Locating The Self within the Aesthetic Experience of Sculpture.

To create the frame.
To dissect the frame.
To locate the self.

Ben Jenkins

UNIVERSITY OF SOUTHAMPTON

ABSTRACT

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Doctor of Philosophy

LOCATING THE SELF WITHIN THE AESTHETIC EXPERIENCE OF SCULPTURE

by Ben Jenkins

This practice-based research project is about the location of the self within aesthetic experience: how can a response to an object put forward for aesthetic appraisal lead to an awareness of the physical and embodied cognitive self?

The study centres on sculpture and our experience of it. It begins by considering how an aesthetic experience can act as a framing mechanism though which an awareness of the physical and cognitive self can be realised. By drawing upon several established philosophical and scientific ideas surrounding aesthetic experience, and through actual fine art practice, making sculptural objects which knowingly seek to trigger certain responses, the study will examine possible constituent factors within the experiential moment.

In terms of theoretical and scientific contributions to the issue, the study considers the possible roles of proprioception and affordance, mirror neurons and embodied consciousness. The studio works involved have the characteristics, broadly, of skeletal mechanical devices, in metal, wood and other materials, stripped down to a functional minimum.

The final phase of the project involves a motion capture experiment which sought to support the practical and theoretical work undertaken with a detailed account of viewer movement and body position in relation to the sculptural object, and thus offer analytical data regarding certain aspects of the aesthetic experience. The data collected has then been used as the basis for new studio work to further examine the relation between viewer and object.

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Declaration Of Authorship

I, Ben Jenkins declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

Locating the Self within the Aesthetic Experience of Sculpture

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;

2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;

3. Where I have consulted the published work of others, this is always clearly attributed;

4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;

5. I have acknowledged all main sources of help;

6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

7. Either none of this work has been published before submission, or parts of this work have been published as: [please list references below]:

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For my Dad

Introduction and Methodology

An object was made. An object that seems to hold within itself the entirety of examination.

A steel cube with a pinched corner, flexed like the thumbed corner of a book. An object acted upon and caught in a moment, framed. I have taken the most simple of forms, square, regular, a box let's say. Or maybe box is wrong. For a box tends toward an interior. This object even though its manufacture created a void, its appearance and intention toward its appearance was for it to be seen as a solid form. Block, slab, cube maybe.

Through cutting, bending, heating and welding I have pinched a corner. Strained the material toward a dynamism. Effected a change through doing. Cleaned, polished, so as to not detract too far from its conceptual intention but still permitting a makerly empathy.

The intention; to manifest a fluidity from the rigid form. A flow or progressive sway departing from its nascent structure. To create a comparative effect between the straight and the curved, the angular and the flexed. To create a tension. A tension not to be felt by the steel, for it is now annealed and submissive to it, the tension should be *felt* within the viewer, within the viewing.

I can make objects, satisfactory, adequate but unrealised. To be realised the object must affect a perceptive position. Its action does not lie within its structure, its action lies within its apprehension. Soliciting a framing. An instance from which apprehension can be considered and divulged. This object is but a part of the sum.

The object needs to be perceived. What we must address is a dialectical relation between viewer and viewed for it is within this relation that the subject lies. An affirmation of being brought about through the dependency of the perceptive self on the existence and realisation of the objectual other. Maybe it asks too much of one object to express the entirety of examination. Although it is present the subject that we are approaching maybe better witnessed through the progression of enquiry. Hindsight is indeed a privileged position but one that might overlook certain aspects, certain questions and possibly other conclusions.

The subject of this research project lies within the experience of this steel structure but also in drawing, also in a progression through modernist sculpture, within the complexities of our brains and our perceptual beings. It lies within movement, within and beyond looking. Through the progression of enquiry, through the developing patterns of process it is hoped that we can come to an understanding and a position of acceptance of the implication of an awareness of self within aesthetic experience.

At the core of this research project is the location of the self within aesthetic experience. The primary research question: How can a response to an object put forward for aesthetic appraisal lead to an awareness of the physical and embodied cognitive self?

It may be pertinent now, at this early stage, to briefly address the notion of self-hood that we will be concerned with. I say 'briefly' as the intention through the course of this project is to build a picture and understanding of this idea of self through the utilisation of fine art practice in conjunction with a review of past literature and current research regarding the subject. It will be the practical work, the objects made, their exhibition and reception plus the amalgamation of the philosophical and scientific theories that have been included within this study that will more adequately describe our

subject. Indeed these elements are the tools of 'location' implied within the title of this study. However, some foundations can be laid.

The notion of the self that we are addressing within this study is largely that of the physical self , its location and existence with the spacial environment, its relation to the objects it encounters and the realisation of the potential for physical interaction that is solicited by object and environment. In short it is an awareness of *self- presence*.

It is an awareness of the sensory self. Moreover it is an awareness of self that eventuates from the calibration and amalgamation of sensory input through the processing systems that are our brains. It will be suggested that an awareness of such notions of self-hood are subsumed within our 'normal' everyday existence by a more rational, analytical cognitive process that we may more regularly inhabit and that the experience of the art object put forward for aesthetic appraisal offers an opportunity to engage with and indeed solicits a realisation of the aspects of self-awareness that are in question.

Therefore and to begin with I will establish how the art object can act as a type of framing mechanism from and through which the viewer can approach an awareness of the aspects of self which are in question. To engage with an object put forward for aesthetic appraisal is to engage with one's own perceptual being. To be conscious is to be sensate. To be self-conscious is to be aware and feel the sensory self. Art promotes this self-reflection by creating instances and environments, a *frame*, from which such realisation can occur.

This moment, this quality of the moment is, however, fleeting. It does not stand up to direct analytical consideration. For as soon as we enter into an analytical appraisal we force an interruption. The act of being within that moment is corrupted and rational; history and

knowingness subsume the fact of being there. It is a realisation of *self presence* and such a moment depends on one categorical, fundamental condition, that one is *present*.

The experience of sculpture taken in general terms can be infiltrated by much intellectualist baggage on the part of the viewer. This is , of course, part and parcel of the experience as a whole and individual interpretation, contextualisation and association will always be functioning elements. However the aspects of aesthetic experience which this project deals with are concerned largely with one element that we all hold in common, the body. The responses to objects put forward for aesthetic appraisal that we will look at originate from a particular and common ontological viewpoint; that of a physical body/object operating in and responding to physical objects and environments. Our subject is the self, a personal and individualised realisation but the aspects of aesthetic experience that lead to an awareness of the self that we will look at within this study are ones that are common, stemming from this shared viewpoint.

Though our subject may not be consenting to transcription, the act of which already determines a detachment, we can investigate certain aspects of its foundations. We can offer contexts and through practice we can aspire to effect its occurrence. We can look for commonalities within experience and such commonalities can be seen to evidence fundamental truths. To locate the centre of a circle; three points plotted on its circumference should be joined with three lines thus creating an internal triangle. From the centre of two sides of the triangle two lines should be drawn perpendicular to those sides. At the point at which these lines intersect lies the centre of the circle. None of the plotted points nor the lines drawn describe the circle but all are necessary in locating the centre, the very foundation of the circle.

We have established a frame, our circle. We can dissect this frame and maybe where our dissecting lines intersect we can approach the foundations and the centre of our subject. Our subject does

require a substrate on which it can exist. In this present discourse sculpture is that substrate. It is the mechanism of framing and it offers a context through which our subject can be viewed.

I will chart a course through late twentieth century Anglo- American sculptural practice. A course that sees the chosen artists moving away from a formalist object-producing practice of pre- 1960 to a practice that takes as its very subject viewers' perceptual experience. The intention here is to establish an art historical context through which the ideas and concepts that form the main body of this research project may be seen.

I shall look to areas of neuroscience and cognitive science to offer analytical evidence to support notions of embodiment and much philosophical and theoretical thought on the subject of aesthetics. The last twenty or thirty years have seen huge developments in medical technology. Within the areas of neuroscience and cognitive science these developments have led to a much greater understanding of how our brains function and how we formulate consciousness. I will look to this new understanding, particularly evidence relating to the visual and the visuomotor system, and address how it may be seen to aid our understanding of certain aspects of aesthetic experience. Throughout this enquiry I will utilise fine art practice to address notions of embodiment and how our perceptual beings function within aesthetic experience. Indeed the creation of practical work will be seen to lead the course of enquiry. Art may not be the medium through which definitive answers, solutions, conclusions may be found; this I will leave to the world of science, but I would say that the creation of artistic work is a mode of enquiry that an enhanced awareness of how it is to be in this world may be sought and seen.

Many of the theories and ideas I will discuss in this paper are not mine. Many of the theories and ideas, particularly evidence offered from the world of science, I will, within the context of this current study, accept as correct. For I am not a scientist nor am I a philosopher. I am an artist who

through the creation of objects and the assimilation of theories brought forward from areas of science and philosophy try and come to terms with, and understand more fully, certain aspects of aesthetic experience.

In order to carry out this research project I began by attempting to define the problems and ideas that I wished to examine. From my experience of particular art objects and the creation of my own practical work I had a tacit knowledge of how an awareness of the physical and cognitive self could be promoted, and in turn be seen to be a fundamental function within the aesthetic experience. But how could this be communicable and what are the factors that lead to such a self- reflective response?

On re-examining my own work, at this early stage, I began to question the implied uni-modal nature of visual art. The term, visual art, seems to offer a concise account of a phenomenon that is apprehended and understood through a singular sense. However, when we resort to language in order to convey particular qualities of an art piece we often refer to, or use terms associated with, other sense modalities; colours are related to temperature, images are said to be textural etc. I began to relate certain qualities in my own work to auditory or tactile perceptions. This work and the theories surrounding multi-sensory perception are outlined later in this project. I mention them here because it was due to this initial inquiry that I began to look to the areas of neuroscience and cognitive science in order to ascertain what evidence surrounded and supported such notions.

My research into the evidence supplied by neuroscience and cognitive science surrounding the subject of aesthetic experience, and the assimilation of this gained knowledge with philosophical writings relating to the subject, particularly the phenomenology of Merleau-Ponty, form the main theoretical underpinning of this research project. The practical work that has been produced and proposed within this research project has its conceptual basis within this theoretical knowledge. The

very 'being in the world' nature of the subject seems to suggest that a creative and practical mode of enquiry should be seen to be not only valid but necessary. It must also be remembered that the creation and experiencing of objects put forward for aesthetic apprehension instigated the initial theoretical investigation. This dialectical relation between the practical work produced and the theoretical concepts outlined will be seen to be a characteristic of this research project.

In order to carry out this research project I quickly realised I would have to alter my preconditioned attitude toward my practical work. I needed to view my work not as inherently complete, stand alone art objects but as equipment or tools within the process of enquiry. I began to use my work, and that of other artists I have looked at during the course of this project, as a type of scaffolding onto which the theories and ideas relating to my subject may be 'hung' and from this framework understanding may be sought.

Much of the practical work conceived and realised through the course of this project was undertaken to 'make real' the elements and issues that were involved in the investigation. Multi sensory perception, spacial awareness, ideas of proprioceptive sensory response and embodied cognition will all be looked at and I would suggest all required a physical/ practical investigation within this discourse. Take for example the 'Humming machine' which will be described in detail in chapter 2. It had its conceptual basis in the notion that we refer one sensory perception to another, different, sensory mode in order to come to a more complete understanding. The idea seemed to necessitate a practical 'real-world' investigation and so the piece entitled “Humm” was created to act as a counter-part to the original works on paper. “Humm” was a simple mechanical device that caused a stretched rubber sheet to vibrate and thus eventuating in a low humming noise. The original works on paper offered a visual stimulus and the 'humming' device the auditory and it was hoped that there could be a co-relation if not a co-implication witnessed when both elements were experienced within the same context. “Contract” also described in chapter 2 , addressed issues surrounding and

stemming from a reading into brain plasticity and proprioception. Again the subject at hand seeming to require a 'real world' practical investigation.

All the practical work documented within this study was conceived with viewer reception in mind. It was within this reception, the viewers experience, that our subject lies. There was an intention with all the work to affect a perceptual response within the viewer which was direct and operated within that present moment of experience. This work did not attempt to portray, communicate or describe a past or imagined experience. As will be outlined throughout this project, it is within the dialectical relation between viewer and viewed, perceiver and that which is perceived that our subject lies.

It is important to note that even though the majority of the practical work had firm and particular conceptual basis within the theories and literature that is included in the study and was created with intention toward affecting a particular perceptual response it could not be seen to be ascribing or dictating viewer response. The objects made and their presentation would have to stand alone and open to interpretation. Even within the fabrication process the objects made would develop and in some cases evolve away from the original conceptual design through choice of material and various practicalities of construction and presentation. Within the exhibiting there would be any number of factors that could not be effectively controlled. Viewer interpretation will always be, to a certain extent, personal and individual. But as I have said the subject we are dealing with inhabits and regards real world experience. All the aspects beyond the original intention would affect and conspire in the realisation of the piece, the aesthetic moment. It would not be possible to address all the functioning elements within viewer experience and nor is it necessary within this study. We have already outlined the particular aspects we will deal with; awareness of the physical self, its position within in space and the potential for action/ movement. However the point to be made here is that viewer interpretation, particularly with regards to aspects of physical/self awareness became

of utmost importance in not only formulating conclusions but in leading to new work and advancing the ideas involved in the study.

Therefore throughout the course of the study, work was created, presented and a dialogue was sought with the viewers. I have attempted to facilitate this discourse within the context of a number of group exhibitions both in the U.K. and Ireland and I have held several open studios during the course of the project. On the basis of this discourse I have then attempted to re-address the work and utilise the input I have gained to further develop the practice in a more effective manner.

This dialogue with viewers regarding their experience with the sculptural object, however informative, seemed to lack a detailed, measured account of their physical engagement. The particular aspects of aesthetic experience we are dealing with include, as previously outlined, body position and movement. It was felt that in order to investigate such aspects more fully a measured data collection and review of viewers movement and body position in relation to the sculptural object should be undertaken.

The motion capture equipment situated in the Bio-mechanics department of the University of Southampton offered the means by which to carry out this data-collection. The equipment would record participants movement and body position through twelve cameras. The viewers or participants would be marked with reflective dots and asked to enter the space and 'view' an installation of sculptural objects. Each of the marker's trajectories would be traced and the resulting recordings could then be processed in various ways including the generation of a series of 3 axis grid reference points.

Even the initial recordings that show just the reflective dots and their trajectories offer a pared down and clearer view of the participants movement. The 'distraction' of the appearance of the participants

being overcome. Is there commonalities to be witnessed in the recorded data of viewers movement and body position in relation to the sculptural elements? Are the sculptural elements soliciting a particular physical reaction/ response from the viewer? It is these questions and other similar issues that are addressed in the motion capture study and detailed in chapter 4.

The motion capture study also offered an opportunity to investigate more fully and in a practical way an aspect of the project outlined in chapter 2. Barabara Montero in an article entitled "Proprioception as an Aesthetic Sense" suggests that proprioception, the body's own awareness/ sense of its position that is informed by muscle, tendons and ligaments etc., can be seen to be an aesthetic sense when it comes to the appreciation of dance. It is claimed that when apprehending the movement of a dancer, we in a way *imagine* that we, ourselves, are preforming the movement. In a sense we have a second-hand proprioceptive response to another's movement. This notion is supported, as Montero points out, by recent developments in neuroscience particularly research into mirror neurons. These developments will be looked at in detail in chapter 3. I have extended Montero's argument and applied it to sculpture suggesting that a proprioceptive awareness or response is a function within the aesthetic experience of a sculptural object. In order to test this theory I designed a piece that utilised the motion capture equipment and the data it supplied to create new sculptural work from the recorded movement of a dancer. A dancer would be asked to preform within the motion capture laboratory and respond to the installed sculptural forms. A recording would be made and processed into a series of 3 axis grid reference points. These points would then offer the foundations to a new sculptural work. Could this abstracted, constructed object solicit a similar proprioceptive response to that experienced when viewing the original movement?

I see the motion capture project as an amalgamation of many of the strands of my practice to date. It has its conceptual basis in the evidence offered by science and the philosophical writings I have been dealing with. It involves the creation and display of sculptural forms. It offers the opportunity

to 'capture' viewers' body positions and movement in relation to the sculptural object in a detailed way that will allow more considered analysis. It will provide data by means of a mechanical system that is congruent with the view of the visual system that will be outlined in chapter 2 and in turn this data will inform the creation of new sculptural work. The relation between this new work and the original pieces will also act as a type of diagram, an embodiment of the ideas outlined, and should be seen to be a tool in establishing how an awareness of the physical self can be seen to function within the aesthetic experience.

Within this thesis the written accounts of the practical work undertaken, the objects made, will be demarcated from the main body of the text. These passages will be approached formally and descriptively regarding issues involved in the creation of the piece and also physical characteristics and dimensions. The conceptual basis for the pieces will be outlined and an attempt will be made to transcribe certain experiential elements stemming from the works creation and reception. This latter inclusion will be from both a personal perspective and that of viewer reaction to the work. The writing surrounding the scientific evidence, theory and philosophical thought underpinning this research study will form the main body of the text. The necessity of this demarcation stems from the different language registers employed when dealing with the varying aspects of the study. I have used different language registers to reflect the fact that as a sculptor I have been uninflected by the standard conventions of the thesis format. Indeed the work of sculpting and the reflections thereafter resist an easy linguistic account. They are in and of themselves within a different language, a language of objective reality, a language requiring a shared 'being in the world' position to fully realise. The supporting evidence offered by the world of science and philosophy is more accepting to transcription. It is hoped that, as with the design of the research study as a whole, the varying factors will not stand in opposition but compliment and corroborate to form a picture of the subject at the core of this project.

Chapter 1 The Minimalist project and the act of framing

1.1 Introduction to Chapter 1

In this first chapter I wish to establish how objects, environments and instances of aesthetic experience can act as framing mechanisms through which a moment of self- awareness or self-consciousness may be gained.

I will start by building an art historical context through which the ideas and theories that form the main body of this research project may be seen. I shall do this by charting a course through late twentieth century sculptural practice. I will outline a progression away from the formalist object-producing practice of the pre -1960s to a practice that took as its very subject the viewer's perceptual experience. The artists and artwork that I have chosen within this first section may not hold any significant causal relation. They relate to our current discourse in a greater way than they may relate or hold influence to each other. I do not wish to write a particular art history. I have chosen these examples in order to establish how the viewer's perceptual experience can be seen to be a fundamental function and indeed the subject of sculptural work.

I will then return to redefine the notion of what I have labelled the frame. It is a function within aesthetic experience, a quality of extraction and definition. We are sentient beings constantly bombarded with stimuli of all manner and description but because of the constant nature of our

being in the perceptual world we become numbed to its effect. I will outline a series of examples, from early surrealist photography to certain everyday experiences that break this continuum and offer a frame through or from which we can be conscious of our perceptual self.

Having established how artists have taken viewers perceptual experience as subject and in so doing promoted a self-awareness/realisation by creating spatial works where the audience is immersed in the sculptural form, I then wish to readdress the sculptural object and examine how *it* may be possible to affect such a self-conscious response in relation to the object. It is this examination of aesthetic response in relation to the sculptural object that will form the main body of this research project.

"Plinth"

A steel framed platform measuring a metre squared and 150 millimetres high is situated just off centre in the main thoroughfare of the exhibition space. The frame is fabricated from 50 x50 mm steel box section and covered with galvanised steel mesh like that used for walkways and outdoor staircases. Within this frame an electric fan is mounted horizontally so that it points toward the ceiling. The fan is wired to a motion sensor located over the platform above head height. Once movement is detected within the space of the platform the fan will engage and start to blow a column of air upwards from the platform's meshed surface.
The overall 'look' of the object is not important. In the studio it consisted of the steel mesh propped up on four concrete blocks, the fan hanging underneath. This would have been sufficient in the realisation of the work but alas health and safety being as it is the object had to be made 'safe' and stable. In doing these alterations an idea developed to blend the structure into its institutional somewhat utilitarian surrounds. Make the object, not disappear, but look as though it belonged within the space. An industrial 'chunk' of ventilation shaft or some sort of dislocated air conditioning unit.
The intention was that the constructed object would act only as a plinth. The work itself, involving the movement of air and the delineation of the body, would inhabit the space on top of the plinth.
This piece is informed and has its roots in a reading of the early minimalist project of the 1960s and in particular the writings of Robert Morris.

Robert Morris in his essay “Notes on Sculpture 2” writes of attempting to de-construct sculpture to its essential foundations; “a singular displacement of space”. The intention; to create work that is devoid of association, illusion or symbolic resonance.
‘A singular displacement of space’. There is a distinct peculiarity to this statement. A hard-to-grasp-and-retain meaning or conceptual point. A sculpture when located in space displaces its relative quantity of space. Does it not also ‘displace’ its relative quantity of air? Could the most minimal sculptural act be that of displacing or moving air?
An important aspect of Morris's work was to create environments that forced the viewer into a type of reverse performance through which a realisation of their physical boundaries could be achieved. Audiences were invited to enter passageways, boxes, and labyrinths, where their physical beings were framed and contact with the built structure would delineate their own form.
Air is the substance which surrounds our form and perfectly describes our shape. The intention behind “Plinth” was to incorporate the notion that sculpture was essentially a displacement of air and that air is the perfect medium through which the physical form may be described.

1.2 The Minimalist Project

The Anglo- American modernist sculpture of the pre-1960s had developed to become an object-orientated formalist tradition. Artists through the ’sixties began to question the importance and validity of this genre with a deliberate redefinition of what sculpture is, and can be, and how it may be viewed. By the ’seventies the range of practice considered to be sculptural was almost unthinkable to the now-traditional, object- pursuing practitioners of a mere decade previous. Scattered felt, dirt and sliced rubber now inhabited gallery spaces whilst huge trenches and spiralling jetties appeared in the landscape outside. Sculpture became a more questioning art form, not the emblematic, inherently complete standard we had become accustomed to and so comfortable with. More was demanded of the viewer and in turn the viewer and the viewing would become a fundamental function of the work.

As I have said the modernist sculpture that we are currently dealing with, pre-1960s, was chiefly an object-creating formalist tradition. Sculptors made sculptural objects. These objects were fundamentally abstract, made up of and concerning themselves with the relationships between their constituent parts. They were practices in the language of sculpture, sculptural sentences describing

and addressing sculptural issues. This idea is closely tied to Greenbergian notions of formalism and the abstract expressionist movement in painting of roughly the same time.

David Smith can be looked at as a prime example of this type and time of sculpture. A pioneer of the welded steel assemblage, Smith concerned himself with the composition of different elements, often using found objects. Works like the "Totem" series are emblematic in nature.
Rossalind E. Krauss in her book "Passages in Modern Sculpture" likens these works to familiar signs like the Red Cross or road side hazard markings and describes how the work operates as a " frontalized shape in a neutral undifferentiated space" (Krauss ,1977, p. 148). The point being that we know what level to address and understand these works. We come to an easy understanding of the works like "Tank Totem V" (1953) by appreciating its verticality and its minimal suggestion of volume. We are reassuringly able, if necessary, to make connections to familiar shapes and the "Totem" series permits an accessible appreciation through a simplified notion of figuration. The term "frontalized shape" Krauss employs describes how, as viewers, we know the back by looking at the front. The work is not physically demanding nor indeed haptically endearing. It inhabits its own space and our role as viewers can be seen to remain one of mere observation.

