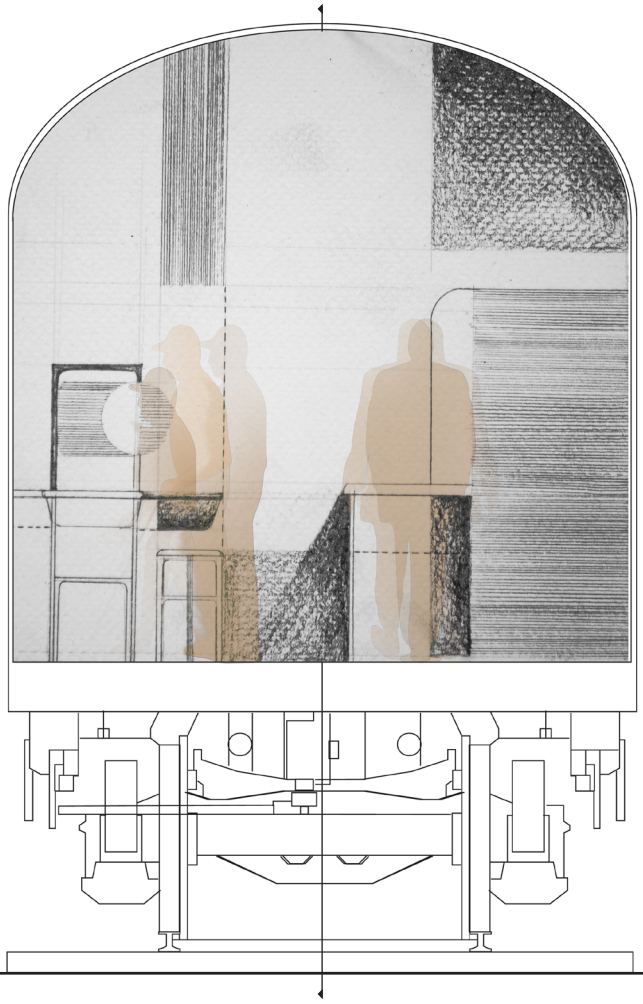
TALL SCENARIO

Figure 64. 'Transverse Section Tall', mixed media, Image by Author.
The section depicts the extra tall male interacting within the train carriage the movement of the body and the perceived warped scale due to his height. The chair and table extend to his conditions and needs allowing for comfortable rest.



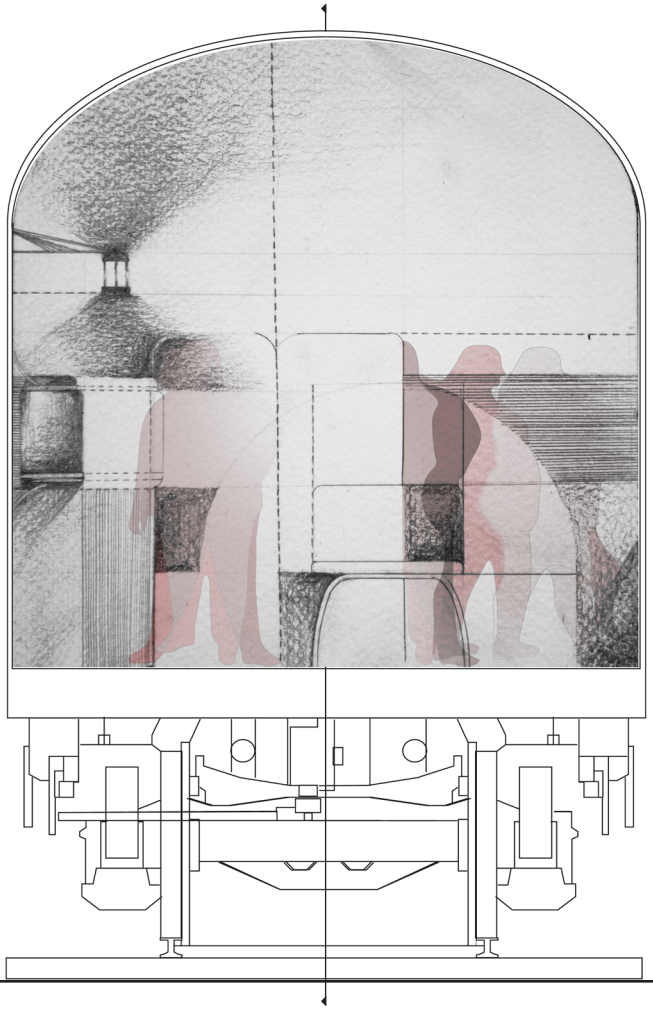
GYMNASTIC SCENARIO

Figure 65. 'Transverse Section Gymnast', mixed media, Image by Author.
The gymnast contorts herself through and around the carriage, using the mechanisms of the components to flip herself around and elevate herself. The carriage becomes a stage for her acrobatics.



ELDERLY SCENARIO

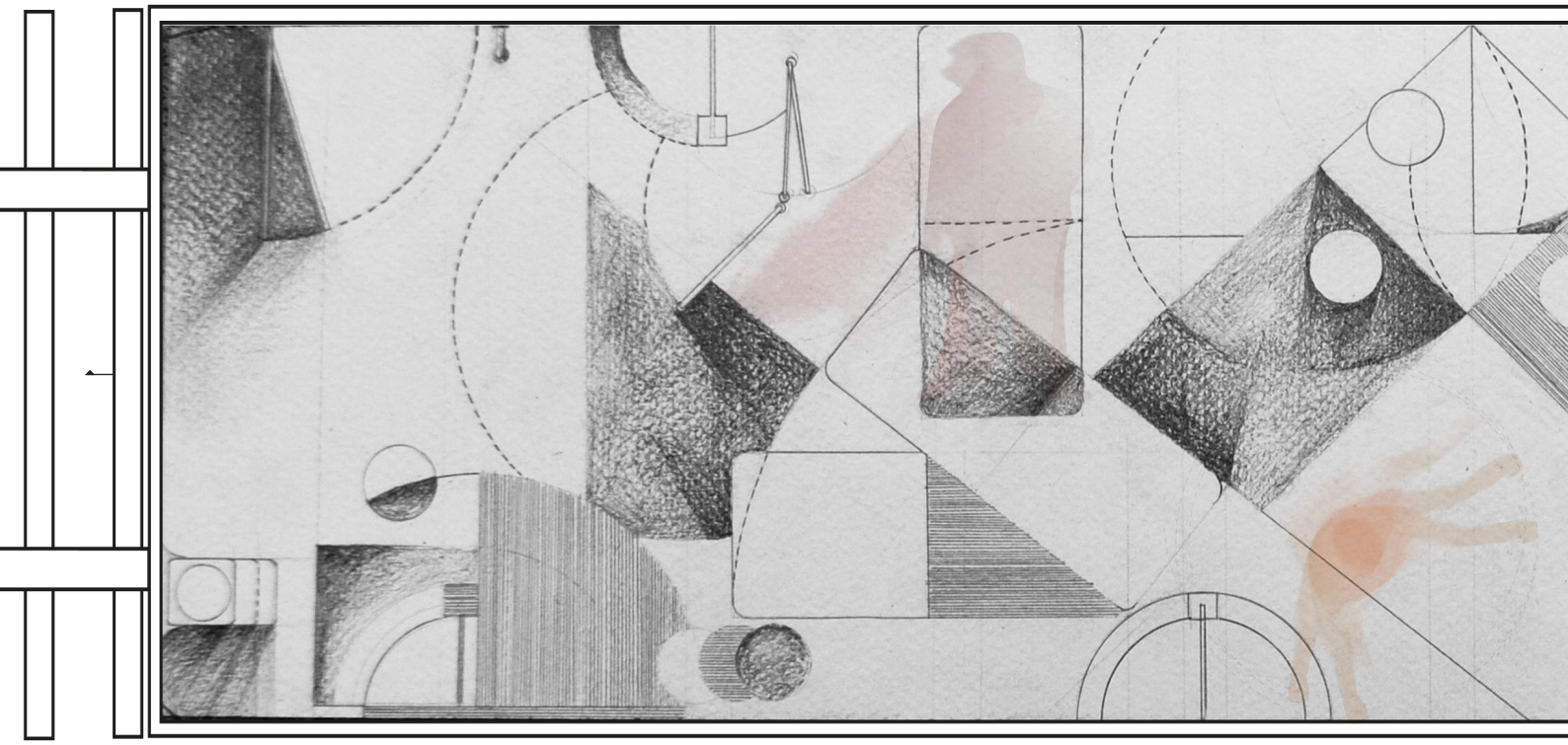
Figure 66. 'Transverse Section Elderly', mixed media, Image by Author.
The elderly male adjusts and eases himself through the carriage. Allowing the components to also adjust for his needs once he realises the flexibility of the space he embodies it and uses it to his full advantage.



