Drawing Perception:

An analysis of the tectonics of drawing process and their influence on the structure of visual perception

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Abstract

Since childhood, drawing has been a constant method and medium of enquiry for me, a medium that is beyond the term 'art', that is an instinctive physical and perceptual response to phenomena. As such, it is a natural development for me to desire to understand this phenomenon, to question the act of drawing as a mode of communication that appears to be so suitable to my understanding. This has led to a period of research into the formal structures of drawing, to ask how abstract marks on a ground can be of use to our understanding. Developed to question the universal relevance of drawing, this study is a practice-led investigation into the formal tectonics of drawing practice. As such it charts a period of research that comprises a re-learning of the building blocks of drawing practice in an effort to better understand how drawing influences how we encounter the world or, how drawing structures visual perception.

Part I begins by outlining the historical lineage of which this thesis is a continuance, positioning the research as a non-essentialist, moderate manifestation of the formalist position. Part I proceeds to employ drawing as an analytical tool, to compartmentalise a past drawing into seven distinct components, identified as united within the diversity of the drawing process. The seven components are not original in their connection to drawing, and therefore do not, by their mere presence, comprise an original contribution to knowledge. In fact it is the universal acceptance of the components as the formal scaffold on which most drawings are built, that enables a rigorous interrogation of their properties to be undertaken, further explored and developed so that an understanding of how these components structure the visual perception of the drawer can be reached.

Adopting the seven components as seven separate lines of inquiry, Part II establishes the *Components of Drawing*. Each is subsequently analysed and extended through my practice, theory and pedagogy. Within this process drawing operates as the principal originator, developer and vector of the hypothesis, the core of the investigation being a heuristic analysis of the structure of drawing that mobilises the components of drawing from a subconscious by-product of process, to a conscious understanding of the purposiveness of each mark made.

The study concludes with a reflection on the research period in response to the hypothesis outlining the original contribution to knowledge, before positing possible future areas for further research.

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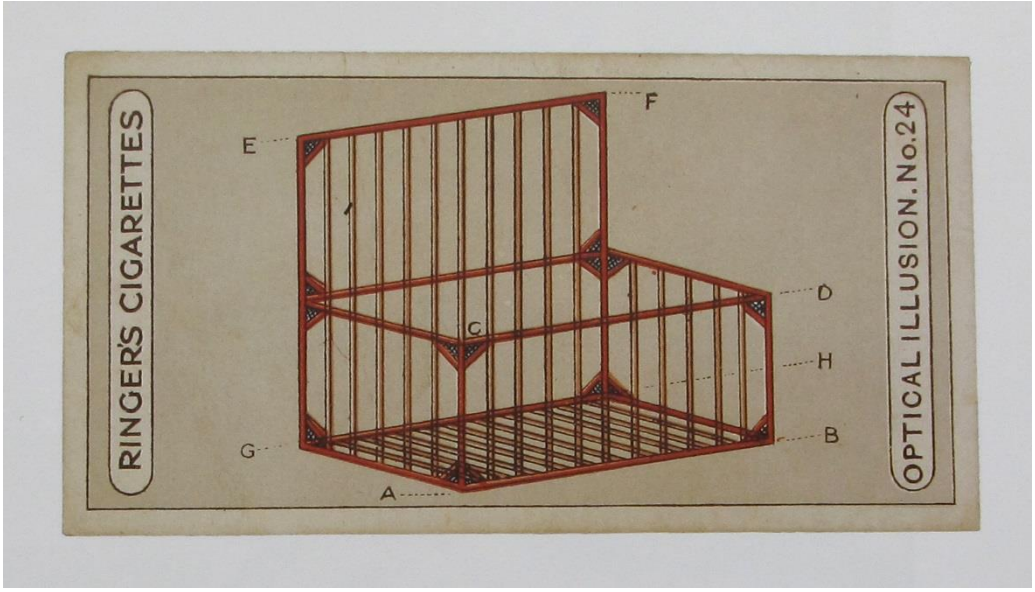
Richard Monahan

‘What is perception without thought?’



Quote: Johann Wolfgang von Goethe to Charlotte von Stein in Chamberlain 1914: 63

Illustration: Cigarette cards manufactured by Ringer’s Cigarettes series of 25. 1936

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168. Richard Monahan: *Neck/Portrait Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 50 x 40cm.

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170. Richard Monahan: *Portrait Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 50 x 40cm each whole dimensions variable.

171. Richard Monahan: *Wallpaper composition in pink and grey.* 2008. Oil paint, pen and pencil on canvas. 200 x 150cm.

172. Richard Monahan: *Wallpaper composition in pink and grey* (Detail). 2008. Oil paint, pen and pencil on canvas. 200 x 150cm.

173. Richard Monahan: *Wallpaper composition in pink and grey* (Detail). 2008. Oil paint, pen and pencil on Canvas. 200 x 150cm.

174. Richard Monahan: *Wallpaper composition in pink and grey* (Detail). 2008. Oil paint, pen and pencil on Canvas. 200 x 150cm.

175. Richard Monahan: *Portrait with Circle* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84.1 x 59.4cm.

176. Studio Notes: *Pencil drawing of painted wood surface* (Detail). 2005-2015. 3B pencil on 120gsm paper.

177. Studio Notes: *A texture 'Alphabet'*. 2005-2015. 0.1 Fibre-tip pen on 90gsm paper. 13 x 28cm.

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179. Richard Monahan: *I do not ask to live to 100…I prefer to have no fixed amount to the number of my days* (Detail). 2011. Monoprint and 0.05 Fibre-tip pen on 100gsm paper.

180. Pedagogic Notes: *Prioritising textural illusion in life-drawing* (Details). 2011-15. Charcoal on 120gsm cartridge paper. 84.1 x 59.4cm.

181. Studio Notes: *Rubbing taken from painted wood surface* (Detail). Charcoal on 90gsm paper. 29.7 x 21cm.

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185. Richard Monahan: Portrait with Mikado. 2006. Graphite and masking tape on paper. 80 x 64cm.

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190. Studio Notes: *Drawing in paint experimentation 2*. 2005-2015. Oil on canvas. 180 x 120cm.
191. Studio Notes: *Drawing in paint experimentation 3*. 2005-2015. Oil, acrylic and emulsion on canvas. 100 x 100cm.
192. Studio Notes: *Drawing in paint experimentation 4*. 2005-2015. Oil and glass paint on canvas. 180 x 120cm.
193. Studio Notes: *Drawing in paint experimentation 5*. 2005-2015. Oil, glass paint and gloss paint on mdf. 84.1 x 59.4cm.
194. Studio Notes: *Drawing in paint experimentation 6*. 2005-2015. Oil, biro and pencil on canvas. 120 x 90cm.
195. Studio Notes: *Drawing in paint experimentation 7*. 2005-2015. Oil and biro on canvas. 180 x 120cm.
196. Studio Notes: *Drawing in paint experimentation 8*. 2005-2015. Oil, correction fluid, 0.1 fibre tip pen and plastic eyeballs on canvas. 180 x 120cm.
197. Studio Notes: *Drawing in paint experimentation 9.* 2005-2015. Oil and gloss varnish on canvas. 180 x 120cm.
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203. Richard Monahan: *Wallpaper composition in pink and grey.* 2008. Oil paint, pen and pencil on canvas. 200 x 150cm.
204. Studio Notes: *Texture effect on a medium study.* 2005-2015. Graphite pencil on watercolour paper. 29.7 x 21cm.
205. Studio Notes: *Texture as fact illustration V: Crayon on computer printer paper, mount board, ripped mount board, kitchen paper, cardboard box and exposed cardboard box core.* 2005-2015. 11 x 14cm.
206. Studio Notes: *Texture as fact illustration VII: Ballpoint, felt-tip, Letraset Marker, fibre-tip pen, 2B pencil and crayon on computer printer paper.* 2005-2015. 11 x 14cm.
207. Studio Notes: *The effect of six grounds (Fabriano Rosaspina 285gsm, cardboard, Stockwell drawing cartridge 130gsm, tracing paper, Seawhite drawing cartridge 100gsm, masking tape) on a Letraset marker, charcoal, crayon and 0.8 fibre-tip pen.* 2005-2015.
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209. Studio Notes: *A comparison of a line drawn with a 0.8 Fibre-tip pen on top: Fabriano Rosaspina 285gsm paper. Second top: on tracing paper (Left) and Fabriano Rosaspina 285gsm paper (Right).Above magnified and below 1:1.* 2005-2015.
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212. Richard Monahan: *Portrait with Backwards* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84.1 x 59.4cm.
213. Richard Monahan: *Portrait with Arts Star* 2005. Oil on canvas. 180 x 120cm. With the Artist.
214. Richard Monahan: *Portrait with stick (Portrait with…Series)*. 2011. Monoprint, pen and paper on card. 55 x 70cm.
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Preface

The body of research that this thesis documents centres on a taxonomy of formal drawing elements that I have termed 'The Components of Drawing'. These components are psycho-visual/physical elements of creativity that are inherent to the process of making ideas visual through drawing practice. The investigation argues that consistent drawing practice, and therefore the ubiquitous employment of the components of drawing, alter the perception of the drawer. This line of enquiry proceeds to explain how a greater understanding of this alteration can facilitate the drawer in controlling more effectively, the visual prompts that encourage the eye around the drawing.

As a preface to this research, and as a way of contextualising it both within my own history and in relation to art practice and pedagogy, it is necessary to outline some of my reasons for focussing on drawing practice and more specifically, on this particular aspect of drawing practice. Despite an emphasis in the current era, of artists embracing a diversity of practice to better convey a multitude of disparate concepts, I have chosen to narrow down my practice and concentrate only on drawing. In order to articulate the reasoning behind this, it is necessary to introduce a few autobiographical details within a more wide-ranging and discursive analysis of drawing, which will throw light on the personal narrative that contributes to the history of this research.

From our early years a pareidolian[i] understanding of images as a representation of reality, such as is evidenced in the Rorschach inkblot test, [ii] is a part of our cognitive

understanding of visual phenomena, a hard-wiring of the brain to apply survival logic to visual perception, and to therefore make sense of encountered phenomena. A significant augmentation to this understanding of images as equivalents to observed reality, is supplied by the multiple sources of image and graphic image, alongside text and speech, that exist as a means of entertainment, as a process of understanding the wider world and as a means of learning to talk. A long verbal and visual conditioning process enables humans to assimilate the language of drawn images as a representation of the reality that we can see. Very early in our lives, we learn to recognise a drawing of a cat as a real cat, and to call it a cat, with only the loosest connection in actual fact, between the marks drawn on the paper and an actual cat; the drawing is two-dimensional, if we look on the reverse side of the surface on which the drawing is made, the cat disappears, being made of paper and ink, not flesh and fur and so on. However, if the reception of image as a reality is almost ubiquitous, the physical and conceptual act of creating images is not.

Most children initially enjoy the fact that an expressive act can be recorded on a surface. During this process a point of realisation is reached whereby an element of control maybe exercised over these marks, that the trace of an act can be manipulated. This deeper understanding of the integration of thought and act via drawing, is a step towards visual communication through drawing. It follows that the process of mark-making, in combination with both pareidolian understanding and exposure to drawn images, leads to the understanding that the marks that we make can become visual metaphors of objects and of human experience. This understanding of drawing places it in a similar domain to the written word, as a

language of communication. However drawing as language is developed much earlier than writing and for a number reasons that differentiates it from other types of language. Some of these reasons are pertinent to my own continued fascination with the practice and are detailed below.

Firstly, figurative drawing is a visual language that relies on a resemblance to the phenomena signified, rather than the more abstracted code that is writing. As such, drawing lends itself to immediate interpretation, the whole can be computed in an instance, and therefore the viewer can be instantly and imaginatively transported to another visual world.

Secondly, the economy of expression inherent to the drawn line as a visual cypher of reality, enables the drawer to rapidly execute and deliver ideas to the page, making drawing a most effective means of efficiently getting ideas out into the open, of making ideas visible.

Thirdly, whilst drawing is a cypher like the written word, there are less concrete rules to the language of drawing, which makes it a more intuitive medium than writing. This makes drawing a language that is easier for young children to adopt and to achieve immediate results. Drawings do not have a necessity to follow logic or to make sense, and therefore can simply be the resulting trace of a physical activity. But even where some form of figurative communication is anticipated as a desirable result, the language is less constrained by the laws, structures and order that are necessary to communicate through written or spoken language. Furthermore, the laws that impact on early drawing are inculcated in a similar way to speech; that is to

say like aural language, drawing is learnt without the comprehension that we are learning, and often through play.

On reflection, these three ideas that together may be said to constitute drawing as a visual language, offered a powerful motivation for me to continue drawing through my early years, when I did not consider the act as *art*. What is more, this sense of a primordial imaginative resource and communicative outlet, gave the process of drawing an importance commensurate with a life-long engagement. This was a powerful enough motivation for me to continue to draw through those difficult years as we develop and grow up, and where most drop the habit, where the notion of skill and 'proper' drawing becomes fraught with seemingly insurmountable obstacles. Drawing seemed to me to be a language I could understand and what is more, that I could use.

At university I began to consider drawing as something unusual amongst the subjects offered. Its closeness, both cognitively and physically, to the sense of touch, and the humble means by which it is produced, give drawing an innate, primal integrity, akin to an anamnestic recalling of the dawn of civilisation. What is more, within the context of a contemporary art college, drawing's reputed universal significance to all art practices was strongly suggestive of a practice that must contain within its method, some fundamental truth in relation to all art.

In a majority of universities drawing was, and still is, used in two significant ways by all students for at least some part of their initial period of study. The first as a way of teaching the skills of drawing/drawing-looking through life-drawing and other observational drawing classes. This was taught as an exercise in observation,

interpretation, co-ordination and communication. The second significant use of drawing was as a form of visual thinking, of getting ideas out into the open to better analyse proposed future artworks/practice. However, whilst drawing remains a regular part of art pedagogy and its importance as a core subject is repeatedly stated to the point of cliché, the practicalities of balancing a three year course of education within a degree context, in which a significant amount of writing and conceptual development are necessary, result in many areas of learning lacking time to develop.

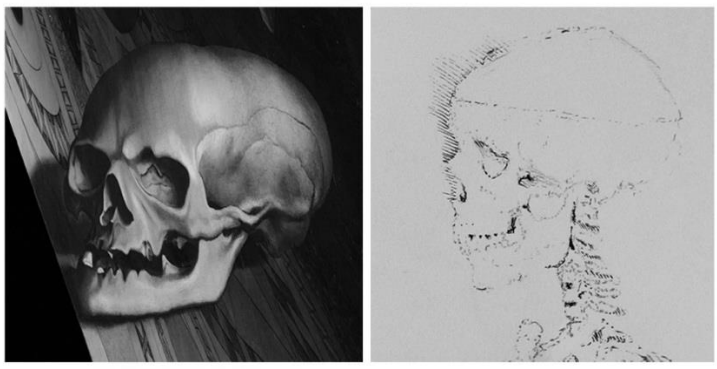
It was in reaction to an expansion of the mediums available to work with in art practice, and the feeling that this left little time for a significant engagement with each, that I subsequently became interested in finding out about one medium: drawing. For me, the signatory value of the drawn mark combined with its efficiency of expression, encouraged the idea that drawing was somehow closer to the person drawing, a direct form of visual thinking, where thought and act combined in a way that was overtly unique to the individual, Michael Craig-Martin sums up this position in his text accompanying the exhibition *Drawing the Line* (2010):

> Line drawings often reveal an immediacy and directness bordering on rawness. They show precisely what is needed, no more and no less. No other form is so flexible, responsive, or revealing. Line drawings manifest a particular rigour and economy, as though the eye and the mind of the artist was truly concentrated at that tiny point of contact between the marker and the surface.
>
> (Craig-Martin 1995:10)

The inherent physical and cognitive closeness of drawing as a means of communicating, encouraged an engagement with it as a language, with how the brain interprets through drawing and what impact this interpretation has upon how

we perceive. As an indication of creative mental activity, there existed in university only three skills that are required to be engaged with on a consistent basis: speaking, writing and drawing. This reliance on three modes of communication again suggested the idea that each were key to all of art. Drawing here sits next to language, but remains a bridge between language and image, thereby seeming to me to be closer to my understanding of art at this time.

Figure 1 (Below) illustrates a written description of a skull contrasted with a drawing and painting of the same. Here the writing must be understood, its laws, its language and its order. It bears no resemblance to the subject visually and therefore allows us no possibility of comprehension without learning the code. The painting is very like the subject apart from its two-dimensional and material fact. It resembles a skull, it appears to be made of a substance we could understand to be bone-like and it is given the illusion of three-dimensions. The drawing sits between the two modes of communication as less visually abstract than the writing and, due to its linear and monochromatic tendency, more time-economic and cypher-like than the painting:



the skeleton of the head, consisting of the cranium and the mandible. The cranium forms the domed top, back, and sides of the skull; several of its bones are large, smooth, gently curved, and connected to each other by dovetailed joints called sutures, which permit no movement and make the mature skull rigid. They protect the brain, with their curved exterior serving to deflect blows; the eyes, ears, and nose are also protected by being recessed into the skull and surrounded by bone.

Fig. 1 Richard Monahan: A comparison between the painted skull in Hans Holbeins 'The Ambassadors', my own drawing of a skull and text from a medical dictionary.thefreedictionary.com/ skull exterior describing a skull.

This position between code and illusion places drawing as a unique language, enabling a seamless link between image making and abstract description that is economic of means and flexible of description.

Positioning drawing as a hybrid between language and image-making, implies an understanding of drawing that acknowledges the subject as a mode of communication that is without the constraints of language barriers, and as such, universally comprehensible. Furthermore, drawing's financial economy and relatively humble means, promotes a universality and utility that stretches beyond the confines of art practice into a multitude of other uses and subjects. Within the limitations of its manifestation then, this understanding of drawing can be considered truly inter-disciplinary, as a language adopted by so many, for so many purposes, and within so many fields and disciplines. The power and ubiquitous adoption of this universal language led me to the conclusion that it was enough to study in itself.

By this time I had chosen drawing, however, as I progressed through university and in both my observations as a student and as a lecturer, I found there to be a disparity in the types of information that was attempted to be taught. There exists, in a reaction to the prescriptive art tuition that characterises much of the tradition of art pedagogy, a paranoiac avoidance of the artwork as an arrangement of components. It is my view that current pedagogical practice considers narrative/philosophical ideas pertaining to the purpose of an individual's practice, as an area of art that can be taught without prescription, but that an understanding of visual perception in relation to building visual artworks must be a more personal journey, and as such, cannot be taught. In contemporary art, where the means by which a concept is

delivered are ever changing and expanding, there exists an inherent fear of prescribing redundant skills to art students. This is ultimately manifested in a reluctance to emphasise the importance of the structures of visual communication within art, and a reluctance to teach visual communication as a transmutable and integral part of building visual artworks. I reject the idea that it is not possible to teach visual communication. An open and flexible understanding of artworks as made visual phenomena, when we begin to engage with the visual arts, is a conceptual understanding of visual perception and as such, is teachable within a wider conceptual approach to art pedagogy. The combination of this feeling, and the need for more time with a subject, began my search for a more complete and formal understanding of drawing's visual substructures.

On leaving university, and on reflection of my time there, I considered drawings position in the whole of my three years in art education and asked myself: was drawing practice as important as was reputed? To my personal development drawing was of course everything, but generally through the course it was abandoned as a dedicated study in the traditional sense after the first year. It remained then, primarily, as a method of retrieving ideas and getting them into the open. There was no sense of having to draw before one became an artist in the traditional sense, and I do not criticise this. But I do wonder that art colleges continue to imply its importance, without actually committing to a rigorous practice of it; as though there remains an embedded sense of shame at not upholding a long-held tradition that is entrenched, but no longer universally accepted as relevant to all students. So, is the idea of drawing's importance simply a nod to tradition, a trope that art pedagogy has

forgotten to grow out of? I was quite willing to believe that drawing was unnecessary to the arts unless it was personally necessary to an individual, nobody should be denied access to creativity. I began to wonder what difference drawing as a universal support to practice meant, how did it help? Would an artist to whom drawing was a consistent support to their practice, produce art in a different way to an artist to whom drawing was of no interest? Did drawing change the way we approached visual communication? Did it in fact, alter our perception?

Drawing Perception:

An analysis of the tectonics of drawing process and their influence on the structure of perception

Introduction

Introduction

This thesis interrogates the hypothesis: How does drawing practice structure the interpretation of visual perception? Can an understanding of this structure develop an artist's drawing potential?

Embedded in the history of art, a didactic assumption predominates; *drawing is universally applicable to the arts*. This assumption is so firmly established and rigorously consolidated by artists and art educators that it continues to this day. Contemplating the developments of the last century, and positing a prognosis for continued diversification within the arts, the role of many future artists is likely to be intrinsically transmutable. Contemporarily, artists increasingly adopt working processes and methods derived from the wider, non-art world, consequentially the skills required by artists have become ever more diverse and person-specific. The fragmentation of art as a practice brings into question the role of drawing as the fundamental core to art pedagogy. In reaction to this anticipated future and the implications of a retraction of drawing as a support to practice, now is an appropriate point at which to reflect on drawing as a process of hermeneutical and heuristic development. In

so doing, it will be possible to contemplate the consequences were drawing to be considered only as an individual and separate subject in art practice.

To narrow the field of research, the study focusses on the fundamental ways in which drawing practice could be said to demonstrably structure visual perception (from here on visual perception will be referred to as perception), thereby concentrating the discourse onto how drawing influences our approach to the formal substructures of the creative process. The study is predicated on the argument that drawing perception is a unique form of interpretation based on the translation of phenomena into a two-dimensional code of visual notation. This positions drawing as an equivalent to writing, an abstracted code that denotes ideas, restricted in form but universally adaptable; a visual language. If this is found to be true, then drawing is uniquely positioned to contribute to the broadening scope of art practice, for, as Philip Rawson asserts, "…the conceptual language of lines does not cover the same ground as words" (Rawson 1969: 92). However if drawing is found to be ultimately limiting, then its position as applicable to all art practice must come into question. In this sense the research journey can be considered a case study.

In order to consider the absence of drawing an attempt is made to analyse how drawing affects the practice of an artist. Up to this point, drawing perception theory has largely been divided into two opposing concepts, here summarised:

> Traditionally, two theories have been proposed to understand realistic drawing: (a) a bottom-up perspective emphasizing accurate perception achieved by suppressing perceptual constancies and other sources of misperception, and (b) a top-down view emphasizing knowledge-facilitated selection of information important for object depiction.
>
> (Ostrofsky et al. 2012:1)

This research is founded on and develops the concept, corroborated by Ostrofsky, Kozbelt and Seidel, that drawing relies on both drawing perception theories, not either. Through the iterated hyper-focus inherent to drawing, visual constancy *can* be overridden: Through the cultural and personal-historic conditions in which drawing is learned, and the specific material and physical limitations of drawing process, perception and the overriding of visual constancy is conditional to the medium.

There have been a number of studies by drawing researchers alongside perceptual psychologists, that have tested the relative accuracy of skilled artists and non-skilled artists in reproducing a subject for comparative purposes (Cohen & Bennett 1997; Miall & Tchalenko, 2001; Kozbelt, 2001; Cohen, 2005; Seeley and Kozbelt, 2008; Cohen and Jones, 2008; Miall, Gowen & Tchalenko, 2009; Ostrofsky et al., 2012; Chamberlain et al., 2012). This study utilises these findings to add support to the hypothesis.

However this body of research does not tread the same path as those found in the above studies, nor seek to arrive at the same destination. The focus of this enquiry is less keenly trained on artistic accuracy in copying a given subject in controlled conditions. The study adopts a constructivist paradigm to conduct an in depth formal analysis of the drawing process of one individual over an extended period, allowing time for each discovery to progress as a heuristic process of enquiry. This results in a series of small discoveries and subsequent visual experimentations that contribute to a wider understanding of drawing as a whole and, when collated, comprises a tool of analysis with which to interrogate drawing practice. In this sense the discussion takes a broader approach than the aforementioned research, identifying the components specific to drawing that exert an influence over a

drawer's interpretation of perception, in an effort to better understand the unique quality of drawing that has rendered it applicable as *the* core subject in art for over five hundred years. In attempting to discover how drawing structures perception, the study is largely concerned with understanding how the encoding of a subject through drawing structures the drawer's perception of it. Therefore the research is focused not on the narratives and subjects developed within my practice, rather on the essential abstraction of the language of drawing, interrogating the relationship between perception, interpretation and act as integral to making marks on a ground in response to a given observed or imagined subject. This stance purposefully taken to enable the study to ultimately be developed as a mode of drawing analysis that can be easily adapted pedagogically, into a flexible mode of creative inquiry. In this sense the thesis argues that it is possible to introduce an approach to creative understanding that is process-centred without being prescriptive and critically, as one part of a whole, without rejecting narrative, context etc. Ultimately an understanding of the Components of Drawing encourages the artist to analyse their response to ideas and to acknowledge the breadth of options available within the building blocks of creative process.

The research adopts drawing as a mode of inquiry, where it functions firstly as the means by which discoveries are made into how drawing structures perception and, secondly, as the testing ground for each discovery in an ongoing and developing professional practice, whereby an understanding of how drawing structures perception can be utilised to enrich drawing interpretation and communication, and to ultimately enhance practice.

The research is a process of discovery, the findings of which are intended for use in drawing pedagogy. Critical therefore, is the adoption of a language and methodology that, although developed through my drawing, is specifically designed to be relevant to every drawer

regardless of personal themes. In this sense the research comprises a practice-led, meta-analytical re-learning of drawing, that is both systematic and fragmented, and that focuses on the abstract building blocks of drawing, piece-by-piece; building blocks that remain consistent factors regardless of technique, motivation and subject.

Within this context the thesis has three primary objectives:

- To demonstrate how drawing can be said to structure perception.
- To analyse how an understanding of practice through drawing's components can lead to a more complete understanding of how drawing structures perception.
- To review how the process of identifying and developing the components of drawing impacts on the over-arching progression of practice.

Definition of drawing

There continues to be debate as to a precise definition of drawing. There is no definitive conclusion to the debate owing to the exponentially increasing scope of drawing as a practice/verb, so as to become too wide for singular definition. It is however, necessary to narrow the term for specific hypotheses. For the purposes of the hypothesis, drawing is defined as, 'The human act of making a mark on a surface, with an inflexible point'. The definition holds as core values to drawing:

1. Drawing as a human and intellectualised activity.
2. The accuracy of the drawn line to the learned physical nuances of the drawer: an act that is recognisably a hand-guided phenomenon.
3. The immediacy of drawing as an integration of perception, thought and act.

4. The accuracy of the drawn line as a measuring device, rendering drawing an ideal medium for many of the elements of design that occur prior to the production of an art work.
5. The linear tendency of drawing that leaves a large percentage of the ground untouched. This renders the ground complicit in the creative process, enabling drawing as a mode of communicative notation, to reside between those mediums of painting and writing.
6. The intuitive response of touch. The sensitivity of drawing to tonal variation within the drawn line, separates drawing from painting, as well as work on the computer (this definition excludes the use of a brush or a computer [iii] as drawing implements because, in each case there exist significant interventions from the moment the idea leaves the hand to the moment it appears on the ground or screen). It enables drawing to quickly, accurately and economically describe form. Significantly, it promotes an immersion in the process and a perceptive intuitiveness that aligns the progression of the drawing to a more physical, instinctive response to a subject, without recourse to the consideration of choosing a different tone.

Definition of perception

Drawing acts as a medium through which perception can be interpreted, a cognitive lens or model. This can be manifested as a record of, or response to, an imagined or an externally perceived subject, but must also be considered in the manifestation of the act of drawing. Thus perception is a means by which to build a drawing. In the text 'Photons to Phenomenology', the psychologist Stephen E. Palmer provides a succinct summary of visual perception:

> Visual perception concerns the *acquisition of knowledge.* This means that vision is fundamentally a cognitive activity, distinct from purely optical processes such as photographic ones. Certain physical similarities between cameras and eyes suggest that perception is analogous to taking a picture…but there are no

> similarities whatever in terms of *perceptual* phenomena. Cameras have no perceptual capabilities at all; that is, they do not *know* anything about the scenes they record. Photographic images merely contain information, whereas sighted people and animals acquire knowledge about their environments. It is this knowledge that enables perceivers to act appropriately in a given situation.
>
> (Palmer 1999: 5)

Palmer clearly distinguishes perception as a cognitive process, asserting the fact that without thought there is no sight. This seemingly obvious fact pertaining to the involvement of the brain in visual perception, posits a separation of visual perception from the concept of an objective reality.

Perception is defined as "The ability to see, hear, or become aware of something through the senses" (O.E.D). The definition, by the express use of these words accords with the hypothesis to consider the range of drawing practice, rather than focussing solely on sight. The use of the term to *become aware* suggests an experiential understanding gained, or the acknowledgment of a phenomenon. In his text, *Philosophy of the Arts*, Gordon Graham examines the experiential origins of *Art and Understanding*:

> …the life of any human being, as opposed to a mere organism, is largely, though not exclusively, a matter of experience. It is not exclusively so because, if the word is not to become too general, we must distinguish it from memory, from imagination, from anticipation of the future, and from intellectual abstractions. [iv]
>
> (Graham 1997: 153)

The distinction made for the purposes of Graham's argument does not alter that each of the factors he cites as distinct from experience, all have a root in initial experience(s), allied to a pre-existing cognitive structure. The brain's evolutionary development has developed within its environment, and cannot be separated from the information it receives and in the way in which that information is processed. This thesis is inclusive of observed, remembered,

imagined and calculated drawings, taking as common ground the fact of experience as a root cause, together with perception as the means by which one experiences; when an artist draws abstractly, the drawing remains rooted in perception. As a continuation of this, the term perception can be considered to refer to the interpretation of external information or imagined information, but can also be applied to the sense in which experience impacts on the constructed drawing and the decisions made therein, whether observed or imagined.

Perceptual processes, as a mediators of human experience have, as the psychologist Rudolph Arnheim stresses, "evolved as biological aids for survival….This means that perception is purposive and selective" (Arnheim 1970: 19) as opposed to veridical. Arnheim uses his theory of perceptual fixation, to argue the extent to which thinking ("the task") and perception ("what is out there") are linked, not separate cognitive processes, enabling humans to structure perception individually:

> Because retinal sensitivity is so restricted, the eye can and must single out some particular spot, which becomes isolated, dominant, central. This means taking up one thing at a time and distinguishing the primary objective from its surroundings. An object may be selected for attention because it stands out against the rest of the visual world and/or because it responds to the needs of the observer himself….[This] facilitates the intelligent practice of concentrating on some topic of interest and neglecting what is beside the point of attention.
>
> (Arnheim 1970: 24-26)

Drawing redirects the focus of perception from survival mechanisms onto the conceptual framework devised by the artist, a conceit the art historian E.H. Gombrich (1909-2001) underlines, "The artist's schema is by definition a source of delusion" (Gombrich in Cohen Bennett 1997: 610). Through the translation of subject into a two-dimensional, graphic representation of the observed or imagined phenomena, the study explores the possibility that by training the formal components inherent to drawing practice, the artist is

conditioned into a cognitive response to perception that is uniquely adapted to this process. The study then continues the investigation by the isolation and analysis of the formal components of drawing to demonstrate that, not only does drawing practice schematically alter the drawer, but that a greater understanding of this process can augment drawing practice. Practically and theoretically, this study is an attempt at understanding how drawing as a process of inquiry, interpretation and communication, affects the drawer. It leaves to the interpretation of the reader, the judgment as to whether the unique qualities identified and explored are of universal, or local, significance to art practice.

Research Methodologies

Practice-Based, the research that drives this investigation is embedded in an interrogation of drawing within the studio, the central axis being a heuristic re-learning of drawing through drawing. Before outlining the role of practice in this approach to research, I will briefly introduce other research methodologies that provide a core support:

Written Studio Notes (appear in the text as single-spaced). Separate from written research, these notes were made throughout the research journey. A central part of my studio practice, they can be defined as a mode of drawing through writing. In direct response to practice and pedagogy, they are adopted to both reflect on a process of drawing interrogation and to postulate new areas of analyses.

Teaching Drawing offered a cerebral approach to drawing that was removed from the physical closeness and sense of ownership that the act of drawing elicits. The mental and physical step-back that the teaching of drawing requires, offered the opportunity to perceive patterns within groups of drawers, underlining that which is problematic generally, as well as

individually. Furthermore, teaching offered an arena in which the various ideas developed through the study period, could be tested on groups of drawers of varying abilities.

Written Theory provides a background structure against which visual examples of practice can operate as the primary means of discourse. Writing is a universal logic with a steady consistency of expression as a recorder of thought, offering a supporting substructure to the more elusive, interpretative notation that is drawing.

Primary and Secondary Research from original drawings, images, books, journals, papers, websites, and symposiums provided a source of information outside of the practice, that enabled the contextualisation of the research in relation to historical and contemporaneous drawing and perception theory.

Central to the research journey is an interrogation of practice, where a more complete understanding of the formal structures of drawing is sought. How drawing practice is used to research drawing will now be stated.

The practice–based research that underpins this study seeks to analyse beyond the image and to focus on the way in which a drawing is constructed. This process leads to the identification, subsequent development and application to practice, of a set of Components of Drawing, underlying formal elements that are inherent to most drawings. The developmental effects of this process is the driving force behind the study, where the components of drawing, it is argued, structure the perception of the individual drawer.

Drawing is primarily a heuristic practice and, as such, is capable of instigating and developing lines of inquiry that latterly develop into both perceptual and conceptual discourse. This was the process by which the hypothesis was reached, and by which the hypothesis is developed

and continues to develop in my day-to-day practice. This ethos positions practice as the primary method of inquiry in the form of a series of drawn experiments and larger bodies of work that interrogate the hypothesis and that apply subsequent findings to the development of practice.

Rudolph Arnheim's *Art and Visual Perception: A Psychology of the Creative Eye* (1954), is a text that similarly attempts to reclaim art from language-centred theory.[v] In a paper that can be considered as a continuation of this philosophy, Frank Millward forwards the case for practice as a means of discourse. Moreover, Millward argues for practice as a language by which an understanding can be communicated as effectively as the written word, and that this can augment the understanding of the written word:

> The research, the practice, the artwork, the aesthetic and the potency of the artwork produced, all together acting as thesis. The artwork acting as exegesis agent, an agent for change.
>
> (Millward 2013: 124)

In an acceptance of each statement, practice is empowered to act not only as the instigator of this research but as the principal means by which it is developed, discovered, and communicated. Drawing as a medium is singularly applicable in the role described by Millward as 'exegesis agent', it shares a common delineation, process and form with other communicative devices. This is a point confirmed by Stephen Farthing in 'The Bigger Picture of Drawing' which is to:

> …focus on drawing as an intellectually driven process of translation. A process that, in common with writing, mathematics and other forms of notation, is driven by a need to both construct and reconstruct multidimensional events as readable two-dimensional matter.
>
> (Farthing in Kantrowitz et al 2011: 21)

The implications of this statement point to a subject that is beyond the confines of art practice, and that is open-ended in application. As a form of notation, drawing is further separated, '[Drawing is] arguably more sophisticated than these three [Writing, Maths, Music], because they are largely a matter of conventional signs, while drawing involves conventional vocabularies as well as completely invented ones…' (Simmons in Kantrowitz et al 2011: 43). Accepting the concept of drawing as a form of communicative notation, both as a method of working things out for the self and to communicate to others, the thesis seeks to harmonise the relationship between image and text as a reflection of the symbiotic relationship developed during the research journey between practice, as primary source, and theory as response. The practical implications of communicating this methodology within the study necessitates a development from a written reflection of the historical lineage of the thesis, leading into a visual reflection of practice. This is followed by contemporaneous practice and applications to visual studio notes (1994-2015[vi]), where diagrams, sketches and the 'finished' drawings that constituted the exhibition at the end of the research period, form a meta-analysis of drawing, through an embedded drawing practice that is thematically ordered and as such, ahistorical.

To return to the hypothesis: How does drawing practice structure the interpretation of visual perception? Can an understanding of this structure develop an artist's drawing potential? The core initiator for the questions posed lies embedded within my practice. It stems from a practical and professional need to better understand the nature of making in drawing, leading to a more complete understanding of how to develop practice. The motivation therefore, requires that my ongoing practice is central to the body of research and that critically, my practice continues as a professional practice outside of academic research. Also

of singular importance is that practice, though necessarily involving a series of what might best be described as meta-drawing, should not become limited to *only* drawings about drawing, designed with the sole purpose of proving the hypothesis. Central to the research is that the results derived through the inculcation of findings, should remain relevant and faithful to *my* art philosophies and professional practice. This commitment to practice resulted in two divergent bodies of work (described below 1 & 2), that develop through the research period, responding each to the other and to the theory:

1. A multitude of drawn *Studio Notes* centre around seven identified *Components of Drawing*. These exist as a form of visual, experimental thinking out loud and are dispersed throughout the thesis and continued as a mode of interrogation through the course of the research period (See example below, Figure 2).

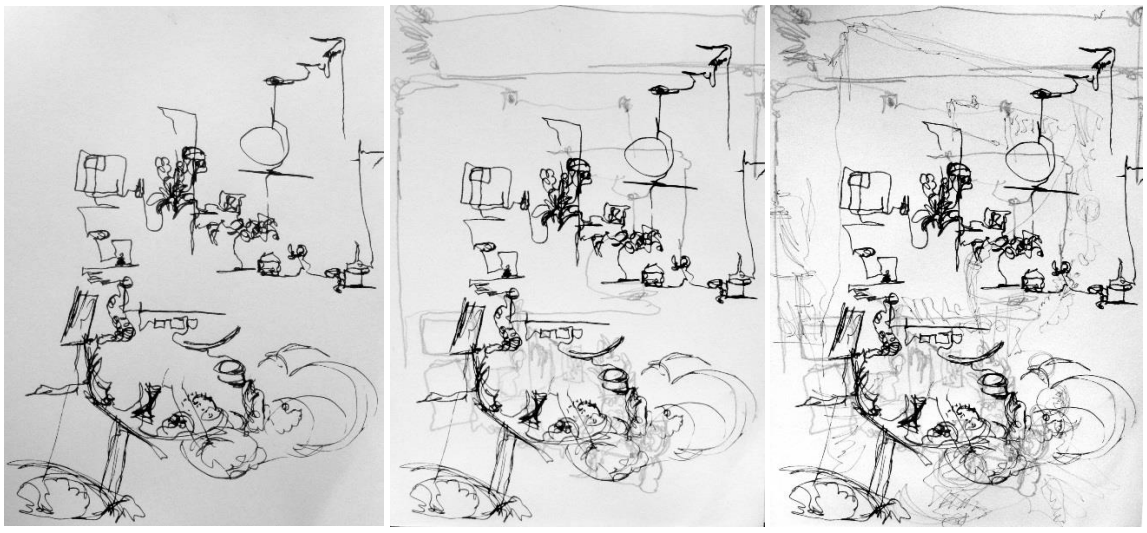


Fig. 2 Studio Notes: *Saccadic experiment 4 (adapted from Claude Heath's 'Plants' drawings) with pencil and pen additions*. 2005-2015. Fountain pen, HB pencil and 0.05 fibre-tip pen on 90gsm paper. 29.7 x 21cm.