Another sculptor to look at before we move to the "what happened next" and one that may help bridge the gap is Anthony Caro: again a sculptor working in metal, maybe contrasting Smith's verticality with a more horizontal dynamic. Caro's sculpture lies easily in the realms of formalism, his work being conglomerations of forms that create a discourse between certain sculptural issues and properties. However, Caro begins to demand more of the viewer and the process of viewing. The work becomes more of an experience to be digested visually whilst at the same time begins to coerce the viewer into a more physical reaction and maybe satisfaction.

"Early One Morning" (1962) is a large work created from an amalgamation of painted aluminium

and steel. It strikes one as a stable, rational, structure with all elements, with the exception of three, contributing to the works structural integrity.

Viewed from the side, the linear nature of “Early One Morning” is somewhat debilitating. The fact that none of the elements really interact or connect with one another apart from the obvious attachment to the central beam leaves us with little else other than a step-by-step read-through of those parts. It is not the transparent, composite, complete entity we are faced with when looking at Smith's “Tanktotem”. The expectation is established that there is more to this structure and so we are coerced into shifting our own position. Moving around, lines bisect others, elements are eclipsed and its length is foreshortened until we are left with an entirely different perspective. Looking lengthways down the piece with the vertical rectilinear plane at the back, all the elements amalgamate to create a much more compositionally complete view. The linear elements gain an exaggerated importance while the rational, structurally necessary elements are overlooked.

By giving us such distinct and conflicting views, Caro forces us to be aware of the inherent third dimension. In turn, by changing our own egocentric position, the shift from side to side, as viewers we are permitted to inhabit the sculptural space and the sculpture ours. Indeed the distinction between the viewer’s space and the space in which the sculpture exists is now null and void. This overall effect of Caro's work can be understood phenomenologically as Michael Fried writes in Artforum:

> *Where as in painting 'the modernist reduction' has thrown emphasis on the flatness and shape of the picture surface, it has left sculpture as three dimensional as it was before. This additional dimension of physical existence is vitally important. Not because it allows sculpture to continue to suggest recognisable images, or gives it a larger range of formal possibilities but because the three dimensionality of sculpture corresponds to the phenomenological framework in which we exist, move, perceive, experience and communicate with others. The corporeality of sculpture even at its most abstract and our own corporeality are the same.* (Fried ,1967 p.12)

The point being that sculpture exists within the same reality as the viewer and by allowing ourselves to be coerced into experiencing sculpture such as Caro's "Early One Morning" through bodily movement and feeling, as well as our visual apprehension, the experience as a whole becomes more emphatic. By making the appreciation of sculpture a more complete experience Caro demands a more direct transcendental, individually realised reaction and satisfaction.

Whatever transcendental, self-aware qualities the viewer might bring to the viewing of a work by Caro at this particular time, his sculpture remains resolute in its adherence to formalist ideals. By the mid-1960s a small group of New York-based artists had initiated a movement that would become known as "Minimalism" and taken a staunch anti-formalist, anti-modernist, stance.

Artists including Robert Morris, Donald Judd, Sol le Witt, Ad Reinhardt and Carl Andre would all, by association, be labelled Minimalist. Clinical geometry, impersonality, the use of industrial materials and manufacturing techniques, a composite completeness and an absence of decorative emotion are all characteristics of this new departure. These characteristics may not be immediately endearing but Minimalism's importance lies not in individual pieces that were created but within the questions asked by it, the problems forced on the viewer when confronted by it and its conflicting stance to modern formalist sculpture.

Robert Morris was creating 'minimalist' work as early as 1961. His work of this time and indeed throughout the 'sixties was indicative of the general style, philosophies and aspirations of the minimalist genre. As well as his practical work Morris also published two essays outlining his philosophy, "Notes on Sculpture 1 & 2."

"Untitled (Cloud)" and "Untitled (Slab)" were two large rectangular forms manufactured from plywood and painted grey. 'Cloud' was suspended at around head height from the ceiling whilst

'Slab' was supported a few inches from the floor. On seeing these pieces Donald Judd, a minimalist contemporary of Morris was reported to have stated;

While the sparseness of the work was potentially interesting there isn't after all much to look at. (Judd, 1963, p.106)

And herein lies the problem faced by viewer, critic and artist alike during the formative period of the Minimalist movement. How do we address these works? It would seem that there is not sufficient content to examine these works by way of the formal considerations the viewer had, up until then, been used to.

Firstly, an inherent truth lies within these “primary structures”. There is an essential, undeniable quality about the uncompromising severity of the right-angles, straight lines and expansive flat surfaces. They appear as precision incarnate, unnatural, unwavering and unquestionable. The compositional completeness enforces their stern assertion of being. Instead of looking at a conglomerate of different parts, interfering, distracting from one another we are being given a whole certain entirety.

The industrial materials and manufacture used to create these pieces again lead to an inherent factual truth. There are no traces of fumbling human contact. We cannot empathise with the creation nor indeed with the creator. We are left with an independently existing unit, a singular 'displacement of space'. By removing all the elements from within the object that the viewer can regard, question or disagree with, Morris forces an awareness of the literal space in which both object and viewer exist. In the second of his “Notes on Sculpture” Morris states;

> *The large, 'public' scale of sculpture , such as “Slab”, will force the viewer to stop making relationships between aspects that are internal to a given form and instead, focus on the public nature of the relationship between the objects and the literal space in which they exist and the kinaesthetic demands placed upon the body.* (Morris, 1966, cited Harrison C. & Wood P., 1992, p817).

With statements like this and work such as “Slab” and “Cloud” Morris explodes the traditional notion of composition and replaces it with relationships that are “a function of space, light and the viewer’s field of vision.” The object is now only a tool in the understanding and apprehension of physical existence.

The notion of Morris's early minimalist works bringing the self to an awareness of spatial existence is closely tied to the phenomenological understanding Fried brought to the appreciation of Caro's work. However there is a difference. While we spatially empathise with Caro's work through bodily feeling and movement, our attention remains directed towards the sculpture itself. Morris, on the other hand, through the reductive nature of his work, brings an awareness of the literal space in which we exist, move and feel. Testament to this is Morris's declaration that sculpture should emphasise the properties of “scale, proportion, shape and mass”, all of which rely on a direct relationship between sculpture and the space in which it exists. One was now expected to consider, as Morris put it, “the whole situation”.

Morris extended and infused more importance in the act of motion, moving around and relating to a sculptural form. Scale is of the utmost importance here. He writes in “Notes on Sculpture 2”;

> *A large object includes more of the space around itself than does a smaller one. It is necessary literally to keep ones distance from large objects in order to take the whole of any one view into one’s field of vision.* (Morris, 1966, cited Harrison C. & Wood P., 1992, p817).

This enforcement of an awareness of physical position when relating to and apprehending this new kind of sculpture again brings the appreciation of it to a more complete experience. The 'whole situation' is now brought forward for consideration.

The Green Gallery Show (1964 – 1965), Morris's second solo show in New York, extended the

concept of spatial awareness and experience and the viewer's movement through the literal space became an ever-increasing constituent part of the work. The direct nature of the relationship between the installed objects and the existing architectural site bring an immediate awareness of the space. The walls, floor and ceiling of the gallery are promoted to become, in themselves, a primary function of the work, integral to the structural realisation of the forms.

The kinaesthetic demands made of the viewer again can be seen to become another function of work like The Green Gallery show. Unlike the object-orientated sculpture that was previously the norm, without viewer-interaction the essence of Morris's work is not realised. By barring us, directing us, forcing us to crouch, Morris enforces a choreography that in turn allows us to perceive the space and in turn our existence within that space in a very direct and physical way.

This task-based, viewer-orientated, work was strongly influenced and can be seen as a result of Morris's involvement with the Avant-Garde dance scene of the time. The Judson Dance Group, to which Morris was introduced by his wife Simone Forte, would employ a dance of "ordinary movement", believing that the everyday motions of walking, crouching, kneeling and lifting are more immediate and honest, essentially more human than the inner expressionism of more traditional balletic movement.

Rossalind Krauss in her essay "The mind/body problem: Robert Morris in Series" writes of this distinction;

> *Balletic gestures, it was felt are always expressive of an inner meaning: the distilled emotions of the music or the body, of an inaccessible, virtual field structured by pre- established convention and folded away from real space and time.*

While the new approach of groups like the Judson dancers through a language of ordinary movement;

actively sought a way to make a gesture that would have no interior.

(Krauss R. 1994 p. 6).

This distinction can be seen to correlate with the differences between the modernist object and the new minimalist ideals. The modernist object was internal. All gestures, the meaning, the motion, the time of the piece were held within its compositional form "folded away from real space and time" (Krauss R. 1994 p.6), while the new structures of the minimalist movement by having no interior led the audience/ viewer to an apprehension of real space and allows a literal involvement in the temporality of the work.

The sculpture we have been dealing with so far was constructed in and affected change to already existing architectural spaces. The pre-exsisting space was a function of the work. Morris begins as early as 1961 to construct the space itself. The first of these constructions was "Passageway" . It is here that Morris first begins to directly sculpt space and uses it as a prop in a type of reverse performance, where visitors, bringing with them their own individual perceptions and conceptions, become the performers. Their entry, their exiting, their shuffling sideways, their confinement and compression activate the piece and indeed stand as the subject. By coming into contact with the external material and realising the pressure felt is in fact pressure exerted by the body itself, one is reminded of the boundaries of being, our physical existence and thus a self- awareness ensues.

If "Passageway" and works like "Untitled (Portal)" are the most simple of Morris's reverse-performance, task-orientated works, then his "labyrinths" must be seen as his most elaborate. The labyrinths again employ an enforced choreography and concentrate the audience's consciousness and perceptions on their movement in and through space. Moving in and out of spaces is an extremely everyday occurrence but by framing the task in such a way and placing it in a context that

demands our full consideration, Morris promotes an awareness of more usually unconscious perceptions. The Labyrinths also highlight the distinction between an optical understanding of structures and an understanding that is gained through actual physical interaction. Viewed from above one can follow the route through the Labyrinths clearly and easily, the order and pattern is visible, but as soon as we step inside all we can see are the walls and the space within; all order and rationale is lost. The experience is so chaotic and disorientating that we are not allowed even the memory of where we have come from nor indeed the foresight of where we are going; we are left as one body in space.

Another prominent artist who through the language of sculpture created and moulded space in which and through which the audience moves is Richard Serra. Serra's early work was a processed-based art involving the splashing and casting of heavy metals such as lead. This work addressed both the quality of the material and the space in which it was created. Serra went on to produce the "prop" pieces, a series of works using rolled lead and giant steel plates, propped, balanced and leaning on and relating to the architectural site in various, often precarious ways. These works through their reductive nature and their direct relationship to the architectural site align Serra with the early minimalists and echoes such shows as Morris's Green Gallery Show. However, I believe that if Morris wrote the literalist rule-book of the early minimalist movement, Serra, through the quality of the materials used, brings his work to a more sublime and powerful level. The temporality of Morris's plywood forms, where the concept was primary, is now replaced with a material strength that while addressing issues such as site-specificity also allows an appreciation of more traditional sculptural values such as surface, weight and modes of fabrication.

Working on an ever-increasing scale and using hot-rolled, weathering steel, site-specificity becomes the main preoccupation of Serra's work. Works such as "Tilted Arc" sought to heighten the public's perceptions of the space they were in. He states: "After the piece is created the space will be

understood primarily as a function of the sculpture”(Raven, ed. 1989, p.28) By experiencing the sculpture the audience would engage both perceptually and conceptually with the entire space.

Not unlike Morris's “Passageway” and “Portals”, Serra's large outdoor, site-specific works, whilst drawing attention to the existing space, also enhance the audience’s self-awareness and their knowledge of their own spatial existence. As we walk around works like “Tilted Arc” the shape of the piece changes. By our own movement we are elevating, lowering, extending, contracting, compressing and turning the sculpture. This transiency of looking means the piece becomes a physical map of one’s own movement through space, a tool in the realisation of our own spatial existence.

Serra, whilst not directing us into such a forced choreography, as seen in Morris's labyrinths, does invite us to walk and move along the constructed shapes and spaces. Simply due to the huge scale of the works we are compelled to walk their length and physically interact with the gentle curves, reverting the experience to a haptic perception in tandem this time with the visual.
Serra's commitment to the space-body issue continues throughout his career and is developed in an exhibition, first shown in the Geffen Contemporary in Los Angeles and later alongside Morris's 'Labyrinths' in the Bilbao Guggenheim. The exhibition consisted of seven “Torqued Ellipses” and the snaking eighty-six-feet long “Pickhams Progress”, an impressive display of steel that dominated the huge exhibition spaces of the Galleries.

A torque refers to a rotation on a given axis. Serra's “Torqued Ellipses” are two ellipses, formed by a huge sheet of steel, one top, one bottom, twisted or torqued through angles of up to ninety degrees. These Serra conceived in sandbox models, painstakingly drafted and then only realised through the most advanced hot-rolling techniques. These two-inch thick encircling steel plates create open vessels, vessels that permit the flow of people and of space. Some stood alone, singular torqued

ellipses that created a complete central space, whilst others, the “Double ellipses” involved two of the structures, one inside another, making a narrow passageway that lead to the inner void. All were between eleven and thirteen feet in height, some retaining their mill skin and fabrication marks, others powerwashed and sprayed with salt-water, giving them a deep red/brown rust.

These structures have a particular fluidity of their own. They evoke a sense of movement that contradicts the material’s inherent qualities of strength, weight and rigidity. The torquing action is almost visible and the strain inflicted on the steel nearly tangible. However, like Morris's work, the true essence is not realised without the interaction of the viewer. Again the sheer scale of these pieces prevents a mere visual apprehension and demands a physical response. Their reductiveness also promotes a physical response. As Rossalind Krauss, in her 1986 essay for the Museum of Modern Art New York, referring to earlier work by Serra, states;

> *Stripping the work of art of all possible illusionism and creating a field force so that space is discerned physically rather than optically.*
> (Krauss,1986, p. 28).

Walking amongst these structures is an intensely physical experience. The walls, as they lean toward and away from you become both threatening and protecting. Your movement enhances the inherent fluidity of the pieces to a point where it is difficult to distinguish between the two.
The theories behind Serra's work have sometimes been minimised and often overlooked. The artist himself avoids much theoretical discourse preferring blunt assertions like;

> *the significance of the work is in its efforts not its intentions*
> (Garden Castro, 1999, p.17-23)

However attempts have been made to bring a theoretical understanding to the appreciation of his work, Rossalind Krauss's essay for MOMA being maybe the most significant. In it she brings a

Merleau-Pontian phenomenological dimension to the discourse by quoting the philosopher in relation to an important aspect of the experience of Serra's work being *"mutual interaction between seer and seen"* (Krauss, R., 1986, p.29) By experiencing Serra's work we are in turn experiencing ourselves experiencing the work. The process of apprehending this art reverts to a process of considering one's own perceptions of it. Serra does not project a pre-formulated subject but allows the subject to manifest itself within the individual viewer. Krauss talks of the abstract subject of Serra's work being *"all trajectories live in the indissoluble marriage of the spatial with the temporal"*(Krauss,1986, p.35) , the spatial being the space created by the artist and his forms and the temporal being our momentary existence within them, for the viewer and the viewing bring with them that crucial element of time.

The formalist sculptural object with which we began, in a way, holds time within itself. It acts as a depiction of a time that was. We as viewers can spend time appreciating the form but remain barred from the actuality of its time. It remains a snapshot or result of someone else's experience.

> *First I am dealing with no object, perception is the object, Secondly I am dealing with no image because I want to avoid associative symbolic thought. Thirdly I am dealing with no focus or particular place to look. With no object, no image and no focus, what are you looking at? You are looking at you looking.* Turrell (1993. p.26)

These are the words of James Turrell. Turrell is an artist that has been working with light and space since the mid-1960s. He has projected light to create illusions of solid forms and in turn make solid walls seemingly disappear. He has constructed perception cells, chambers of perceptual experience and his work has lead him to acquire Roden crater, a 390,000 year old volcanic crater with a 600 foot high red cinder cone, where he has built a series of these perception cells and observation spaces.

Turrell's work and words offer a fitting termination to the progression through late-twentieth-

century sculptural practice I have been describing, a progression from the insular formalist sculptural object to an art that takes as its subject the viewer's perceptual experience. It seems by giving us less, the artists I have been discussing enable us to consider more of ourselves, our physicality, our perceptions, our existence. We gain a self-awareness and thus the aesthetic response to such works can be seen to be a self-conscious response.

In establishing an art historical context for the idea that an aesthetic response is in turn a self-conscious response I have charted a progression away from the sculptural object to a sculptural practice that immerses the viewer within the sculptural form. In her book "Installation Art; a critical history", Claire Bishop outlines a concept that is a fundamental characteristic of these immersive environments. The fact that a viewer must; walk around or through the piece to fully experience it coupled with what Bishop terms 'sensory immediacy', by which she means that the sensory elements within the piece are presented to the viewer for them to experience directly and not merely 'represented' , in addition to a heightened awareness of other viewers within the environment all are seen to *activate* the viewer and the viewing. This is shown in contrast to art that is presented for optical contemplation only which is seen to be "*passive and detached*".

This characteristic of *activation* may well be at the very centre of an understanding of installation art and the immersive environments we have been discussing but can we see a correlation within the experience of the sculptural object? A singular form existing within a shared space. Through our progression of twentieth century sculpture we have moved away from the sculptural object. I wish to return to it and examine how the sculptural object can promote an *activated* viewing. The sculptural object will be seen to solicit a physical response from the viewer whilst we will also investigate ideas surrounding multi-sensory perceptive response in relation to the art piece. This will in turn be seen to affect a self-conscious/ self aware response in the viewer. This response functions within and relies upon a framing of the experiential moment and it is the potential of the

object put forward for aesthetic appraisal to promote such a framing that we must now establish.

Martin Puryear's "Self".

Something happens to time when it is relieved of its linear constraints. Much of our experience of time is a progression of one thing after another. A continuum that, being preordained, elicits a type of disengagement with the present. The timetable has told you where you will be next and so you are there before you have even left.

But if there is a disruption to this continuum and time is relieved of its linearity an expansion occurs. The range of potential and possible actions within your environment increases and thus adds greater import to your current position. For it is from this position that all actions will be instigated and influenced. It is here where one can be within the present. And it is from here, a particular position with an expanded environmental awareness, that temporal perceptions shift toward a more spatial consciousness. It is from this position that I encountered 'Self'.

I was unaware of the work of American sculptor Martin Puryear before encountering it that day. It was a major solo show with maybe a dozen sculptural objects displayed of varying sizes and forms. But one in particular caught my attention. A black, rounded form, human in scale, vertical, solid.
Approaching this piece the first exchange/ shift occurred. The perception was not of my own movements but it seemed rather that the object was drawing our shared space inwards. Inflating as it consumed the spatial environment. It ceased, as did I, at a point that was deemed mutually adequate. A point at which our relative scales were balanced. A point from where an initial apprehension of the object as a whole was achievable without strain and from where an assessment of further potential interactions could be made before continuing to a more committed position. From this point certain qualities where apparent.

The object did not deny the process of its fabrication. One could see the join lines where the timbers had been fixed together before being carved. And carved it was. This object had been worked, laboured over. Chiselled, rasped, sanded and polished. The result calling to mind the nub of a well used pencil.

You could sense a history of dissatisfaction with the form. Sharp corners being the first obstacle in the way of completion. Irregularities, high points and roughness all to be overcome.
It invoked the smells of the wood shop. A pungent mix of sawdust and oils grasping you more in the throat than the nose. You could see the tools. Plains, sharpening stones and countless scraps of sandpaper strewn across the work bench. And the coffee-cups left since yesterday's tea break. The workshop mug stained and encrusted with the trace of countless tea breaks. A vessel that would never be permitted within a normal domestic environment but finds its respected place within the workshop.

Moving again and once more this form is the dynamic partner in our dialogue. Its shape changes as I change my position. Morphing and twisting and in turn acting as a type of mapping mechanism to my own movements. I am reminded of that fleeting moment, sat on a stationary train as the opposite train moves off. You are in motion until the sudden and sinking realisation that it was not you but the other that was in fact moving.

I circle this object again and again tracing my own shape in our environment. The moment, through our increasing co-implication, obtains a substance of its own. A lucid moment. But a lucidity that is almost textured, a gel like viscosity. Slowed now, movement is weighted almost gravitationally around the other. I rely on this other now for definition as it relies on me.

1.3 The Act of Framing

> To extract a moment of time. To relieve it of the blindness caused and effected through the continuous nature of reality. To re-present this moment, this point of being, so it is now framed accepting apprehension. Denying the continuous blindness.

J.A.Boiffard's photograph of a big toe, or “Le Gros Orteil” was produced to illustrate one of George Bataille's “Documents” series from which it takes its title. A photograph. A seemingly straight photograph, involving neither illusion nor trickery. Indeed, I would contend that its placement within the “surrealist” genre of photography comes merely due to proximity to and association with his surrealist contemporaries. If you look at the photographic practice of the other surrealists the majority employed many forms of manipulation of the image. Double exposures, negative printing, the “rayograph” technique made famous by Man Ray, all were processes of manipulating, distorting the original print. Raoul Ubac's technique that was referred to as *brulage,* in which the emulsion is set alight, started with a blank and relied on the manipulation of this accidental nature of the outlined process to create an image.

One could argue that Hans Bellmer’s photographic work of the time was in a sense 'straight', uncorrupted. Yet these were photographs of very precisely composed scenes involving sculpted forms, posed, lit almost choreographed. Boiffard's “Le Gros Orteill”is a photograph. An indexical trace of reality. Uncorrupted, uncompromised. A photograph of a big toe.

Most of us are blessed with a big toe. In fact most of us are blessed with two of these things, these appendages. They are there *in utero* and remain beyond death. Supporting, flexing, feeling. We pay them little attention. There is no need.

However we now have a photograph: Boiffard's photograph of an unremarkable big toe. This is an extraordinary image due to its very ordinariness. It is instantly recognisable yet profoundly alien. What is this we are apprehending when viewing this image? We could approach this image with all the formalist rhetoric associated with critical analysis of an art historical object; tone, form, volume, light and shade . Maybe we could see this thing as some sort of metaphor, bring a semiological view to the reading but instead let us consider what Boiffard has actually done in the production of this piece. I do not here speak of cameras, exposures, dark rooms but of the action itself as a whole. To take a picture. To capture a moment. Extract this thing from its everyday context, its continuum. To relieve it of its expectations, assumptions, the blindness. Boiffard allows this toe to stand alone, uncompromised. And for a moment we are allowed to realise it. We can accept this thing for what it is, for what it actually is. A previously unrealised essence shines. Something that happens before language, before intelligence, before our analytical crutch trips us up and sends us falling. In doing this, in allowing this knowing of the object presented, Boiffard in turn whispers to us a knowledge of ourselves.

