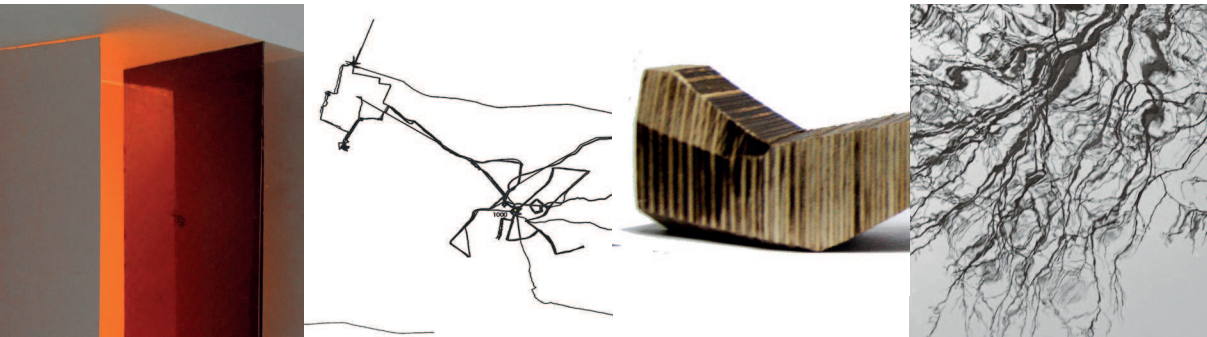


Civic Fabrication [Per] Forming Communities : Prologue : Fabrication #1 : **Architectonic Experiments**
 MA (Hons) Architecture, Final Design Studio March 2014



Civic Fabrication

Alex MacLaren, Fiona McLachlan



We posit that an architectural concept (readable on a civic scale) can arise out of engagement and intelligent experiment with the way the building is made: FABRICATION in the sense of praxis/making: creative exploration applied in built form. Each student chooses a source for their work, and inspiration for investigating a particular tectonic theme. These themes go on to inform proposals for architecture at the macro- and micro- scale: design informed by materials and construction techniques. We investigate **rhythm, shadow, repetition, frame, fold, balance** and **enclosure**. We begin the semester with these personal, scale-less investigations and seek a tectonic thesis for development as architectural proposition later in the semester.

Students have been encouraged to work intuitively with material, construction and photography in the first weeks of the course and to develop these experiments to bring a formal or material language to the site.

Each student identified a sculpture, painting, photograph or other work of art from a suggested list provided by the tutors, to act as the starting point for a series of quick, iterative, model / drawn / photographic investigations on a theme suggested by the piece.

What follows is a portfolio of abstract architectonic investigations that suggest possibilities for further study as built proposals.

Students: Gary Bowman, Oliver Beetschen, David Blair, Sophie Boyle, Laura Bray, Daniel Burke, Hakon Ellingson, Matt Fleming, Rebecca Goodson, Nicholas Green, Natalie Jones, Michael Lightbody, Marc Little, Aaron Lye Ling San, Jonathan Lynn, Ran Miao, Derek Milne, Stuart McInnes, Finlay Muir, Clare O'Connell, Mikaela Patrick, Carol Shek, Aimee Smillie, Sami Tekle, Jamie Walker, Craig Wallace

Tutors: Alex MacLaren, Fiona McLachlan

This exercise formed the first of four parts:

PROLOGUE :	Fabrication #1:	Make and Create	Architectonic Investigation
ACT 1 :	Fabrication #2:	Stories and Fables	Proposing Urban Futures
ACT 2 :	Fabrication #3:	Assembly	Community Theatre
DENOUEMENT :	Fabrication #4:	Construction	Auditorium

page	ARCHITECTONIC INVESTIGATIONS	
4	Proportion, Rhythm & Interruption Paul Klee: Highways and Byways, 1929	Oliver Beetschen
8	Depth, Rhythm, Layering, Perspective Paul Klee, Highways and Byways 1929	David Blair
12	Layering Chaos Jackson Pollock, Number 8 1949	Gary Bowman
16	Chaos and Control, Surface and Pattern Jackson Pollock, Autumn Rhythm 1950	Sophie Boyle
20	Fragments GRAPHIC OBJECTS Mira Schendel	Laura Bray
24	Composition and Layering Henri Matisse, L'escargot, 1953	Daniel Burke
28	Pathways Paul Klee, Highways and Byways 1929	Matt Fleming
30	Capturing Ephemeral Phenomena Donald Judd, Wall Boxes (1986)	Rebecca Goodson
34	Obstacle & Interference Antony Gormley, Feeling Material 2003-2008	Nick Green
38	Natural Logic of Flow, Patterns and Connection Yann Arthus Bertrand , Amazon Logging, 2010	Håkon Heie Ellingsen
42	Distortion of Perspective Gustav Klimt, Birchwood, 1903	Natalie Jones
46	Recurring Shadows Giorgio De Chirico, Mystery & Melancholy of a Street, 1914	Michael Lightbody
50	Fluidity of Movement and Gravity of Space Yann Arthus-Bertrand, Amazon Logging, 2009	Marc Little

- 54 **Trace and Decay**
Olafur Eliasson, Notion Motion (Various) and 2005 Aaron Lye Ling San
- 58 **(De)Formal Tension**
Bernd and Hilla Becher, Watertower Series 1980 Jonathan Lynn
- 62 **Connections, Repetition, Networks**
Jean Tinguely, Heureka, 1967 Stuart McInnes
- 66 **Frame, Threshold and Trajectory**
Gustav Klimt, Birchwood 1903 Ran Miao
- 70 **The Enclosure and Emphasising of Void Space**
Richard Serra, Double Torqued Ellipse III, 1998 Derek Munro Milne
- 74 **Coalescence, Tension and Disparities of Scale**
Alberto Giacometti, The Glade, 1950 Finlay Muir
- 78 **Proportion, Distortion and Intersection**
Paul Klee, Highways and Byways, 1929 Clare O'Connell
- 82 **Enclosure, Verticality, Intensity, Cluster, Amalgamation**
Gustav Klimt, Birchwood (1903) Mikaela Patrick
- 86 **Depth and Repetition, Position, Uncertainty and Possibilities**
Giorgio de Chirico, Mystery and Melancholy of a Street, 1914 Carole Shek
- 90 **Movement, Proximity, Fragmentation and Repetition**
Anthony Gormley, Feeling Material, 2003-2008 Aimee Smillie
- 94 **Simplicity & Repetitiveness**
Donald Judd Untitled (Wall boxes, Stacks) 1982-95 Sami Tekle
- 98 **Seismic Eversion**
Barbara Hepworth, Wave, 1944 Jamie Walker
- 102 **Movement, Illusion of Mass, Energy, Boundary, Senses**
Antony Gormley: Feeling Material, 2003 - 2008 Craig Wallace

Paul Klee: Highways and Byways, 1929

Proportion, Rhythm & Interruption

Oliver Beetschen

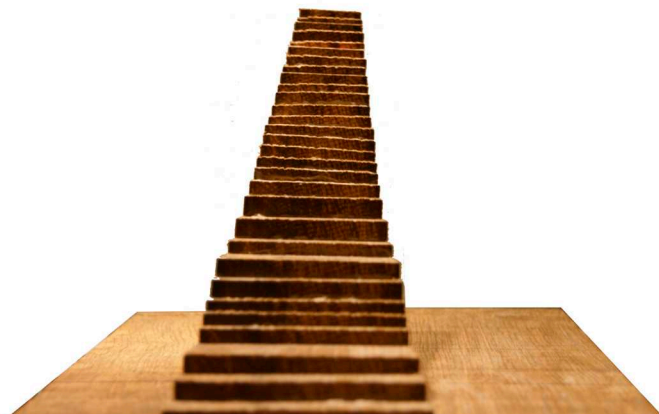


> An agricultural landscape

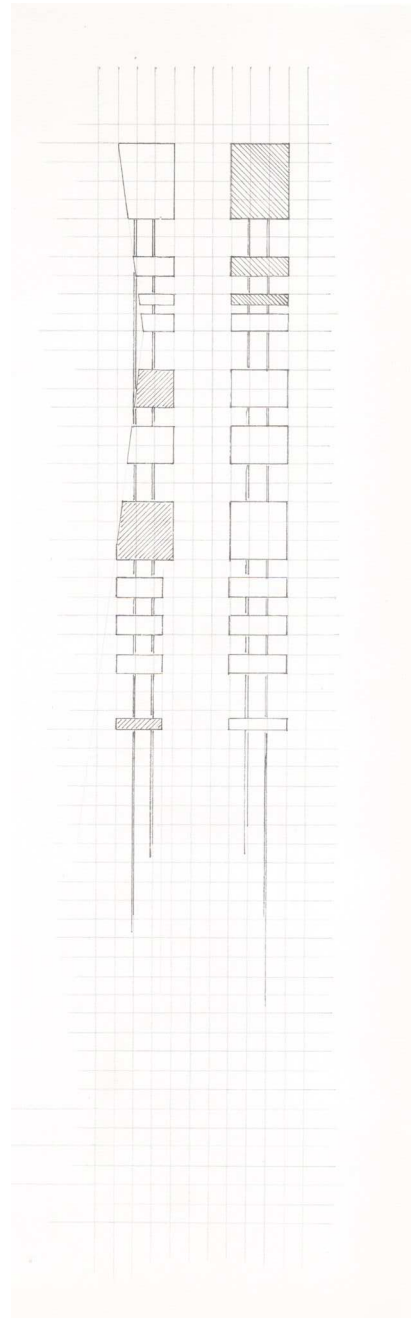
An initial interest in the perspective qualities of the piece led me to create a study model which simply extruded the main 'highway' which highlighted potential visual tricks when viewed from different angles.



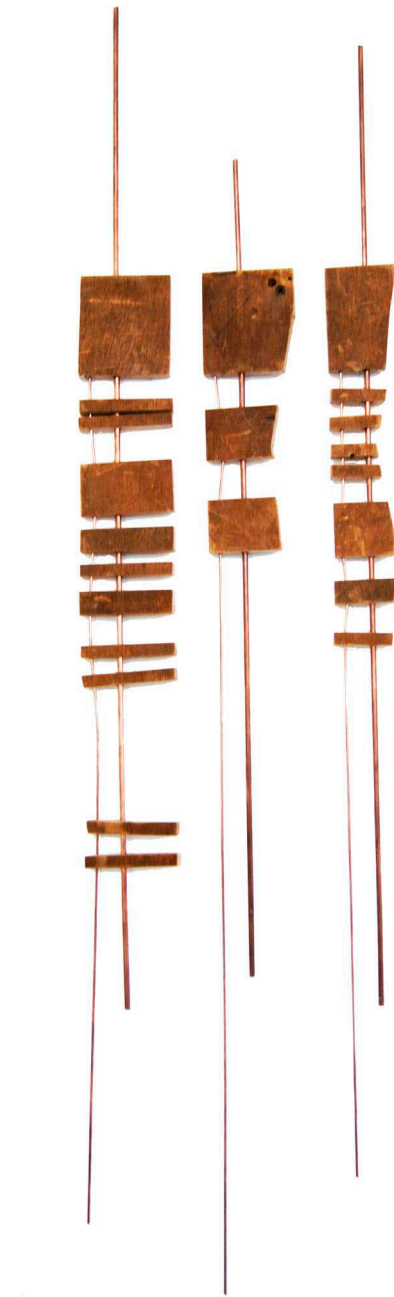
i. Comparison against original piece.



ii. 3 dimensional perspective study



iii. interrupted grid drawing

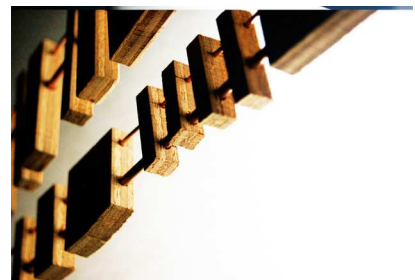
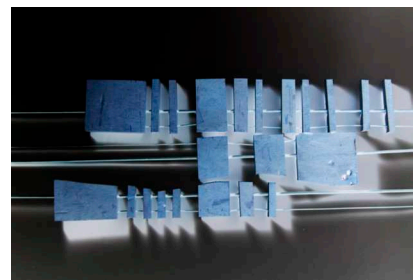
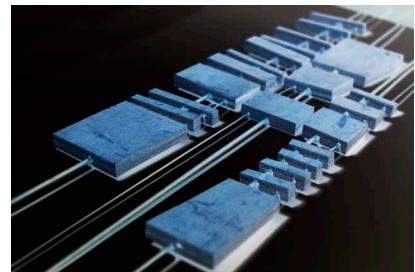


iv. rhythmic experimentation
maquettes

> Rhythmic Rules & Proportion

3 maquettes were created to explore the proportional rules Klee obeyed by. Each element or gap obeys by the rule of the grid being either: 0.5, 1, 2, 3 or 4. The idea of linearity piercing through the elements and creating a homogenous unit was of interest.

The interruptions within the rigid framework and the creation of form from repeated elements interested me.



v. form creation long model

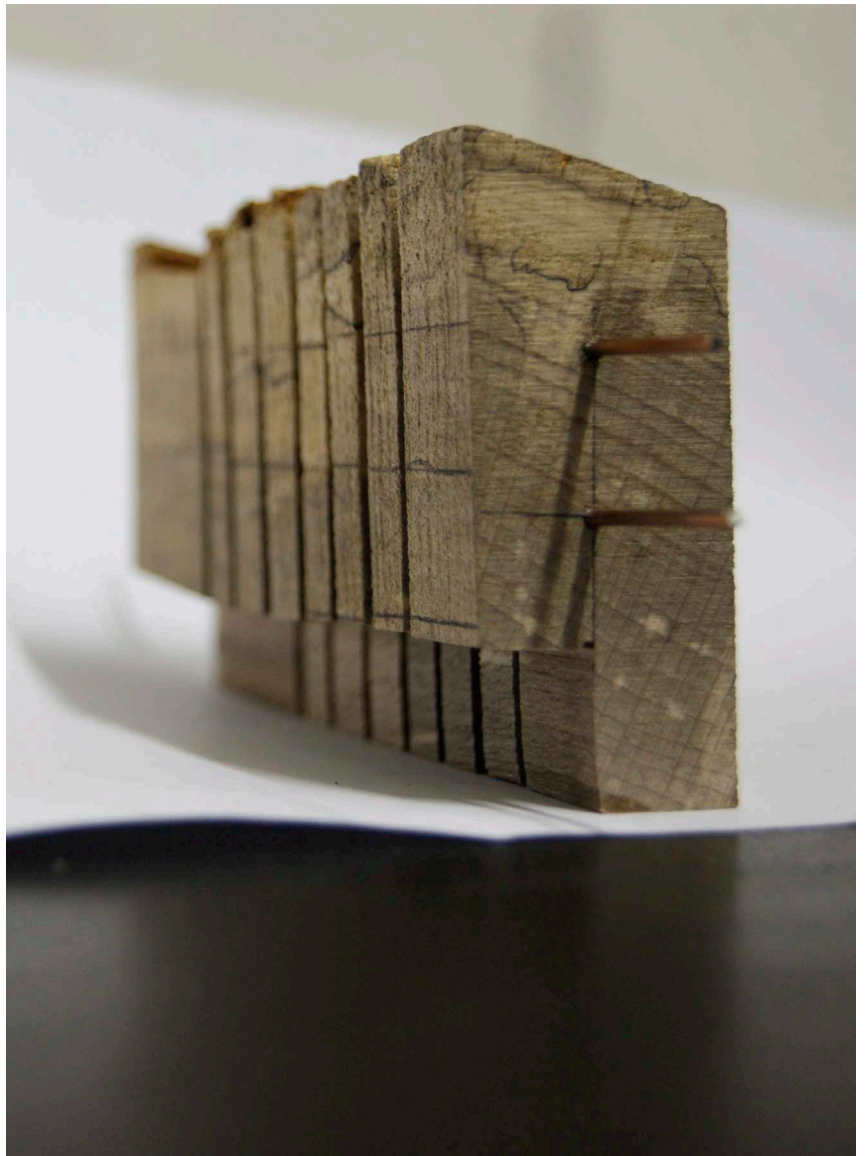


> Form creation

A long, 1.2metre model was created to explore the possibility of creating a coherent form with only a limited number of elements which were spaced according to a strict set of rules. The edges which had been cut were coloured black which introduced an interesting contrast of colour and texture.

> Interruption

Using the rhythm, pattern and texture of plywood I began a study into the potential aesthetic strength of interruption when applied to a rigid and repetitive rhythm. These models allowed the interruptions to apply in a 3 dimensional context creating some interesting forms and spaces.



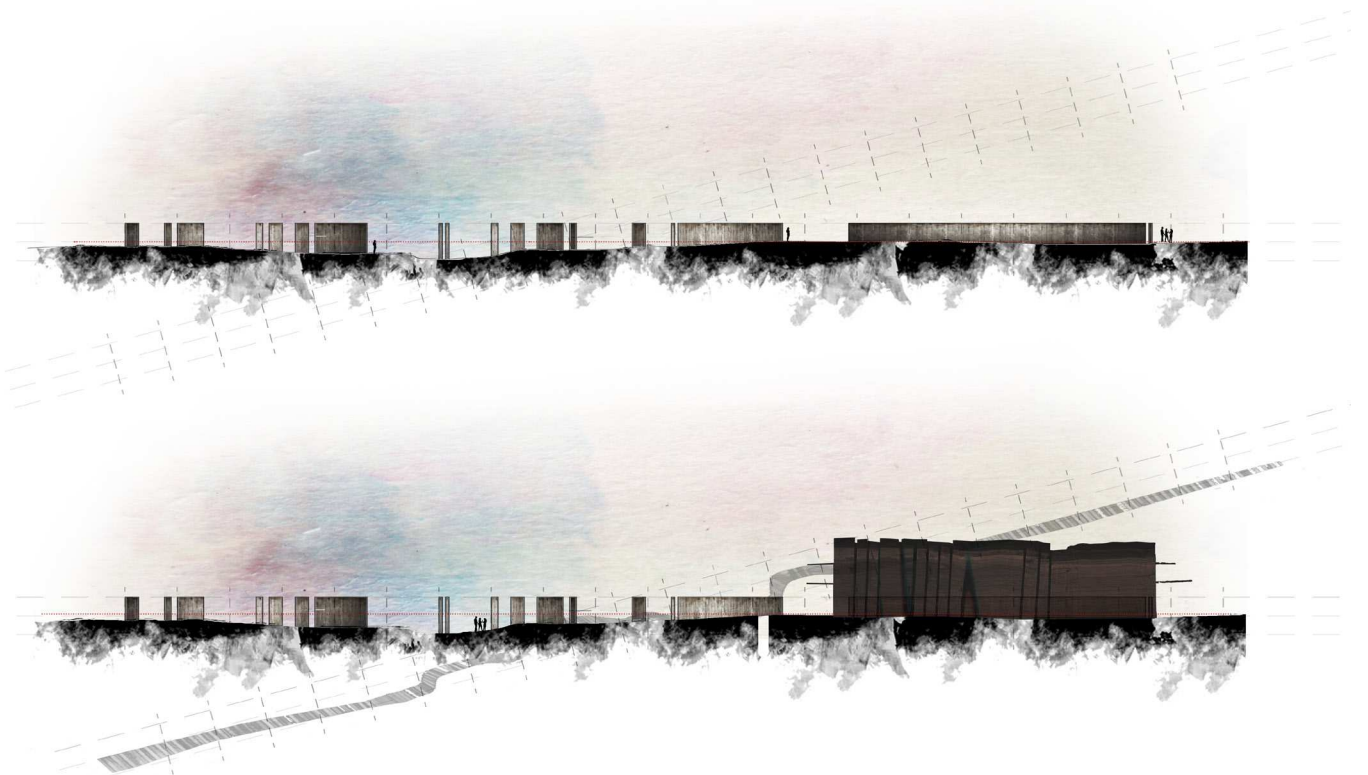
vi. parti model



vii. interruption upon a repeated rhythm

> Scale

Taking elements of interest from the 4 clear studies I began to look at scale and introduce ideas of light, shadow, solid and void. With this change in scale, and in section, the spaces in between the elements can begin to be inhabited and define unique spacial qualities. The 'rests' between the elements begin to have as much permanence as the solid elements. A potential plan on grid is introduced through abstracting the linearity of the final parti model.



viii. introduction of scale

Depth, Rhythm, Layering, Perspective

David Blair



Highways and Byways
Paul Klee 1929

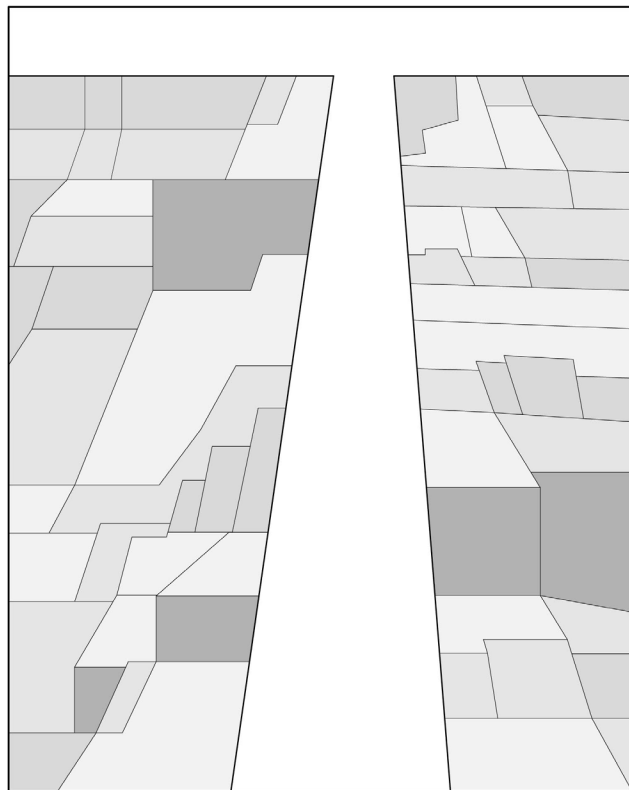
Paul Klee was a Swiss-German painter active between 1910 - 40. His style was highly original and influenced by movements in art that included expressionism, cubism, and surrealism. He eventually experimented with and got deep into colour theory with his paintings displaying a range of things from his dry humour, child like perspective and his personal moods.

His *Highways and Byways* painting of 1929 came out of his trip to Egypt and shows the Egyptian grain fields which run either side of the River Nile which is

represented as the blue strip at the top of the painting with the fields depicted as a coloured strip pattern.

Iteration I: Depth

My first tectonic response to the painting was to show the depth I saw within it. I did this by tracing over the grid pattern and abstracting it into more of a block form, grouping which parts I felt belonged to each other. I then applied a grey scale to it to show the series of ramps and steps I saw running to the back of the painting with darker tones being steeper slopes.



Iteration I: Depth



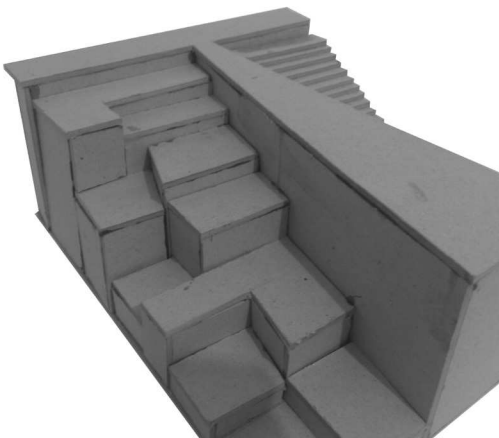
Iteration II: Rhythm

Iteration II: Rhythm

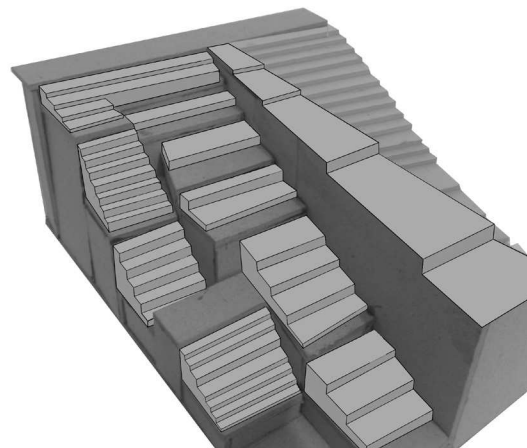
Moving on from my first study I looked at my first interpretation in a different way, seeing the drawing I did as a grid with no depth. I realised that there was an irregular rhythm within it and Iteration II I shows the painting being made up of an irregular pattern of vertical and horizontal lines.

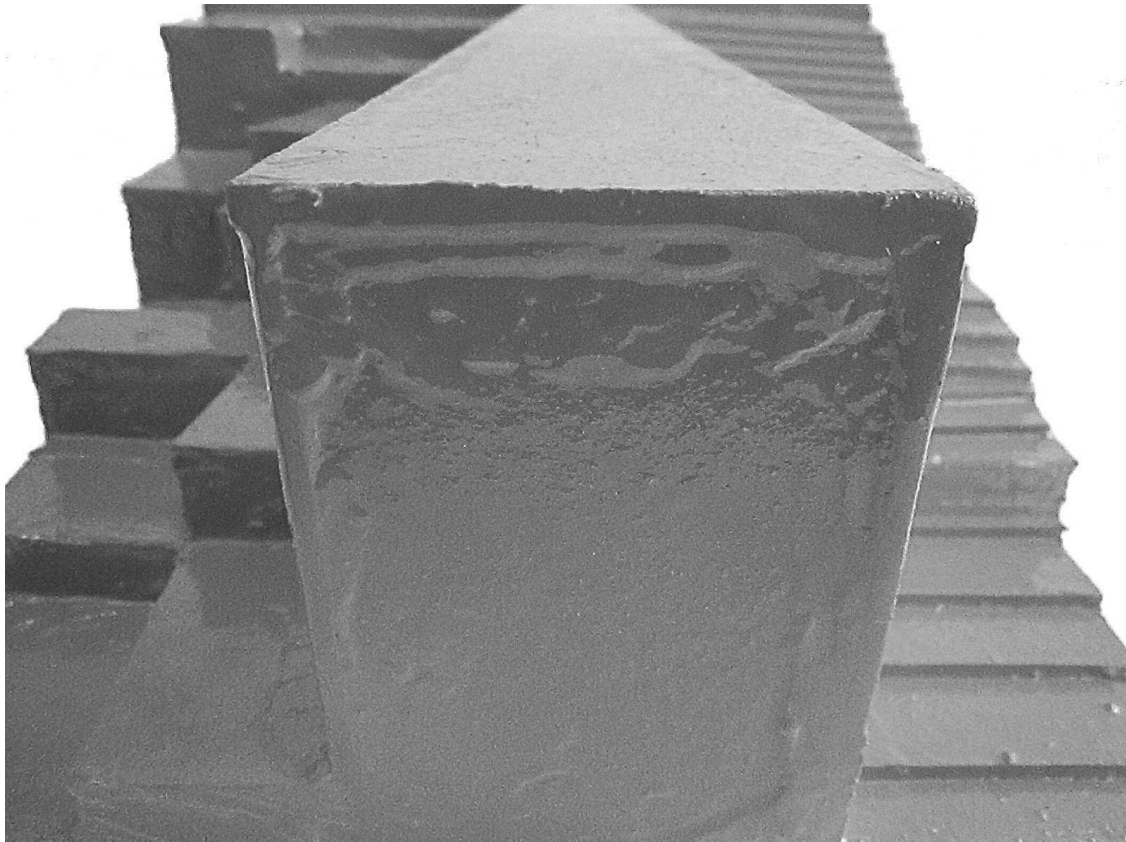
Iteration III: Layering

Iteration III involved going back to my initial study in depth and was looking at the relationship between that and layering. I did this by modelling my interpretation of it in 3D. The model shows the relationship between the block forms in Iteration I and the more intricate grid pattern of the painting.



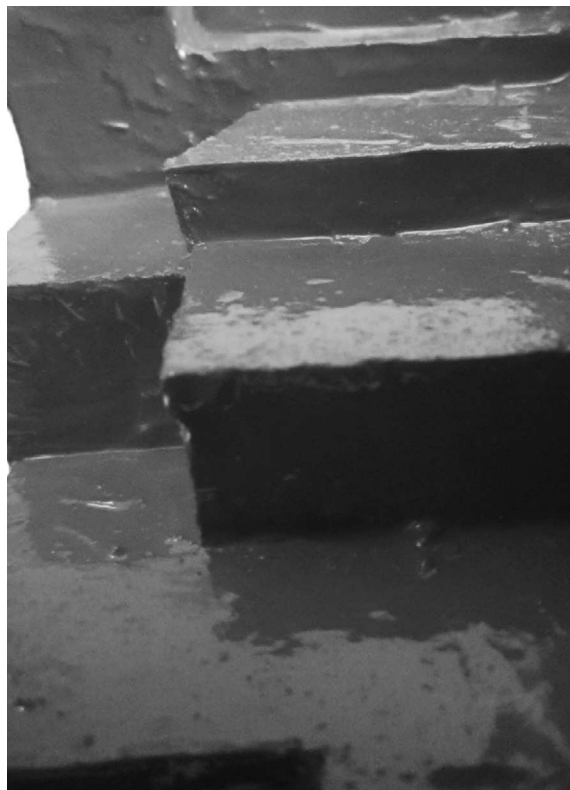
Iteration III: Layering

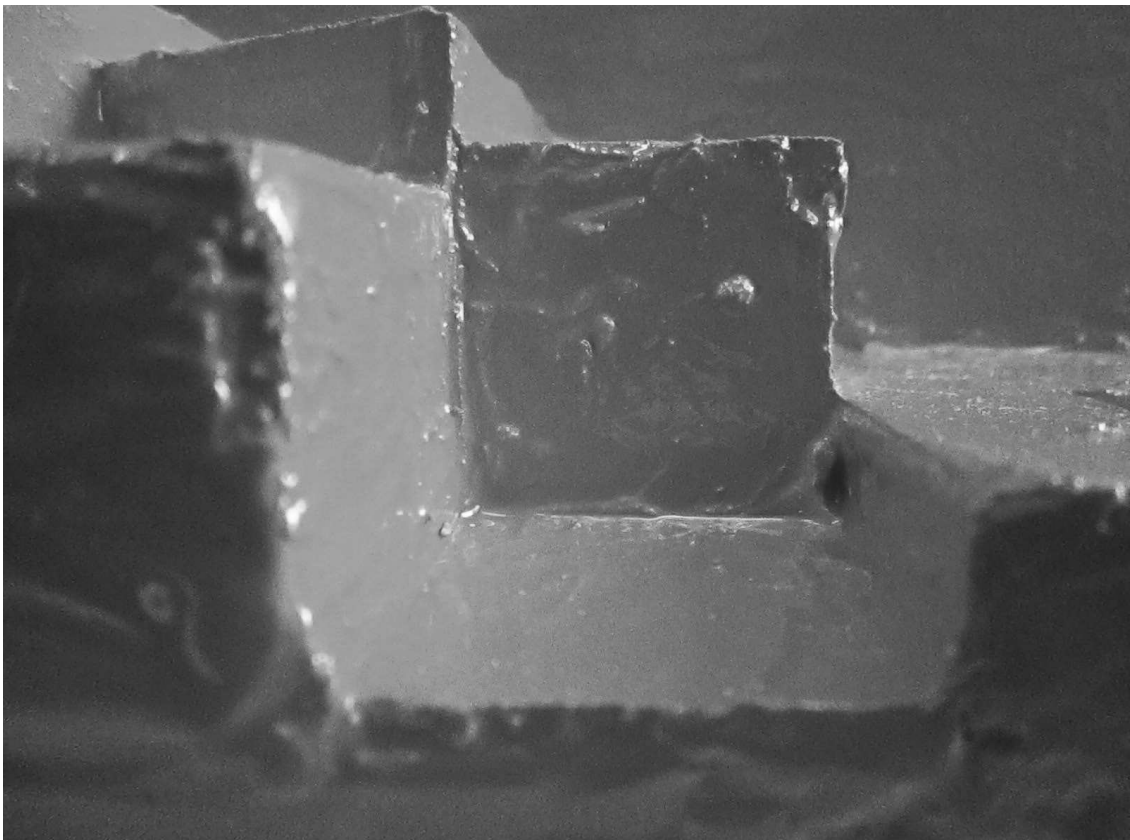
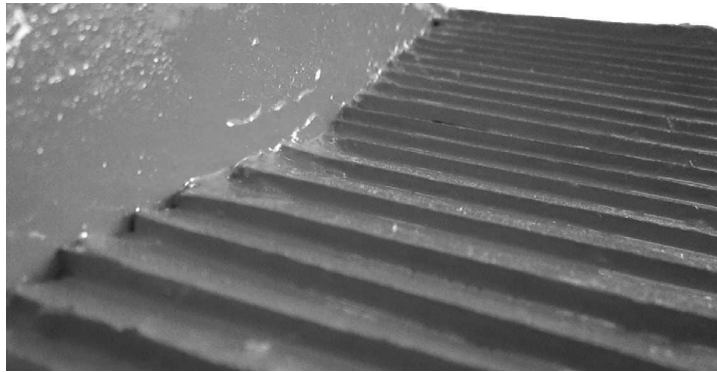
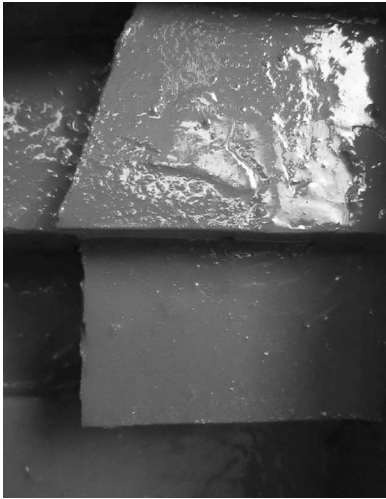




Iteration IV: Perspective/ Scalelessness

My final tectonic investigation involved looking at perspective. The painting itself has strong sense of this and can be seen as a one point perspective drawing. However when trying to trace over this in Iteration I I found that even though it gives this impression it isn't accurate and the perspective is warped. I showed this in my work by reworking my model from Iteration III and photographing it from various angles really honing in on particular parts of it. This produced images with a warped perspective as there was a scalelessness to them that is captured in the original artwork.