The drawn studio notes are primarily utilised to interrogate the first part of the hypothesis that asks: How does drawing practice structure the interpretation of visual perception? This line of research operates between the fields of drawing and psychology, referencing and

reacting to those historical and contemporary artists and psychologists that have combined the two subjects. Within the scope of the research they operate as a means of experimenting with drawing in a way that is purely based on how drawers respond to perceived phenomena; drawings about drawing. Without an artistic ambition to produce finished works within the context of my professional practice, the drawn notes allow for the exploration of ideas pertaining to perception, as a mode of testing the various hypotheses that occurred during the research journey. Within the context of the thesis they document this experimental process and what is more, provide a visual language where text is insufficient, to interrogate or explain a position, they act as a link in language between art practice and art theory. As such their rightful place has always been as a mode of experimentation, communication and analysis viewed within the body of the text.

2. The beginning middle and end of the research period was motivated by professional practice and the simple ambition of attempting to better understand drawing. As such, four finished series of fully-developed art works spanning the period of research, may be seen as one part of the practical results of the findings, and were exhibited as a crucial part of the submission. These finished works function as an exegesis for the research. As such they appear as examples throughout the study, that demonstrate how the experiments in drawing perception directly impacted on my approach to practice, or alternatively, how the finished practice opened up further lines of research. Concurrent with their role in the development of the research, they are also artworks supporting a professional art practice outside of academia. Whilst the four series of finished artworks constitute the exhibited practice that supports this text, they were always intended for exhibition as artworks in their own right, to be exhibited independent of the research.

It is unquestionable that the earliest of these finished series of artworks, through the hyper-detailed scrutiny that only a sense of finishing something can entail, provoked an underlying conviction into a hypothesis. A response to perceived failings within my own practice resulted in a determination to instigate a process of re-learning the psycho-visual mechanics of drawing practice. However, ultimately they became the test-bed for concepts related to the ideas running through the research, concerning the psychology of making in drawing practice. In this sense they may be collectively viewed as a case study interrogating the second part of the hypothesis: Can an understanding of this structure develop an artist's drawing potential?

Whilst the drawings were never experimental to the point where no finished outcome was demanded, they provided a real and, critically, professional arena in which the ideas concerning both aspects of the hypothesis may be brought to fruition and utilised in a practical and professional context. They appear throughout the text as demonstrations of the practical application of findings resulting from a deeper understanding of the components of drawing.

It is these finished artworks submitted in conjunction with the thesis that formed the exhibition and that appear throughout the text as demonstrations of the practical application of the findings. It is necessary to introduce that exhibition of works and their role in the development of the research at the start of this text as representative of the body of work that was both instigator and result of the research as a whole. As much as possible this will be completed in chronological order.

The Portrait with… Series (Oil). 2005-07. Oil on Canvas. 180 x 120cm.

The *Portrait with… Series* (Oil) consists of a series of observed self-portraits in oil paint. The likeness as a portrait is broken down through the repetition of the process until the act of drawing moves from observational drawing, to hover somewhere between observation and diarising a ritualistic act of engagement with the self, producing a framework upon which ideas could be presented. They are amongst the first drawings to successfully utilise a self-originated drawing method that developed through the research, where an appreciation of the material surface qualities of paint collided with the intention to limit my practice to drawing, resulting in a method best described as drawing in paint. The resulting line is three-dimensional and therefore affected by light considerations, an idea that became critical to the initiation of the experiments conducted into the Component 5: Tone (See Section 5.2 Drawing with Light, P. 206).

The series began before the commencement of the research and in many ways instigated it. Created towards the end of a natural cycle in the progression of my work, the drawings are characterised by a sense of frustration towards the subject to which I had confined my practice, in which an acknowledgment of the futility of moving a pen across a page looms large in each portrait. The body of work had reached the end of its natural cycle, and this 'finishing' re-instigated a questioning of the value of drawing as whole, and critically, of my own understanding of how we visually communicate when we make drawings.

Early in my career I decided that drawing would encompass the whole of my practice, and one of the many difficulties with such an inflexible commitment to one medium is the inevitability that the medium as a mode of inquiry, communication or expression, must

Fig. 3 Richard Monahan: *Portrait with Circle I* 2005. Oil on canvas. 180 x 120cm.

Fig. 4 Richard Monahan: *Portrait with Arts Star* 2005. Oil on canvas. 180 x 120cm.

Fig. 5 Richard Monahan: *Portrait with Pencil.* 2005. Oil on canvas. 180 x 120cm. Glynn Vivian Art Gallery, Swansea.

come under scrutiny. A part of this analysis resulted with the understanding that if drawing, as I understood it, were to be the whole of my practice, then my approach to and understanding of drawing must be flexible and must be constantly challenged. At this stage, I considered that my ability to make drawings was inflexible, and that crucially, the way in which the drawings were constructed formally, was beginning to become a trope, limited, one-dimensional and dominated by repetition of purpose. Each drawing had started to become a pattern of derivations rather than a progression of the series and of practice as a whole.

Portrait Series.2005-08. Pen and correction fluid on printed drawing and paper on card/Dollshouse Wallpaper. 50 x 40cm (on card), 40 x 30cm (on Dollshouse Wallpaper).

The two bodies of work that make up the *Portrait Series*, began before the commencement of the research and continued right through its beginnings. However unlike the *Portrait with…Series* (Oil), the *Portrait Series* did not signify the end of a cycle, but the beginning of a new one, thereby forming a conceptual bridge, linking past work to a new phase that was to take place within the boundaries of academic research.

In this sense, the *Portrait Series* were an antithesis to the problems encountered in the *Portrait with… Series* (Oil), which appeared to me to be overtly two-dimensional, that is to say, without concern for trans-dimensional illusion. The *Portrait Series* began to suggest a possible way forward into an expanded understanding of drawing practice, utilising more options in terms of marks and materials and, although belied by their diminutive size, incorporating a much more subtle and visually complex language of drawing.

To some extent these small and quite humble drawings, made in pen and paper, and with photocopied imagery, had begun the interrogation of drawing practice that became the

Fig. 6 Richard Monahan: *Portrait Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. Dimensions Variable.

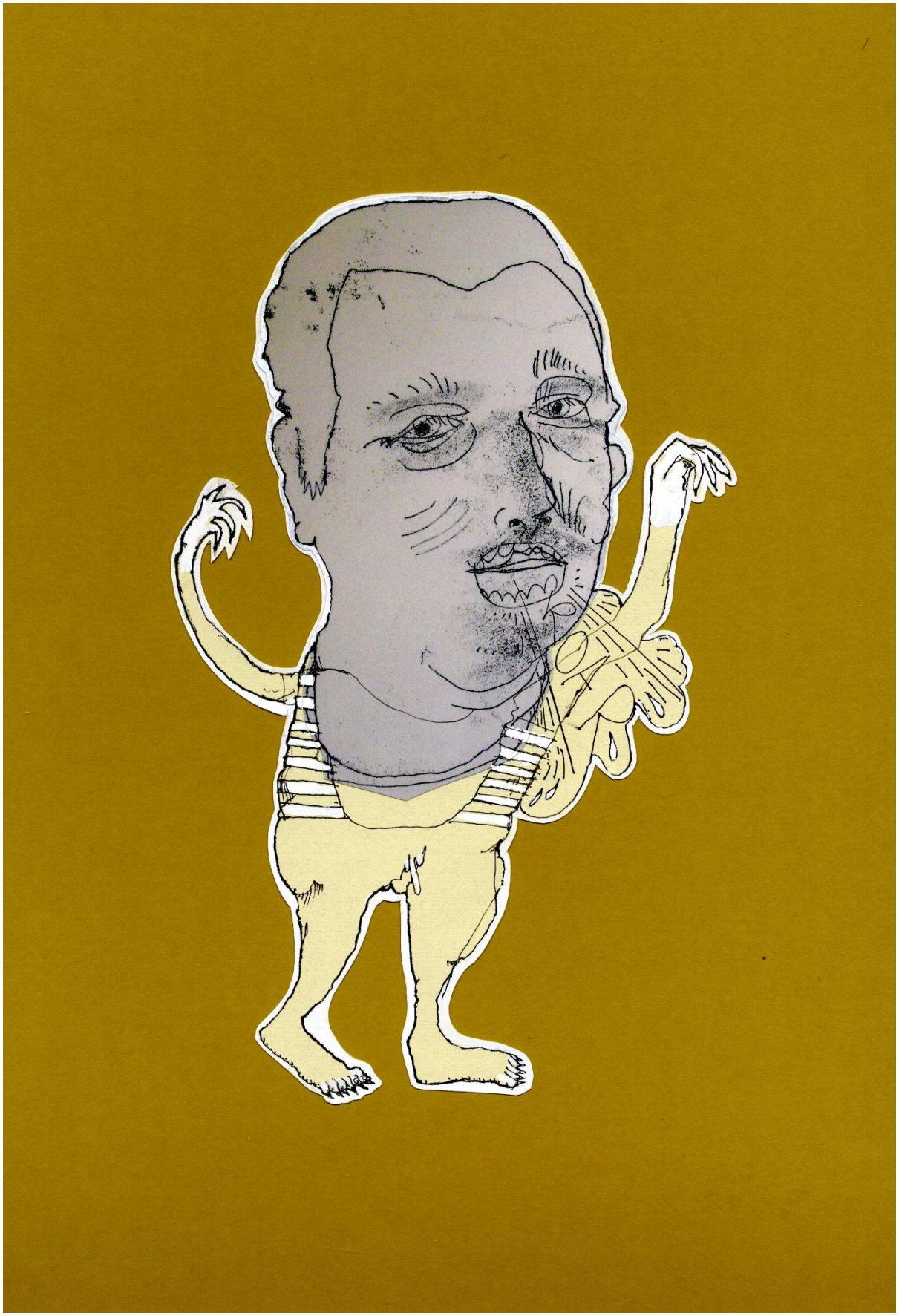


Fig. 7 Richard Monahan: *Roar/Portrait Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 50 x 40cm.

Fig. 8 Richard Monahan: *Theatre/Portrait Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 50 x 40cm.

Fig. 9 Richard Monahan: *Two hats/Portrait Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 50 x 40cm.

Fig. 10 Richard Monahan: *Portrait on Wallpaper Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. Dimensions Variable.

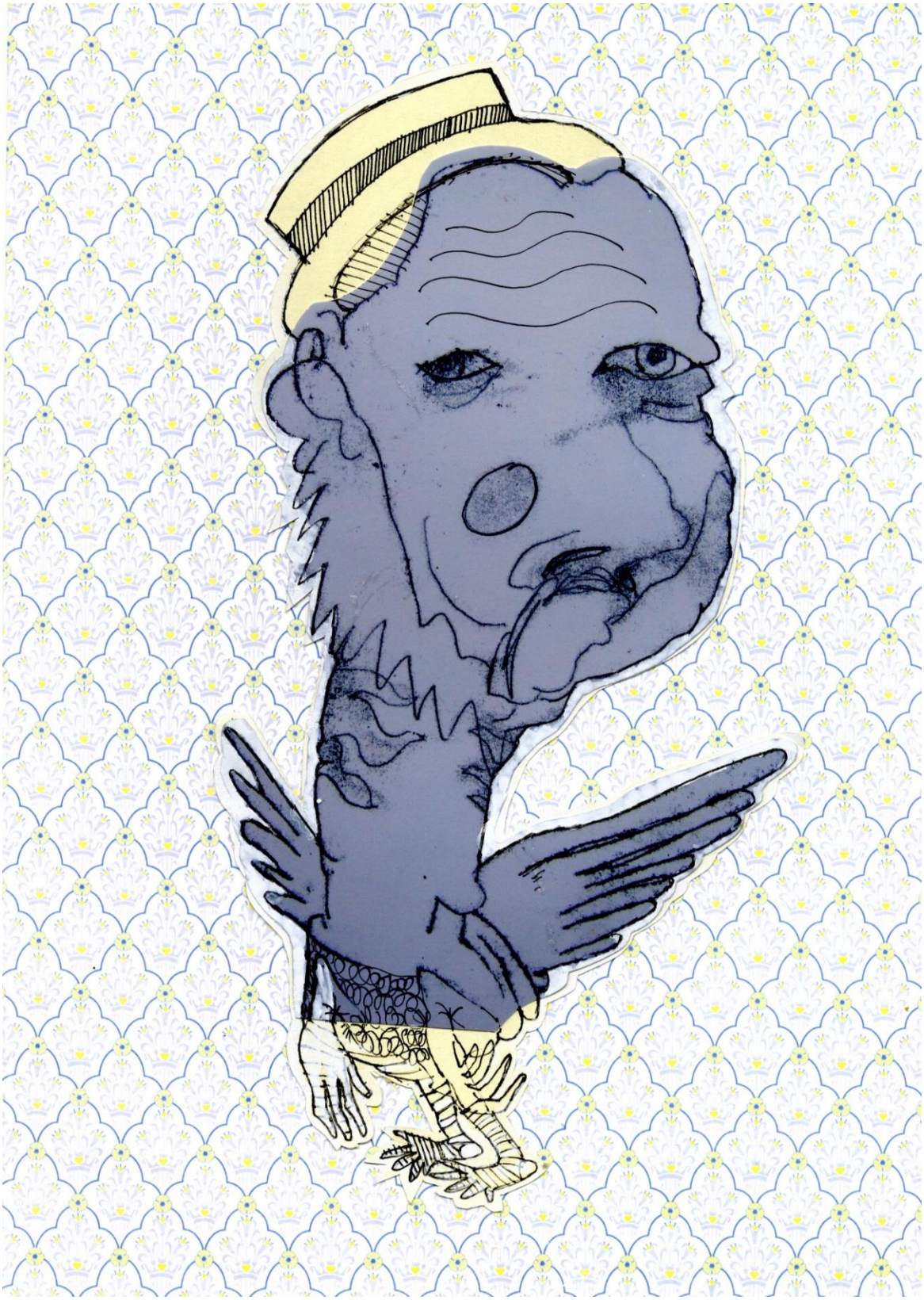


Fig. 11 Richard Monahan: *Floppy hands and chicken wings/Portrait on Wallpaper Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 40 x 30cm.

Fig. 12 Richard Monahan: *Schnood/Portrait on Wallpaper Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 40 x 30cm.

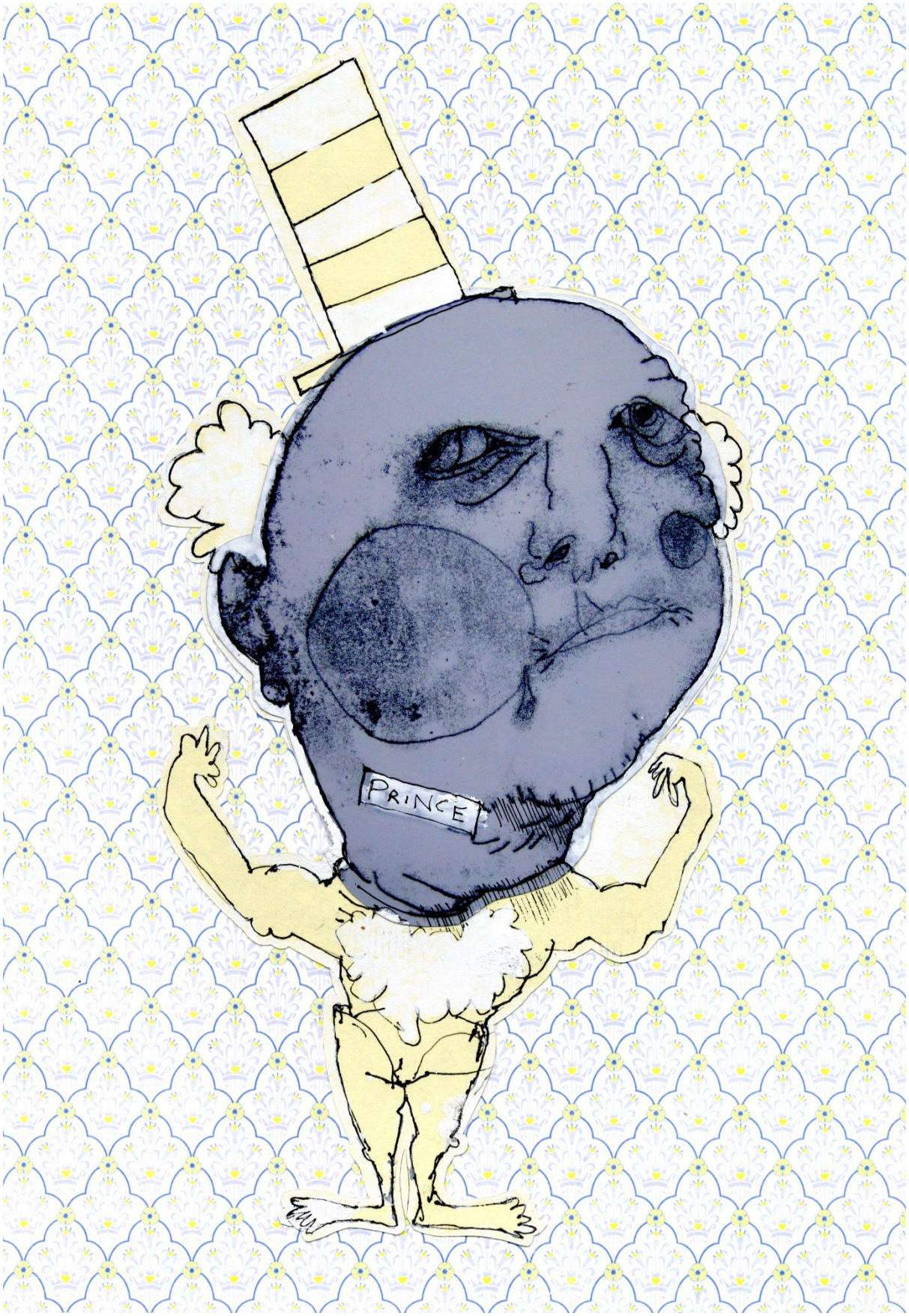


Fig. 13 Richard Monahan: *Prince/Portrait on Wallpaper Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 40 x 300cm.

research. This was largely due to the circumstances under which they were made, as part of an external collaboration outside of my usual practice. They were quickly produced by combining photocopies of mono-printed heads onto drawn bodies, a process that successfully jolted my practice out of its pre-meditated lethargy. Initially the drawings were required to be free standing and so were cut out, before later being stuck back onto card/dollshouse wallpaper, having fulfilled their original use. The rapid use of multiple media and the transformation through two-dimensions, into three-dimensional cut-out and back to two-dimensions, acted as a catalyst for an alteration in my understanding of the process of making drawings.

The nature and development of the drawings re-opened some of the possibilities for drawing practice, possibilities that my practice towards the end of the *Portrait with… Series (Oil)* had gradually been closing down. Moreover, the collaged process of their making, evidenced the fractured, compartmentalised structures inherent to drawing that began to point the research towards the concept of the Components of Drawing, a taxonomy of drawing indicators that played a significant role in the development of the research and the interrogation of the hypothesis. This seemed to be a moment of realisation in my concern with my practice that pointed the way to a more flexible and varied approach to drawing.

Wallpaper Composition Series. 2007-08. Oil on Canvas. 200 x 150cm.

The *Wallpaper Composition Series* developed in the middle of the research period. Materially and technically they are an extension of the *Portrait with…Series (Oil),* similarly characterised by the wish to combine the intuitive flexibility of drawing as an act, with the luxuriant, textural qualities of oil paint. Therefore they are drawn into paint using, pens,

syringes and various other tools. The series are critical to the research because they represent a literal mid-point in its development and therefore operate as both results of research to this point, and instigators of further research. Perhaps it is unsurprising given the transitional period in which they are made if, formally, they are difficult to interpret and speak of the confusion of changing ideas that are their driving force.

Fig. 14 Richard Monahan: Wallpaper Composition Series (Installation) 2008. Oil paint and pencil on canvas. 200 x 150cm Each.

The previous *Portrait Series* had developed the idea of the expanded and more various approach to making drawings that would become the Components of Drawing. The *Wallpaper Composition Series* to some extent continued only some of these ideas. Manifestly literal and almost becoming a set of drawings about drawing, the *Wallpaper Composition Series* suffer from being too closely a pre-conceived demonstration of a

Fig. 15 Richard Monahan: *Wallpaper composition in blue and grey* (Detail). 2008. Oil paint and pencil on canvas. 200 x 150cm.

Fig. 16 Richard Monahan: *Wallpaper composition with black tree.* 2008. Oil on canvas. 200 x 150cm.

Fig. 17 Richard Monahan: *Wallpaper composition with black tree* (Detail). 2008. Oil on canvas. 200 x 150cm.

Fig. 18 Richard Monahan: *Wallpaper composition in pink and grey.* 2008. Oil paint, pen and pencil on canvas. 200 x 150cm.

Fig. 19 Richard Monahan: *Wallpaper composition with eyeball monsters.* 2008. Oil paint, pen and pencil on canvas. 200 x 150cm.

Fig. 20 Richard Monahan: *Wallpaper composition in green.* 2008. Oil paint, pen and pencil on canvas. 200 x 150cm.

Fig. 21 Richard Monahan: *Wallpaper composition blue, yellow and grey.* 2008. Oil paint, pen and pencil on canvas.200 x 150cm.

concept running through the research, a balance between pattern, perfect pattern and rhythm (See Section 6). However their development proved crucial to later research by introducing elements related to the understanding of tonal contrast (See Section 5). Less constrained by the colouring of line than the *Portrait with Series… (Oil),* the drawings adopted a different technique for applying colour that was less controlled. Each drawing was washed over with oil and turpentine. Due to this alteration in technique, the resulting lines that delineated the content in each drawing, were only visible when exhibited under strong and oblique lighting. Subsequently, the visual understanding of each drawing altered significantly, depending on contextual features such as the environment and the direction of the light. This led to a series of drawings that toyed with the idea of light as a medium with which to work, sometimes using over-drawing to aid and facilitate or alternatively to confuse the understanding of the line. The process of interplay between light and tone as a medium led to further exploration regarding the inconsistency of tonal values, a crucial development in the direction of the research.

Portrait with…Series (Paper). 2005-11. Monoprint, pen and paper on card. Dimensions Variable.

The *Portrait with… Series (Paper),* provide a karmatic loop that brings the research and practice face to face with the drawings that initiated it. By utilising the initial *Portrait with…Series* as starting points, the *Portrait with…Series (Paper)* enabled a direct confrontation with the problems that had begun the research. These drawings are the result in a sense, of the research period. The drawings are often composites, whereby an original drawing is deconstructed and re-positioned. They are multi-layered, both materially and visually, and demonstrate a variety of approaches to understanding the concept of making in

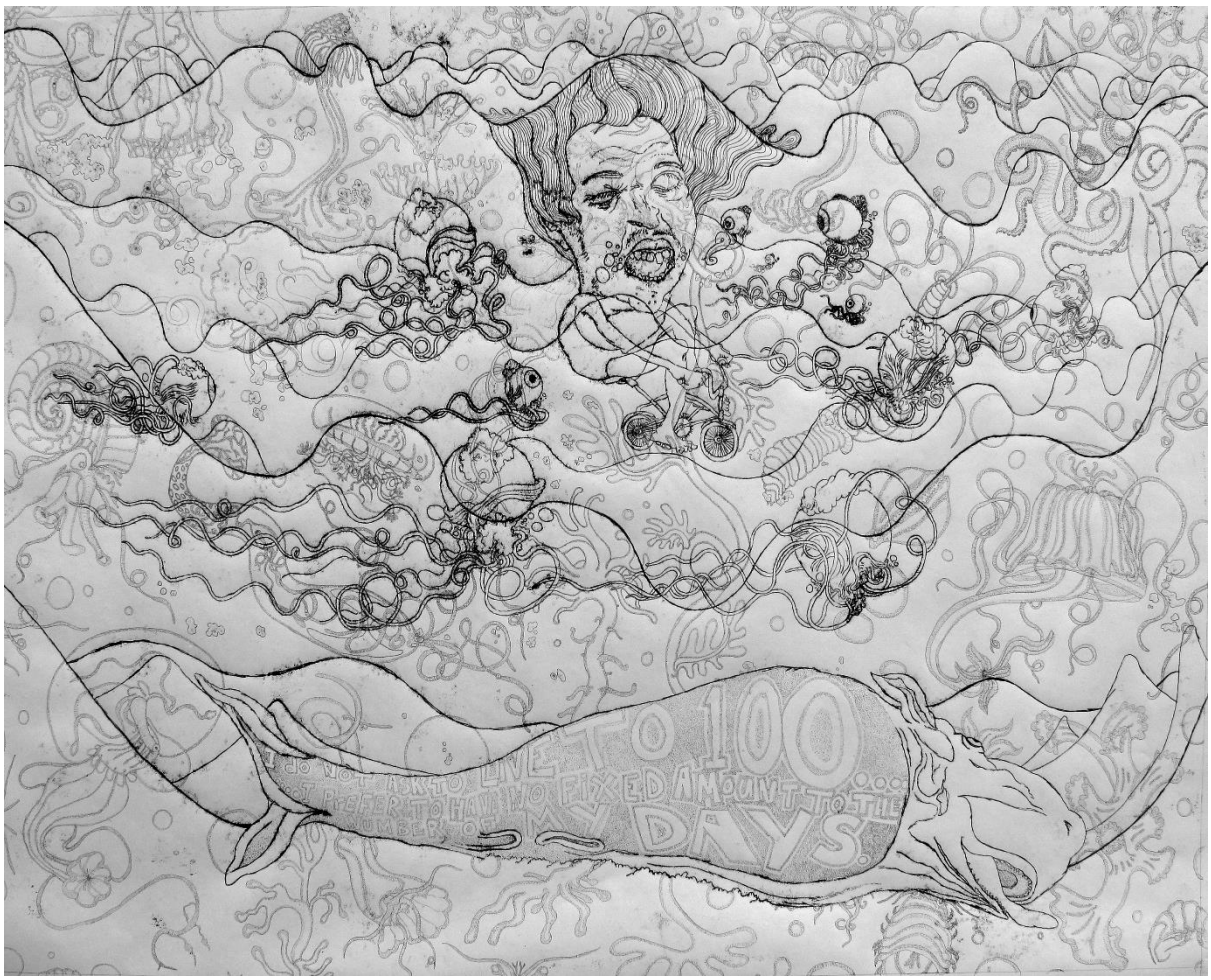


Fig. 22 Richard Monahan: *I do not ask to live to 100...I prefer to have no fixed amount to the number of my days*. 2011. Monoprint and pen on paper. 120 x 150cm.

Fig. 23 Richard Monahan: *Portrait with stick (Portrait with…Series)*. 2011. Monoprint, pen and paper on card. 55 x 70cm.

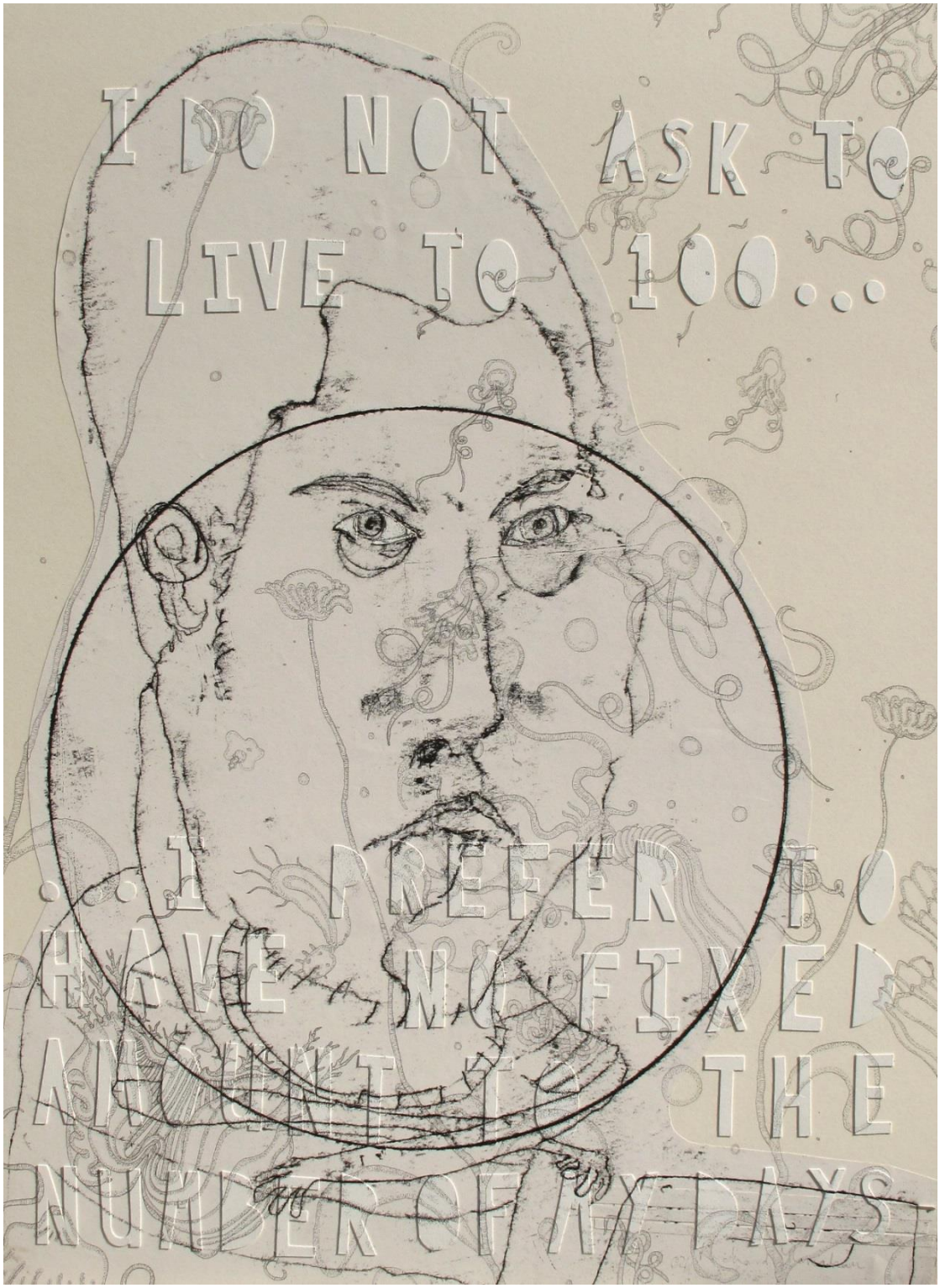


Fig. 24 Richard Monahan: *Portrait with Circle* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84.1 x 59.4cm.

Fig. 25 Richard Monahan: *Portrait with Backwards* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84.1 x 59.4cm.

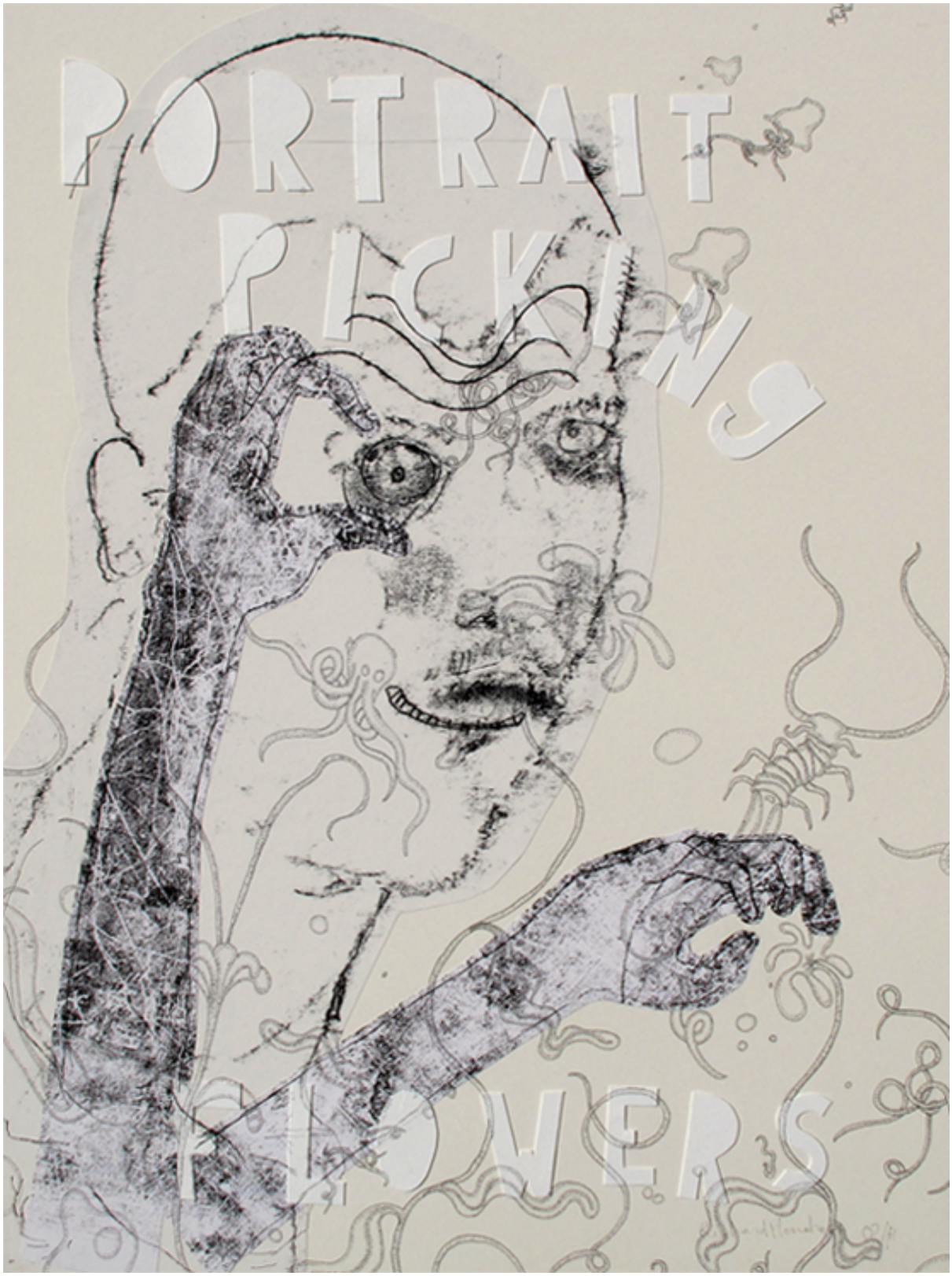


Fig. 26 Richard Monahan: *Portrait picking flowers* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84 x 60cm.

Fig. 27 Richard Monahan: *Portrait with Circle II* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84 x 60cm.

drawing. Returning to the idea of the portrait, the *Portrait with…Series (Paper),* present the image of a face that competes for space with two other layers, a collaged text and an over-drawn, hyper-detailed composition of sea-creatures.

The drawings are more visually complex than the previous works and demonstrate an application of the research that is controlled and less literal than the *Wallpaper Composition Series*. In these final drawings, the research has been to some extent absorbed into practice. This has allowed the knowledge gained to become a natural and intuitive part of my approach to drawing, where the options for making the next move, the next mark, are less limited.

The exhibition, of which the entirety of these finished drawings formed a part, was curated in a chronological order. This enabled the audience to walk through the progression of visual ideas and experience a history of changing practice within the space of two rooms. In combination with the text, this visual history of practice demonstrated how my understanding of drawing altered through the research period.

The finished exhibition of which these works make up a part, is the ultimate goal of the study. The development of the hypothesis and the components of drawing were a direct reaction to my own concerns within my practice. What started as a questioning of how we draw, developed into an in depth analysis of the structure of drawing and a re-learning of the way in which we build during the drawing process. Within the body of the thesis, the finished artworks provide examples of how the analysis and understanding of drawings, reached primarily though the *Studio* Notes but also through the artworks themselves, impact on visual perception, and how they were subsequently integrated into my practice.

Paradigms of research

The following comprises a brief overview of the paradigms of research available as set out by Denzin and Lincoln in *The Sage Handbook of Qualitative Research: Third Edition* below (Figure 28). The paradigms are briefly stated before identifying an appropriate paradigm for the direction of this research.

Issue	*Positivism*	*Postpositivism*	*Critical Theory et al.*	*Constructivism*	*Participatory*[a]
Ontology	Naïve realism—"real" reality but apprehendible	Critical realism—"real" reality but only imperfectly and probabilistically apprehendible	Historical realism—virtual reality shaped by social, political, cultural, economic, ethnic, and gender values; crystallized over time	Relativism—local and specific co-constructed realities	Participative reality—subjective-objective reality, cocreated by mind and given cosmos
Epistemology	Dualist/objectivist; findings true	Modified dualist/objectivist; critical tradition/community; findings probably true	Transactional/subjectivist; value-mediated findings	Transactional/subjectivist; co-created findings	Critical subjectivity in participatory transaction with cosmos; extended epistemology of experiential, propositional, and practical knowing; cocreated findings
Methodology	Experimental/manipulative; verification of hypotheses; chiefly quantitative methods	Modified experimental/manipulative; critical multiplism; falsification of hypotheses; may include qualitative methods	Dialogic/dialectical	Hermeneutical/dialectical	Political participation in collaborative action inquiry; primacy of the practical; use of language grounded in shared experiential context

Fig. 28 Denzin and Lincoln (2005:195): *Basic beliefs of alternative inquiry paradigms – Updated*.