OBESE SCENARIO

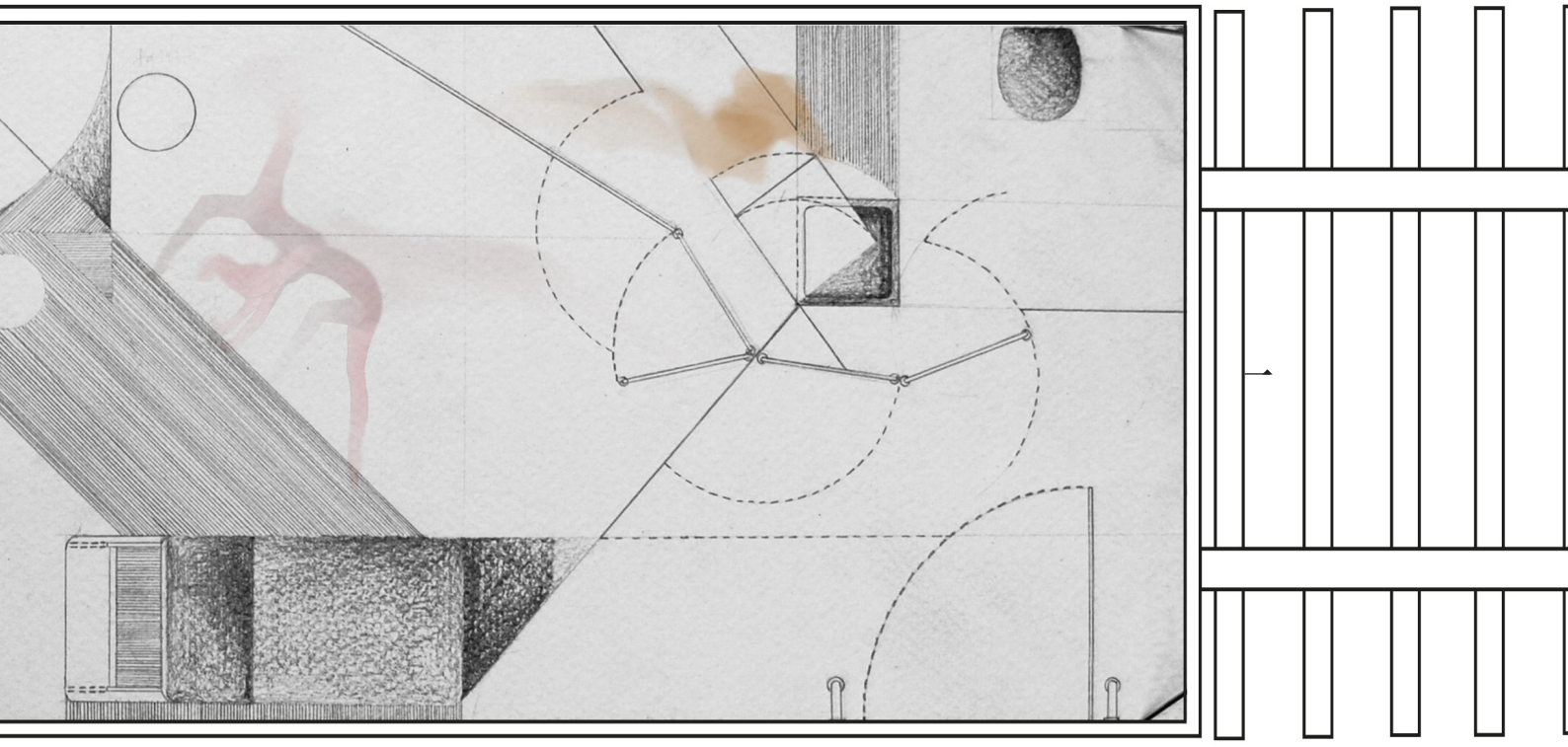
Figure 67. 'Transverse Section Obese', mixed media, Image by Author.
The Obese female slides the components to allow for ease of movement around and through the carriage the space adjusts for her width. Accommodating her physicality.

SCENARIO: CONVERGENCE PLAN



1m 2m

Figure 68. 'Train in Plan', mixed media, Image by Author.
The components sit within the site of the carriage. The components weave in and out of one another, over and under. Governed only by the interaction and creativity of the body.