An instance;

> You sit on a train. Stationary. Alongside is another train also still. A train moves off. It's yours. Your journey has begun. But then as the end of the train clears your point of vision you realise that in fact you are motionless. The other train has moved off. You realise you are motionless with profound clarity. You understand your stillness. You feel what it is to be seated, weighted, stopped. You are granted a moment framed.

In Rosalind E. Krauss's essay *The Photographic Conditions Of Surrealism* she talks of the technique of doubling. After an account of various manipulations of images I briefly outlined above she states

that; *"more important than anything else is the strategy of doubling"* (Krauss,1986). A strategy of layering, one image with its copy. Making a slight slippage of registration, a disruption. To me this importance lies with the self- referential aspect in the act of doubling. A photograph being an exact trace or copy of reality. Then the photograph itself is copied. So we are left with a copy of a copy. The slippage of registration pointing to the unsatisfactory nature of the first copy. This doubling is not however what I wish to speak of. What interests me beyond this lies in an aspect of Levi Strauss's description of the importance of pure phonemic doubling in the onset of linguistic experience in infancy that Krauss employs to underline her belief in the importance of the doubling strategy in surrealist photography. Strauss's account follows;

> *Even at the babbling stage the phoneme group /pa/ can be heard. But the difference between /pa/ and /papa/ does not reside simply in reduplication: /pa/ is a noise, /papa/ is a word. The reduplication indicates intent on the part of the speaker; it endows the second syllable with a function different from that which would have been performed by the first separately, or in the form of a potentially limitless series of identical sounds /papapapa/ produced by mere babbling. Therefore the second /pa/ is not a repetition of the first, nor has it the same signification. It is a sign that, like itself, the first /pa/ too was a sign, and that as a pair they fall into the category of signifiers, not of things signified. Repetition is thus the indicator that the "wild sounds" of babbling have been made deliberate, intentional; and that what they intend is meaning. Doubling is in this sense the "signifier of signification.* (Strauss, 1970, p. 339/340)

I would contend that although the second 'pa' is indeed crucial in the development from mere babbling to more *significant* speaking we must consider the gap, that space between the first pa and the previous, the last and the next. For without these gaps the noises remain just noises or *babbling* to be consistent.

In continuum we have difficulty apprehending the individual elements that are in flow. We live with ourselves continuously. We tell ourselves our story continuously. We perceive the perceptible continuously. Our analytic brains are relentless in attempting to bring order, find meaning, gain

understanding. Our physical bodies are in such constant perceptional bombardment we have little chance to realise what it is to feel, breath, be. There's too much, too quick, too often to grasp an individual experience. Until, that is, a frame is made. A cut between two moments. An extracted point of experience.

Robert Morris, as described in the previous chapter, was an American artist whose work encompassed a wide range of disciplines from contemporary dance and performance art to starkly minimalist sculpture. He worked in New York and found fame in the early sixties. His work often concerned itself with what is referred to as *the mind/body problem,* investigations into ideas of body consciousness and our interactions with the physical world. I wish to talk of only two pieces however, both sculptural and both made around 1961, *Passageway* and *Box for Standing*.

Passageway consists of a plywood-lined corridor fifty feet in length curving and tapering to a point. It is lit by a single bare light bulb. The viewer or in this case the participant enters and progresses forward. The walls encroach, the space constricts, until progress is halted. Now the body is caught between these two walls. The pressure perceived is pressure exerted by the body itself. To push forward is to push against oneself. Limits are met and realised. We are forced to knowledge of our physical form and our spatial existence. We are allowed to experience our bodies through a process of comparison with this outside or other structure.

With *Box for Standing* Morris again employs the idea of a framed body. Box for standing is a more simple manifestation of the concepts that lie in *Passageway*. A wooden box built to the artist's dimensions, the artist standing inside. The box has no substance without the body. This is not an object to be apprehended alone or examined formally. This is a box for standing. A frame to extract the body from and border it from the outside world. A structure in which and through which a concept of physical existence can be gained and appreciated.

I believe that these works by Morris work more on a conceptual level than they do in reality. Indeed *Box for Standing*, to my knowledge, was a prop in a performance piece, performed by the artist and the photographs taken standing as evidence of the happening, the audience not being permitted. I believe it may be too difficult to separate ourselves from a metaphorical reading of these pieces stemming from social and cultural conditioning. However they are useful in the discourse that we are involved with. They may be seen as heavy handed acts of framing, possibly too literal, but the intent is there. The intention being to break the continuum, to separate the body from its everyday thought processes, perceptions and environment; to give the body physical borders with which to interact and contact and create a comparative relationship between the body and the outside forms.

We as bodies are in constant perceptive mode. We feel our weight when we sit. We feel the impact through our feet when we walk. We feel the temperatures and movement. Yet these perceptions are numbed into our subconscious by the very fact that they are constant. We need to create gaps in this constant nature of being and perceiving to gain an understanding of how it is to be.

An instance;

> When you enter a room in which somebody sleeps. The air muted and the light charcoal. Every movement amplified to a scream. The nervous energy. Do not disturb. Empathy. One body to another. One body blindly unconscious. The other seeing for two.

Maurice Merleau-Ponty in his text *The Visible and the Invisible* states;

> *What consciousness does not see it does not see for reasons of principle; it is because it is consciousness that it does not see. What it does not see is what in it prepares the vision of the rest (as the retina is blind at the point where the fibres that will permit the vision spread out into it).*
> *To touch oneself, to see oneself...is not to apprehend oneself as an object, it is to be open to oneself, destined to oneself.....The feeling that one feels, the seeing that one sees, is not a thought of seeing or of feeling, but vision, feeling, mute experience of a mute meaning.*

(Mearleau-Ponty,1968, p 134)

Here Merleau-Ponty addresses two distinct issues. Firstly the idea of the phenomenology of perception for which he is best known. This idea examines the act of perception itself. To perceive is to perceive perception itself. “The feeling that one feels, the seeing that one sees”. To feel is to feel yourself feeling, to see is to see yourself seeing.

For example; you view a chair (the choice of a chair maybe a confusing one from the outset and a choice that would, I am sure, aggravate Merleau-Ponty, the chair being already infiltrated by notions of the body, but let us not dwell here). You engage in the act of looking, the perception of seeing this object. If you could imagine taking a step to one side leaving your body/self behind and view this occurrence as a bystander. Comprehend what is happening and see yourself seeing.

An instance;

> I stopped, queued, waiting for my turn to enter the roundabout. Waited. I was going somewhere and knew that I will be again soon, but for this moment I am stationary. I do not recall driving the last three miles. It is a road that I know well and seems not to require full attention to navigate. Or maybe attention is operating but mindful thought supersedes it.
> But now I do not even recall what was in my mind for my attention is fixed on the side of this junction. A no man's land, not to be inhabited without the safe metal and glass cocoons we use for mobility. But even if we do navigate these temporal spaces we pay them little attention. They are mere conduits facilitating our progress from a to b. But within this particular moment my attention was held. Directed from my seated position to the tarmaced ground outside and toward one particular detail. A stone, pebble maybe, but more correctly a piece of grit. It encapsulates insignificance and I am certain has never been 'looked' at before. But now I am gazing at it. And an expansion occurs. Its history projects from its once overlooked place. It was part of something bigger. It made up part of a ton, a council lorry load; it was part of some sort of materials depot; It was part of the earth; a mountain maybe. From its current position its history expands in an ever increasing spiralling. And now I look at it. And now I am aware of my history in relation. Everything up until this point has brought me to this point. Everything defines me, and this piece of roadside grit, in turn, defines me. And now I am attentive of exactly my position, exactly my point in space and time. A three-stage process of attention toward the other, attention toward a dialectical

> relation with the other and an attention toward the self. And then we must move on. Mirror, indicate, manoeuvre.

Vision is possession. Possession not of the object viewed but a possession of vision itself. Vision is a composite factor in the realisation of being. When apprehending an object and allowing an awareness of the perceptual mind, one glimpses or can glimpse *being* itself. The object viewed, or a consciousness of this perceptive process can cause a gap, can become a framed moment. To frame a moment is to allow a possession of knowledge of that moment. Whether it be considering a photographic work of the surrealist period or some minimalist prop, whether it be engaging in artistic practice or whether this framing comes from those little happenings in life where you are permitted to hold an unconfused experience, this framing is an extraction, a gap in the blindness of the continuum. However this extraction occurs, what is held in the moment is a knowledge of being and a confirmation of presence.

Chapter 2 Dissecting the frame.

2.1 Introduction to Chapter 2

The framed moment of aesthetic experience and awareness: is it beyond or before language? In-admissible, impenetrable? Certainly a comprehensive account detailing all facets is beyond this current research project. And I am not attempting an explanation. Social conditioning, environmental context, personal beliefs, of course, are but some of the conditions that make a general detailing of the functioning of aesthetic experience inadvisable if not impossible.

However we have established how artists, in practical terms, have taken viewer's perceptual experience as subject within their artwork. We have looked at the aesthetic experience in terms of a framing mechanism from which an awareness of the perceptual self maybe gained. Can we now, using particular examples of practical work as points of departure, investigate this phenomenon further?

I will chart various trajectories through our frame, our experiential moment. These investigations may not offer a comprehensive account, a full detailing of aesthetic experience, but through the

shape of the progression of enquiry, the intersections of theoretical discourse and various practical interventions we may be able to locate our subject's fundamental core.

I will begin by outlining how the act of visual perception is highly personalised to the individual. I will discuss how perception is formed through a calibration of information supplied by varying sensory modes, this calibration, this amalgamation of sensory input forming a common sense or the perceptual self.

I will detail ideas surrounding brain plasticity. The very make-up of our brains is now seen to be not an inherently complete, stable entity but a dynamic, ever changing and adaptive construct. Our brains are where we process all sensory input and where perception is formed. Due to the dynamic and adaptive nature of our brains this 'processing unit' is particular to the individual and thus the formation of perception can be seen to be personalised construct.

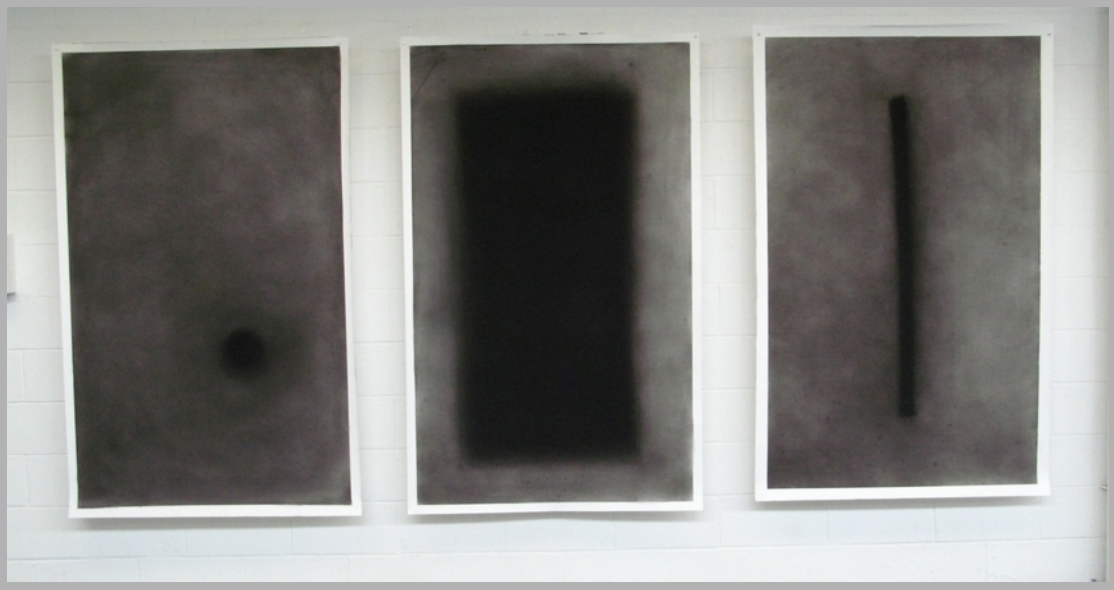
The ideas surrounding proprioception and J.J Gibson's theory of affordance begin to approach the notions of embodied cognition that will form the basis of the next chapter, but firstly I wish to address them on their own terms and detail how they might be seen to be constituent factors in aesthetic experience. Their inclusion here sees a shift away from our approach to aesthetic experience with regards extereoceptive sense perceptions such as vision and moves towards ideas of empathy toward the art object and a co-implication within aesthetic experience between the viewer and the viewed.

I will reference Wittgenstein's theory of 'directed discontent' and the notion of '*Einfuhlung*' or 'feeling into' the art piece first attributed to German philosopher Robert Vischer, but for our purposes I will cite Julliet Koss's reading outlined in her article "On the limits of Empathy".

Directed discontent refers to the act of making and the interrelation between maker and object. *Einfuhlung* refers to an empathetic response toward an object put forward for aesthetic appraisal. I wish to establish how, within the experience of the art object, we empathise with the physicality of the piece itself but in conjunction with this we form an empathetic response with regards its manufacture. Both these ideas reinforce the notion of co-implication or interrelation between viewer and viewed. Due to this interdependence I will again suggest that the viewer's perceptual self is a fundamental function within the aesthetic experience of the art object.

"Humm"

Three drawings, 6 foot by 3 foot, hang in series. All in grey/ black charcoal. The first involves a fist-sized black dot located below and to the right of centre. The second consists of a large



rectangular shape, deep black. The third, a thick vertical line just off centre and not quite straight.
It begins with drawing. Drawing allows for an intuitive process. One not constrained or interrupted by the logistics and practicalities of sculpture. Materials are easily sourced and utilised, the action is immediate.
Maybe intuition is too grand a claim. I begin with a knowledge of what drawing is, what I 'like' to look at and what I hope to achieve. I do not proceed blindly making marks. I wish to emulate, re-create, bring form to thought, construct a place where thought can rest.
It is within the process that intuition comes forth. Corrections, alterations, progressions toward adequacy.
Maybe the blank page is the biggest mistake. Everything from there is correction.
The question of scale is important. I want these surfaces to be something to be looked into, looked through, looked with. Human in scale, for they should allow an immersion. Not imagined or projected but actual, immediate space. Are these forms solid or voids? Do they stand proud of the background surface or create a break through it? Tunnelling, punctured, sliced. These are the questions I want to ask of the viewing. An active viewing, an engaged viewing.

The drawn line was too harsh, too apparent. It claimed its place on the picture surface and stayed there obstinately and redundant. There needed to be a vagueness, a gradual progression from form to background surface and back again. This would allow for the ambiguity sought within the viewing. Blurred lines, indistinct edges. Now something starts to excite the vision. Your eyes skip from background to form, to shape or is that into shape? Something happens within this restless view. Moving from one element to the other, focus shifts and an expansion occurs. It expands, this shape expands. Looking from background to form the shape expands.

Now within the time of the piece a rhythm develops. Expansion, contraction. There is a trembling, a vibration, a hum.

A hum? The drawing is humming? No this object is not capable of producing noise. It is a drawing, charcoal on paper, stable. The hum comes from within me, within my cognitive self. I am relating one sense with another. Two lines intersect. Two lines intersect and locate, position me.

This perception may have been my own construct. It may have been that the plastic nature of my brain led me to recall the process of manufacture when viewing the finished article. The process being one of rubbing the charcoal into the paper with my fingers and hands creating tactile sensation and also producing a constant reverberating noise. But how could I relate this perception to others? How can I, avoiding suggestion, inquire as to whether or not the qualities I have witnessed in the drawing, these cross modal sensations, are experienced by others? Maybe this inquiry is not important. Maybe the clue has been given to me within my own experience. If the object of investigation is the location of self within aesthetic experience, through the manufacture and examination of these drawings, I have witnessed how a cross modal sensory experience can bring about an awareness of self. An intersection within the cognitive self, locates the self. Two points must be created.

I have the drawings. I have the visual. They require their counterpart. I must create the hum.

How does one create a hum? It is probably reasonable and sensible to utilise noise-making equipment, speakers, amps and the like. But I am an object-maker. It should be possible to manufacture a humming machine.

Stretch a skin and cause it to vibrate. 'Twang' a rubber band but make it low, reverberating, almost sub audible. If drawing is a series of corrections maybe sculpture is a series of compromises. Scale being the first to be adjusted to facilitate the stretching. The overall form being but a direct cause and result of the function.

This ‘Humming’ machine eventually consisted of a sheet of neoprene rubber, 4 foot by 2 foot, stretched by, and over, a tubular steel frame. In the top corner of the frame an electric motor was mounted that ran a small offset cam. The cam, when spinning, and due to its inherent imbalance caused a vibration that progressed through the steel frame and into the rubber sheet.

The process eventuated in a hum, of sorts. A whispered, low, murmuring. A causal relation between the hum and the drawing may not have been witnessed but a relation was established none the less. Be it through mere context, positioning, at least a formal relation between materials used. And where did this relation occur? It was not within the

two objects. They do not touch. One does not bear witness to the other. They are inanimate, undynamic, ignorant toward the others existence. The relation occurs within the viewer, within the viewing. They are greater than the sum of their parts and that 'greatness' lies within, and is realised through, the cognitive process of the viewing.

2.2 Vision, a personal construct.

At the core of this next section is the location of the viewer's individual perceptual experience at the centre of the aesthetic experience. I will begin by addressing certain aspects of visual perception. Visual Art is the term ascribed to the fine arts and maybe to a certain extent some of the applied and decorative arts. It is certainly the term used to categorise the work I will discuss in this research project. The term 'visual art' seems to offer a concise, contained, description of artwork that is apprehended and processed through a single-sense modality. However, the very nature of visual perception may be seen to contradict this singularity. Vision is particular amongst all the other extereoceptive sense perceptions for its reliance on calibrations from other perceptual stimuli. For example, our visual perception and understanding of distance is gained and learned through experiencing movement through space and our ability to touch objects at a distance, thus gaining knowledge of that distance. Similarly, auditory sense-perceptions can be seen to corroborate visual perceptions when experiencing distances and spatial location.

Irish scientist William Molyneux proposed a question in 1688 that has caused debate and speculation ever since. For the purposes of this section of the research project, Molyneux's question offers a philosophical underpinning and eventuates in perhaps some analytical evidence regarding the reliance of visual perception on the corroboration of other sense modalities. Molyneux asks whether a man that had been born blind but could distinguish between a sphere and a cube by touch, could, if enabled to see, distinguish between the two objects by sight alone. As I have said, this question has caused and been the subject of much speculation and philosophical discourse ever

since it was put forward but it has not been until recently that the question could be approached empirically.

Recent developments in medicine have allowed patients with congenital blindness to be treated and in some cases the patients have regained full sight. Studies involving some of these patients have shown that the probable answer to Molyneux's question is negative. Patients that could distinguish and name objects through a tactile perception were not able to make the same distinction by sight alone. This points toward the fact that our understanding of the perceptual world comes from and is a product of an amalgamation of all sensory stimuli and that vision, in particular, is reliant on and is calibrated through other sense modalities.

Daniel Kish, the blind man able to cycle a bike through echo-location, offers a prime example of what is known as Brain Plasticity. 'Brain plasticity' is a term used to describe a phenomenon that has been discovered due to recent advances in medical technology. Techniques such as Computer Tomography, Positron Emission Tomography and Magnetic Resonance Imaging have allowed for ever-increasing study of brain-function. Functional Magnetic Resonance Imaging, in particular, is now able to monitor neural activity in real time.

It has been shown that our brains contain up to 100 billion nerve cells, or neurons, and each neuron receives input from other neurons through up to 100,000 fibres called dendrites whilst delivering output to one or more other neuron through a single axon. However, we are not born with a full complement of neurons, dendrites and axons. Neurons are in a constant process of development and the connectivity between the neurons continues to change under the influence of experience. John Onians in his book "Neuroarthistory" describes this process;

> *As each neuron or network of neurons is more or less frequently stimulated, the dendrites and axons are liable either to grow or to die back, with new*

> *connections being built and existing ones abandoned, while at the same time, the character of the chemical communication between them is equally susceptible to change. The organ that we rely on for every one of our bodily actions, feelings and thoughts is liable to have its structure affected by all such activities and indeed by all our passive sensory experiences, whether conscious or unconscious.* (Onians 2007, p.4)

The importance of an understanding of 'brain plasticity' to our current discourse lies in the fact that the eyes do not see but the *brain* does. The eyes are simply the entry-point for visual stimuli. The eyes process this input and direct a series of electrical impulses through the optic nerve to the brain. It is within the brain, this dynamic and highly individualised organ, that perceptions are formed. The stimuli may remain the same for us all but the tool through which we gain an understanding of such stimuli is individual and particular to ourselves.

If we accept that vision is indeed a personal construct due to the highly individualised processing systems that are our brains, and that a visual perception is reliant on a calibration through other sense modalities, we can begin to locate the individual perceptual experience at the centre of the aesthetic experience of the art object. In apprehending the objectual other, we are involving ourselves in a process that is so highly particular to our physical make up and cognitive process we gain a moment of self-awareness and realisation.

My reading into theories surrounding brain plasticity led me to a book by Norman Doidge entitled "The Brain That Changes Itself". The book's main topic is brain plasticity, and in establishing how thinking can affect physical biological change Doidge cites an experiment that he himself declares is; "as hard to believe as it is simple." (Doidge, 2007, p. 204).

Essentially the experiment consisted of two groups, one that did physical exercise and the other that merely imagined doing physical exercise. The first group exercised a finger muscle, for a set period of time, everyday over a four week period. The second group imagined exercising the same finger,

for the same amount of time, every day, over a four week period.