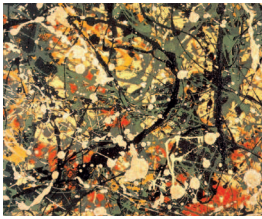




Iteration IV: Perspective/
Scalelessness

Layering Chaos

Gary Bowman



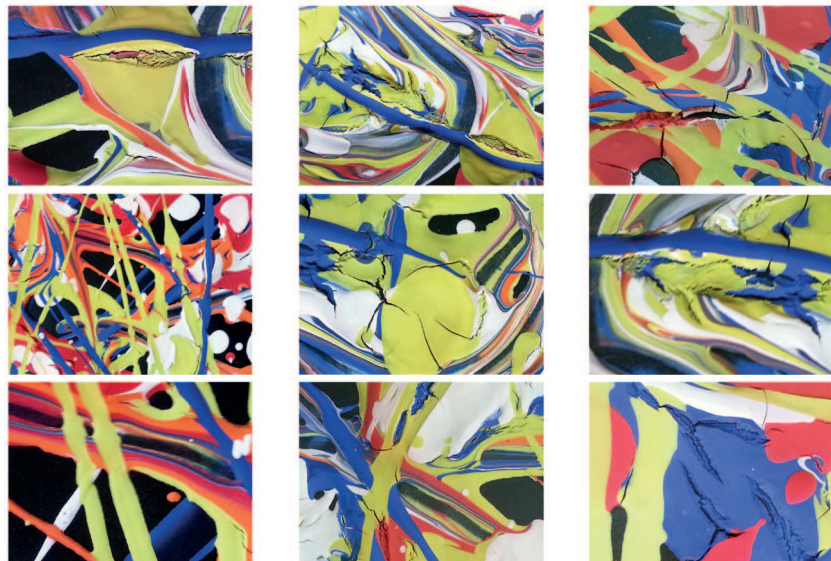
Pollock, J.(1949) *Number 8*
Oil Paint on canvas

Number 8 is pure chaotic expression. The beauty of it is that the artwork is free of a subject matter. The artist would pin the canvas to the floor and pour paint over it using a variety of different utensils to manipulate the course of the paint but with no intention in mind other than to let the paint speak for itself. The randomness and obscurity that this creates intrigues the viewer, by allowing them to derive their own interpretation from the art work.

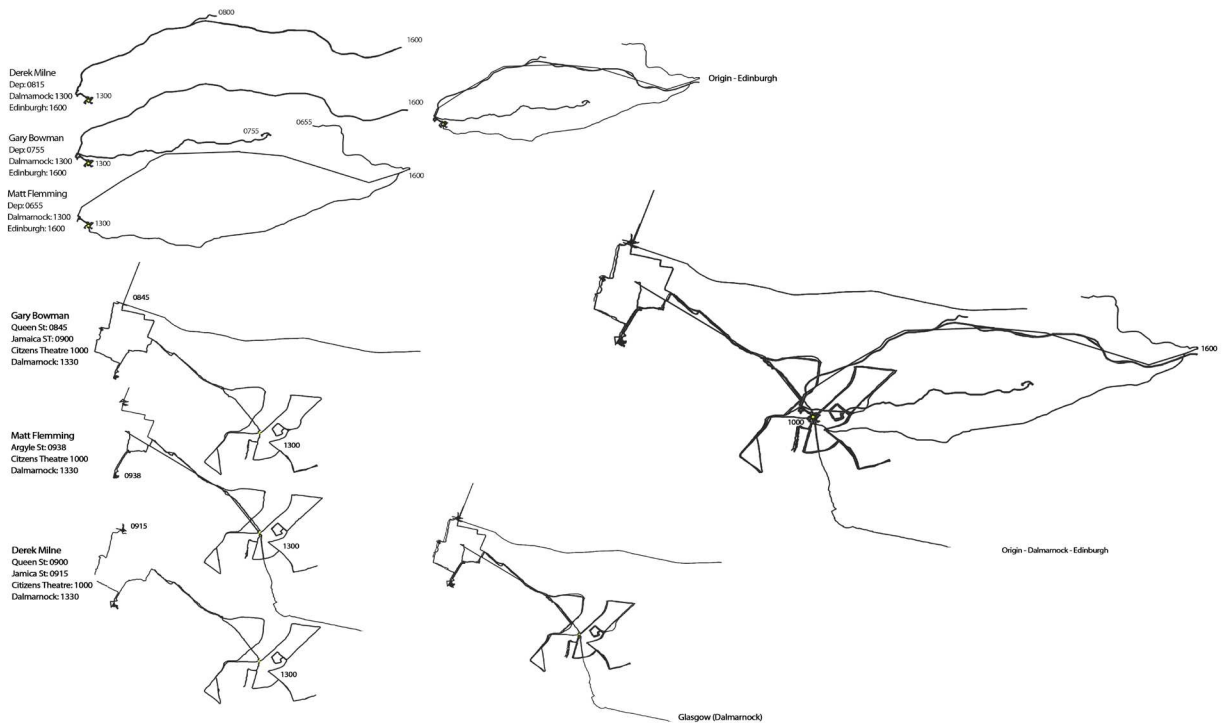
My first exploration of this was to get students from Unit 2 to translate their interpretation of Number 8 in a very Pollock-esque fashion. Black paper was laid on the floor and each person chose a colour to represent what the artwork meant to them. The outcome was very successful. With each new layer that was added, an element of time started to be built up on the canvas. A fourth dimension was realised as each layer had its own place in time, which was conveyed with the ordering of the layers.



Number 9 Pollock-esque by
ESALA MA Arch (2013-2014)



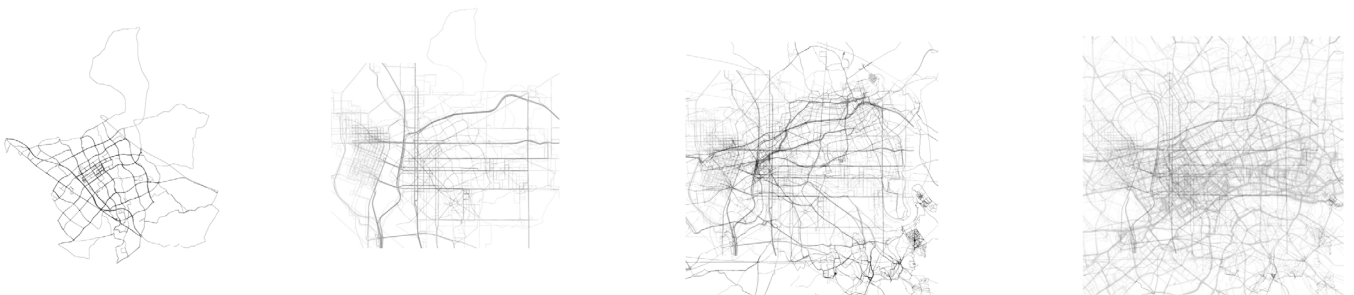
Number 9 Pollock-esque by ESALA MA Arch (2013-2014)
Micro Exploration



Converging the Fourth Dimension: GPS Track : Origin - Dalmarnock -Edinburgh

The convergence of layers that convey time was exciting. Exploration 2 looked to investigate this further. During the trip to Dalmarnock, at the start of the semester, I asked the Unit to record their paths using a GPS tracker. The Unit meeting at Citizen's Theatre

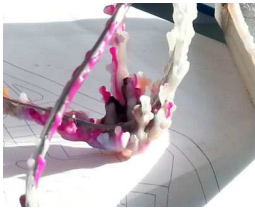
afforded the opportunity to pin point each of these tracks in relation to time and place at given moment and over laps them to see how the time and place differed for each person.



Converging Maps

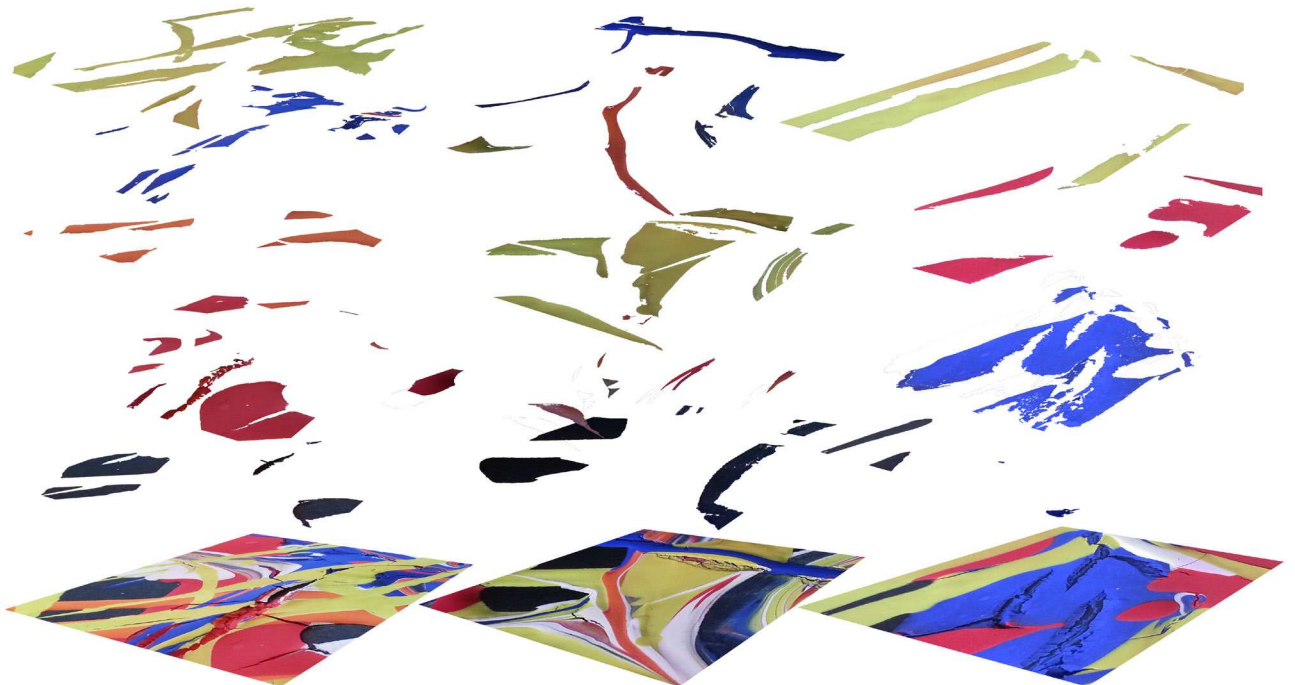


Understanding Chaos
Iteration 4



Moulding Time
Wire & Wax Model

Extruding the Fourth Dimension, and the manipulation of this, in order to understand chaos has become very important to the explorations that have informed my tectonic. The layering of emotion one overwriting the other has been a key interest. The interrelation of different emotions between spaces causes chaos within architecture and lending to a better appreciation of time spent within it. Architecture can inhabit us as much as we inhabit architecture.



Extruding the Fourth Dimension
Iteration 3

Jackson Pollock, Autumn Rhythm 1950

Chaos and control, surface and pattern

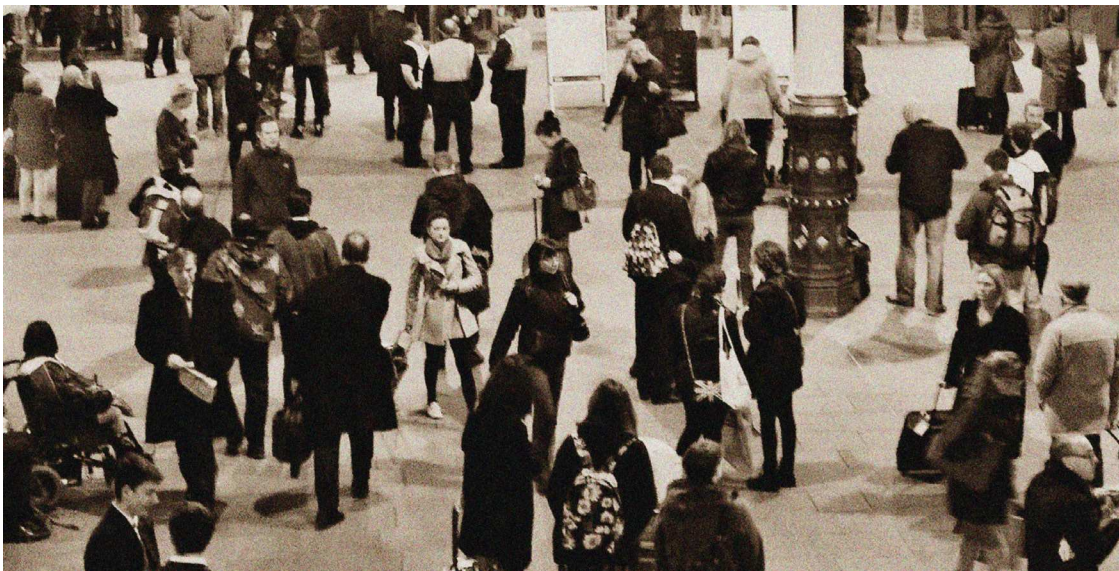
Sophie Boyle

Autumn Rhythms represents a body of work that Jackson Pollock produced using his revolutionary method of placing the canvas flat on the ground and working around from above, as oppose to using the conventional easel. Upon first glance, the impression the painting gives is that of accident and chaos but on closer inspection it is clear that there was a huge level of method and control involved, with the paint distributed fairly evenly and staying within its frame; the painting is a balance between accident and intent.

This observation lead to an investigation into the balance between chaos and control beginning by the photographing of people at a train station, viewing the scene from above similar to Pollock standing above the canvas, capturing the crowd below which initially appears chaotic but is made up of people each having a very clear purpose and direction. By abstracting those images, at first by means of layering and secondly by scaling, ideas of pattern emerged. Creating a stamp from seemingly abstract and random



Original artwork





Chaos and control :
abstracted by layering

shapes immediately introduces control, by means of the ability to repeat. The printed images subsequently created from two lino stamps appear chaotic and irregular, despite being produced using only two repeated patterns. The use of the prints inherently suggests an investigation of solid and void,

again introducing ideas of control and finite boundaries, however, the surface created through the paint by contrast suggests irregularity and ambiguity. The chaos is maintained through the creation of the irregular and accidental surface and the control is kept through the creation of pattern.

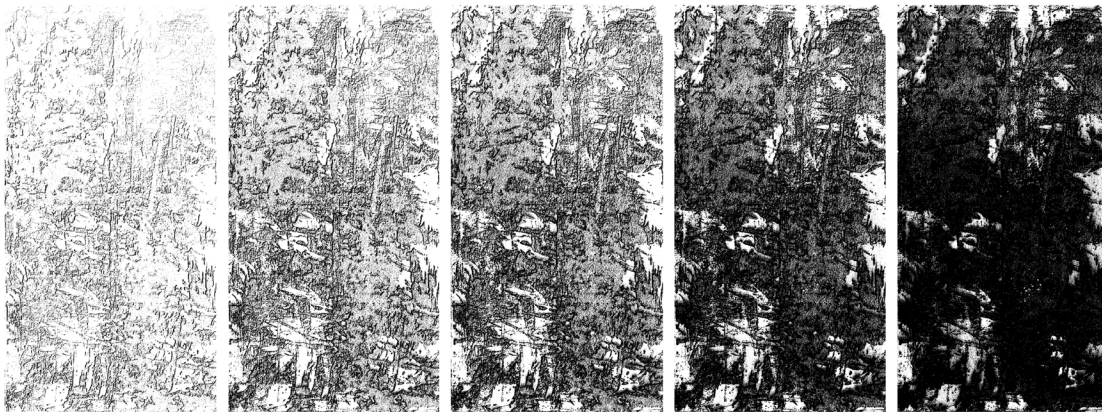
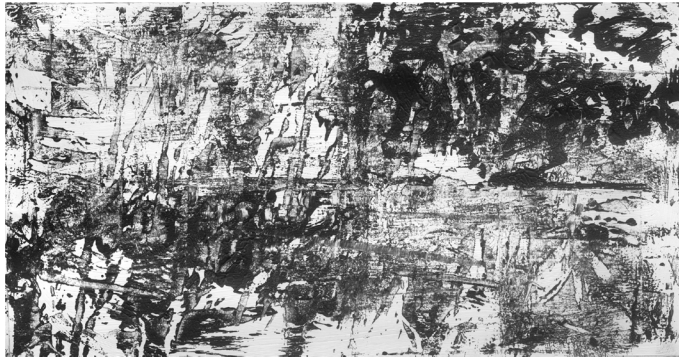


Chaos and control :
abstracted by scaling





Stamping and pattern



Surface studies



Chaos and control:
surface and pattern

Fragments

Laura Bray



'Graphic Objects' is a piece of artwork taken from a series of the same title. A selection of letters and symbols are layered on transparent rice paper. The graphic quality of the letters is the principle theme, rather than their literal meaning. This then became the focus of the explorations.



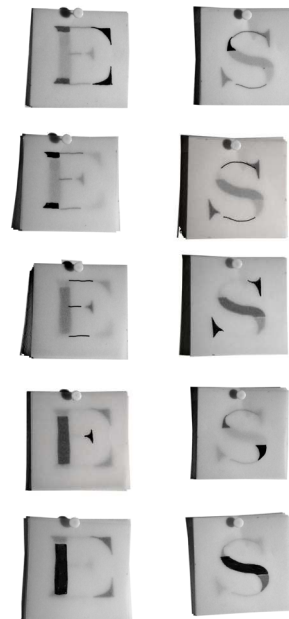
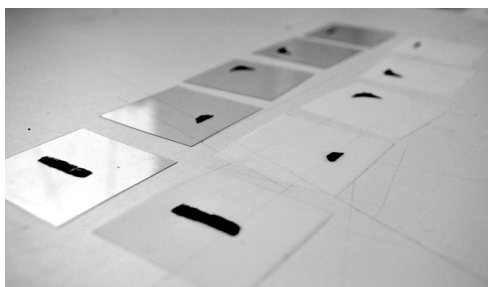
Graphic Objects displayed within a gallery exhibit

The 26 letters of the alphabet can all be derived from 12 fragments arranged in various configurations. By pulling apart the layering that Schendel uses to read the fragments individually, the letter becomes abstracted, yet still recognisable.

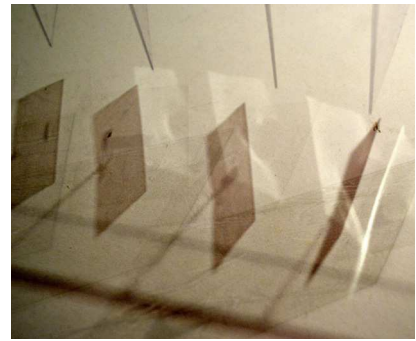
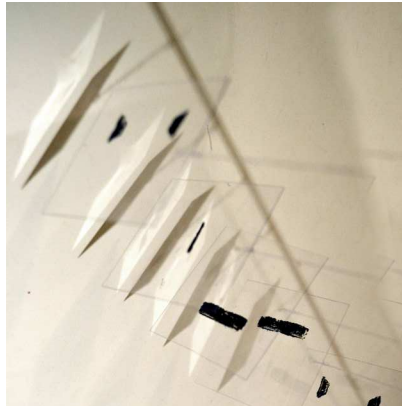
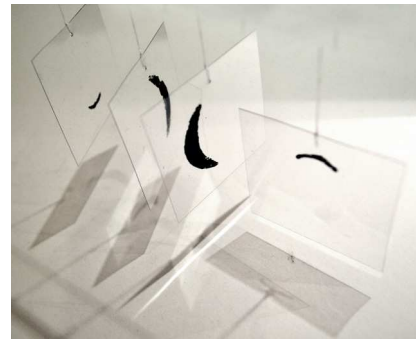
"The presence of words, of free-floating, enigmatic letters that derive their meaning from their form, from their graphic appearance and physical presence in three dimensional space. "

"A circular reading where the lettering constitutes a fixed centre around which the viewer moves. Thus time is transferred from artwork to viewer as it is bounced back from symbol to life. "

By suspending the 'fragments' the artwork becomes three-dimensional. The letter now becomes apparent from two points of view if the letter has rotational symmetry.



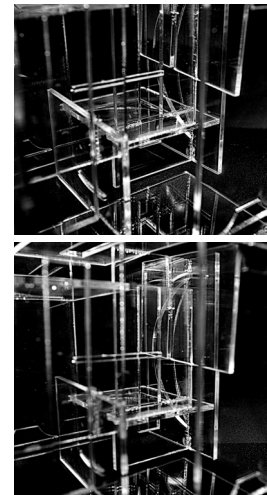
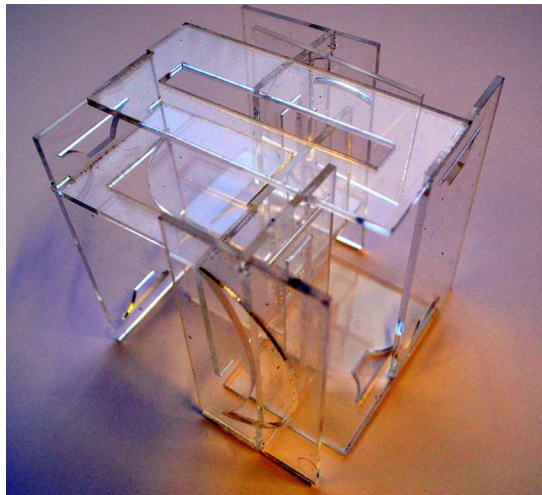
Twelve stamps of the individual fragments used to create each letter of the alphabet



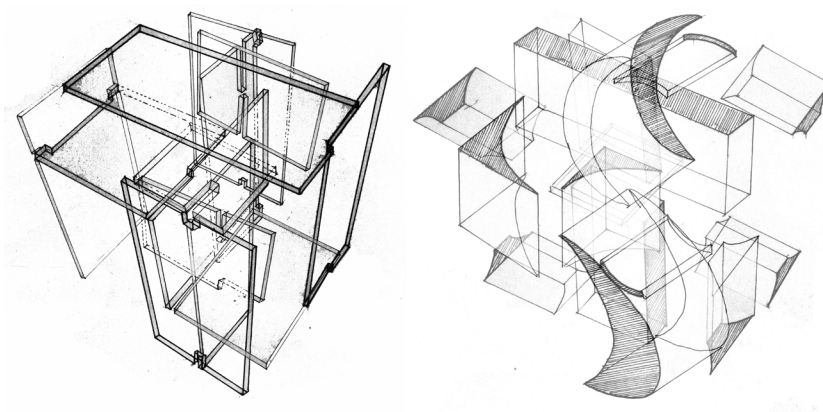
Suspended fragments with letters of rotational symmetry

The interpretation that followed was a three dimensional cube with the components of the letters 'O', 'H' and 'T' along one point of axis each.

Perspective now distorts the reading of the letters and the artwork becomes yet further abstracted, and in this way the graphic of each fragment is further explored.



An exploration of planes and voids in three dimensions

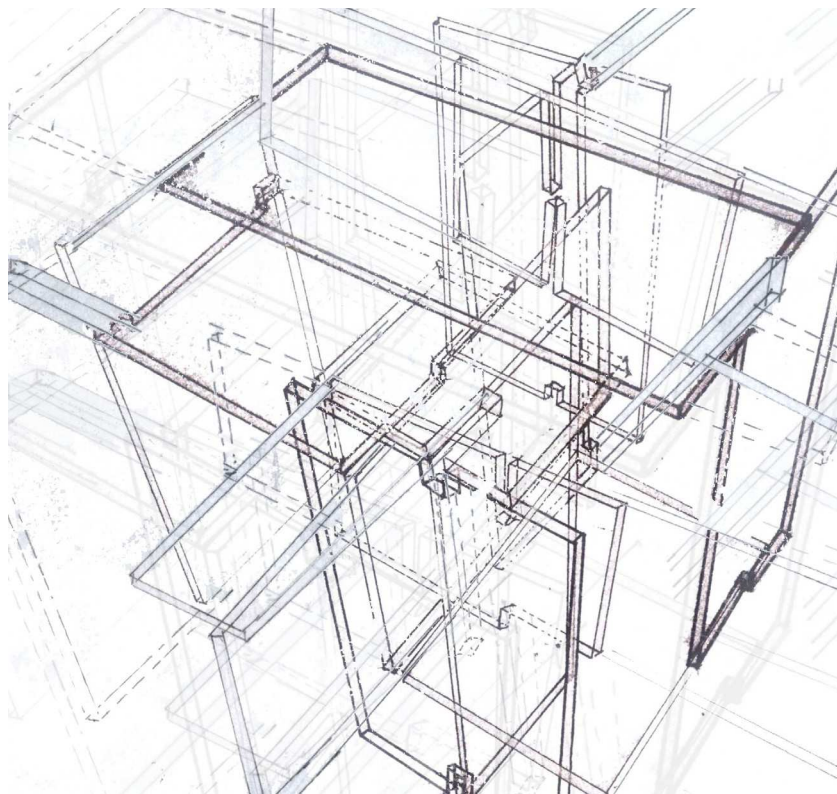


Planes and Voids

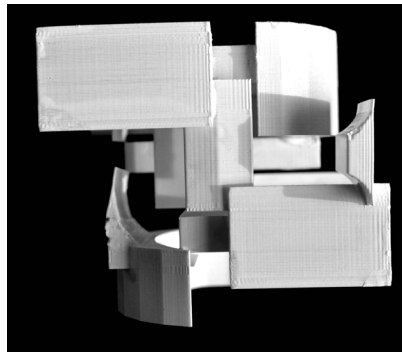
The model was then explored through the medium of drawing, separating out the different qualities of the planes and voids. By then removing the bounding form of the cube it lead to the line drawing below.

The final iteration was to create an inverse to solidify the voids and hence the original fragments and explore their

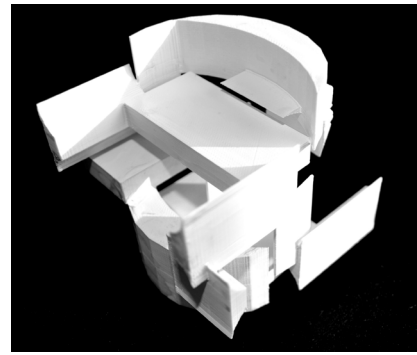
intersections. A 3D Printer was used to create the model of interconnected components. The extrusions were pulled out beyond the original frame to create a more dynamic form. Although now completely abstracted from the three original letters, the model still speaks the same language as the initial art piece. with a more solid nature that the first iterations.



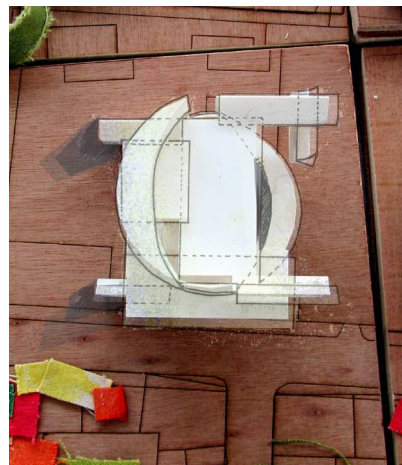
Interpretation and re-iteration of the model



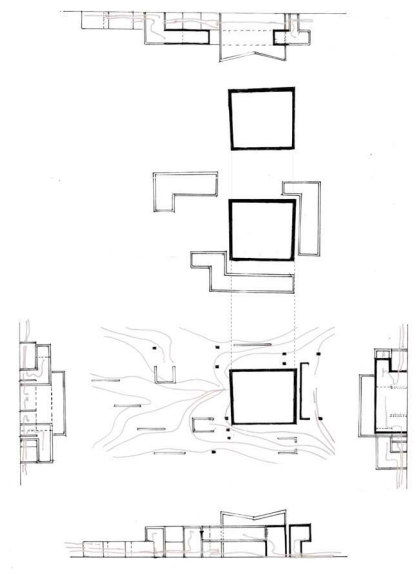
3D printer fragments and intersections



The model now became a conceptual 'Parti' to translate the themes explored in the abstraction process, on to the following theatre proposal. The dynamic model suggests ideas of movement through the site as well as a building that will be intriguing in a sectional exploration. The contour style sketches of Mies van der Rohe were used as precedence for the Parti sketches below as part of the initial step in bridging towards the theatre design.



Parti explorations within a site context



Mies van der Rohe atyle Parti sketches

Henri Matisse, L'escargot (Chromatic Composition), 1953

Composition and Layering

Daniel Burke

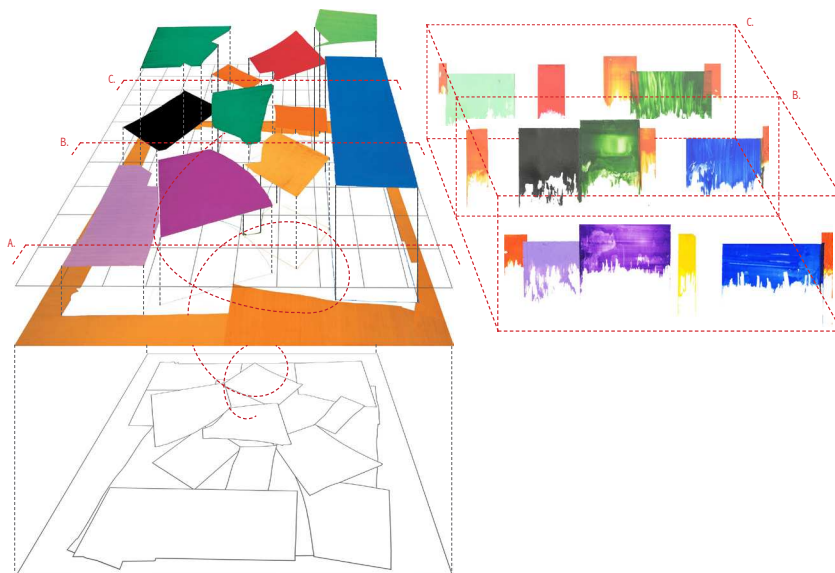


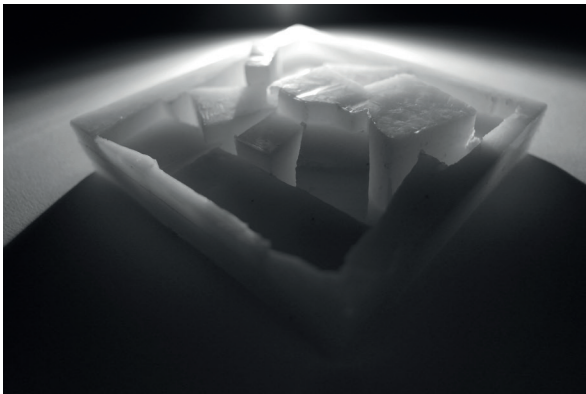
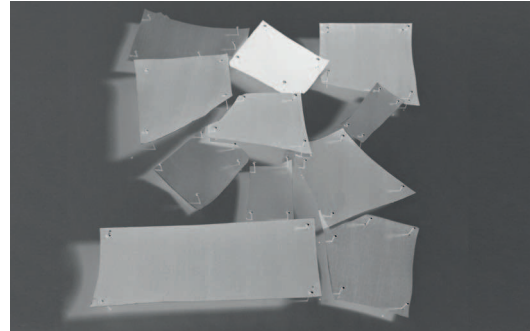
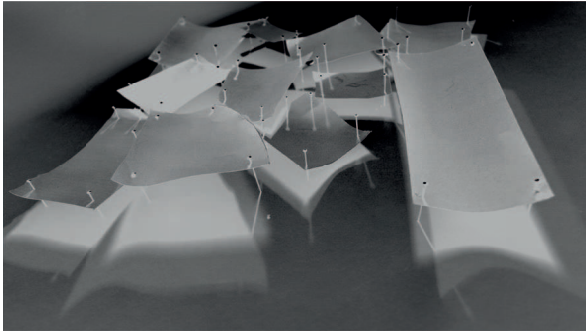
L'escargot, Tate Modern, London

Chromatic Composition

Due to ill health, Matisse was prevented from traditional painting resorting him to create a number of pieces known as 'Gouache Découpées'. This process involves cutting and tearing pieces of paper that have are painted over with gouache. The paper was placed and pasted down (completed by an assistant under Matisse's supervision): this helped simplify the process for Matisse to directly create shapes in colour. Later pieces such as 'The Snail' became very large in dimension.