SCENARIO: CONVERGENCE SECTION

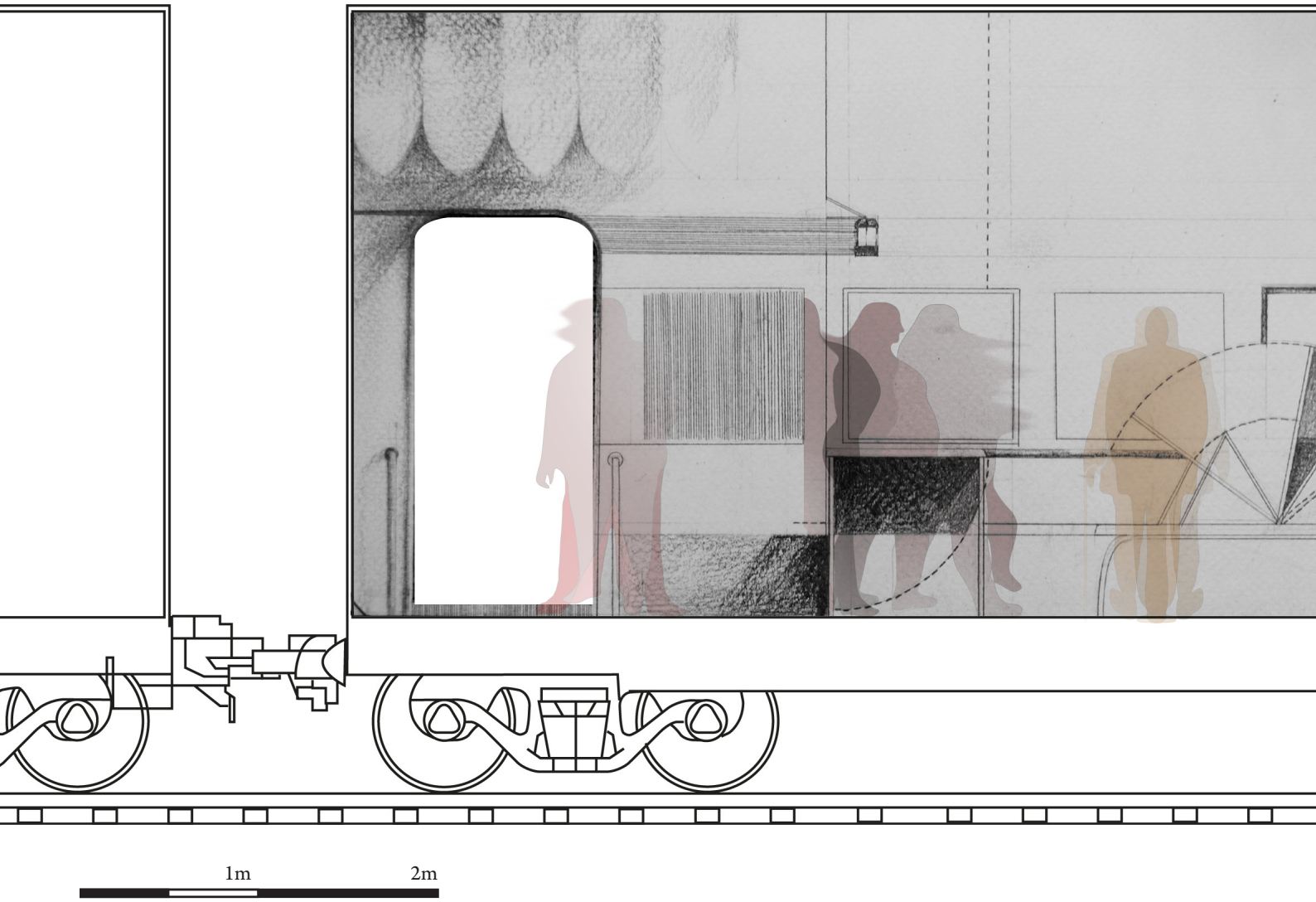
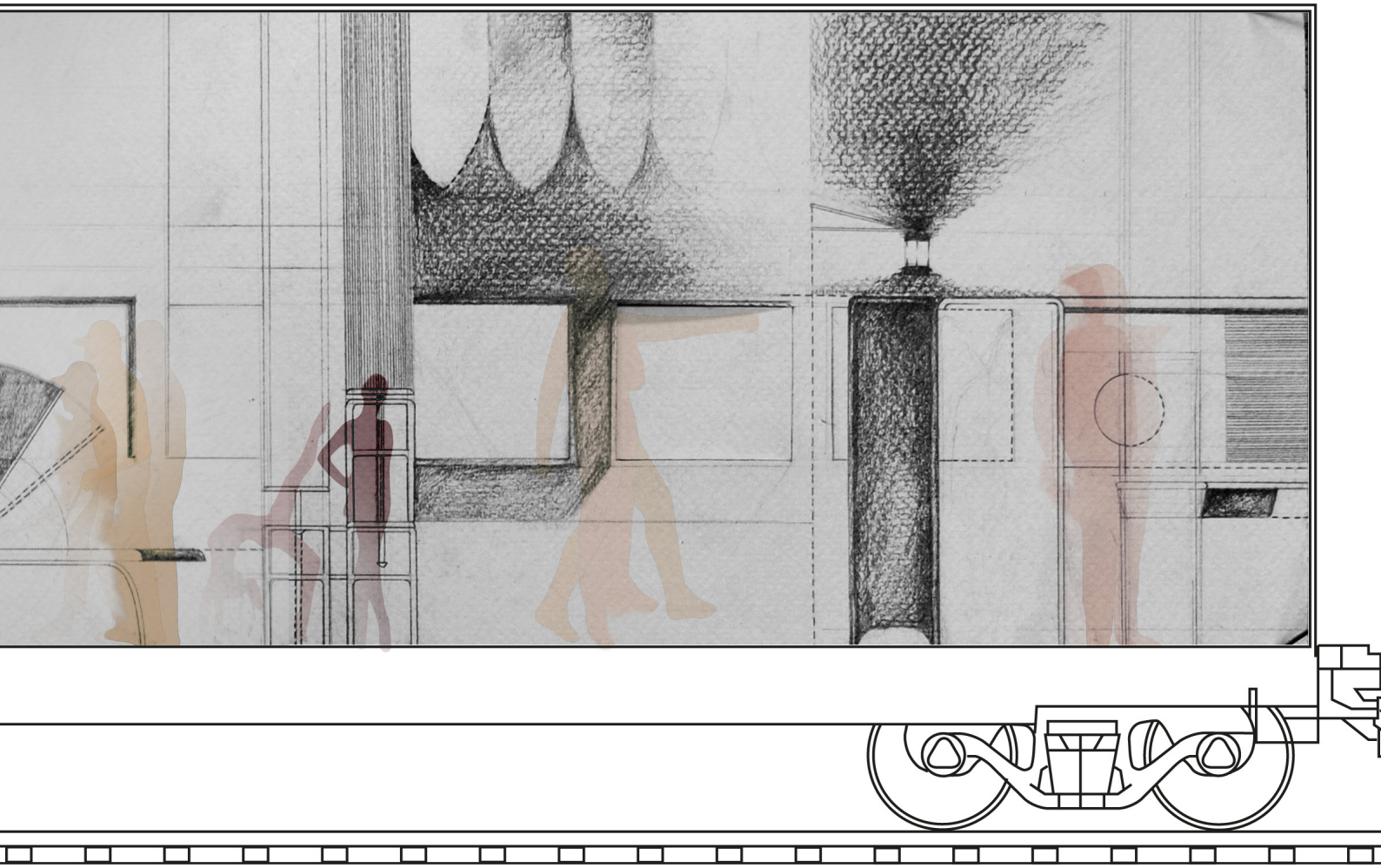
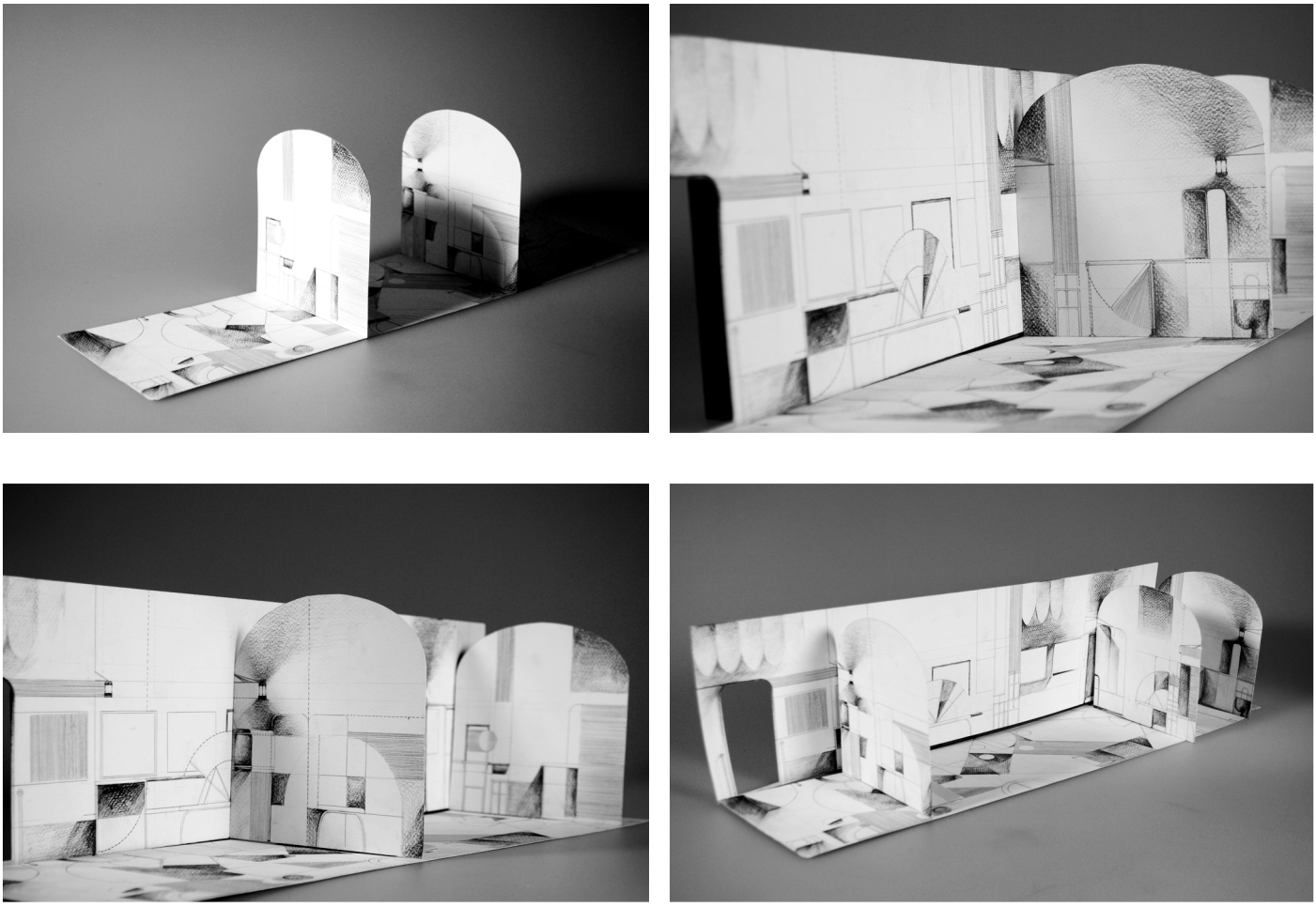