Positivism: A positivist paradigm of research bases its ontological position in terms of reality as an apprehendible and absolute truth. Epistemologically, this supposes that reality can be understood by empirical evidence together with the attainment of information by experimentation, as well as understanding the world through quantitative methodologies.

Post-Positivism: A Post-Positivist paradigm of research retains the objectivity that is at the core of the Positivist ontological position but allows for the possibility of subjectivity, of the influence of the researcher upon the subject area, wherein lies "reality but only imperfectly and probabilistically apprehendible" (Denzin & Lincoln 2005: 195).

Critical Theory: A Critical theory paradigm of research centres its ontological position on the study of historical realism by taking into account "social, political, cultural, economic, ethnic, and gender values..." (Denzin & Lincoln 2005:195), over a period of time through logical argument.

Constructivism: A Constructivist paradigm asserts that reality is a human construct, that truth is epistemologically subjective, that knowledge is not absolute and therefore can only be reached by an accumulation of hermeneutical evidence allied to logical argument.

Participatory: A Participatory paradigm asserts that reality is subjective and objective. That neither can be mutually exclusive and that knowledge must be gained through practical participation.

The study identifies Components of Drawing that are collectively understood by drawing practitioners, formal considerations that are generally agreed to be manifest in drawing. The study subscribes to the notion that drawing structures perception, that this structure is a result of the unique set of cognitive and motor developments that drawing practice unifies and that this is in some senses universal in manifestation. Ultimately, it is a truth that is searched for, but a truth that is not absolute. In the scope of drawing a wholly quantitative approach is impossible, there is no possibility of an absolute truth. The interpretative nature of drawing as a continuous process of experiential development necessitates the results of the methodologies employed be open to debate, re-positioning the findings away from the probabilistic and into the realms of the possible, a qualitative approach is therefore necessary. The synergy of the hermeneutical and the heuristic methodologies within the Constructivist and Participatory paradigms are best suited to the progression of the research

as they allow for a moderate formalist approach to be united with a practice-led methodology.

Thesis Structure

The thesis is structured around two *Parts* that comprise the research journey:

Part I consists of a written acknowledgment of the hypothesis' historical lineage as a continuance of formal drawing analysis. It introduces the first glimmer of the concept that consistent drawing practice structures perception and identifies the principal supporting texts that have contributed to the continued development of this theory throughout the research period. The text cites the importance of an alteration to Clive Bell's concept of 'Significant Form', before tracing a line through the development of formalist art theory. This section develops the idea of moderate formalism that rejects the concept of essentialist truth within art analysis and proposes a flexible visual and written discourse aligned to the constructivist/participatory paradigms applied.

Part I continues via a visual and written reflection on a drawing produced prior to the start of the research period. This includes an elucidation on the experiential origins of the hypothesis and the heuristic process by which drawing practice both supplied and developed the concept of drawing as a structure of perception. Through the compartmentalisation of a single drawing through drawing, the section introduces the concept of *Components of Drawing* as a potential line of inquiry, enabling a more detailed analysis of the hypothesis.

Part II develops the idea of the *Components of Drawing*. To provide cohesion, and in recognition of its use pedagogically, the thesis is thematically sub-divided into seven

components of drawing. Within each component the progression of ideas is then largely chronologically stated, as each new discovery opens the doors to the next. Each comprises an in-depth analysis of the extent to which each component embeds a unique structural conditioning into the artist's perceptual awareness. Each sub-division continues as a synergy of practice and text, whereby experiential inquiry is developed primarily through drawing practice. As a tool of analysis and inquiry, as a recorder of concept and percept, each drawing has no hierarchical status: scribble, sketch and completed artwork each exist as a manifestation of thought processes and perceptual investigation that, in turn, are aided and responded to with written studio notes, pedagogic notes, theory and text.

Conclusion: The thesis concludes with a summation of the research in relation to the findings and the original hypothesis. An explanation is given as to how this research alters the background and focal theory of the field of formal drawing analysis, before making suggestions concerning the possibility of the expansion and development of the research journey.

Part I: The compartmentalisation of drawing practice

Reflection on a Moderate Formalist ideology

The development of this study centres on the possibility that drawing structures the interpretation of perception, and that an analysis of this structure can aid the draughtsman in the development of their drawing. It is a hypothesis that has been supported and supplemented by a variety of texts through the course of the research period. The study aligns the exploration of drawing practice to a formalist ideological lineage, identifying drawing as a form of communicative, visual notation that can be *written* by the artist and *read* by the viewer. However, there exists an anti-formalist position that must be countered before the lineage of this exploration is outlined.

The discourse between the extreme formalist philosophical approach to art analysis, 'the view that *all* the aesthetic properties of a work of art are formal', and the anti-formalist approach to art analysis, 'the view that none of them are formal' (Zangwill 2001: 58), divide aesthetic philosophy into the objective and the subjective. This dichotomy is summarised by Gordon Graham:

> In the history of the subject since Kant, there has been continual uncertainty as to whether the subject matter of art theory is subjective states of mind, that is, do we theorise about the attitudes of observer or audience [or artist], or is the subject matter objectively existing artefacts, that is, the works of art themselves?
>
> (Graham 1997: 153)

Both the extreme formalist and the extreme anti-formalist positions seek to wholly define art practice and to isolate it whereby it is safe from the opposing view. To attempt to circumscribe a subject as vast and elusive as aesthetics, into one or another diametrically opposite proposition is a conservative and highly self-destructive process. The flaw in any attempt at absolute definition in art is asserted in the *The Function of Philosophical*

Aesthetics in which Walter Bryce Gallie argues that all definitional theories are "vitiated through and through by the essentialist fallacy: they presume that whenever we are in a position to define a substance or activity, we must know its essence or ultimate nature" (Gallie 1954:13-35). The extreme formalist argument, that the physical content of a work of art is all that is necessary to its aesthetic appreciation, has largely been discredited by the philosophical and practical changes to those practices that are defined by the term *Art*. But such a hypothesis cannot be entirely replaced by the opposite assertion, that no aesthetic qualities are formal, but can be adjusted to fit a more flexible and logical assertion, an assertion that withdraws from essentialism. Indeed, just as anti-formalists argue there is context to all form; in visual arts, there is a form to all context, and I would argue that both positions are correct. This renders the debate between formalist and anti-formalist positions relatively meaningless, where it becomes an exercise in truisms or in semantic definitions of the term *formal*. Whilst it is undoubtedly true that history and context impact upon our perception of anything, this cannot be an objection to stating that there exist some formal properties in works of art, or that there are elements in works of art that can be considered in a formal light. If I present to you a painting with one giant blue square and one small red square, there exists a relationship between the two shapes that impacts upon us as receptors of the information through their colour, size and shape, and that would still exist if the painting were shown to a baby or an imagined human that has no memory but simply receives images into the retinas. Furthermore the visual impact would still exist if the squares were not art at all, but some natural phenomenon. However, if it were a painting, it may be understood in reference to what we know of art historical factors, and of course we bring our own perceptual baggage to any engagement with anything. However, as Nick Zangwill states in his paper 'Diffusing the Anti-Formalist Arguments', this is a revisionary

understanding of the visual properties of a work of art (Zangwill 2000: 1). I would argue, that contextual understanding does not prohibit an understanding of an art work in purely formal terms, for the purposes of discovering a sense of formal truth relating to the arrangement and composition of a human-made object. In the hypothetical painting described, there is undoubtedly a formal impact made on our optical reception of the information, otherwise the word formal is rendered meaningless.

Zangwill's paper presents a reasonable defence of a difficult definition of moderate-formalism by presenting 'three strategies' of resistance to anti-formalist attack: *the tactical retreat, Irrelevance* and *the Benign Dilemma*[vii]. However it is not necessary to become embroiled in a defence of moderate formalism if it is re-defined at the outset. Zangwill states that for the purpose of his moderate formalist defence, 'we can take a formal aesthetic property to be an aesthetic property of a work of art that does not depend (at all) on the history of production of the work' (Zangwill 2000: 1). Here the definition of formal is essentialist and the words 'does not depend (at all)' offer the anti-formalist the opportunity to argue that all elements depend on the history of production and context. And I would agree with this position in this instance. Zangwill proceeds to define moderate formalism in the following way: 'anti-formalists believe that all or almost all of the aesthetic properties of a work of art are non-formal; extreme formalists believe that all of their aesthetic properties are formal; and moderate formalists believe that many of their aesthetic properties are formal and many are not' (Zangwill 2000: 1). This definition of moderate formalism again allows for objection as there is a division between formal and non-formal elements. Within the context of this thesis I would prefer to define the moderate formalist position in the following way: that all aesthetic properties of visual works of art are both formal and

contextual. This position is most flexible and the least likely to close down options for analysis. I assert that it is the right of any audience to consider a work of art from a wholly formal perspective, from a wholly contextual perspective or, more commonly, from both. As a researcher it is my prerogative to concentrate on the formal language of drawing in relative isolation to reach a certain understanding of the way in which the fundamental engagement between subject, cognition and act, is manifestly inherent to drawing as a practice that alters perception. An analysis of drawing that acknowledges the act as a human arrangement of visual phenomena. This is not a rejection of context, more a focus on one element in the make-up of a drawing. In this sense the direction of the research is more aligned to Michael O'Toole's (O'Toole 1994: 58), where understanding of an artwork acknowledges the object and the context, but is open enough to consider each in isolation where necessary or instructive. I would argue that artists, researchers and lecturers, are consistently considering formal and contextual aesthetic properties, both together and in isolation, as points of focus that enable them to best progress with their work.

The Constructivist/Participatory paradigm in which this study operates is adopted for the reason that art is both subjective and objective. In this investigation I do not reject history and context, indeed I acknowledge learned behavioural psychology as key to drawing structuring perception. I simply argue that it is possible to study the way in which drawings are made irrespective of their subject, concentrating on our psychological approach to making drawings and our reception of them, as visual, two-dimensional entities that impact upon our senses. This section postulates a philosophy that steers a path between extremes of formalism and anti-formalism, not by rejecting context, but by asserting that it is possible to focus on formal qualities as a line of enquiry without a rejection of context, history, and

narrative. Moreover the study acknowledges that the subjective and the objective operate symbiotically in art, but that the focus of research may be considered as one part of an approach to understanding that does not attempt to be wholly comprehensive, so as to more rigorously interrogate the specific psychology of making aesthetic decisions: Moderate Formalism as a tool to understanding the perceptual tectonics of drawing practice.

Over the following pages, texts from both art theory and perceptual psychology lineages that have influenced the course of the research will be outlined, and recent developments in the debate will be elucidated, before positioning this research as a continuation of the this line of enquiry.

Hermann von Helmholtz, *Treatise on Physiological Optics* (1910)

The physicist and philosopher Hermann von Helmholtz's (1821-1894) proposal that visual perception constructs models of the environment aligned to visual stimuli, has provided the dominant constructivist format for visual perception theorists over the last century. Helmholtz states that:

> …general characteristic property of our sense-perceptions is, that we are not in the habit of observing our sensations accurately, except as they are useful in enabling us to recognize external objects. On the contrary, we are wont to disregard all those parts of the sensations that are of no importance so far as external objects are concerned.
>
> (Helmholtz 1910: 6)

His theory argues that perception is non-veridical, and is heavily influenced by knowledge and experience-based *unconscious inference* projected onto the senses. His theory has enabled perceptual theorists to subjectivise visual processing, and to speculate as to how one individual's visual interpretation may differ from another's. In the context of the hypothesis, Helmholtz's theory of perception provides space to investigate how a consistent

drawing practice could affect individual visual perception. In the context of drawing, Helmholtz's assertion that perception is hierarchical opens the suggestion that, through drawing, the hierarchy would be likewise altered according to the specificities of the task. This theory is to some extent evidenced contemporaneously in a number of drawing perception studies by art theorists and perceptual psychologists (Miall & Tchalenko, 2001, 2009; Cohen & Jones, 2008; Kozbelt, 2010; Ostrofsky et al, 2012, Chamberlain et al. 2012) and provides support for the conviction underlying the research.

Clive Bell, *Significant Form*

In the initial stages of the research, a paper put forward in 1914 by the art critic Clive Bell (1881-1964), added support to the burgeoning concept that drawing structures perception:

> …there is a particular kind of emotion provoked by every kind of visual art... This emotion is called the aesthetic emotion; and if we can discover some quality common and peculiar to all the objects that provoke it… We shall have discovered the essential quality in a work of art....
>
> ...What quality is shared by all objects that provoke our aesthetic emotions?... Only one answer seems possible — significant form. In each, lines and colours combined in a particular way, certain forms and relations of forms, stir our aesthetic emotions… "Significant Form" is the one quality common to all works of visual art.
>
> (Bell 1987:6-8)

In 1938, counter to Bell's argument, the philosopher R.C. Collingwood (1889-1943), argued that art is the expression of emotion and could not be considered in the objective light of certain formal relationships, "…the artist proper is a person who, grappling with the problem of expressing a certain emotion, says, 'I want to get this clear'… Nothing will serve as substitute" (Collingwood in Feagan & Maynard: 1997: 219).

Both arguments could not survive the philosophical developments within art through the 20th century. Bell's argument is based on an assumption that all aesthetically sensitive individuals will concur upon relative aesthetic merit. It also is a rejection of narrative, history and concept in art. Likewise Collingwood's focus on expressionism is too narrow to bridge the exponential expansion of art. Each position *is* essentialist and by definition limiting.

History can render attempts at absolute definition absurd. Redacted from an essentialist position and both Bell and Collingwood's statements can be resurrected. In *The Metaphysics of Beauty* (2001), Nick Zangwill clearly illustrates the weakness in Bell's initial assertions. However, he offers a moderate formalist escape route, quotes Bell:

> 'To appreciate a work of art we need bring with us nothing but a sense of form and color and a knowledge of three-dimensional space'.
>
> This sentence has probably been the butt of more scorn than anything else written about aesthetics in the twentieth century. Yet only a minor amendment renders it respectable. Just delete the "nothing but": To appreciate a work of art we need bring with us a sense of form and color and a knowledge of three-dimensional space. This, I maintain, is almost always true! …If only Bell had put his point as a *necessary* condition rather than as a *sufficient* condition of appreciation.
>
> (Zangwill 2001: 66)

The step backwards, applied to Bell's initial assertion represents an important point in the development of this enquiry; Bell and Collingwood's arguments are not mutually exclusive. Although Zangwill's redaction of Bell's text to some extent neutralises the assertion, Zangwill is championing an approach that allows for flexibility in art analysis, and guarding against assertions that are inflexible.

From Bell's over-arching theory there remains the idea that similarities between practices can be identified beyond material or subject matter. This possibility, I would argue, opens up a number of lines of research that have yet to be fully investigated; that common, formal

qualities manifestly embedded into the process of creating art can be considered as versions of *significant form*. Adapted, significant form can be understood as a link between artists and artworks that extends beyond narrative, genre or media, a link that is indicative of an approach to creative interpretation allied to an initial determinant, in this instance drawing. In this way a corruption of Bell's theory becomes a note of support for the gradually solidifying conviction: that drawing alters perception.

Rudolph Arnheim, *Art and Visual Perception* (1954)

To engage with the notion that drawing structures perception, two essential components must be in place. The first is that I draw. The direction of this research treads a line between that which is observable and that which is subjective. Based on an experiential methodology, the research undertaken places the drawing process as the core instigator of the hypothesis and the subsequent points of discovery. The second is that an amount of the drawing that leads the research necessarily takes the form of experimental meta-drawing, a visual investigation and explanation undertaken through visual means.

Arnheim's (Perceptual Psychologist 1904-2007) *Art and Perception* (1954), proposes an approach to art interpretation that re-claims vision from the language-heavy mode of art interpretation. Arnheim claimed that focussing the interpretation of art through language was "...neglecting the gift of comprehending things by what our senses tell us about them. Concept is split from percept" (Arnheim 1954: V).

Arnheim argues that art is encountered through the senses and must be understood through the senses. Critically, Arnheim does not deny the claims of context and provenance, but implies that there is an imbalance between that which is understood as concept and

that which is understood as percept. Arnheim argues that the two ideas, so often considered in isolation, are in fact both aspects of cognitive understanding.

Arnheim's use of language, the implications attached to each subject title, *Shape* and *Growth* for example, and the extensive use of images to investigate, develop and communicate visual theory, comprises a support to the hypothesis explored in the research.

Philip Rawson, *Drawing* (1969)

The second critical text is Philip Rawson's *Drawing* (1969). Rawson's analysis to some extent abstracts drawing, focussing on how drawings are constructed both conceptually and physically. Rawson, like Arnheim, demonstrates that, though it is impossible to separate context and formal analysis in the overall analysis of an art work, it is possible to primarily focus on form for the purposes of a particular analytical understanding of the work. Rawson develops a vocabulary to analyse drawing that is responsive to his consideration of drawing as a visible vocabulary of mark-making. As a continuation of Arnheim's visual philosophy, Rawson's *Drawing* is a text where the graphic image and mark predominate, the text providing the support to a visual investigation.

Michael O'Toole, *The Language of Displayed Art* (1994)

To investigate outcomes that relate to the discovery of a truth, or of an answer to a question, is fraught with difficulty in art. In *The Language of Displayed Art* (1994), Michael O'Toole argues the case for formal analysis of artworks as part of an inclusive semiotic approach. O'Toole attempts to reclaim formalism from its ideological extremities and draw it towards a more sustainable and applicable mid-ground position. O'Toole outlines three semiotic functions that operate in synergy within any given artwork and that can offer the

viewer a cognitive framework within which to analyse it. The three functions are explained as follows:

1. *Representational Function* – Those elements in an artwork that are designed to convey information about reality.
2. *Modal Function* – Those elements in an artwork that are designed to engage the viewer's attention.
3. *Compositional Function* – Those elements that make up the abstract structure of the art work and the relations between the whole and the individual elements (O'Toole 1994: 24).

O'Toole argues that although each are inter-related, the Modal Function and the Compositional Function, though interpretative, are often virtually universally capable of being read. O'Toole asserts that through these three semiotic functions the viewer can analyse a previously unseen artwork.

O'Toole, like Rawson before him, is promoting semiotics as a method of understanding the vocabulary of the artist by breaking down analysis into words that are familiar and that can be transferable across media. This is an approach adopted in the research to analyse drawing practice. It is through the separation of drawing into separate analytical functions (*Components of Drawing*), that the concept of drawing perception is ultimately developed.

O'Toole is keen to point out that this approach does not override ideas of context but is supportive, offering information gained through observation and insight into methods of production and their impact upon meaning:

> One may approach an artwork as a semiotician without prior knowledge of the work in question – this means that semiotics enables and promotes a universally applicable system of analyses based on sense experience. This does not suggest a universally and all-encompassing knowledge is attainable purely through a

> semiotic approach – more that a great deal can be learned without the help of words or context.
>
> (O'Toole 1994: 5)

O'Toole responds to criticism that semioticians are too positivist in their search for answers by questioning positivism as a paradigm:

> Firstly, even the 'hard' sciences these days recognise that even with the most exact empirical measurement of data there is a stage where intuitive interpretation takes over and that this is central to the scientific enterprise; there are no final answers.
>
> Secondly, every form of study involves some degree of 'reductionism': a picture may – provisionally – be reduced to its component parts for analytical purposes..
>
> Thirdly, no form of discourse is 'theory-free', and often it is the inexplicit theories – those most taken for granted as 'natural' to the discourse – which are the most powerful and distortive.
>
> (O'Toole 1994: 178)

In emphasising the hermeneutical in terms of semiotic analysis whilst insisting that both the modal and the compositional functions are capable of being universally read, O'Toole treads a careful line between participatory/constructivist and post-positivist paradigms. That line is mirrored in this research.

Stephen E. Palmer, *Vision Science: Photons to Phenomenology* (1999)

The Cognitive Psychologist Stephen E. Palmer's book, *Vision Science: Photons to Phenomenology* (1999), provides a clear and comprehensive overview of the scientific developments in the field of *visual perception*. Through the latter part of the study this text has periodically offered scientific explanations of visual phenomena encountered through

drawing. Palmer's text, by outlining the historical arguments within this field, offers support to the theory that visual perception is non-veridical, affirming the role that purposiveness and personal/cultural history have in affecting how phenomena is visually processed.

Howard Riley, *The Intelligence of Seeing* (2001)

Riley's thesis proposes "a new teaching programme of drawing, based upon a synthesis of perception theory and communication theory..." (Riley 2001:2). As a student I studied drawing and drawing theory under Howard Riley. Riley's pedagogical approach and thesis inspired the compartmentalisation of drawing practice. Riley's drawing theory can be aligned to both Rawson and Arnheim, in so far as it promotes drawing as a mode of communication that simply uses different building blocks from other more recognisable forms of notation. Riley's pedagogical approach promotes the analysis of the individual elements that are combined in the drawing process, enabling the student to adopt a fragmented and task-specific approach to drawing practice. This in turn enables a focus on individual elements that communicate observable phenomena, encouraging the student to be aware that the vocabulary of mark-making is a dialogue with the vocabulary of perception and communication.

John Tchalenko and Chris Miall

The artist John Tchalenko and psychologist Chris Miall conducted a number of experiments on experienced and novice drawers whilst drawing (Miall and Tchalenko 2001, 2009), (Tchalenko 2007, 2009, 2013), (Miall et al. 2009). Employing eye-tracking technology, Tchalenko and Miall were able to accurately record the saccadic movement of the eye, identifying the frequency and time spent observing the subject and observing the drawing.

The studies provide significant evidence in support of the hypothesis, identifying different physiological approaches to copying between the two groups.

Stephen Farthing, The Bigger Picture of Drawing (2011)

In his paper *The Bigger Picture of Drawing* (2011), Stephen Farthing proposes *A Conceptual Taxonomy of Drawing* that seeks to compartmentalise drawings according to their function. At the beginning of this process Farthing asserts that drawing, alongside writing, mathematics and musical notation, is one of four "species within a kingdom that is concerned with recording" (Farthing 2011: 22). Farthing eschews any attempt to define drawing as material or physical act, and focuses instead on drawing as a cognitive process, aligning it to communicative notation rather than to art:

> What I think we are doing when we not only draw-but handle words numbers and notation - is translate multidimensional events, that may or may not physically exist, into readable two-dimensional matter.
>
> (Farthing 2011: 21)

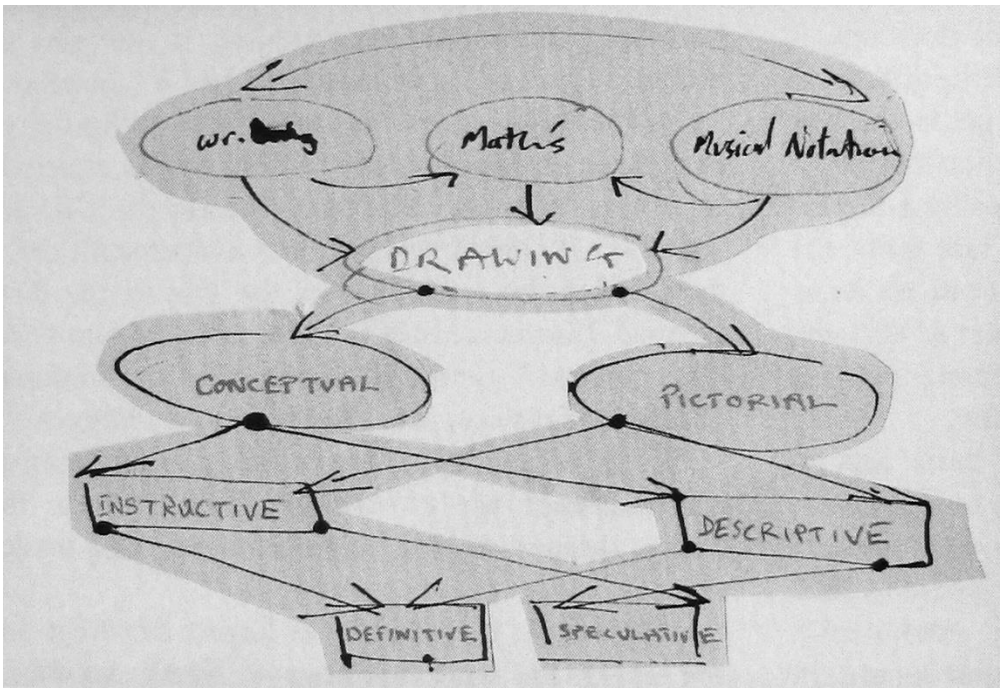


Fig. 29 Stephen Farthing: *A conceptual taxonomy of drawing*. 2010. Ink on paper.

This consideration of the universality of drawing as a recorder and vector of concept is a powerful argument for the relevance of drawing across media. It adds weight to the argument for drawing as a support to practice and concurs with the philosophical approaches developed by Arnheim, Rawson and Riley, where drawing is considered semiotically, as a construction of many components, reminiscent of the alphabet but that can continually be expanded and developed.

Justin Ostrofsky, Aaron Kozbelt and Angelika Seidel, *Perceptual Constancies and Visual Selection as Predictors of Realistic Drawing Skill* (2012)

In *Perceptual Constancies and Visual Selection as Predictors of Realistic Drawing Skill* (2012), Psychologists Ostrofsky, Kozbelt and Seidel attempt a comparison between two diametrically opposed drawing perception theories; 1. That skilled observational drawers' are able to override visual constancy empirically. 2. That the perceptive abilities of skilled observational drawers are facilitated by learned influences. Adopting prior drawing strategies designed to test both theories (Murray et al., 2006; McManus et al. Cohen & Jones, 2008; Kozbelt et al., 2010)

Ostrofsky et al. attempt to predict free-hand drawing accuracy of novice and expert drawers. The study finds that participants adjudged to have accurate free-hand drawing ability tend to display a greater ability to suppress visual constancy in terms of scale but not shape, although were still prone to error. The study found more conclusively that expert drawers were consistently more able to identify the essential components of an image to enable its accurate transferral once the original is removed. Ostrofsky et al. propose that:

> …artistic skill involves the ability or fundamental capacity to strongly bias attention toward enhancing the processing of target information and suppressing task-irrelevant information consistency.
>
> (Ostrofsky et al. 2012:12)

Ostrofsky et al. advocate:

> …a broad, multistage attention-based theory of drawing skill and accuracy. We envision the perceptual aspect of drawing as involving a continual feed-forward and feedback interaction between the strategic selection of information and the subsequent biasing of attentional resources toward enhancing the processing of selected information and suppressing the processing of non-selected information.
>
> (Ostrofsky et al. 2012:12)

The study conducted is limited to a small number of drawing tasks, and of these, all are copying tasks from two-dimensional source material. The acknowledged limitations of this approach are symptomatic of many of the drawing visual perception theory studies, neglecting to some extent, the translation of phenomena through dimensions. However, the findings appear to some extent to unify both drawing perception theories, a proposition that is consistently supported through the practice that forms the body of this thesis.

The proposed continuance of the *Formalist* line of inquiry

The lineage of Formalist drawing analysis may be developed further. Adapting Bell's theory of significant form as a starting point, it is possible to construct a hypothesis that relates common schemas inherent to drawing practice and that shape the artist's interpretation of phenomena - drawing altering the structure of perception. To take this theory further, an understanding of each component must be developed. This takes for its model the texts of Arnheim, Rawson and Riley in terms of the development of a language and pedagogical approach to drawing practice respectively. By analysing and compartmentalising drawing in this way, each have provided a platform from which this thesis can develop. The result is the division of drawing into *The components of drawing practice*, a taxonomy of those formal schema that comprise drawing practice.

The second half of Part I comprises a compartmentalisation of a single drawing, introducing the components of drawing practice as seven drawn hypotheses accompanied by explanatory not.

The compartmentalisation of drawing practice

> "…it is only by degrees that words can present a Whole, whereas the Eye first gives us a Whole, and only by degrees separates it into Parts."
>
> (Chamberlain 1914:101)

Drawing practice focuses perception onto components within a composition that can be interpreted through a gesture(s). In this sense drawing is always abstracting from perceived phenomena and is necessarily reliant on a codified construct of perception that is communicable between artist and viewer. The construction of a code of communication is an ongoing developmental process that perceptually binds artist, medium and subject together for the duration of the drawing. Frederick Frank describes this union through an approach to drawing that he terms *seeing-drawing*:

> Almost at once the very quality of my perception changed. Nothing interfered now between my eye and what I saw….Drawing the landscape, I 'became' that landscape, felt un-separated from it…This is what seeing-drawing really does; you become what you draw. Unless you become it, you cannot draw it.
>
> (Franck in Cain 2010: 76)

The drawing process is developed by the draughtsman, but inevitably shapes the draughtsman in terms of perception, in terms of the interpretation of perception and in terms of the response to this information. The experienced draughtsman becomes used to perceiving through the 'lens' of drawing rather than the lens of survival. The notion of a lens suggests an alteration and critically, a limitation, to perception, an alteration and limitation to the understanding of things. In *Matter and Memory* (1896), Henri Bergson (1859-1941) argues that the limitations imposed by survival perception are a 'necessary poverty':

> The reality of matter consists in the totality of its elements and of their actions of every kind. Our representation of matter is the measure of our possible action upon bodies: it results from the discarding of what has no interest for our needs, or more generally for our functions. In one sense we might say that the perception of any unconscious material point whatever, in its instantaneousness, is infinitely greater and more complete than ours, since this point gathers and transmits the influences of all the points of the material universe, whereas our consciousness only attains to certain parts and to certain aspects of those parts. Consciousness, - in regard to external perception, - lies in just this choice. But there is, in this necessary poverty of our conscious perception, something that is positive, that foretells spirit: it is, in the etymological sense of the word, discernment.
>
> (Bergson 1911: 30-31)

Bergson argues that the redaction of a subject is necessary. In drawing a redaction is also necessary, but one that is not allied to a survival instinct. The alteration in perceptual hierarchies can be clearly observed in an analysis of a drawing.

Camberwell (Figure 30) was completed in 2000, some years prior to the beginning of the research period. At the time of drawing it represented an example of pure drawing, free from artifice and free from pre-conceived technique or strategy, an authentic attempt at representation. I believe I had only one acknowledged intention when starting the work: to draw that which I saw as accurately as I could, as though to draw correctly one simply placed marks into the required places, tracing the world.

Drawing, Ruskin claimed, “enabled [students] to say and to see what they could not otherwise say or see, and it also enabled them to learn certain lessons which they could not otherwise learn… [Through drawing] they obtained a power of the eye and a power of the mind wholly different from that known to any other discipline” (Cook et al 2010: 439-40). Here Ruskin argues that drawing uniquely alters perception. According to Ruskin the *Camberwell* drawing, coming at the end of a year’s study, is both an example of past

influence and of a conditioned perceptual response that will contribute to future understanding.

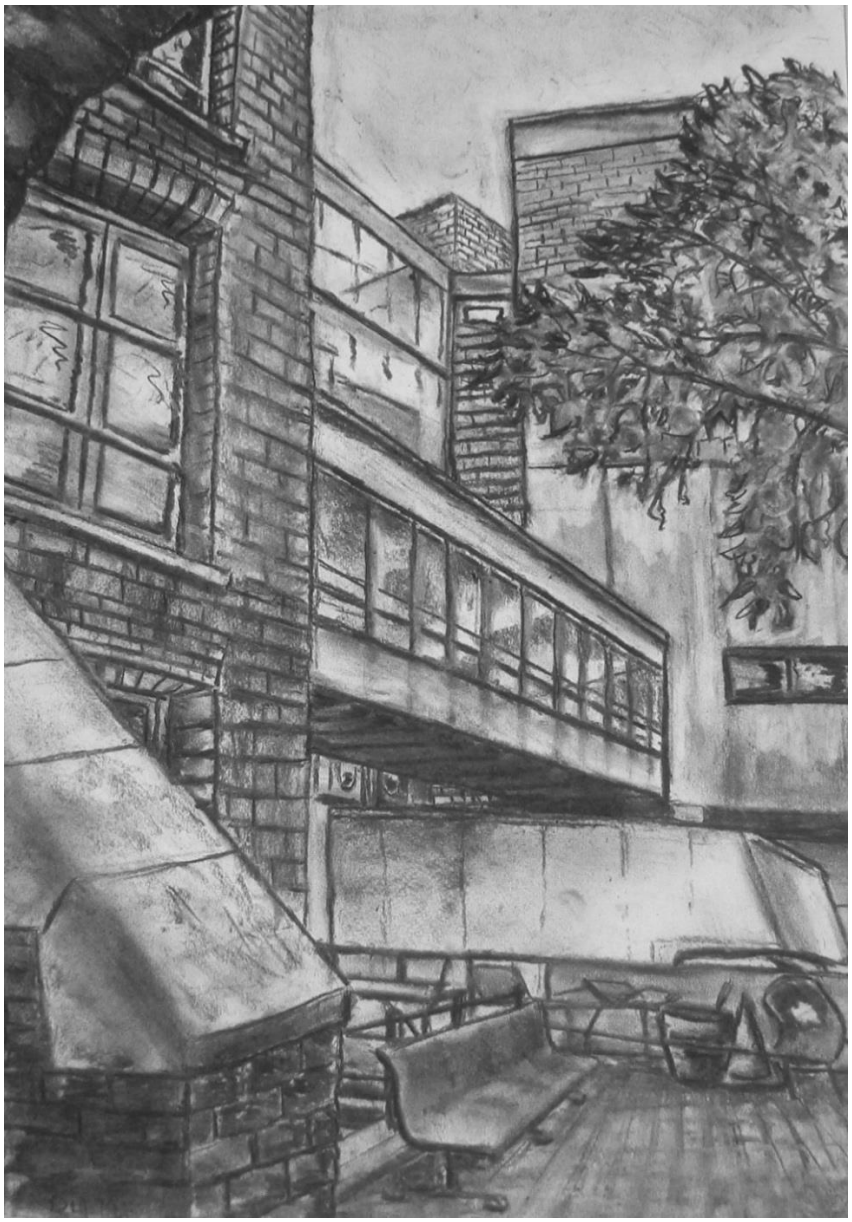


Fig. 10 Richard Monahan: *Camberwell*. 2000. Charcoal on paper. 84.1 x 59.4cm.

On reflection it is clear that the ‘pure drawing’ approach to the subject was a misconception, an embedded structure of perception had already been developed. This realisation opposed my own ideas of the universality of drawing as a core resource for art practice, positing the possibility that drawing alters the parameters within which the artist interprets perception.

On further analysis, the drawing is far from neutral. However, the assimilated and learned formal structures of thought, technique and strategy are not consciously acknowledged in the drawing process. That which I felt to be an intuitive response to a chosen subject, is in fact largely based on a learned response, a construction where cultural aesthetic value systems and personal experience unite to respond to a subject. In this sense the drawing may be intuitive, but intuition must then be understood as based on prior knowledge, as argued by Barry & Hill in their 2002 paper *Perception & Visual Communication Theorys*:

> The process of visual perception involves several basic parts, including the sensing of information; the use of past experience, both real and genetically acquired; and the processing of information along dual pathways….First, raw information is gathered from…light falling on and reflecting from surfaces…. Second, templates of past experiences are compared and matched to what is experienced now.
>
> (Barry & Hill 2002:91-106)

A subjective response to a subject therefore, utilises an embedded and developing hermeneutical code in order to communicate phenomena or concepts through comprehendible two-dimensional marks on to paper.

If drawing is largely learned, it is probable that, as the core practice within art education, it must intrinsically alter all those that pass through art educational establishments, the greater the more it is practised. If art is an effect of drawing as the primary common cause, art practice must either be ultimately limiting or one must accept Farthing's proposal that drawing must be a practice so conceptually malleable as to align itself more closely to other universally applicable forms of communicative notation, such as maths, writing and music (Farthing 2011:21). In both cases drawing necessarily conditions a mode of approach, the one inflexible, the other flexible. In response to this fork in the path an understanding of the

impact of drawing on perception can only be attempted by an analysis of the formal structure that contributes to making a drawing. This begins in response to the *Camberwell* drawing with the question: How can drawing be said to structure perception?

The process of compartmentalising drawing practice is problematic; what is included and what is left out must be contentious. The investigation into the extent to which drawing structures perception is one that will progress in conjunction with the concept of 'drawing as continuum' (Petherbridge 2010: 3), that drawing is a process of continual heuristic development. In reference to this, the axial core and methodology centres on a reflection on drawing through drawing. The study assigns the principle mode of discovery and communication to the notation of a drawn language that is supported and augmented by written reflection, a process that allows time for half-acknowledged ideas to become more fully realised. In response to the questions posed by the *Camberwell* drawing therefore, seven drawings are made onto printed copies with accompanying notes, each *proposing* a lens through which the drawing can be considered, each a visual proposal for drawing's effect on the structure of perception.

1. **Structural Composition**

Structural Composition is a term adopted as representative of the drawing as an object. The *Camberwell* drawing depicts a courtyard, but is constructed by marks composed on a surface. The location and proximity of the subject in relation to the scale of the drawing and the dimensions of the ground, provide a structure to the drawing.

Prior to commencing, the choice of subject for an observational drawing of this kind is a combination of intuition and convenience; is it interesting as a subject and is it a

comfortable position from which to draw? Added to this is a further basis for creative intuition comprising an experiential engagement with drawing and drawing history, determining compositional characteristics within the proposed subject that are appealing to the assimilated knowledge that conditions the artist. If the assimilated knowledge of an artist takes drawing for its foundation, then it is reasonable to assert that the artist will initiate a visual investigative process that is conditioned to reference the unique and underlying sub-structures of drawing practice.