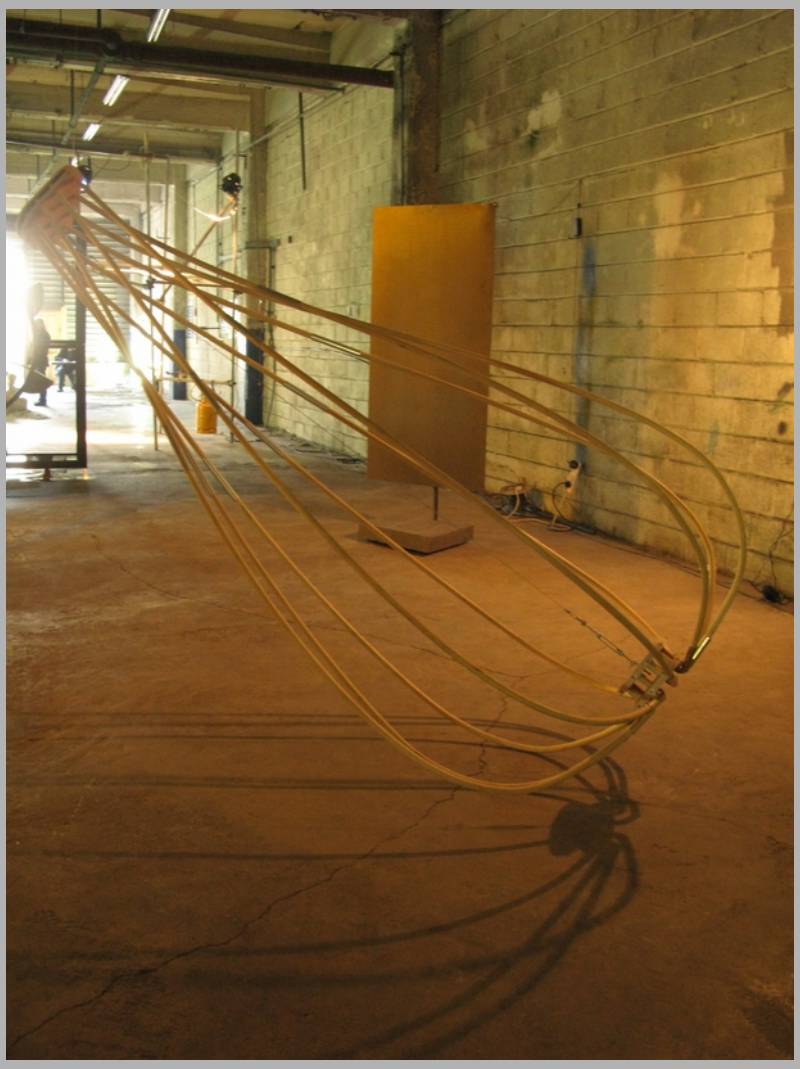
After the four week period the group that had exercised their finger muscle had increased their muscular strength by 30 per cent. The group that had merely imagined exercising were seen to have increased their muscular strength by 22 per cent.

If the brain, acting within and as part of the physical body, has the ability to affect physical change by thought alone, what then if there was a visual stimulus offered? If the participants of the experiment outlined above whilst thinking of exercising could view some sort of visual cue or equivalence, would the outcome be even more emphatic? Would there be greater physical change witnessed? And, more importantly to our present discourse, the question arose as to whether the 'viewing' of an art object could instigate physical change within the viewer?
Now as I have said before, I am not a scientist and I understand that such experimentation is only valid when strict controls are in place, but the reading of this experiment offered me a new course of enquiry and also offered a conceptual basis for a new practical work.

The Gallows piece.

During the exhibition of *Humm*, viewers' reaction to the 'humm' centred around, and related to biological processes; heart palpitations, flutterings, nervous shivering and throbbing headaches. It occurred to me that there was something inherently sculptural about these observations; biological processes stemming from organs, muscles and canals, objects within our physical make up. Could it be that if a calibration between the senses was sought then *Humm*'s partner was a physical form relating to the production of these biological occurrences? A vessel of sorts. Capable of pumping or facilitating a flow, effecting a reverberation.

The piece consisted of a wooden frame measuring 8 feet long and 4 feet in diameter at the base. A bulbous form, wide and round at the base, narrowing to almost oval at the top. The lengths of timber used are round and steam-bent to facilitate the sloping, curved, form



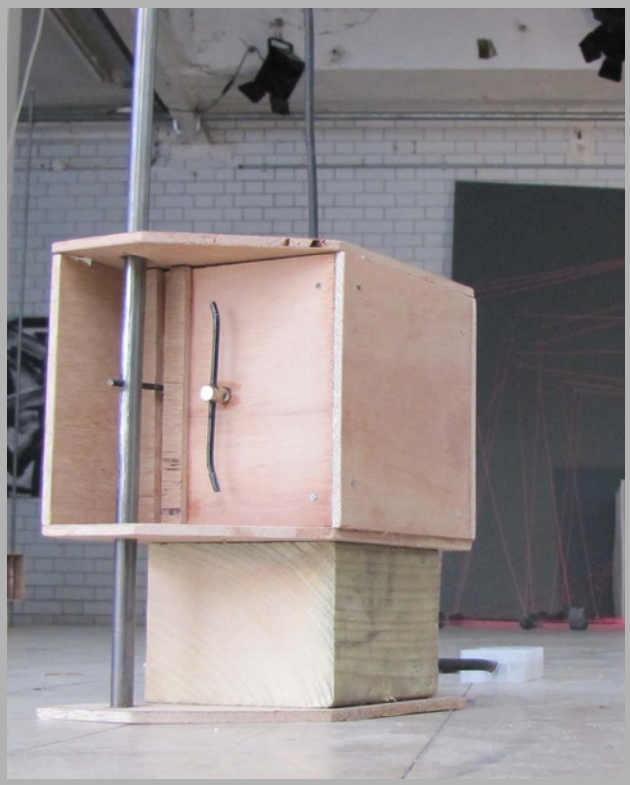
The intention behind the piece was to create a form that held a likeness or an imagined responsibility for the biological happenings and the inner workings of our physical beings as described by those that encountered *Humm*. That part of your inner ear where blood flows is constricted creating that 'woosh', a heart-throb maybe, a pulse.The piece was exhibited with a new version of the 'Humming' machine. In an attempt to make the auditory aspect more dominant over the physical structure I hung a sheet of steel off a free-standing frame, 6 feet by three feet, and attached the same motor and offset cam mechanism to the steel sheet. The mechanism caused a vibration through the steel sheet causing a tinnier but more efficient and audible 'Humm'.

Again the conceptual basis of this two-part piece was to investigate whether a calibration between the senses could be evidenced or graphically depicted, realised within the viewing, with the creation of forms and devices that operated with differing sensory outputs. The humm operating in the auditory or tactile realm, to be listened to or felt, whilst the wooden structure offering a visual, physical structure to be viewed and experienced spatially through movement. Could a causal relation be viewed, witnessed or felt? Did one form corroborate the output of the other?

As with the series of drawings and the original *Humm*, a formal relation was evident through basic proximity and context. But the two elements still operated separately and in a way distracted from a unified calibration.

I began to consider how this type of calibration between the senses occurs on a more everyday basis. The evidence offered by the world of science, like that outlined in the account of the Molyneux question would suggest that our perceptual being is in a constant process of calibration between the senses in order to gain a full understanding of our place in the physical environment.
At around this time I came across a documentary that told the story of a man, blind since birth who could ride a bike. The film showed this man cycling through a park, not in an entirely straight line but holding to the path none the less. The man, Daniel Kish, used echo-location to navigate his course. By 'clicking' his tongue and listening to the 'echo' he could effectively sense obstacles and keep to the path. An extraordinary example of the capabilities of the human brain.
Now this may stand as an extreme example, but surely this type of auditory spatial awareness occurs within our perceptual being and is accessible to us all.
So it was a blind man cycling a bike that offered a clue and instigated the next piece of practical work.

"Murmuration"



"Murmuration" is a sculpture consisting of twelve mechanical hammers. Each was made up of a small timber box housing a motor that lifted and, at a certain point in the rotation, dropped a steel rod which would strike the floor. Each 'hammer' operated separately and to its own rhythm. The hammers were placed at regular intervals throughout the gallery space. The intention was that the hammers would cause an audible ripple through the space and because of their placement describe the space sonically.

The difficulty with the two versions of "Humm" was that they consisted of two distinct elements that were attempting to instigate or solicit a calibrated sensory perception stemming from the experience of two distinct sensory outputs. But because two structural elements were offered they were apprehended and viewed as separate entities.
The intention behind "murmuration" was to offer one structural element, the strike of the hammers, that would describe an existing form i.e. the gallery space and thus lead to an awareness/ knowledge of the viewer's physical position.

“Contract”

Five acrylic rods are supported vertically, parallel to a copper shaft. The top of each ‘rod’ is fixed to a steel sleeve. At the base of the structure a small motor is attached to a push-rod which in turn is attached to the steel sleeve. As the motor rotates the push-rod pulls and pushes the sleeve that runs along the vertical shaft. This action causes the acrylic rods to bend and straighten, thus causing the form to appear to contract and relax.

If motion is incorporated into the art object it establishes the piece, anchors it, to the present. Its happening is now and to be witnessed at that point in time. It is not a snapshot of a previous existence or process. Thus the viewer is also situated within the present.

If it is a repetitive movement, from one point to another and back again then it functions as a time frame, demarcating a period of attention and so defining the witness's presence within that moment.

Contraction had this built-in element of time. The intention behind the piece was to simulate a type of contraction that would relate to a muscle contraction or flexing. The piece’s vertical nature seemed to suggest a type of abstracted figuration and the movement became a type of breathing: inhalation; exhalation.

2.3 Proprioception.

French philosopher Henri Bergson, in attempting to define the difference between an image and the perception of that image describes how the image - and Bergson uses the term 'image' in relation to all objects and environments as well as the perceiving body itself - is influenced and realised through not just its “external crust”, the immediate perceptible form, but from its relation to all other images. He suggests the object can only be realised through a process of location amongst all other objects. The 'image' cannot be seen in isolation for this would leave only the 'representation' of the image. Our own image is realised only through a relation to other images. We are not granted a contained present representation of our form but are in a constant procession from our past to our future. The objects and environments which we are presented with and inhabit only obtain meaning when they are assessed in relation to where we have come from and our intentions toward them. He

states;

> *Now, here is the image which I call a material object; I have the representation of it. How comes it that it does not appear to be in itself that which it is for me? It is because, being bound up with all other images, it is continued in those which follow it, just as it prolonged those which preceded it. To transform its existence into representation, it would be enough to suppress what follows it, what precedes it, and also what fills it, and to retain only its external crust, its superficial skin. That which distinguishes it as a present image, as an objective reality, from a represented image is the necessity which obliges it to act through every one of its points upon all the points of all other images, to transmit the whole of what it receives, to oppose to every action an equal and contrary reaction, to be, in short, merely a road by which pass, in every direction, the modifications propagated through the immensity of the universe.* (Bergson, 2004, p. 27)

An aesthetic response is gained through a cognitive process that is both embodied in the physical being of the perceiver and embedded in the objects and environments that are to be perceived. This approach to aesthetic experience is congruent with developments in modern cognitive science. Developments that have seen a shift away from the more traditional view of a representationalist model of cognition to a model that sees cognition embodied within our biological/ physical being and also embedded within our environment and the objects we are presented with.

I wish to address two particular ideas that I believe permit a clearer view of, and enable a better understanding of, certain aspects of embodiment and embedded cognition.

The first is the potential of proprioception, the body's perception of its own physical position, to be seen as an aesthetic sense; the second being J.J Gibson's theory of 'affordance'. Both ideas serve to illustrate how cognition can be seen as embodied and point toward the notion that an aesthetic response is in fact a self- conscious response.

To begin with I will use the Puryear sculpture, described in the previous section, as a subject through which both terms can be explored, before moving on to outline developments in cognitive science and discuss the notion of *Einfuhlung* and the needs of self- consciousness in more general terms.

Proprioception is the sense by which we acquire information about the positions and movements of our own bodies via receptors in the joints, tendons, ligaments muscles and skin. It is the sense which informs you of your current physical position. How then can this sense be seen as an aesthetic sense?

Barbara Montero approaches this subject in relation to the appreciation of dance. She claims:

> *just as one can deem a painting beautiful based on one's visual experience of the painting, one can deem a certain movement beautiful based on one's proprioceptive experience of the movement.* (Montero, 2006, p. 231)

Dancers, it is claimed, evaluate the aesthetic qualities of their movements by *feeling*, that is proprioceiving, what is right. Now other senses will be involved in the evaluation of a particular movement, vision of course being an important factor, but as Montero points out;

> *While dancers use mirrors as tools and often make self-corrections based on how a movement looks, looking at oneself in the mirror is often not the best guide to self-correction (to say nothing of the futility of looking at one's body directly).* Montero (2006, p 231)

The slightest glance could of course destroy the flow of a particular progression or pose.
So dancers rely on this inner sense, this proprioceptive sense to evaluate their movements. Aesthetic experience is traditionally thought of as the experience of sensuous objects external to our own bodies. Proprioception as we have seen is very much an internal sense. How can this sense be seen as aesthetic in relation to external objects or other bodies? In order to begin to answer this

question, Montero turns to some discoveries made possible by recent discoveries in Neuroscience. She offers us a brief outline of the basic characteristics of mirror neurons. I will return to the subject in greater depth later in the research project.

In a series of studies dating from the late ’eighties through the ’nineties, two classes of visuomotor neurons were found firstly in the pre-motor cortex of Macaque monkeys and later confirmed to be present in humans. These neurons were labelled canonical neurons and mirror neurons. Mirror neurons are *bimodal* neurons, equipped with motor and visual properties. The fundamental characteristic of these neurons are:

> *That they can fire during tasks involving the execution of actions as well as tasks involving pure observation.* (Gabarini, 2004)

So when we perform a task, a certain set of neurons fire. When we observe another body performing the task, the same set of neurons will fire.

With this understanding let us go back to our dancer. We have seen how a dancer employs their proprioceptive sense in evaluating their own movement. What then of observing a dancer’s movements? The evidence of mirror neurons would suggest that even when merely observing another body's movements, through a purely visual stimulation, the cognitive process of understanding such movement and in turn evaluating the movement aesthetically involves a neural activation, as if one’s own body was performing the movement. It is as if we are proprioceiving the dancer’s movements. I know this is a contradiction in terms; however, I would contend that to understand any external object or physical action one must first understand what it is to be an object and to perform actions. It is within this inner awareness, this proprioceptive sense that another body’s actions may resonate or be mimicked in order to gain an understanding.

Now what about sculpture, traditionally a static medium? Figurative sculpture is of course the obvious place to go to ascertain whether or not proprioception may be seen as an aesthetic sense. Take for example Michaelangelo's slave series. Even though these are not kinetic objects, through their depiction of physicality, the muscular tension portrayed necessitates a proprioceptive response. The strain, contractions are observed in the form, but then must be compared, contrasted and imagined through an awareness of our own physical being.

Even though a sculpture like 'Self' by Puryear may not be such an explicit depiction of physicality as the slave series, it maintains figurative characteristics. Scale, vertically, balance are all there to be empathetically appraised. But through its simplicity could it offer another perspective on how proprioception can be seen to be involved in an aesthetic response? Not this time as an aesthetic sense but more an object for aesthetic apprehension?

Let us take a purely formal aesthetic approach, largely based on Paul Crowther's theory put forward in "Art and Embodiment"(1993).

Crowther explains that an aesthetic response on a purely formal level may arise from the structural appearance of the object, with a disregard or a disinterest towards the essence or fact of the object as a whole. This approach focuses on the interrelations of formal aspects of the object on an infrastructural level.

Take for example, as Merleau-Ponty did, the landscape by Cezanne entitled Mount St. Victoire. The painting, or the fact of it being a painting, allows us to apprehend the underlying foundation of that mountain, the contours, the colours, without necessarily having to address the fact of it being a mountain. *But* then this piece consists of more than one distinguishable element: there is the mountain and there is the horizon, there is a foreground. Does it not follow that the interrelations

between one element and another, the interrelation of the essences or the fact of the elements constitute a formal aesthetic response? This would be a formal aesthetic response founded upon the interrelation of elements on a superstructural level.

Then we must ask where do we demarcate these superstructural elements? We can surely regard the formal interrelation of the art piece and its environment, the space in which the painting is hung? And, in the case of sculpture, the frame which supposedly demarcates the painted environment is exploded to include the environment in its entirety. So the space itself becomes a superstructural element, all objects within the space become superstructural elements the interrelations of which must be addressed on a formal level. And as viewers are we not another superstructure within the environment of the art piece? Can we possibly approach our interrelation on a formal level?

It is a fundamental point in Merleau-Ponty's phenomenology that to exist as a perceiving being one must realise that one is also an object of perception.

> *The visible can .... fill and occupy me only because I who see it do not see it from the midst of nothingness, but from the midst of itself; I the seer am also visible. What makes the weight, the thickness, the flesh of each colour, of each sound, of each tactile texture, of the present, and of the world, is the fact that he who grasps them feels himself emerge from them by a sort of coiling up or redoubling, fundamentally homogeneous with them, he feels that he is sensible himself coming into himself.* (Merleau-Ponty, 1968, pp. 113-114)

So in relation to an experience of sculpture there must be a realisation that our own physical form exists within the sculptural environment or context. This self-awareness exists as a formal constituent part on a superstructural level. Infrastructurally, we as objects are made up of muscles, bones, tendons, skin. Proprioception is informed by these elements and in turn, I would suggest, can be seen as an constituent element of a formal aesthetic response of the sculptural object.

‘Superstructure’.

How are these objects we hang on a wall? How do we approach them? We approach them with a foresight and an assumption that they are to be looked into or maybe onto. But can we retrieve them back to objecthood, re-establish them into real space and in turn instigate a dialectical relation between object and viewer?
A small ornate frame, flocked. The flocking covering both the picture surface and the frame itself. An intention to objectify the frame/picture.

“ Defunct”

A timber box with a ‘peaked’ roof. On the base one castor is mounted off centre propping the piece up at an angle. An old fashioned handle mounted to one side of the structure. How is this object to be used? How can we interact with it? What action does it solicit?

2.4 Affordance

J J Gibson's theory of affordance, was first proposed in his book “*The Ecological Approach to Visual Perception*”.

> *The affordances of the environment are what it offers the animal, what it provides or furnishes for either good or ill. It implies the complementarity of the animal and the environment.* (Gibson, 1979, p.127)

Affordances are physical solicitations that the environment or objects within the environment offer

the animal: a stairway affords climbing, a door knob affords grasping, an apple affords eating. Gibson's definition outlines how affordance is not defined by the environment or object, nor is it defined by the animal or viewer acting in that environment. Affordance lies in the relational aspect of animal and environment, viewer and object; a co-implication to form an experiential unit; an experiential unit of perception.

On a basic level, Gibson's theory of affordance refers to the potential for physical interaction the environment or objects within the environment afford the organism. On this level we can certainly approach some particular types of artwork. I'm thinking here of work such as the early minimalist work of Robert Morris who in examples such as the Green Gallery show created objects that in turn sculpted or displaced the space of the gallery and in so doing solicited or afforded the viewer a particular interaction with the space.

Examples such as this directly afford a particular physical interaction. An understanding of these pieces comes through a physical or potential physical interaction. What then of a piece like our Puryear sculpture? I would suggest that on a simple level this piece affords particular interactions. Maybe gallery rules do not permit any touching but the sloping form does attract a tactile response. Even if this does not eventuate, the potential remains. We may be required to take a particular viewpoint or distance from the piece in order to apprehend it fully; again, therein lies an affordance. However I believe that there may be another level from which we may approach this idea of affordance within the experience of the sculptural object.

2.5 Directed Discontent.

In our everyday lives we have an instinctual ability to determine correct from in-correct, better from worse. We can operate, in certain circumstances, without any deliberation or analytical

consideration. Erik Rietvold in his essay, "*The normative aspect of embodied cognition in unreflective skilful action"* uses the example of how we can access and assume the correct distance and position relative to another person in an elevator without having to consider all the functioning and environmental factors to describe this basic normativity. In describing a situated normativity, in particular that of a skilled caftsman he refers to *directed discontent* a term coined by Ludwig Wittgenstein in his Lectures on Aesthetic series . He uses the example of craftsmen such as tailors and architects to explain the term. He explains directed discontent as the way a tailor can work on a piece of cloth, correcting and altering without reflection until it is right. How an architect instinctively knows that a doorway is too large or in the wrong place, how he can make the adjustments, again without reflection or over-analysis until reaching an adequate result.

> *Directed discontent describes an internal relation between, on the one hand, the behaviour and lived experience of a craftsman and, on the other, the objection which he is working.*
> (Rietvold, 2008, p.983)

Again, like affordance, directed discontent lies in the interrelation, a co-implication between the maker and the object. Indeed directed discontent is a progression of reactions to the affordances solicited between the maker and the object being made.

The Puryear sculpture "Self" is very much handmade. Even though it is highly finished it does not disguise the process of its fabrication. This thing has been worked, sculpted, sanded and polished. The progression of affordances is evident, and in the same way that we can come to a sort of second-hand appreciation of the dancers' movements, I suggest that within "Self" we are permitted to experience the affordances that lay within the interrelation of the maker and his object.

An aspect of aesthetic response can be seen to be both founded on our understanding of an artwork's appearance in relation to the artist's intentions, while at the same time being founded on our understanding of the artwork's appearance in relation to our concept of how it should appear. *Self* may not mean as much to others as it does to me, but I do think that it harbours a correctness

that cannot be denied.

Affordance and proprioception, if taken on the terms I have outlined above, imply a cognition that is both embodied and also embedded within our environment and the objects we may perceive. Cognition is a functioning within self-consciousness. Aesthetic response can therefore be seen to be, in a particular way, a self-conscious response.

2.6 Einfuhlung

The notion of empathy toward an artwork being a constituent part of aesthetic response is not a new one. A physiological response to portrayals of emotions in artworks may be seen to be empathetic in the more widely recognised use of the term. But what of a more physical empathetic response?

The concept of *Einfuhlung*- literally, the activity of "feeling into" was developed, in relation to aesthetics, in late nineteenth-century Germany. The term is generally attributed to the philosopher Robert Vischer and influenced thinking in areas from philosophical aesthetics, perceptual psychology, optics, art and architectural history.

In her essay 'On the Limits of Empathy', Juliet Koss offers a comprehensive overview of the influence of the notion of *Einfuhlung* and traces its roots as far back as the writings of Aristotle. The roll call of writers and thinkers that Koss suggests have influenced and employed such notions in their work is extensive, including the likes of Gottfried Herder, (possibly the closest conceptually to the understanding promoted by Vischer), Schopenhauer, Rosseau and Nietzche. Nietzsche, Koss explains:

> *Neither considered empathy or sympathy in spatial terms nor discussed the aesthetic response as it literally occurred on the spectator's skin. Yet his description of this response as a merger of the self into the work of art that provoked a loss of speech and the dissolution of individual identity strongly*

> *resembles the aesthetic activity that was also described as* Einfuhlung. (Koss 2006, p.3)

But it is Vischer's writings and understanding of *Einfuhlung* that are most pertinent to our present discourse. Vischer wrote;

> *(the viewer) unconsciously projects its own bodily form- and with this the soul- into the form of the object. From this I derived the notion that I call* Einfuhlung. (Koss, 2006, p.3)

The inclusion of the soul in this definition allows for *Einfuhlung* to be seen as an emotional or psychological response involving ideas such as sympathy, pity and compassion. These may well be fundamental constituent factors of the object put forward for aesthetic appraisal, but I wish to concentrate on *Einfuhlung* in relation to a bodily empathetic response. This approach is congruent with much of Vischer's writings on the subject as he contended that vision itself was not in fact always central to the formulation of an aesthetic response. He states:

> *We can often observe in ourselves the curious fact that a visual stimulus is experienced not so much with our eyes as with a different sense in another part of our body.* (Koss, 2006, p.4)

Koss in an attempt to outline Vischer's thinking on this point uses the power of images that elicit a visceral response such as those depicting physically painful events. Vischer himself used bodily sensations such as shivers and goosebumps as examples of how the body itself manifests an aesthetic response to what may have been a purely visual stimulus. Koss explains that;

> *Along with the destabilisation of identity and psychic projection, such bodily sensations on the spectators skin produce a powerful self -awareness.* (Koss, 2006, p.4)

She continues to say that *Einfuhlung*;

> *articulated a loss of self that simultaneously reinforced a powerful physical sense of self hood. (Koss 2006,p.4)*

So these physical sensations arising from a chain of reactions in the aptly named sympathetic nervous system are seen to enforce a sense of self-awareness. The body, having projected toward and inhabited the form of the object of aesthetic appraisal, returns and reacts to the stimulation caused by the aesthetic response and thus inherits a sense of its own personal form.