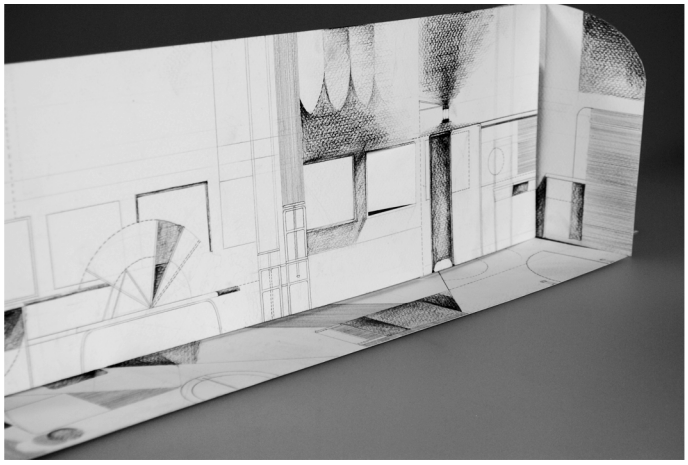
Figure 69. 'Longitudinal Section Train', mixed media, Image by Author.
The components and body move together. Each individual flows through the carriage moving with the carriage, interacting at will.

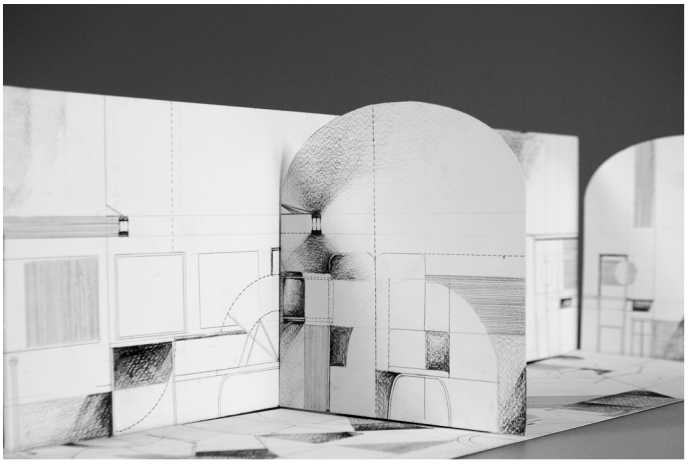


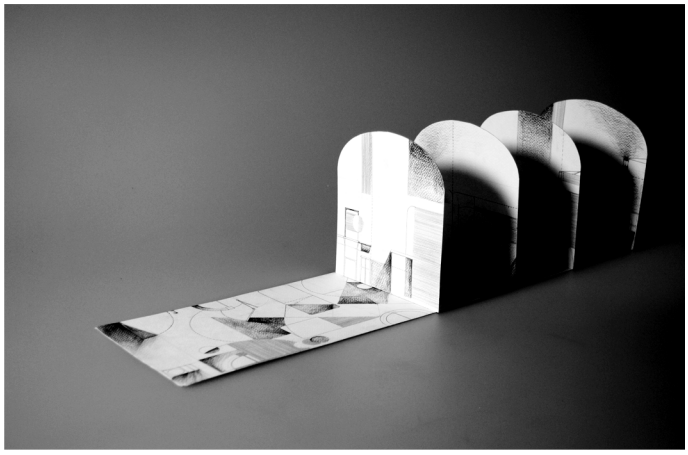


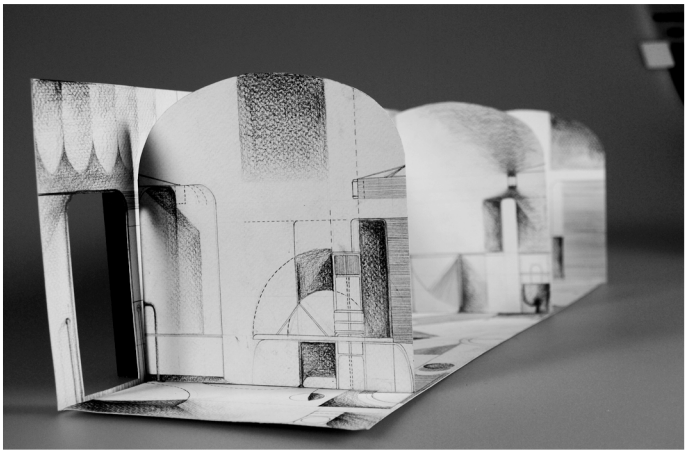
THREE DIMENSIONS

Figure 70. 'Photograph series', photographs, Image by Author.
The series depicts the carriage as a three dimensional space with the ability to be manipulated into varying compositions and arrangements.