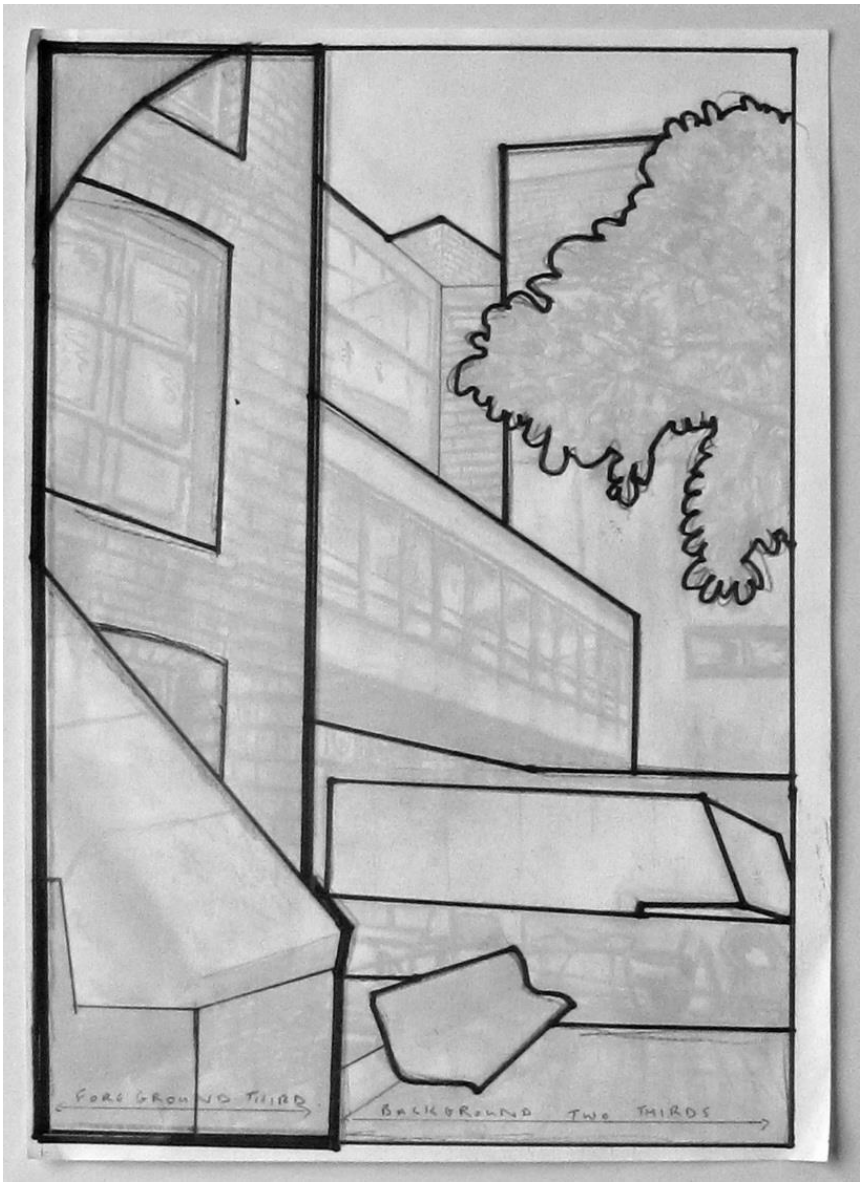


Fig. 31 Studio Notes: *Structural Composition.* 2005-2015. Marker pen, pencil crayon, HB pencil on digital print. 29.7 x 21cm.

A compositional dynamic is under consideration prior to the start of the drawing process, and one that directly references an embedded drawing practice: the impact of the proposed drawing on the dynamics of the ground. Drawing out a simplified structural composition of the courtyard enforces the idea that the perceptual process, in selecting and limiting the subjected matter prior to drawing it, is perspicuously aligned to drawing strategies and to the future drawn composition.

The recognition and focus on those structures that can be understood as diagonally dividing the ground acknowledge a strategic tradition in picture-making, the dynamic of diagonals that is known to the point of cliché. The response to subject and the proximity of it is selected to impact on the structure of the ground i.e. with the future drawing in mind. Shapes/objects finishing outside of the ground ensure that focus is drawn to the flat composition of shape across the surface of the drawing, an emphasis that forefronts drawing, focusing as it does on the relationship between the objects circumscribed by the rectangular composition of the paper, rather than on the objects as things in themselves. This composition has been selected and subsequently developed through a prior knowledge of drawing's inherent structural values, responding to collective rules of perception that, though subjective, are so universally understood by drawers, that they might be categorised as a collective subjectivity, or a mode of perception aligned to drawing.

2. The Linear

The structure of the *Camberwell* drawing is composed in lines (Figure 32, below). Line offers the geometric precision that assists in planning a drawing. Line is utilised as it economically describes shape, division and spatial recession by abbreviating visual information. This

quality leads drawers to develop a code of representation that is so ubiquitous to the understanding of perception, that it is not generally recognised as an abbreviation.

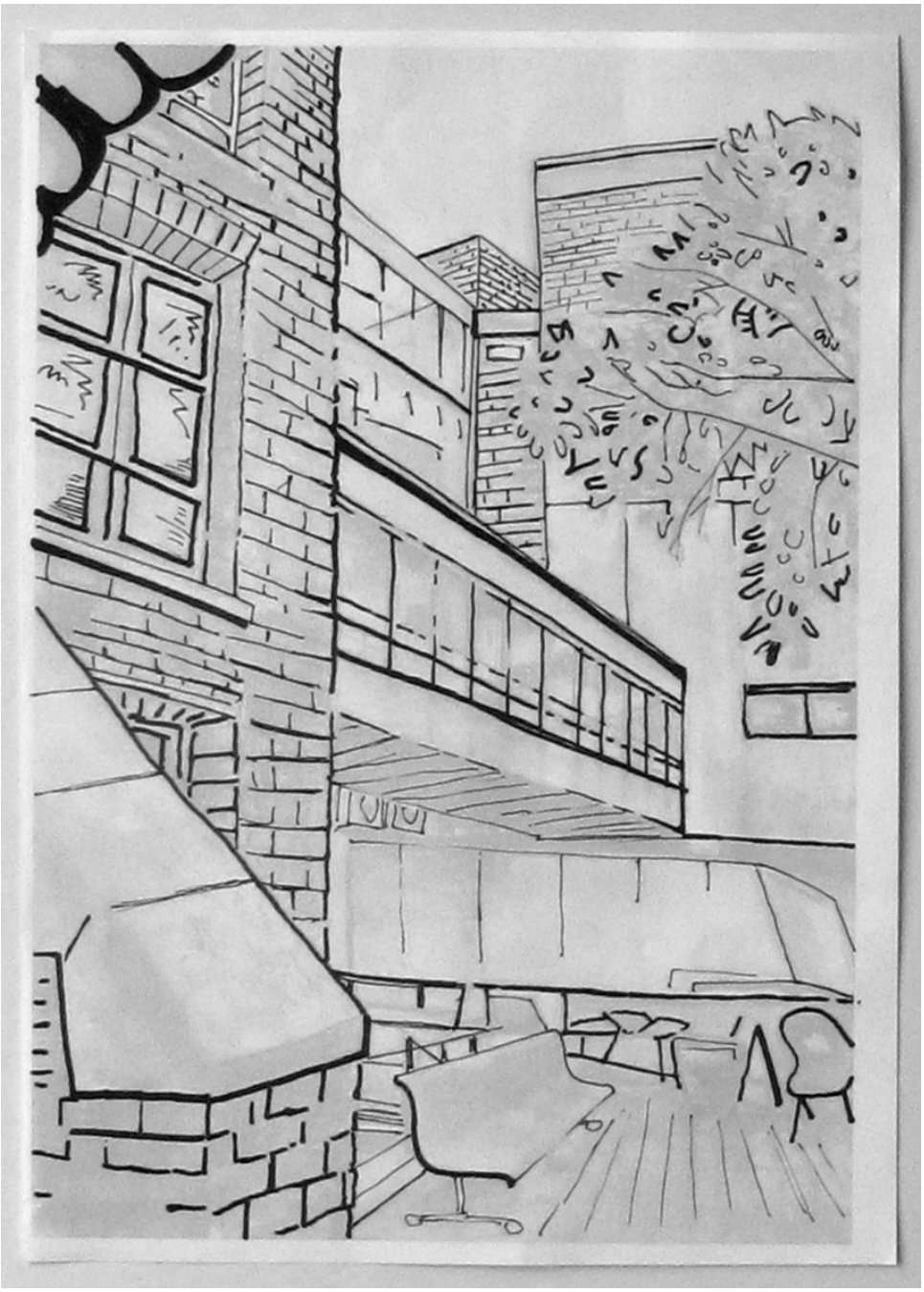


Fig. 32 Studio Notes: *The Linear.* 2005-2015. Marker pen, gel pen and photograph on 90gsm paper. 29.7 x 21cm.

This propensity towards an abstraction, The Linear, both as a means of understanding and as a code of communication, defines drawing as a process and links both the ideology and

physical manifestation of drawing to communicative notation, a perceived subject converted into a symbol. The extent to which the linear is searched for and utilised in drawing practice, and the variety and specificity of its manifestation, are indicative of a mode of interpreting perception that is fundamental to drawing practice.

3. Spatial Awareness

The *Camberwell* drawing creates an illusion in which a number of strategies are employed in an attempt to document depth illusion in the subject. Here the term Spatial Awareness is focussed primarily on the depiction of three-dimensional information on a two-dimensional surface. The illusion of spatial recession is primarily constructed through an interpretation of perspective, drawn in acknowledgment that the proximity of an observed object affects the appearance of its size. The shift in location of the vanishing point (located off the drawing to the right), indicates an attempt at perspective that is arrived at empirically, as opposed to rationally (Figure 33). However it is an image that could not have been constructed outside of the history of drawing, for to interpret what we see, the apparent diminution in size of observed objects, into marks on a surface, requires the drawing process to conform to a set of rules that are learned.

Within the drawing there are a number of other strategies employed to interpret an observed subject. Related to linear perspective is the concept of scale and how relative size outside of continuous recession can promote the illusion of depth. The brickwork in the Camberwell drawing is an example of this, where the technique for the drawing of bricks remains constant excepting the size of the bricks, promoting an understanding of similar objects at different proximities.

A further method for implying spatial recession is employed at the points at which objects overlap, highlighted in black pen over blue crayon, to indicate those areas at which space is obstructed from view, to draw the viewer's attention to that which is not visible. Drawing the courtyard at Camberwell is a process of intense scrutiny, a focused conditioning of perception to translate phenomena into two-dimensions.

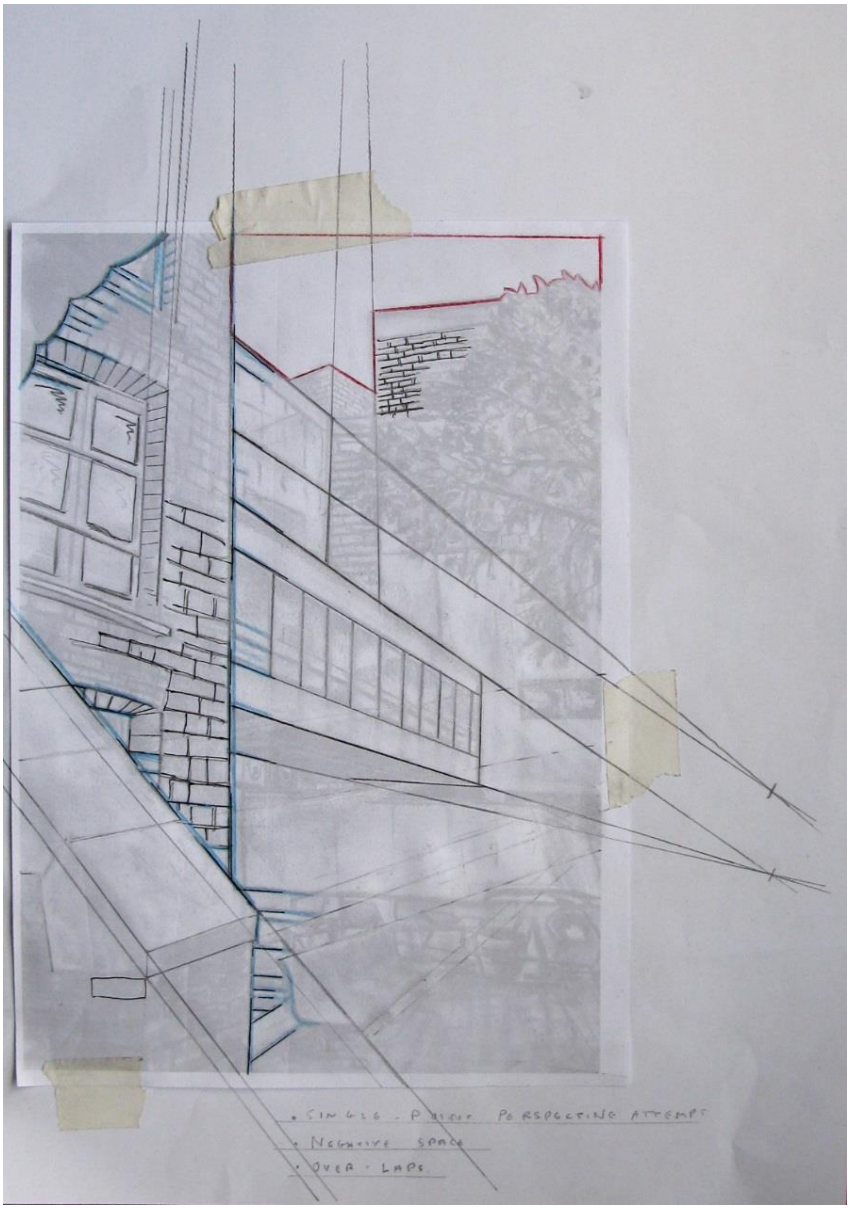


Fig. 33 Studio Notes: *Spatial Awareness.* 2005-2015. Pencil crayon, ballpoint, 2B & HB pencils, photograph on 90gsm paper taped to 100gsm cartridge paper. 42 x 29.7cm.

Moving the process of perception between dimensions has a transformative power on a drawer's perception of space, restructuring the common priorities and conditioning a drawer to understand spatial awareness through a transition between perception and notation. This physical/conceptual transformation of information is critical to the unique characteristics of making images on two-dimensional surfaces, conditioning perceptions as it does, to consider subjects as potential marks on paper.

4. Touch

Attempting to mimic the original marks by drawing over the *Camberwell* drawing, enforces the idea of touch as the point at which information departs from the interpretive process and is fixed as a two-dimensional mark representative of a thing or an idea (Figure 34, below). A gestural response to a perceived or imagined subject forefronts the physical, as a mode of perception critical to drawing practice.

In the original drawing, location rather than expression, is prioritised. Touch, in this instance is employed to trap and fix shapes in their relative position to one and other. Little consideration has been given to the representational efficacy of a thick black line, to describe the edge of a building. There are areas where a greater sensitivity of touch has been employed, in the combination of line and smoothed charcoal that describes the bench, the side of the van or the arching stone. Here touch is aligned to a mode of perception that assimilates not only the structure and position of elements within the drawing, but also the tone and texture of those elements. It is in these instances that the construction of the image is closest to a convincing illusion of the observed subject.

Drawing practice forefronts touch in the perceptual process. This directness shapes the way in which information is interpreted. Each code of communication devised through drawing, is a direct result of the relationship between that which is observed or imagined, and how it

can be translated into marks. This process necessarily results in a structure of perception that constantly searches for gestural equivalents of observed or imagined phenomena, through the two-dimensional limitations of drawing practice.

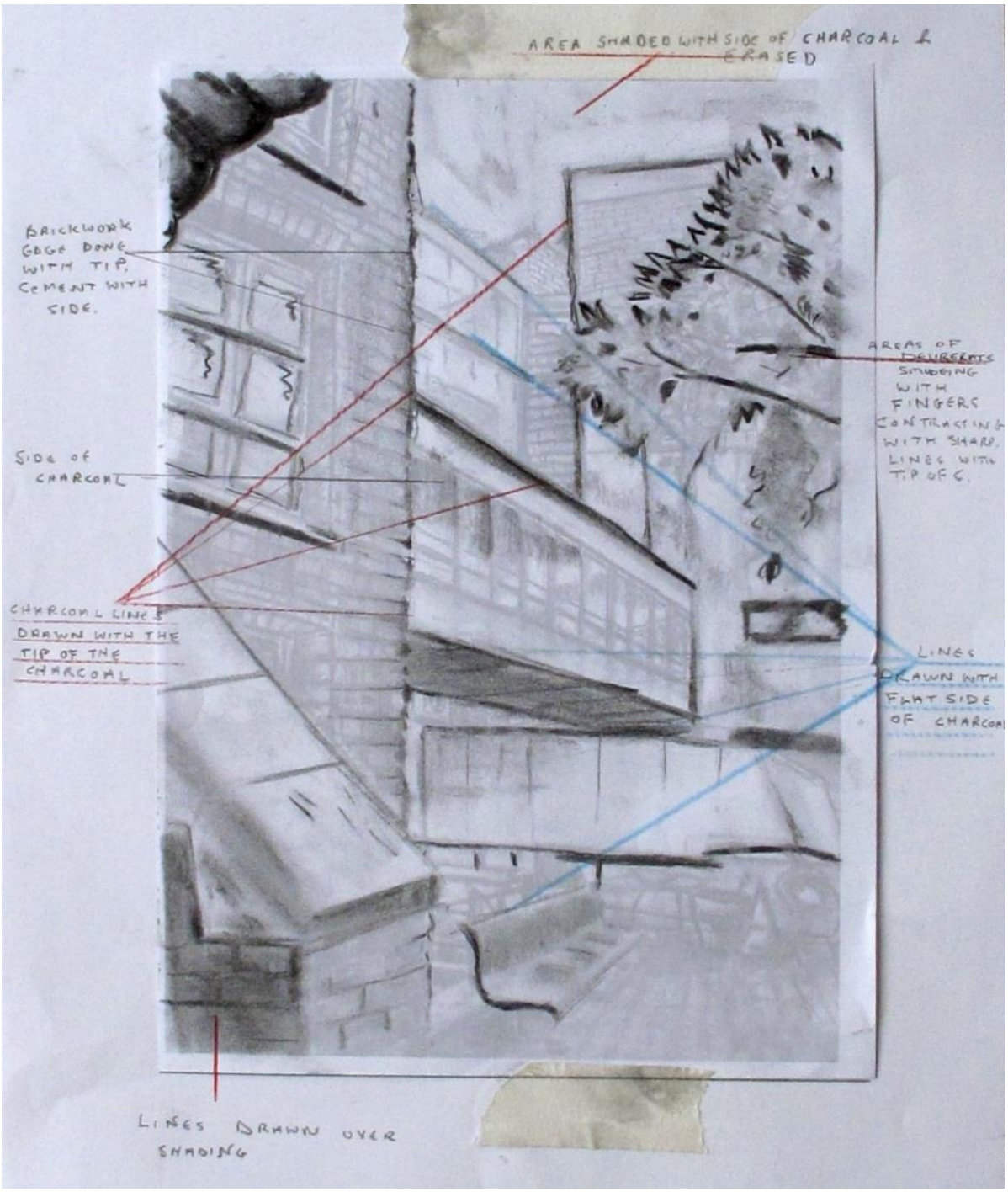


Fig. 34 Studio Notes: *Touch.* 2005-2015. Charcoal, pencil crayon, ballpoint pen and Photograph on 90gsm paper taped to 100gsm cartridge paper. 42 x 29.7cm.

5. Tone

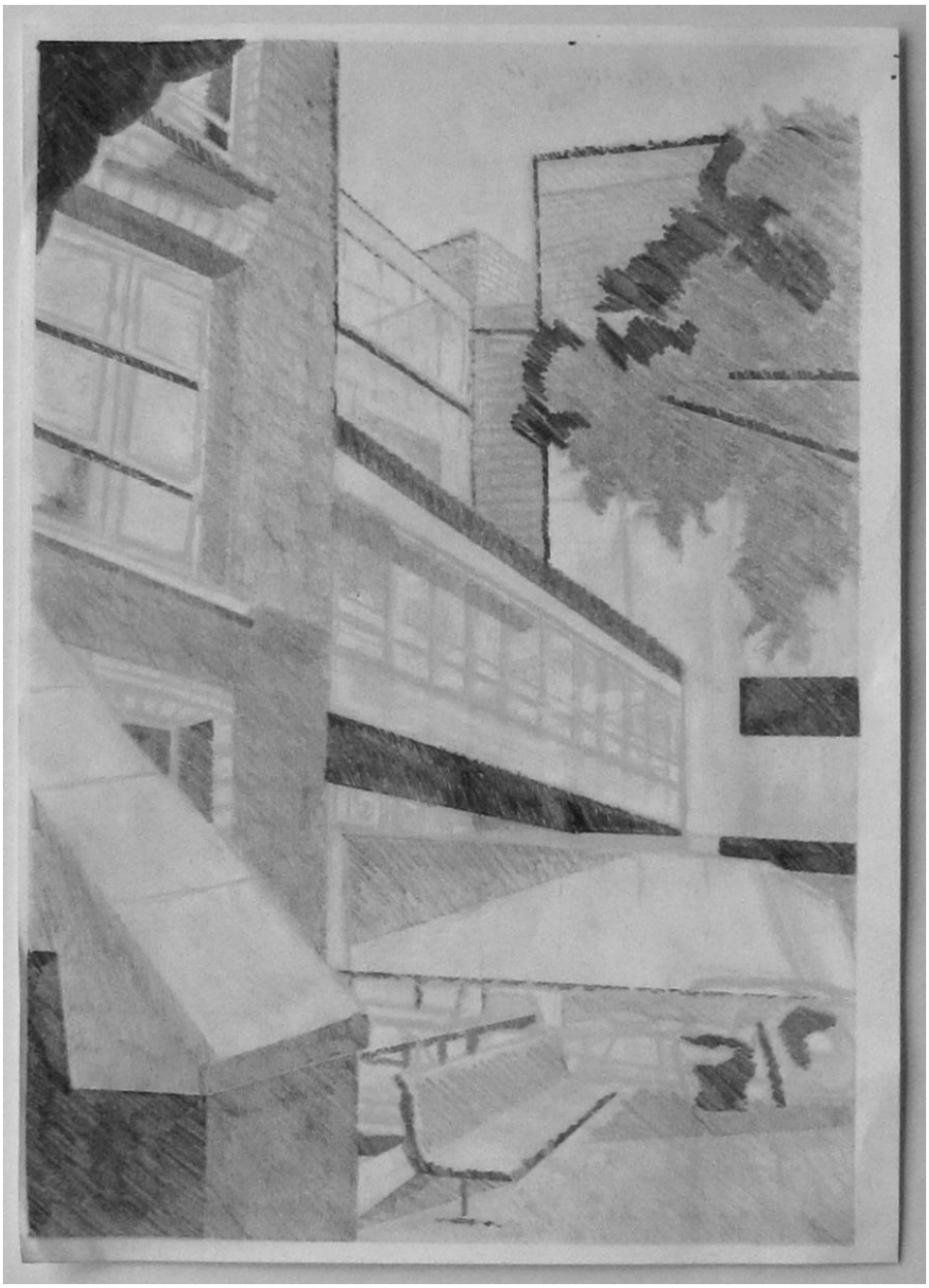


Fig. 35 Studio Notes: *Tone.* 2005-2015. 8B, 2B & HB pencils and photograph on 90gsm paper. 29.7 x 21cm.

Tone is connected closely to drawing via the use of a single monochromatic tool to make a mark. Drawing is a medium that is responsive to touch through tone and therefore encourages an intuitive use of tonal gradation in response to a subject.

Alongside the concept of spatial awareness, tone is the most effective device for introducing the appearance of three-dimensions onto a two-dimensional surface, and is subsequently of chief concern to the drawer. Recreating the drawing without lines (Figure 35, above) demonstrates the capacity of tone to distinguish between objects, to obviate the necessity of linear abbreviation and to direct the visual processing of the compositional structure of the drawing. Focussing on tonal values demonstrates drawing as a separate and abstracting processing of perception. By directing detailed attention to the difficulty of depicting a subject without colour, the *Camberwell* drawing moves beyond normative perception, repeatedly asking the question: What would this look like without colour?

6. Rhythm and Pattern

Drawing is a practice dominated by the gesture of the artist in response to observed/imagined phenomena, a pattern of gesture responding to a pattern of perception. The *Camberwell* drawing is dominated by repetition of types of marks and the repetition of groups of marks in response to the similarities between separate elements within the subject. Within drawings there exists a pattern and subsequent rhythm of marks that underlies the physiology of making:

> Just as the executive musician 'phrases' the shape of his melodic material, so too does the draughtsman 'phrase' his lines. He shapes them by means of rhythms, subtly varied, by inflecting them, breaking them, and causing them to spring one from another. This conception of linear phrasing is extremely important for the understanding of all drawing.
>
> (Rawson1969:95)

It is evident that the *Camberwell* drawing can be considered in terms relating to the relative similarity between objects/phenomena, the relative position/proximity of each to the other and the visual-graphic response through gesture. But this alone is not a condition of

drawing. In Figure 36 (Below), the repeated stokes, combinations and groups of lines have been highlighted, demonstrating the limitations of drawing, paralleling drawing to notation.

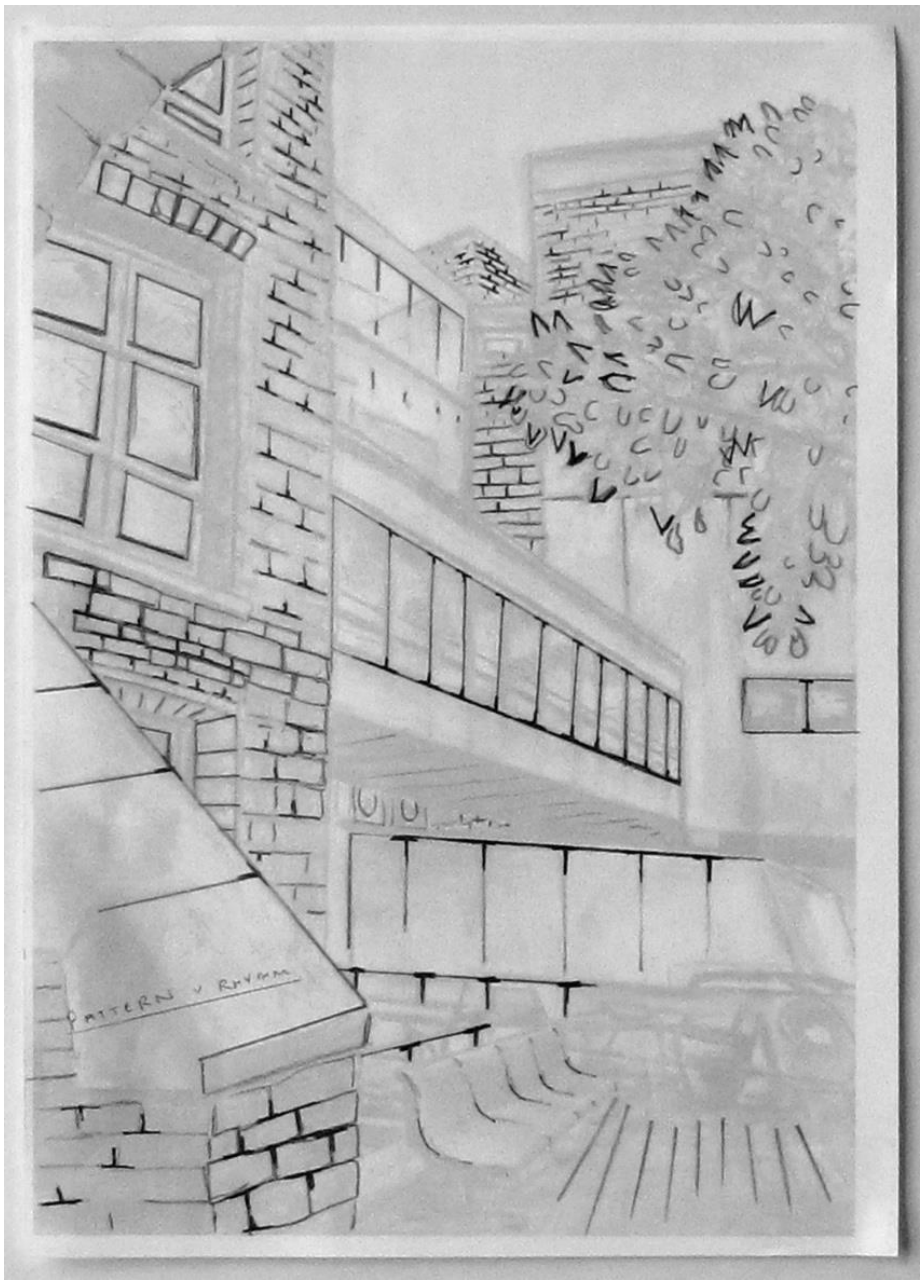


Fig. 36 Studio Notes: *Pattern/Rhythm.* 2005-2015. Marker pen, gel pen, 2B pencil and photograph on 90gsm paper. 29.7 x 21cm.

The drawn mark must convey a great amount of information within a small amount of material and gesture. It is in the abbreviation of phenomena that drawing exhibits a defining characteristic. When drawing the tree it is not possible to draw every leaf, a code of

suggestion is developed to understand and communicate the proliferation of a pattern that is similar, yet not identical. This requires the artist to make comparisons and to conjecture and, furthermore, requires participation of the viewer in the understanding of the image, wherein they may agree or disagree with the efficacy of a mark. In this way drawing develops a structure of perception that is co-constructed, that takes into account the understanding of the potential audience, a code that is supposed to be read but without the rigidity of the rules inherent to the written word.

7. Texture

The final component that demands attention in the original drawing is the understanding of the textural qualities of the drawn objects. Texture is used to separate areas of the drawing in terms of an illusion produced through technique and the use of actual materials. In this case the communication of a surface is an attempt at the illusionistic interpretation of physical material qualities with one medium and one ground (Figure 37, below).

Texture here communicates to the viewer an understanding of the haptic qualities of a drawn phenomenon, enabling the distinction between the smooth glass in the windows and the rough surface of the brickwork. In the *Camberwell* drawing textural variety is limited, but effective alongside our understanding of the observed subjects. The panel of the van, the concrete of the building immediately behind it and the stone of the handrail to the left of the drawing, are only marginally varied in texture but are recognisably distinct. The van is smooth and slightly dirty with an impacted dent and hint of a reflection that communicates metal, the concrete has the appearance of absorbed rainwater and the handrail the smooth, solidity of stone with the marks and scars of many years' use.

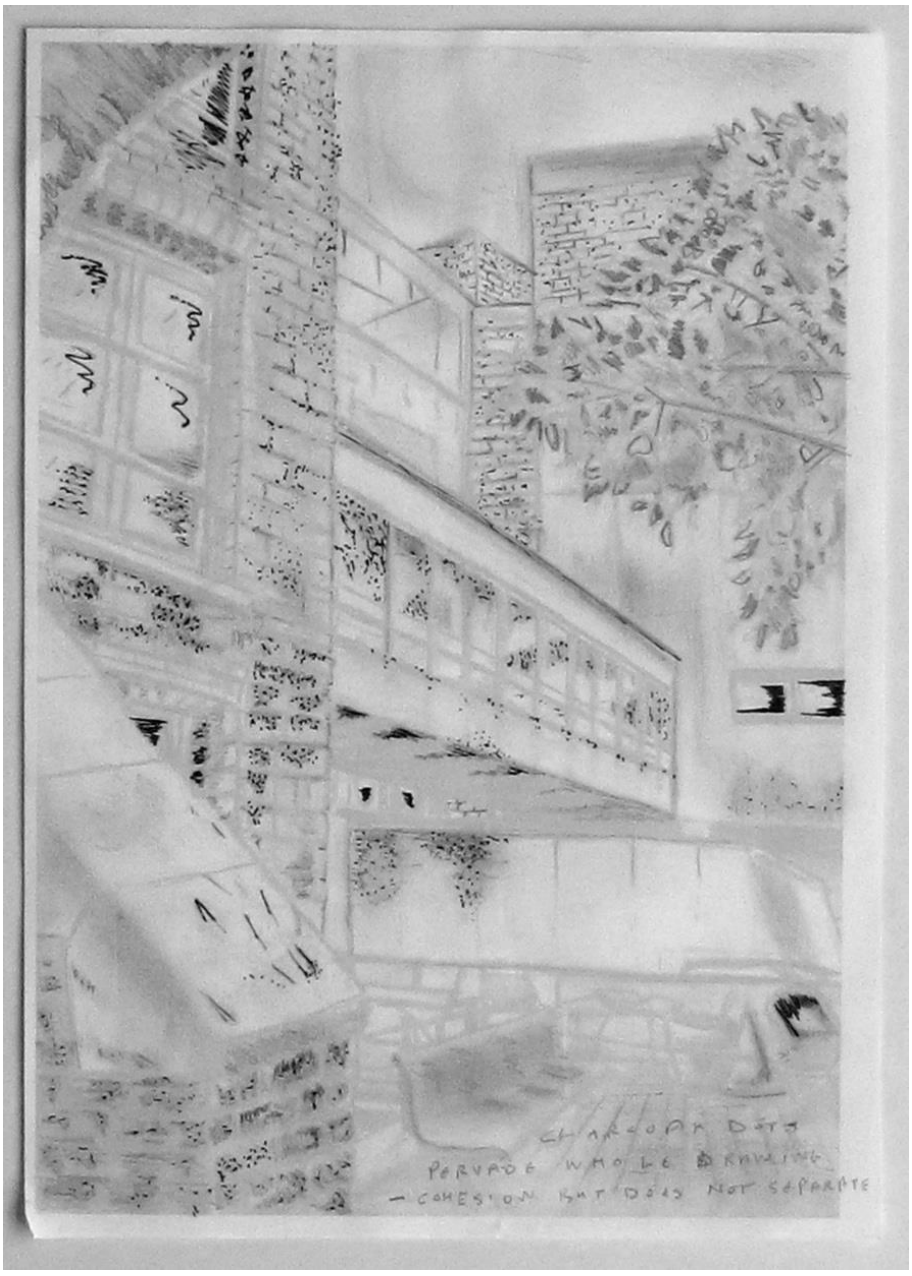


Fig. 37 Studio Notes: *Texture.* 2005-2015. Gel pen, 2B & HB pencils and photograph on 90gsm paper. 29.7 x 21cm.

Isolated from any concept of reality beyond the illusion of texture (Figure 38, below), it is clear that the marks only communicate the materials observed in conjunction with the remaining components, and when separated from the remaining visual prompts it would be impossible in this instance, to conclude what the marks in each case represented.

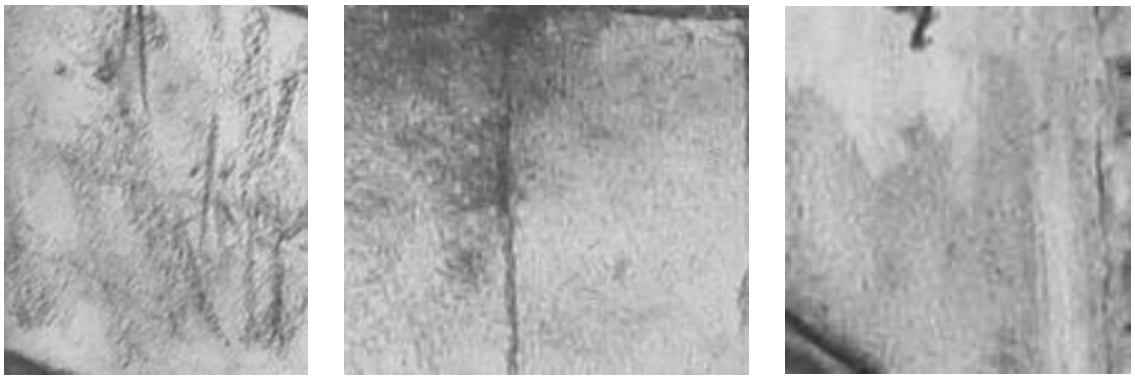


Fig. 38 Richard Monahan: *Camberwell* (Detail). 2000. Charcoal on paper. 84.1 x 59.4cm. From left to right: Stone handrail, Metal van panel and Concrete wall.

Like Pattern and Rhythm, Texture is most often defined by the abbreviation of phenomena, and subsequently conditions the artist to develop an appropriate code of communication. There is however, a further texture that underlies the whole of the drawing, the texture of charcoal on the surface of the paper which results in the mottled appearance of all marked areas. This underlines the physical fact of drawing, that drawing is process in response to a concept, limited by the materials used. Texture in this instance can be both an illusion and a reality. Textural values encourage an appreciation by the artist to perceive and communicate the similarities and differences between drawn objects, specifically relating to how an object would feel if touched. The number of marks involved in depicting texture in two-dimensions, force the artist, by ingenuity or concentration, to consider texture with perhaps greater focus than any other drawn consideration, and critically, within the limitations of material and gesture.

A justification for the compartmentalisation of drawing practice

By focussing on a drawing already committed, it is possible to consciously isolate formal building blocks that contribute to the translation of the subject onto paper and thereby

shape perception of the subject. By re-drawing those formal components that co-construct the original *Camberwell* drawing, a taxonomy identifying the building blocks of the drawing process, the *Components of Drawing,* is proposed:

1. Structural Composition
2. The Linear
3. Spatial Awareness
4. Touch
5. Tone
6. Rhythm and Pattern
7. Texture

The drawn hypotheses that are here presented as the *Components of Drawing*, were each chosen because they represent *a* core, formal perceptual understanding that is fundamental to the *Camberwell* drawing. However, in response to Gallie's assertion, to make a comprehensive taxonomy would be an essentialist fallacy (Gallie 1954:13-35). Therefore an acknowledgment must be made that this list is not, and cannot be, definitive nor exhaustive; an admission that re-opens the subjective versus objective debate initiated by Gordon Graham at the beginning of *Reflection on a Formalist ideology* (P. 34). To what extent can this taxonomy be accepted as an objective analysis of the *Camberwell* drawing, or of any drawing or any thing?