Now it is true that not all aesthetic encounters cause such a response. Indeed such a response may be seen as a rare phenomenon. I would suggest that music is possibly the arena of aesthetic encounter in which such a response is most likely. However, Vischer outlines another aspect of aesthetic response that permits and enforces a sense of self-awareness, and this arises from our vision being binocular.

> *A horizontal line is pleasing because the eyes are positioned horizontally. A vertical line, by contrast, can be disturbing when perceived in isolation for it contradicts the binocular structure of the perceiving eyes and forces them to function in a more complicated way.* (Koss 2006, p.6)

Here Vischer is again alluding to the fact that vision, rather than acting in isolation, is in fact inextricably linked to the body. The apprehension of a simple vertical line, as opposed to a more 'pleasing' horizontal line, requires more from the spectator due to the physical orientation of the eyes and the fact that vision is binocular.

Another aspect of binocular vision is the need for the viewer to perform an act of synthesis. Binocular vision supplies the viewer with a doubled image that only becomes unified within the perceiving brain. It is this process that allows us to judge distances and assess scale. Scale is assessed through a relational dialogue between viewer and object. We understand the scale of an

object through a comparative process that is gained through our ability to situate our physical form in relation to the object. This ability stems from vision being binocular. So in assessing the size of an object we are in fact assessing the distance between our position and the object and thus in turn gain an awareness of our own size and spatial location. Again it is a process of 'empathising' into the object and then returning to our own bodily form with an enhanced sense of self-awareness. Heinrich Wolfflin was an art historian who was also an exponent of the notion of *Einfuhlung*. He believed that *Einfuhlung* could be most productively applied to interpretations of architectural works and like Vischer saw aesthetic response arising from a bodily reaction rather than a mere visual apprehension. In his early work, Prolegomena zu einer Psychologie der Architektur (Prolegomena to a Psychology of Architecture) Wolfflin speaks of asymmetry being:

> *experienced as a physical pain, as if a limb were missing or injured* (Koss, 2006, p.6)

In the same dissertation he offers, on a scribbled drawing, another example of how an empathetic response to form may be experienced. He compares two sketches; one of a Romanesque archway, the other a Gothic archway, and describes how:

> *the round arch is generally recognised as more cheerful to look at than the pointed arch. The former goes about its task quietly, content with its roundness, the latter embodies a will and effort in every line.* (Koss, 2006, p.6)

Here Wofflin is assigning an emotional response to a form arising from an empathetic physical response. The rounded arch is seen to be “content”, comfortable in its roundness whereas the pointed arch is straining and stretched.

I would suggest that there are two aspects at play within this example put forward by Wolfflin. One is the empathetic physical response 'felt' by the viewer. The strained lines of the depiction of the Gothic arch embody a “will and effort”. The viewer's involvement is one of recognising the

characteristics of the form and relating them to their own physical being. We understand the “will and the effort” because of how this stretched, strained line would require a will and an effort on our part if it were to be realise in our own form. The rounded arch is more “cheerful” and “content” as it relates more to our natural form.

Another aspect of how the scribbled depiction of these forms offered by Wolfflin may eventuate in an empathetic response stems from the very fact that they are scribbled depictions. These drawings are made by hands. Wolfflin himself was involved in a physical activity in order to realise these forms. The rounded arches were easily drafted. A single line was all that was necessary in order to complete the form. Whereas the pointed arches were laboured over. Corrections had to be made and are evident in the scratchy lines, some of which are incomplete. There is a “ will and an effort” that is obvious and can be particularly seen in relation to the more easily rendered or “cheerful” round arches. These factors are evident to the viewer who I would suggest empathises with the physical process and effort involved in the portrayal. So here the notion of *Einfuhlung* operates on two levels. The first is an empathetic response to what is portrayed in the art piece and the second being a response to the physical effort and process carried out by the artist in the fabrication of the piece. Both these factors point toward and imply an aesthetic response that involves a cognitive process that is both embodied and embedded in the objects put forward for appraisal. It may now be pertinent to look at the notion of embodied cognition in more depth and outline current thinking on the subject.

“Bead”

I watched an ant crossing a garden table. It was a black surface. Cheap Ikea. There was nothing on the table-top. No significant obstacles to my eye. But then the ant approached a bead of water. It was, I guessed a collection of the mornings dew, or do you call it condensation? Either way it had formed a perfect bead. Not spherical. Flattened at the top, turning down towards a more curved circumference. Still, stable and strong at this size. It was directly in the ant’s path. It approached. Felt, looked maybe? But did not seem to be able to project a course around the obstacle. For I imagined at the time that if we human types would have come to such an obstruction we may have easily made assumptions as to the object’s perimeter and 'known' what action and what motor-response to make. We would have moved around it. Our ant did not have this foresight. It moved, examined, felt its way around the object. Touching, feeling but not impacting on the bead. Every action in relation to the object was a correction of course and every correction lead to another action. Eventually, and here I use eventually to refer to a moment lasting but a pair of seconds, the ant was able to clear the obstacle and resume its course. Within that moment this ant seemed to embody an embodiment, and a consciousness embedded within the world. It moved its position in relation to the other to establish where or how it might move next. The 'other' , this bead, its form, its structure became intrinsically linked to this being’s progress. This being’s progress bore witness and established this 'other’s' position. Co-implicated, somehow dependent.

A plaster form shaped to resemble a large drop or bead of liquid. An intention to objectify stillness.

Chapter 3 Locating the self.

3.1 Embodied Cognition, an embedded Consciousness.

There has been a shift in Cognitive science. A shift away from the old world view of a representationalist model of cognition to a model that sees cognition embodied within our biological/physical being and also embedded within our environment and the objects that we are presented with.

An acceptance of embodied cognition or further an embedded cognition/consciousness in the environment or objects which surrounds us must start with a rejection of the traditional mainstream view that cognition stems from a system of representation. A system of representation that necessitates a catalogue or library of images, symbols and meanings by which we can cross reference all input, environments and objects so as to ascertain what action must be taken.
We must remember that we at our basic level are a unit for survival and environmental coping. A representational model of cognition or as Merleau-Ponty would call it, an "intellectualist" model could not possibly use a cross referencing system of images or features for each situation as there would be too many features, too many possible configurations to enable grasping a particular concept or deciding on a conclusive response.

In order to cope or at least survive in our situation a selection of the relevant features of the particular situation - and here I am including everything from sensory stimuli to the eventual motor-

response - must be assumed under one complete concept. An experiential unit.

To begin with, let us look at an experiment that, through its failings and shortcomings, outlines the problems and ineffectual nature of the representationalist/intellectualist model of cognition.
Andy Clarke in his book "Being There, Putting Brain, Body and World Together Again" concerns himself with robotics and the quest for artificial intelligence. He uses this discourse as a concurrent analogy of recent cognitive science. He begins, as he must, by confirming a rejection of the old world representationalist view of mainline cognitive science. He states:

> *We imagined mind as a kind of logical reasoning device coupled with a store of explicit data - a kind of combination logic machine and filing cabinet. In so doing we ignored the fact that minds evolved to make things happen. We ignored the fact that the biological mind is, first and foremost an organ for controlling the body.* (Clarke, 1998, p. 1)

Clarke takes as his primary example of how the representationalist quest for artificial intelligence failed a project known as CYC. (short for encyclopaedia). The project, begun in 1984, endeavoured to instil an approximation of common-sense understanding to a computer by encoding a vast store of explicit knowledge. A million items of 'knowledge' between 1984 and 1994 were encoded in the hope that the computer would "cross over" and "reach a point where it could directly read and assimilate written texts and hence self program the remainder of its knowledge base."
(Clarke, 1998 p. 1)

The aspirations for CYC. did not stop there. Clarke outlines how it was hoped that CYC would use "Analogical reasoning to deal sensibly with novel situations by finding partial parallels elsewhere in its vast knowledge base." (Clarke, 1998, p.1)

However, we are told that even with its vast data store CYC has not managed any sort of real world comprehension or problem-solving capabilities. It may be an impressive and probably important

store of data but it failed in its goals because, as Clarke states,"CYC lacks the most basic kinds of adaptive response to an environment." (Clarke, 1998, p.3)

Clarke continues by citing examples of research in robotics that have begun to build in very basic elements of adaptive environmental response: robots that can avoid obstacles, pick up drink cans, etc. He uses these examples, as I have said, as an analogy for our own cognitive condition. As with the CYC example above, this approach works, to an extent, in outlining the inherent differences between an encoded analytical machine and a real-world functioning biological organism developing understanding without representation.

Maurice Mearleau-Ponty:

> *An impression can never by itself be associated with another impression. Nor has it the power to arouse others. It does so only provided that it is already understood in the light of the past experience in which it co-existed with those which we are concerned to arouse.* (Mearleau-Ponty, 2002, p.20)

Here Mearleau-Ponty is stating, similarly to the failed CYC experiment, that an 'impression', representation or encoded piece of data cannot in and of itself fabricate connection and arouse other images/representations. A representation is passive. The activation of an image comes only from past experience where images/representations have co-existed and have been co-implicated. If this has occurred then, and only then, can an image arouse another and eventuate in an understanding. Now, it must be made clear that when we talk of referring representation to a past experience we do not imply a past experiential library or 'encyclopaedia'; these would again be passive and could be read as representationalist. It is the activity of experience which is recalled and it is within this activity that an amalgamation of images can occur.

How then do we maintain or develop understanding without the storing of representation? Hubert L.

Dreyfus, in his essay; “Mearleau Ponty and Recent Cognitive Science”, offers validation to Mearleau-Ponty's opposition to the view held by mainline cognitive science that the acquiring of intelligence and the developing of intelligent behaviour must be based on a representationalist model. Dreyfus explains that at the time of Merleau Ponty's writtings there were no brain models that would support his arguments. However in recent times there has been much development in the cognitive sciences and because of these developments there now models that do indeed support Mearleau Ponty's views. In his essay he describes, what in cognitive science are termed 'simulated neural networks'. These 'simulated neural networks are essentially tools used in cognitive science to enable a description and assess possible functioning and predict the results of cognitive processes.

Within these simulated neural networks neurons are called nodes. There are input nodes (sensory) that are connected to output nodes (motor) through a series of intermediate nodes which Dreyfus terms 'hidden nodes'. The simulated strengths of the synaptic connections between nodes are termed 'weights'. Dreyfus explains:

> *Running such a net means specifying the activations of the input nodes and then calculating the activation of the nodes connected to them using a formula involving the weights on these connections, and so on, until the activation of the output nodes is calculated.* (Dreyfus, 2005, p.133)

Dreyfus continues by explaining, in detail, how such networks may be trained using a series of algorithms that eventuate in increasingly appropriate responses or outputs. For our purposes the importance of such models lies in the notion that cognition exists in an active relationship or dualism between input and output, sensory and motor neural groups.

So we have seen how modern thought and science have validated philosophies of the past in regards to the nature of biological cognition and refuted a representational model. Through Dreyfus' outlining of simulated neural networks we have seen a model of how cognition may be possible

without a representational image bank. But how might an anti-representaionalist idea of cognition, an embodied cognition, manifest itself in the real world?

First we must look at perception itself and dismiss the notion that perception is a one-way street of sensory stimuli whose eventuality is a mere fabricated image in the mind. As Clarke said; "The biological mind is first and foremost an organ for controlling the biological body" (Clarke, 1998, p. 1). Perception is formed not by mere information input, sensed environments or data encoding. Perception is only realised when a stimuli/sensory input is completed with a response. As Henri Bergson states,

> *While the detail of perception is moulded exactly upon that of the nerves termed sensory perception as a whole has its true and final explanation in the tendency of the body to movement.* (Bergson, 2004, p.41)

Mearleau-Ponty in his first published work , "The Structure of Behaviour" (1963) uses the example of a player operating on a sports field:

> *For the player in action the football field is... pervaded with lines of force (the "yard lines"; those which demarcate the "penalty area") and articulated in sectors (for example, the"openings" between the adversaries) which call for a certain mode of action and which initiate and guide the action as if the player where unaware of it. The field itself is not given to him, but present as the immanent term of his practical intentions; the player becomes one with it and feels the direction of the "goal," for example, just as immediately as the vertical and the horizontal planes of his own body.... At this moment consciousness is nothing other than the dialectic of milieu and action. Each manoeuvre undertaken by the player modifies the character of the field and establishes in it new lines of force in which the action in turn unfolds and is accomplished, again altering the phenomenal field.*
> (Mearleau-Ponty, 1963 p.136)

The field itself is not given to him. Our environments are not granted to us packaged wholly; predetermined; understood. We, as bodies, are in constant response to what has been before and constant decisive actioning of what comes next. We are within the world and the world is within us.

So perception is formed from both sensed environmental stimuli and the ability/necessity to act in response to such stimuli. These two elements should be seen to form a unitary experience.

Take for example J J Gibson's theory of affordance as outlined previously:

> *The affordances of the environment are what it offers the animal, what it provides or furnishes for either good or ill. The verb afford is found in the dictionary but the noun affordance is not, I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment.* (Gibson, 1979 p.127)

With this definition Gibson outlines how affordance is not defined by the environment or object, nor is it defined by the animal or viewer acting in that environment. Affordance lies in the relational aspect of animal and environment, viewer and object; a co-implication to form an experiential unit; an experiential unit of perception. Perception is a function of cognition... so here we must deduce that cognition is not something that we hold, a belonging tucked away in our mind that somehow exists without a biological form. Cognition is formed within our biological being, embodied, and requiring as its substrate the existence of the environment that is perceived. So it must be seen to be embodied and in turn embedded within the environment in which we exist.

Gibson may have coined the term affordance but surely what he is describing has also been described in Merleau-Ponty's view of consciousness being “nothing more than the dialectic of milieu and action”. (Merleau- Ponty, 1963, p168) Or when Bergson states:

> *The reality of matter consists in the totality of its elements and of their actions of every kind. Our representation of matter is the measure of our possible action upon bodies it results from the discarding of what has no interest for our needs or more generally for our function.* (Bergson, 2004, p.30)

However, a term was coined and the central point of Gibson's theory remains fundamental which is: as stated by Francesca Garborcini and Manzo Adenzato.

> *His explicit refusal of the dichotomy between action and perception and the underlining dualism between physical and neutral capacities.* (Garbarini, Adenzato, 2004, p.101)

"To Press, To Stretch."

The Piece entitled *To Press, To Stretch* came from a reading of V.S. Ramchandran's account of the mirror neuron system (Ramachandran 2011). Briefly: he outlines how neurons that respond to physical pain, such as being poked in the arm, also respond when merely observing another body being poked in the arm. Could such a response be solicited through the observation of a mechanical construct acting upon an inanimate object?

The piece I created consisted of a stretched sheet of rubber and a metal arm that extended and retracted causing a stretching and contracting in the rubber sheet. The rubber was human in scale and the metal arm made contact at around belly height.

It is very hard to definitively claim the piece produced a proprioceptive response but several viewers likened the piece to uncomfortable bodily sensations. The 'poking' metal arm, although moving slowly and gently, seemed to extend further than was perceptively comfortable, a relief was sensed when it retracted.

3.2 The Neuroscientific Evidence.

Garborcini and Adenzato discuss Gibson's theory of Affordance in light of recent neuroscientific discoveries, namely the two classes of visuomotor neurons: canonical neurons and mirror neurons. These discoveries, as we will see, offer empirical/analytical evidence of the "underlying dualism between physical and mental capabilities." (Garbarini, Adenzato, 2004, p.103) They claim that this new research perspective;

> *allows for the correlation of action and perception on a neural level, thereby clarifying the concept of sensorimotor, which is at the core of the embodied cognition paradigm.* (Garbarini, Adenzato, 2004, p.103)

The concept of “sensorimotor” is indeed at the core of embodied cognition: the amalgamation of the two classifications highlights the shift from the old-world view of the separately functioning systems. 'Sensory' being all sensed stimuli (input) and 'motor' being all resulting actions (output). Now we will see how modern neuroscientific instruments and techniques have discovered groups of neurons that function with both sensory and motor capabilities.

In a series of studies dating from the late ’eighties through the ’nineties, two classes of visuomotor neurons were found, firstly in the pre-motor cortex of Macaque monkeys and later confirmed to be present in humans, which were labelled canonical and mirror neurons. As Garbarini and Adenzato explain these neurons were:

> *Bimodal neurons equipped with motor and visual properties*.

And continues to describe the fundamental characteristic of these neurons as being:

> *That they can fire during tasks involving the execution of actions as well as tasks involving pure observation.* (Garbarini, Adenzato, 2004, p.101)

Canonical Neurons.

Let us first turn to canonical neurons. Canonical neurons respond selectively to the presentation of three-dimensional objects in regard to their size, shape and spatial orientation. Take for example the motor act of grasping: a whole hand- and arm-movement. A series of neurons will fire in order to carry out this action. It has now been shown that the same neurons will fire even during mere observation of an object that would solicit or 'afford' the same grasping movement. Further, if another object were observed, a small object that would solicit a more precise motor-action, then a different set of neurons, neurons responsible for finger-movements for example, would fire. A

categorisation takes place. A categorisation being a function of understanding of objects and the environment with regards to what physical interactions they may solicit, or as Vittorio Gallese (2000, p.31) states:

> *To observe objects is therefore equivalent to automatically evoking the most suitable motor program required to interact with them. Looking at objects means unconsciously simulating potential action. Only by virtually executing the action can we understand the relational significance of the object.*
> *(*Vittorio Gallese*,* 2000, p.31)

Mirror Neurons

Mirror neurons were the second class of visuomotor neurons to be discovered. Again they were first observed in the Macaque monkey.

Gallese explains that at the time of the discovery of mirror neurons theories of embodied cognition and multi-sensory perception were being explored but the research itself was not seeking to prove the existence of these neurons. They were however looking for visual properties in the motor cortex which at the time was very unorthodox. As he states;

> *The mainstream view in cognitive science was, and to a certain extent even today is, that action, perception and cognition are to be seen as separate domains.* (Gallese, 2000, p31).

He continues by claiming that the discovery of the mirror neuron system;

> *challenges this view as it shows that such domains are intimately intertwined.* (Gallese, 2000, p31)

Mirror neurons are again bimodal neurons with both visual and motor properties. Again like canonical neurons they are active during the execution of actions. Where they differ from canonical neurons is that they do not fire when observing an object that would 'afford' a particular motor

response but activate when observing another body/monkey/human executing that task. For example if a monkey picks up a peanut a set of neurons fire. If that monkey observes another monkey picking up a peanut then the same set of neurons will fire but will not necessarily result in the motor action.

I will again turn to Gabardine and Adenzato (2004, p.102) for further explanation:

> *Mirror neurons represent a mechanism capable of coupling the execution and observation of actions; the observation of another individuals action evokes a specular response in the neural system of the observer which is activated 'as-if'' he himself were carrying out the action that he is observing. (*Garbarini, Adenzato, 2004, p.101)

So again it is a mental simulation of the physical potential of our bodies to act in the environment, a simulation that is necessary if we are to gain understanding.

The claims of what will instigate a mirror neuron response are wide-ranging and on occasion contradictory. This may be a characteristic of newly-discovered scientific evidence. Here I am only able to conduct a limited review with an awareness toward some possible contradictions.

> *Activation of the mirror neurons has been found only in relation to transitive movements. Intransitive movements which do not imply interactions with an object do not activate these neurons. (*Garbarini, Adenzato, 2004, p.101)

This statement from Garbarini and Adenzato seems categorical. The implied interactions with an object are not restricted to an observed action. They continue to explain that even audio stimuli may instigate a mirror neuron response. They take for example a monkey cracking a nut, observing cracking a nut and merely hearing a nut being cracked. All of which, they say, instigate a mirror neuron response. They state that these observations have led researchers to conclude that:

> *it is the concept of breaking a nut that is somehow recorded in the neuron.* (Garbarini, Adenzato, 2004 101)

I would suggest here that a concept should not be seen to be represented in a particular neuron but rather a network of neurons similar to the simulated neural networks described by Dreyfus. Also the concept within the network would manifest through the “weights” of the synaptic connections.
If it is true that it is the concept that instigates a response then surely it must be said that the observed result of a goal-orientated action would be complicit in a mirror neural response. The observation of a 'cracked nut' would thus instigate a neural response.

Vittorio Gallese does not seem to adhere to a restrictive goal orientated notion of the mirror neural network. He extends the notion and possibilities of the mirror neuron system to include the processing of felt sensation and emotion. He states;

> *empirical evidence suggests that the same neural structures that are involved in processing felt sensation and emotions are also active when the same sensation and emotions are to be detected in others.* (Gallese, 2000, p.31)

So all social interactions, human empathy and communications would, according to Gallese, involve a mirror neural response, and within our brains lies a whole range of mirror-matching mechanisms. The range of involvement of the mirror neuron system has yet to be decided. However even at its most basic goal-orientated task level, the mirror neuron system offers analytical evidence of the correlation of the sensory and motor capacities of our brains, as does the canonical system. In turn this points to a view of cognition that is indeed embodied and surely must be seen to be embedded in our environment and the objects that are presented to us.

3.3 The Intentional Arc to Another Self.

So far we have seen evidence of how cognition is embodied through reactive cognitive processes regarding outside stimuli. We have seen how an understanding is gained through a representation to the physical being of environments and objects by way of simulating potential physical

involvement. The embodied mind translates the outside world into the only language it can understand , the language of 'self'.

I am hesitant when I use the word representation as it could be seen to be contradictory in light of our dismissal of the representationalist view of cognition. I use it not to imply a referral bank of representations of the outside world but to support the view of an active re-presentation of the outside world through this language of 'self'.

I have said above that the examples we have looked at so far, Gibson's theory of affordance and the experimental evidence relating to canonical and mirror neurons may seem somewhat reactive in nature. By reactive I mean that they are instances of the body reacting to outside stimuli. It may now be important to re-emphasise the dialectic nature of experience necessary for cognition to be truly embodied/embedded.

We understand and shape the perceptual world through our past activities, future intentions and through our physical capabilities. We project these factors back on to the world thus shaping our unique perception. It is this constant flow that Merleau-Ponty terms 'the intentional arc'.

> *The life of consciousness - cognitive life, the life of desire or perceptual life is subtended by an intentional arc which projects around us our past, our future our human setting.* (Merleau-Ponty,1963, p. 136)

So the world is seen and shaped by where we have come from, our intentions and our current situation. The conscious life is one of constant reaction and projection, a dialectical and circular relation.