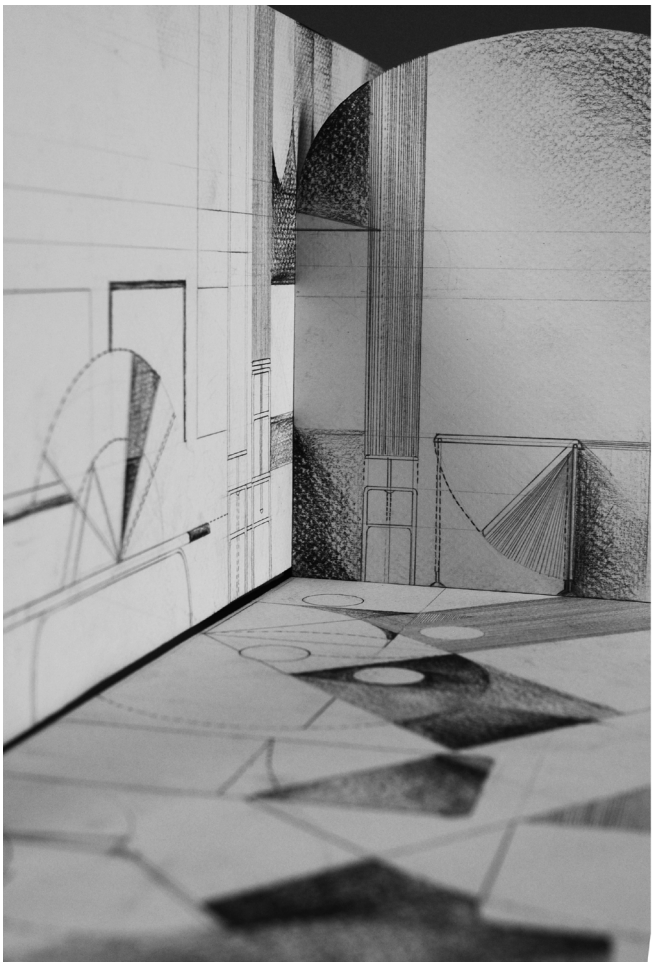
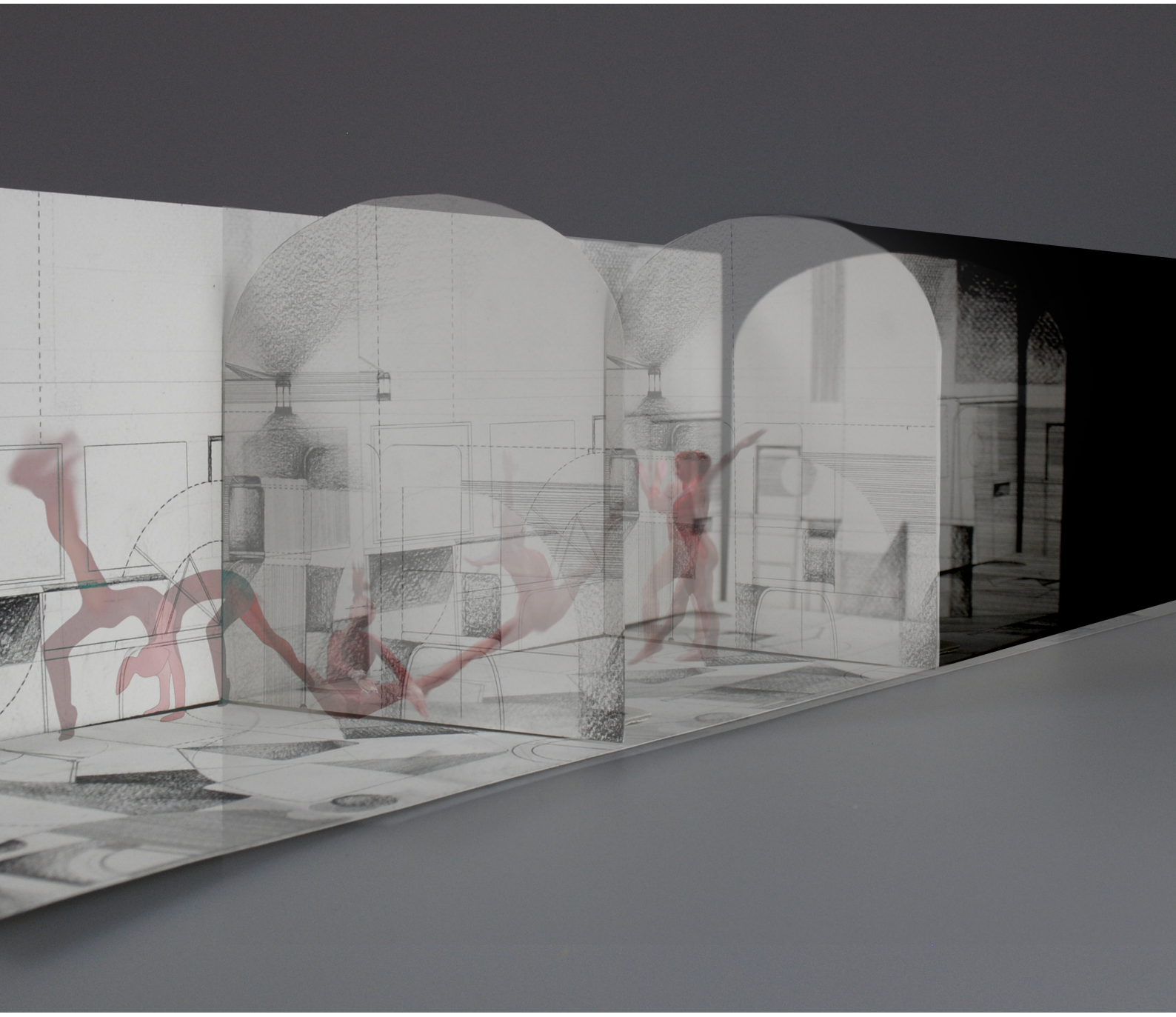


Figure 71. 'Scenario', mixed media, Image by Author.
The scenario depicts the body in motion the individual moving as the train moves while also interacting with the components. The fluctuations creating a blurred poetic image, in comparison to the static carriage that awaits interaction.



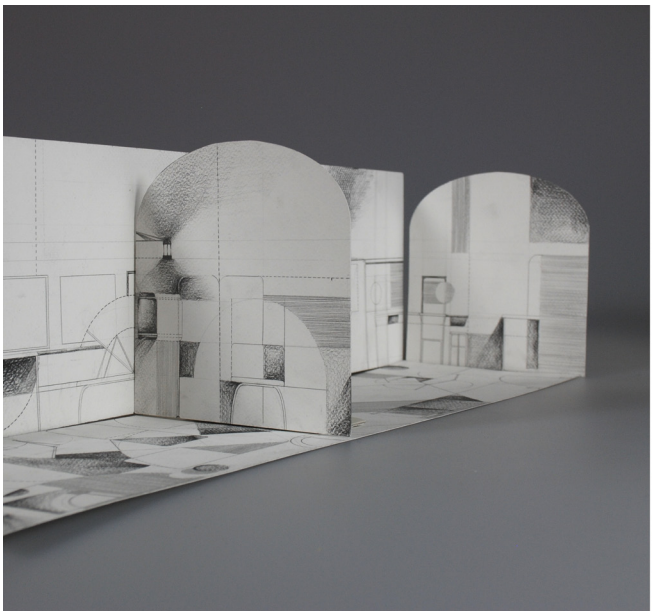


Figure 72. 'Gymnastic Scenario', mixed media, Image by Author.
The gymnast flips and weaves through the carriage challenging the space and intimately connecting with it. The carriage responds and projects back her acrobatic skills.