The theoretical lineage that precedes this study and the constructivist/participatory paradigm employed, asserts that reality is both objective and subjective, that the two are not mutually exclusive. This point can be established by consideration of the tree in the *Camberwell* drawing. On looking at any tree it is possible to say objectively that there is a

pattern to the tree in the repetition of leaves of similar types. It is unreasonable to argue that there is no pattern to the tree, that the leaves bear no similarity to one another. It could be argued as to the degree to which the leaves display similarities. Another onlooker may ascribe the difference between individual leaf shapes as the essential quality that defined the tree. The latter argument would still have for its basis the fact of the pattern of leaves, for in arguing that a leaf is defined by its difference to its neighbours, the implication remains that there must be a similarity for this difference to be a defining feature, otherwise the statement becomes a truism. It could be further argued as to the relative degree of importance placed on pattern as a device within drawing to communicate the idea of a tree. That the pattern exists is a reasonable, objective statement, to which a reasonable subjective question might be, to what extent is it a consideration to the drawer?

Far from undermining the study, answering this question strengthens the argument that drawing structures perception, for the identification of the *Components of Drawing* do *not* in themselves constitute an original contribution to drawing philosophy, the original contribution being their collation, development and subsequent application to drawing analysis and, critically, to the concept that drawing structures perception.

There is a long history of artists and theorists creating similarly componential taxonomies. Rudolph Arnheim (*Art and Visual Perception* 1954) and Philip Rawson (*Drawing* 1969), adopt similarly applicatory taxonomies to structure their texts. Howard Riley's teaching methods promote the separation of drawing into the distal, the proximal and the haptic qualities of the subject. In primary school education, terms such as colour and texture are displayed throughout the art classroom. And the fact that similar taxonomies continue to be adopted in contemporary drawing research here, and in Jenny Wright's [viii] *Drawing Skills Criteria,*

'line, tone, tactility, observation of structure, together with use of drawing materials', (Wright 2014) for example, forwards the notion that there exists a collective understanding amongst drawers that persists across generations of art movements. This further suggests that there is a *collective subjectivity* based on drawing as an interpretive tool, or as I argue: *that drawing structures perception.*

With this in mind, whilst I chose the components of drawing and my practice led the analysis of each, the notion that I chose the *Components of Drawing* entirely subjectively cannot be supported. The *Components of Drawing* exist to a greater or lesser extent in all drawings, conditioned through experiential engagement with drawing, through the history of drawing and through the teaching of drawing - it is difficult to find a drawing that does not contain most of the *Components of Drawing*. To this extent the components exist as objective fact. This study is founded on the assertion that there exists within drawing practice, manifest components that are inherent to the process, that can be recognised objectively and interpreted through the constructivist paradigm, asserting that all objectivity is to some extent, subjective.

Consistent drawing practice is a continual process of re-engaging cognitively and physically with the task of translating a subject into marks on a ground. The changes over time, to drawing technique and understanding, develop slowly, sometimes imperceptibly. Proof of this can be observed in the conventions of drawing that are inculcated at school. The alteration from childhood drawing to adult is a slow set of conditioning that encourages students to alter their perceptions to the established conventions of drawing. The drawer then continues this development, which inevitably becomes more personal, but nevertheless, develops within the boundaries of making marks on a ground. The

Components of Drawing are an attempt to understand the limitations of this physical act, as well as the cognitive understanding that underpins it. Just as we can claim that art education is shaped by philosophical ideals that in turn shape our approach to art, it may be asserted that the process of drawing shapes the drawer by the unique set of cognitive and physical conditions under which it progresses. In this sense, drawing is *both* limiting and universally applicable. As drawing practice progresses, the structures that define it as a process are manifestly incorporated into the perceptual understanding of the artist, creating a conditioned, prior thought that affects perception. The drawer's innate ability to *become aware*, is conditioned through the translation of real or imagined phenomena into two-dimensions.

Within this study the *Components of Drawing* are not approached hierarchically, because each component is related to the other. In this sense it is more appropriate to consider the components as a synthesis of interconnected drawing strategies, a number of which are inevitably involved in every drawing to a greater or lesser extent (Figure 39, below). Drawing is a mode of interpretation that continually forces drawers to question the interpretation of perception in the context of that which is possible within the drawing process. Elements of perception that are not directly relevant to the individual for survival, are essential in drawing perception. This indicates that drawing adopts a different set of hierarchies to survival perception.

The drawn hypotheses in response to the *Camberwell* drawing, offer a formal interpretation of the drawing process as an alternative mode of perception to that used in everyday life, and which is divided into seven parts: *The Components of Drawing.* The following seven sections, explore each of the components through drawing, whereby practice is employed to

further interrogate the concept that drawing structures perception and that conscious acknowledgment of this structure can develop practice. Given that this enquiry is practice-led, it can be perceived as a case-study concerning a series of original drawings and interpretations which contribute to the body of knowledge that conditions this research. This process draws on a multitude of notes, scribbles, diagrams and sketches as a means of explicating the hypothesis. The ideas are further explored through three major bodies of work: the *Portrait Series*, the *Wallpaper Composition Series* and the *Portrait with… Series*. The analysis of artworks proceeds with thematic relevance to subject, as opposed to a chronological survey.

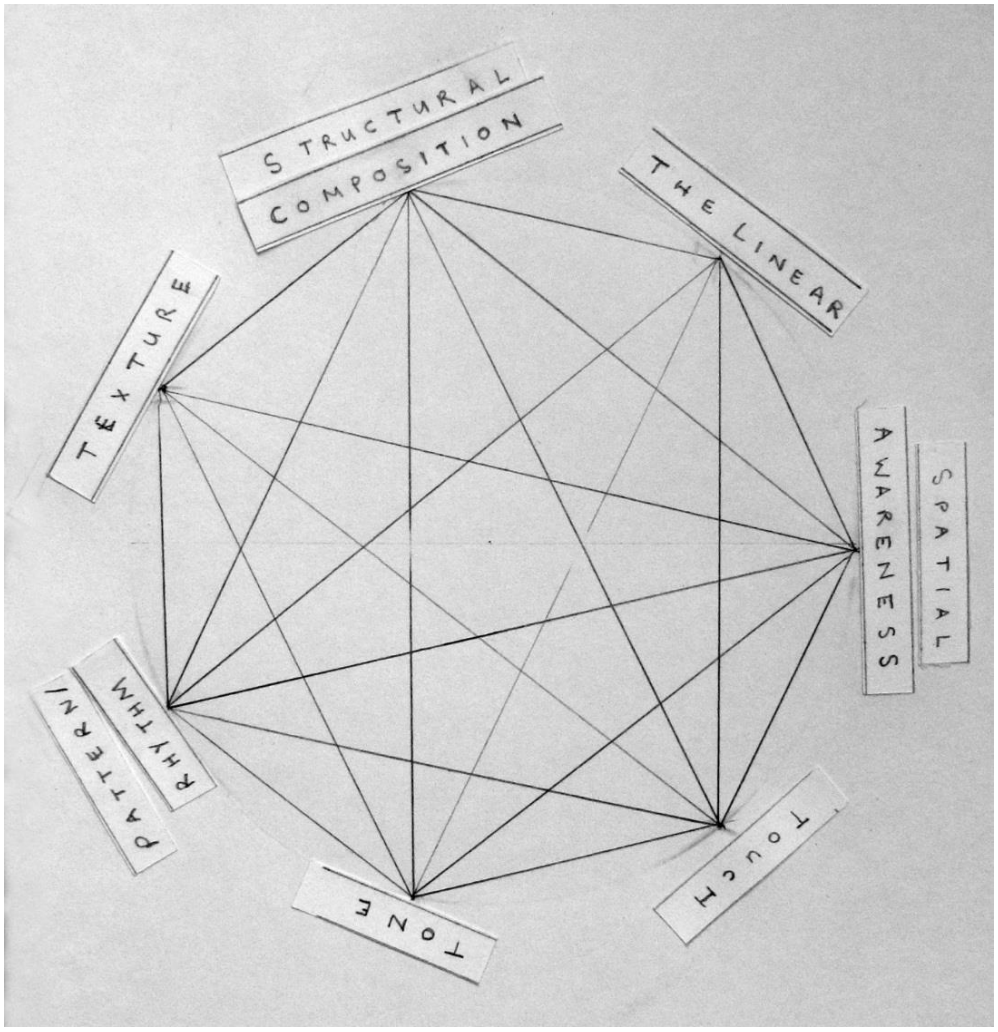


Fig. 39 Studio Notes: *Non-hierarchical taxonomy of The Components of Drawing Practice*. 2005-2015. Pencil on paper. 22 x 20cm.

Part II: The *Components of Drawing*

Component 1: Structural Composition

As a 'drawing develops, its demands upon the draughtsman begin to take precedence over those of the object (or idea) before (or within) him; the drawing asserts itself as the main object of concern, the primary other in the subject-object relation.'

(Rosand 2002: 13)

The drawing process comprises an integration of thought and act developed to interpret phenomena in two-dimensions. Drawing does not create a physical replica of a subject or idea, but is a translation ultimately expressed via the trace of gesture across a surface. Removing the subject and considering the act of drawing concretely, marks are made across the surface of a ground, creating a graphic, two-dimensional composition. The nature of drawing, a process of continual re-evaluation, conditions drawers to understand drawing as a structural, compositional whole made up of smaller components. The concept of composition is multi-faceted and person-specific. However, fundamental to each drawer is the creation of visual information within a restricted boundary, a tradition that pervades drawing practice inside and outside of art education. Focussing on the restricted boundary as the initiator of compositional percept, the following sub-sections explore *The rectangular ground* and *Negative space* as an embedded psycho-visual response.

1.1 The rectangular ground

Returning to the *Camberwell* drawing (Figure 40, below), *Structural Composition* determines the underlying dynamic of the drawing. This in turn is dominated by the shape of the ground, controlling the scale, limitations and the implications of each mark committed. The paper shape has projected a non-existent rectangular perimeter onto the perception of the

subject, allowing the drawer to predict a future composition in response to the ground shape, the subject is perceptually edited through drawing.

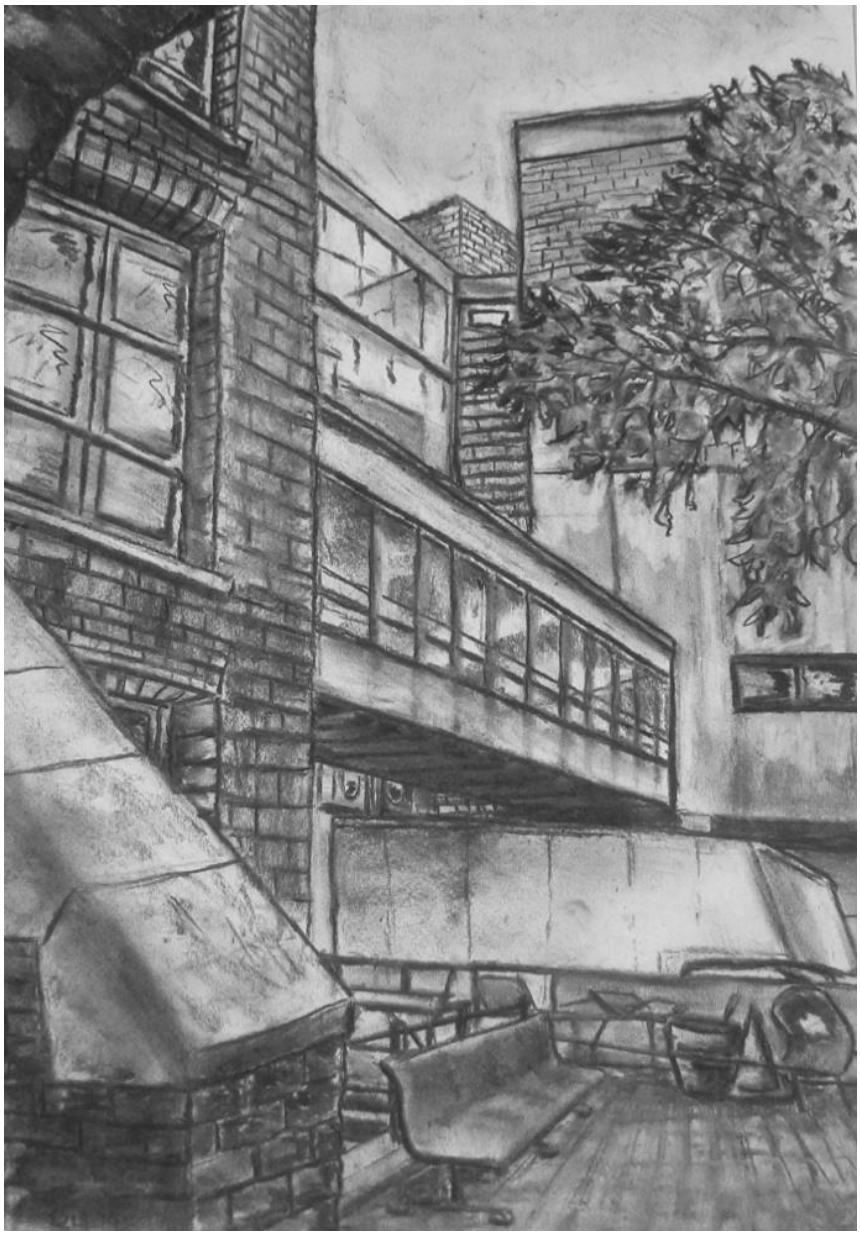


Fig. 40 Richard Monahan: *Camberwell*. 2000. Charcoal on paper. 84.1 x 59.4cm.

It is remarkable then that the traditional rectangular paper shape, designed for ease of manufacture, is so universally accepted as the shape on which to make a drawing. From those first drawings committed to paper as a child, the rectangle exists as a normative physical perimeter to the drawn mark. Subsequently a perceptual perimeter exists as an

embedded compositional ideology within which we contemplate aesthetic variants. The effect of the rectangle, if used, can be observed in decisions made during any drawing process.

Portrait with circle (Figure 41) is dominated by a circle that is off-centre towards the bottom-left corner of the card. The figure and circle are drawn first, the background of sea-creatures is added retrospectively and at a slower pace, with a more considered, schematic technique. The pace of the second layer of drawing affects a greater awareness of the impact of each mark on the development of the composition. Working from the bottom-left upwards, the drawing pauses at the point illustrated in Figure 41. Figure 42 then shows the completed drawing. At the moment of hesitation it may be stated that there are a greater quantity and density of marks in the bottom-left of the drawing. To this fact may be added a further, that the figure in the drawing is rooted to the bottom-left by the lines of the body that meet the perimeter (See *2.2: The duality of line*).

At this moment of indecision as to how to continue, some element(s) in the composition demand a response, the drawing becomes “the primary other in the subject-object relation” (Rosand 2002: 13). As the drawing continues, an intuitive sense of balance leads to the addition of five more sea-creatures progressing towards the top-right of the composition.

However, positing intuition as an instinctive response to experiential knowledge, an intuitive need to add to the composition must be based in a deep-rooted, and critically learned, understanding of compositional structure. Whilst it is not possible to assert that another artist would have responded in a similar way in completing the drawing, nor that the drawing is made more complete or aesthetically interesting by the additions, it *is* possible to analyse the root-cause of the need to respond.

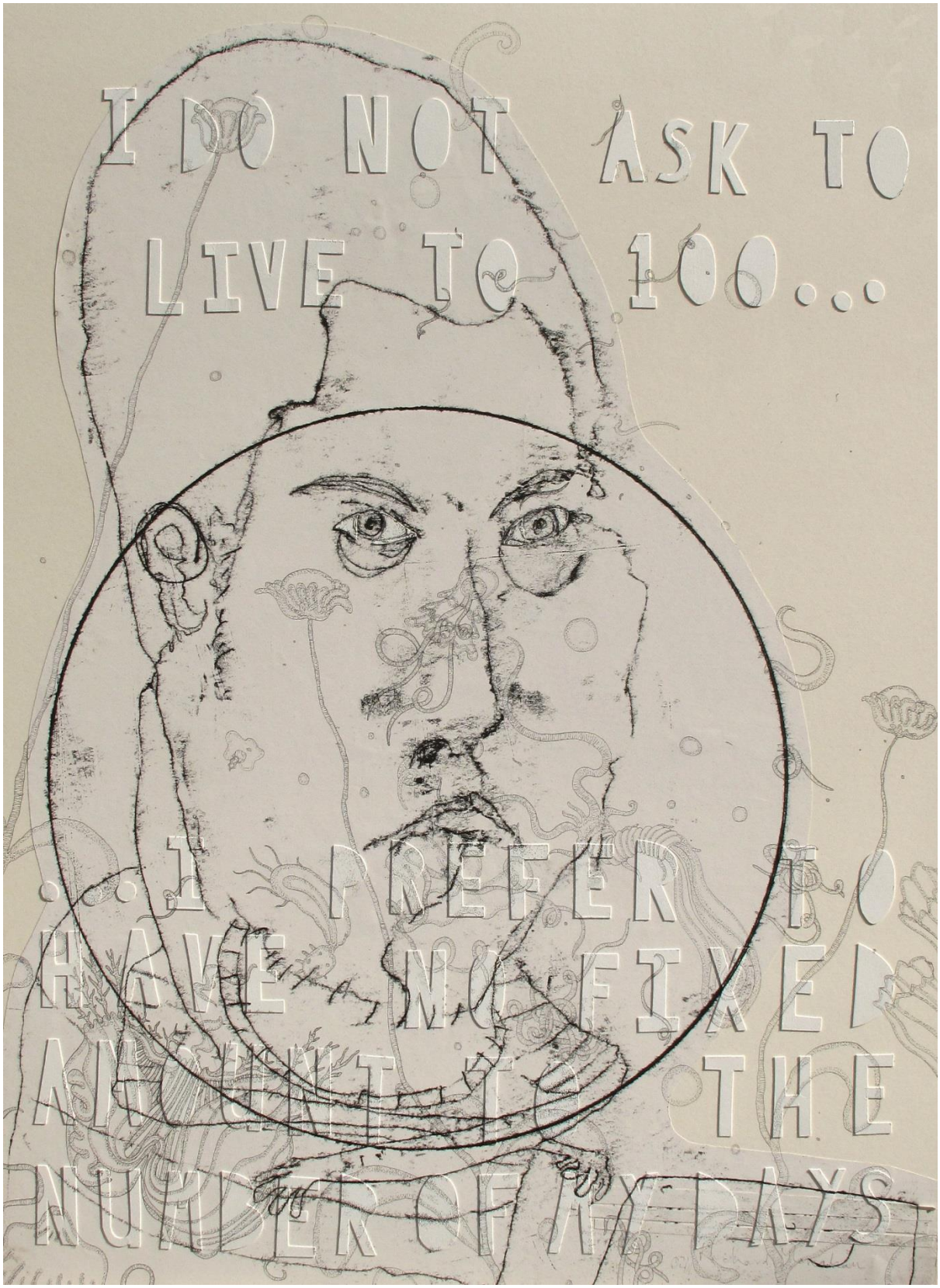


Fig. 41 Richard Monahan: *Portrait with Circle incomplete* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84 x 60cm.

Fig. 42 Richard Monahan: *Portrait with Circle* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84 x 60cm.

A large part of learned behaviour in drawing practice could be said to stem from the repetition of a process in making, that of self-led response to the physical conditions of drawing. Prior to beginning a drawing, the blank ground exists as a familiar composition in its own right. At its outer limits it denotes a rectangle of blank space within the environment. Within that space and due to its particular shape, there are already present certain dynamics relating to the length of the sides and the number and angle of the corners. To an extent the future drawing is pre-determined, already completed by the decision to use a particular shape of ground.

It is possible to react to these boundaries, to make a line and to observe its impact on the dynamics of the page, to observe how it affects previous marks, or how it impacts on the space between the marks and the dimensional limitations of the page. However it is not possible to be totally free from the influence of the ground. Three studies spanning the history of modern art, offer an amount of objective reasoning to the dynamics of the page.

1.1.1 Denham Ross and Balanced Design

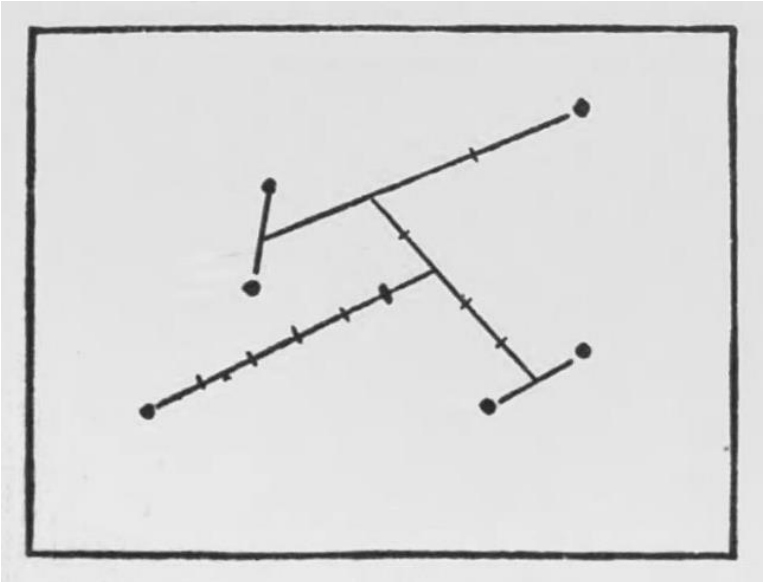


Fig. 43 Denham Ross: *A composition of lines and dots forming a 'Harmony of Positions'.*

The composition illustrated above is designed by the artist and theorist Denham Ross (1853-1935)[ix]. In *A Theory of Pure Design: Harmony, Balance, Rhythm*, Ross argues that *harmony of positions* is achieved where the composition is balanced in terms of the relationships between one mark and another, and the location of those marks on the ground. Ross argues that balanced design references a central axis to which he attributes the principal control pertaining to the *equilibrium* of the composition.

> In ascertaining just where the centre is … we depend upon visual sensitiveness or visual feeling, guided by an understanding of the principle of balance: that equal attractions, tensions or pulls, balance at equal distances from a given center, that unequal attractions balance at distances inversely proportional to them. Given certain attractions, to find the center, we weigh the attractions together in the field of vision and observe the position of the center.
>
> (Ross 1907: 23)

Ross proposes the use of a rectangular frame as a device with which to test out this theory. When the framed is moved in relation to the marks on the page, the centre is likewise moved, and the composition becomes 'unbalanced'. Below the balanced design by Ross is re-drawn and re-positioned within a rectangle without rotating it.

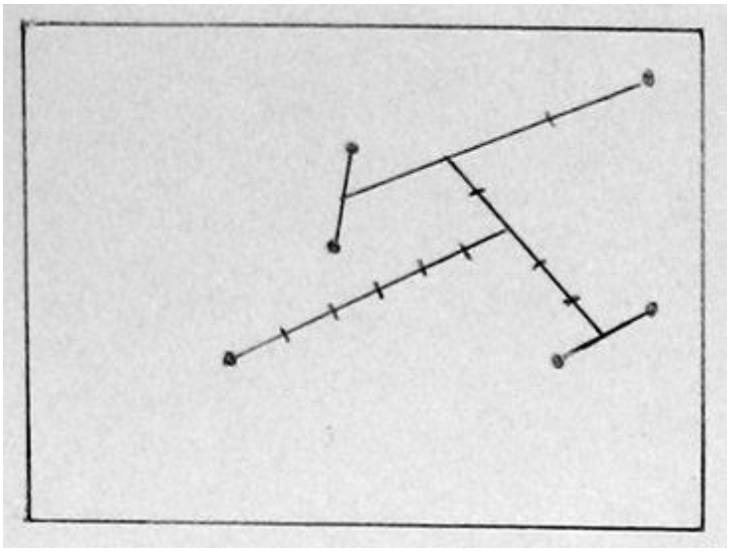


Fig. 44 Studio Notes: *Variation to Ross design.* 2005-2015. Ballpoint pen on paper. 7.5 x 10cm.

It is clear that the boundaries within which the work is produced affect the dynamics of the composition. Ross' composition is spatially balanced in the same way that a mobile is gravitationally balanced, and this sense of equilibrium is disturbed when the composition is moved. Where the composition is re-located to the upper right-hand corner, the border interacts with the composition. The shape of the design and the unequal interval between its extremities and the horizontal and vertical sides of the ground, give the composition the sense of belonging to the upper right-hand corner, but motivated towards the bottom-left. The centre of the design is motivated towards the centre of the ground. This sense of directional pull is evident in *Portrait with circle*, where the composition is concentrated in one corner and the circle, representative of a centre, is off-centre. The composition appears rooted to the bottom-left but motivated towards the top-right.

1.1.2 Arnheim's Structural Skeleton

As a continuation to Ross, Rudolph Arnheim in *Art and Visual Perception*, analyses the impact of the ground in terms of *perceptual forces*, describing the relationship between the edge and the centre of a square, the centre suggestive of the circular in opposition to the horizontal and vertical edges. Arnheim attributes a sense of compositional balance to the dynamics associated with the diagonal axis and the horizontal and vertical axis. Prior to beginning a drawing the page is compositionally balanced, but is prepared to be upset by the potential draughtsman. Arnheim describes these suggested and yet un-delineated forces in his sketch 'The *structural skeleton* of the square' (Figure 45). Arnheim argues that an object placed within a field of such balanced force is bound to cause the balance of those forces to change, the dynamics to be re-adjusted.

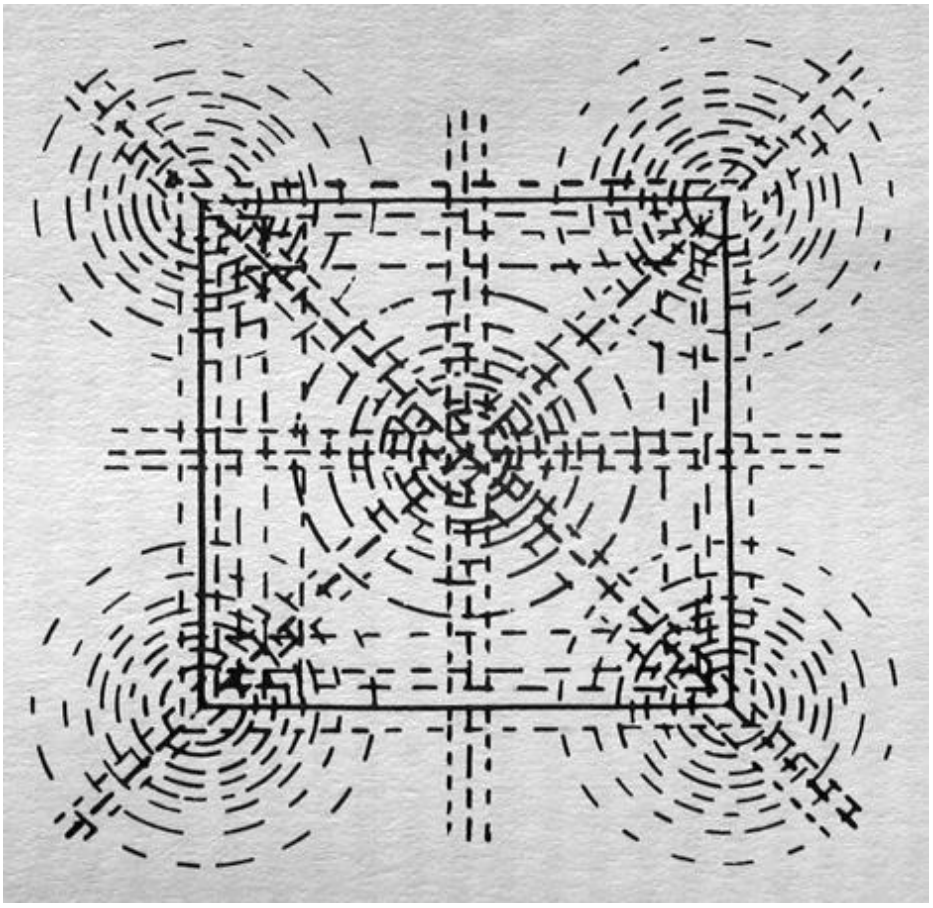


Fig. 45 Rudolph Arnheim's *Structural Skeleton of a Square*.

In 1991, the artist Robert Motherwell (1915-1991), demonstrated this idea during a filmed interview in (Tatge 1991). In the film Motherwell applies a mark to a ground and remarks upon the fact that this particular mark forces him to make the next mark, he does not have a choice in his mind, the mark and its disturbance to the balance of the ground shape, forces him to counter-act it with another, the two marks then suggesting another, and another mark until he reaches a point at which the image regains a sense of stability. The first mark committed to the ground appears to be the only mark made with an element of freedom of choice, though this is still influenced by the ground upon which it was applied and the pattern of signature inherent to Motherwell's working method.

Arnheim's study is less subjective. Placing a circle on a square, he discovers that the centre is the most powerful point of balance; he finds that the circle is most *content* when placed

upon a definite part of the structural skeleton, least content when it appears to hover between two areas. He also finds that the circle, whilst content with its centre upon the diagonal axis midway between centre and corner, will always be drawn to the centre as though the force is more powerful there. To attain equilibrium the circle must be placed nearer the weaker corner and further from the powerful centre (Arnheim 1954: 13).

1.1.3 Paul Locher, Els Cornelis and Johan Wagemans on compositional balance

More recent research appears to add weight to both theories. In a study conducted at the *Academy of Fine Arts*, Leuven (Paul Locher, Els Cornelis, and Johan Wagemans 2001), students were each given a rectangular ground and a number of black shapes with which to create a composition. It was found that participants used the centre as a balancing point from which to construct compositions, balancing the composition with an equal amount of surface area either side of the vertical, horizontal or diagonal axis.

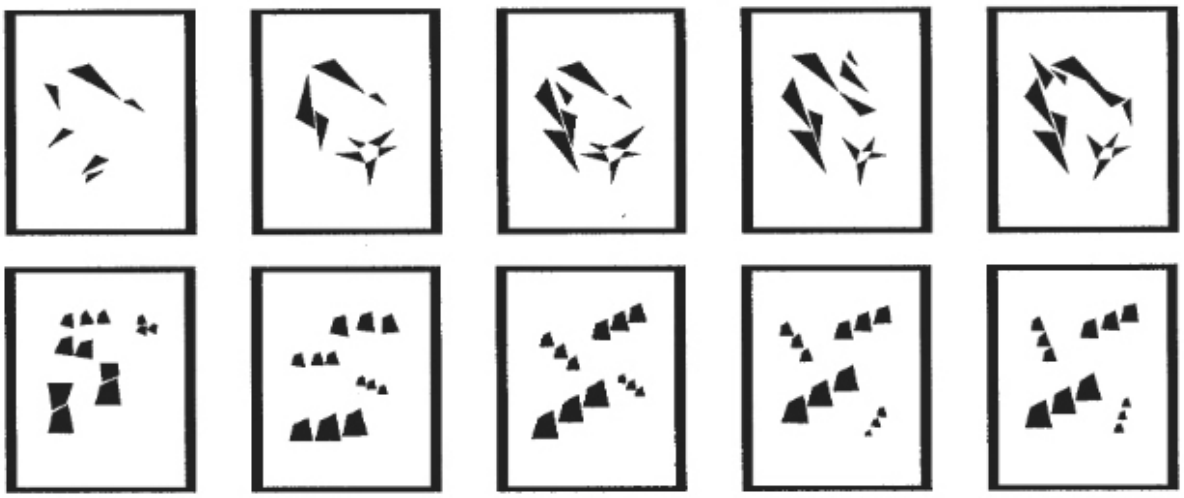


Fig. 46 P. Locher et al: *Artists' use of compositional balance for creating visual displays/The development of two compositions over a 30 minute time period.*. (Locher et al 2001: 213-227)

The study concurs with Ross' theory that there exists an embedded sense of balance in our perception of a rectangle that can influence the positioning of marks within the perimeter. This cannot be regarded as an aesthetic rule however; there are many examples where

compositions reach a state of balance outside of the central axis of the ground and there are many examples of artworks that do not seek balance. However it does identify an innate understanding and desire for balance and order within the aesthetic sensibilities of artists.

1.1.4 Compositional balance through practice

Between 2005 and 2011, a series of rapidly completed self-portraits are produced that juxtapose an abstracted and minimalised Earth symbol in the form of a circular motif within the rectangular boundary of the paper:

Fig. 47 Studio Notes: *Portrait working drawings 10 & 22*. 2005-15. Monoprint on cartridge 120gsm paper. 84.1 x 59.4cm.

The intentional misalignment of two balanced shapes creates a compositional frission that introduces a sense of tension to the image communicated through the drawing. The

progression of the drawings finds that, where a slight misalignment is introduced, the regular shapes that are the circle (or the suggestion of a circle) and the rectangle, can be instilled with a corrective dynamism. The interplay of relationships scientifically analysed by Ross, Locher et al, and Arnheim, are arrived at experientially through the drawing process. When their reasoning is applied to an experiential history of practice, and ultimately to the drawing that began this sub-section, *Portrait with circle* (Figure 42), a level of objectivity is introduced to seemingly subjective compositional decisions, a justification of the constructivist paradigm.

The drawing combines two certain, symmetrical, geometric shapes, a circle within the rectangular ground. Figure 48 illustrates the positioning of the circle on a blank page. The circle dominates the composition but is slightly off-centre Therefore it disrupts the symmetry and balance of the two dominant shapes. This poses a visual difficulty as we viewers attempt to right the imbalance, giving the circle the appearance of drawing towards the centre. The sense of dynamism of the dominant shape is therefore, along the diagonal axis, from bottom-left to top-right. The circle, as an initial part of the drawing sequence, plays an influential role in the development of the drawing, conducting it along the diagonal axis.

In *Portrait with Circle,* the greatest quantity of marks are divided roughly equally along this diagonal axis. The decision to add sea-creatures to the top-right corner, suggests a subconscious subservience to the dynamic of the diagonal and can be traced back to the initial figure drawing, where the equal quantity of monoprinted marks made either side of the diagonal, are indicative of an attempt to balance the drawing either side of the diagonal axis (Figure 49).

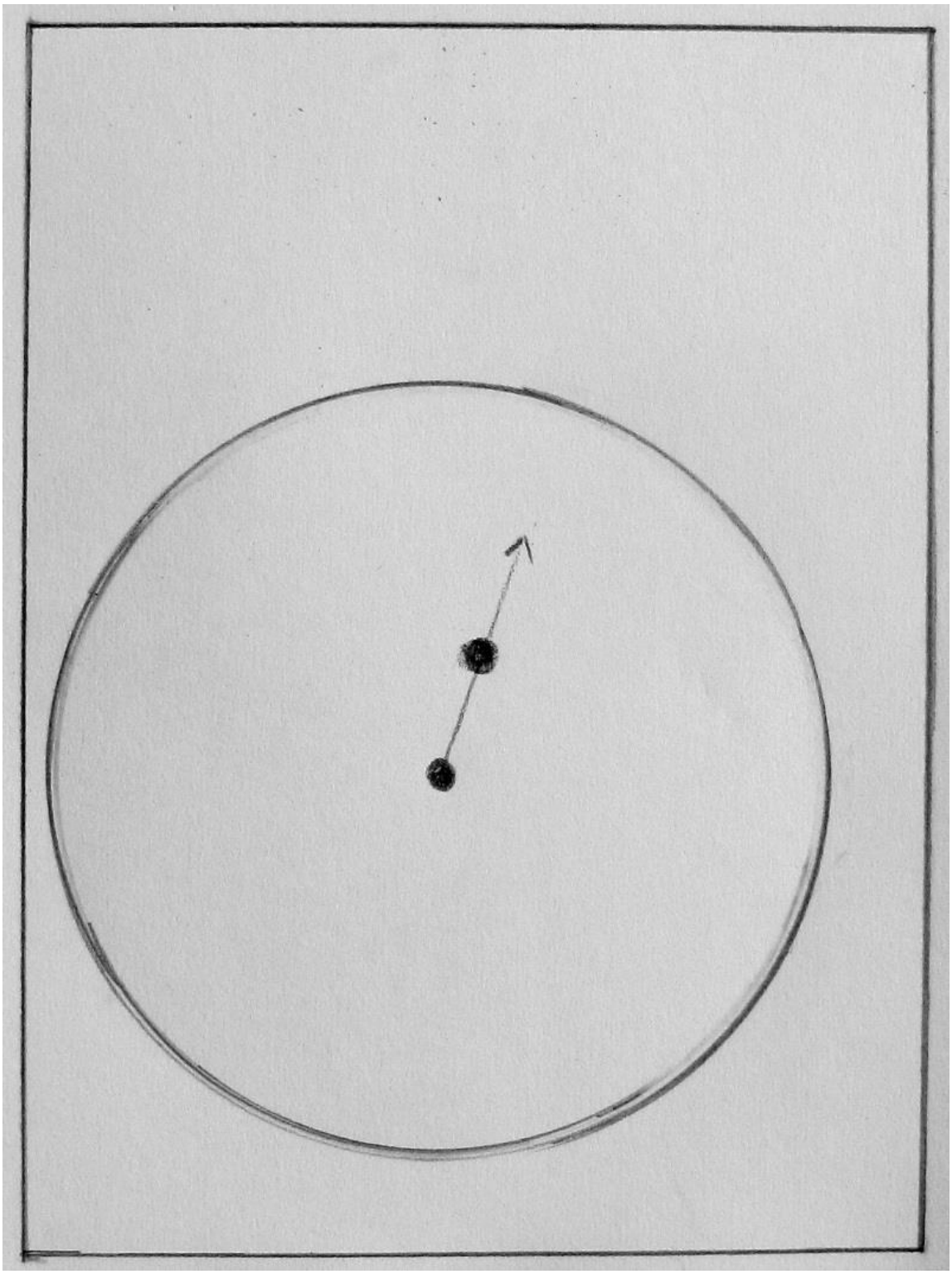


Fig. 48 Studio Notes: *Dynamic motivation of a circle on rectangular ground IIII.* 2005-2015. Pencil and crayon on paper. 29.7 x 21cm.