> *the relations between the organism and its milieu are not relations of linear causality but of circular causality* (Merleau-Ponty, 1963, p. 15)

This circular causality, this reciprocal determination, a constant flow through perceiver and the perceived must be seen to blur any supposed boundaries within this relation. Yet both Merleau-Ponty and Bergson seem to maintain the body as centre. Bergson states;

> *Here is a system of images which I term my perception of the universe and which may be entirely altered by a very slight change in a certain privileged image- my body. This image occupies the centre by it all others are conditioned; at each of its movements everything changes as though by a turn of the kaleidoscope.* (Bergson, 2004, p. 91)

The body/self remains the point of activation of everything else. But if our cognition is this active dialectical flow from the perceiver to the perceptual, from our conscious being to that of which we are conscious, then is it not philosophically valid to extrapolate to the point where cognition does not inhabit merely our perceptual/conscious being but exists within this circular flow and thus also in that which presents itself for cognition? To paraphrase Gallese, "the objectual other becomes another self"; the perceptual other, that of which we are conscious, becomes another self. And so within the aesthetic moment there is a blurring of the determining edges of consciousness and that of which we are conscious. This blurring occurs within the progression from attention toward the objectual other, to attention toward the relation between the perceiver and the perceived. But from here there is a returning, a re-addressing of the original departure point of the self. Attention toward the other, attention toward the relation between the self and the other and a returning realisation of the self, this is the progression within the aesthetic moment that lies at the heart of our current investigation.

3.4 The needs of Self-Consciousness

Paul Crowther in his book "Art and Embodiment" makes a strong case for aesthetic response being seen to be a self-conscious response. The philosophies of Kant and Hegel are both outlined in relation to the subject. The connection between aesthetic experience and the needs of self-consciousness is seen in the work of Kant (Crowther,1993, p.150) in the fact that "such experiences (meaning aesthetic experiences) enhance cognitive competences which are the very foundation of self consciousness." Within the work of Hegel, the link between aesthetics and self-consciousness, Crowther (1993, p.150) explains "is based on the fact that art, in its historical transformations, reflects and, thereby, refines our conception of self." Crowther continues to state his intention of establishing an ecological theory of art by "drawing on and reworking elements of both these approaches on the basis of my own philosophical position."

Thereafter Crowther lists what he deems to be the requirements of self-consciousness. Beginning with the opening declaration; "To be self conscious is to be able to ascribe experiences to oneself" But what then are the capacities that enable this ascribing of experiences to oneself? Crowther lists them as attention, comprehension and projection. Attention is seen to be"our capacity to be receptive to sensory stimuli". Comprehension, the ability; "to organise the stimuli received in perception by discriminating sameness and difference amongst them". And projection being the ability to "posit situations other than those presented by the immediate perceptual field." (Crowther 1993, p.151)

Crowther continues to speak of other factors within self-consciousness such as what he terms "reversibilty, personal freedom and species identity." However, for our purposes in this particular discourse, let us concentrate on the first three outlined above. I wish to re-examine all three in relation to certain aspects of aesthetic response.

Attention: our capacity to be receptive to sensory stimuli. Is it not the case that all objects of aesthetic appraisal are fundamentally objects that afford sensory stimulation? No object or environment can be seen not to afford sensory stimulation *but* objects brought forward for aesthetic appraisal come with them a context and an intention to enhance one's attention to the resulting stimulation. I would suggest that the art object offers a moment, framed, and relieved of the continuum of everyday consciousness that permits attention toward the sensory stimulation offered and in turn enforces an awareness of this requirement of consciousness.

Comprehension: our ability "to organise the stimuli received in perception by discriminating sameness and difference amongst them" (Crowther 1993, p.151). Earlier in this paper I described how a formal aesthetic response arises from the appraisal of contributing elements and the relations between these elements on both an infrastructural and superstructural level. Is this not a process of organisation and discrimination of sameness and difference? And if you accept that as viewers we too are contributing elements within the superstructural environment of the art piece then this process involves an awareness of our own being and the difference between it and what surrounds it. Again aesthetic response in this way allows for a self-conscious awareness.

And finally **projection**, our ability to; "posit situations other than those presented by the immediate perceptual field." (Crowther 1993, p.151) We have seen how projection is an integral part of the notion of *Einfuhlung*; the activity of feeling into, and an accepted concept within aesthetic discourse. We have also seen how a physical empathetic response eventuates from a type of bodily projection or transcendence in areas ranging from dance to our example of the Puryear sculpture. I would also suggest that the theory of affordance proposed by Gibson is fundamentally a process of positing a situation other than those presented by the immediate perceptual field. The presented object or environment affords the viewer countless potential interactions that are beyond the

immediate perceptual field. In realising these potentials and attending to the possibilities for interactions afforded by the object of aesthetic appraisal we are again allowed a moment of self-consciousness.

Throughout the preceding chapters we have attempted to dissect our frame, the aesthetic moment, the experiential actuality of the sculptural object. We have looked at such factors as the potential for multi sensory perceptive response in relation to the artwork, the neuroscientific evidence surrounding aesthetic experience, embodied cognition and bodily empathy toward the objectual other. We have seen how the sculptural object instead of requiring a mere optical apprehension promotes an activation within the viewer and the viewing and this activation in turn locates the viewing subject and implicates the self within the aesthetic moment. It seems now to be pertinent, in light of this background study, to re-pack the frame and re-address our subject. A witnessing is required, a taking up of a position of deliberate spectatorship not of the art object alone but of the interaction of viewer and viewed.

Chapter 4. The Motion Capture Project.

4.1 Introduction

Evidence supplied by the world of neuroscience, and that of cognitive science, shows a view of cognition that relies on a process of neural mapping. I am thinking here of the model offered by Dreyfus outlined in the previous chapter and that of American neuroscientist Antonio Damasio in his book "Self Comes to Mind". An image is held in our brains through a map of neurons. Here, an image can be anything from a visual image, to an auditory perception, to the image our tactile sense creates when we touch something in the outside world. So the unique image corresponds to a series of interconnected neurons. The connectivity between these neurons must be maintained but is also dynamic and can change. If we recall a certain image, our present position, environment or situation can and will influence its neural map. Memory therefore is not passive but an active, ever functioning process. However, one image that we hold in our minds needs to remain stable. That is the image of self. Damasio outlines how even though our physical form may change, grow, age, etc. the neural map of the self must remain stable or else we risk sickness or death. When we experience an object for the first time, when this object is new to our cognitive self, we have not yet created the

neural map. When experiencing a sculptural object; the process of experiencing is one of creating this neural map. I would suggest that a part of this process involves a referencing of the new object to our only constant; the constant of the self. This point relates to the discourse surrounding proprioception and the mirror neuron system outlined earlier in the project.

If we accept that the aesthetic experience of a sculptural object involves vision in conjunction with influences such as our own body position, our kinaesthetic perception, the potential for physical interaction and any other multi-sensory perceptions, then all these factors must be seen to amalgamate to create the neural map that we retain of the aesthetic experience.

Up until this point the practical aspect of this research project has relied on the creation of sculptural work and then entering into dialogue with viewers of the work to assess their perceptual experience. However, much of what we have outlined regarding the location of self pertains to the physical self and as such should allow a more measured analytical approach. We have spoken at length about the aesthetic experience of the sculptural object; how sculpture demands a physical response, coerces the viewer into movement, influences a viewer to take a particular position etc. but this has as yet to be documented. Each of these aspects that we have said are functions within the aesthetic experience are operations within the physical world and therefore lend themselves to a documentation, some type of measured, analytical view.

The motion capture project involved the creation of several sculptural objects that were installed in the The Motion-Capture Laboratory, situated in the Health Science Department of The University of Southampton . Viewers were invited to enter the space and experience the work while the motion capture equipment recorded their movement and body position. The equipment is then able to supply analytical data, such as grid reference points, relating to the viewer's movement through the space. This process is firstly one of observation. Our subject regards the movement and body

position of viewers in relation to sculptural forms. These aspects could, of course, be witnessed to a certain extent through a 'normal', unaided, observation but the motion capture equipment enables a honing in on or a focussing on the details involved in our current investigation.

Twelve cameras circumscribe the space, Hung from a metal truss; all the cameras are directed toward the centre. A utilitarian space, clinical in a way, it is a space for scientific investigation. Linoleum covers the floor. Walls are flat white broken by banks of plug sockets and laminated posters describing studies into stroke rehabilitation, arthritis and sports performance analysis. It is a space of data-collection and interpretation, graph-production and precise measuring. Around the periphery lie various paraphernalia of past studies. A rowing machine, a gurney, weighing scales.

Throughout the course of this project various avenues of enquiry have been explored. Aspects of philosophy and science have been utilised and practical work has been executed in attempt to outline and examine the subject at hand. It seems that now, at this point, an attempt must be made to amalgamate all of these facets. Twelve cameras circumscribe the space. Is it here, within this space that an amalgamation of the various ideas and avenues of investigation that have shaped the main development of this research project to date can take place?

Will these cameras offer evidence of the affordances solicited by various sculptural objects and their positioning in space? Can we witness a certain commonality of movement between participants as they navigate the space? Is there a common position assumed by participants in relation to particular objects? Can a common, physically manifested empathetic response be viewed and measured? Do these twelve cameras offer a view of the body working within space that can be seen to be equivalent to the authorial viewpoint taken by Merleau-Ponty and Bergson? Can the mapping of a body's movement through sculptural space be seen as congruent and aid an understanding of Antonio Damasio's theory of brain-mapping and image-formation?

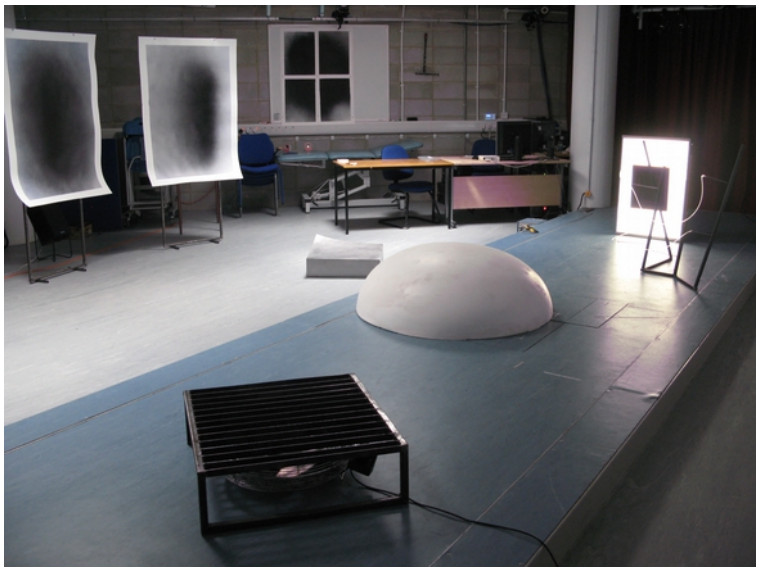
These are but some of the questions that the potential of the motion capture equipment has raised. Some are not answerable through data collection and analysis. They are conceptual points that may be illustrated through this particular mode of enquiry. The questions raised that do require an analysis of the collected data should be seen not as a scientific enquiry but as a creative strategy. The motion capture equipment becomes a tool in a creative process focussing on viewers' interactions with the sculptural form. This is not a process involving control groups and the highly regulated participation that a scientific enquiry would necessitate. The equipment may be of the type employed in such areas but this enquiry is firmly rooted in a creative process.

The motion capture study also offered the opportunity to investigate further an aspect of the study outlined earlier in the project. In chapter 2 we discussed Barabra Montero's article " Proprioception as an Aesthetic Sense". In it she outlines how proprioception can be seen to be an aesthetic sense when appreciating a dancer's movement. I furthered Montero's argument to include the appreciation of the sculptural form initially referring to figurative sculpture but then also less representational examples such as the Martin Puryear sculpture "Self". Would it be possible to create, by utilising the motion capture equipment, a sculptural form that was a 'trace' or objectification of a dancers movement? Could the resulting object, a static, constructed abstraction affect a similar proprioceptive response to that of the initial dancer's movement?

And so the motion capture study involves two distinct courses of enquiry. The first being one of observation of the physical interaction of the viewer within and relating to the sculptural environment. This mode, whilst offering analytical data will also operate as a model congruent to the authorial viewpoint referenced throughout the main body of this thesis and thus serve as an amalgamation of the practical and theoretical aspects of the study. Secondly, the equipment and the data collection will be employed within the creative process forming the basis of new sculptural

work. In the following chapter I will attempt to detail the work that I have included in this study. I will offer reasons for the inclusion of particular works and their role within the context in question before detailing the study itself.

4.2 Installation and Reasonings



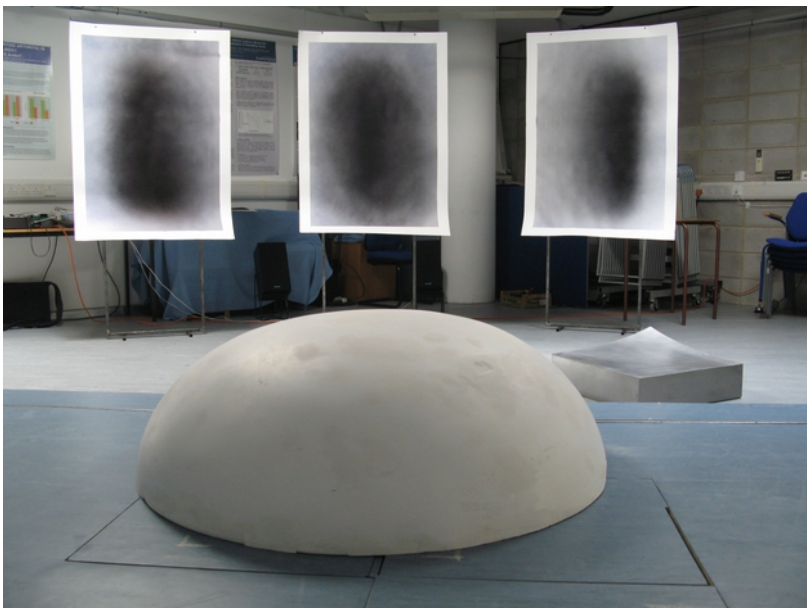
The motion capture laboratory is a dry space. By this I mean it is space that is, by necessity, pragmatic, un-dynamic. It is not a space that invites a natural, comfortable inhabitation. There is no flow of people through it or view of the outside world. It is still and contained. But it is not an empty space. As I have outlined above it contains various objects associated with its regular functioning as a space of scientific investigation. The rowing equipment, gurneys, stacks of office chairs and twelve cameras mounted on a metal truss are all part of this space and will be strange counterparts to any sculptural form that is installed. This is no white cube.

And yet these characteristics and details may offer an appropriate backdrop to the current enquiry. I have said before that my attitude toward the objects I have produce during the course of this research project has changed. They are not the inherently complete objects that should end up in a white cube gallery space. They are but tools within the investigation. They are my rowing machine, my hospital gurney. This is not an exhibition space but an investigation space. But given that this research project is concerned with viewer's experience of the art object and not the experience of the science laboratory, I felt the need to lay claim to the display aspects of the space after all, to create

an environment where the forms put forward for appraisal would have centre stage.

3 Drawings

The first objects I brought into the space were a series of drawings relating to the charcoal drawings outlined in chapter 2. Large in scale, the drawings consisted of soft blurred forms floating within the pictorial space. Dark blue black, the forms grew from one drawing to the next as if emerging from a hazy backdrop.



The drawings were hung on steel frames and positioned away from one wall of the space. This was partly to disguise some of the more cluttered paraphernalia of the room but also to impose a shape to the sculptural space to which I wished viewers attention to be directed.

Again the blurred indistinct edges to the forms portrayed in the drawings are an attempt to promote an active looking. The forms, through their vagueness, deny a focal point. Shapes that sway between recognition and a non-recognition. This difficulty in focussing on the drawings made the forms appear to expand and contract. An activation of the viewing process that held as its intention an imposed awareness of the active nature of vision. An awareness of the activity of looking that I would hope leads to the awareness of self and its implication in the experiential moment.
In conjunction with these drawings I again used sound. I still felt there was a quality within the

drawings that I could only relate to something within the auditory or tactile realm.

Antonio Damasio in his book " When Self comes to Mind", while maybe not confirming such direct integration between the senses, does offer a view of neurological structure that might point toward an overlapping, if not a cross-wiring. Again I am not in any position to confirm or contradict such scientific knowledge but his writings have offered a conceptual underpinning to this work and have allowed me to persevere with the representation of a visual and auditory relation.

Here he outlines the structure of an area of the brain known as the superior colliculus;

> *The deep layers of the superior colliculus contain, in addition to a map of the visual world, topographical maps of auditory and somatic information.*
> *The three varieties of maps- visual, auditory and somatic- are in the spatial register. This means that they are stacked in such a precise way that the information available in one map for, say, vision, corresponds to the information on another map that is related to hearing or body state.*
> *(*Damasio, 2012, p. 84).

Now he continues by describing how the connectivity between neurons, or signalling, have particular timings. He states:

> *A certain timing of the signalling is necessary so that elements of a stimulus that arrive together at the peripheral sensory probe can stay together as the signals are being processed within the brain. For example, in small circuits whose activity signifies that a certain feature is present, neurons increase their firing rates. Ensembles of neurons that are working together to signify some combination of features must synchronise their firing rates.*
> (Damasio, 2012, p. 87).

He goes on (2012, pg 87) to cite an experiment carried out by Wolf Singer "who found that separate regions of the visual cortex involved in processing the same object exhibited synchronised activity in the 40 Hz range." Now with a quick search on the internet you can find a whole range of test tones. Click on 40 hrtz and you will find a low bass tone, vibrating. Humming?

I cannot and do not wish to claim an analytical, scientifically proven neurological connection between the vague blurred lines of the drawings and the 40 hertz test tone found with an internet search. However, this low bass tone is so similar to the tones I had been trying to create in previous work, and the description offered by Damasio of the structure of the superior colliculus points toward potential for an overlapping between the senses. These two factors indicated to me a re-execution and re-presentation of the piece that I previously entitled “Humm”. And so three drawings with blurred vague forms were hung, and a low bass tone of 40 hertz emanated from two adjacent speakers.

The two speakers were positioned so that the point at which they were in stereo was in front of the middle drawing at a distance I had deemed reasonable for an adequate view of the three drawings. Here let us remember Merleau-Ponty’s intentional arc, as well as what he terms “Maximal grip” as outlined by Dreyfus (2004, p.1).:

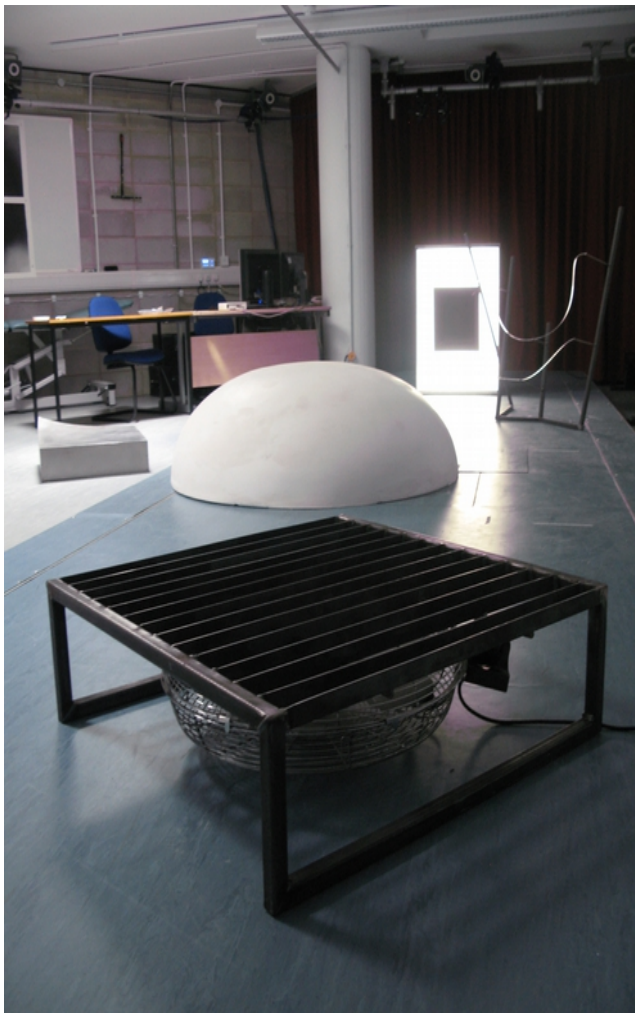
> *The intentional arc names the tight connection between the agent and the world, viz. That, as the agent acquires skills these skills are “stored, not as representations in the mind, but as more and more refined dispositions to respond to the solicitations of more and more refined perceptions of the current situation. Maximum grip names the body's tendency to respond to these solicitations in such a way as to bring the current situation closer to the agent's sense of an optimal gestalt.*

Or as Merleau-Ponty (2002, p.348) himself states;

> *For each object, as for each picture in an art gallery, there is an optimum distance from which it requires to be seen, a direction viewed from which it vouchsafes most of itself: at a shorter or greater distance we have merely a perception blurred through excess or deficiency. We therefore tend towards the maximum of visibility, and seek a better focus as with a microscope.*

I would suggest that there is an optimal position to view the three drawings, a position allowing for

a *maximal grip* as it were. This is where I have arranged the sound emanating from the speakers to coalesce in stereo. From our privileged view in the current context of the motion capture laboratory can we witness participants assuming that position? Is there a commonality in movement and body position between participants in relation to the drawings and the audio element? If this is the case does the data supplied by the motion capture equipment act as a type of diagrammatic view of the body realising the connection between the two elements and thus and moreover its implication in the dialectical relation that formulates the aesthetic moment?



"Plinth"

The next piece that was re-visited within the motion capture study was "Plinth". The reason for its inclusion here is due to the very direct influence viewers' movements have over the work. The fan, encased in its steel frame and directed upwards, is set off when viewers move over it. Again it is a piece that seeks to direct viewers to assume a certain position. From this position, the movement of air forced upwards by the fan delineates the body, perfectly describing its shape. For we may have an inner sense of our physical beings and position in space but this cannot formulate an awareness of self if considered in a vacuum. The body must make contact with the outside world to realise its boundaries and borders. It must impact on and be impacted upon by objects and environments in order to ascertain its inclusion in reality. We know that we are standing by the weight that both pushes down on our feet but also, in a way, a force that pushes up from the ground beneath. We know we have a certain strength by pushing a door that yields to the pressure we exert. We know that we have breadth by

feeling the wind push against our form. And so 'plinth' aims to position the body in space by coercing it into a directly influential role, but then attempts to impact upon the body, thus soliciting an awareness of that assumed position.

The conceptual basis of 'Plinth', as discussed in chapter 1, came from a reading of Robert Morris's notes on sculpture where he talks of de-constructing sculpture to its most basic fundamental element, ' a singular displacement of space'. This work, of the early minimalist period would then be a function of space, light and the viewer's field of vision. The viewer would be forced to consider the "whole situation". Now in the reading of these notes on sculpture, I would contend that, even though the subject is the very 'being-in-the-world' nature of aesthetic experience, the position we are placed in as readers is as witness to the event. We are not placed within the experience itself but assume a position different from that of the viewer in question. We, as readers, are offered *another* perspective. It is as if we are permitted to step to the side of the experiential moment and witness all the fundamental elements including and especially the involvement of the viewer. It is an authorial viewpoint and as readers we assume that same position.