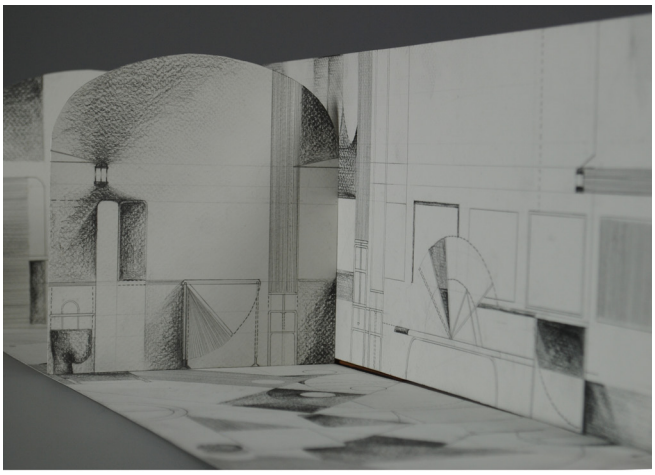
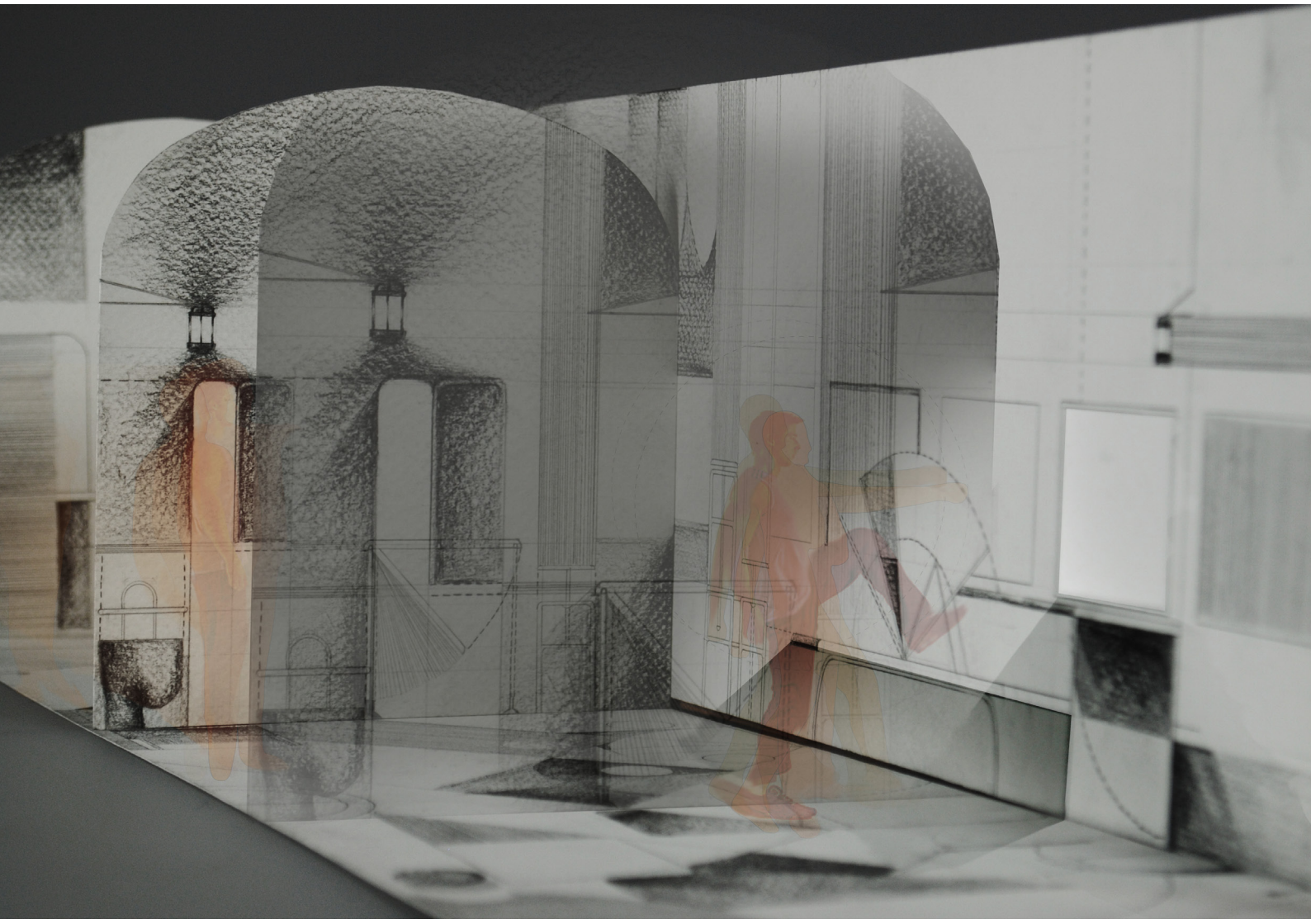


Figure 73. 'Tall Scenario', mixed media, Image by Author.
The Tall Male stretches himself through space the components modify to allow for extension of his limbs; components extending up and out when there is a need for rest and recovery.



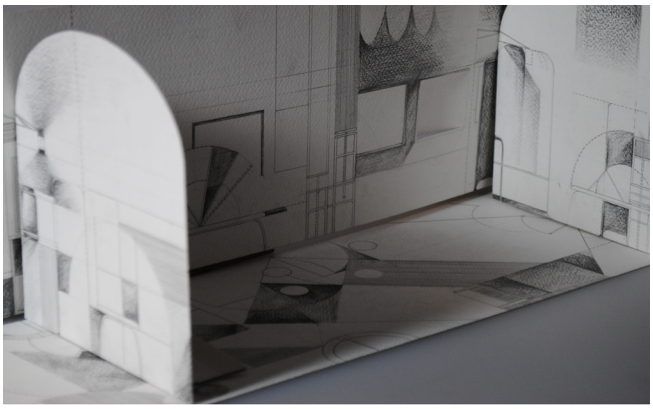


Figure 74. 'Elderly Scenario', mixed media, Image by Author. The Elderly stance is slow and erratic, the carriage aids the facilitation of his movements through the carriage. The space allows for many resting opportunities for the body enhancing his experience, helping the body and its abilities.