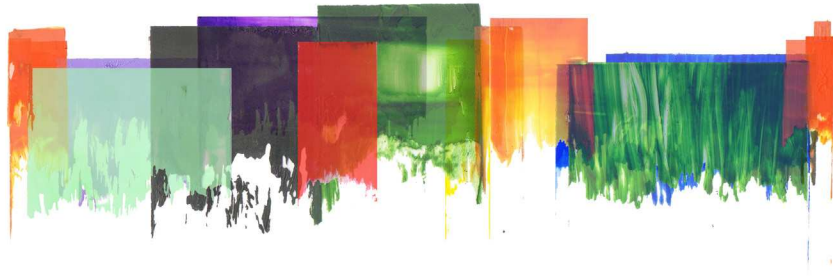
The exploration became interested in investigating the hierarchy, placement and particular layering that remains in the work. The piece has a prominent concentric pattern like that of a snail's shell that could translate into an effective architectural composition. The initial steps were to analyse the way in which the coloured blocks were layered with the intention to speculate it as a three-dimensional piece. A later sideline investigation was to consider the chromatic colours chosen and their symbolic nature within its composition.





Initial investigations sought to speculate the piece as a three-dimensional model. Modelling the abstracted piece with differing materials revealed unrealised juxtaposed tectonics such as its 'solidity + void' and its

'temporality + permanence'. Whilst the top images suggest a temporary space that is canopied and free to circulate, the images below suggest a more permanent space that needs to be carefully navigated through its voids.



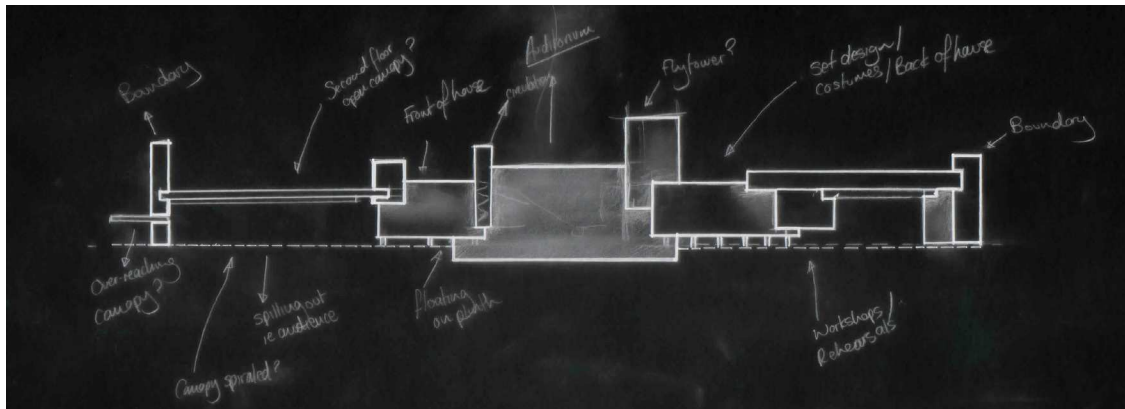
Composition and Layering: Sections

By understanding the abstraction as a model this created a language that could then be speculated in both its section and plan. By tri-secting the piece along both its Y and X-axis this would allow investigation into its spatial qualities and emphasise the layering tectonic both horizontally and vertically. It became an intention for the abstracted pieces to have no ground line, thus no scale

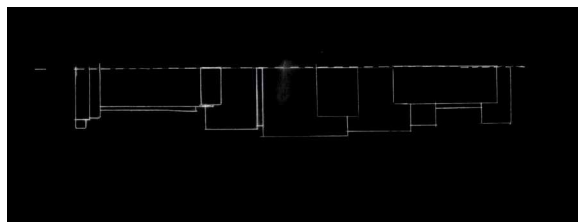
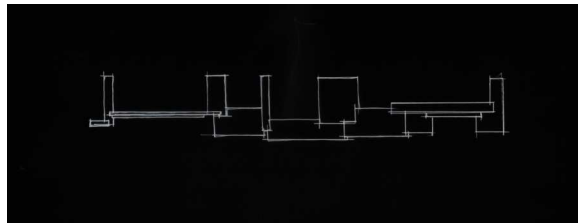
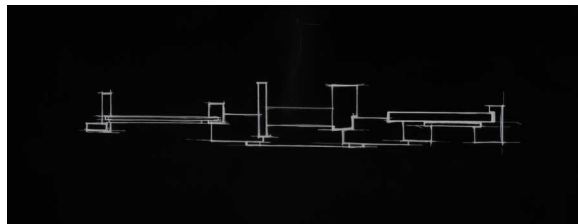
to allow the freedom to speculate its different compositional and hierarchical options. The use of chromatic colours taken from the original piece created an ancillary investigation conveying facets concerning metaphorical meanings of colour. For example, the use of black (the only non-chromatic colour) placed within the centre (below) speaks of an anchored point of which the rest of the blocks gravitated towards.

Separate slides depicting the sections of model through bright coloured blocks





Abstraction investigating layering and composition creating a trajectory towards architectural intervention



Pathways

Matt Fleming

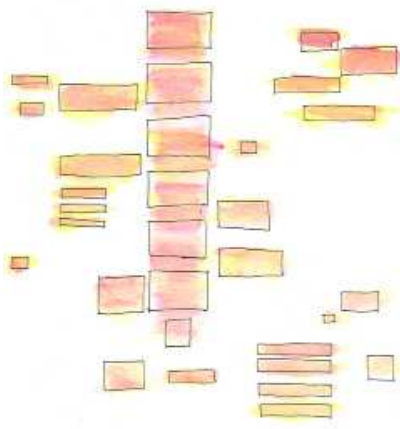


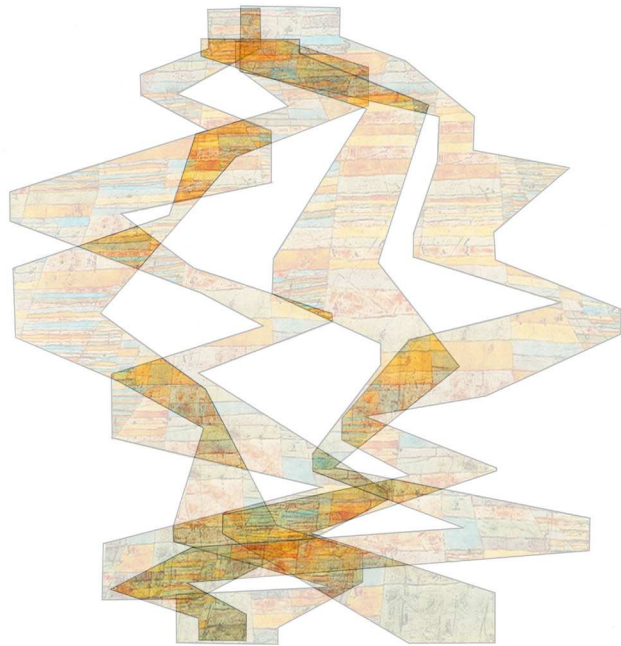
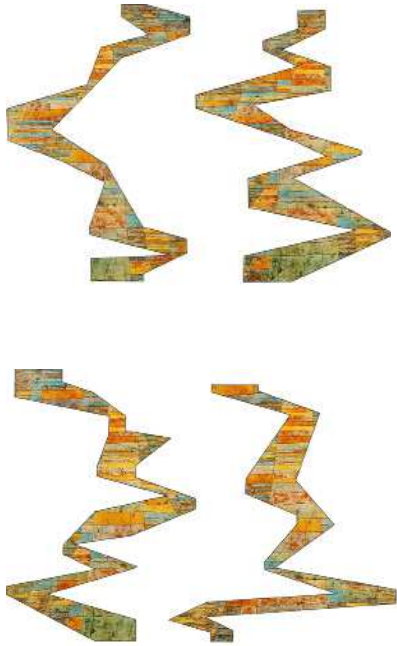
Paul Klee, Highways and Byways

The painting that I chose to use as the basis for my investigations was 'Highways and Byways' by Paul Klee. This highly coloured painting was the result of a trip to Egypt, and is thought to represent an aerial view of fields leading down to the River Nile. Initially drawn by the suggestion of pathways within the picture, this notion was the focus for subsequent development.

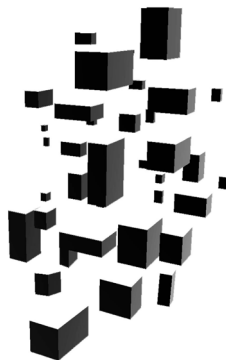
In order to emphasise sections of the painting which seemed to stand out on first viewing, colour was removed from much of the surrounding area.

Removing the perspective from within the painting, I created an abstract version consisting of simpler shapes. This was used to generate a number of angular pathways which were further developed to become more irregular in nature. These paths were overlaid in such a way that they originated from different places but reached a common end point. In doing this, they purposely intersected one another, creating areas of infection.





Also arising from my initial alterations to the painting, a 3 dimensional model was created. The volumes of the constituent parts of the model were determined by the calculated areas of the shapes from the altered image.



Donald Judd, Wall Boxes (1986)

Capturing Ephemeral Phenomena

Rebecca Goodson



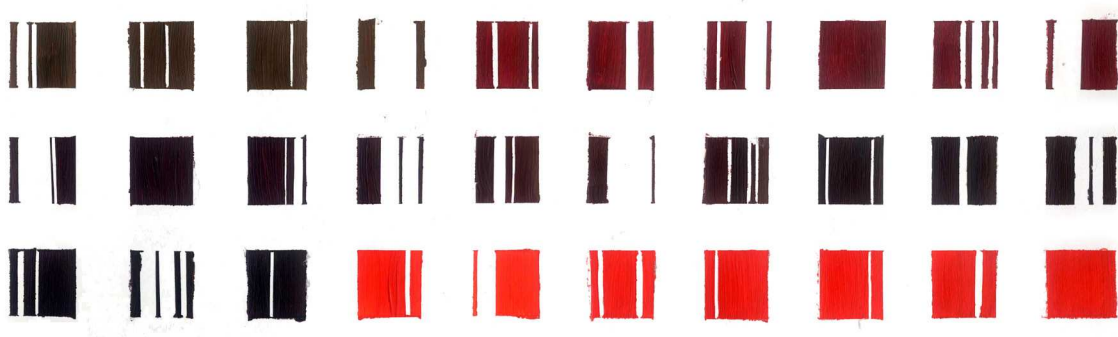
A single plywood box. One of thirty, which compose the full installation

Thirty identically sized plywood boxes are split by a series of vertically angled planes which segment each box in a unique spatial arrangement. The back of each, wall hung piece is lined with coloured Plexiglas. As the observer pans the room, the patterns of light falling on the coloured interior shift, and the work reveals an ever changing panorama of spatial recessions, reflections and fluctuating colour phenomena.

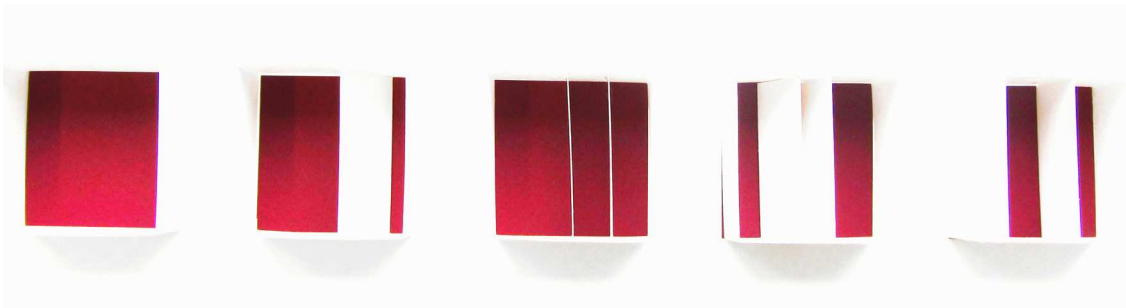
Critiques have likened Judd's work to the theatre. His boxes act as a stage to the mystique of their ephemeral interiors. I was interested in the 'act'

of theatre which Judd's work captures, the visual phenomena which occurs within each controlled device.

In order to focus entirely on the interior space, I removed the box to produce my first iteration of Judd's arts piece. This investigation therefore became an investigation into static colour, rhythm, order and repetition. However, without an ordering device, the illusionary effects are lost. In future investigations, the box was reintroduced. This simple form, coloured in white, continues to be the ordering device throughout - with the intention being to minimise their own visual impact, and to keep focus on the



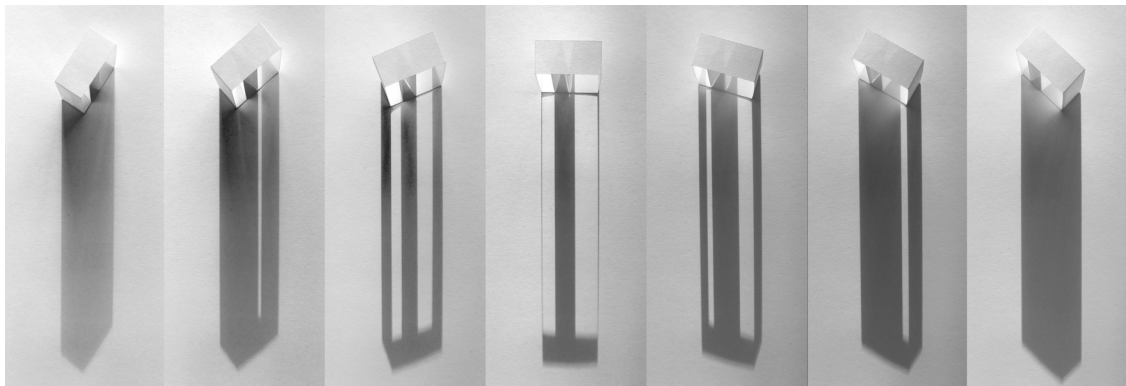
Painted rhythm and order.
The proportions, colour and spatial arrangement are based on Judd's wall boxes.



interior colour effects.

How far can the visual perception of ephemeral phenomena be controlled by manipulating the containing device?

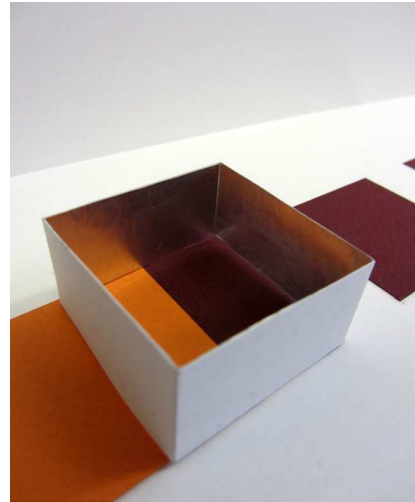
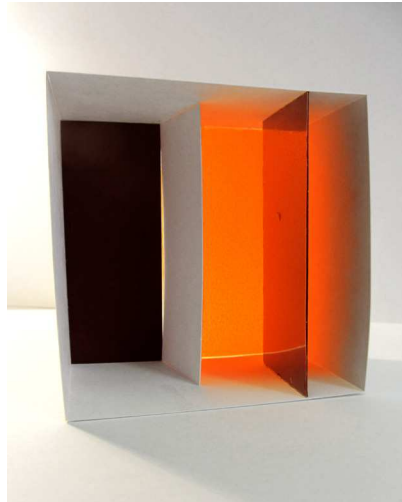
Collectively, the work demonstrates experiments into how playing with, the optical characteristics of material, and/ or the properties of light which orchestrates the boxes, can alter the perception of the colour and space inside the frame.



The movement of shadows becomes a measurement of time.



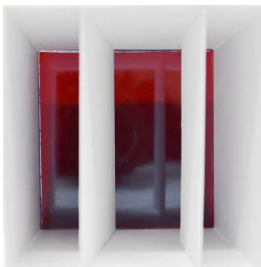
Floating colour. Backlighting, translucent surfaces and reflective planes



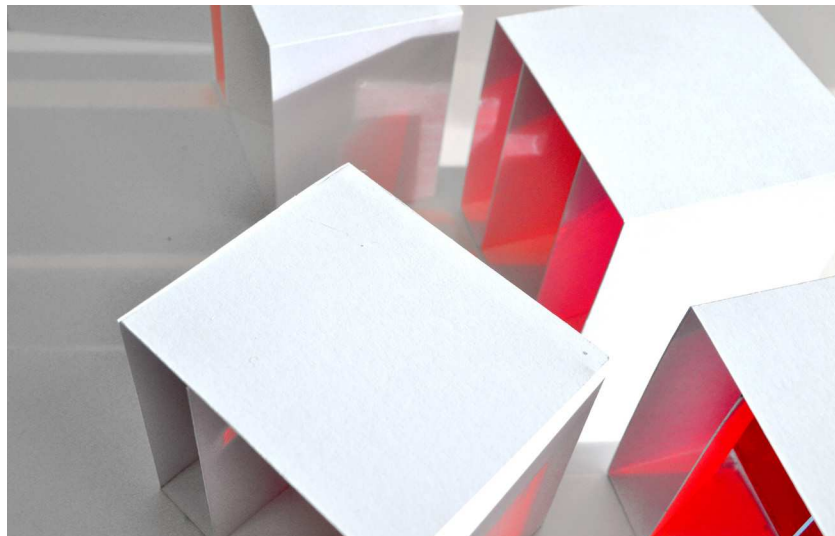
By experimenting with interactions of colour-light phenomena, colour can be lifted from material and the confines of the box. It is free to infect space, create illusions of intersecting planes, hidden surfaces and glowing boundaries.

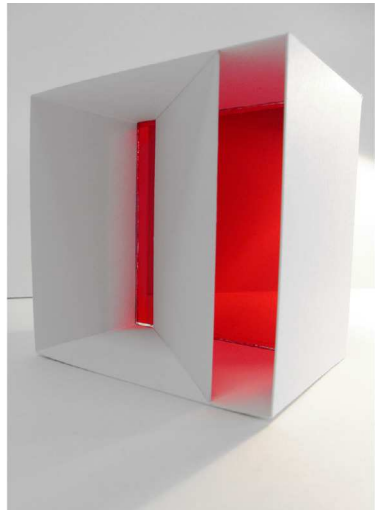
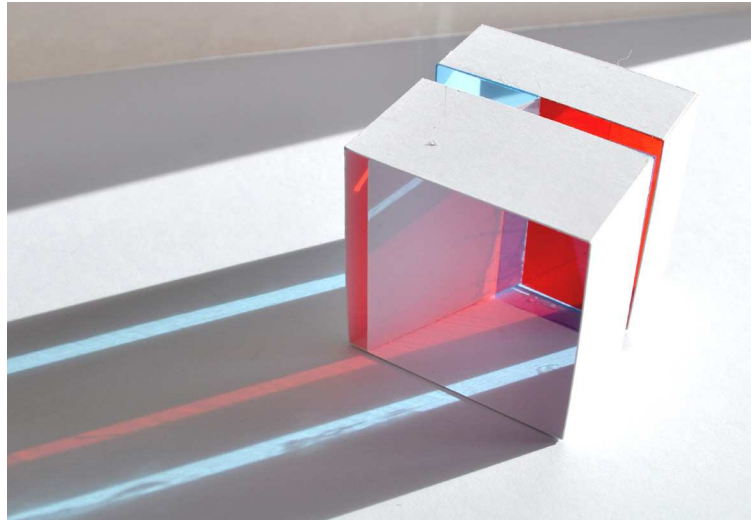
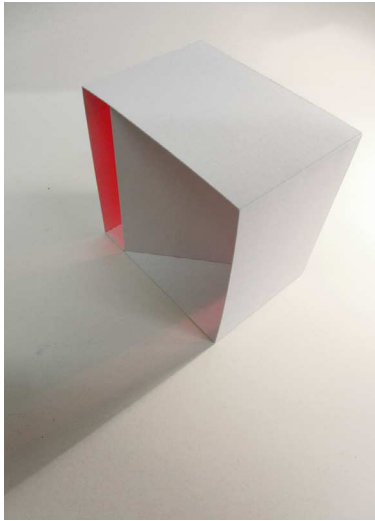
The observer perceives the box depending upon the lighting conditions which animate it. Whether in front or behind the object, sunlight, daylight or artificial light affect the reflections of

views inside. When light is only allowed to fall onto the front surface, views of the exterior world are reflected back. The boundaries of the boxes seem to extend into the rich colour, a false perspective, alluding of an internal world which reaches inwards. The observer is deceived until they realise that the world which appears inside is only a reflection of their surroundings, contained and framed momentarily.



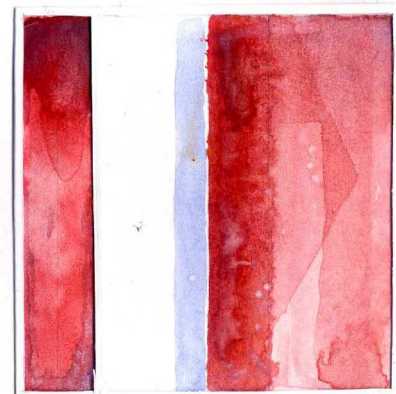
Reflective filters. Red and blue sandwiched between perspex, creates shifting views and colour combinations





When lit from behind we are able to see through the boxes like a coloured lens. Transmitted light is stained by the coloured filter and its path is manipulated by the angled dividers. The perimeter of the box can no longer contain the phenomena within and colour spills out, infecting the surrounding surfaces with fluctuating intensity intrinsic to the shifting natural light conditions.

By translating the visuals into paint, the perception becomes a subjective image. Watercolours mimic the unpredictable nature of the phenomena, liquid-like in appearance and application.



Obstacle & Interference

Nick Green

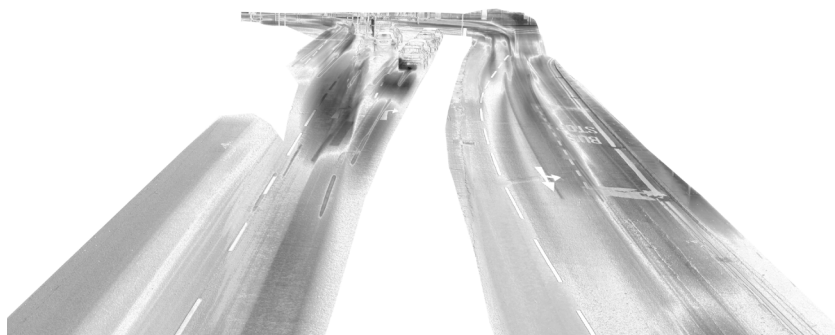


An obstacle is inherently interactive. It is something which other objects, bodies, or forces are compelled to respond to. An isolated object, without interaction, cannot be considered an obstacle, being disengaged and peripheral to activity.

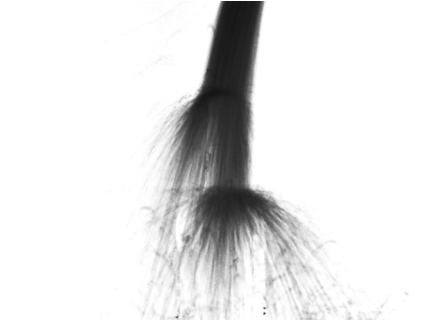
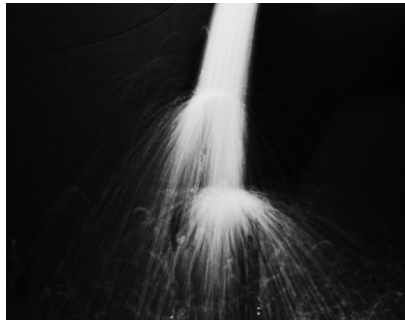
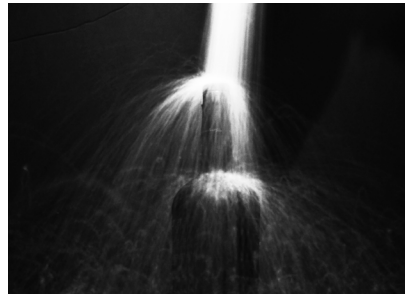
Obstacles are points where movement changes. They intervene in paths and interrupt flow. Other objects bounce off them, and activity is generated and

multiplies. Thus to consider an obstacle is to consider the movement and activity around it. In fact, we can gain a sense of an object just by looking at the movement around or through it.

Inspired by Antony Gormley's Feeling Material series, I have investigated how to give the impression of an object by only showing the movement around it – capturing the presence of an object which is not actually present. Gormley's



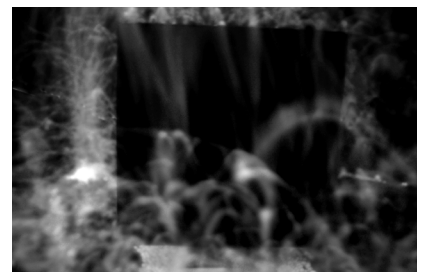
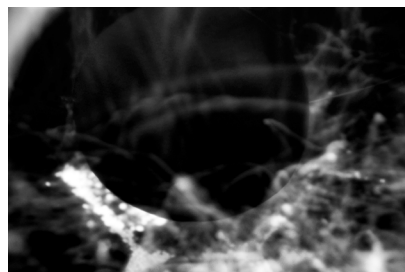
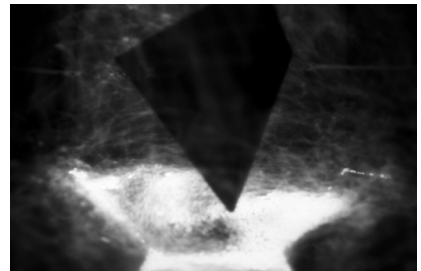
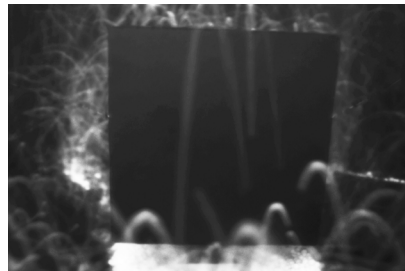
Spaces are defined by the movement in and around them - photomontages showing only the moving objects in a space



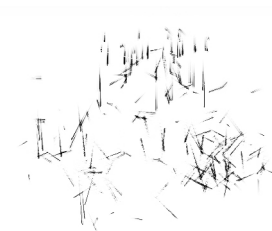
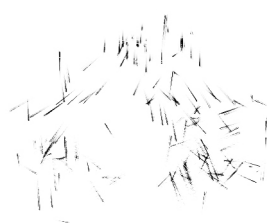
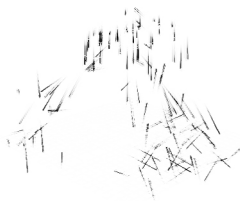
Flow - recording a cascade of rice over various objects

pieces convey a strong sense of stillness, the unmoving human figure, and yet unlike much of his other work, in this series the human form is void. It is shown only through wires circling around it, highlighting a relationship between static and fluid, the obstacle

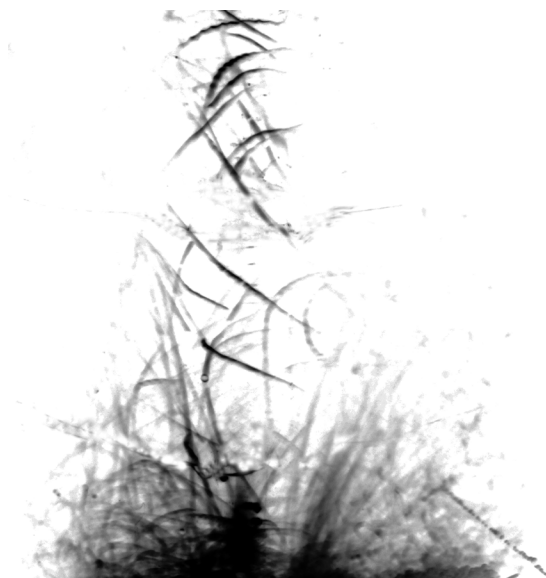
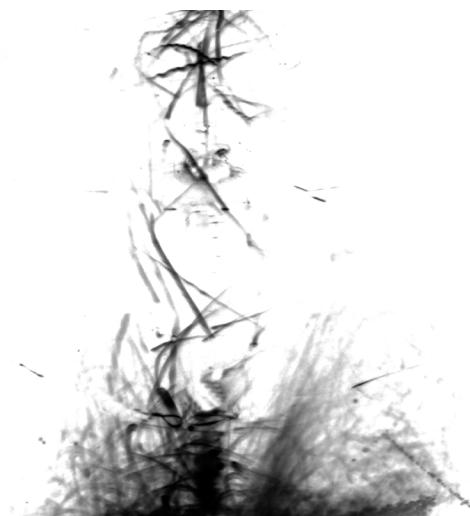
and the obstructed. In my work, I have explored this theme by endeavouring to record the movement of particles around objects. This process has led me to think of obstacles as being active forms despite – and in fact because of – their stillness and permanence.



Reaction - using platonic solids as obstacles to shape fields of activity



Drawing the non-present
presence - stills from
animation of particles falling
around and interacting with
a cube



Divergence - movement of
particles around a suspended
bottle



Obstacle as void -
final iteration model

Natural Logic of Flow, Patterns and Connection

Håkon Heie Ellingsen



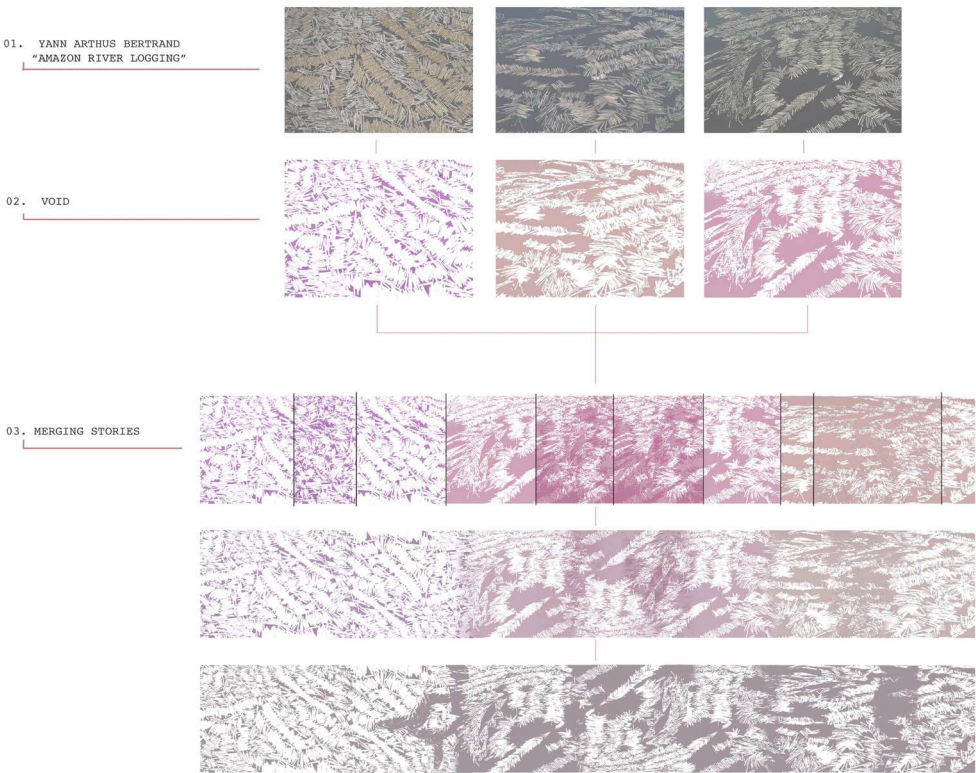
Original Image Yann Arthus Bertrand, Amazon River Logging

Part 1

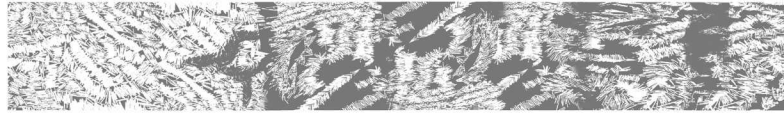
The project looked at the images captured by Yann Arthus Bertrand from his book "Above The Earth". His photo series called the Amazon River Logging captures three different stages of the loges' travel down the river, all creating beautiful natural pattern created by the current. The initial investigation joins the three unique stories into one piece, as the three individual stories are all part of one greater story separated by their difference in time and place. The initial work separates the images by colour coding representing the void and space between the loges. This is done over a

series of photo-manipulation combined into one final story-board, that acts as the base for the following investigations.