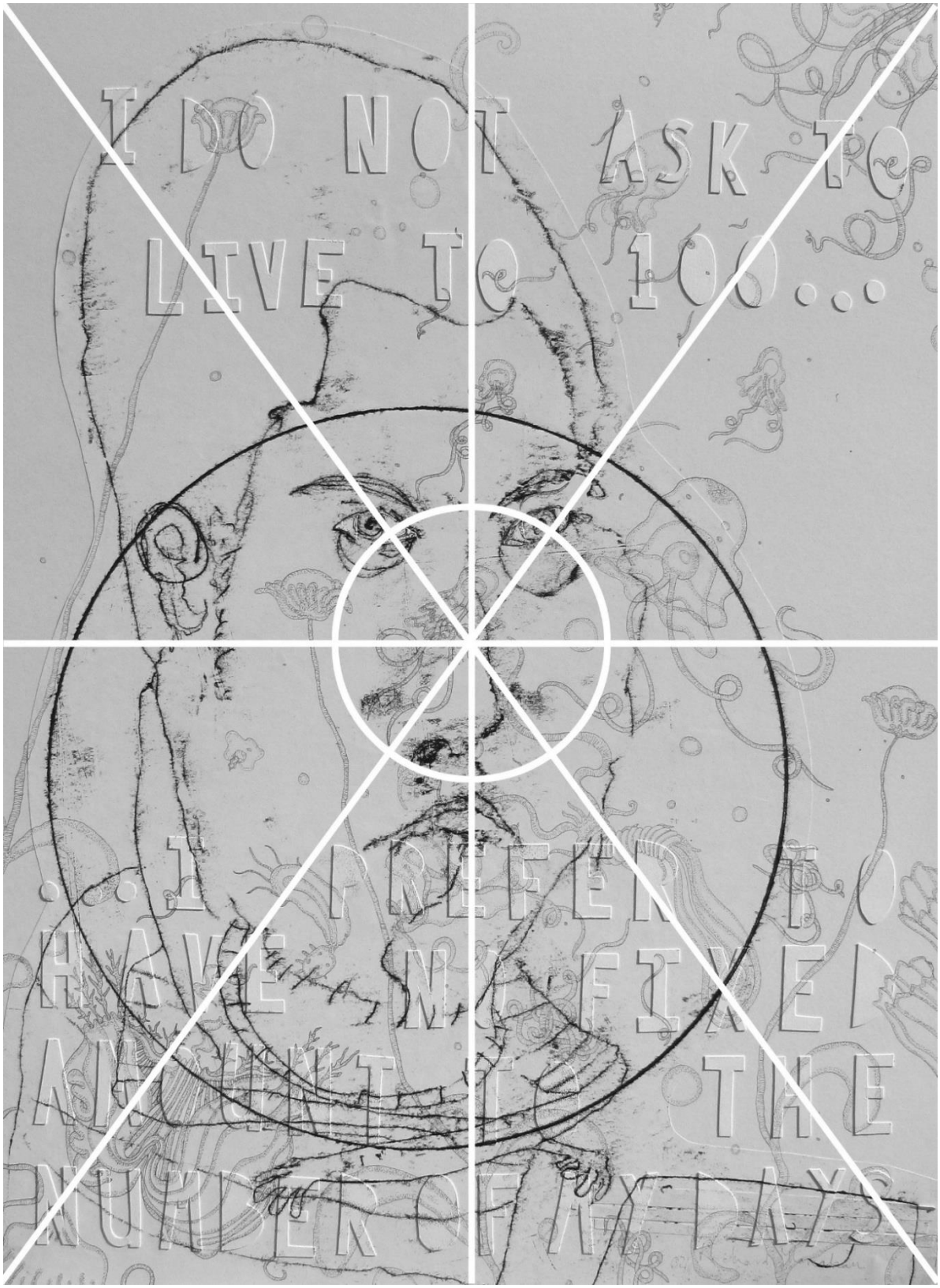


Fig. 49 Studio Notes: *The dynamic motivation of a circle on 'Portrait with Circle'*. 2005-2015. Digitally manipulated photograph.

The findings from these drawings were developed more consciously in *I did not see a vision…* (Figure 50, below). Here a sense of corrective counter-balance is consciously employed by arranging a concentration of those sea-creatures that are darkest, and therefore most visually apparent to the viewer, to the left of centre:

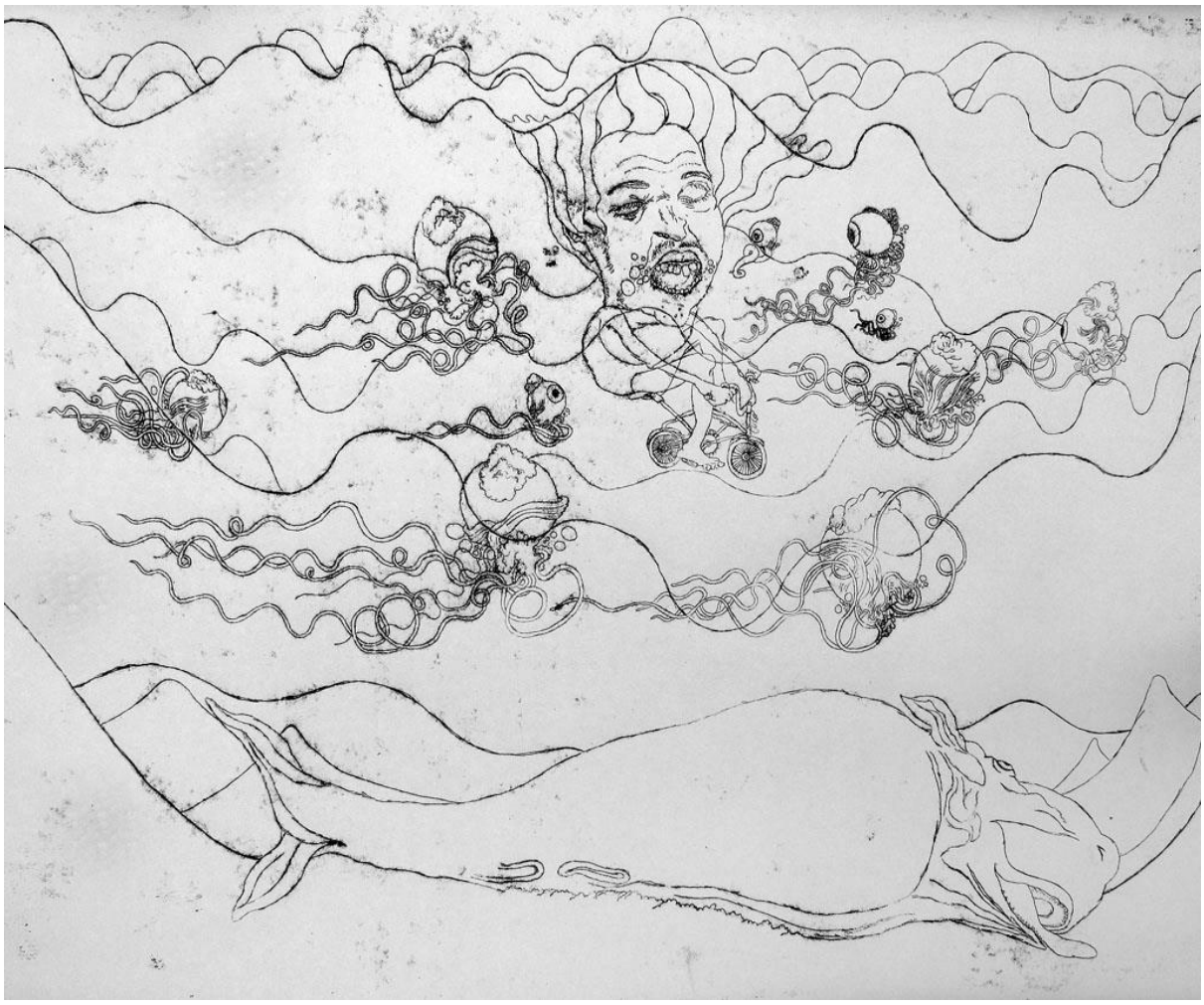


Fig. 50 Richard Monahan: *I do not ask to live to 100...I prefer to have no fixed amount to the number of my days* (Incomplete). 2011. Monoprint and pen on paper. 120 x 150cm.

The off-centre location animates the sea-creatures with a sense of directional velocity that is greater than the remainder of the monoprinted drawing and of higher contrast than the subsequent over-drawings. The result is a dynamic bias towards the centre of the drawing,

so that the creatures appear to be on the verge of overtaking the cyclist, the other monoprinted sea-creatures and the background sea-creatures (Figure 51, below).

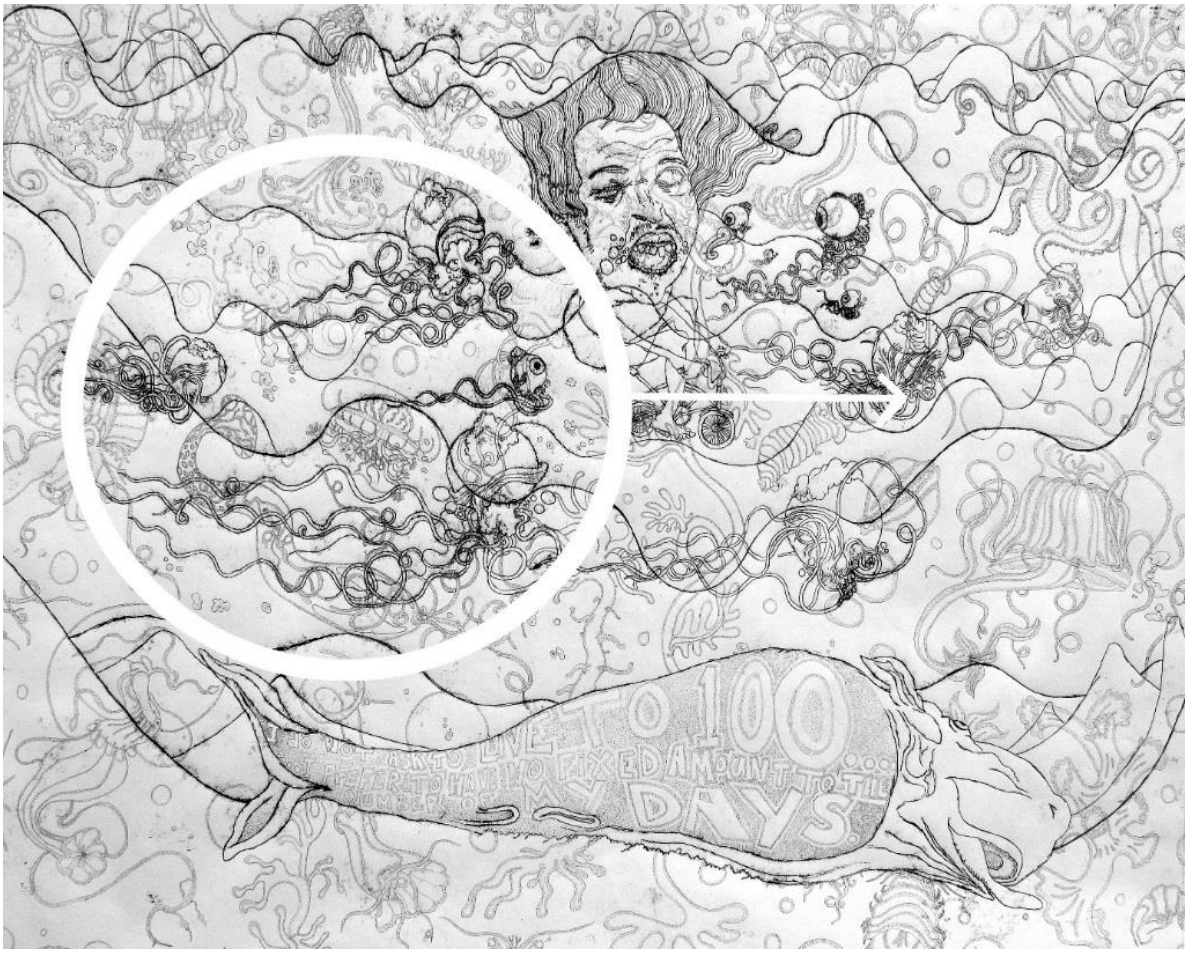


Fig. 51 Studio Notes: *Motivation towards the centre in 'I do not ask…'* 2005-2015. Digitally manipulated photograph.

Conscious acknowledgment of an innate need to balance enables the drawer to exert greater control over the communication between themselves and the viewer. The rectangle is a dynamic operating prior to a drawing's beginning. Like a pebble thrown into water, each mark disturbs the composition of the drawing around it. As a drawing progresses, each mark is a calculation in reference to this balancing act. Whether the intention is to achieve balance or to overthrow it, the process is made one step at a time. Each step is therefore under consideration as an individual, heuristic, calculation and in reference to a restricted

boundary. This idea is critical to the hypothesis as it is ingrained within the cognitive, creative strategy of the artist through drawing, and is a prior conditioning that aligns the structure of perception to a drawing-centred construction of reality, operating before a drawing begins, for example: in the choice of location for the *Camberwell* drawing.

1.2 Negative space

Negative space in drawing can be defined either as representing the areas of the drawing untouched by the artist or as the areas that are not enclosed within the subject(s). Depending on the outcome of the drawing, the method by which it is produced and the environment which surrounds it, either the mark or the ground will become the dominant visual factor, and considered by the viewer as positive space.

The most common format for drawing is a process in two-dimensions within a restricted boundary, utilising opposing tones for ground and medium. Within these parameters, the moment a mark is committed to ground, the compositional relationship between that which is drawn and that which is undrawn, is a dynamic that is constantly developing, affecting both the composition of the drawing and subsequently, the way in which form and space are perceived.

1.2.1 Negative space as an alteration to perception

The acknowledgment of negative space as an entity is a mode of perception that is utilised in drawing to re-see a subject or drawing. Negative space can be employed as a mode of corrective reasoning, to pre-emptively, or retrospectively, determine the accuracy of a drawing to its subject. When perceived through the lens of negative space, a subject is brought into the realm of drawing perception, assuming two-dimensions. This enables drawers to re-read a subject as a set of two-dimensional, compositional certainties,

simplifying form, and critically subject, into flat shape. The drawing in Figure 52 demonstrates this. There are elements of the drawing that are not consistent with the subject (Figure 53). The drawing is incomplete, and negative space considerations have been deliberately ignored, so it is possible to illustrate error in the composition through the lens of negative space.

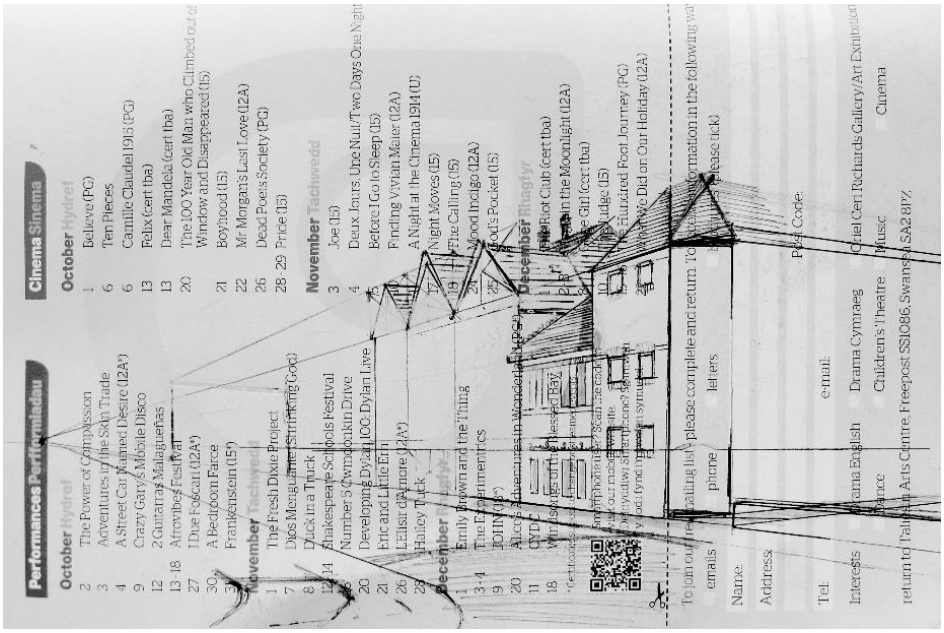


Fig. 52 Studio Notes: *Street projection*. 2005-2015. Ballpoint pen and HB pencil on paper leaflet. 15 x 22cm.


Fig. 53 Studio Notes: *Photograph of street.* 2005-2015. Photographic Print. 15 x 22cm.

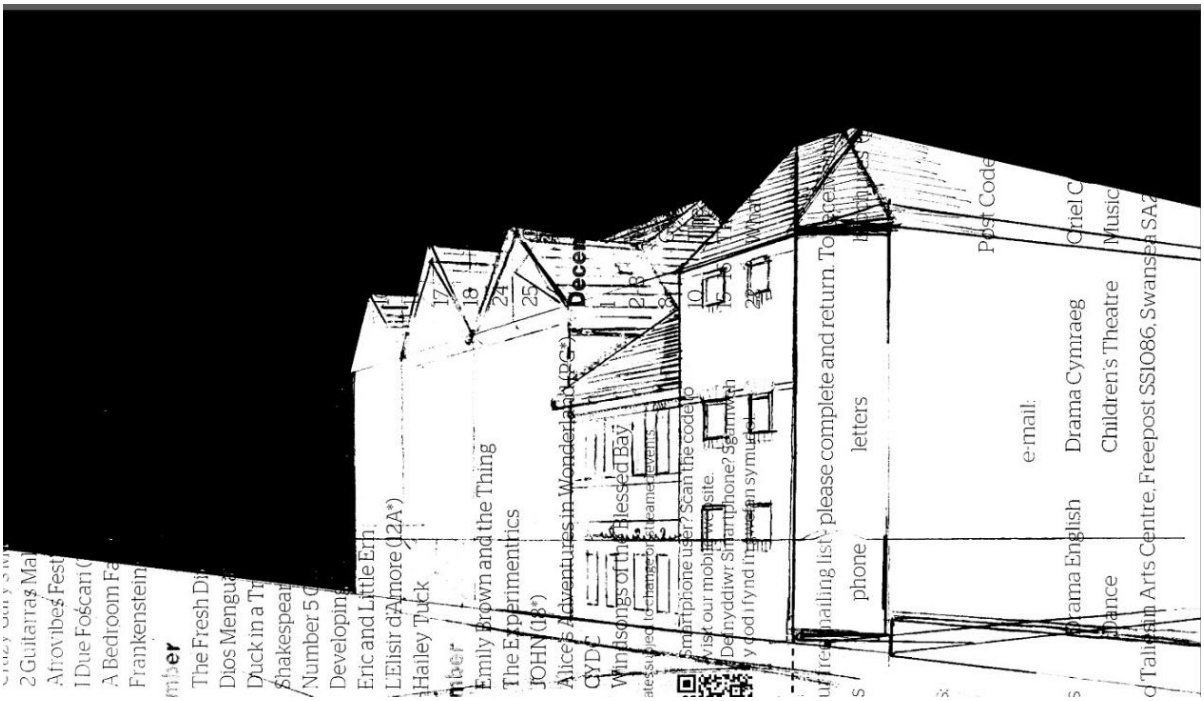


Fig. 54 Studio Notes: *Negative space/drawing.* 2005-2015. Street projection with digital manipulation. 15 x 22cm.

Fig. 55 Studio Notes: *Negative space/photograph.* 2005-2015. Photograph of street with digital manipulation. 15 X 22cm.

When the variable tones of the sky are considered as a negative space shape (See Figures 54 and 55, above), the interpretation of perception is altered in two significant ways: Firstly the

sky is simplified, the profusion of tone and cloud forms no longer provide a distraction from the principle subject. Secondly the sky becomes an unknown, a shape defined by a geometric perceptual model that no longer provokes a learned knowledge of skies, but which exists as a two-dimensional, compositional participant, an embedded component of the drawing process:

> When a person just beginning in drawing tries to draw a chair, that person knows too much…about chairs. For example, seats have to be big enough to hold a person; all four chair legs are usually the all the same length; chair legs sit on a flat surface, and so forth. This knowledge does not help and in fact can greatly hinder, drawing a chair. The reason is that, when seen from different angles, the visual information may not conform to what we know…
> Why does using negative space make drawing easier? I believe that it's because you don't know anything, in a verbal sense, about these spaces. Because you have no pre-existing memorised symbols for space-shapes, you can see them clearly and draw them correctly.
>
> (Edwards 1999: 118)

Comparing the two images with the sky digitally registered as negative shape, illustrates the way in which negative space perception can identify errors in drawing by perceiving parts of the subject as differently proportioned geometric, shapes. By interpreting the sky as two-dimensional shape, the subject has moved into the two-dimensional language of drawing.

In teaching, moving perception into the language of drawing through negative space, resolves a complex subject such as a skeleton, into abstract shapes, enabling students to disassociate the drawing from the complex information pertaining to the skeleton as a known subject, and to focus on the transferral of the three-dimensional information into two:

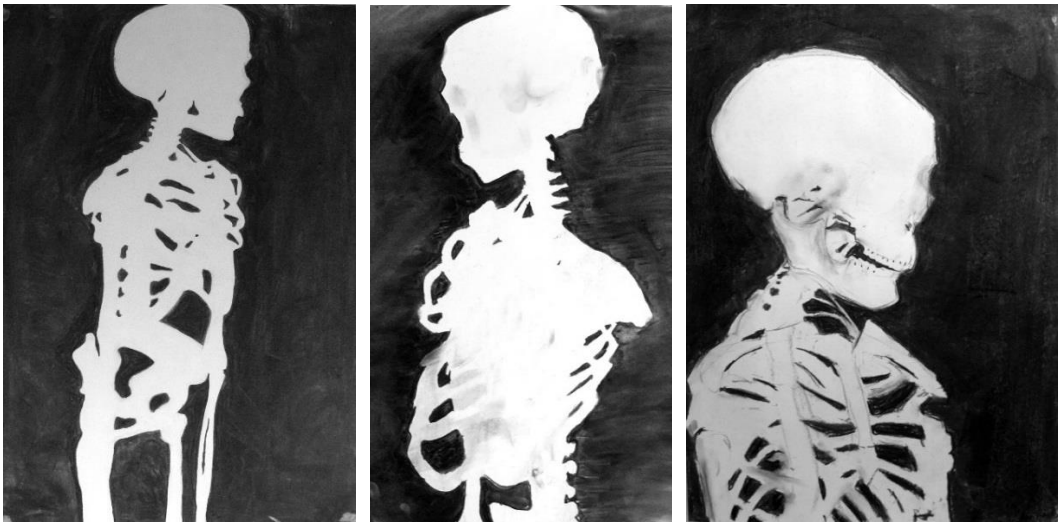


Fig.56 Pedagogic Notes: *Negative space drawings*. 2011-15. Charcoal on paper. 84.1 x 59.4cm.

Negative space as a mode of perception is unfamiliar because it does not exist as a three-dimensional form that can be touched or defined. The manifestation of it as a perceptual phenomenon is constantly shifting as we move through space. It cannot be measured or circumscribed in the same way a positive shape can, based, as it is, on relationships between the viewer's position and observed phenomena. It is an interpretation of a composition that is instigated by the translation of the three-dimensional into the two-dimensional. In this sense, negative space as a mode of observation is closely aligned to drawing, acting as a guide relating space to form, not as overtly apparent as in Figures 54 & 55, but an available mode of perception that can be activated. Moreover, once the concept of negative space is acknowledged and repeatedly considered, the reversal of form and space becomes a more intuitive response to visual information, the knowledge of its existence a consistent challenge to normative perception.

1.2.2 Negative space as communication

The concept of negative space is a perceptual lens that stems from the selective economy of drawing practice. By leaving out that which is unnecessary to the drawing, areas of non-drawing become the significant. When negative space is emphasised it is promoted to a

visual antithesis of gesture that impacts on the compositional whole. Compositionally the recognition and use of negative space affects the drawing both across the surface composition and in terms of depth illusion. The greater the awareness and the interplay between the negative and positive space, the greater the scope for variations of depth perception in an abstract sense, in terms of the illusion of space in front of and beyond the ground.

Fig. 57 Studio Notes: *Baby drawing I.* 2005-2015. Pen and correction fluid on paper. 29.7 x 21cm.

The viewer is used to reading dark lines on a light ground and so generally negative space appears to reside behind the drawn line. Where negative space is emphasised, it alters the function of the positive mark with varying results: it can emphasise the pattern of the image by flattening the whole, relegate the positive mark to the background, or project the positive space forwards. It is never passive.

The drawing in Figure 57 (Above) is intentionally isolated from its surroundings by a darker line that traces the perimeter of the subject, emphasising the space surrounding the subject as a shape that directly contributes to the compositional dynamic:

> As the drawing progresses a secondary composition develops simultaneous to the trace of the hand, constructed from areas left untouched. This visual phenomenon creates a sense of flux within the series whereby the subject is at once flattened by the outline as shape and paradoxically pushed forward as the outline is acknowledged as the point furthest from the viewer, seeming to topple out of the drawing, held back only by the limitations of the paper.
>
> (Monahan 2004-14:)

A similar visual paradox is evident in the drawings of Egon Schiele, as Jane Kallir asserts in the text, 'Schiele's Women':

> His emphasis on negative space creates a tension between the figure and the edge of the picture plane that calls into question the ability of the latter to contain the former…
>
> (Kallir 2012)

The interplay between the opposing dynamics of gesture and space, creates an interplay within the image, so that it can appear to pulsate, to move forward beyond the ground into actual space, to recede into the ground itself, or to appear on the same dimensional plane as the ground. As Rawson suggests, "The effect of drawing continuous, unbroken lines round

any notional object is always to bind such an outlined object closely to the plane of the picture surface" (Rawson 1969: 95).

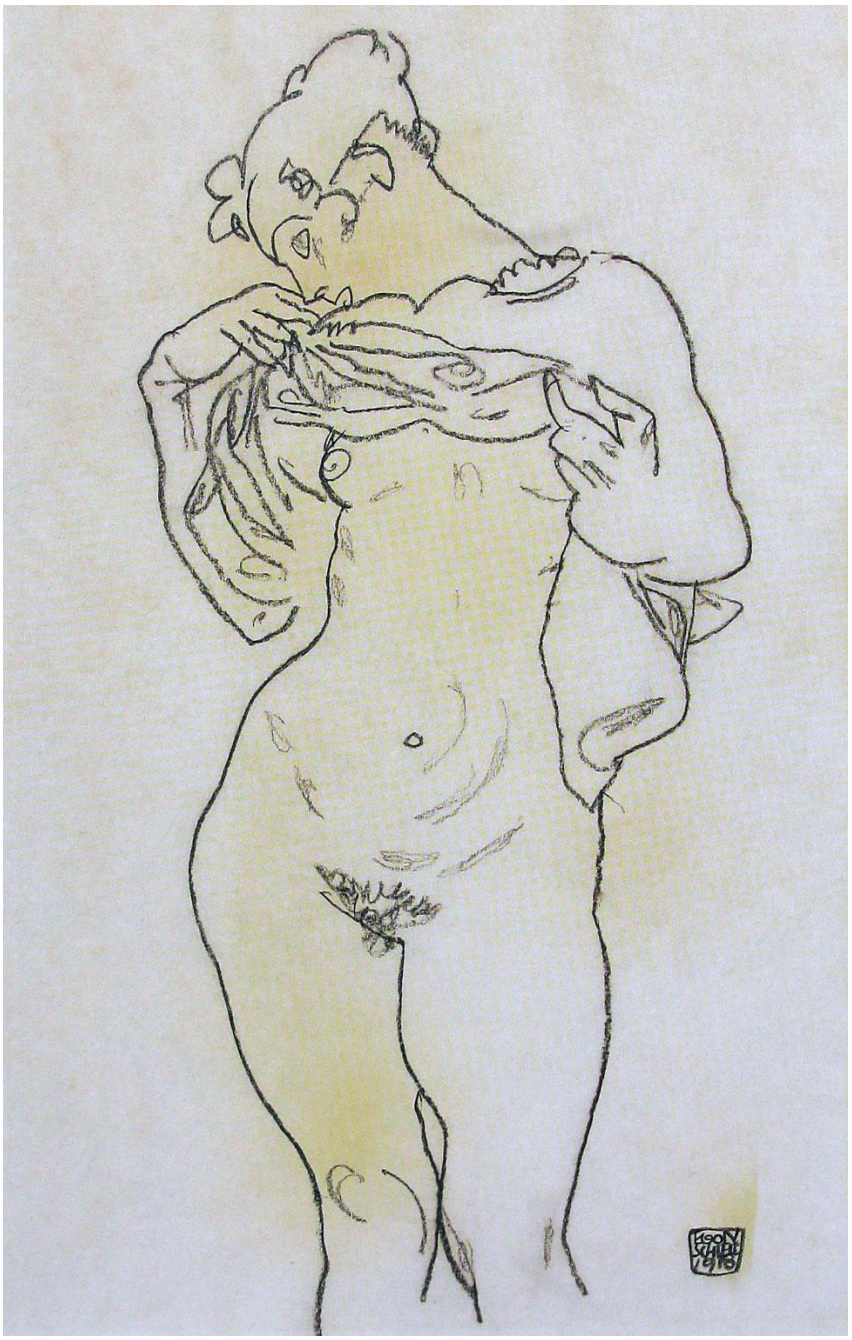


Fig. 58. Egon Schiele: *Standing Female Nude*. 1918. Charcoal on paper. 47.1 x 29.9cm. *Kupferstichkabinett, Akademie der Bilden Kunste, Vienna*.

Schiele uses this to create areas of flat space in the relationship between the left-side leg and torso of *Female Standing Nude* and the edge of the paper, whilst simultaneously projecting the image forward by our understanding of those flattened areas as being

furthest from us, the model leaning out into the liminal space between viewer and drawing, the subject of the drawing is given the appearance of falling onto the viewer.

Controlling negative space is complex and variable, with the length of lines used and their tonal variation each contributing to the balance. Where an outline is reasonably consistent, negative shapes will flatten the image:

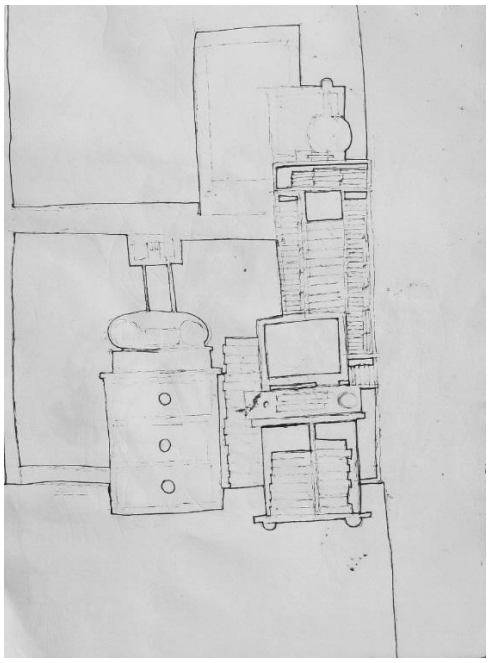


Fig. 59 Studio Notes: *Flat negative space I.* 2005-2015. Pen on paper. 29.7 x 21cm.

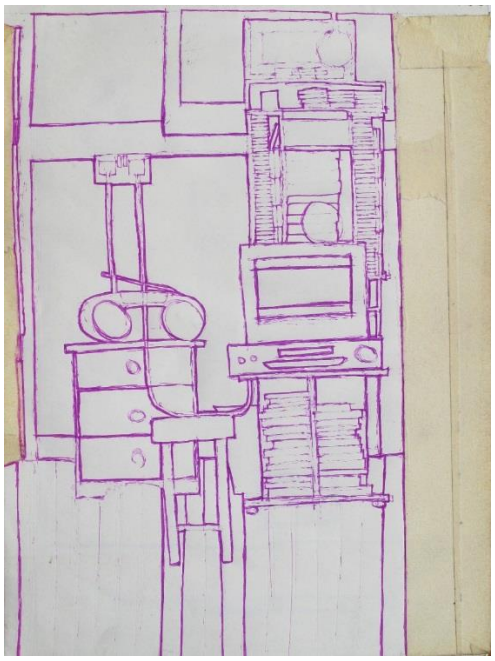


Fig. 60 Studio Notes: *Flat negative space II.* 2005-2015. Pen and masking tape on paper. 29.7 x 21cm.

This feature can be overcome. The shapes in Figure 61 (Below) each represent similar enclosures of space, each perceptually shifting between representations of a hole or a globule. The shape in the left-hand drawing, drawn without consideration to variation in tone or breadth, is more two-dimensional in appearance than the shape on the right-side, where the manipulation of line is more varied, drawing the eye to the points of highest contrast. This latter shape has a much greater sense of variation in terms of depth perception, and takes the implication of the line further away from flat shape, thereby emphasising negative space whilst retaining dimensional flux in the image.

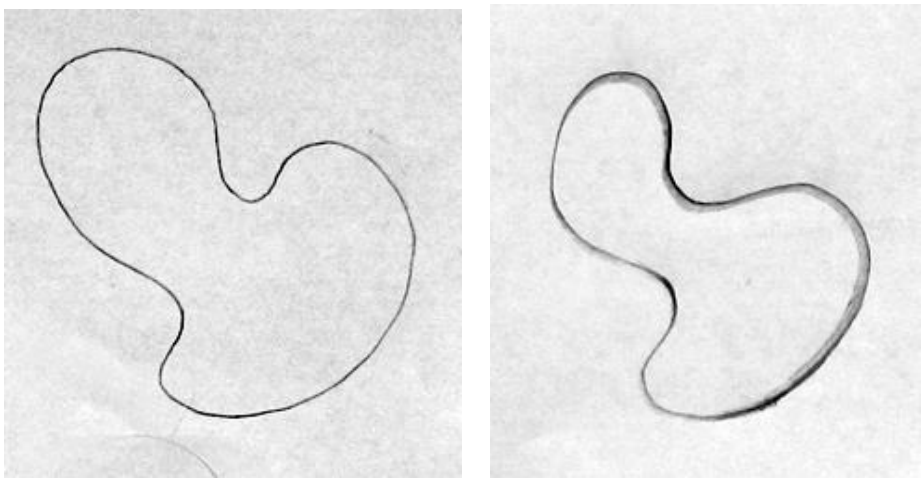


Fig. 61 Studio Notes: *Negative space shapes 1 & 2.* 2005-2015. 0.05 Fibre-tip pen and 2B Pencil on paper. 5 x 5cm.

Two more versions of the shape are illustrated in Figure 62, below:

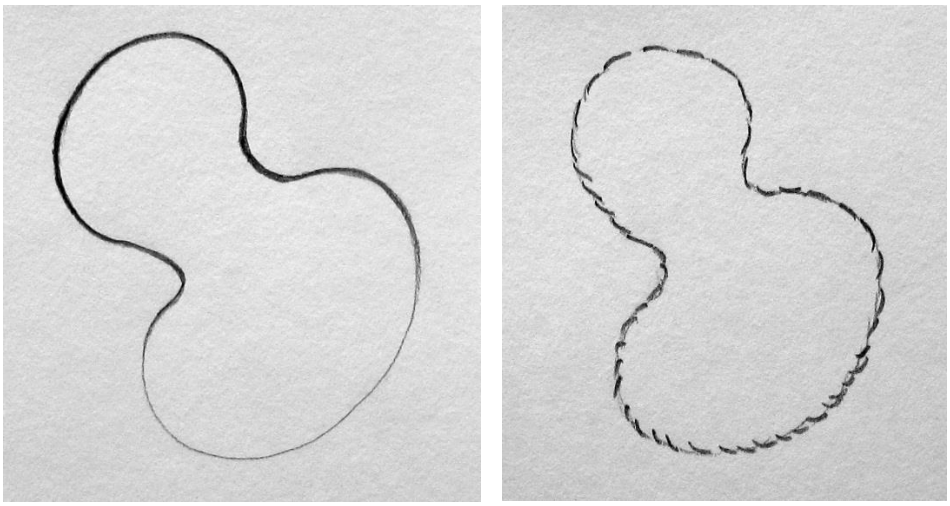


Fig.62 Studio Notes: *Negative space shapes 3 & 4.* 2005-2015. Pencil on paper. 5 x 5cm.

Here the line in the left-hand shape becomes tonally darker as it describes the top of the shape. This draws the eye to the top of the shape, but simultaneously appears to draw the shape to the eye, as though it will fall out into real three-dimensional space. By breaking the line, the shape on the right (Above) defies negative space. In this drawing it is the enclosed space that tends to present itself as the subject.

Through the research period, the interplay between subject and negative space, between surface and depth, becomes a core schematic strategy in the development of my practice. In

Figure 63, a delicate interplay between negative and positive space is created by applying the findings demonstrated through Figures 61 & 62, this series of drawings then go on to be developed into both ‘Portrait Series’.

Fig. 63 Studio Notes: *Variating line countering two-dimensional implications of negative space.* 2005-2015. Pen, correction fluid and coffee on paper. 29.7 x 21cm.

A stronger outline is used to delineate the features and right-hand of the subject and at times, the boundary between subject and negative space. The higher contrast acts a cyanosure to the eye, promoting the marks forward. Either side of the drawing, by circumscribing more than one outlined shape with a consistent boundary, negative space is highlighted, and the image flattened.