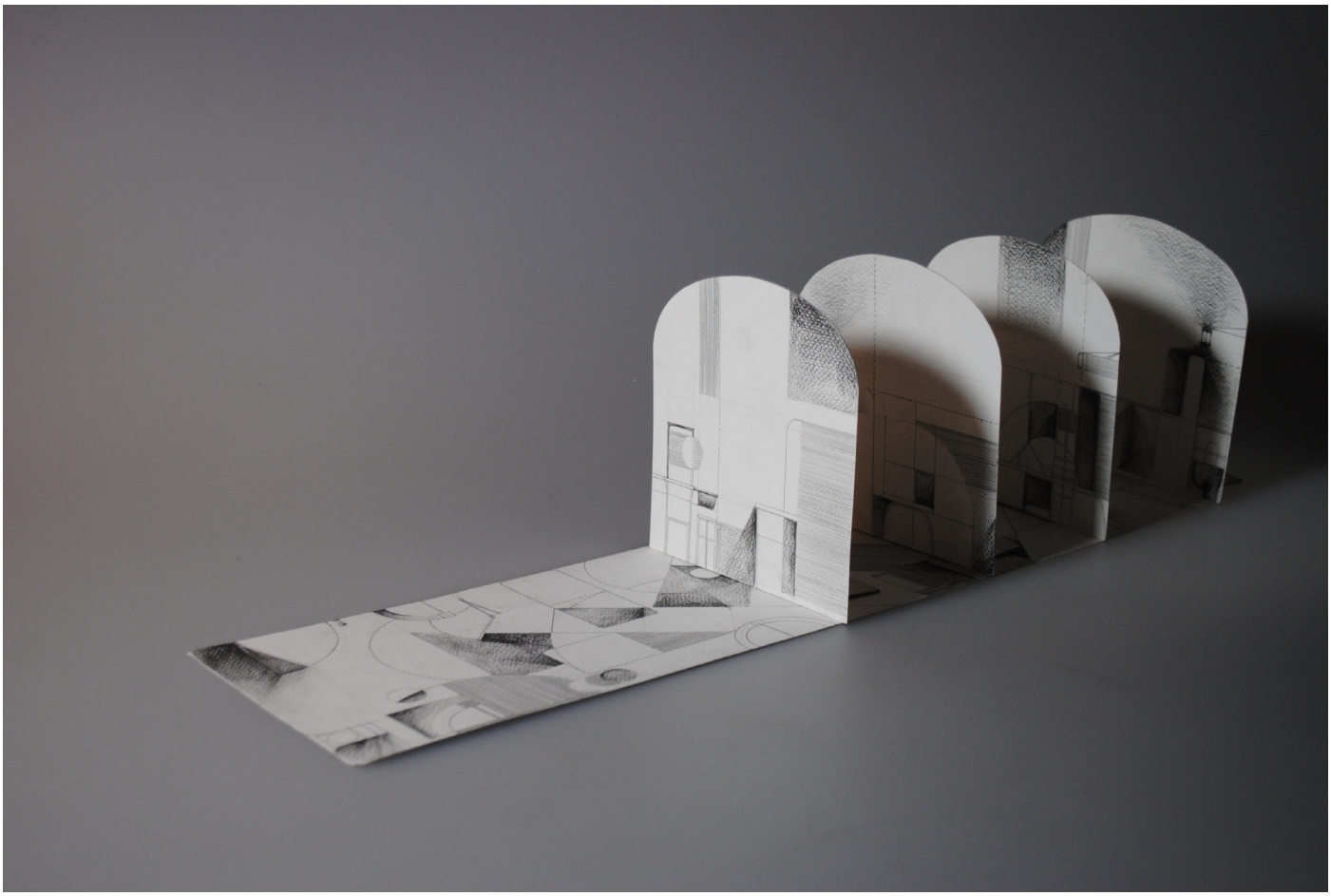


Figure 75. ''Progression of Space, photograph. Image by Author.
The photo portrays a progression of the carriage through space a movement of geometry and design.

CONCLUSION: ARRIVAL

The obese lady has been introduced to bring all of the elements together with design. The characters act as a narrator to the thesis, as well as adding individual attributes to each chapter.

The design incorporates a number of different scales, not in the traditional sense of architecture, but in the sense that each scale relates to the body at varying levels of intimacy and understanding. The scale of the train acts as a transitional and common space for the body; the lantern a physical interaction and aid of vision, or the screen as a visual barrier for further privacy. The actions of the body have been employed within the design of components to emulate the movements and shifts of the body; a reflection and projection of the body upon architecture.

The design becomes limited due to the body being an organism and architecture being a product of the body. The body is living, breathing, reliant upon oxygen and nutrition; in comparison to architecture, a static object. There is no simple way to accommodate an organism, unless science can develop a form of organism which lives and breathes, and in some way takes everything away from the body by these means. You do not have to look far to see fictional portrayals of such events. Wall-E, a family orientated movie, is an example. In this movie robots at first aid the humans in their daily life, a life which is depicted as the absolute in luxury. Slowly, a dramatic change comes about where the humans no longer perform the simplest of bodily tasks; there is a devolution of the body. If we compare this 'Parental Guided' movie to Giedion's *Mechanization Takes Command*, perhaps Giedion's vision has manifested itself as a motion picture; a paradox in itself. However the design diverges from such negative predictions and limitations, and focuses instead on the familiar in order to develop an intrinsic, positively formed relationship between that of the body and architecture. It becomes a case of reconfiguring the body to allow for enhancements from the surrounding environment and architecture.

ENDNOTES

1. Page 92, Elizabeth Grosz, "Space, Time, and Bodies," Space, Time, and Perversion; Essays on Politics of Bodies (St Leonards, N.S.W.: Allen & Unwin 1995).

2. Page 104, Elizabeth Grosz, "Bodies-Cities," Space, Time, and Perversion: Essays on the Politics of Bodies (St Leonards, N.S.W.: Allen & Unwin 1995).

3. Page 69, Jennifer Bloomer, "Focus: The Work of Architecture in an Age of Nanotechnology," Vito Acconci (Phaidon Press Limited, 2002).

CONCLUSION
DISEMBARK
THE POETIC BODY

THE CONDUCTOR

Each of the characters highlights different architectural conditions and relationships to architecture through their attributes; it can be discussed as the poetic qualities of the design. The conductor leads us to the departure from this journey with emphasis placed upon the dynamism and poetic form that is body in its individual state.

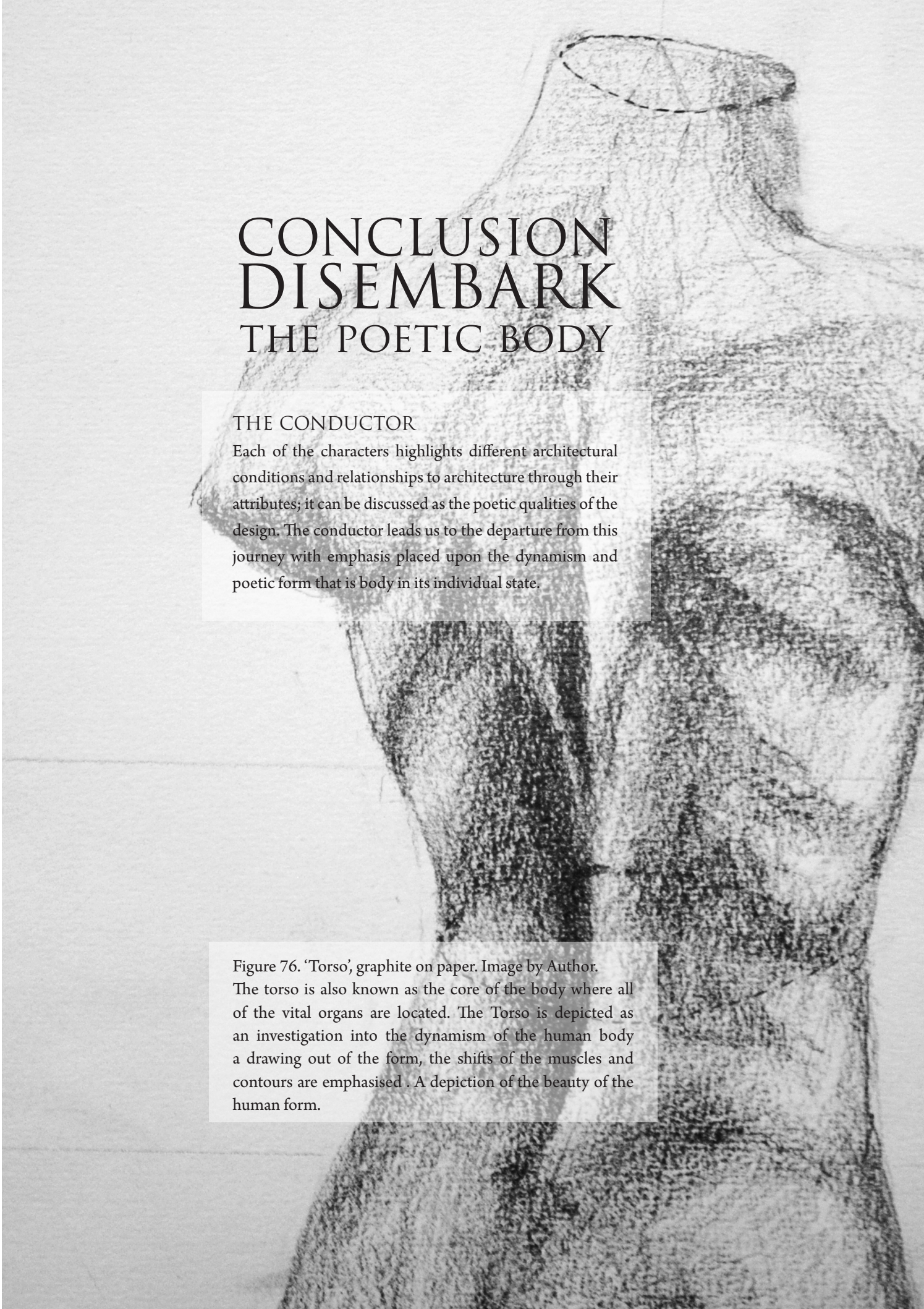


Figure 76. 'Torso', graphite on paper. Image by Author.
The torso is also known as the core of the body where all of the vital organs are located. The Torso is depicted as an investigation into the dynamism of the human body a drawing out of the form, the shifts of the muscles and contours are emphasised . A depiction of the beauty of the human form.