The final product became an investigation looking at breaking and understanding the logic of how the flow and patterns are created from natural forces. The images are beautiful art pieces although they were never intended. If one can understand the logic, then one can apply the lessons learnt in order to create beautiful art and desirable solutions.



04. FINAL STORY BOARD



05. PRESSURE & TENSION



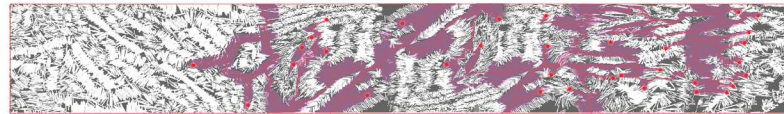
06. ENCLOSURE & FLOW



07. CONNECTIONS



08. OVERLAID SUMMARY



Part 2

After merging the three original photos into one final storyboard, analytical investigations looking pressure & tension, flow & enclosure and connections introduced the element of tectonic into the project. Drawing from this, and the aim to understand the logic, the remainder of the project would mainly focus on flow, connection and enclosure.

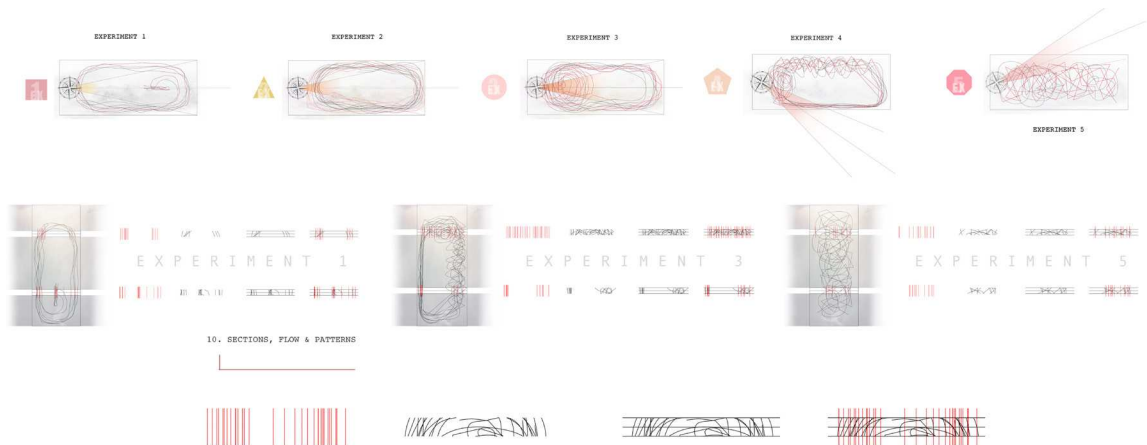


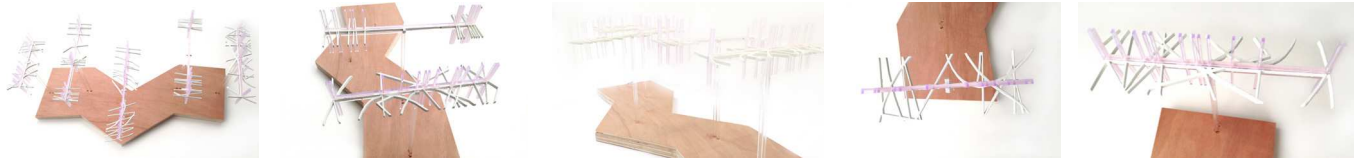
Images From Water Tank Experiments And Tests

Part 3

In order to understand the logic a series of water tank tests with mini loges were conducted. By varying the current pressure and direction, a camera recorded the forming patterns and flow. This was later digitalized by tracing movement in Autocad, creating small diagrams for each of the five experiments, indicating flow patterns and different currents.

Key areas in these diagrams were then analysed, drawing a section line over the movement, acting as a plan. This then extruded vertical section lines of the point of intersection, giving the experiment a visual representation in 3D of flow and enclosure.





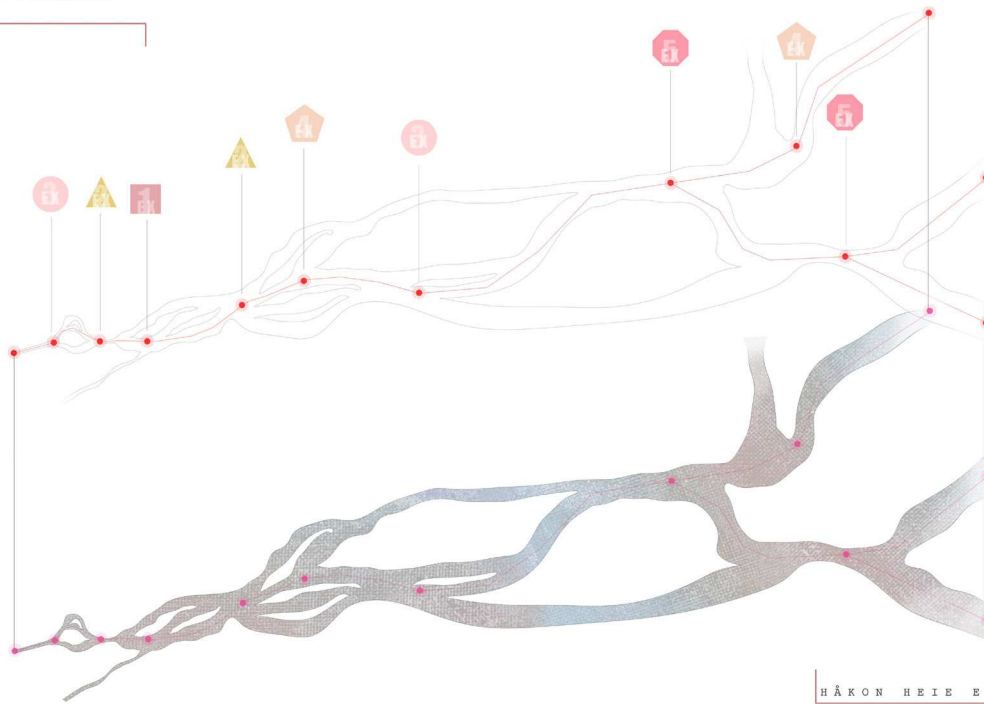
Images Of Final Model

Part 4

The highlighted movement and section lines formed the basis of the model, connecting them as individually cut objects at the point of intersection. These were then stuck on a board, varying their horizontal location, representing the flow of a hypothetical river via the recorded data of the 5 experiments conducted. In masterplan terms, this could be used in applying

certain interventions at certain points of possible movements, to create the desired flow. Shown below is the findings from each individual experiment applied strategically to achieve such a desired flow, based on the logic behind them.

11. LOGIC & APPLICATION



HÅKON HEIE ELLINGSEN		PROLOGUE
S1052895		

Distortion of Perspective

Natalie Jones



Density through Perspective

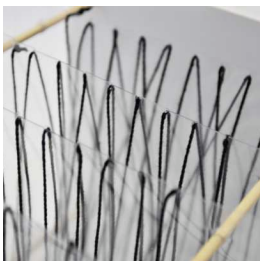
Derived from the Birchwood painting by Gustav Klimt, 1903, I began my initial abstraction investigation by looking at the themes of density and layering. Models were produced to turn the two- dimensional art-piece into a three dimensional investigation.



These models attempted to play and recreate different densities that I saw in the painting. Two thicknesses of string were experimented with to examine the resulting density and the variation across all of the models when one parameter was changed.



These models, as a result of their creation, highlighted a further underlying theme of investigation to my course of research.



Original density experiments



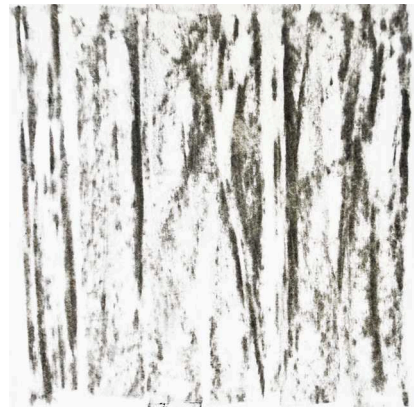
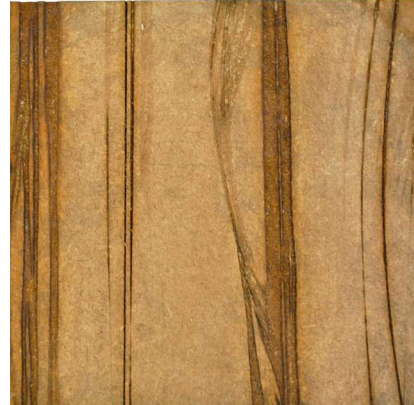
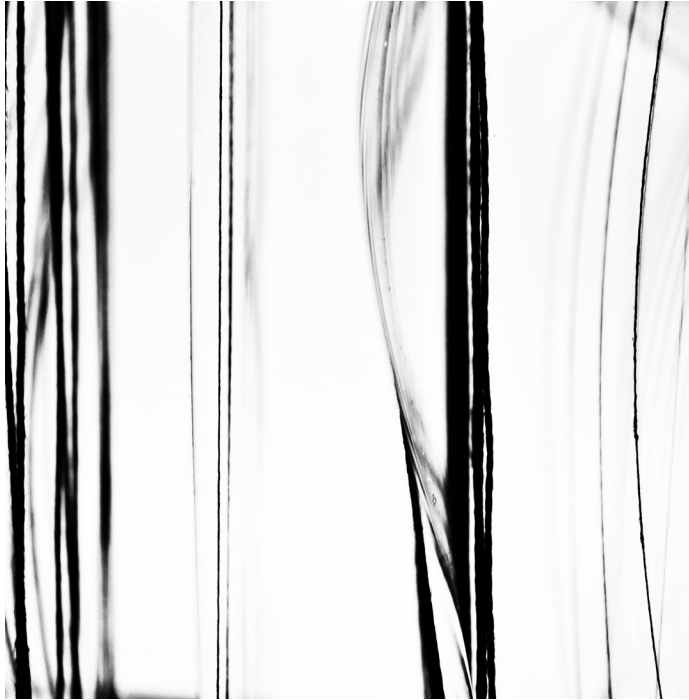
Distortion of perspective photographs of models

Photographs taken of the experimental density models, highlighted the concept of distortion of perspective. Various angles and depths of view were played with to achieve an unpredictable iteration of the Birchwood painting.

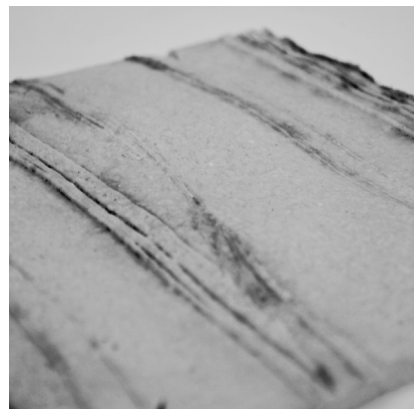
This tangent displayed the unpredictable strength a seemingly unequivocal object can have, when viewed from a different perspective. These distortions took on various definitions and characteristics according to the viewpoint.

Distortion through Control



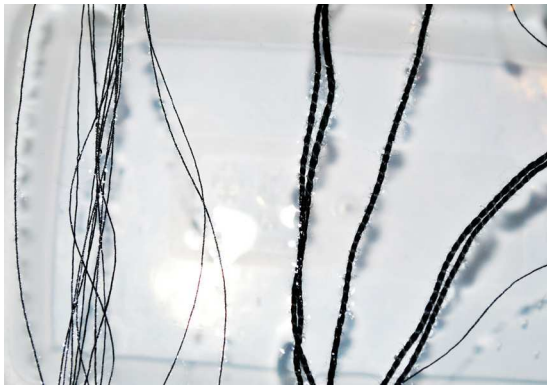
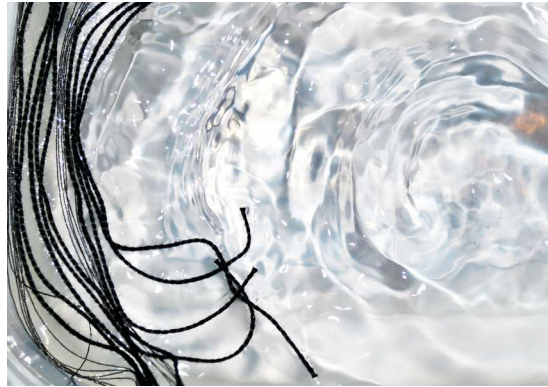
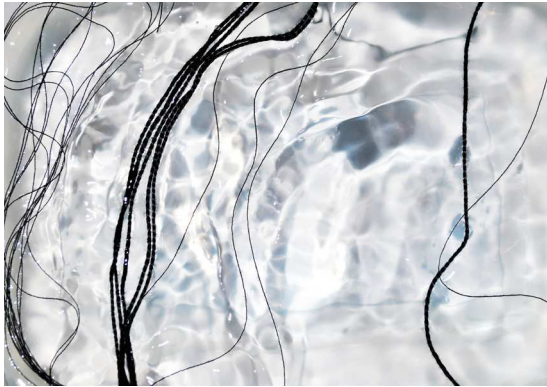


A photograph was chosen as the subject of further investigation. I wanted to take the idea of distortion of perspective further using this photograph. I rasterized the image into wood to give depth to the image which enabled me to then make a negative cast which again turned a two dimensional iteration into a three-dimensional typology. I also produced a rubbing of the etched wood to display the unpredictable nature of the investigation, the only control being the reoccurring boundary of the square, taken from Klimt's original art-piece.



Above: The chosen photograph for further abstraction and investigation

Right: Distortion experiments



Distortion of Flow

Identified throughout my investigations was a reoccurring theme of flow. The selected photograph for exploration highlighted an image which could easily have been mistaken for a non-static object. This is another distortion which was unpredictable through my investigation. I attempted to re-create the selected static image, using water and see if the similar image could be created.

Using water, I took the theme of flow literally to produce another set of photographs experimenting with another parameter of control.

This displayed that various interpretations and perspectives were capable of being established from a single model and image. It is this distortion which transpired between experiments which showed the true unpredictable nature of the abstraction.



Distortion of Perspective

My final iteration was an attempt to combine all aspects of my investigations. A final model was produced displaying: the distortion of flow, examined through the water experiment; the distortion through control - examined through the initial investigations into density models and also the idea of density through perspective - a running theme through my investigations.

Each of these distortions is the force of a control, here the uncontrollable nature of ink is an examination of unpredictability, the layering of acetate is investigating density and using a grid structure brings another element of control.



Left: Photographs of all four sides of the model, showing the variety of perspective

Above/Left: A perspective view of the model

Above/Right: An overlay image of all the variation of perspectives the model offers, showing the core density

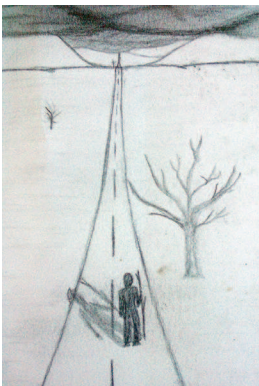
Giorgio De Chirico, Mystery and Melancholy of a Street, 1914

Recurring Shadows

Michael Lightbody



Mystery and Melancholy of a street, 1914 (above), Giorgio De Chirico (right) and Initial Response (below)



Born into an Italian family in Greece 1888, Giorgio De Chirico produced many of his most influential pieces between 1911 and 1915. Serving as a precursor to the surrealist movement, a movement best known for its illogical scenes with strange subject matter, "Mystery and Melancholy of a Street" evokes and captures the general uncertainty about the First World War at the time.

My first glance at this painting found my eyes drawn instantly to the two human figures. The abstract silhouette of the girl in the foreground, obviously playing with a hoop, evokes playfulness or innocence whereas the second figure emanates uncertainty and power.

Repeated architectural elements such as archways give the painting a sense of rhythm, a skewed perspective draws the viewer's eyes along them and the use of shadows in the painting culminate to give a certain movement to the painting that can be easily found in any city or townscape. Upon realisation of this, my first reaction was to conduct a photographic study to



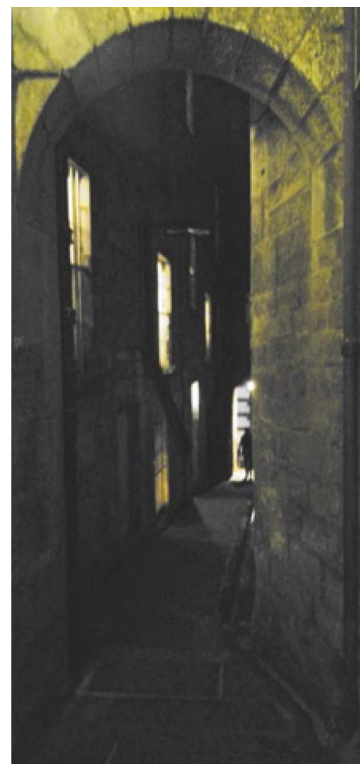
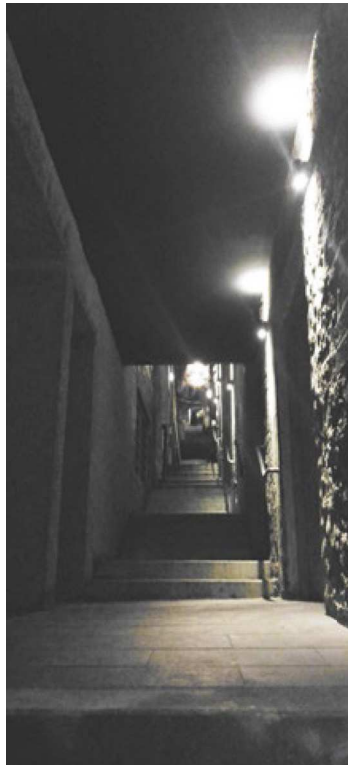
see how streets with repetitive patterns and varying spaces can evoke different emotions around the city. I found from this that the difference between streets may look obvious but the perception of emotion is not as distinct.

The element of mystery in De Chirico's drawing takes the form of the shadow in the painting with the ambiguity as to who the figure is or what they are doing there only adding to the overall uneasiness.



Repetition of a Street, First iteration response

Trying to inject this same element into my own work I then followed one of my colleagues around Edinburgh's closes at night to study the different shadows and perspectives created by movement, capturing a set of intriguing images encompassing the element of mystery in the ambiguous figure in each. I feel that the most successful photograph that encapsulates these elements is the final photograph of the series (bottom right).





Sectional Model Of Final Photograph



Study of Shadow and Light in a Sectional Close



The Second stage involved an exploration into perspective, light and shadow as well as repetition. To begin with, I took five sections through the close at equal distances to emulate the pattern of repetition in De Chirico's work. and incorporated the faceless figure at one end to add the element of mystery (above). I then experimented with the movement of light, both with the figure in the foreground and in the background, to find the points at which the light created recurring shadows making the overall feeling completely different in each instance. I found that the juxtaposition of both photographs (left) made a good comparison as the light in each affects the materiality of the card in completely different ways.



'Pen on Trace' and 'Light Stencil' Projections

The final stage looked at the comparison of light through different materials. This was mainly to dispel the feeling of discomfort experienced and as such, instead of creating shadows, I created a light stencil to project a natural image on the wall. This proved successful, unlike the pen on trace, in creating a pattern of light that calms the unconscious mind allowing the viewer to feel more at ease.

Fluidity of Movement and Gravity of Space

Marc Little



The photograph that I took inspiration from and forms the basis of this investigation (seen below) is that of logging on the Amazon River in Brazil by Yann Arthus-Bertrand. It identifies not only the scale of the deforestation of the Amazon Rainforest but also shows how the Amazon can form patterns and shapes with its vast strength of current. However it is also clear that all of the logs in the river are due to man. It was therefore decided that the investigation of this photograph would explore the idea of “what if instead of the Amazon controlling the water, man

had influence over this force?”

From here two components of the original photograph that could be seen as man made were chosen to be further explored with this idea in mind. These components were the chainsaws that fell the trees, and the helicopter that was required to take the photograph. By playing sound clips of both chainsaws and helicopters in use through an amplifier, on top of which a water bath containing sticks was placed, a man made current could be created for investigation.

The minute long film created from this



Above: Initial investigation into movement of chainsaw current.

Right: Original photograph by Yann Arthus-Bertrand.



each investigation were then broken down and frames from twenty second intervals from start to finish were extracted. This then gave a basis for investigation two.

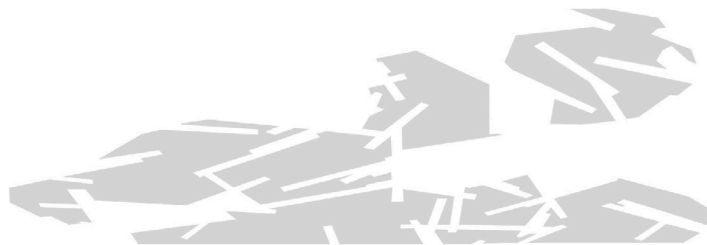
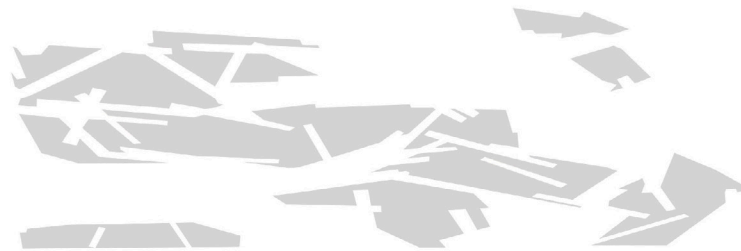
Investigation two looked into congregation of the sticks, it became clear that the outside edges had some sort of gravity and became more and

more populated as the films ran on. It also became apparent that central spaces were formed that had little to no interaction with the sticks.

Like magnets of the same pole the sticks and these spaces seemed to repel each other.



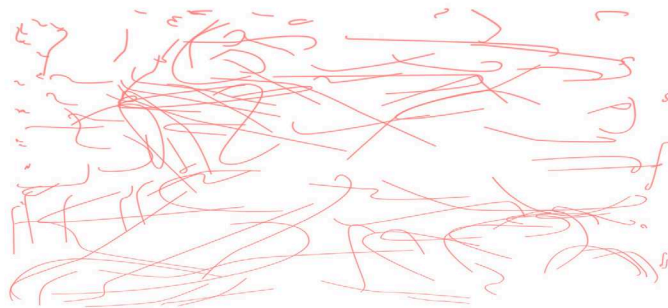
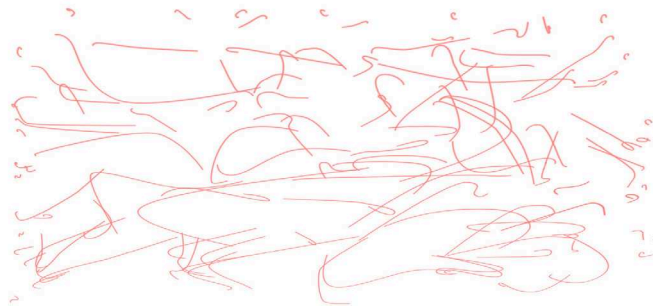
Above: Initial investigation into movement of helicopter current.
Right: Investigation two. Gravity and congregation.
Top image chainsaw exploration, bottom image helicopter exploration.



Right: Investigation two.
Extraction of the spaces
formed within the gravity and
congregation study.
Top image chainsaw explora-
tion, bottom image helicopter
exploration.

Investigation three developed on from the previous two by tracking the end of each individual stick on its journey through the water bath. In many cases although one side of a stick barely moved, the other went on a much bigger journey. As understood from the previous investigations most movement was spent quickly escaping the centre, this showed very long and fairly straight pathways. In contrast the higher gravity

of the outer edges provided very little movement. Interestingly the helicopter sounds seemed to have the most influence on the movement of the sticks despite the fact in reality, looking back on the original photograph, the chainsaw had much more real life effect on what was happening in the picture as the helicopter had no direct interaction with the logs.



Right: Investigation three.
Extraction of movement allowing insight into individual journey.
Top image chainsaw exploration, bottom image helicopter exploration.

Trace and Decay

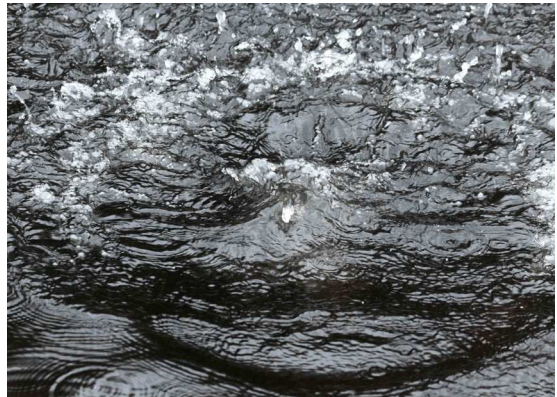
Aaron Lye Ling San

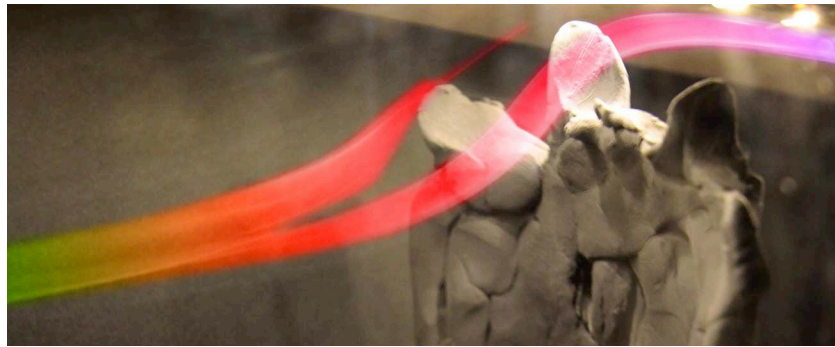
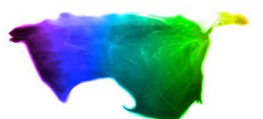


Notion Motion, Rotterdam

There is a sense of aesthetic beauty and ephemerality behind the works Icelandic-Danish modern artist Olafur Eliasson. His artistic representations present themselves in the form of large scale or sculptural pieces that emanate a fourth dimensional quality. This is achieved by exploiting the sensitivity of human receptors with elemental materials such as temperature, water and light in order to invoke a sensation that disseminates throughout the human body. The core principle behind his artistic representations lies in the manipulation of a localised spatial environment in order to enhance the visual experience of his artistic installations. As I share a similar believe in the representation of architecture that emanates a fourth dimensional quality, I have rigorously done several investigations that take advantage of fluid bodies such as water, smoke and light that allow for dynamic capture in my exploration to discover various forms that posses the power to invoke a dynamic spatial experience.

The selection of elemental materials for the study of the fluid body represents the perfect fusion of the man-made and natural environment as it possesses the quality of both natural organic forms as well as the rigidity of a man-made imposition. I started off by approaching the most basic representation of a fluid body that is water. The obvious first venue of my investigation was a river where I attempted to capture movement. After several hours of this investigation, I managed to categorise the images into four categories. The first was the category of disruption where an obstacle would cause a change in flow or direction. The second was the idea of explosion where a single point of impact exist eventually results in a radial dispersion. Following that, distortion that animates a still object and finally, suggested movement that immortalises a moment that occurred. Based on this study, I took away the idea of flow and circulation that governs these four categories.



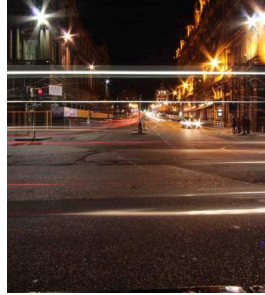


In the field of architecture, a sense of flow and circulation is important especially in public spaces. This led to my second investigation that studies flow in a controlled environment. I chose to do this by the construction of a miniature wind tunnel where smoke was the material of choice. During the testing period, I positioned several obstacles to disrupt the smoke trail where certain forms diverted the smoke path while some others caused the smoke to turn on itself creating turbulence. Following the testing

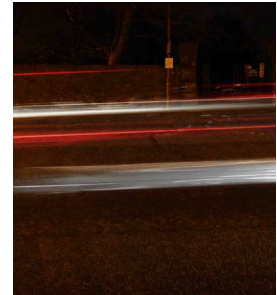
period, I proceeded to trace various smoke trails that left me with very soft ephemeral yet recognisable forms in some cases. This study of natural flow will eventually attempt to inform spatial circulation within a building design context.

As a final piece of this investigation, I decided to explore the fluidity of the city of Edinburgh by night by tracking movement with light tracing. This carries over the ephemeral quality that was achieved by smoke in the





previous study. However, unlike smoke, light is able to capture motion with a crisp definition that is more easily understood. An interesting finding during this investigation, was the ability to extrude light giving a three dimensional effect that suggest the beginnings of a possible spatial experience with evocative qualities.



In conclusion, the capture of motion through several fluid bodies envisions the realisation of dynamic spaces frozen in motion ultimately delineating a design that performs beautifully from entrance to exit with a flow that is natural and fluid.



Bernd and Hilla Becher, Watertower Series 1980

(De)Formal Tension

Jonathan Lynn



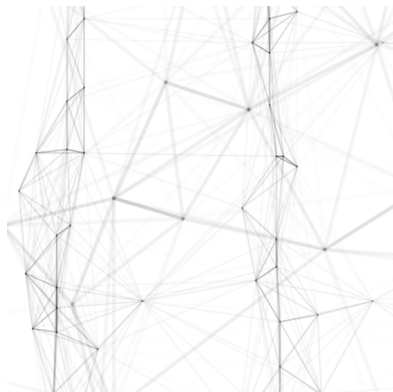
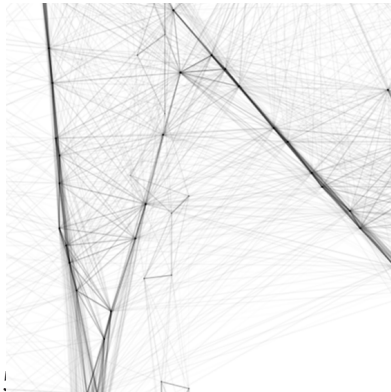
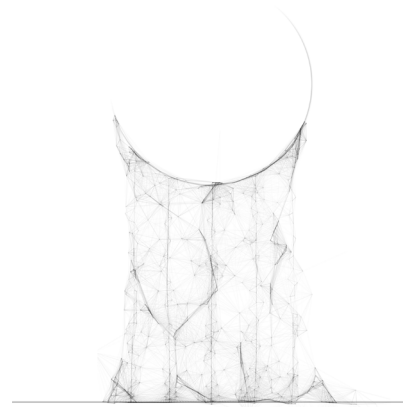
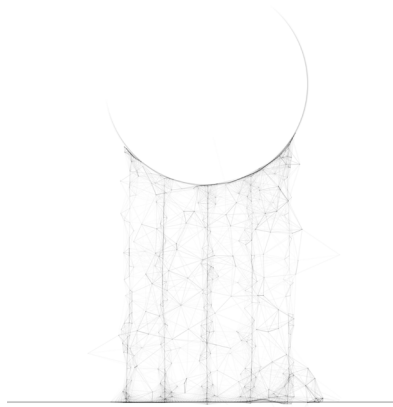
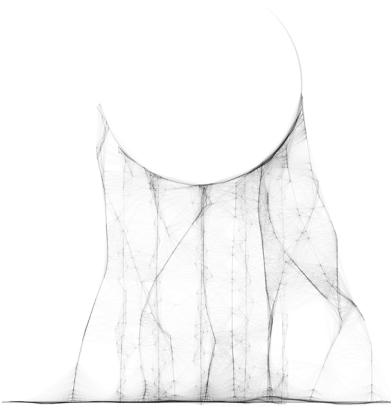
A Selection of the Series photographs

'We want to offer the audience a point of view, or rather a grammar, to understand and compare the different structures. Through photography, we try to arrange these shapes and render them comparable. To do so, the objects must be isolated from their context and freed from all association.'

Bernd Becher

The watertower Series by Bernd and Hilla Becher is a set of photographs taken of derelict industrial watertowers.