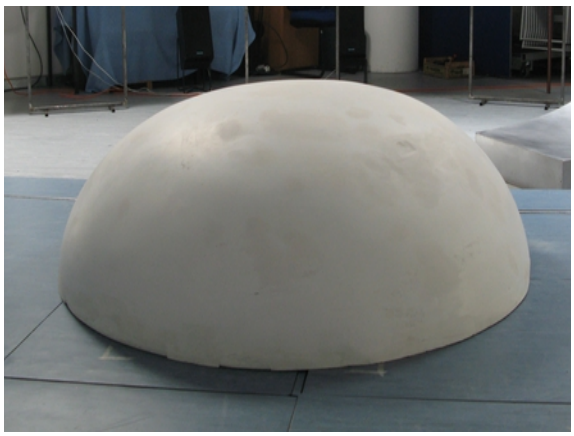
And what of the phenomenology of Merleau-Ponty? Again at the subjects core is an investigation of the very nature of being in the world. But here too, I would suggest, we are presented with an authorial viewpoint that is not within the world but a witness to a being in the world. If we take his example of the sports player operating on the sports field, referenced in chapter 3, in which he uses the image of the player reacting to the "pervading lines of force" and the "openings between players" to describe how perception is formed from both sensed environmental stimuli and the ability/necessity to act in response to such stimuli. Does not the activity of reading passages like this involve, as readers, an imagining of the viewpoint of, in this case, the footballer, but also a witnessing of the situation described from this other, authorial viewpoint? Somewhere above or to the side of the subject itself. Indeed in "The Visible and the Invisible", Merleau-Ponty speaks of this view from without;

> *Since vision is a palpation with the look, it must be inscribed in the order of being that it discloses to us; he who looks must not himself be foreign to the world that he looks at. As soon as I see, it is necessary that vision (as is so well indicated by the double meaning of the word) be doubled with a complimentary vision or with another vision: myself seen from without, such as another would see me, installed in the midst of the visible.*
> *(*Merleau-Ponty, 2004, p. 4).

Throughout this research project there has been a struggle in the amalgamation of the production of practical work and the theoretical writings underpinning it. One would subsume the other, the other taking precedence over the next. But here in our current context of the motion capture laboratory an amalgamation does occur. Twelve cameras circumscribe the space and offer us our authorial position on the subject at hand. We can consider the whole situation both as participants and moreover as witnesses.

The validation of this current study does not depend on the information collected through these machines of analysis, the data, the software. The very activity of carrying out the experiment, the installation, the viewer involvement and the witnessing describes the process of enquiry and in turn points toward the subject at hand. It stands as yet another tangential point that touches our subject and with its inclusion within the progress of enquiry contributes to the realisation of the subjects fundamental core.

“Bead”



“Bead” was the first piece I had intended to bring to the motion capture study. The inspiration behind the piece as I have outlined previously came from watching an ant and its endeavours to cross a garden

table. The ant, coming across a perfectly formed bead of water, had to navigate this not insubstantial object by correcting its position, approaching the bead again and so on until it found a way around it. It *felt* its way around the obstacle and every movement had a consequence and influenced the next.

Now the problem that faced the ant stemmed from the relevant size difference between it and the bead of water. It could not walk over this object nor could it adequately assess the correct route around it. It required the ant to enter into a type of dialogue with this object recalling the dialectical relation between agent and object at the core of Gibson's theory of affordances and also the phenomenological view of Merleau-Ponty of the world being realised through a consciousness of the body operating within it;

> *For it is true that I am conscious of my body via the world, that it is the unperceived term in the centre of the world toward which all objects turn their face, it is true for the same reason that my body is the pivot of the world: I know that objects have several faces because I could walk around them, and in that sense I am conscious of the world by means of my body.*
> (Merleau Ponty, 2002, p. 97).

Within the context of the motion capture laboratory it would be practically very difficult to simulate the type of size differential witnessed between this ant and the bead of water when dealing with a human participant/ viewer. However the piece created, “Bead”, is a scaled up interpretation of the shape of a bead of water. Its size necessitating a navigation around its circumference. And here, within the current context of the motion capture study, lies its interest. This object solicits a particular course of action. It *affords* a particular type of apprehension. One does not, and cannot apprehend the entirety of the piece, by assuming one particular viewpoint. It coerces the viewer into a movement around its circumference.

Another aspect of the piece was its intended depiction of stillness. The bead of water being a

delicate structure, held together only by its surface tension, held on the point of collapse. The fabricated bead may not have held the inherent structural qualities and fragility of the original but its form, I would hope, stood as an adequate depiction. Stillness, the counterpart to movement. If we are trying to formulate an awareness of one's own movement then an oppositional form must be offered. The train that departs as we sit on the train that is stationary allows for an awareness of our own stillness by its opposing movement. We realise our movement by its opposition to the stillness of the other.

"Bead" also acted as a counterpart to much of the other work shown within the motion capture study, the handmade quality of its form standing in contrast to their industrial, more engineered characteristics. Throughout the course of this research project, relationships between the objects that have been created, being either complementary or oppositional, have become an important factor. To view a piece in isolation brings the experience to a certain level but to experience the relation between two or more pieces offers a new dynamic. The relation is formed within the viewer and the act of viewing. A triangulation occurs and at the point of intersection lies a consciousness. We become conscious of our role and thus are enabled, if not directed, to a realisation of self.

Three bells and the shipping forecast

Two other audio elements were installed within the space. The first was three automated bells of the type found on receptions desks of offices, hotels and restaurants. This was a re-examining of the concepts behind the original piece "Murmuration" described in chapter 2. In its original form "murmuration" was somewhat compromised by the exhibition space floor. The floor was in fact a wooden floor that was

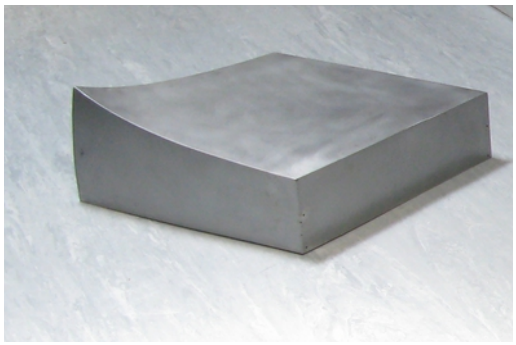
originally part of a school gymnasium. The hammers that were powered by small electric motors struck the floor and created a loud thumping noise, not the delicate tapping intended. This effect had its own merits and if we talk of site-specificity then maybe the piece was successful to a degree. However if we remember that the conceptual basis of the piece began with seeing a blind man riding a bicycle by means of echo location, then the loudness becomes a little overpowering. The bells, I hoped, would offer a more subtle alternative.

Situated in the three opposing corners of the space, the bells were 'rung' by a small trip hammer powered by an electric motor. Each bell rang to its own rhythm, not more than six times per minute. Again, this piece was an attempt to describe the space through an auditory sense-perception and not the more commonly employed visual perception. It also functioned as a location device. The participant would realise position through an awareness of proximity or distance between them and the sounds emanating from the bells.

In conjunction with this piece, a recording of the BBC Radio 4 Shipping Forecast was played, a broadcast of weather reports and forecasts for the sea areas around the British isles. Much has been written and discussed on the poetic romance of the shipping forecast, its cadence and language being seductive and almost meditative. Wary of cliché, I would be hesitant in utilising it within my practice, but within this study I felt it could serve a purpose, again, the purpose of location.

The shipping forecast describes conditions in sea areas around the coast from as far north as Iceland to as far south as Trafalgar off the coast of Spain. It circumscribes our current position in the mainland British Isles and describes our position on a grand scale. If three bells describe the space within a science laboratory then the shipping forecast describes our position globally. The amalgamation of the two elements I hoped would act as concentric circles around our centre, the participant.

The shipping forecast works in locating the self on another more transcendental level. To listen to reports of gales in far off places is to imagine being there. The shipping forecast brings us to those places and then we are returned to our current position. Attention toward the other, attention toward our relation with the other, attention toward our own self.



'Sway' and other elements

The metal cube described in the opening introduction to this thesis was also installed in the space. It offered a counter point, an opposing aesthetic note, to the softer pieces, especially “Bead”. Its severe lines and cold surface stood in contrast to the curving naturalistic form of the adjacent piece. Here it served as another navigational point within the space. It was positioned between “Bead” and the three drawings, and thus created two avenues of potential movement.

The stated intention of the work was to “manifest a fluidity from the rigid form. A flow or progressive sway departing from its nascent structure. To create a comparative effect between the straight and the curved, the angular and the flexed. To create a tension. A tension not to be felt by the steel, for it is now annealed and submissive to it, the tension should be *felt* within the viewer, within the viewing.” The fundamental aspect of the form was one of action. The form, “its nascent structure”, was a cube. This cube was then taken and stretched, pulled and bent creating a “pinched corner”. If we now remember the discussion surrounding the mirror neuron system and how an understanding of an observed action comes from a type of neural simulation of that action, and further how the observation of the result of an action could also instigate a similar neural response, can a structure, like our cube, solicit such a response?

Detailing neurological response requires the most advance imaging techniques such as FMRI scanning and our motion capture equipment is not of the same order or for the same purpose. However if we were to ask participants to physically respond to the work presented in our current study could we record/ detail that response and could we see comparative qualities within that response to the modes of fabrication evident in the presented form? Could we encourage the manifestation of a mirror neural response back into the physical realm? This point will be more adequately outlined when we detail the participants reactions within the study itself which we are still to address. But for now the conceptual basis for the inclusion of the piece lies within the discussion surrounding the mirror neuron system and the potential empathy 'felt' toward an objects manufacture.

The last piece to be installed in the motion capture laboratory was “Super structuring”. It is a two part piece which in this context serves as a potential “look to the future”. The first element is a small, ornate, picture frame. The frame and the picture surface is 'flocked' in dull grey. The flocking process involves applying glue to the surface and then with an electric charge covering the glued surface with small fibres, The resulting effect is best likened to a coarse velvet texture.
The conceptual basis for this element came from a reading put forward by Paul Crowther of what may constitute a formal aesthetic response to an art piece. We will remember how an aesthetic response on a purely formal level may arise from the structural appearance of the object with a disregard or a disinterest towards the essence or fact of the object as a whole. This approach focuses on the interrelations of formal aspects of the object on an infrastructural level. In the case of painting, these formal aspects relate to such elements as colour, tone and surface texture. On an infrastructural level then a formal aesthetic response can operate with regards to these elements without attention toward what is depicted within the painting. The example used was one also employed by Merleau-Ponty, of a painting by Cezanne: we can apprehend and respond to

constituent elements within the painting without necessarily regarding the subject depicted, in this case a landscape of Mt. St.Victoire. To regard the depicted elements of the mountain, landscape, sky etc. would be an aesthetic response on a superstructural level.

In chapter 2, I furthered this discussion and suggested that, on a superstructural level, a painting operated and interrelated with its environment and other objects within that environment. And if we look to sculpture then all elements within that environment, including the viewer's position and movement, should be viewed as contributing to a formal aesthetic response on a superstructural level.

The flocking of this small ornate frame was an attempt to objectify the picture surface and its frame. To bring it away from something to be looked into and enable it to assume its role within the current environment.

The other element of this piece presented in the context of the motion capture study was a steel structure consisting of four vertical square lengths supporting two clear acrylic rods. The steel bars were attached to a base, again of steel square section. The vertical sections were set at an angle and the acrylic rod attached at varying heights. The acrylic rod was therefore bent and curved around its supporting structure. As I proposed in the introduction to this chapter I intend to create sculptural work from the data supplied by the motion capture equipment. Trajectories of points marked on the participants bodies will be recorded creating a linear diagram of their movement through the space. This steel and acrylic structure is an imagining of what the resulting work could look like. A pre-emptive construction, as it were. Each trajectory described by the acrylic rod relating to an imagined point on a body moving through space.

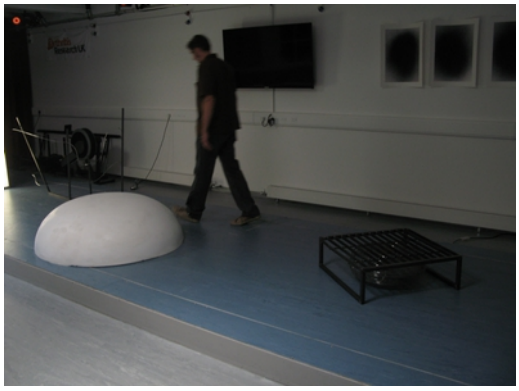
The steel and acrylic structure in conjunction with the flocked frame act here as a type of conceptual diagram of the study as a whole. The object itself and the recorded movement around it creating a

view of the “whole situation”. The piece also functioned in relation to the other elements within the installation and offered another object for the viewers/ participants to apprehend.

4.3 The Study itself and participant involvement.

The motion capture process involves the 'marking up' of participants with small reflective dots. These dots are what the cameras will record and track. In discussions with Dr. Cheryl Metcalf, who has played a pivotal role in the development of the motion capture laboratory and has acted as supervisor in this aspect of the research project, it was decided that the markers would be placed as follows: two markers next to the eyes of the participants; one on each shoulder, elbows, wrists, hands, hips, knees and feet. This would offer a general outline of the body and detail the movements of the all the joints and extremities.

So the first part of the process was to mark up the participants. It was decided that three participants would be sufficient at this stage of the study. The invited participants were invited to attend the Health science building, where they would be marked up before entering the motion capture laboratory.



It was a point of debate and consideration as to how the participants would be introduced to the space itself. I was aware of the potentially contrived nature of asking someone to enter a space and 'act natural' when covered in reflective dots and being watched and recorded. In the end the participants were simply asked to enter the space, view the sculptures at their own pace and order and exit when they were ready. And so with all the sculptural elements in place, bells ringing, a 40hertz low hum emanating from the speakers and the background whispering of the shipping

forecast, the first participant entered the space.

Due to the massive detail of recorded information the motion capture equipment is capable of delivering a complete recording of the participants time within the space was impractical and unnecessary. Instead snapshots of movement would be taken. Movements from one piece to the next, pauses in front or in relation to a piece would be captured and body positions recorded. These would be the details of the study. A series of short notes detail the various 'clips' recorded. The first participant's time within the space produced eight short recordings as follows:

P1- recording 1 = P1 (participant 1) enters the space

P1- recording 2 = P1 passes behind "bead", anti- clockwise, steps down.

P1- recording 3 = P1 moves from "bead" to "plinth". Views "Plinth".

P1- recording 4 = P1 moves from "Plinth", passes "Bead", views "Superstructure".

P1- recording 5 = P1 returns to "Plinth", fan starts, P1 steps onto "Plinth" looks down.

P1- recording 6 = P1 steps off "Plinth"

P1- recording 7 = P1 exits space.

P1- recording 8 = P1 exits space.

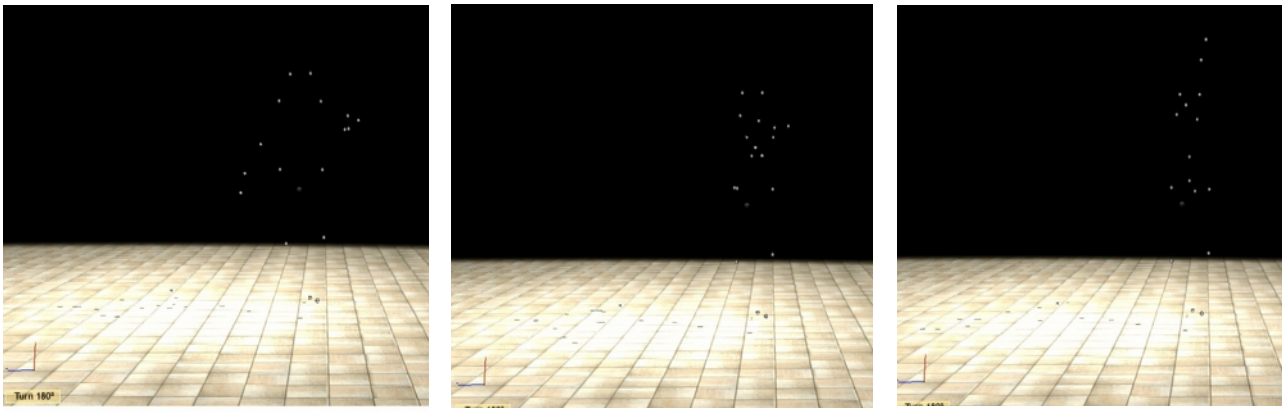
The second participants time within the space produced a similar set of notes. Certain similarities between both participants' time within the space were evident and could be witnessed at the time of the study.

Both chose similar routes through the space. Both circled "bead" in an anti-clockwise direction. Both participants viewed "plinth" and moved away initially before returning and realising their movements influenced the functioning of the fan. Only the first participant chose to step up onto "Plinth".

It must be said that if we were trying to instigate a self-conscious response within the viewer then the first two participants time within the study could be seen as a resounding success. It is after all a very alien environment to enter into. Couple this with the fact that you are being watched by two scientists and an artist whilst being recorded and covered with stick-on reflective dots it would be very difficult to not be “self-conscious”. But here a distinction must be made. The self-conscious response that is at the core of this research project is not one resulting from being watched, a nervousness and self-awareness stemming from being the attention of another. The self-consciousness that is in question is an inner sense of being, of position and relation to the objects and environments that you are surrounded with. It is a knowledge of self gained through attention toward the other. Attention toward the other, attention toward the relation between you and the other, attention toward the self is, again, the process within experience that we are concerned with.

The practicalities and the realities of running a study like this may, in some way, compromise the retrieval of conclusive 'evidence' and real world analysis. But the very act of running this study can be seen to illustrate various conceptual points within the overall enquiry.

4.4 Re-viewing the recordings



The initial recordings supplied by the motion capture equipment show the reflective markers placed on the participants bodies. These dots appear as white dots on the black background of the computer

screen with a grid of lines marking the floor space. When reviewing these recordings what was initially and remarkably evident was how recognisable each participant was from the recorded data. The movements of these markers, placed next to the eyes; on the shoulders, elbows, hands , hips and feet, appearing as just white dots on the computer screen, were enough to describe and make recognisable each participant's form, gait and physical characteristics. This paring down of the physical form allows a glimpse of an inherent ability or a 'language' that we all employ but is subsumed in our complex perceptive, 'normal,' existence. And herein lies the effectiveness of the motion capture equipment. It allows a view of movement and body position that lies beneath or would normally be subsumed by more obtrusive visual references. If you ask someone to describe the appearance of another person they will no doubt speak of hair colour, size, age and other such visual clues. But what of the subtleties of how the other moves, holds their head, uses their hands? If we can recognise a person from just their appearance of a dozen or so dots moving across a computer screen then we are surely more in-tune and more aware of a language of recognition that is not as readily recalled or made verbal; a body-language perhaps?

When we communicate with others so much of what we express comes from our 'body language'. Facial expressions, hand-gestures and posture are all part of this language of communication. It offers meaning and context to our words. Even when we are listening we use this language to communicate a response to what we are being told. This ability is in no doubt and is universally recognised.

But what then of the dialectical relation between viewer and sculptural object that is at the centre of our current discourse? Is there a body-language that we employ within the aesthetic moment? And with whom may it be in communication?

So here we have thirty-five short video clips of three participants' traced movements in and around

the space. A collection of dots describing the physical form, morphing from the recognisable outline to a much tighter conglomeration. A flow that calls to mind the large gatherings of starlings in the winter months flying past the window. Each bird is an individual but comes together to describe a much larger unit, a 'murmuration'. But how do we read these images? What are we looking for in these short clips?

At the proposal stage of the study what was hoped for and discussed was the potential for the motion capture equipment to make evident a commonality of movement or body position between the participants in relation to particular objects. This commonality would, in theory, point toward the 'effect' of particular sculptural characteristics on the physical being of the viewer and thereafter the implication of the viewers physical/self-awareness within the aesthetic moment.
Certain pieces could indeed be seen to effect a common position/ movement within the recordings. Or maybe, more correctly, certain pieces' positions could be seen to effect a common position/ movement. 'Bead' and 'Plinth' were in very prominent positions within the space. The existing platform within the laboratory suggested a stage and these two pieces inhabited the centre and held much of the participants' attention. All participants moved between these pieces several times and all walked around 'Bead' in an anti-clockwise direction.

These observations may be due to the location of the pieces within the space, but perhaps more importantly are the result of the three-dimensionality of the pieces in question. The objects and their size required a navigation around and a movement between to gain a full understanding. The drawings that were displayed solicited a particular position to be adopted but from this singular position they could be fully apprehended. The sculptural nature of "Bead" and "Plinth" required movement, a shift in position; they afforded a certain behaviour.

It must be stated and accepted that one cannot walk through an object and a navigation around

would be the necessary course of action. The fact that all three participants moved around the two pieces at the centre of the installation may not be such a revelation. However, if we are looking at what are the constituent factors within an aesthetic experience then we must accept that such afforded/solicited movement is implicated. And this movement is not a simple movement from point A to point B. It is a considered movement around and in relation to the objectual other. The object becoming a tool in the mapping of one's movement and realisation of one's own physical position.

The motion capture recordings also offer a view of the type of movement involved. It can be witnessed in the recordings that all the participants move in a particular way. Their steps are slowed and interspersed with brief pauses. It is not a purposeful movement but it is considered. Hands relaxed by their sides, each step seems to linger before progressing to the next footfall. The transference of weight from one foot to the next seems more evident and felt within the type of witnessing allowed by the motion capture recordings . When not moving, each participant, appears to have their weight on one leg, a slight lean to one side.

And what of these brief pauses? Each participant can be seen to lead with their right foot especially when walking around "Bead". Participant 1 can be seen to almost drag their left foot momentarily. A step and a pause. Weight firmly on one foot and a slight tilt of the head. Why stop there? Why feel it necessary to tilt their head, change their particular point of view? Only momentarily but a moment none the less. A glimpse, a look, a position. A moment framed? A moment of consideration of the relation between oneself and the objectual other. A relation that has brought about a change in position and thus a realisation of that position.

And what of our question of communication? Within this moment is there a communicative aspect operating in a bodily language? There is certainly a relation between the object and viewer. The

object influencing and affording a particular behaviour, suggesting a certain bodily response. But maybe the label of communication is beyond this reading. However I would contend that there is a communicative dynamic at play. It is a communication with the self. Within the aesthetic moment, a moment that permits a self-awareness, we enter into a communication with the self. Attention toward the other, attention toward the relation between the self and the objectual other, attention toward the self. This is the progression we have been dealing with and within that final stage, that fleeting instant, there lies a statement: 'I am here'. With that statement comes a response, a reaction or even a pro-action. It may be witnessed as a simple tilt of the head, a lingering step or a pause but the body is aware that it is 'involved'.