CONCLUSION

conclusion
ARCHITECTURE — and — BODY
individual
INTIMACY
a demonstration

DISEMBARK

The exploration began with the aim of highlighting, through explorative demonstrations, the capability and nature of the physical body to inform the realm of architecture. Emphasis has been put upon the exploration of intimacy within the built; an extension of the intimate connection every man and woman has with their body, through the architectural discourse.

The thesis' primary exploration was to challenge the existing relationship of architecture as a form of housing for the body. The hypothesis was thought to be that through using the physical body to explore the personal functioning and understanding of architecture as a spatial condition, we as humans can begin to form more intimate and intrinsic relationships with the environments which we surround ourselves with. A dynamism within architecture. This led to further challenging the boundary between the body and architecture in order to explore the possibilities of the body's dynamic form with reference to movement and transformation; to inform an architectural identity for and of the individual. This work demonstrates the boundary through an architectural response. The question no longer becomes whether architecture can or cannot inhabit us, the question becomes whether we allow it to.

The train becomes a 'container' for the body, a conceit. It establishes itself as a metaphor by which to describe the dynamic form and subject of the body within the realm of an objectively concerned discipline of architecture. The design is projected through diagrams of components which create separate types of housing of the individual. Varying scenes highlight the dynamism and poetic forms of the individual characters projected upon space.

Elizabeth Diller observes that *"all variables are inevitably scripted into the most interactive programs, choice is inevitably a predominant indeterminacy"*[1] This becomes exemplified in the case of the carriage. Only so many configurations of components are capable; the one indeterminacy becomes the ability of the individual to engage with each possible outcome through there existing understanding of space and imagination; the nature of individual will always remain 'the indeterminate' within this work. There must be a break down of common to understand the possibilities of the individual a dissection of such. The body has not and cannot be addressed directly, the complexities do not allow for this it must be built upon through a series of layers to comprehend it with relation to space.

"Every generation has to find a different solution to the same problem: to bridge the abyss between inner and outer reality by re-establishing the dynamic equilibrium that governs their relationships."[2] This quotation taken from the closing statements of Giedion's *Mechanization Takes Command* is a perfect one to use as an adjunct to the understanding of the demonstration which has been presented through this research, encompassing the relation of the body to architecture. Because of the constant development of

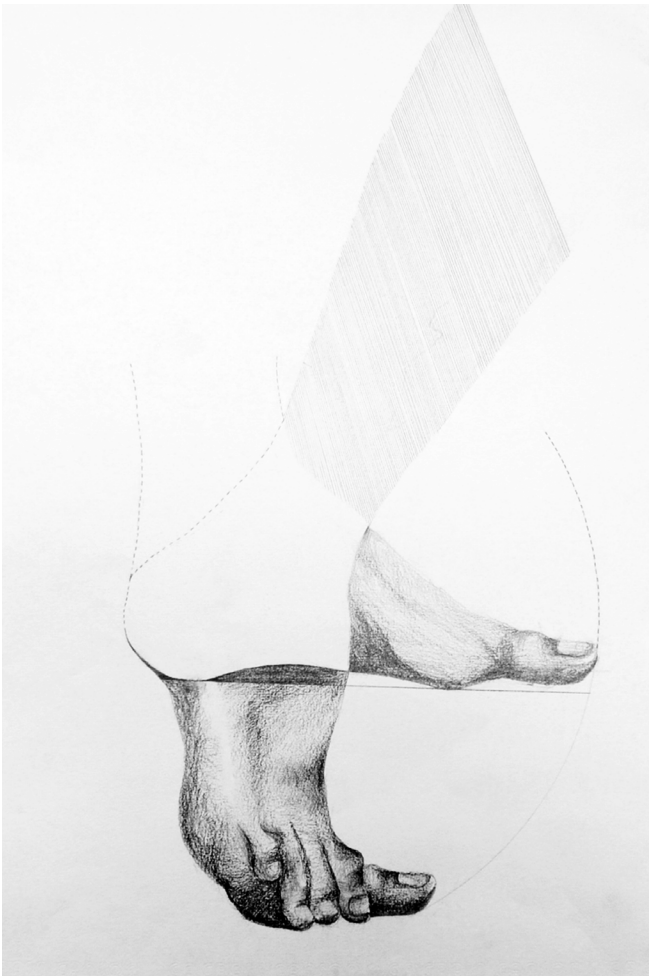


Figure 77. 'Dynamic pivot' , graphite on paper, Image by Author.
The feet study shows how diverse the body is down to the toes. Highlighting how the body can be broken down to components; aspects which each work with the system of the body. The drawing emphasises the pivoting of the ankles and the changing ground plane created by the feet, no longer is the ground a flat surface it acts as a force pushing against the feet a means to navigate architecture.

technology and the changing flux of the body there needs to be constant ongoing re-assessment of our relationship with what surrounds us, and whether or not our surroundings adequately fulfil our needs. This leads to the examination of today's urban dwellers' lifestyles. In many cases there is an increasing disregard for, or lack of, domesticity. The fast pace lifestyle is creating a lack of headquarters 'physical HQ'. By this I mean that one no longer has, or has need of a specified base; everyone is contactable at anytime via technological means, whether it is by texting, calling or emailing. We are no longer door knocking or mailing to a specified location. The means by which we interact socially have changed. The result of this is *"collapsed distinctions between domestic and public spaces."*[3] To understand the work accordingly, this thesis is not so much about a singular design but places more emphasis on moving forward, on progressing and advancing. The research looks at the readdressing of the existing; and re-evaluation through design in a way which is relevant to a contemporary context and a contemporary understanding of architecture and culture. This has been achieved through the poetic representation of the train carriage. The carriage allows for the movements and flow of the body to be exemplified, with a self projection upon space.

This thesis unravels and investigates the body with relation to the built, and draws attention to the ever shifting cycle of time and space through a poetic exploration of the role the body plays as a form of transportation. This piece of research, also in itself, is an exemplar of the cycle through time and space, by means of the circular formed discussion This work has established familiar, realisable components, each composed with a poetic construct. The poetics is used to understand the dynamism and fluctuations of the body's influence upon this work. The work has been presented through poetic interpretations, perceived interactions and an emotive response to the boundary and relationship established between the body and architecture. Emphasising the work as an uncovering and exemplifying of relationships.

ENDNOTES

1. Page 141, Elizabeth Diller, "Indigestion," Anybody Ed. Cynthia Davidson (Cambridge, Mass: The MIT Press, 1997).

2. Page 723, Siegfried Giedion, Mechanization Takes Command (Oxford: Oxford University Press, 1955).

3. Page 73, Jennifer Bloomer, "Focus: The Work of Architecture in an Age of Nanotechnology," Vito Acconci (Phaidon Press Limited, 2002).

Figure 77. 'Dynamic pivot' (close-up), graphite on paper, Image by Author.

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