Each photograph is taken uniformly, from a flat angle with no notable shadows or landscape. The series that emerges (right) allows the viewers to appreciate the structural definition of each construction. To capture the concept of structure using similar method in a different medium allowed for the exploration and appreciation of the aesthetics of structure. What emerged was a series of four drawings (fig. 1) (fig. 4) which all assumed the same rules of drawing creation. Each presents a unique structural system,

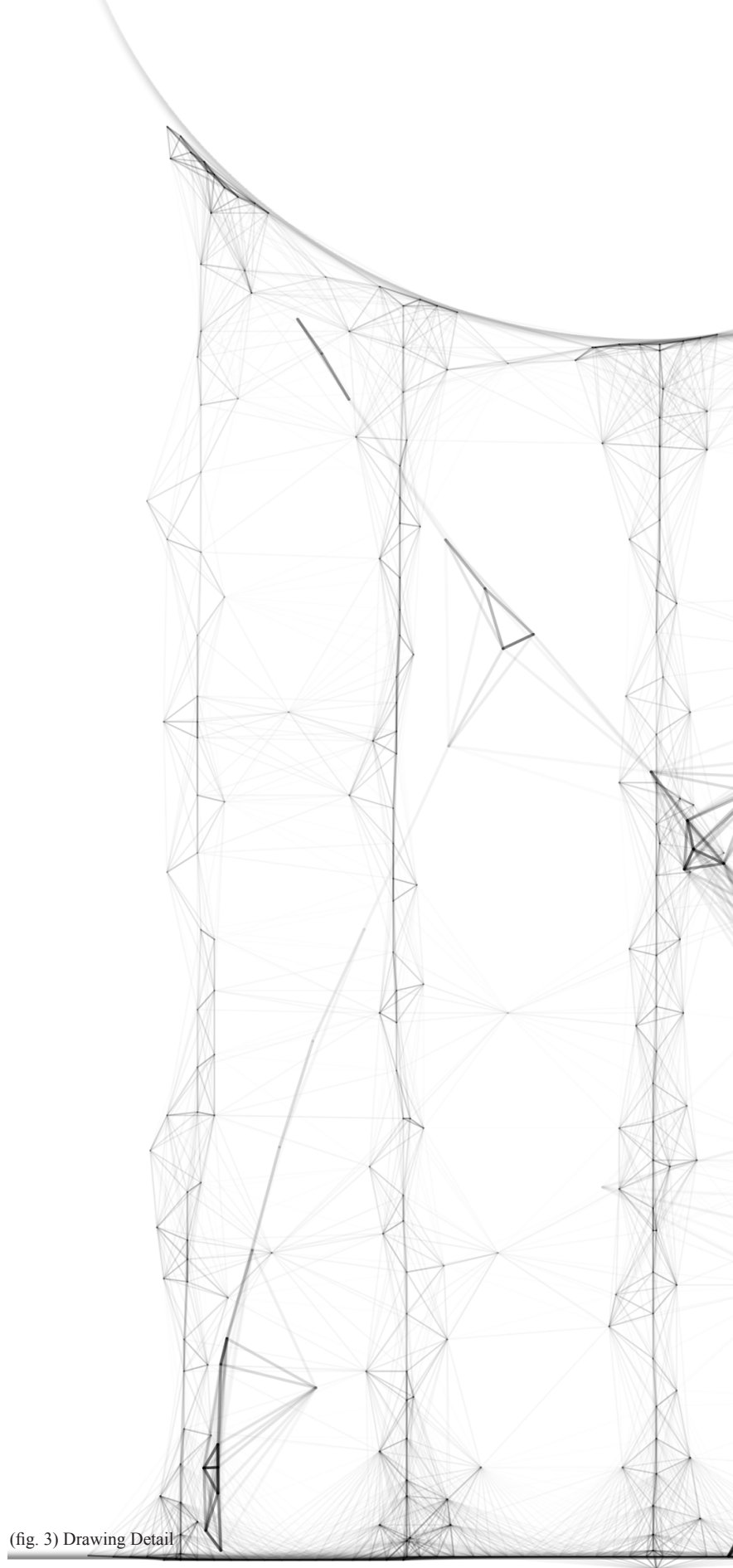


(fig.1) Drawing Series

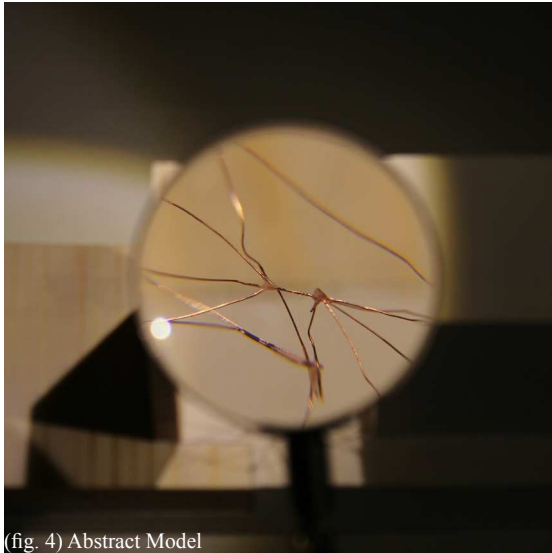
none of which replicated the formal requirement driven structure of the industrial era watertowers. This organic creation of a tensioned system then prompted a digital exploration into the subject and the creation of a responsive RDPD model to map the possible stresses on the deformed systems (fig.2) An attempt to replicate the style in real world provided a series of models which explored practical implications of the creations of deformat structure and



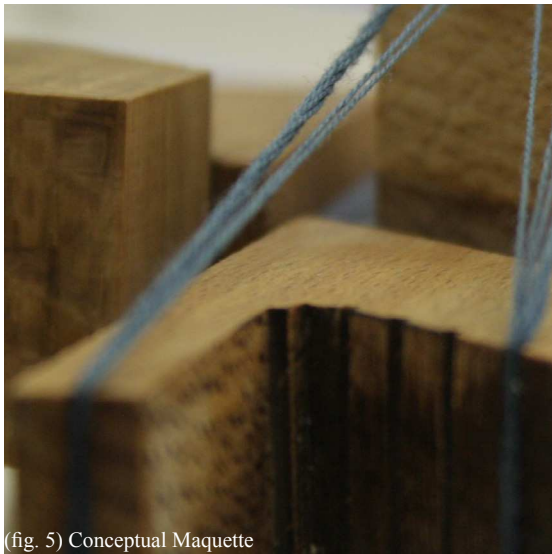
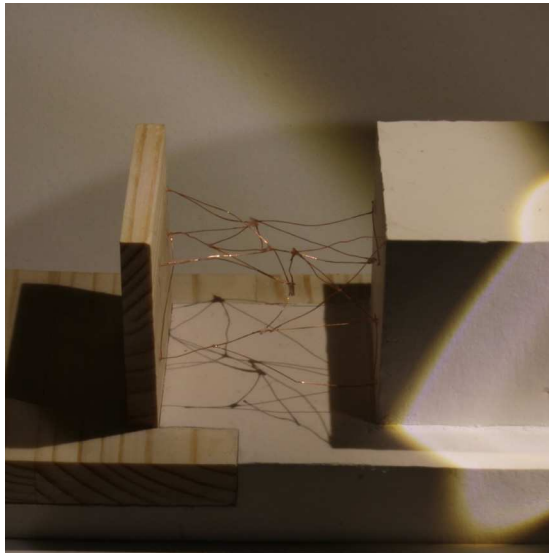
(fig. 2) Parametric Structure



(fig. 3) Drawing Detail

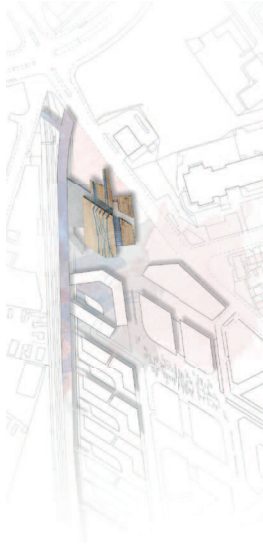


(fig. 4) Abstract Model



(fig. 5) Conceptual Maquette

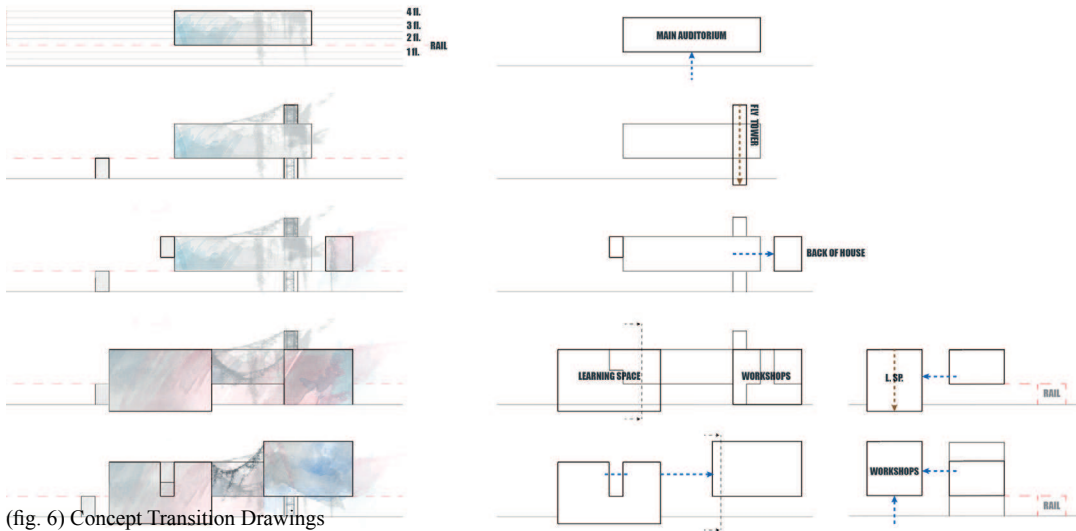




tension systems (fig.4) This research all culminated into the creation of a parti for a design. The systems for the creation of tension were combined to form a working method to develop both models and plans and sections which express a deformal tension influenced by their surroundings. (fig. 5) (fig. 6).

design at both the macro scale of the urban landscape as well as a base to form a micro scale tectonic of a building. These combine to help express the grammar of architecture that reflects upon the industrial age megaliths captured by the Bechers in their iconic series.

As a full collection of work many of the pieces deviate from the initial concepts introduced by the Bechers. However there is also a tangible line of enquiry that forms the base exploration of



(fig. 6) Concept Transition Drawings

Jean Tinguely, Heureka, 1967

Connections, Repetition, Networks

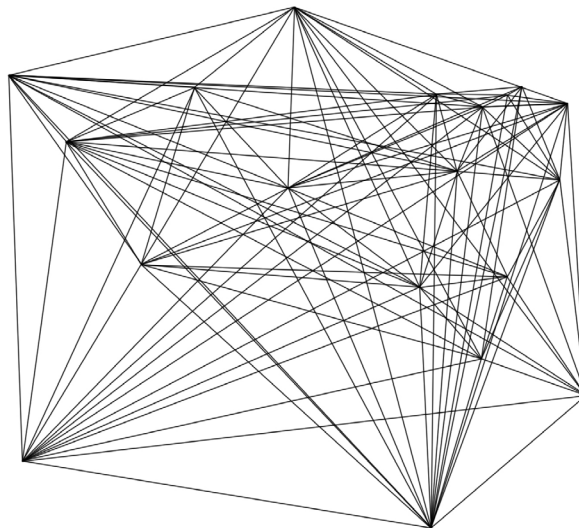
Stuart McInnes

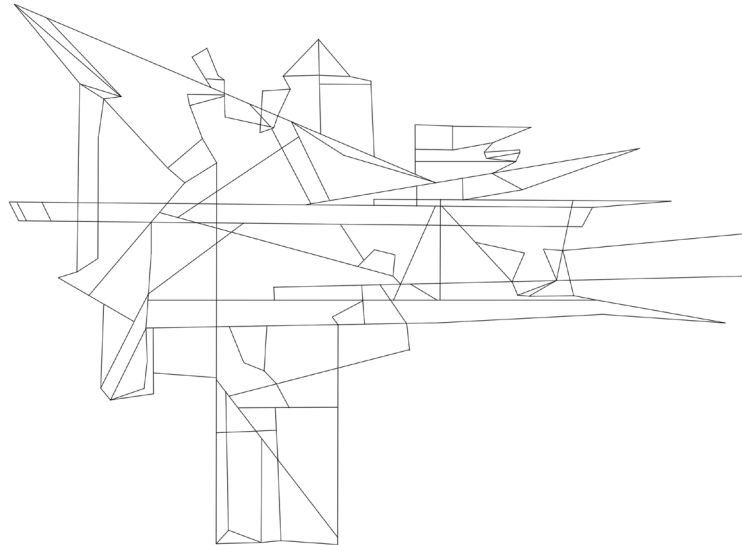


Top to bottom: Tinguely's Heureka, first circle study

Jean Tinguely's 1967 sculpture Heureka is a classic example of the chaotic industrial style that he works in. Taking otherwise unremarkable spare parts from the world of heavy industry, like spokes, gears, wheels, girders and pipes, he combines them in an apparently random way to create wonderful compositions that speak strongly of connections, repetition and networks. It is only after some study that you can tell though that 'random' is the last thing that Tinguely is - the compositions are very deliberate.

And so, in my early investigations into Heureka - my favourite piece of his - I looked into how he built up this form through studying the repetition of two key geometries: circles and straight lines. Whilst I was happy with the abstracted effect of my straight lines or 'linearity' study, my earliest mapping of the circular forms however, did not retain the feeling of curves as it should have done. Therefore I progressed the study to look at how this 'network' would appear if intersected with the original circles. I was a lot happier with this result





- I could still recognise the connections and network of the repeating forms, but now you could directly understand what the network referred to. Alongside this two investigations I also undertook a smaller one into texture - as much of Heureka's industrial feeling comes from

its rusted metal appearance as from it's component parts. This study took the form of model investigations using an effective technique of providing an 'aged' metal look - painting black ink over pre-crumpled aluminium foil then carefully removing excess ink.



Bottom: Textured final
iteration of linearity study

The result is ink drying in the creases and small amounts on the surface to create the effect seen in the pictures on this page. Scanning this effect undertaken on a model of the linearity study provided an interesting texture effect to possibly carry on into the theatre stage of design.

of the study. For this final iteration, the investigations were combined into one image to show all of the key tectonics in play - connections, networks and repetition.

This texture study later fed into the original two geometric investigations as the derived texture was used as the primary texturing for the final iteration





Above: Final iteration

This final piece I feel shows my interpretation of the tectonic qualities present in the original work strongest and should prove useful going into the theatre design. The network aesthetic and sense of connections between the various masses, varying in width depending on whether they're between curved or more straight-edged forms, lends itself naturally to a form of 'masterplan', though admittedly, given the source artwork, a chaotic one. Chaotic or not, though, this final iteration should prove useful in moving on to the next stage of the project: the theatre design.

Gustav Klimt, Birchwood 1903

Frame, Threshold and Trajectory

Ran Miao



Art piece: Gustav Klimt,
Birchwood, 1903
Measures: 110 x 110 cm
Technique: Oil on canvas

This painting engulfs the beholder and forces him/her to look down and take in the immense density of nature. Klimt achieves this by cutting off the tree with the top of the canvas but the trees nonetheless give the impression of reaching up like columns into the sky.

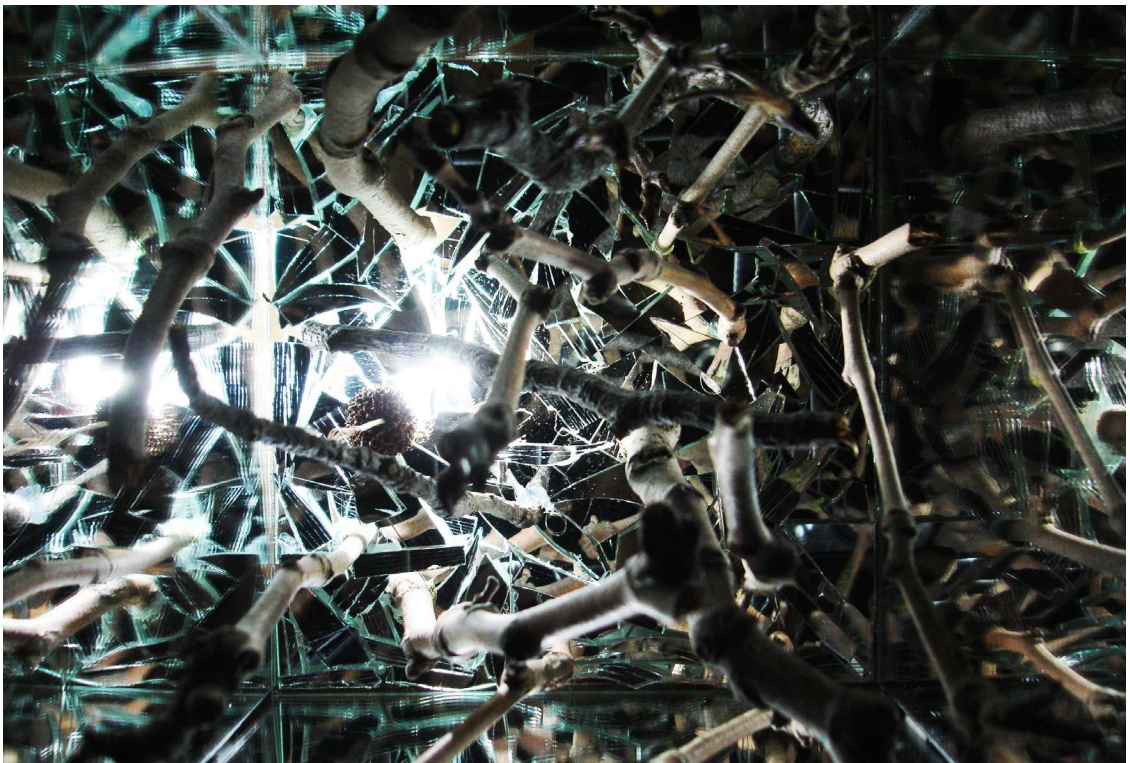
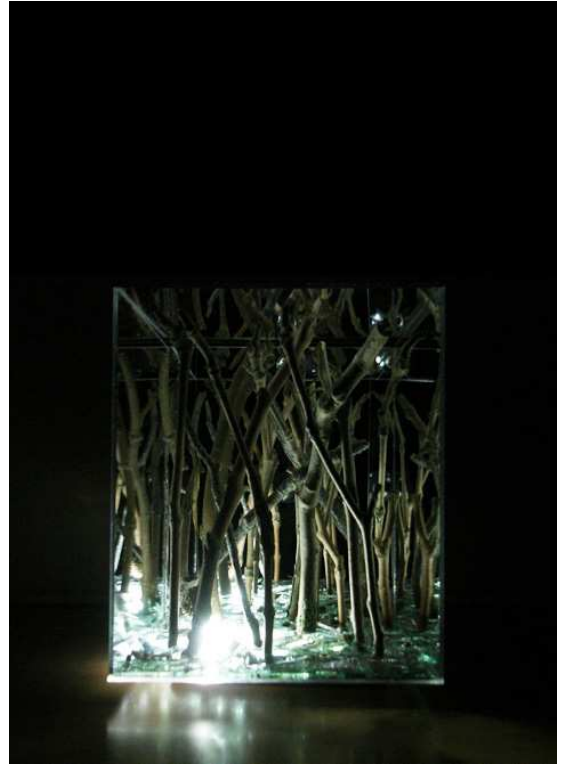
This undrawn trajectory is intriguing. Examining the concept of the frame, the threshold and the trajectory, this spatial investigation begins with a simple collage. This collage expresses

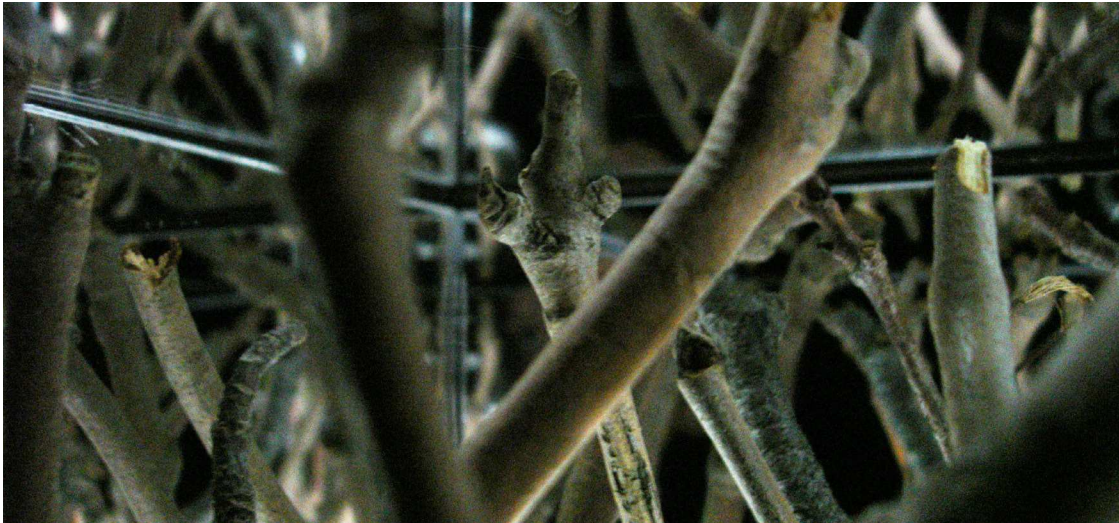
some thoughts of 'what is beyond the frame', springing from the harsh 'cut' in the painting.

The subsequent investigation is a study of the methods of recreating the frame, threshold and trajectory triad. A box of stand-alone density illustrates how the physical boundaries of the box is visibly removed through the use of mirrors. These mirrors generate an inconsistency in the materiality of the wall and the perceived extension and boundlessness.



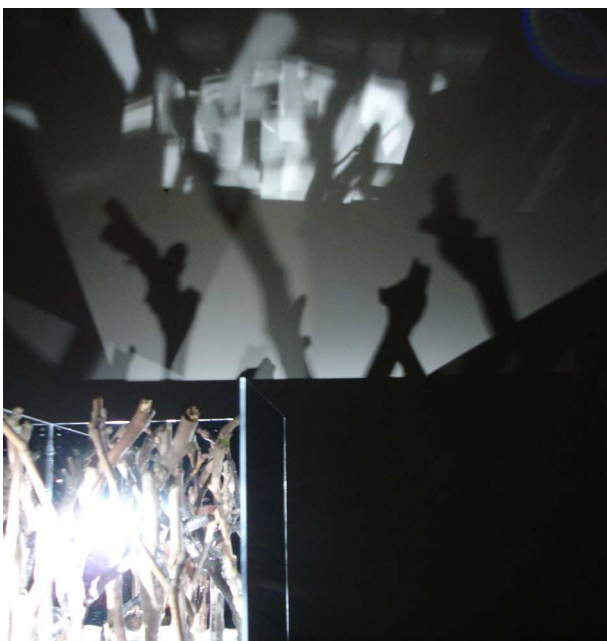
Collage: Beyond the Frame





Light and shadow was another way of extension beyond the physical. Even though the box is static, dancing shadows can be generated with different directions of the light source. Both the physical and photographic studies demonstrate a density that is most intense at the corners of the model. At these areas, it is easy to identify the confusion between reality and reflection. From the tree branch to the mirror surface to the reflection, an immaterial trajectory is created.

The plan drawing on the next page represents this path and recalls the harsh cut of the painting. The frame and the trajectory will be a recurring theme in the masterplanning of Dalmarnock and the design of the community theatre.





Plan Drawing

In the masterplanning project, the trajectory and its movement is incorporated into the methodology of design. This method requires the design to respond to the contingency in the developments of Dalmarnock, where each stage of planning decisions has an impact on the next, hence generating a directional development which might be nonetheless altered by additional factors.

In the design of the theatre project, the buildings are raised on stilts in response to the flooding situation in Dalmarnock. Some of these structures pierce through the platforms and into the interior space, while others pierce into the river and are reflected off the river surface. The extended trajectory gives the sense of continuity beyond the harsh cut of the physical plane, recalling Klimt's painting.

Richard Serra, Double Torqued Ellipse III, 1998

The Enclosure and Emphasising of Void Space

Derek Munro Milne



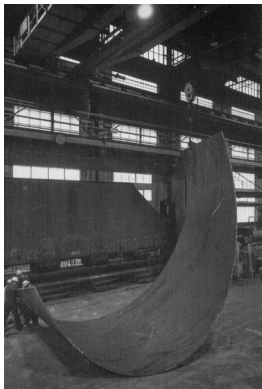
Double Torqued Ellipse III

Richard Serra is well known for his large steel sculpture installations, and his Torqued Ellipses are his most well known pieces of work. Richard uses huge 13ft tall and 2 inch thick steel plates which are put through compression rollers to create the curvilinear shapes. Each ellipse is rotated by 70 degrees as it rises and this produces the torqued appearance of the sculpture.

The piece looks to give users a greater awareness of the space they inhabit. The plates bend in and out over the

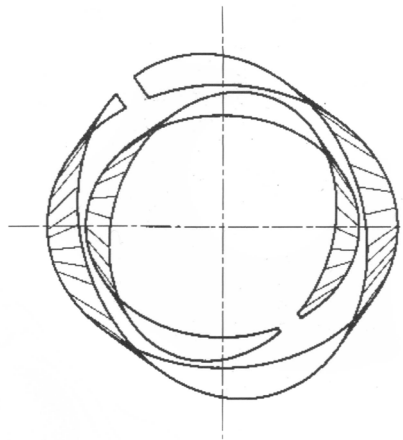
heads of the user distorting the space and giving a sense of enclosure. The openings are made aware to the user as they move around the sculpture, exploration of the space becomes key. From enclosure to openness, once one is in the centre of the structure, they will have experienced each of the angles one by one. The piece solid from the outside seems weightless from the centre.

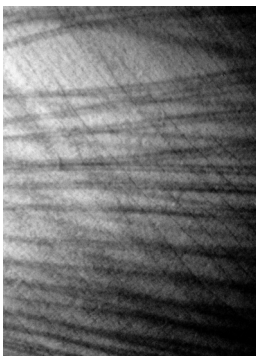
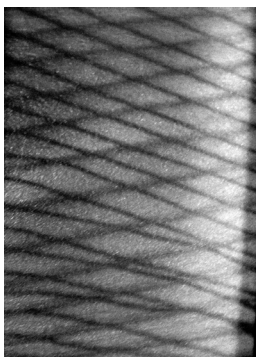
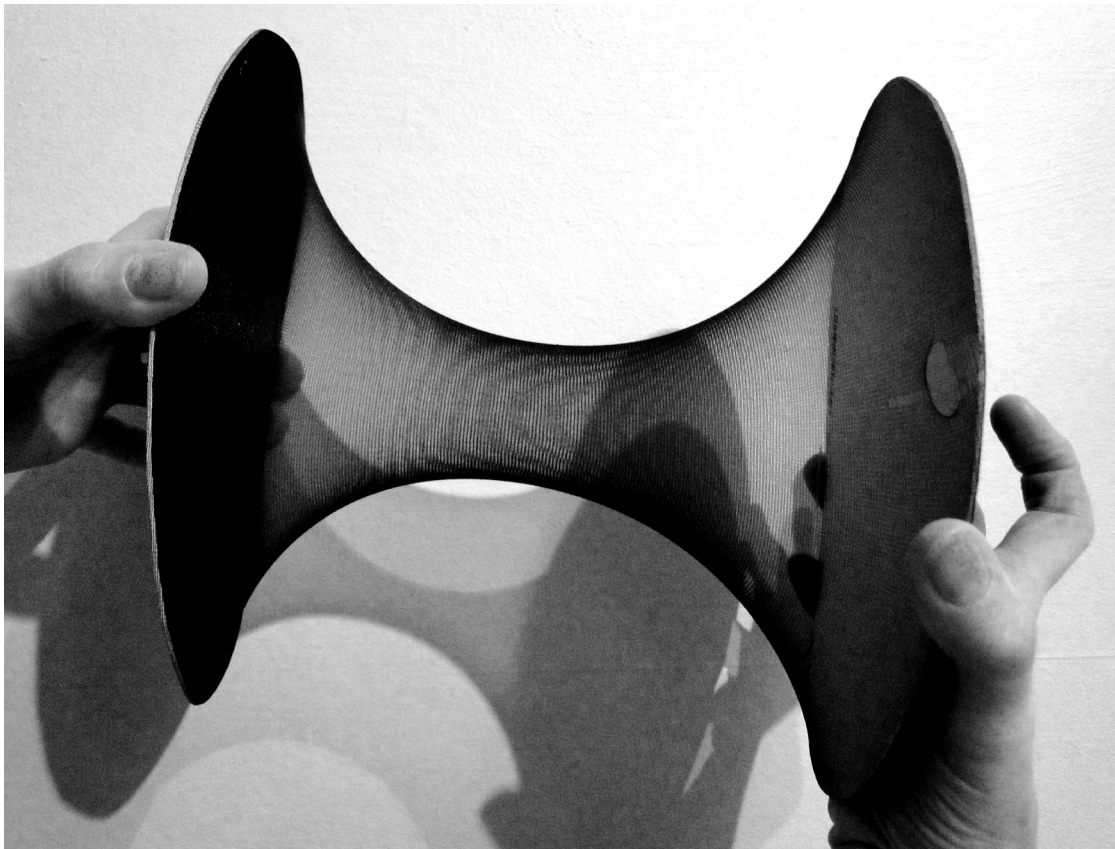
It was this exploration and emphasis on space which drew my interest in the piece.



Richard Serra and
Double Torqued Ellipse III
complete and in creation

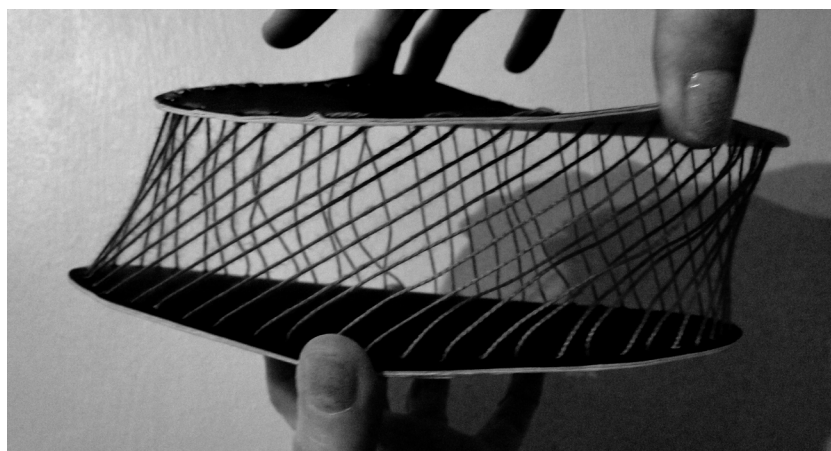
Right: DTEIII Plan



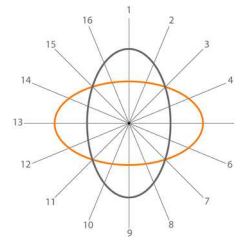
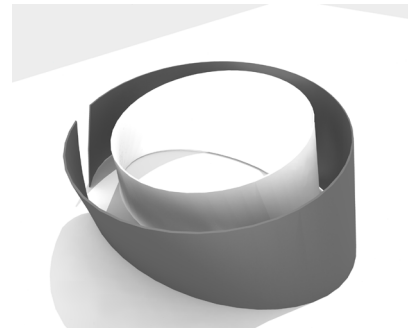
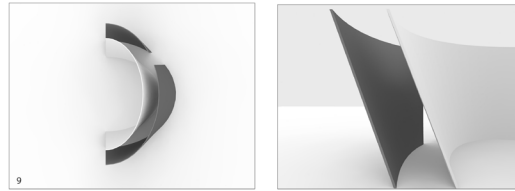
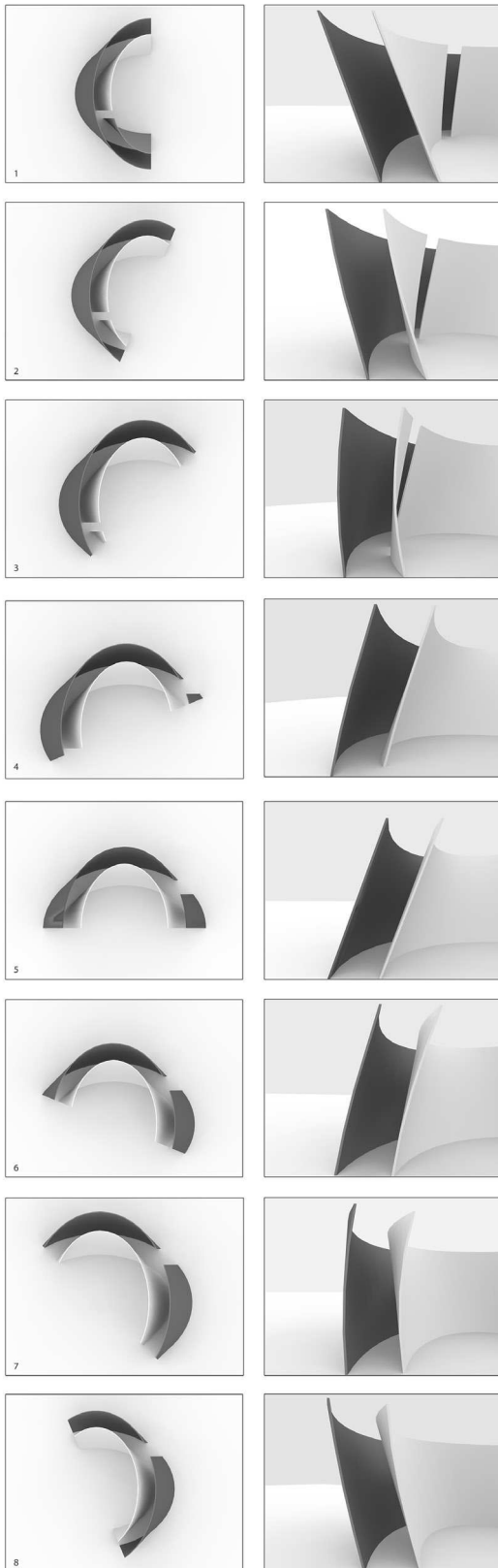


At the beginning of my explorations, I looked to explore ways of creating the shape so that I could judge how the spaces worked and felt for myself. I started by creating a series of ellipses and used different methods to try and emulate the torqued shapes. I felt that

none of these methods could clearly generate the complex forms and it was from this that I decided to make a computer generated model of the sculpture as I felt this would be the only true way for me to explore an exact representation of the piece.