Utilising a variable line consistency to circumscribe the remaining perimeter, enables the drawing to balance a reading of negative space with a sense of depth, the drawing fluctuating between the flat fact of marks on paper, and three-dimensional illusion. This idea is subsequently developed further in the *Portrait on Wallpaper Series* where photocopied drawings are collaged onto new drawn figures on yellow paper:

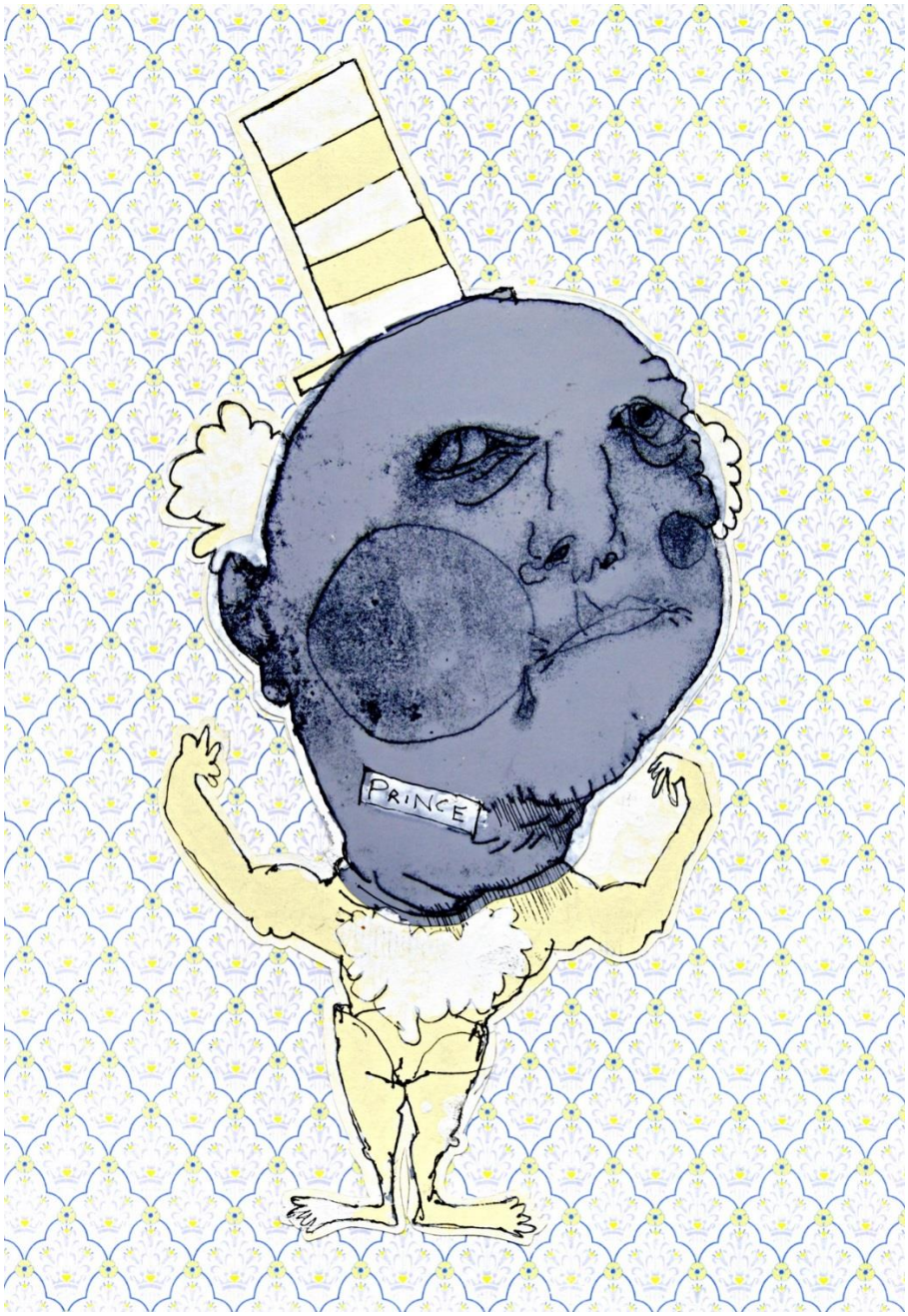


Fig. 64 Richard Monahan: *Prince/Portrait on Wallpaper Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 40 x 30cm.

Fig. 65 Richard Monahan: *Schnood/Portrait on Wallpaper Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 40 x 30cm.

Fig. 66 Richard Monahan: *Portrait on Wallpaper Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 40 x 30cm each whole dimensions variable.

By outlining the figures with an inconsistent tone, then cutting them out, the line and the cut shape are at variance to each other. The role of negative space is then further enforced by attaching the drawing to a patterned background and subsequently by the framing of the portraits, thereby 'trapping' and isolating the loose line drawing in a surround that promotes negative space, diminishing and swamping the drawn characters, who at once appear isolated and part of a crowd. Finally the composition of drawings re-introduces a sense of dimensional flux via the interplay between the shadows. The result is a collection of drawings that exist in a state of constant flux, the wall, the frame, the shadows, the ground and the drawing, all compete for the focus of the viewer, thus questioning the illusory ambiguities in the representation of figures in two-dimensions.

1.3 Summary of *Structural Composition*

Drawing is found to be subject to the psycho-visual constraints of the rectangle that is demonstrated to exert control over choice of composition and therefore the dynamic progression of the drawing process. A sense of balance in relation to this influence is arrived at through drawing and is subsequently utilised to manipulate the perceptual implications of drawing.

The ubiquitous presence of negative space as a result of the material and physical limitations of drawing, is found to be a consistent antithesis to the drawn line. The inevitable recognition of negative space as a corresponding image, progressing to the intended one, is a constant reminder in the mould of the *Necker Cube* (See flyleaf illustration), that perception is subject to task-specific choices. The same object is perceived differently dependent on that choice. Negative space is subsequently identified as an axial strategy in the development of practice.

Component 2: The Linear

"No lines as such exist... lines are merely generated as frontiers between areas of different tonalities of colours... A work of art goes beyond naturalism the instant the line enters in as an independent pictorial element."

(Klee 1964: 231-2)

When the rays of the sun hit the earth, form is revealed through tonal and colour variations. The play of light on form does not trace a line; however it may on occasions reveal a linear shape by the illumination of an object that is much longer than it is wide. Lines do not physically delineate observable forms. The lines recognised are contrasts in tone and colour, the outline an interpretative measure manifested at the point that one tone or colour interrupts another. Where the point of observation is moved, the line is relocated to once again position itself between contrasting planes. The line's omnipresence as a visual phenomenon in the interpretation of the physical world, is a response that has been conditioned through the repeated translation of phenomena into two-dimensions. As in writing, mathematics and music, drawing is an interpretation mediated and communicated through line, a human construct.

With some exceptions, drawing manifests itself as a line that traces the movement of the hand across a ground over a period of time. If this assertion is accepted, it is important to then acknowledge the unique nature of the line as an interpretative phenomenon that, as Paul Klee (1879-1940) describes, "…goes beyond naturalism…" (Klee 1964: 231-2). In *Eye and Brain: The psychology of seeing* (1998), Richard Gregory (1923-2010) highlights the

cognitive contribution to perception as partially governed by *knowledge*. Gregory proceeds to argue that line is largely a human construct, with drawing as its principal exponent:

> The visual separation of objects are not given simply by borders of light on the retinas. Separation into objects is given by various rules, and by knowledge. Sharp borders are rather rare, except for line drawings, which are not typical.
>
> (Gregory in Geer 2011: 46)

By fore-fronting knowledge as a contributing factor to perception, Gregory aligns himself to the constructivist argument that *internal mechanisms* as well as the external environment, contribute to the interpretation of perception (Palmer 2002: 36). By further separating lines from a *typical* understanding of what we see and yet still feeling it necessary to refer to them, Gregory isolates drawing as a mode of seeing that is constructed.

Line's inherent peculiarity to communicative notation, and therefore to human understanding, elevates the concept of the linear to a mode of understanding that dominates the interpretation of perception, and which is further embedded by drawing. This is manifested in two related concepts, *The economy of the line* and *The duality of line*.

2.1 The economy of line

In a 2014 lecture to the *Drawing Research Network*, Tania Kovats referred to Darwin's initial drawing of the *Tree of Life* (Figure 67) as, 'too big an idea to be written down quickly' (Kovats 2014). Beginning with the words, "I think", Darwin completes the statement with a diagram.

The moment of realisation that encapsulates so wide-reaching an idea, is captured succinctly in a few lines:

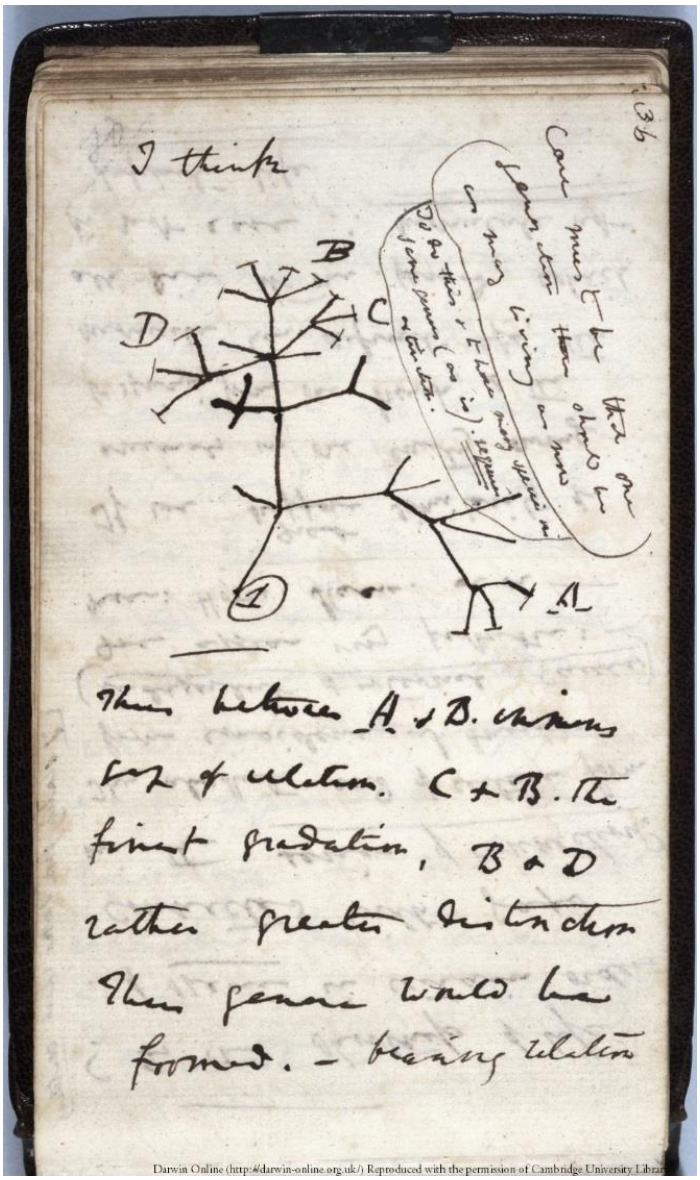


Fig. 67 Charles Darwin: *First sketch of 'The Tree of Life'*, from *Red Transmutation Notebook B*. 1837. Cambridge University Library.

The economy of the drawn line must be considered one of its foremost peculiarities, and a quality that heightens its efficacy as a tool for the interpretation and communication of information. The economic quality of line is primarily one of simplification, and in this sense, gesture is employed symbolically, an abbreviation of phenomena or concepts.

In Figure 68, some lines describe the complexities of a face. The efficacy with which this is accomplished is far greater than the written word and, arguably, far less than a photograph.

Fig. 68 Studio Notes: *Variating line countering two-dimensional implications of negative space.* 2005-2015. Pen, correction fluid and coffee on paper. 29.7 x 21cm.

The efficacy of any communication is founded on the coalescence of the language employed. When writing a sentence we are governed by an agreed form and logic that are relatively fixed. But the rules for drawing are not fixed, they are interpretive, flexible and transmutable. The enormity of a shift in perception that promotes the understanding of

two-dimensional lines as real objects, is belied by its familiarity. Rene Descartes (1596-1650) underlines this phenomenon in his 1637 text concerning the properties of light, *The Dioptrics*:

> Engravings which consist merely of a little ink spread over paper, represent to us forests, towns, men and even battles and tempests. And yet, out of an unlimited number of different qualities that they lead us to conceive the objects, there is not one in respect of which they actually resemble...
>
> (Descartes 1637: 245)

Here Descartes underlines the concept of drawing as notation. What is more, Descartes articulates the singular peculiarity that a language reliant on a complex and yet unregulated set of semiotic rules, should be so universally understood.

In Figure 68 the face is recognised not because it in any physical sense resembles its subject. It is not three-dimensional, nor is it made of flesh and blood and bone. It is recognised because it loosely conforms to a conditioned, symbolic, reduction of the human face, embedded through experiential and historical drawing references. The economy of drawing represents a subtle agreement between the artist and the audience that has developed from childhood. It relates that which is necessary to communication, and eliminates that which is unnecessary. This process of perceptual distillation strips phenomena down to essential characteristics, allowing a bird to be described using a simple symbol:

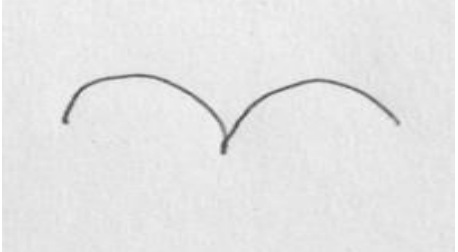


Fig. 69 Studio Notes: *Gull symbol*. 2005-2015. HB pencil on paper. 2.5 x 3cm.

This economic linear interpretation is a mode of perception so ubiquitous to human understanding, through drawing in early childhood to the proliferation of two-dimensional imagery in contemporary culture, that it inevitably alters every person as they progress through educational establishments, and as they interact with imagery.

Drawing offers a backwards step by the acknowledgment of the line as an abstraction from the physical world that conditions a collective understanding. Here observation through drawing enters into a paradoxical understanding of perception. In one sense a continued drawing process heightens the awareness of the line's separation from normative perception (an embedded understanding of the difference between the perceived physical world and the perceived image is inherent to any person that makes images). However, the relationship between perception and drawing, connects perception to a linear understanding. A continual reference to perceived phenomena in the process of drawing is inevitably reciprocated by an understanding of perception, conditioned through linear abbreviation.

Drawing demands a process of continual and rapid glances between areas of the subject and areas of the drawing (See 4.3 *Saccades*). This process underlines the fragmented nature of visual perception, slowing and highlighting the process of looking. In doing so, drawing accentuates the peculiarities of linear description, and thereby, the peculiarities of linear understanding. The process of linear interpretation redacts perceived phenomena into potential drawn constructs. Where drawing is synonymous with day-to-day experience, drawing perception becomes increasingly normative, whereby a building becomes a series of linear shapes, angles, contours and recessions (Figure 70, below):

Fig. 70 Studio Note: *Normative perception/Drawing perception.* 2005-2015. Manipulated digital print/drawing.

2.2 The duality of the line

The economy of the line is enabled via an inherent duality of visual implication that extends beyond the fact of marks on paper. The following sub-sections analyse how the duality of the line can be explored and utilised within the drawing process.

2.2.1 The physical act verses the implication of image

> "Pictures have a double reality. Drawings...are objects in their own right patterns on a flat sheet and at the same time entirely different objects to the eye"
>
> (Gregory in Riley 2009: 3)

Figure 71, below, illustrates one of a series of drawings that employ a deliberately mechanistic method as a means of exploring the concept of linear interpretation as visuo-physical gesture in response to eye-movement.

Fig. 71 Studio Notes: *Saccadic experiment I – Continuous line drawing I*. 2005-2015. Monoprint on paper. 84.1 x 59.4cm.

The implication of this discovery is the concept of linear progression, the line as Rawson asserts, "…is a trace left by a moving point. Its essence is that it has directional value in relation to the co-ordinates of the field" (Rawson 1969: 84). The process of drawing across a two-dimensional surface with a continual gesture impresses the sense that all lines, and indeed successive groups of lines, "have a speed that can be deduced: they have a beginning and an end, and they represent time, as well as space" (Hockney 2001: 26). The concept of line as a two-dimensional gesture representative of time, exists as a linear interpretation of perception that is incrementally shaped by drawing practice. Acknowledgment of this has systematically shaped the progression of my practice, shifting the dynamic from a subconscious component of drawing to a conscious drawing schema that characterises the *Portrait with…Series* (Figure 72):

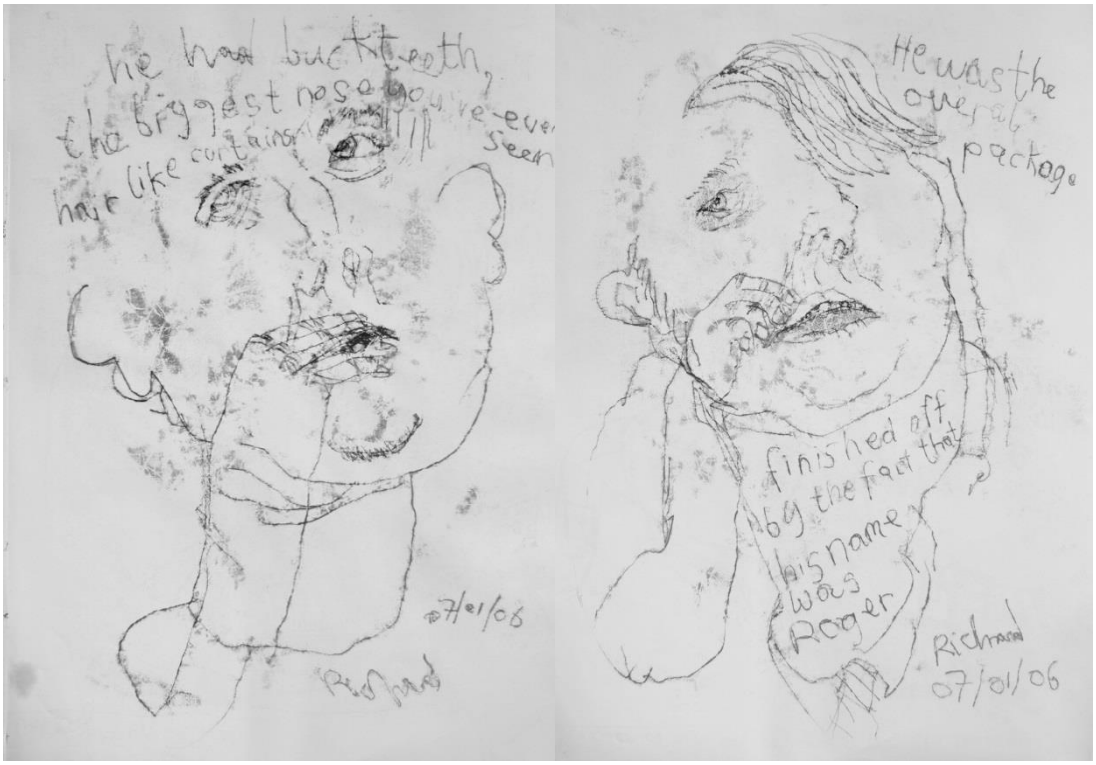


Fig. 72 Studio Notes: *Portrait working drawings 12 & 19*. 2005-15. Monoprint on cartridge 120gsm paper 84.1 x 59.4cm.

Understanding drawing in this way acknowledges it as act as well as illusion, co-participants in communication. The movement of the hand as a kinetic, linear journey is a dynamic antithesis to the instant comprehension of a whole image, described by Riley as a *contraperception*: "the dichotomy between the material surface qualities of a drawing and the illusion of spatial depth produced by the combination of marks upon the surface" (Riley 2009: 1). The dynamic of act against image encourages the artist, and subsequently the viewer, to demassify the image, to perceive subject or drawing as individual, linear components *and* as a whole image.

In a development of this idea, Figure 73, demonstrates how pictorial communication can be manipulated through an understanding of the kinaesthetic implications of gesture.

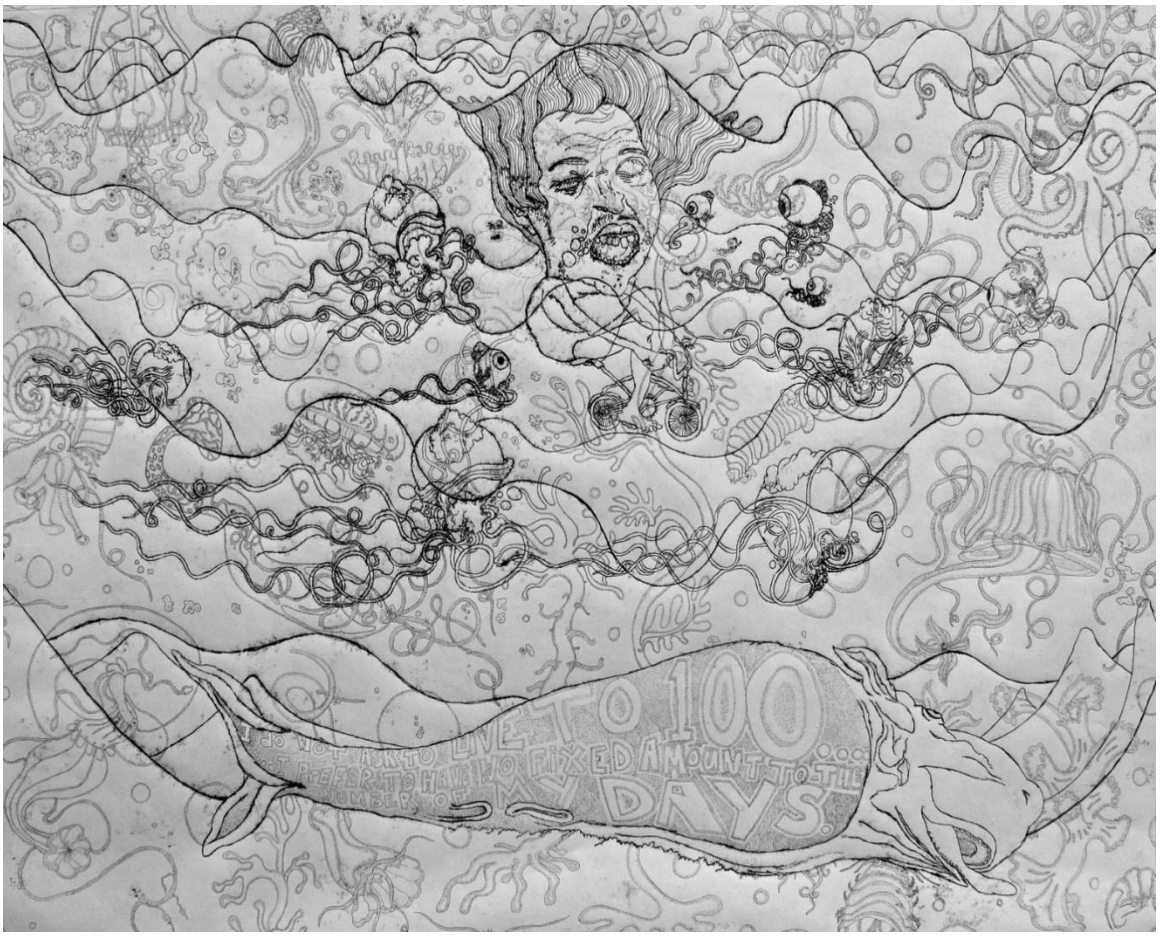


Fig. 73 Richard Monahan: *I do not ask to live to 100...I prefer to have no fixed amount to the number of my days*. 2011. Monoprint and pen on paper. 120 x 150cm.

In Figure 73, the gesture of the hand is emphasised in a series of undulating, horizontals that draw the gaze along them, across the surface of the image. The lines are drawn with tonal and breadth variation in order to avoid the implication of shape and assert the concept of gestural pathway. When the eye is caught by such an abstract, linear contrivance, the demands on the viewer of the image as a whole are interrupted by the instinctive, human desire to follow a path. The drawing ceases to present an illusion at this point and reverts to the physical fact of ink traced on paper. Consequentially the drawing becomes the *significant other*, a two-dimensional map of perception that can be navigated, directing the viewer through the physical contact inherent to the creative journey.

2.2.2 Line as plane

This is a continuation of the line of reasoning begun in the previous sub-section, and accepting that the drawn line is the trace of an act in time that may be read linearly. The perception of the drawn line to some extent alters, in terms of communication, when a line meets its beginning.

When a line ends where it starts, the trace of the act in time ceases to be the primary emphasis. By returning to its beginnings, the line ceases to give the appearance of time, the return creates a plane, an object that sits and that appears not as a progression of act, so much as an illusion of surface or barrier. Figure 74 (Below) demonstrates this. Whilst the tone of the line changes in the shape on the left, retaining an element of movement and therefore a slight acknowledgment of an act in time, the fact of its meeting its beginning creates the shape. The line on the right-hand drawing, though suggestive of shape, retains a linear dynamic owing to its open-endedness, altering the implications of the image from object to time. This allows the drawing to operate on two levels of communication, the one

relating to the illusion created or the whole, the other to the act of creating or linear pathway, and ultimately to the drawing as a combination of components.

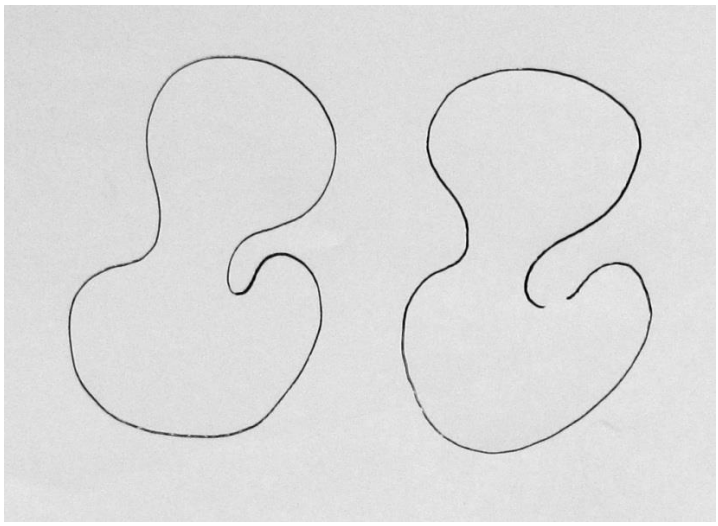


Fig. 74 Studio Notes: *Illustration of the linear mark as shape and as line.* 2005-2015. Pen on 90gsm paper. 8.5 x 12.4cm.

The line as plane phenomenon marks a significant division between drawing styles at the beginning of the research period, where the *Portrait Series* is dominated by plane, the early *Portrait with…Series* is dominated by gesture, see below (Figures 75 & 76):

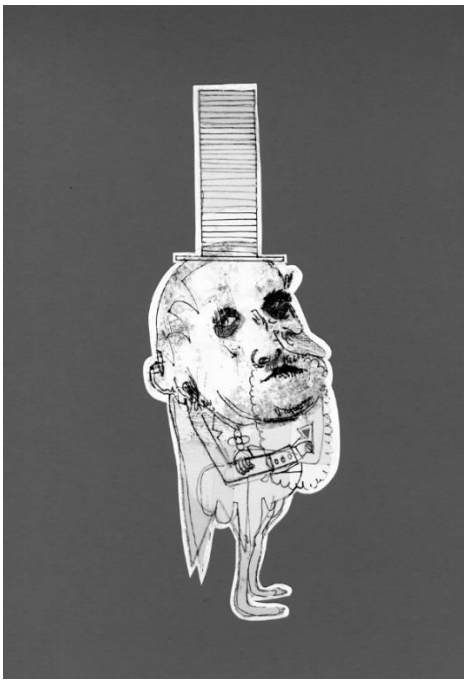


Fig. 75 Richard Monahan: *Top-hat/Portrait Series.* 2005-08. Pen and correction fluid on printed drawing & paper on card. 50 x 40cm.

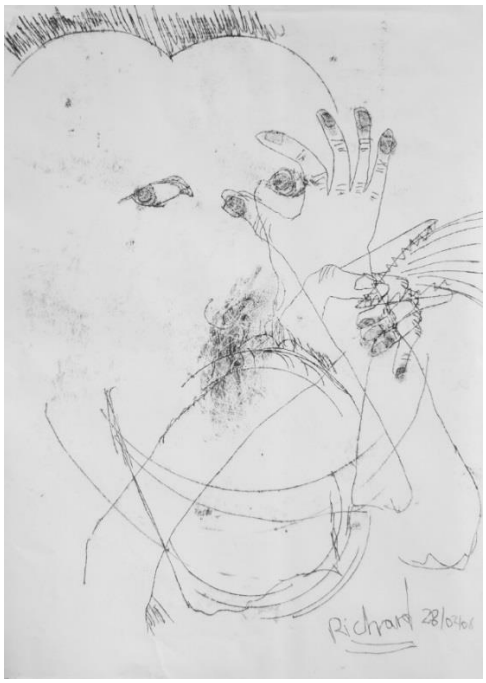


Fig. 76 Richard Monahan: Studio Notes: *Portrait working drawings 3*. 2005-15. Monoprint on cartridge 120gsm paper 84.1 x 59.4cm.

The opposing dynamics of line and shape are progressively united in the development of the *Portrait with… Series.* In *Portrait with circle II* (Figures 77-78 below), the depiction of a face is described with a loose, energetic gesture of variable consistency, that pointedly avoids returning to its beginnings. By retaining the concept of drawing as a physical act, there is a shift in the emphasis of the drawing, from shape or image onto line or pathway. Though the face is reconisably figurative, the journey undertaken by the line embeds a sense of physicality and materiality to the drawing. It is unmistakenly an image created by its materials and by the movement of the hand across a surface.

Fig. 77 Richard Monahan: *Portrait with Circle II* (Detail I), (*Portrait with... series*). 2010. Pen and monoprint and paper on card. 84.1 x 59.4cm.

Counter to this sense of linear pathway, the second layer of the drawing is undertaken employing a slower and overtly constrained technique of flat, linear outlines, enclosing shapes that are shaded through dots and dashes. Though drawn using a 0.05mm fibre-tipped pen, the sense of shape and consistency of line promulgates each of the secondary drawings forward as images. They exist as recognisable shapes that denote named objects:

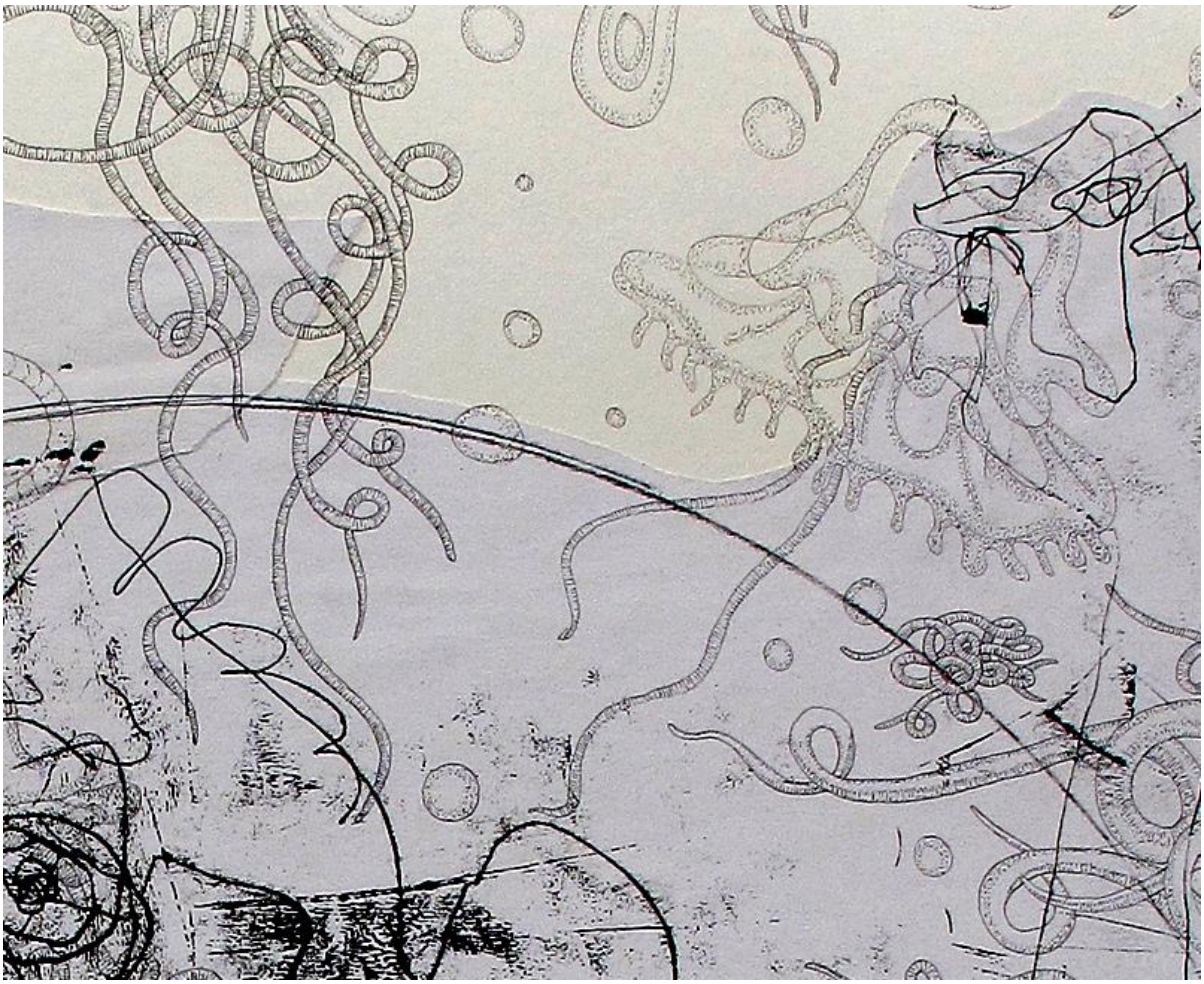


Fig. 78 Richard Monahan: *Portrait with Circle II* (Detail II), (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84.1 x 59.4cm.

The finished drawings co-exist as diametrically opposed concepts, able to operate together through their differences. As gesture and as shape, they do not contend for the same perceptual acknowledgment (See Figure 79, below):

Fig. 79 Richard Monahan: *Portrait with Circle II* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84.1 x 59.4cm.

2.2.3 Line creates shape by traversing the perimeter

Where the line extends beyond the boundaries of the picture plane it compositionally divides space, creating planes or shapes, unless the line itself implies a directional momentum through variation in tone, breadth etc. The following pages demonstrate the implications of the line crossing the boundary of the ground. In the progression of three pairs of drawings, as in the Line as plane drawings, there exists an instant where the time-based physical act of drawing a line ceases to communicate the fact effectively, while the information conveyed morphs from linear progression to a more static plane. Each of the three variations to the same line exist as a visual operative within a restricted area or boundary (See 1.1 The rectangular ground). Translated as a mode of perception, each attaches an intrinsic value to perceived phenomena.

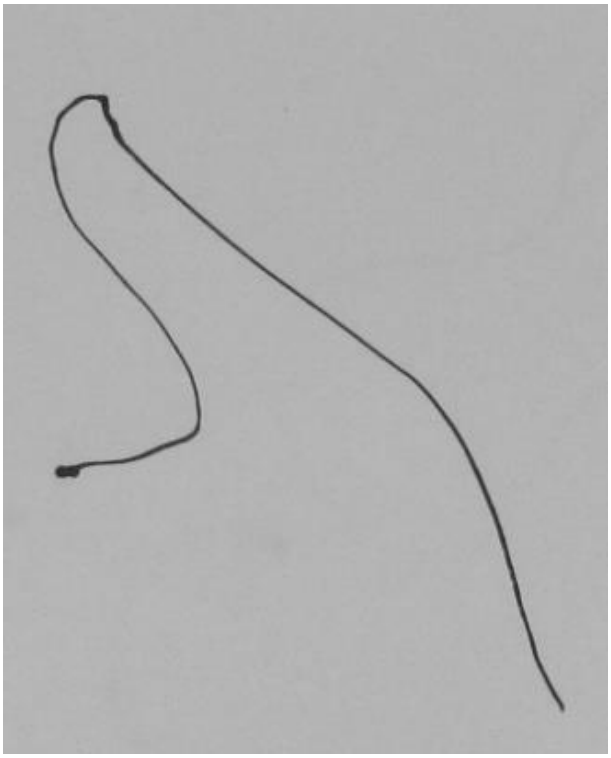


Fig. 80 Studio Notes: *Line as gesture.* 2005-2015. 0.05 fibre-tip pen on 90gsm paper. 4 x 5cm

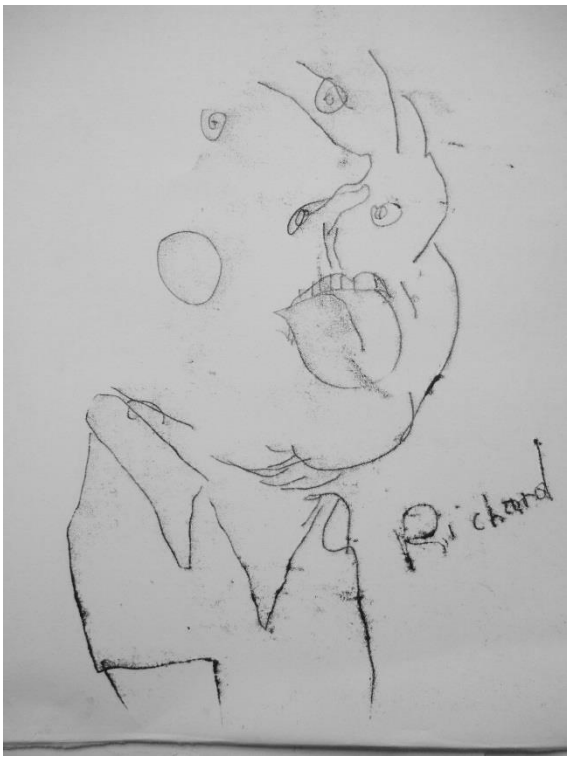


Fig. 81 Studio Notes: *Line as gesture drawing.* 2005-2015. Monoprint on 90gsm paper. 42 x 29.7cm.

The line in Figure 80 (Above) is isolated from the edges of the ground. The line exists freely as an act or gesture over and above the implication of image or shape. The drawing in Figure 81 represents the head and torso of a man. It is defined by the linearity of each mark, rarely meeting its beginning, creating a shape that is intrinsically gestural. Emphasising the mark as gesture, each line is permitted to exist as a movement by its isolation from the ground perimeter, focusing the viewer on the linear journey. The resulting balance between image and act is delicately poised.

In Figure 82 (Below) the line reaches the edge of the ground creating an ambiguity as to the visual function of the line. It may be read as gesture leaving the page but also as a line growing up from the floor, plant-like, fixing one end of the line.