Re-viewing the motion capture recordings, this pared down view of form and movement, one uncluttered with the more domineering visual markers of 'normal' sight, one can witness these fleeting instances. A slight side-step, a pause, that tilt of the head. These are the breaks in the continuum, framed moments of attention, framed moments of awareness and communication with the self.

Another commonality that can be witnessed in the recordings is particular instances in which each participant looks from one object to the next and back again. It may be a failing of the installation that there is no particular focal point. It is perhaps too busy a space. But within the changing attentive viewpoint, can we not see a relation between the separate objects being considered? I have said before that a characteristic that has developed in the practical aspect of this research project and particularly in the showing of the practical work is an attempt to set up relationships between objects. Whether it be a formal, spatial or contextual relation, the experiencing of the relation locates the viewer very directly within the environment. The viewer becomes a type of datum point around which the objects take their place. A look to one object and then to the next, a look back again. Comparing, contrasting perhaps, but more importantly locating.

And so there are commonalities to be witnessed within the collected data offered by the motion capture equipment. Commonalities that would suggest an awareness of physical position and location in relation to the sculptural object. Other points of interest when re-viewing the supplied data are the little instances mentioned earlier; a wiggle of fingers, a look to the hands, a definite chin scratch by participant three. These may be slight but again I would suggest hint at an awareness of self within the experiential moment.

Participant 3

Participant 3 was selected on account of the participant's training at the Royal Ballet, and with the potential of proprioception to be seen as an aesthetic sense in mind. Barbara Montero puts forward the argument, outlined in chapter 2, that proprioception can be seen to be an aesthetic sense within the appraisal of dance. Dancers, it is suggested, judge their movements proprioceptively and, furthermore, the viewing of dance involves an empathetic proprioceptive response within the viewer. This argument is supported by recent neurological evidence surrounding the mirror neuron system. I have extended Montero's argument to include the aesthetic experience of sculpture, suggesting that the apprehension of figurative sculpture could solicit a proprioceptive response and further even if the sculpture in question - I have used the example of the Puryear piece "Self" - is not explicitly figurative, a proprioceptive response can be seen to be a function within the aesthetic experience.

In the planning stages of the motion capture study I realised there could be an opportunity to investigate these ideas further. The idea was to take a dancer's movement, record it and process it into a series of co-ordinates and then create a three dimensional model/ sculptural work of these movements. Would the resulting object solicit a similar proprioceptive response experienced when

viewing the original movement?

This investigation relates to several other pieces created during the project. Works such as “Contraction” and “Push, to Stretch” have their conceptual basis within the ideas surrounding the mirror neuron system and attempt to manifest bodily felt sensation within the viewer through the manufacture and display of mechanised depictions of muscle movement and physical processes. The form of these pieces are the result of the technical design and manufacture process and thus may be removed from the intended depiction. In utilising the motion capture equipment to supply data of the recorded movement and thereafter using the data to create new sculptural work it would be hoped that the resulting work would maintain a closer relation to the original movement and thus, in theory, solicit a more emphatic response and recognition within the viewer.

Even before participant 3 began to dance the data collected may be the most interesting of the 3 participants. I have spoken of the first two participants obvious “self-consciousness” during their time in the space. There was a visible nervousness and hesitation to the way they moved through the space. By their own subsequent accounts, “Am I doing the right thing?” was certainly a question that ran through their minds. Participant 3, however, entered the space and was unaware the recording equipment had begun. Whilst taking time to become familiar with the space, participant 3 moved amongst the work and 5 recordings were taken and listed in my brief notes as follows;

P3-1. P3 enters space, views 'Bead' and steel box.

P3-2. Ignore (note to self)

P3-3. P3 walks to Bell # 1, looks at hand.

P3-4. Steps onto fan.

P3-5. Walks anti-clockwise around 'Bead', wiggles fingers.

Within these notes, even before a full analysis of the collected data, there are instances of interest concerning our current investigation. In recording 3, participant 3 views one of the bells and then looks at her hand. In recording 5 she walks around “Bead” and wiggles her fingers. Tiny instances which could be interpreted in so many ways. I cannot claim that these movements have any significance or direct relation to the works themselves however they do suggest that the participant was proprioceptively aware within the moment of viewing. A look to her hand, a movement of her fingers, both instances of an awareness of physical being. Does this awareness not become implicated and indeed form a fundamental constituent part of the experience as a whole? If a neural map is being created is it not an amalgamation of all of these elements which forms the cognitive experience?

These points, however, are secondary to participants 3's involvement. Participant 3 was there to dance and so with a drop of a shoulder and a transference of weight from one foot to another the dance movement began. Moving from one object to the next, twisting, swaying, a graceful and powerful movement, the dance lasted roughly ten minutes. The motion capture equipment recorded twenty six 'clips' ranging from just a few seconds to some lasting a minute. Within these clips the markers that described the figure morphed from the recognisable, a figure in space, to a much tighter conglomeration that was less recognisably figurative. However the movement, again due to the pared down view offered by the motion capture equipment, became the predominant aspect.

One particular clip was selected as it seemed to encapsulate the flow and character of the dance as a whole. A short clip lasting only a matter of seconds showed participant 3 turning, transferring weight from one foot to the other, her right shoulder leading, one arm hung by her side and the other swaying until her hand was level with her hips. The clip was a minimal movement relative to the more expressive gestures within the dance. However it remained distinctly a *danced* movement.

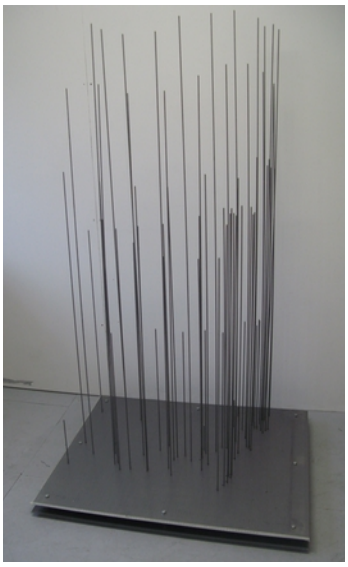
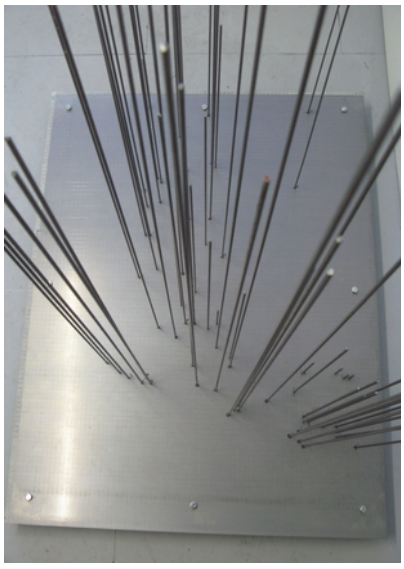
And herein lies its importance and qualification within this aspect of the study. Even though it was a simple movement from one foot to the other, a turning of the body, it is instantly recognisable as a danced movement. This movement does not belong to the everyday and because of this aspect of its presentation, within our recognition of its difference, there is an engagement on the part of the viewer. Due to its 'otherness' it necessitates a consideration that is excessive to a standard awareness. We come to understand this movement not by what it means but how it must *feel*. We inhabit this movement. It promotes an aesthetic response, a sensory response and within our current discourse it can be seen to promote a proprioceptive response. Balance, weight, the twisting and straining of the body can be witnessed but must be referred to our own bodies, our own proprioceptive sense. Can these functioning factors be transferred to a manufactured object through a tracing of this movement?

The next part of the process was to label each of the markers within the motion capture software. Each marker could then be 'traced' and a series of grid reference points produced. The motion capture equipment and software are capable of measuring movement to an extremely exacting degree. Our 'clip', lasting less than two seconds, generated one hundred and sixty frames, each noting the co-ordinates of our fourteen markers. In order to transfer such data into a real world model, a certain amount of rounding up and averaging out had to take place and so one in every sixteen frames were chosen and plotted.

It is a point of note that the objects made through the course of the study began with a very clear idea of the outcome. There was a certain intention toward how they were going to look and function. This may have altered through the creative/manufacturing process due to practical difficulties and design issues however the initial intention remained. Within the processing of the motion capture data collected from participant 3 dance there was not a clear idea of how the piece would manifest. Even though the blueprint was laid out within these 3 axis grid references and there was a

determined process to follow, the final 'object' could not be imagined.

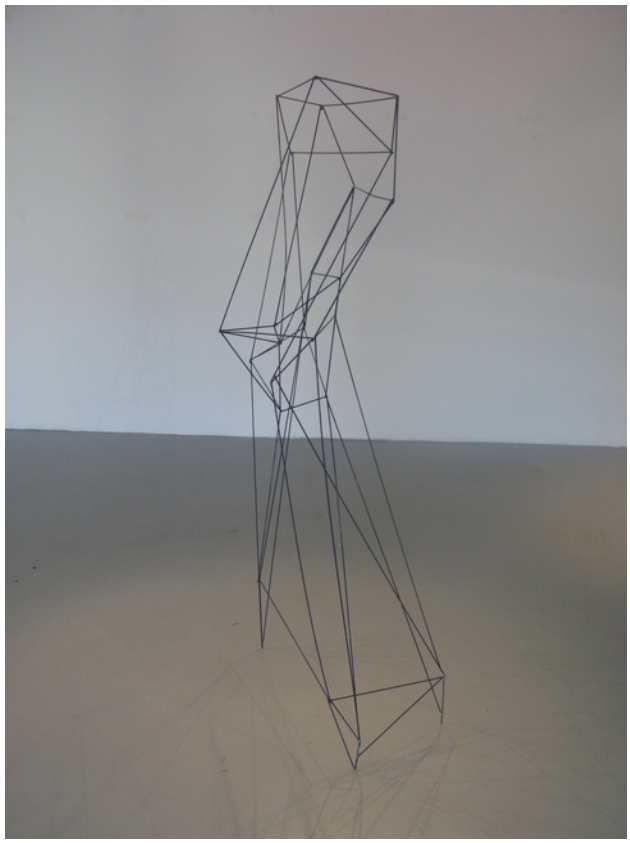
However, as stated the step by step processing of the data was already decided upon. Each of the fourteen markers, within each of 10 frames, supplied 3 x,y,z, grid reference points. These points would be plotted on a 3 dimensional model, x being the movement from front to back, y the right to left movement and z the height of the marker and the given point. The x and y axis would be plotted on a steel sheet and the z co-ordinate would determine the height of 5mm steel rods that would be mounted vertically on the steel sheet at the given point. It was within this process, a process of plotting, drilling, cutting and mounting that a depiction of movement again began to emerge from the overwhelming complexity of the numerical data. By the fifth frame a progression or 'shape' could be identified in the vertical steel rods. A progression from left to right, an arc and a rise and fall in the height of the rods recalling the original movement. Certain 'markers' traced a more dynamic trajectory. For example the marker labelling the right foot progressed quickly across the platform where as the left foot marker remained relatively stationary, it being the pivoting point within the movement. Other trajectories became recognisable from these plotted points; the turning of the hips described by a criss crossing of their relative trajectories and their rise and fall highlighting a weight transference.


Once completed the resulting model consisted of over one hundred steel rods vertically mounted on

the steel base. An object in itself, tracing a bodies movement through space but its effect, as were its foundations, remained graph like. Indeed this piece was just a stage in the processing of the data, a process of retrieval of the original movement from the numerical data supplied. A step toward an objectified movement. The next step within this process would be to build the object from this graph like model. For within these plotted points a shape lay. A shape of the space inhabited by a body moving through space.

The next stage in this process was then to join each of the plotted points to make a web like frame of the demarcated space. In this initial model the first point on the trajectory and the last point would be joined. 3Mm diameter steel rod was cut to length and run between each of the vertical rods. For example; the point plotted at the beginning of the trajectory of the left shoulder was joined by the 3mm rod to the point at the end of the trajectory, each of these points were in turn joined to the points demarcating the trajectory of the left elbow and so on. The resulting form was then cut from its foundations to stood alone as a separate object.



Supported on three points, each point relating to a foot fall within the movement, initially this object did not suggest the flowing movement of the dance. Viewed from the front, the front being where the movement would read from left to right, this structure spoke more of some sort of architecture; geometric forms interlocking, triangulating, stabilising. There was a broadness to the shape, a shouldering top line and almost vertical sides formed a block like perimeter housing a disparate group of delineated shapes. But this was the view from what we are calling the front, moving around this object the structure seemed to twist toward a more dynamic form. All lines condensed to form a narrowing on the vertical plane. A curve or bend in the structure became evident, the outstretched position of one of the supporting points could be seen. A progression could be witnessed, not a progression from point a to point b as was the case from the front view but a progression through space, an approaching progression from far to near. It may be that it is within this view that one particular element of the dance movement becomes evident, that being the element of time. From our first viewpoint, the plotted shape moves from one point to the next in a series of straight lines, this forms the block like structure, but taking this other view we see the lines in a closer relation that allows the realisation of movement and progression both factors establishing a temporality within the piece.

These shifting and conflicting viewpoints are reminiscent of the discussion in Chapter 1 relating to the Caro piece "Early One Morning". It too had starkly different viewpoints and coerced the viewer into a movement around the piece. In doing so, it was suggested, the viewer was allowed to inhabit the sculptural space and from within this privileged position could realise a shared reality with the sculptural object or as Michael Fried commented "The corporeality of sculpture even at its most abstract and our own corporeality are the same." (Fried ,1967 p.12)

The intention behind this piece was to affect a proprioceptive response within the viewer similar to that gained when viewing the original dance movement. It may be difficult to definitively claim this

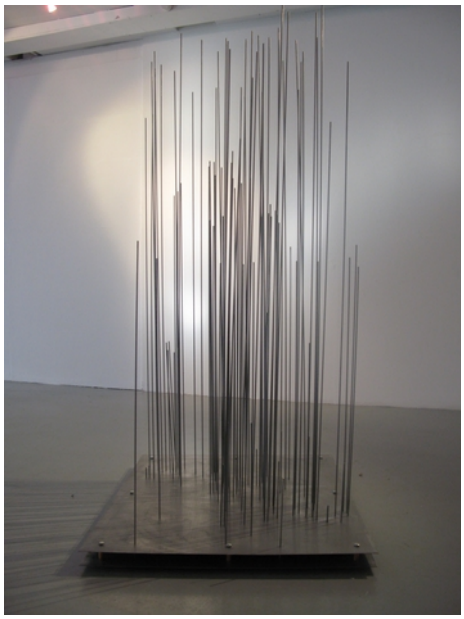
occurrence as this proprioceptive sense is fundamentally instinctual and we have spoken of how we cannot deny that each viewer will bring with them an individual interpretation. However the elements that may solicit this reactions can be seen to be evident within this piece. On a basic level the structure relates to the figure through scale and proportion. The fact that the piece demands the viewer to change there own position in order to address the piece in its entirety, as outlined above, promotes a realisation of the shared space and 'corporeality' of viewer and sculptural object. Indeed this coercion of the viewer to move must be seen to promote a proprioceptive response if but in a secondary way. The progression through space witnessed within the piece suggests a movement within which elements such as balance and tension can be seen or maybe *felt.* So even if we cannot be categorical in our claims, the functioning elements within the piece that hold a potentiality toward soliciting a proprioceptive response can be seen to be present.

The data collected from the motion capture project, in its present form, has allowed a view of bodily movement and position in relation to the sculptural object and environment. Its purpose, within this investigation, may be as a tool for looking more than an exacting device of scientific measurement. The de-constructed view of the participants forms has allowed a view of the subtleties of movements and the process itself has focussed attention toward such movements within the aesthetic experience.

The importance of the motion capture study within this research project may not lie within plotted points on a three-way axis, precise measurements of subtle movements or the production of analytical evidence. It has offered an arena within which an amalgamation of the work carried out during the entirety of the investigation could take place, the culmination of the practical work and the theoretical discourse. It has allowed a view of the 'whole situation' described by Morris. It has permitted an understanding of the authorial viewpoint found in much of the writings of Mearleau-Ponty and Bergson. It may not evidence the brain-mapping model of cognition put forward by

Damasio but we can begin to realise what factors may be constituent within such a formulation. It has detailed movement and body position and has allowed a considered view of the relation of the viewer and the sculptural object.

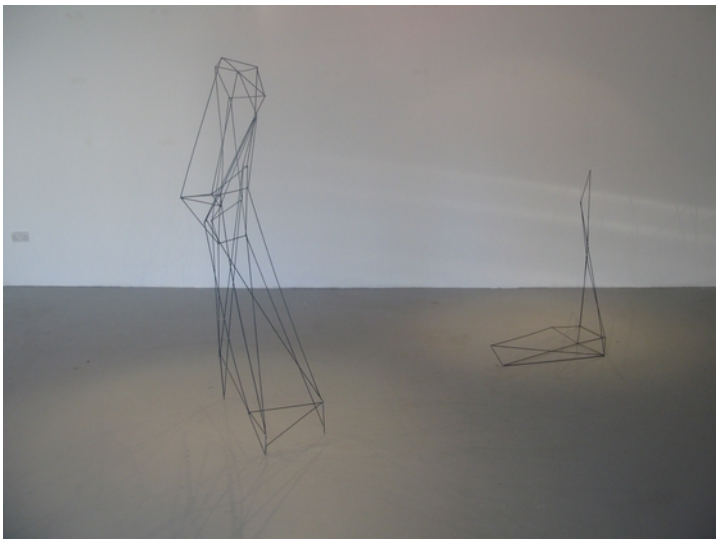
Conclusion



A steel cube with a pinched, curved corner mounted on the wall. The industrial fan housed in its steel frame activated by the motion of passer bys. The white, rounded, plaster form of "Bead". An ornate steel frame bent and contorted again wall mounted, its counterpart a delicate frame of steel wire descending from wall to floor. A maze of steel rods protruding from a square steel base leading to a blue structure, wire framed, poised on three points, progressing and hinting toward a figuration. A single bell ringing intermittently.

These are the elements that make up the conclusive paragraph within the practised based aspect of this research project. A collection of objects, none of which are categorical in their assertions and as listed above pertain to some sort of absence but collectively and within the viewing outline our subjects core. A location of the self and an awareness of the presence of the self within the aesthetic moment.

The steel cube, a structure acted upon, pulled and bent, encapsulating the process of its fabrication, the viewing of which being an engagement with that process, a second-hand simulation of that action. The viewer becoming aware of their own potential to effect change. The industrial fan activated by the very movement of the viewer and then delineating their physical form. Again an activation within the viewing and furthermore a framing of the physical form. The rounded form of "Bead" coercing the viewer into or *affording* a physical response, a circumnavigation, but in and of itself remaining distinctly and comparatively still. The ornate frame, again an object acted upon, objectifying the picture frame, bringing it off the wall and into the viewers space, its contents spilling out due to its contortion, readdresses the conceptual points surrounding formal aesthetic response on both a superstructural and infrastructural level outlined in chapter 3. The hundred or so vertical steel rods flowing across their base, a result of a detailed recording of a movement and acting as the foundations for the blue construction to which it leads. A structure both stable, stationary but also, from another perspective, pertaining to movement. A structure relating to the body and endearing a feeling into or empathetic response in the viewing. The single bell ringing, framing a progression of moments and acting as a auditory datum point within the space.



These objects, their conglomeration and the perceptual response affected within their appraisal attempt to bring forth an awareness of the physical body in space, its potential for physical interaction and its co- implication within the environment. However, even now, when I try to grasp at that awareness, that consciousness of self, it seems all too fleeting, evading recall. As soon as you attempt to inhabit that

moment it escapes you. For it is not something that can be possessed or described. It is something to be experienced, embodied and embedded within the objects and environments of your surrounds. This is why objects have been made.

It also does not maintain a singular characteristic: it may be awareness of stillness in relation to the movement of another, the opposing train, or the mechanical contraction of five acrylic rods; it may be the feeling of one's own movement in contrast to the stillness of a bead of water or a sculpted plaster form; it may be within the imagining of the rasping, abrasive process called to mind when experiencing a work like Puryear's "Self", or the inner sense of fluidity when viewing a dancer's movement; it may be a spatial awareness affected by the huge curving steel forms of a work by Serra; it may be within the "Humm" of charcoal on paper.

And so the object of our enquiry evades description and recall, and does not exhibit a singular characteristic. Put simply, it cannot or should not be summed up or concluded. What I have attempted to do is form a progression of enquiry, a network of lines or avenues of enquiry that together may describe the subject's fundamental core.

To begin with we created our frame. The framed moment of experience allowed by, but not exclusive to, aesthetic experience. A metal cage was fabricated to house an industrial fan directing a shaft of air upward and allowing viewers to inhabit the sculptural space above, an object called "Plinth".

We traced a progression of sculptural practice that began to take viewers' perceptive experience as its subject. A progression that saw a move away from an object producing practice to one of creating immersive environments and forms that allowed for a spatial awareness and realisation within the viewer.

We continued to investigate this notion of the framed moment by taking various examples ranging from early surrealistic photography, minimalist sculpture and little everyday instances of unconfused experience and self-awareness. This discourse focussed on how such moments allowed or created a break in the continuous nature of perceptive existence.

And then there was “Self” by Martin Puryear, an object and experience that has been such a solid and stable foundation throughout this project. It is the experience of this piece that has acted as a reference point, a sounding board, to much of the ideas that have been investigated. It has allayed fears and inadequacies, as I am safe in the knowledge that *I* was there.

Another pivotal piece was “Humm”. Three charcoal drawings and a reverberating sheet of neoprene rubber. It was this piece that led to much of the investigation into multi-sensory perception, neuroscience and cognitive science. The evidence offered by the world of neuroscience and described in relation to aesthetic experience was never intended to suggest an answer or proof of the ideas discussed. But it is a domain of research that is current and congruent with much of the ideas within this research project and thus merits its inclusion. It is also noteworthy how much of the theories and philosophical ideas offered by the likes of Merleau-Ponty and Bergson are now supported by evidence from the world of neuroscience. The amalgamation of these two disciplines offered much of the theoretical underpinnings to the main body of this research project.

J.J. Gibson’s theory of 'Affordances' and the discussion surrounding proprioception as a constituent element within aesthetic experience allowed for an understanding of, and led to, the detailing of a cognitive process that can be seen to be embodied and embedded within the objects and the environment within which the perceptive being exists. Paul Crowther offered a concise account of

the needs of self-consciousness and the parallels evident with the constituent factors of aesthetic experience.

All the objects created and the varying avenues of theoretical enquiry included in this project have been attempts to create the framed moment of experience and and locate its core. It is difficult now to recognise a chronological or causal chain from one object to the next, or from object to point of theoretical discourse. What is certain is that both strands require one another and are inextricably linked to the point of being parts of one whole.

An object was made. An object that seemed to hold within itself the entirety of examination. But our subject is not held within the object. Our subject exists within the experience of the object. In a dialectical flow between the viewer and the viewed, the perceiver and that which is to be perceived. Within this flow a location occurs. A location of the self within the experiential moment and a realisation of presence.

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