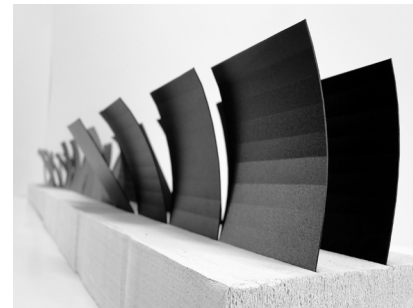
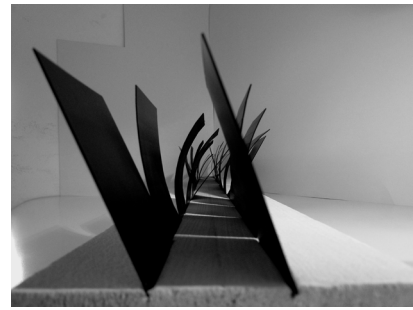
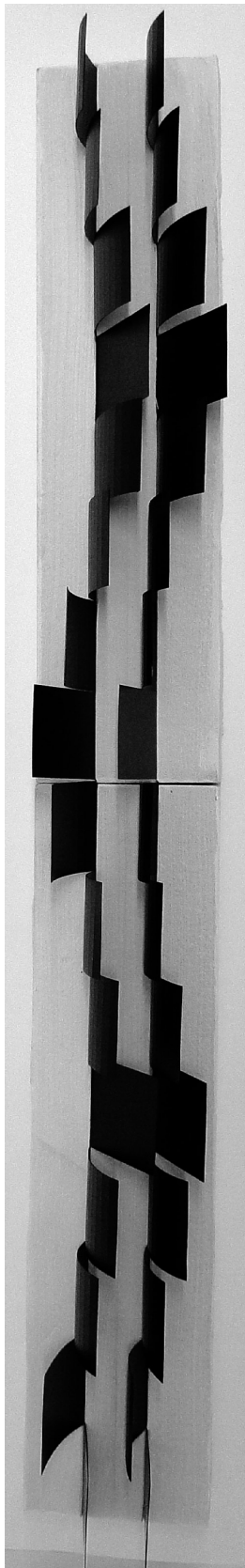
Top: First Iteration
Bottom and Left: Second
iteration with string



From this model, I was able to create a series of sections to understand the enclosed space and shapes the structure produces. The model helped me to judge the difference between the open and closed spaces that the sculpture produces and this caught my attention as I became aware that one was not able to experience each angle in turn as they walked through the space due to its curved forms. I therefore decided to create another model that would give one the experience of each angle one by one.

Series of sections produced using Autodesk Inventor

Opposite Page:
Left: Final Iteration plan
Top Middle: Clay mass model
Middle: Final Iteration View

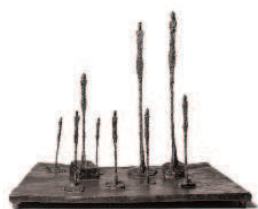


I opted to explore the sculpture by modelling the angles as planes at 1:50. The clay model represents the stereotomic like qualities and solid mass of the sculpture while the planes represent its tectonic qualities. These models allow us to view some of the sculptures sections at once giving us a complete experience of the space it generates. Open and closed spaces start to occur along the length of the

Alberto Giacometti, The Glade, 1950

Coalescence, Tension and Disparities of Scale

Finlay Muir

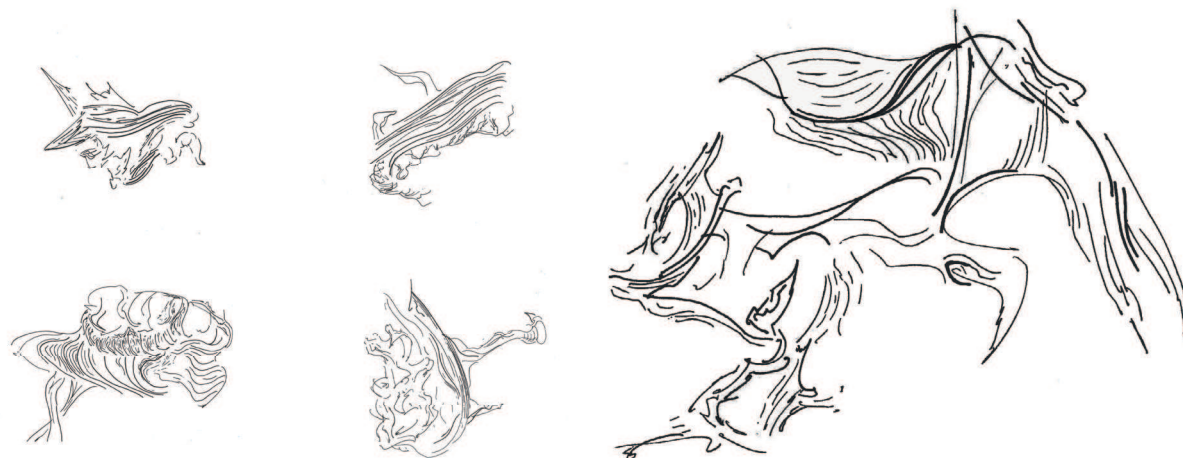


The haunting gaunt figures of Giacometti's 'The Glade' convey a state of distortion that questions our understanding of a figure as an individual. The textural qualities conveyed pose questions not only of scale but of tectonic order. Presented with a moment of coalescence, a tension occurs between a material of low viscosity and one of permanence.

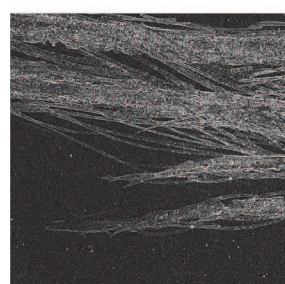
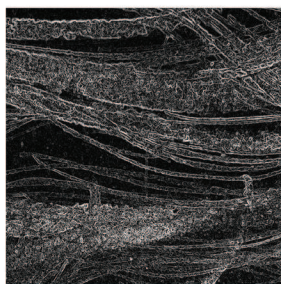
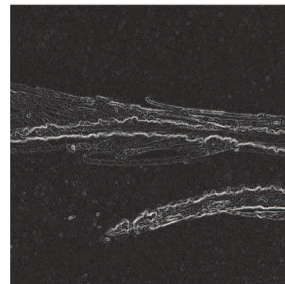
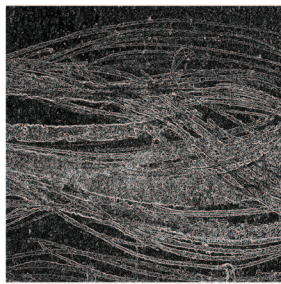
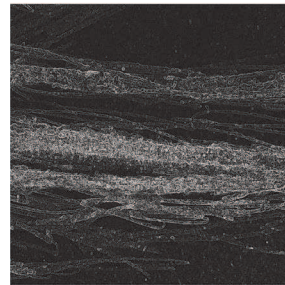
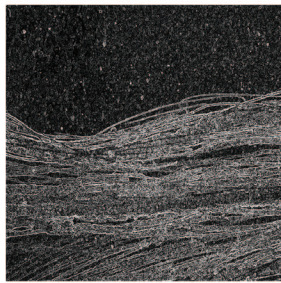
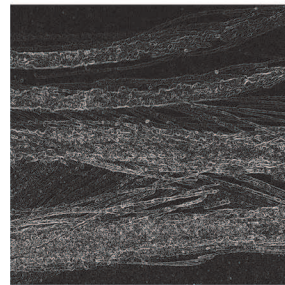
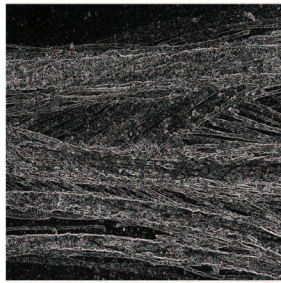
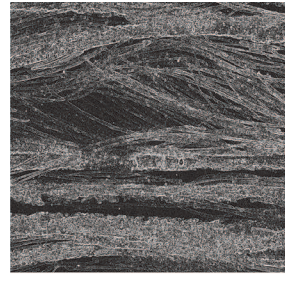
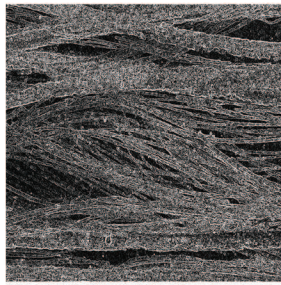
French Neo-Gothic architect Viollet Le Duc's drawn work provided a profound example of the analysis of complex geometries, and provided inspiration for the graphic style adopted. The rationalisation expressed in his work reveals hidden forms within an encompassing structure.

'The works that I find most true to reality are those that are concerned with it the least'

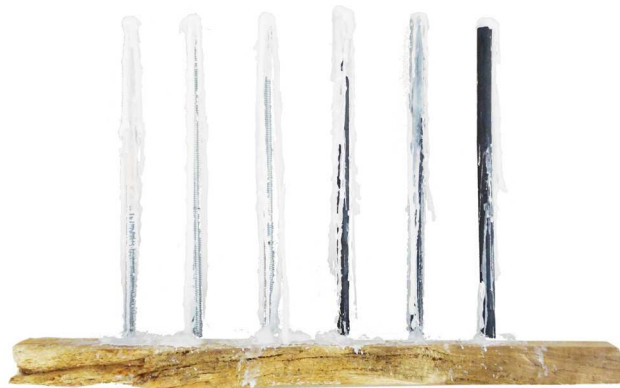
- Alberto Giacometti



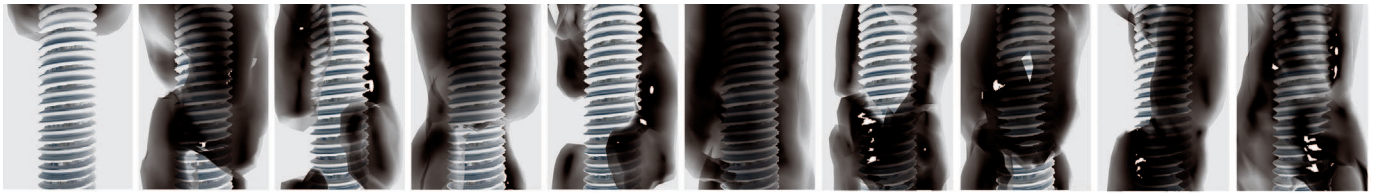
Line tracings of initial explorations



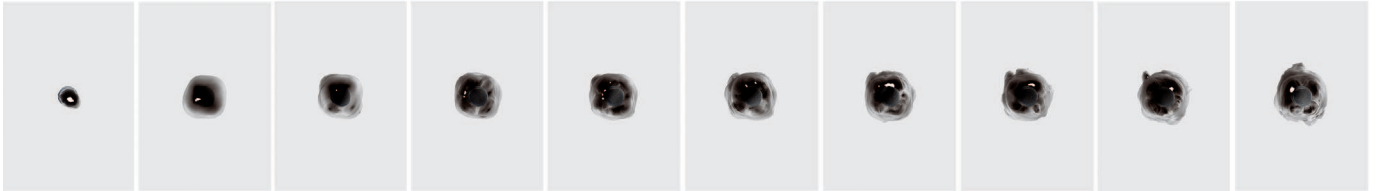
Rationalising non-structured formations at macro and micro scales



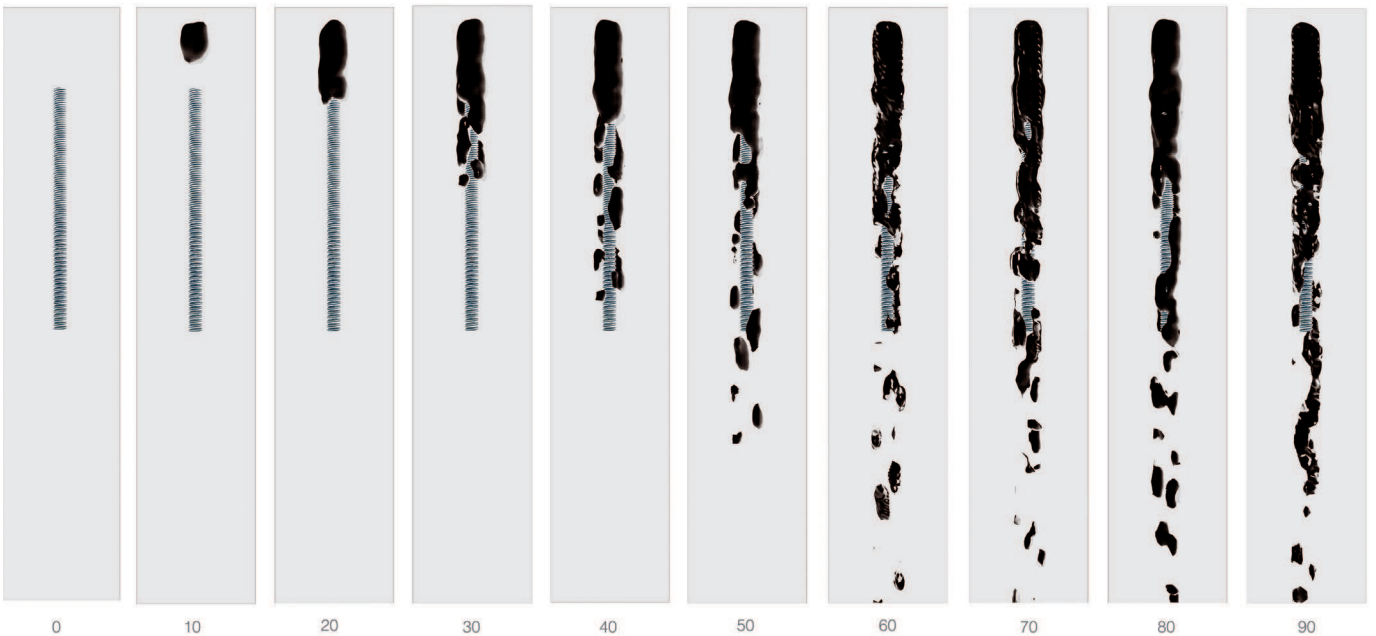
Drawn line analysis of elongated wax formation (above)
Physical explorations into manipulation of adherence conditions (left)



Synthetic simulation in detail



Synthetic simulation in plan



Synthetic simulation in elevation

‘The Glade’ inspired the experimentation with low viscosity molten wax to achieve organic structures with inspiring variations of volumes and cores. Controlling the moment of flow and rationalising distribution by employing a structural element uncovered a further level of tension, with organic formations intersecting set geometries.

In regards to the tectonics explored in this project, as with his own work, a number of largely overlooked set of rules, or realities, of imposition exist: those of gravity, turbulence, temperature and friction for example. For practical purposes in the physical environment these elements are largely set by existing laws of physics, however through synthetic simulation, the manipulation of these elements allow a far more comprehensive understanding of moments of formation. Rationalising the investigated volumes across several models through drawn methods allowed further evaluations of the textural qualities presented, the understanding of implications at human and micro scales.

Paul Klee, Highways and Byways, 1929

Proportion, Distortion and Intersection

Clare O'Connell



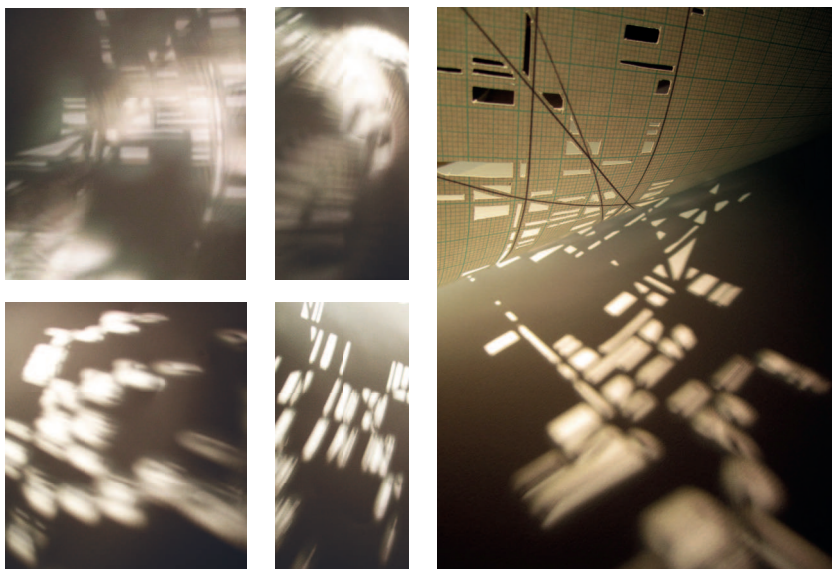
The initial investigation made was in response to the artists use of colour and proportional. Through reducing the grid to its simple geometric form it allowed the perspective to be removed. Eliminating the distortive aspect led to an exploration into how distortion could be reintroduced. The first iteration investigated the effect of introducing diagonal intersections.

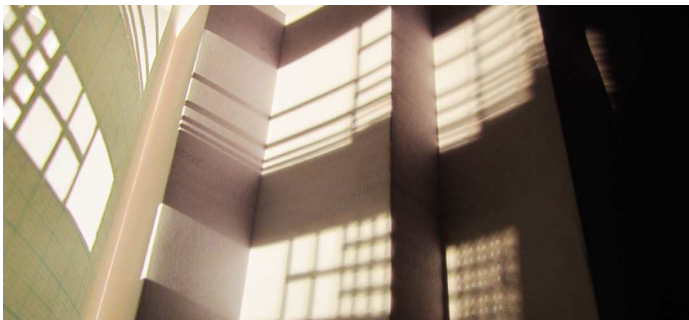
The distortion caused by projection was the next line of investigation. By adjusting the light intensity and varying the curvature of the paper it enabled an interesting shadow study to be created. This initial study was particularly focussed on the effect of projecting a distorted grid onto a flat ground plane.

Colour and Proportionality



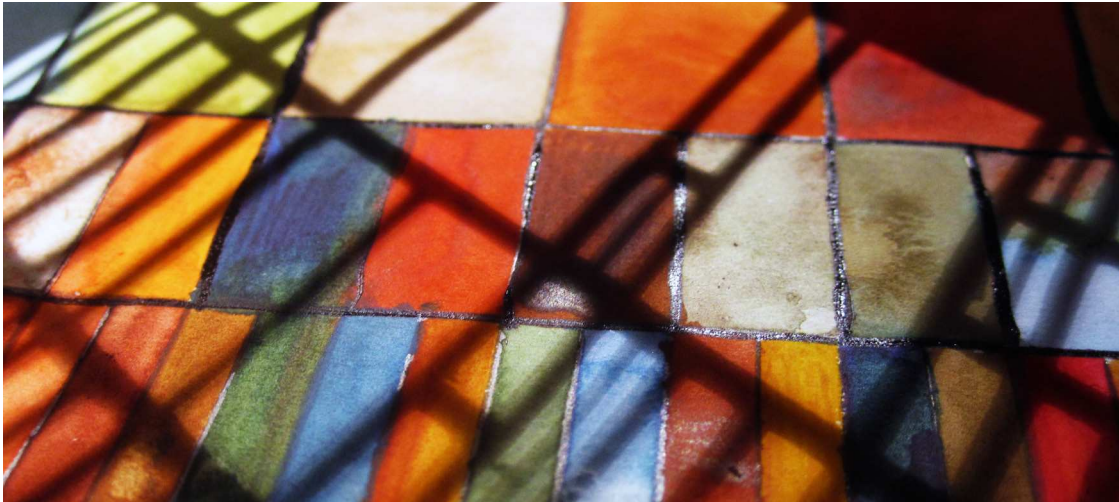
Distorted Grid Projected on to Flat Ground Plane





After exploring the affect of projecting onto a flat ground plane another distortive element was introduced. Both regular and irregular planes were imposed and numerous different combinations were explored. The projection of the regular grid onto an undulating plane resulted in an image reminiscent of topography.





Intersecting Geometries

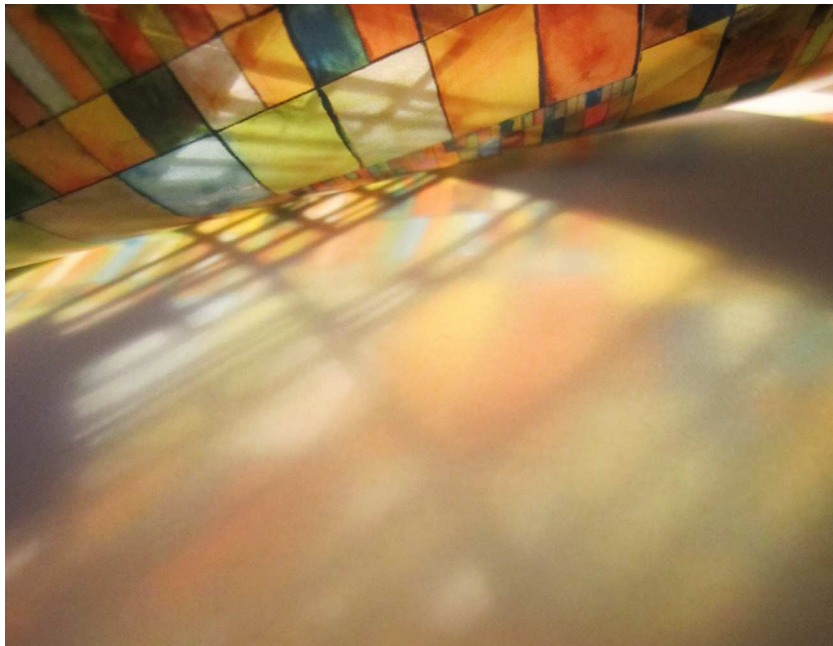
Having investigated the effects of distortion as one possible study an alternative route has also been considered.

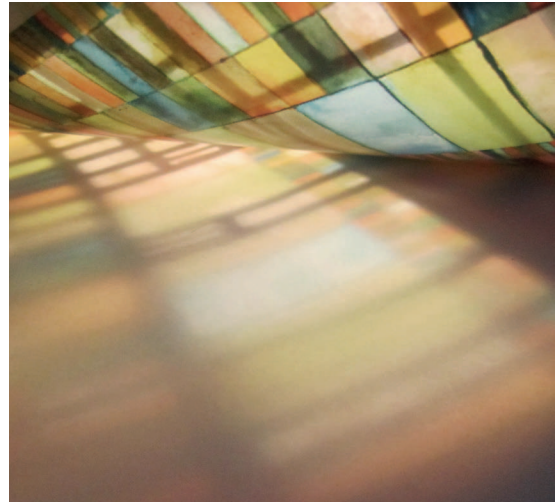
This option explores the outcome of intersecting two different regular geometries. A series of photos were taken to devise which convergence was most successful.



The Parti

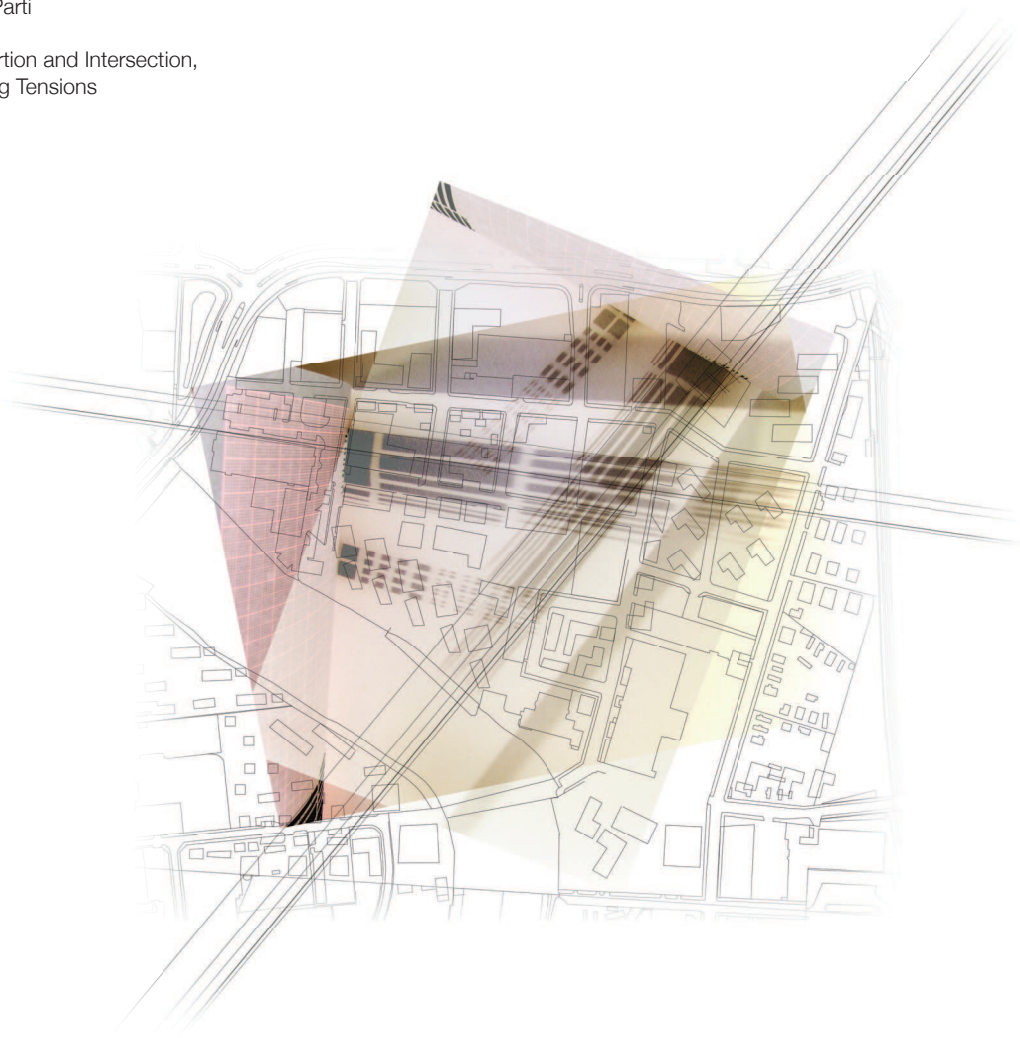
The concept of intersecting geometries was imposed onto the site in order to develop a parti for the theatre proposal. The site has contrasting socio-cultural relationships and the proposal aims to help fuse the tensions between them. It suggests establishing two regular grids orientated on different axes and investigating the moments of intersection and interaction.





The Parti

Distortion and Intersection,
Fusing Tensions



Gustav Klimt, Birchwood (1903)

Enclosure, Verticality, Intensity, Cluster, Amalgamation

Mikaela Patrick



Birchwood contributes to a series of landscapes by Klimt that steer away from a style of atmospheric landscapes, with trees becoming more individualised, developing character and demonstrating living nature. The

forest is thought of as an interior space, a place of tranquillity filled with the autonomous life of nature. The forest is compared to the Gothic Cathedral, and verticality, music, rhythmical sequences with individualistic moments are important.



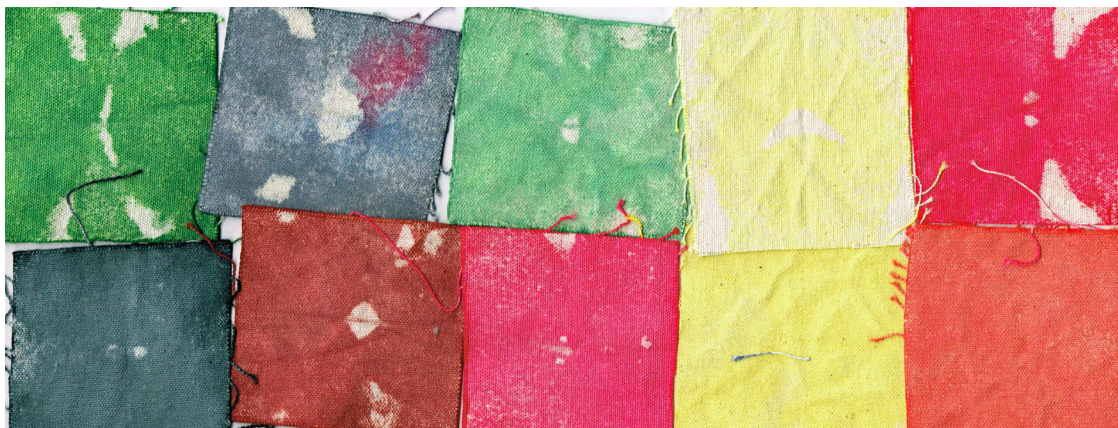
The geometric format of the square provides a frame without drawing a frame, and this notion of enclosure without a physical boundary was explored in the first investigation. Density was investigated through varying distribution and the nature and form of the vertical element that then produced a study of the organic versus man-made column, looking at this idea of individuality forming from a point of intensity or concentration.



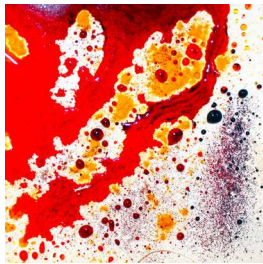
study 1: variation in organic columns



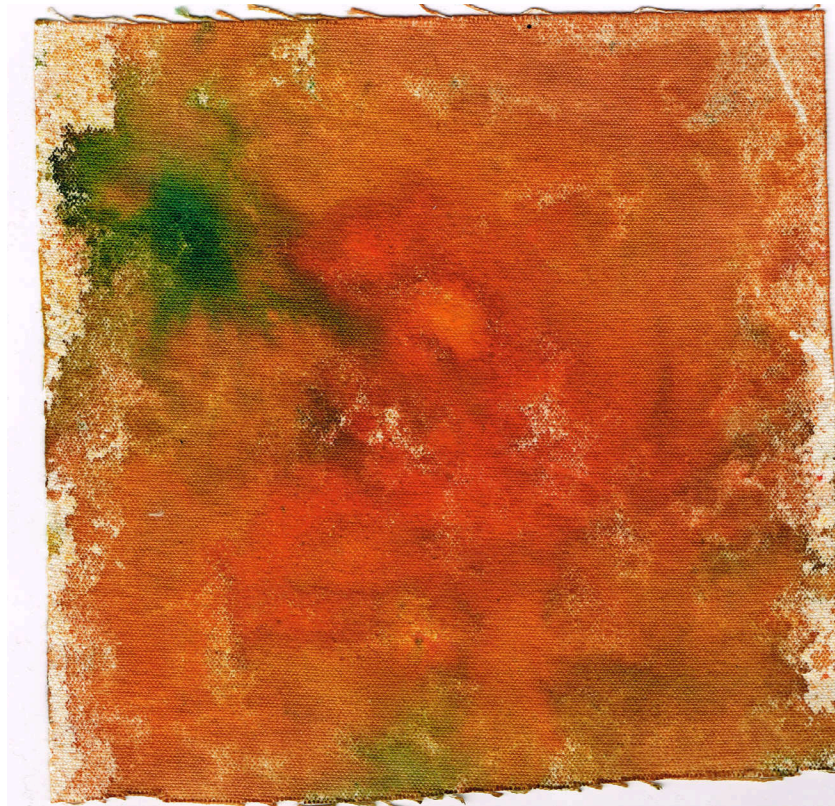
study 2 (above): density with varying vertical elements; 3 (left): the individual column



study 4: colour swatching,
clusters and concentrations



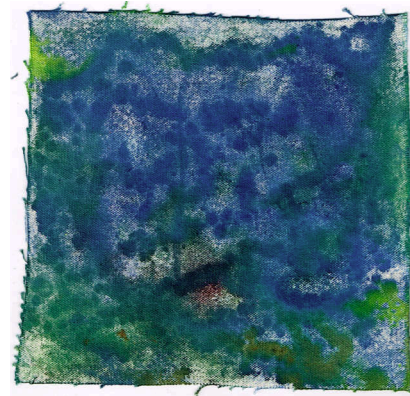
study 5: amalgamation of dye colours

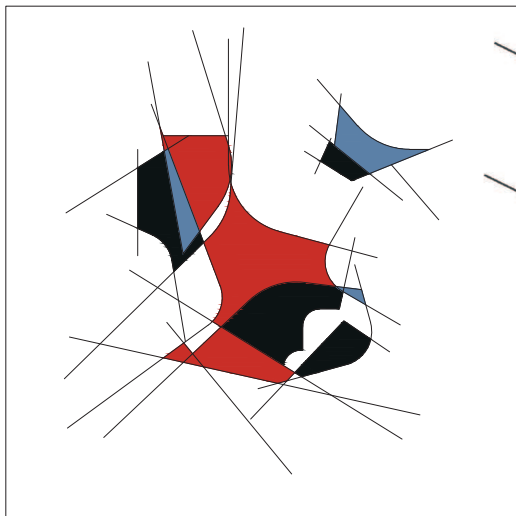
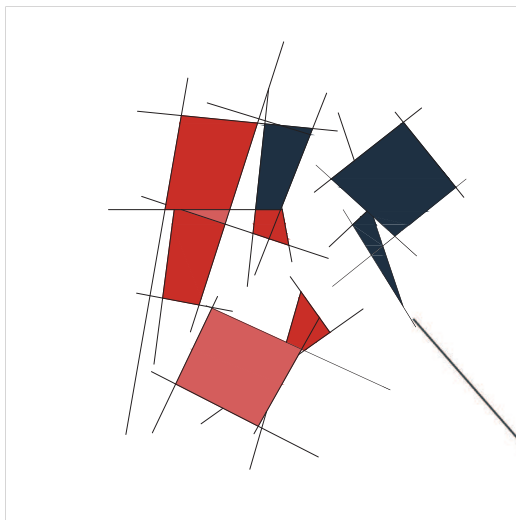
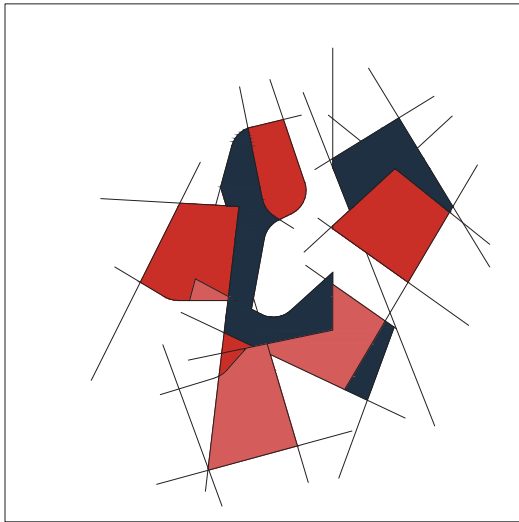


A parallel investigation into the distribution of colour was undertaken, looking the chemical processes of mixing dyes and how it is possible to vary intensity. These samples were then used to look at arrangement, creating clusters and looking at concentration as a representation of the forest floor, the horizontal plane, to compliment the investigation into verticality.

The chemical process was studied further, and provoked thoughts about

the blending process, a process of amalgamation, which could be informative to a tectonic exploring the formation and solidification of a series of molecules or elements. The juxtaposition of a solid formation and clusters of vertical elements could inform a tectonic strategy of variations in enclosure, with the solid part representing the blacked-out auditorium and the non-framed enclosure the transitional more open spaces.

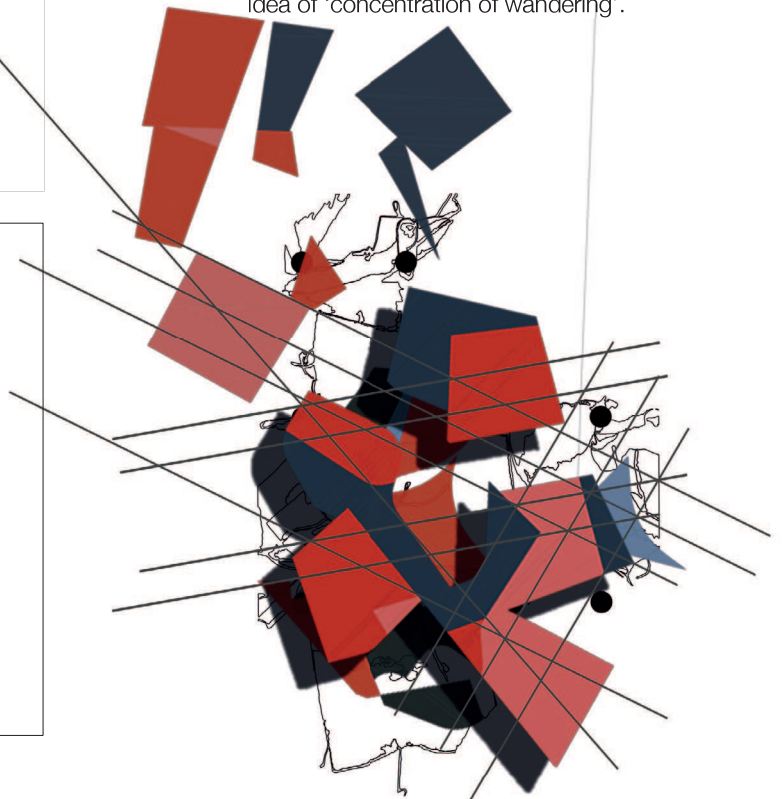




study 6: geometric formations of clusters



The tectonic strategies explored during the make/create prologue will be helpful in forming the design proposal for a theatre. The elements will be implemented at varying scales to inform both parti and tectonic details. The initial ideas of a parti look at the idea of clusters and the intensification of the clusters towards the auditorium. The aim is that the fragmented nature of these patterns will form a dynamic relationship with the public space and surrounding area, exploring Bachelard's idea of 'concentration of wandering'.



Georgio de Chirico, Mystery and Melancholy of a Street, 1914

Depth and Repetition, Position, a sense of Uncertainty and Possibilities

Carole Shek



Casting model, interpretation of repeatness, represents its depth, orders.

Wooden model; Using different thickness of wooden blocks in order to create a sense of descending, its spacing carefully position its balance

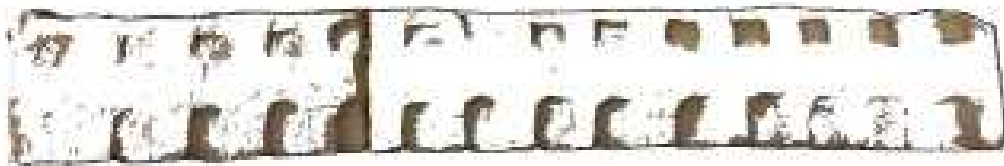


The words in the title of this artwork are carefully presented, which leads to a question of what it is actually implying. This artwork stands within its enclosure, surrounded by solid architectural elements. The repetition of the arcades and colonnades on the left hand side are the main focus point, with the depth suggested along to the ends of the canvas. The highly exaggerated shadows cast, record a certain moment of the sunset in a day. The contrast between the brightest part of this artwork and the darkest point is rather disturbing. It is noticeable that the two parts are done by two different vanishing points. It highlights how Chirico characteristically separates a scene into constituent parts, however co-opts them into this one unique artwork.

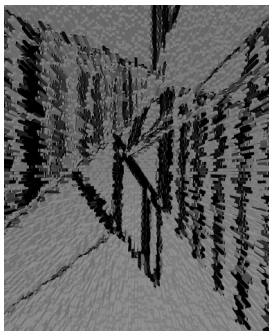
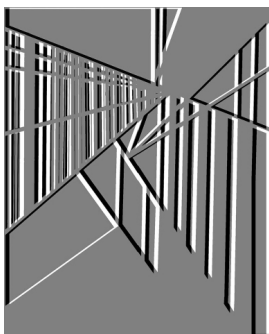
an empty, sorrowful atmosphere. The girl on the left is playing very peacefully with a stick and bicycle rim. In order to balance her in the painting, there is a shadow suggesting a human figure in the unseen area behind the solid. Overall, all the objects have been carefully considered with their right angle, scale, direction, brightness and balance.

My first tectonic exploration is to investigate the repetition and depth of the artwork. In order to experience the sense of repetition I have cast the building on the left. The other exercise I did is to use wooden blocks to create a 'barcode' like strip which are done in an order of descending width and frequency. The thickness of it works as a balance to represent the descent.

All the elements and objects are being carefully placed with great preciseness and controlled with colour use to set



Series of studies altering original of Mystery and Melancholy of a street to change audiot's way when analysis the painting. Bring their understanding beyond the frame of the painting.



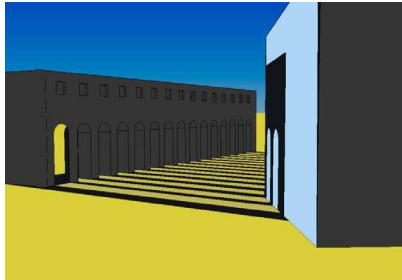
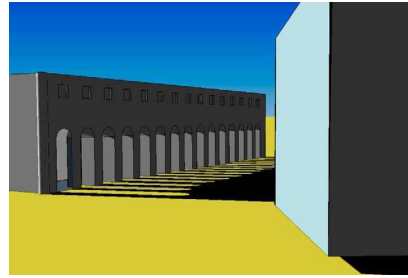
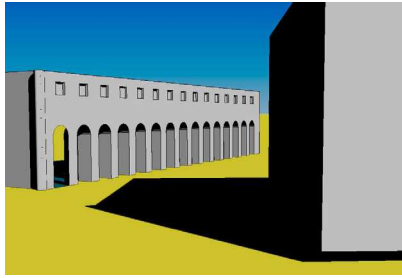
A second exercise was abstracting the artwork's position, hidden lines, colours and vanishing points. Chirico has positioned the two points in the centre area. All lines seems to starts from there, extended to the edge. Knowing the underneath structure of this artwork, I interpreted it into these series of geometries. My intention is to unmask the lines and bring them back to the surface.

The final two images on the left, show further investigations using photoshop, which highlights the lines and the boundaries of the spacings. The bottom image has created a sense of movement in a 2D formative image.

Each study has its own unique values and contribution to my understanding of tectonic assembly.



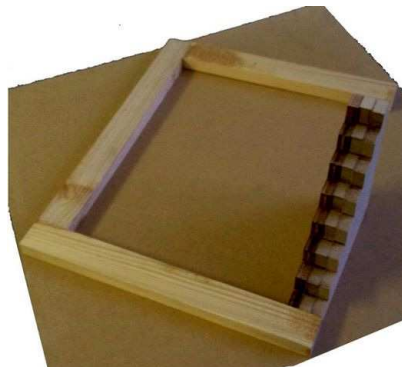
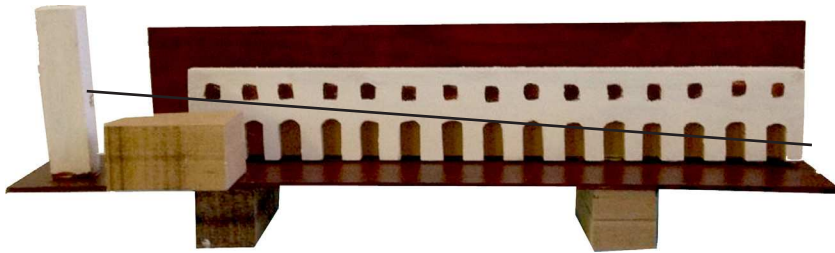
Question of artist's position?
Beyond eye level.



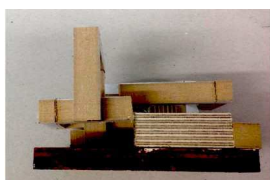
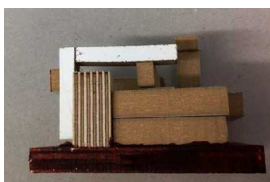
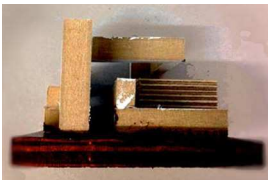
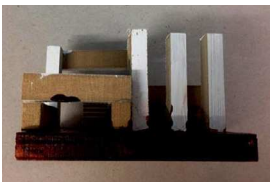
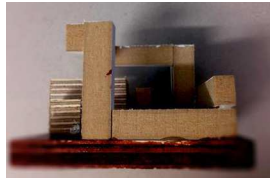
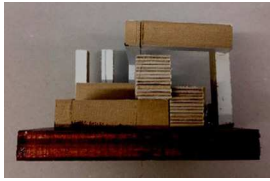
This next stage I have made a 3D sectional model to show where composition of the solid and the position of the artist are. The artwork was drawn beyond its horizon, and above the artist's eye level, which suggested his position has been lifted.

The other investigation is to focus on the changes of movement in its light and shadow.

In my sketchup model, I have worked on series of angles of sunlight and shadow casting. My intention is to suggest the possibilities, change of circumstances and create the unknown.



As I wanted to explore the idea of mystery, I have looked into the example of Escherian stairwell. In order to experience the idea of the sense of confusion and uncertainty, I created the model on the right hand side. Finally, I realised to create the connection, you have to take this picture in a right angle, and the trick is that the staircase does not connect to the path, although the picture makes it looks like it has been connected.



These models study the following tectonic qualities which could refer to the original artwork: The sense of uncertainty and confusion; Ideas of connection and disconnection; direction leading to unknown; different paths and suggested possibilities; routes density; creation of a volumetric space, its spatial relationship and a sense of compositional balance.

Movement, Proximity, Fragmentation and Repetition

Aimee Smillie



Human Scale, Sculpture
derived from 4mm Mild
Steel Bar

Body Abstraction

The process is one of abstracting the human body, generating ideas surrounding proximity, zoning and repetition.

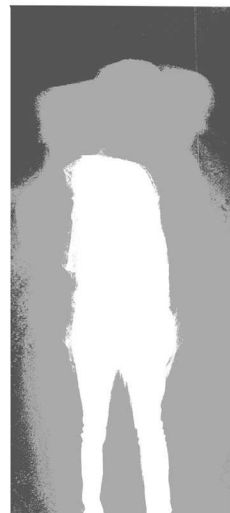
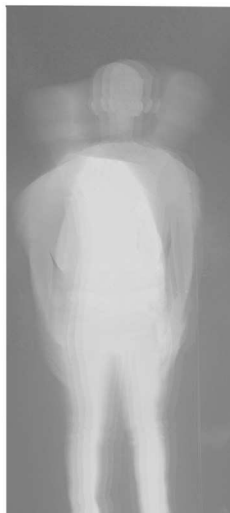
Three zones were created on two scales the micro and the macro. Private, Interactive and Intervention which all take place on a micro scale concerning itself with the experience of the body within the realm of Architecture. Secondly a Macro scale was derived

speaking more about a master planning approach; the dense city centre, city outskirts and the finally the suburbs.

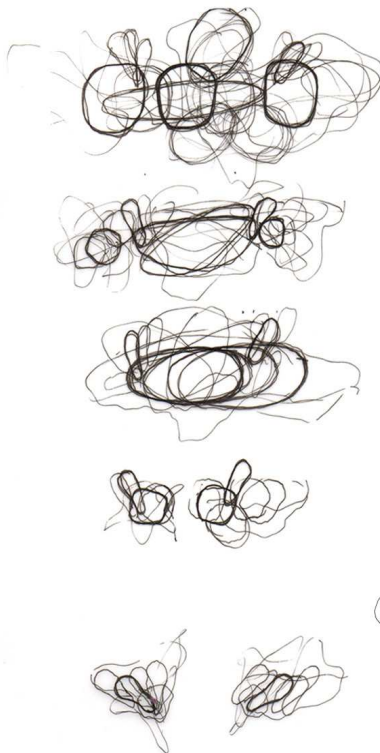
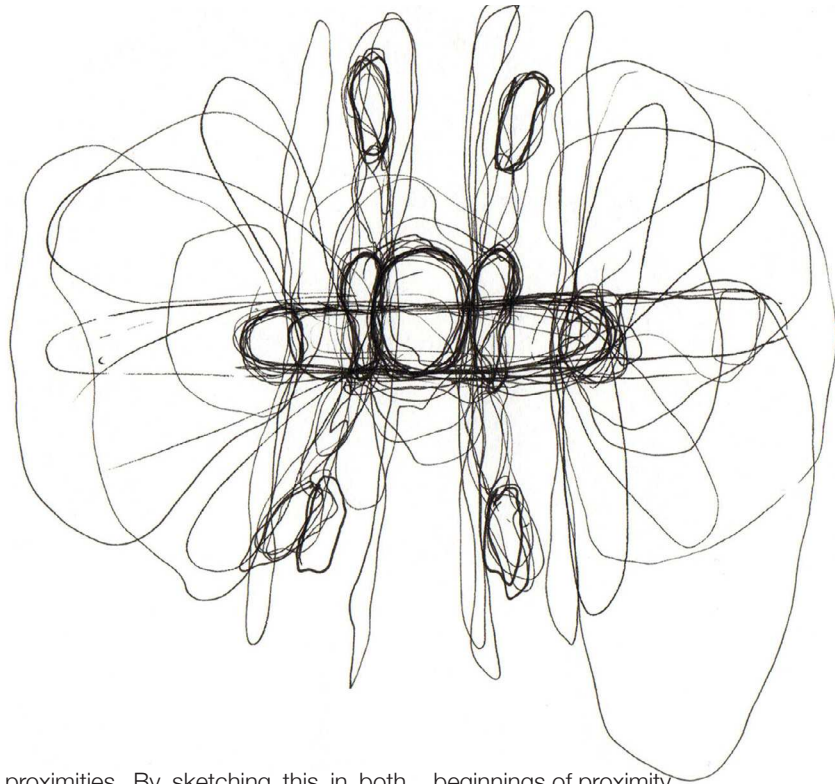
These ideas provide the basis for further investigation into drawings of fragmentation and repetition.

Drawing/Photographic Motion

Both photography and sketch provide the initial steps to convey movement as a static object. In photograph movement is a skewed overlay which has been abstracted into three



Photographic Investigation

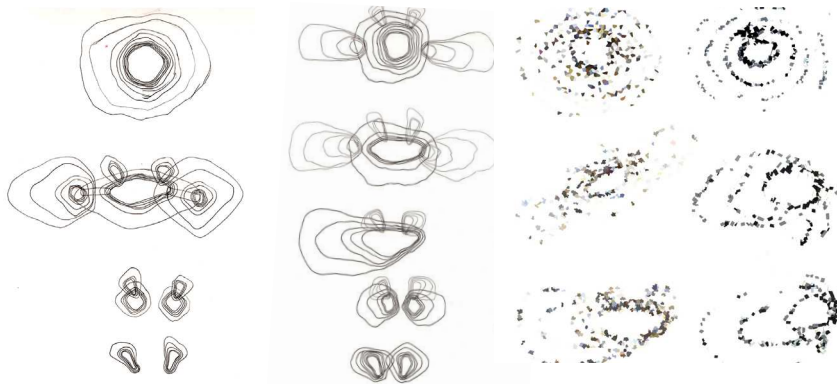


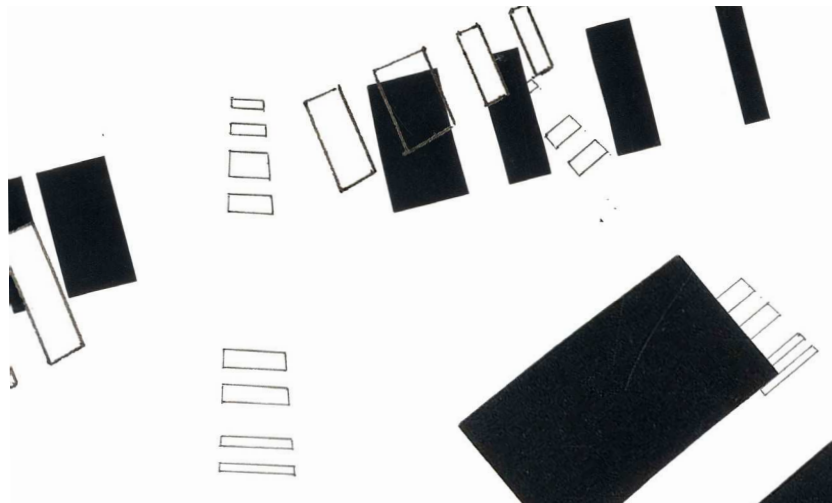
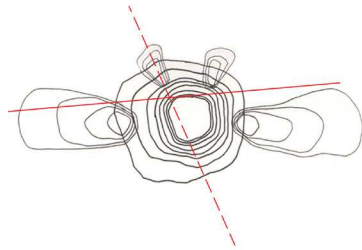
proximities. By sketching this in both section and plan, the movement is broken down to one line. Moving away from the idea of the body, further abstraction was necessary to create a topology as well as technique to induce primary and secondary areas. By utilising various line thicknesses each section can be simplified into intersecting planes whilst maintaining the feeling of both movement and the

beginnings of proximity.

Fragmented Space

A fragmenting process provided a platform to depict the areas of density and sparsity, physical art pieces and computer design where the primary presentation techniques.





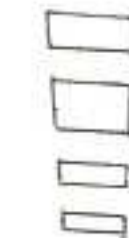
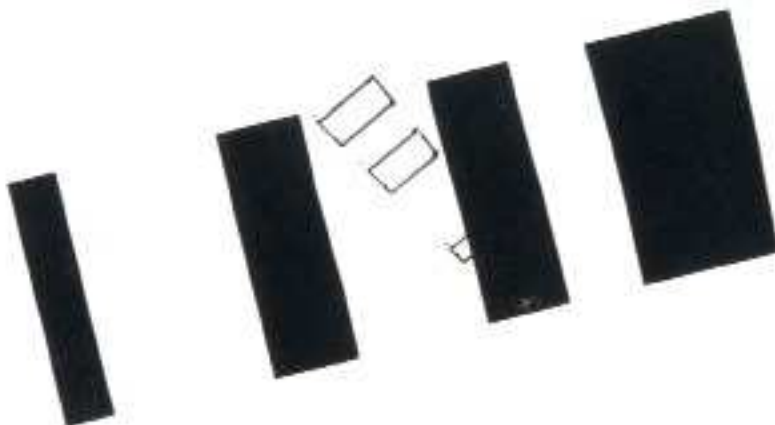
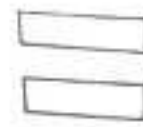
Repetition Barcoding Technique as an abstracted section

Barcode Repetition

The final mode of abstraction is that of repetition and intersection. Taken from earlier movement drawings, a zoomed section is created through a scale change. Various line thicknesses represented as dense repetitive black boxes, whilst underlying layers are shown as void squares, these later become a metaphor for both Master Planning and Parti ideas.

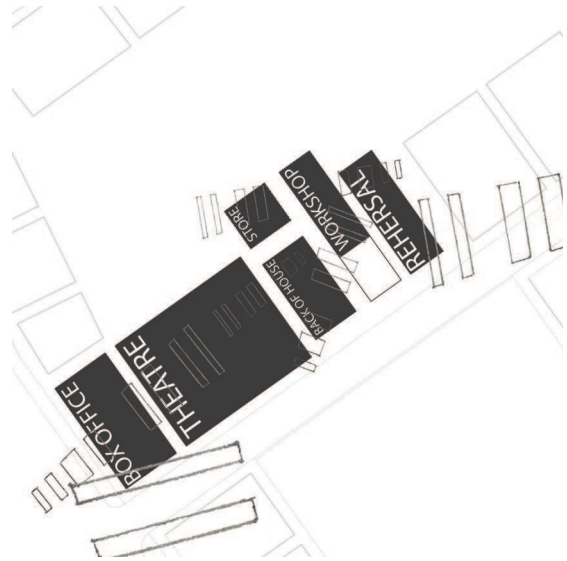
Parti and Master Planning

In relation to master planning an initial overlay onto site suggests each solid box may be a tool to represent each surrounding/existing building on site, meanwhile each void space becomes a connection space or a route planning technique, conveying movement to and from the site.

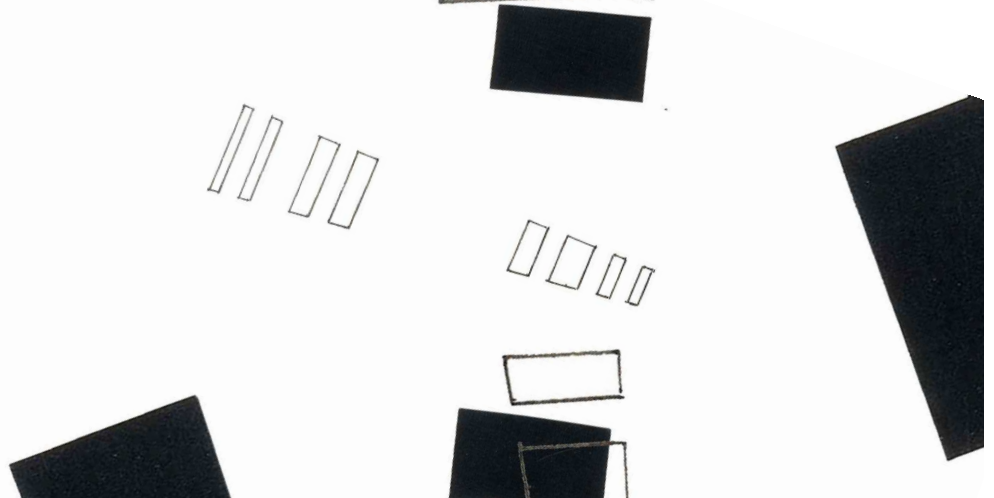
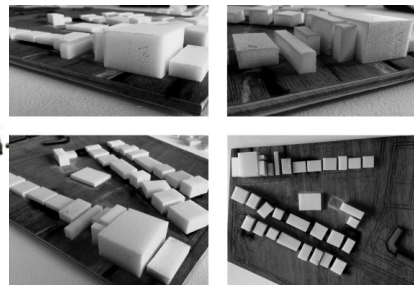
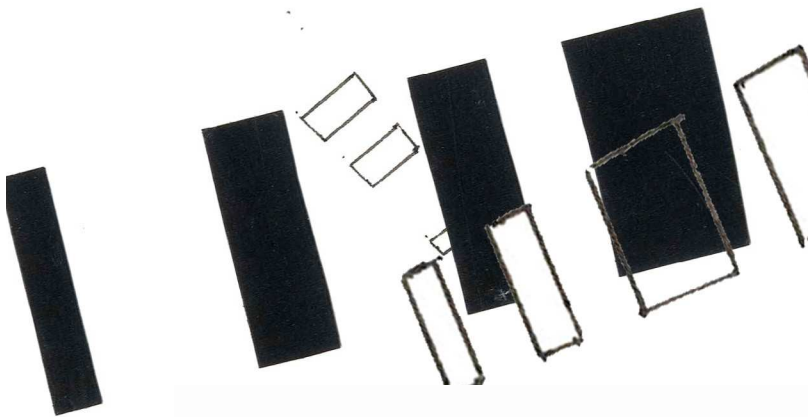




Barcoding Masterplan



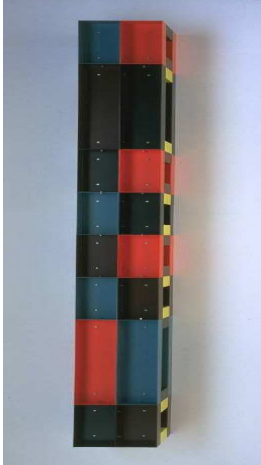
On theatre scale this barcode design becomes a series of small buildings making up, Front of House, Auditorium, Back of House, Workshop and Rehearsal Spaces. Where the void spaces/connection is then portrayed as navigation from one building to the next. Each box begins to be adapted as a result of site, use and proximity, generating a language of sliding planes, and overhangs.



Donald Judd Untitled (Wall boxes, Stacks) 1982 - 1995

Simplicity & Repetitiveness

Sami Tekle



Untitled (Wall Box) 1985



Untitled (Wall Stack) 1990



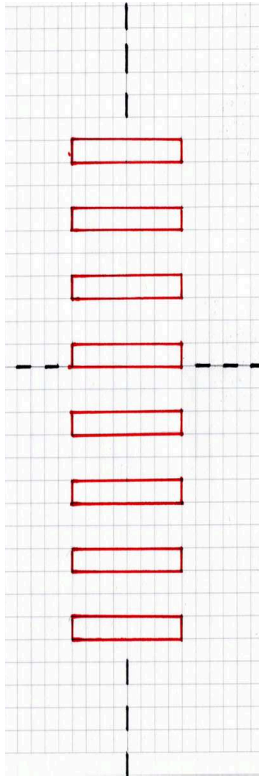
Untitled, works in concrete
Donald Judd 1985

The artist used simple, often repeated forms to explore space and the use of space. Basically the materials used such as metals, industrial plywood, concrete and colour. The arrangement of stack made of identical iron units stretching from floor to ceiling which consist of a number of elements, although there is variation in the materials used.

The stacks are all ordered according to strict principles, the gap between each unit, and between the first unit and the floor, should be equal to the height

of a single unit. Since the units are all identical, their significance derives from this pre-determined geometric order rather than from any individual features. However, Judd's attention to the sensuous qualities of his materials prevents Untitled from being cold or clinical.



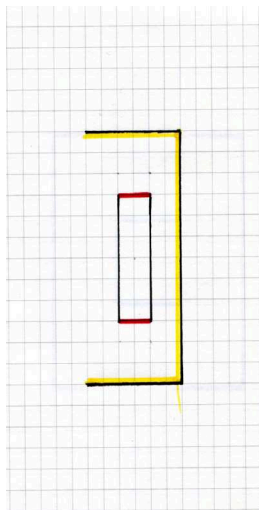


Initial Diagram



My first exploration is based on perception of light and shadow, this involved using repetitive elements, colour and a combination of different material to explore the effect of light

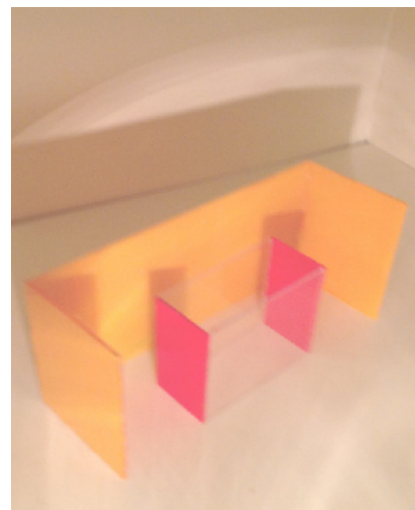
as well as open and closed spaces. This investigation basically provides an opportunity to create spaces and openings using simple forms.

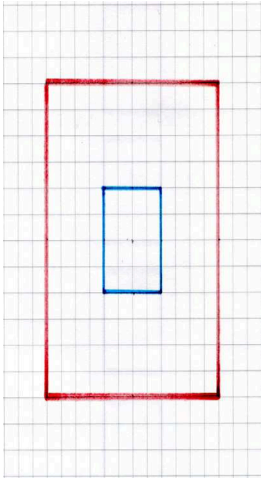


Initial Diagram



Image Study of Light and Shadow





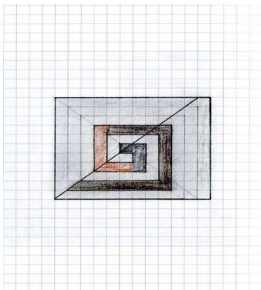
Initial Diagram



Image Study of Reflection & Shadow

The second stage involved on materiality, reflection and scale. Initially using simple forms, I start exploring the relationship between two volumes and the effect of reflection of the object by projecting in to the mirror, as a result the object became double than the original size. These investigations

provide an opportunity how to capture the surrounding environment in to the interior spaces using reflective material as well as how inner and outer spaces are defined the relationship of different scales.



Initial Diagram

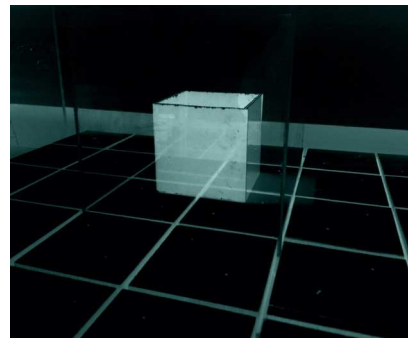
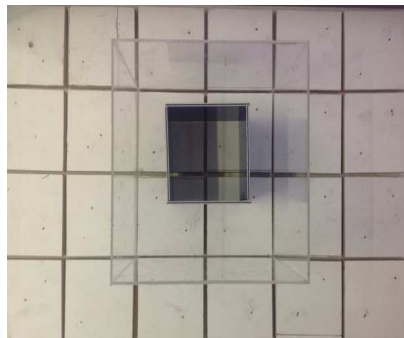
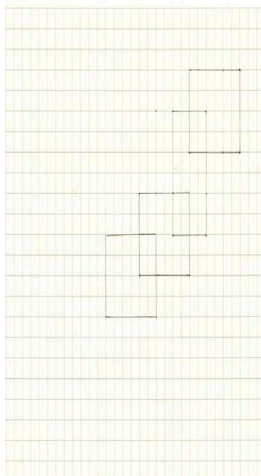


Image Study of open & closed spaces



Initial diagram

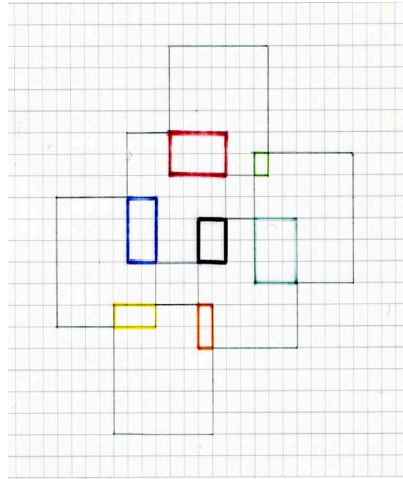
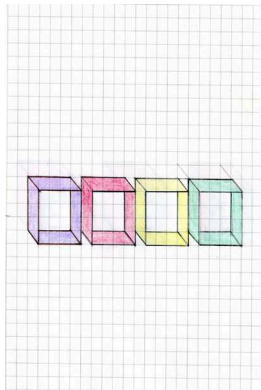
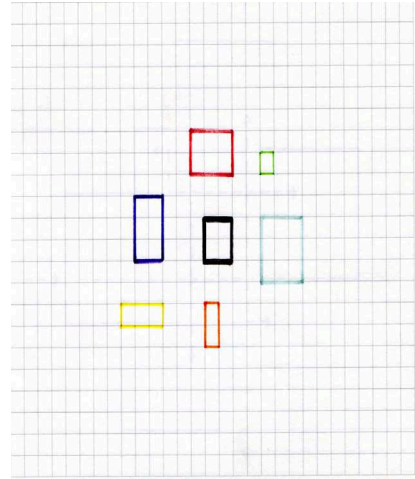
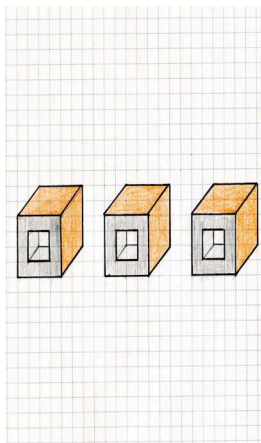


Diagram study of simple forms to create space



Finally looking in to the precedent study, I start combining a number of simple and regular geometric shapes to create spaces. As a result the concept of connecting these repetitive elements leads me to think about the intersection points, which allow me to create different programs with in spaces. The other thought is transforming this diagrammatic 2d plan in to 3d model section, to develop the possibility of

spaces and also openings in terms of light and shadow. Considering many aspects of the work of make and create project, these final diagrams might be the most influential in taking forward into the design process.



Volumetric Study

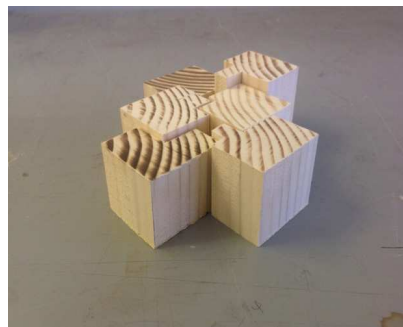
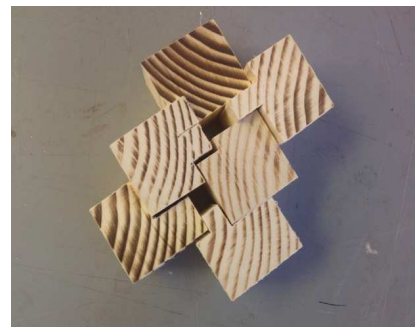


Image study of Volumetric model



Barbara Hepworth, Wave, 1944

Seismic Eversion

Jamie Walker



Above
Wave, 1944

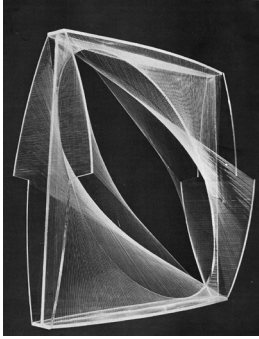
Below
Pelagos, 1946
Oval, 1943
Pendour, 1948



After the outbreak of WW2, Barbara Hepworth moved to an artists Colony in the Cornish seaside town of St Ives where she spent the rest of her life. Hepworth's *Wave* is wooden sculpture that is inspired by the Cornish landscape and explores the natural forces of land and sea. Kindred pieces such as *Pelagos*, *Oval* and *Pendour* also explore mass and consequential space.

Hepworth emphasised this dichotomy by painting the hollow spaces in white, some of these pieces are then accented with strings to define the interior. Hepworth may have been influenced by her contemporary Naum Gabo, the Russian Constructivist sculptor who used to nylon strings to define space in a similar manner. I chose to explore the ideas of interiority and tension in a clay series.





Above
Linear Construction in
Space No. 1
by Naum Gabo, 1943

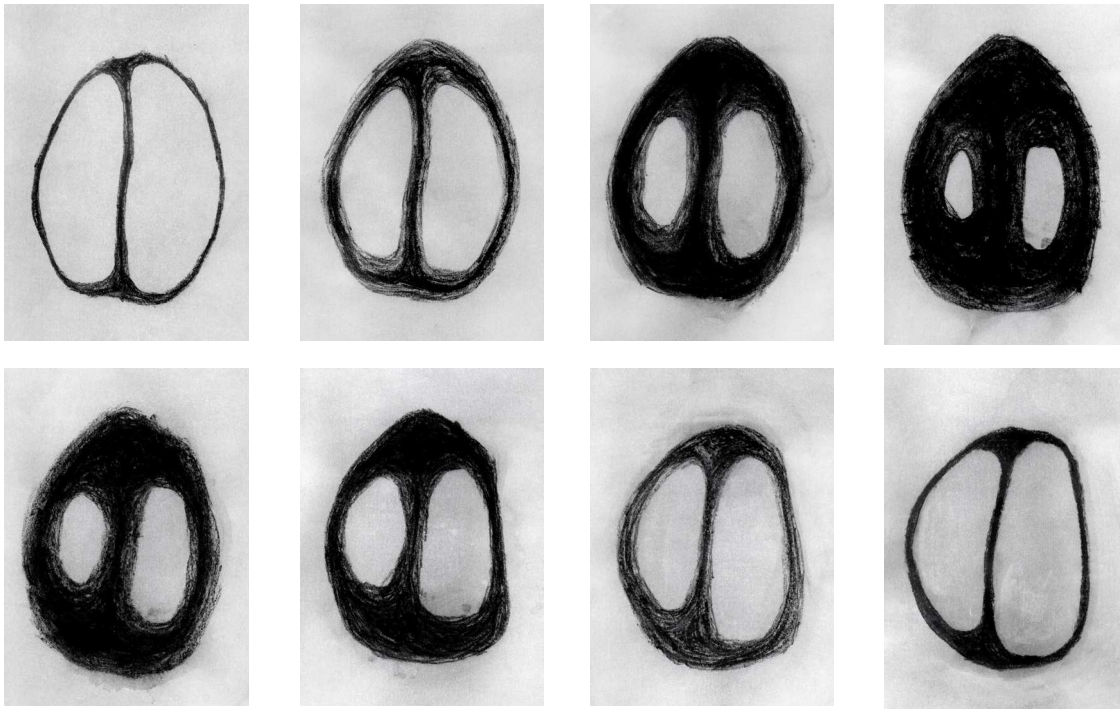


I used terracotta clay to emulate the earthy quality of the Hepworth piece, using wire tools to hollow out the mass and my hands to smooth out the surfaces.



I made use of metal rods to introduce a sense of tension and definition; I feel the top right piece was the most successful, tracing an asymptotic curve through mass.





Above
Charcoal Section Series

Below
Clay Section Series



I enjoyed the relationship between inside and out displayed in the clay series which led me to naming this investigation 'Seismic Eversion' due to the way it explores the curvature and the nature of interiority and exteriority. I then chose to take sections through one of the clay models to explore the development of a curve through a mass. Initially I did this with charcoal, drawing a vertical section of the model, then

tracing this and thickening the line relative to the clay model. However I was not content with the accuracy of these hand draw sections, I moved on to recreating the clay model then sectioning it manually while the clay was still wet. Using perspex shelves I laid these out to photograph them with the added benefit of reflective surfaces which lent a sense of depth and intrigue to these sections.





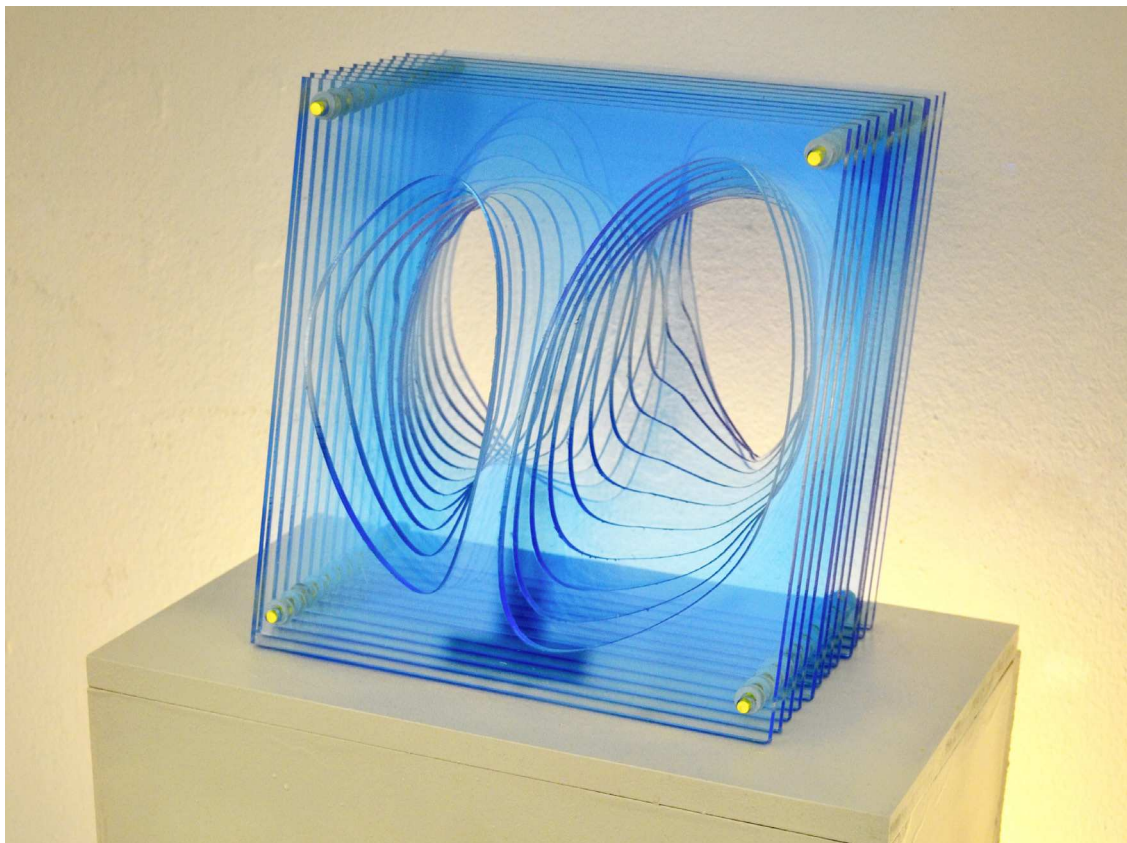
Above
Balloon Eversion Series

Below
Perspex Sectional Model

I also investigated the idea of eversion with a series of photographs of balloons which questioned the idea of interiority and exteriority, at one point does one become the other?

I felt these studies had dealt with the ideas of eversion and curvature; so I moved on to a definitive piece to conclude the investigation.

I made this final model from vario perspex inspired by the added reflections of past investigations, ideas of sections in series and the interiority of a mass.



Antony Gormley: Feeling Material, 2003 - 2008

Movement, Illusion of Mass , Energy, Boundary, Senses

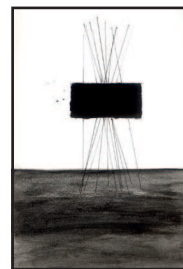
Craig Wallace



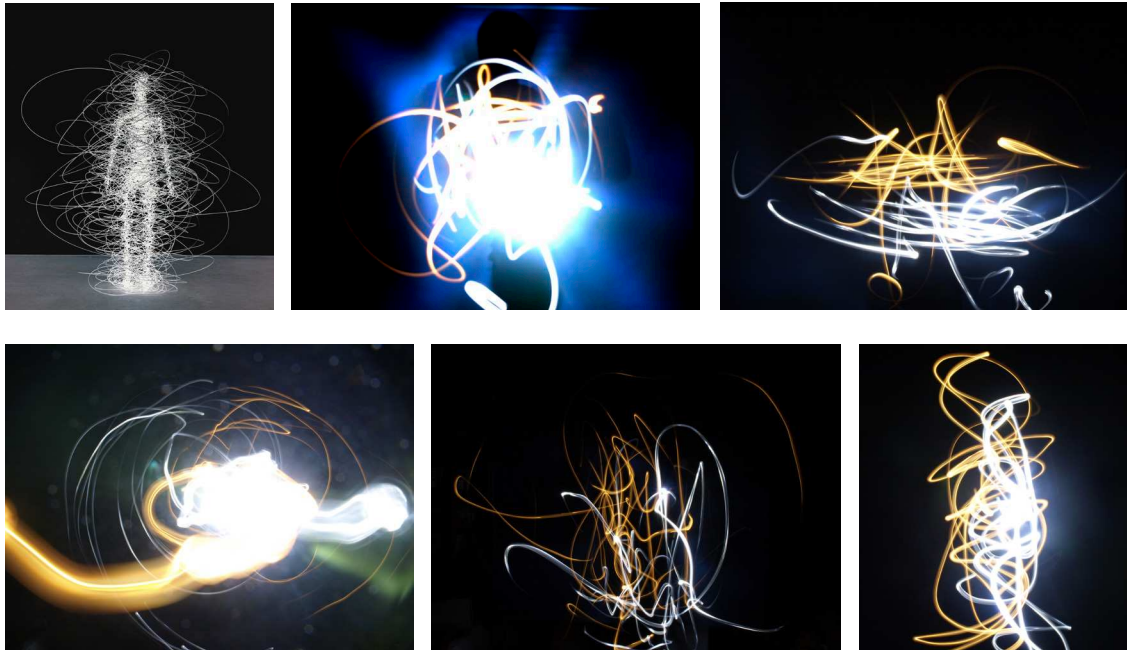
Above: Feeling Material wire sculptures. Gormley produced 40 of these in the Feeling Material series.

The starting point for my project was Antony Gormley's series of wire sculptures called Feeling Material. In this series he explores how we experience the world from inside our body through our senses. It looks at how we effect our surroundings and the presence we leave. The use of the flowing wire in the sculptures suggest movement and a sense of moment; they seem like they will not last forever and will vanish into the air. This lightness is juxtaposed by the clustering of the wire presenting an ethereal mass hinting at a presence.

For my first explorations of Feeling Material I separated and drew the aspects of the sculptures that captured my imagination. These were broken down to; a line drawings of movement, watercolour paintings of sensing atmosphere, and watercolour paintings of a weightless mass.



Right: My first explorations of Feeling Material. From left to right; movement, atmosphere, and weightless mass.



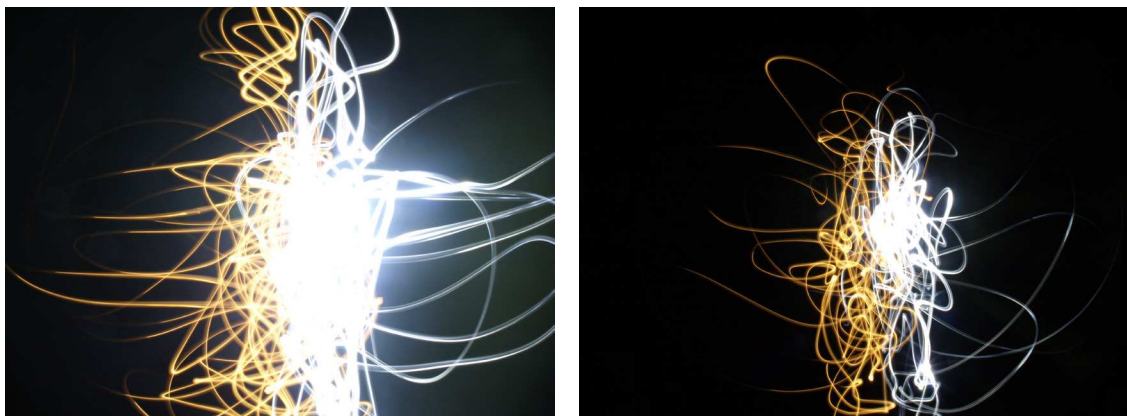
After my initial explorations my next step was to combine what I had discovered and produce my own version of Feeling Material. I had felt that the explorations had not captured some the energy and ethereal quality of the original so I set a goal to regain this. The first move was to invert the image of the sculpture changing the wire into lines of light. This gave me the inspiration to produce a series of light drawings using long exposure photography. This straight away captured the energy and ethereal qualities I was looking for, even emphasising them. In this series of photographs I wanted to go further than just combining what I knew but expand on it. I

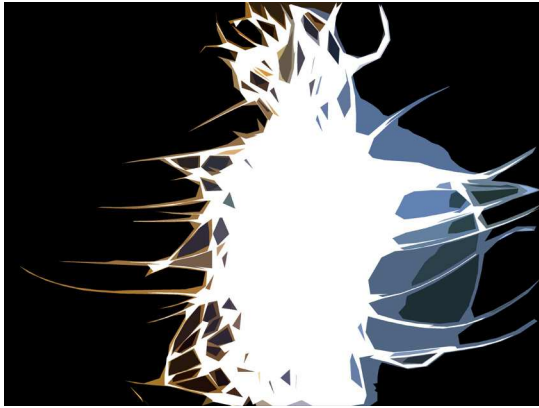
wanted to explore how the wire reaches out of the sculpture and collects back at the centre creating the boundary that suggests a mass. To achieve this I used two torches; one incandescent torch and one LED, this produced two colours which I could use to emphasise a boundary. In these photographs I abstracted the images away from the human form as I wanted to start looking at this as a architectural idea.

Top left, inverted image of Gormley's sculpture.

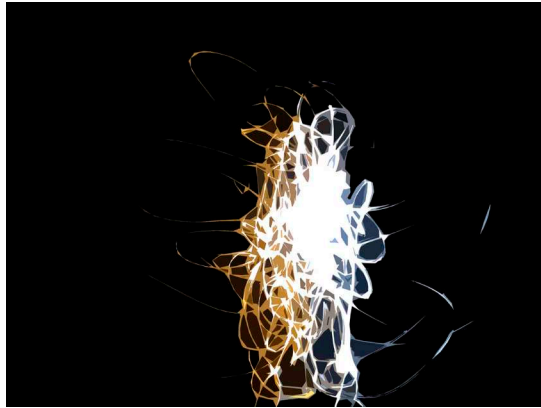
Above: Series of long exposure photographs.

Below: The two most successful Photographs.





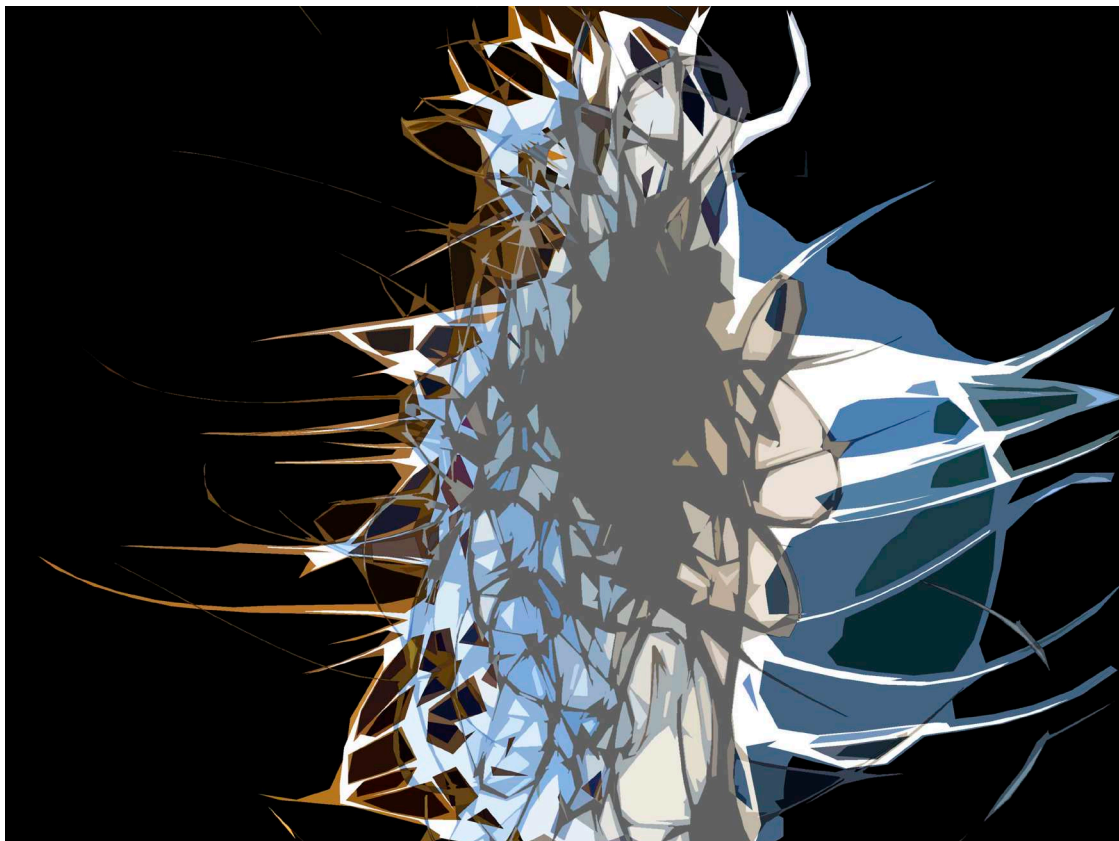
Above: Individual light photographs abstracted.

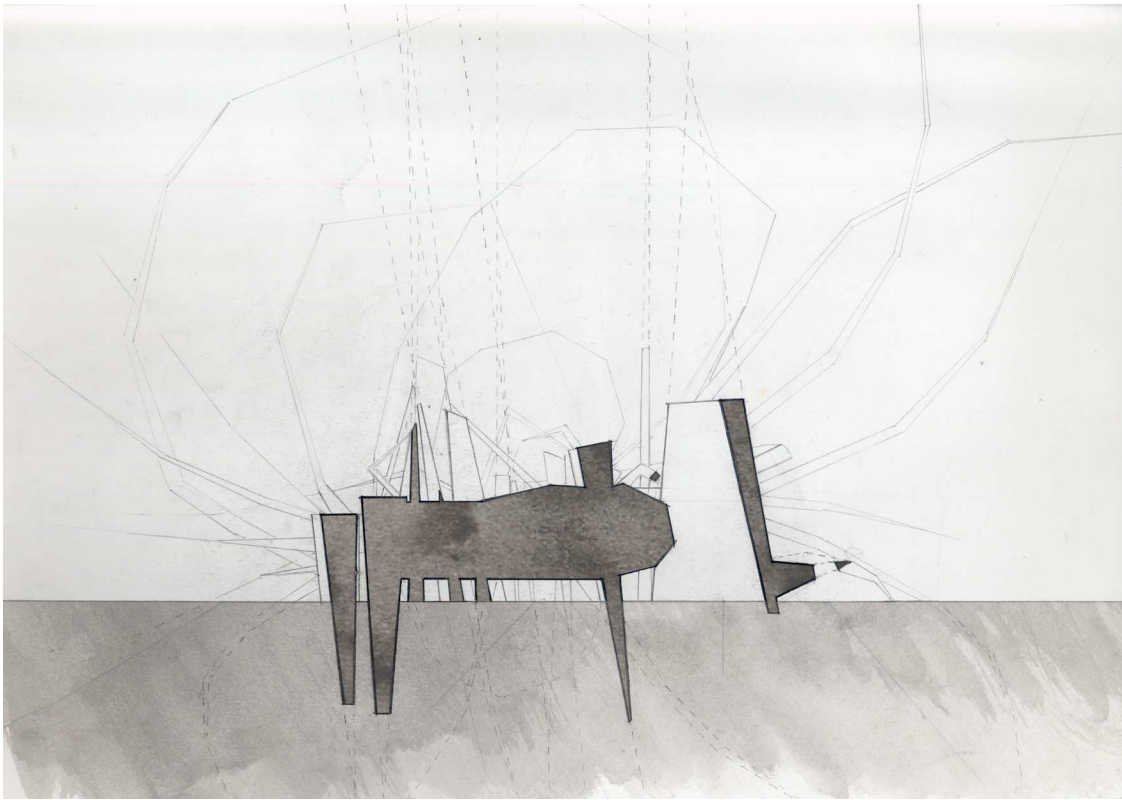


Below: Above light photographs merged.

The next development was to translate these photographs into architecture. To do so I choose two of the photographs that best showed all the qualities and the boundaries and simplified them down using the cutout filter in Photoshop. This however left the images appearing flat thus to counter this I merged them in Photoshop. I seen the out come of this as a architectural plan. The final building design is to be for a community

theatre and I feel this plan starts to describe this. The lines reach out into the community and brings them inside. The grey centre becomes the mass of the theatre with the white being open space for people to circulate.





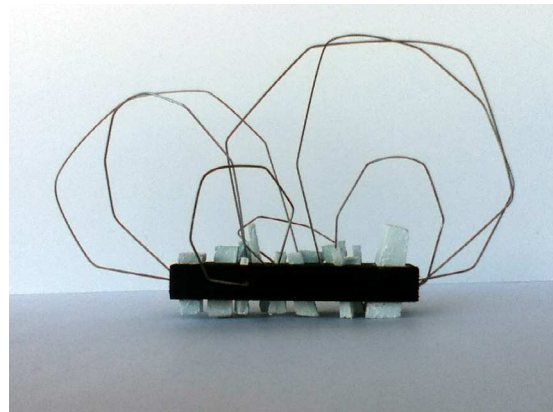
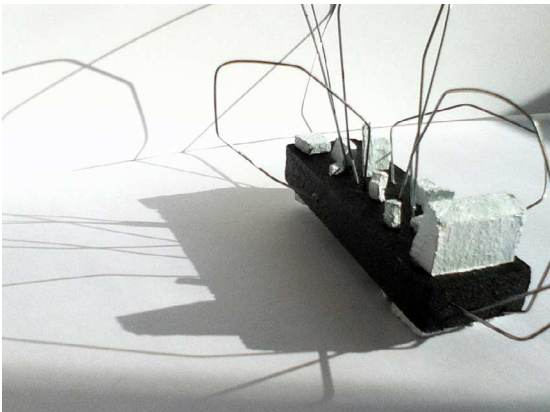
Above: Section.

The next step was to create a section of the plan. In this I wanted to show movement bringing the community together. Thus I exaggerated the wisps light into almost magnetic field diagram lines showing the idea of it reaching out and drawing people in. The purpose of the community theatre is to help improve their skills and redevelop the area. Thus I made the orange and blue shapes on the plan become shards coming together, direction relating to

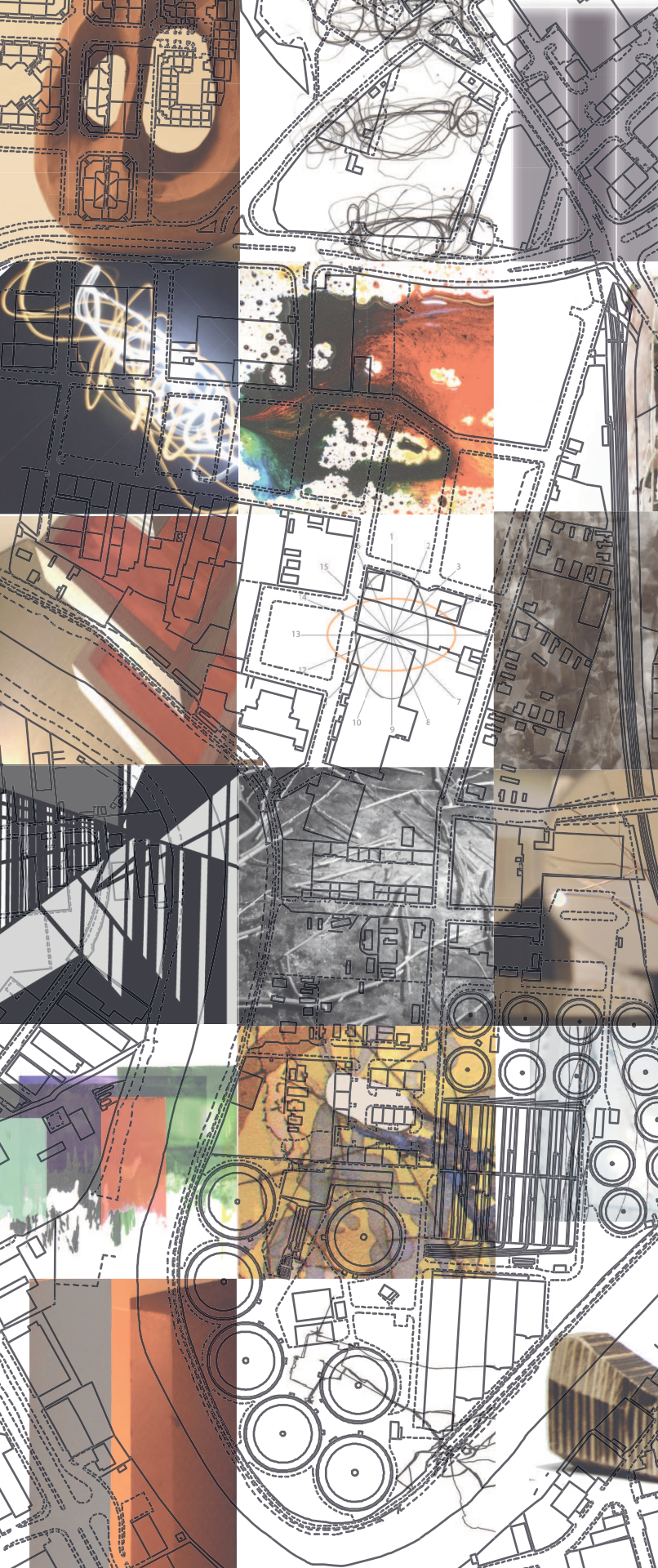
colour, to become the structure holding up the mass of the theatre.

To finalise the representation of my architectural idea I created it in 3 dimensions to produce a parti model suggesting the qualities I may take forward to my final building.

Bellow: Model.







CIVIC FABRICATION : Prologue

A personal, scale-less investigation into a material tectonic, quick making, drawing, photographing, revising and revisiting the theme of an initial art piece. The emphasis is on fabrication [MAKING]- iterative, instinctive, energetic creating building up a body of work in different media which we can bring to bear on the later architectural proposal. This exercise will develop an individual theme for tectonic investigation and may inform a means of drawing and representing that theme throughout the semester.

The work collated here was produced as part of a final-year design studio in the MA Architecture at ESALA, Edinburgh College of Art, University of Edinburgh.

Students: Gary Bowman, Oliver Beetschen, David Blair, Sophie Boyle, Laura Bray, Daniel Burke, Hakon Ellingson, Matt Fleming, Rebecca Goodson, Nicholas Green, Natalie Jones, Michael Lightbody, Marc Little, Aaron Lye Ling San, Jonathan Lynn, Ran Miao, Derek Milne, Stuart McInnes, Finlay Muir, Clare O'Connell, Mikaela Patrick, Carol Shek, Aimee Smillie, Sami Tekle, Jamie Walker, Craig Wallace.

Tutors: Alex MacLaren, Fiona McLachlan

This exercise began a performance in four parts:
PROLOGUE : Fabrication #1:
Make and Create : Architectonic Investigation
ACT 1 : Fabrication #2:
Stories and Fables : Proposing Urban Futures
ACT 2 : Fabrication #3:
Assembly : Community Theatre
DENOUEMENT : Fabrication #4:
Construction : Auditorium