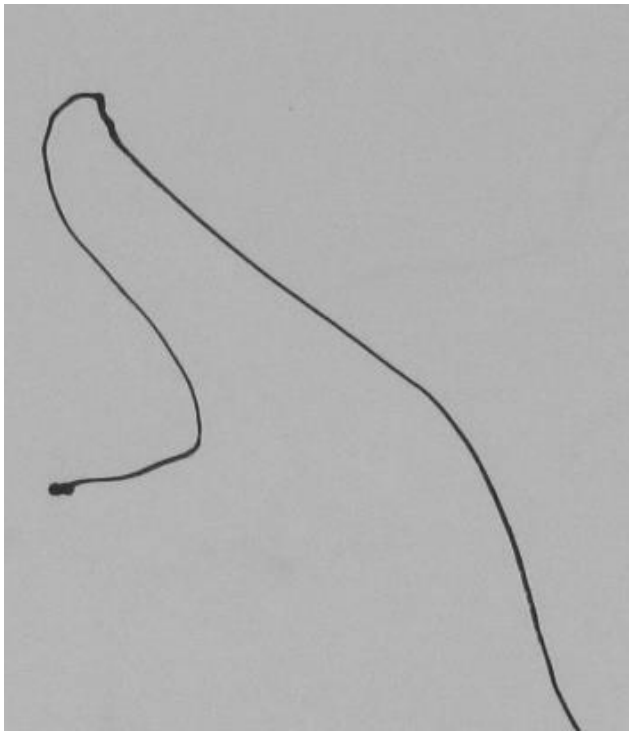


Fig. 82 Studio Notes: *Line as root.* 2005-2015. 0.05 fibre-tip pen on 90gsm paper. 4x 5 cm.

Fig. 83 Richard Monahan: *Portrait with Pencil.* 2005. Oil on canvas. 180 x 120cm. Glynn Vivian Art Gallery, Swansea.

The other end of the line is free in space. The whole line exhibits a sense of tension between the fixed point of exit or entry, and the free movement and more categorically gestural implication visually attributed to the end of the line that exists in isolation. The line can appear attached to the ground and yet it retains a sense of linear progression due to the location at which the line stops, suspending the line uneasily between physical act and image. In Figure 83 (Above) the line is similarly rooted to the floor of the ground, but retains linearity by the cessation of the line on the forehead. The implication of this to the image is not noticed until the eye settles on the forehead. At this moment the idea of linear pathway takes over from image, the eye is drawn into the physical act of drawing and thus an acknowledgment of time.

In Figure 84 (Below) the line in the studio note reaches the perimeter on four occasions, each time two ends of a line finish outside of the image. In this instance the line has shifted in implication compared to the previous two examples. It moves perceptibly, from physical act to divider of space and creator of boundaries. This moves the understanding of the line between gesture and time, activating the ground as a subject as opposed to a surface, and enabling the line to function as an outline of some other phenomenon. In Figure 85 the drawing takes for its basis, a wallpaper motif where the implication of shape and pattern are essential components. The line reaches the perimeter on numerous occasions, emphasising shape and division in the drawing and in doing so, emphasising the whole as a composition of shapes. However, the essential stillness of perceiving an image as only a whole has been obviated in this instance by significantly altering another component, the tone of the line. This counteracts the implication of shape by re-focusing attention on to the line as pathway, to the drawing as act.

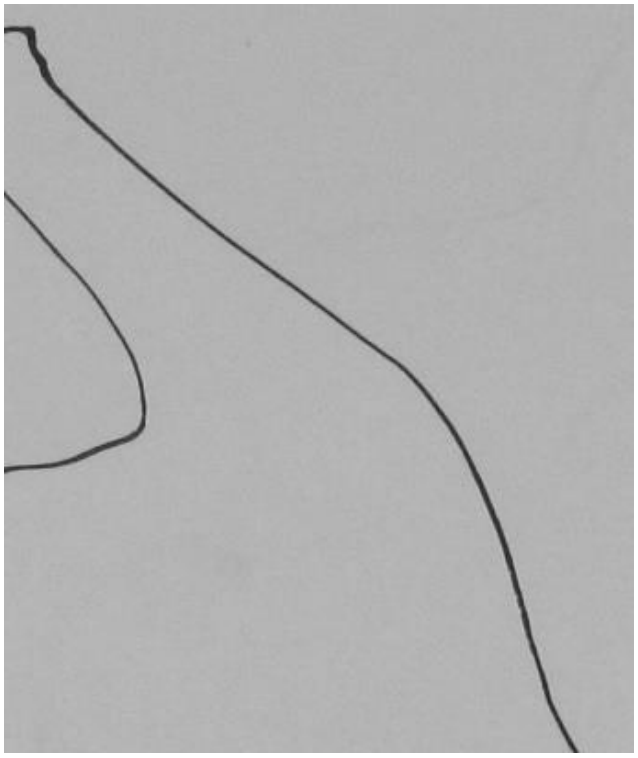


Fig. 84 Studio Notes: *Line as divider.* 2005-2015. 0.05 fibre-tip pen on 90gsm paper. 4 x 5cm.

Fig. 85 Richard Monahan: *Wallpaper* Composition in Blue, Black and White. 2011. Oil on canvas. 200 x 150cm.

2.2.4 The consistent line as a search for shape

There exists one further variation to the line and plane debate that presents a slightly paradoxical alternative to the understanding of the previous assertions. Where a line is repeatedly described, resulting in a build-up of marks and consistent tone, the effect is to override the concept of a broken line indicating a pathway and to re-assert the notion of shape.

The search for shape is often a search for certainty. In teaching drawing it is noticeable that less experienced drawers, regardless of relative differences in accuracy, tend to circumscribe objects as shapes by employing a repeated, tonally consistent, boundary line around a subject, ultimately flattening it (Figure 86, below):

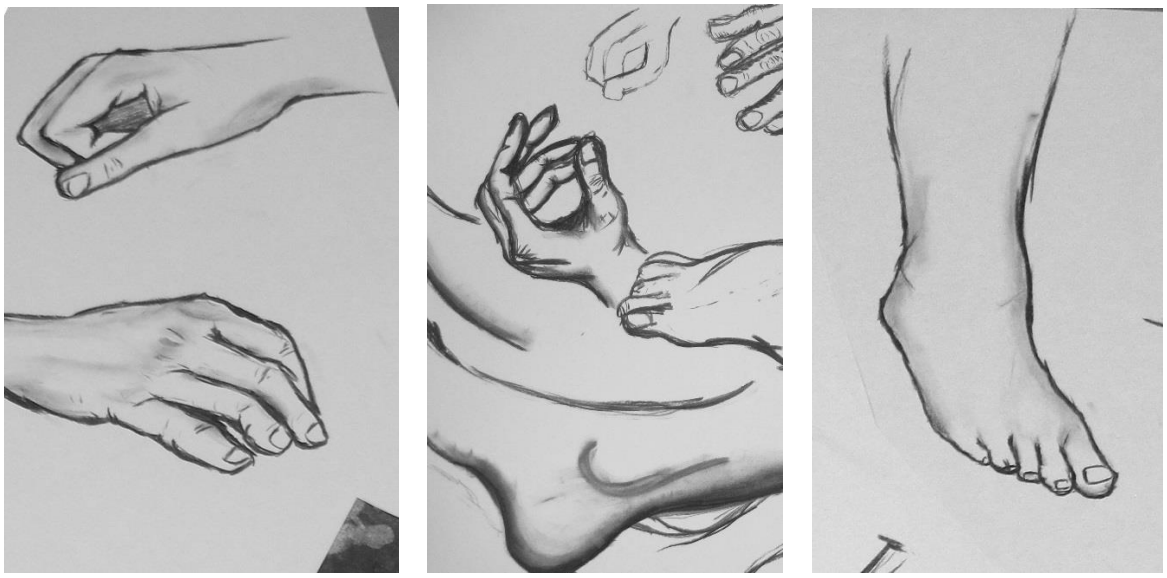


Fig. 86 Pedagogic Notes: *Line as a consistent boundary* (Detail). 2011-15. Charcoal on 120gsm cartridge Paper. 84.1 x 59.4cm each.

Tara Geer[x] observes:

> …new students will vary elements as far as possible while still retaining recognisability, continuous edges and boundary clarity. People just starting in tend to draw a continuous and closed bounded edge. The line itself is very even… In the drawings of very experienced artists…the edges are not the only or most important lines. To describe seen changes, line *per se*, is not the overwhelming strategy. Of course most everything drawn on a page is line, but experienced drawers' lines tangle up, drift off, become textures, shadows, blobs, shapes, and patterns. Their lines do not stick to edges nor bind linguistically defined "things"…
>
> (Geer 2011: 48)

In Figure 87 (Below), a more experienced student varies technique from a consistent line method of delineation, to employ a variety of strategies to communicate the hand. The circumscription of shape is symptomatic of the line as plane debate. Less experienced drawers look to create an image, and tend to isolate and flatten the subject from the surroundings in order to establish its unique qualities, outlining shape as correct or incorrect. In the work of more experienced drawers, there is greater awareness of the physical limitations of drawing, drawing as act is not suppressed and becomes a co-

participant in the communication of the hand, the linear pathway not restricted to boundary but varied and flexible. To translate information through dimensions the drawn image must be fundamentally acknowledged as not the subject, and an understanding reached that seeing through drawing is different from seeing:

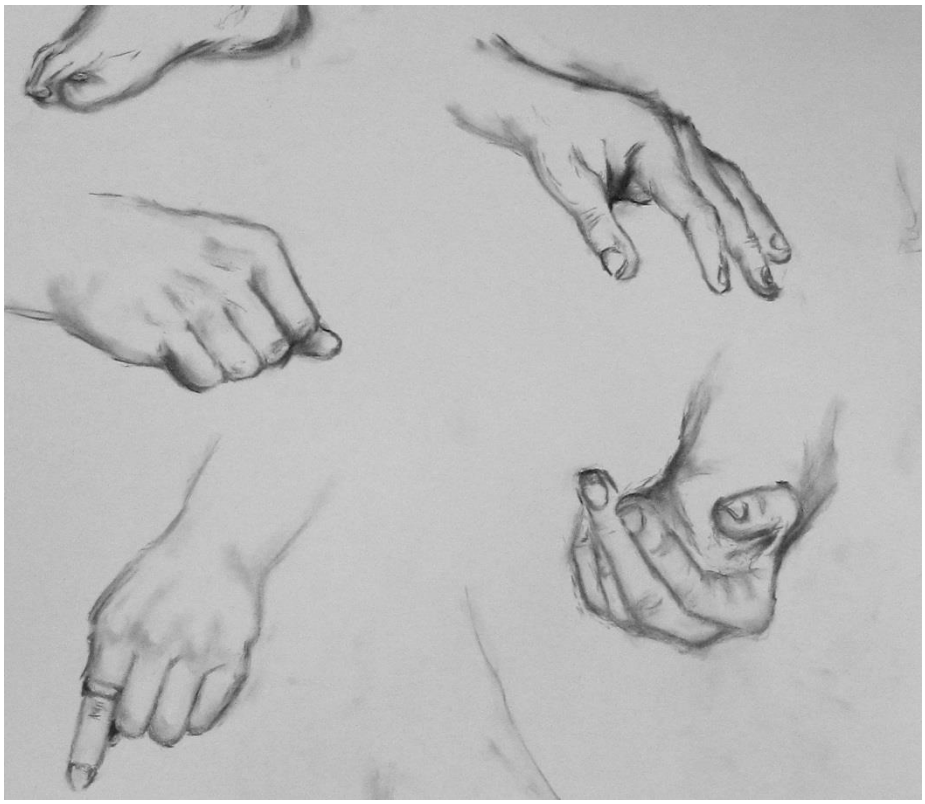


Fig. 87 Pedagogic Notes: *Line as inconsistent boundary* (Detail).2011-15. Charcoal on paper. 84.1 x 59.4cm.

2.3 Summary of *The Linear*

The drawing journey that comprises this study has forcibly underlined the atypical and fundamental abstraction of linear perception. Identifying the line as a convention of communication, a codified simplification of phenomena that is both transmutable and critically, visually representative of real or imagined phenomena, positions drawing as a medium slightly apart from other forms of communication, and unlike musical notes,

numbers or writing, drawing does not obey the strict restrictions of notation as there are no absolute rules.

In drawing, the learned code of communication is absorbed at a young age, through an experiential interaction with graphic imagery. The concept of a linear reality is therefore deeply embedded even before any drawing training is undertaken, but it remains a human construct. Further development of drawing embeds this understanding. Through the lens of drawing the world is dominated by lines that, when isolated as such, take perceptual phenomena away from the concept of known and named phenomena and towards, not the physical act as in drawing, but to the implication of the physical, a directional pathway, divider or shape that can be recognised as a two-dimensional, graphic equivalent to a perceived reality:

> The perception of shape is the grasping of structural features found in, or imposed upon, the stimulus material. Only rarely does this material conform exactly to the shapes it acquires in perception. The full moon is indeed round, to the best of our viewing powers. But most of the things we see as round do not embody roundness literally; they are mere approximations.
>
> (Arnheim 1970: 27)

Arnheim argues that the perception of shape is imposed upon the stimulus by the individual, that perception is not just a reactive process but a proactive process, conditioned beyond the survival instinct, to focus in on external entities through the lens of conceptually developed schema. As soon as a line is drawn to represent something other than a line, the assimilation of the abstract as a method of simplifying perception begins to uniquely condition the drawer, to impose schematic abstractions onto perceived phenomena.

The transmutability of the line is essential to its inherent economy, for it enables gesture to be read as image, positioning drawing as a form of notation. The inherent duality of the line

is found to establish a trans-dimensional translation, from subject to drawing, from drawing to subject, projecting the economy of line onto the perceived phenomena. The duality of line is then further explored as a drawing process that is inherently gestural and that sits between the figurative and the abstract.

Component 3: Spatial Awareness

> You who are blessed with shade as well as light, you, who are gifted with two eyes, endowed with a knowledge of perspective, and charmed with the enjoyment of various colours, you, who can actually see an angle, and contemplate the complete circumference of a Circle in the happy region of the Three Dimensions - how shall I make clear to you the extreme difficulty which we in Flatland experience in recognizing one another's configuration?
>
> (Abbot 1994: 5)

The characters that inhabit Abbot's fantasy world *Flatland*, live in a world of one dimensions, as though within the surface of a page. In *Flatland* circles are lines, in drawing we are granted two-dimensions. However, marks across a surface remain as distant an abstraction of three-dimensional phenomena as the circle when transferred from two to one-dimensions. It is essential then, in considering the impact of drawing practice on the interpretation of perception, that drawing is recognised as an interpretation in itself. The abstraction of line, discussed in the previous section, coupled with the concept of drawing as a composite of smaller components, pertains to a medium of conceptual construction. Hogarth's *Caricature of the representation of perspective* (Below), demonstrates the human conceptualisation of perception inherent to drawing, by sabotaging the image spatially. Hogarth forcibly reminds the viewer that drawing deals in translation; that the picture surface is flat. Images do not appear on paper, they are built in two-dimensions. In this two-dimensional building process, spatial awareness is necessarily a schematic concept allied to empirical/imagined evidence. To *make* space in two-dimensions the draughtsman must devise methods of translating three-dimensions into movements of the hand, as Rawson highlights:

> …every drawing style that seeks to go further (than two-dimensional representation) has to evolve some procedure to deal with the fact that it is really a two-dimensional phenomenon. And every edge-line which is to be developed as the contour of a body needs to be contrived so as to give more than simply a section of the elevation on a two-dimensional plane of the notional object it delimits.
>
> (Rawson 1969: 95)

Fig. 88 Designed by William Hogarth and engraved by Luke Sullivan: *Caricature of the representation of perspective* (Frontispiece for Dr. Brook Taylor's Method of Perspective 1754).1754. Engraving. 20.6 x 17.3cm. Metropolitan Museum, New York.

The following sub-sections detail three understandings of spatial awareness that fundamentally structure the interpretation of perception.

3.1 Trans-Dimensional Interpretation and Illusion

The term *trans-dimensional interpretation* is coined to describe the relationship between the three-dimensional and the two-dimensional in drawing. The significant difference between drawing and other forms of notation, is an inherent flexibility that allows for diagrammatic conceptualisation but that significantly, tends toward the realisation of imagery. Trans-dimensional interpretation relates to the application of drawing as an interpretative tool, a tool that both acknowledges the cognitive process and further develops it by re-imaging three-dimensions on a surface:

> We do not see only with our eyes. Seeing is a highly active process that takes up a large portion of our brain. The retina at the back of the eye is an integral part of our brain. The image that we see is not the two-dimensional light image received upside-down and backwards on it, but the one that our brain has turned back into a three-dimensional model of our surroundings.....When we draw what we see, we are drawing our three-dimensional model of our surroundings. We turn this back again into a two-dimensional form that includes the clues to solidity and space that we use when we see.
>
> (Bowen 1992:23)

The transition of image through dimensions is a process that is uniquely accentuated in drawing. There are moments outside of drawing that are commonly apparent, when objects appear to change dimension, in silhouettes for example. And there are media, photography and film, that interpret three-dimensional phenomena into two-dimensional images. The inherent compartmentalisation of the cognitive and the physical in the drawing process, and the focus on structural abbreviation, separates drawing from these schematically:

> To realistically render a vase, for example, an artist must (a) perceive the vase as it exists in space, (b) decide which areas of the vase to represent and how to represent those areas, (c) have the motor coordination to translate those decisions into physical marks on the paper, and (d) objectively assess the

accuracy of those marks and correct any inaccuracies (which involves all of the previous).

(Cohen & Bennett [xi] 1997: 609)

The drawing process involves the physical interpretation of the subject, separating parts of the subject into moments of cognitive, visuomotor translation. However the process of drawing is incrementally self-shaped. Perception leads but is also led by this process, the artist strategically controlling an amount of that which is perceived.

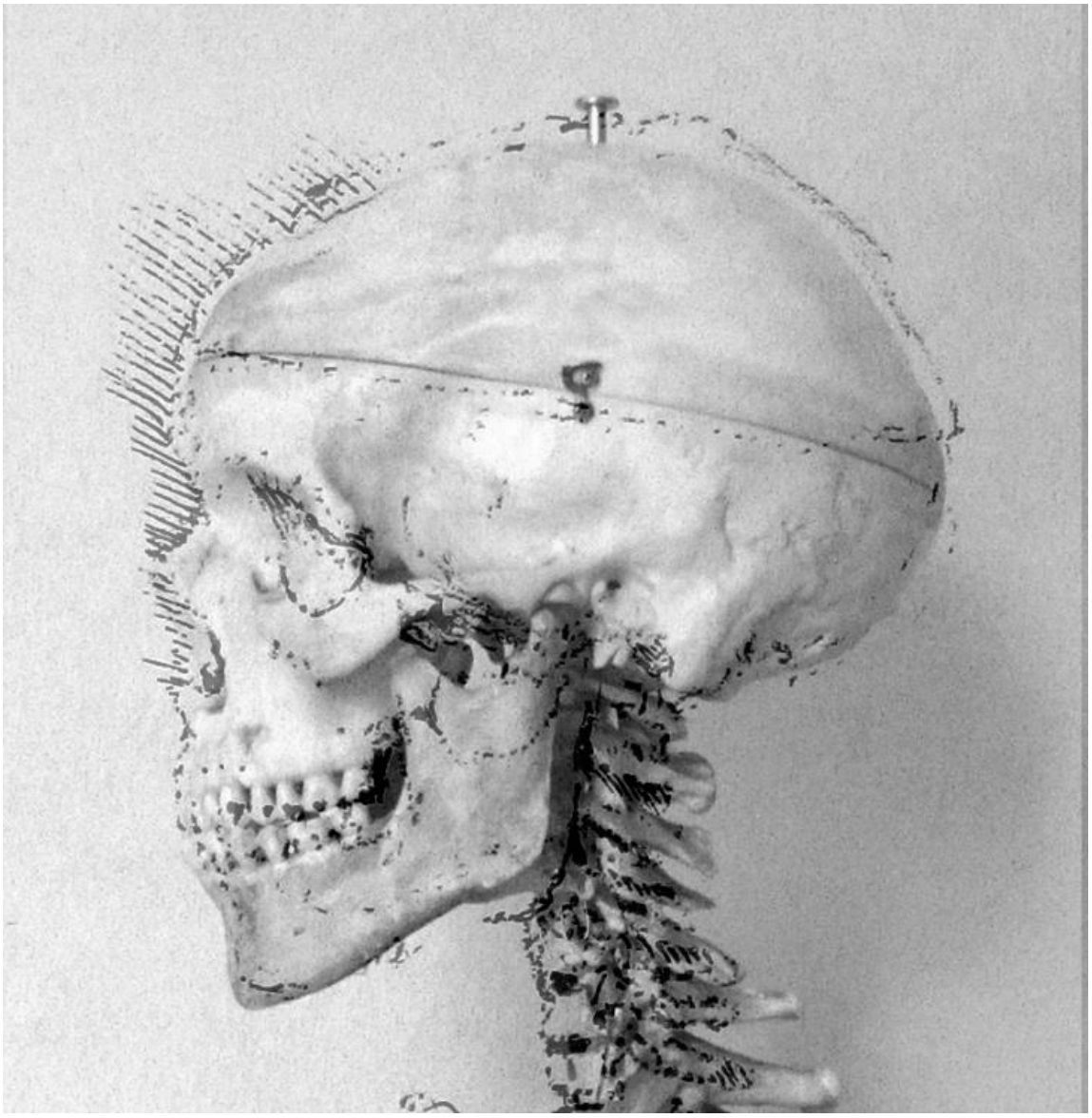


Fig. 89 Studio Note: *Normative perception/Drawing Perception II.* 2005-2015. Manipulated digital print/drawing.

When attempting to draw a likeness to a physical entity, trans-dimensional interpretation tends to be mono-directional in *manifestation*, the three-dimensional subject is interpreted into a two-dimensional drawing. But the process of perception employed to interpret the subject is not mono-directional. As argued in *The economy of the line* (Section 2.1), and illustrated above in Figure 89, the observations of the three-dimensional, are subject to the consideration of them as two-dimensional marks when perceived through drawing.

In drawing, the intended outcome is projected by the drawer onto the subject. The subject and the concept become as one, making the drawing possible. In this instance the prefix 'trans', implies the reversal of process, projecting the two-dimensional conceptualisation of space, back on to real space. The sense of flux between subject and concept is a cognitive journey that is divided between the two, and that is recorded through the drawing. As a practice develops through drawing, this dynamic instils a sense of purposiveness to marks, developing a procedural mode that, through the acknowledgment of dimensional shift, alters the status of the drawing in the understanding of the viewer, to create trans-dimensional *illusion*. At a perceptual level this manifests itself as an acknowledgment of surface tension, the application of marks to a flat surface and the various methods employed to challenge this, to create depth illusion. The acknowledgment of drawing as a two-dimensional surface that implies depth is a conceptualisation of drawing that not only alters perception, but that is integral to the interpretation of a subject:

> In those drawings which are universally recognised as masterpieces there is a vigorous conflict between a highly-developed two-dimensional surface unity, and a highly-developed three-dimensional plasticity. The higher the point to which both are developed, the stronger the drawing...Although there is no doubt at all that a dense, flat, structure appears in all good drawing, there is equally no doubt that unless such a structure is challenged by a strong three-dimensional counterpoise, it remains wall-paper.
>
> (Rawson 1969:81)

In the *Portrait with…Series*, trans-dimensional illusion is an underlying strategic component of the working process and the perceptual understanding of the final image, where four essentially flat layers compete for the same space, one on top of the other (Figure 90):

Fig. 90 Richard Monahan: *Portrait picking flowers* (Detail I), (*Portrait with…Series*). 2011. Monoprint, Pen and paper on card. 70 x 55cm.

The images operate in a constant state of dimensional flux, each existing at once closest to the viewer, and then, as the pathway of each line is followed, returning to the background. This is most apparent in the relationship between the thick, mono-printed lines that demarcate the head and the fine pen lines of the sea-creatures. The thicker lines are relatively flat in their spatial description of the head, it appears two-dimensional. However this is obviated by variation to the constancy and width of the line itself, giving an intrinsic depth to the line as an act or gesture. The sea-creatures are drawn with definite reference to three-dimensions, the lines over-lap to create depth slices and the shapes are completed so as to retain their sense of image. But the line describing the sea-creatures is tonally flat and continuous, which, as Rawson asserts, has the effect of turning the image into a two-dimensional silhouette (Rawson 1969: 95). The paradoxical dynamic created by each drawing strategy, gives the image a pulsating sense of dimensional instability that is integral to the drawing.

This section continues to explore the twin concepts of trans-dimensional interpretation and illusion, through an analysis of the various methods drawers' adopt to create depth illusion.

3.2 Linear perspective

The drawn line's efficacy as a mode of communication is testimony to its inherent accuracy to intention, allied to an economy of description. These are qualities necessary to geometric calculation and are manifested in differing forms of preparation for artworks to follow; the preparatory drawing, the diagram, the projection, the blueprint. Of these, linear perspective has the widest impact on the history of art practice.

It is clear when analysing pre-Renaissance painting, that the Renaissance did not simply construct a human-centric method for spatial depiction, but completely re-aligned our interpretation of perception by visually articulating the concept of ego, that we give to what we see, perception over and above observation. So ubiquitous is our acceptance of linear perspective that it is near impossible to consider Figures 91 and 92 (Below), as anything but a recession beyond the surface of the page, though they exist only as a combination of ink marks on two-dimensional pieces of paper:

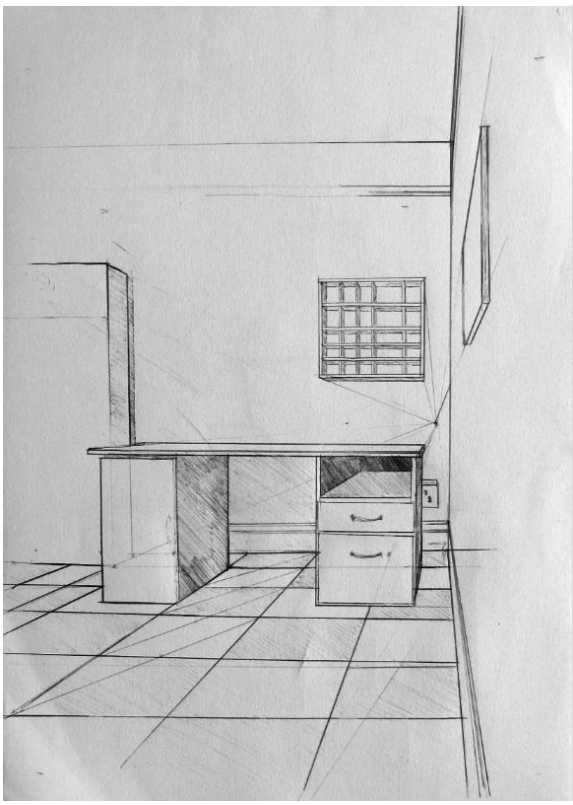


Fig. 91 Richard Monahan: Studio Notes: *Linear perspective.* 2005-2015. Ballpoint pen and HB Pencil on paper. 29.7 x 21cm.

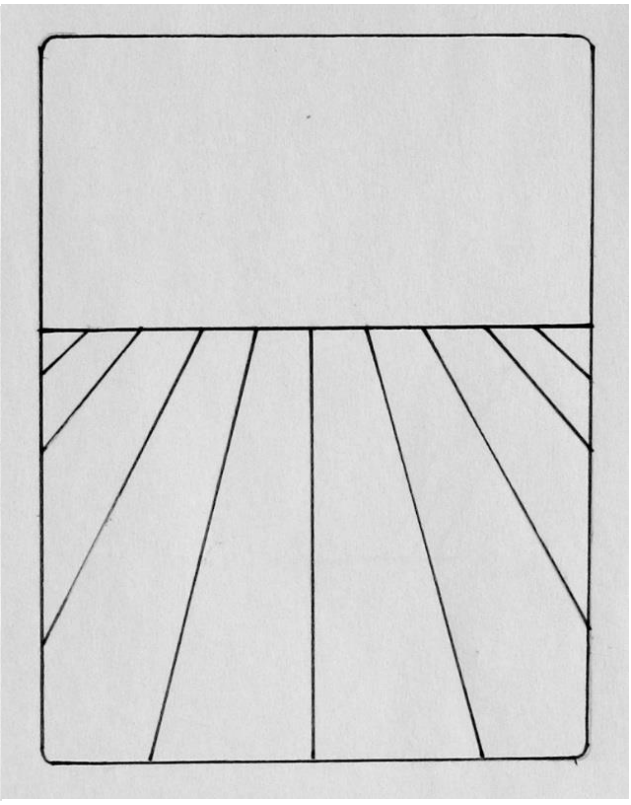


Fig. 92 Studio Notes: *Single-point perspective lines.* 2005-2015. *Berol* handwriting pen on 90gsm paper. 11 x 8.1cm.

A rationalist approach to visual philosophy requires a precise mode of communication and equally precise tools for its conveyance. By the fact of its utility, drawing becomes the medium through which an entire cultural understanding of space is formed.

As a result of this pictorial dominance, linear perspective has been continually challenged by artists and theorists, as a means to analyse perception, and by cross-cultural comparison (Riley[xii]). As a literal method of translating a perceived reality it could be described as artificial and a niche element in contemporary art. The separation between linear perspective and observation is articulated by Rob Newell: [xiii]

> There is no natural or optically true relationship between a perspectival picture and what we actually see. Artificial perspective is a culturally specific convention that is now as such, largely redundant.
>
> (Newell 2005: 3)

Whilst it is arguable as to the specific optical accuracy of perspective systems, or indeed of any drawing, the influence of linear perspective extends far beyond its literal practice. Any challenge to perspective is equally a part of its history, and demonstrates the immensity of its influence on visual culture. In *The Primacy of Drawing*, Deanna Petherbridge cites the importance of *linear meta-structures* (underlying structure to a resultant drawing or artwork), as visibly influencing the dynamic of a finished work without themselves being literally visible.

> ...every drawing, like every work of art, design or architecture, depends on a formal infrastructure of some sort, often a number of different and interwoven systems. These linear metastructures, essential in shaping, composing and supporting art and design, are usually effaced, consumed or muted by the finished work.

> Metastructures can be perspectival and proportional systems, based on constructional and projective geometry related to the rational depiction of three-dimensional objects on a two-dimensional surface…
>
> (Petherbridge 2010:186)

Petherbridge describes perspective as an example of a *linear meta-structure*, inherently visible though they are 'effaced' by the resulting artwork. For drawers, linear perspective transcends the physical design for a work of art, existing in a state of conditioned awareness of its rules, as a mode of constructing and therefore understanding space. This may be observed most clearly in sketches by architects, where the influence of projection systems pervades the drawing style without being physically deployed (Heynickx 2014). This study contends that linear perspective is manifested as an underlying, subconscious schema.

In *Using Sketching: To Think, To Recognise , To Learn,* David Kirsch [xiv] makes the distinction between empiricism and rationalism. Kirsch states, "perception is 'seeing what is there', it is detecting…Projection is 'augmenting something'…" This assertion positions perception, in some senses, as apart from acquired knowledge, that it is disconnected from cultural conditioning. Whilst the process of looking is defaulted to survival mode, perception can be said to be largely reactive. However in drawing, I would argue that survival mode is replaced by a more proactive and conditioned direction of the eyes, appropriate to the task. Perception is operating as led by the process of translating from one dimension into another. If it is accepted that it is possible to 'draw' with the eyes, that is to analyse a subject as for drawing purposes without deploying the hand, then the assertion that drawing structures perception in this instance is unarguable. An architect whose practice is steeped in projection systems, cannot look at a house without this information impacting upon how the house is perceived. Likewise, an artist drawing the house, utilises acquired information to

augment empirical evidence. Perception and the interpretation of perception exist as symbiotic modes of understanding. If they are separate, one cannot exist without the other.

Contemporary art education tends towards an empirical approach to spatial awareness. However, this translation of depth through observation is made possible by the breakthroughs made during the Renaissance. Artists that pass through contemporary art establishments cannot be unaware of linear perspective, even if it is not directly taught. The understanding of perspective extends far beyond the walls of the art college and pervades our cultural conscious. The history of drawing has already altered our perception whether we actually ever draw or not, a point established by the flat fact of Figures 91 & 92 (P. 152).

Returning to the Camberwell drawing (Figure 93). When the drawing was produced I had had no teaching in linear perspective as a means of constructing a drawing. The drawing was made empirically, onsite for its entirety. This appears to favour the innocence of perception. Nevertheless the drawing is not *naïve* in the sense that it is similar to children's drawings or to *outsider art*. As a translation it contains too many signifiers of art education and of specific spatial understanding. The linear perspective that is built into the drawing is not fully comprehended, it is reliant on an absorbed knowledge of the general principle that lines converge to a vanishing point, allied to and supplementing the empirical evidence. Linear perspective, in this instance, is conceptualising vision via absorbed cultural traditions in picture-making. The very artificiality of perspective as a rationalised construction, promotes it as a component within drawing that significantly alters perception.

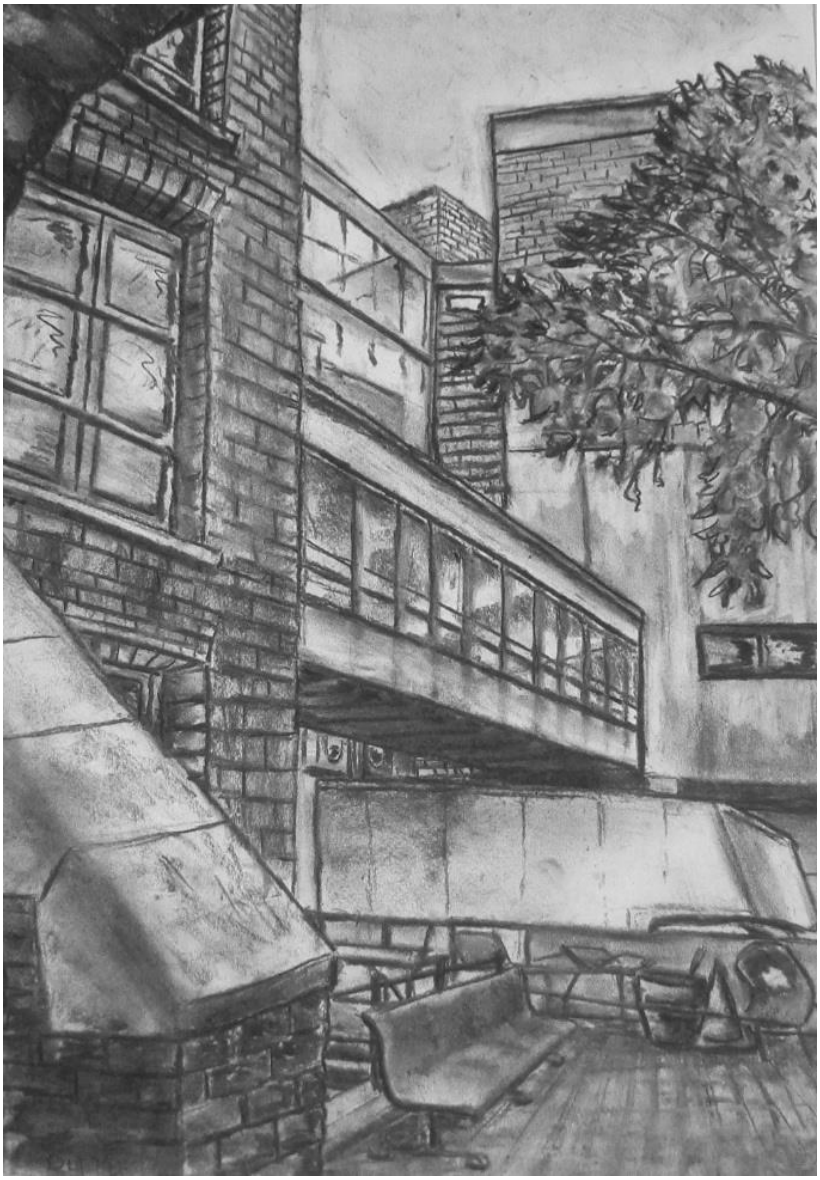


Fig. 93 Richard Monahan: *Camberwell*. 2000. Charcoal on paper. 84.1 x 59.4cm.

3.3 Depth illusion as antithesis to linear perspective

Over the course of the research period numerous notes and projections have been made to further my understanding of linear perspective. Perversly, the natural course for the finished drawings made through the research period, posited an antithesis of linear projection. This has led to the employment of alternative devices for creating depth illusion in drawing which will be discussed over the following pages in reference to *Portrait with Stick* (Figure 94).

Fig. 94 Richard Monahan: *Portrait with stick (Portrait with…Series)*. 2011. Monoprint, pen and paper on card. 55 x 70cm.

3.3.1 Contours

The drawings that comprise the *Portrait with… Series* are somewhat defined by a shallow depth of field. Each drawing was begun with the express purpose of instigating a battle for the foreground between the three principle layers; the monoprint, the pen and the collage. Here recourse to linear recession is replaced by "discrete back-steps" (Rawson 1969: 200).

In *Portrait with stick* (Figure 94, above), two understandings of the term *contour* are developed, beginning with "*The overlapping contour"* (Rawson 1969: 200).

The overlapping contour: Refers to the point at which one line ceases on meeting another, thereby implying that one delineated object obscures the other. As a mode of perception, overlapping contours are in themselves an antithesis to shape constants (See 6.1 *Pattern of perception*). The overlapping contour is the most widely utilised device for spatial recession in line drawing, common across cultures and age ranges, clearly demonstrated in Figure 95 (Below), where it is deployed to imply the recession of hills in a landscape:

Fig. 95 Aubrey Monahan: *Welsh Landscape* (Detail). 2013. Pencil, coloured pencil and acrylic on paper. 21 x 28cm.

Each overlap suggests an amount of space that the viewer is unable to see, the size of which is determined by the viewer's knowledge of the object drawn, the comparative scale of the object drawn and the tonal variation of the object drawn.

The overlap may be achieved as a clean line or emphasised through tonal variation and is critical to the development of notional space beyond the picture surface. It gives the eye a reference point to move back from, a mark that implies that there is hidden information beyond it, essentially the key to foreshortening.

Three variations to a drawing of a hand demonstrate the impact of the overlap in the construction of depth illusion. The original drawing (Figure 96, below) is quickly executed, and this brevity of act demands that the line describes a large amount of information with an economy of movement; the line must describe in three-dimensions and so must break free of the outline and attempt to discover linear qualities by the abbreviation of shadow on the surface of the hand. The line must take into account the folds of skin at each join, in those areas that define that which is underneath the skin:

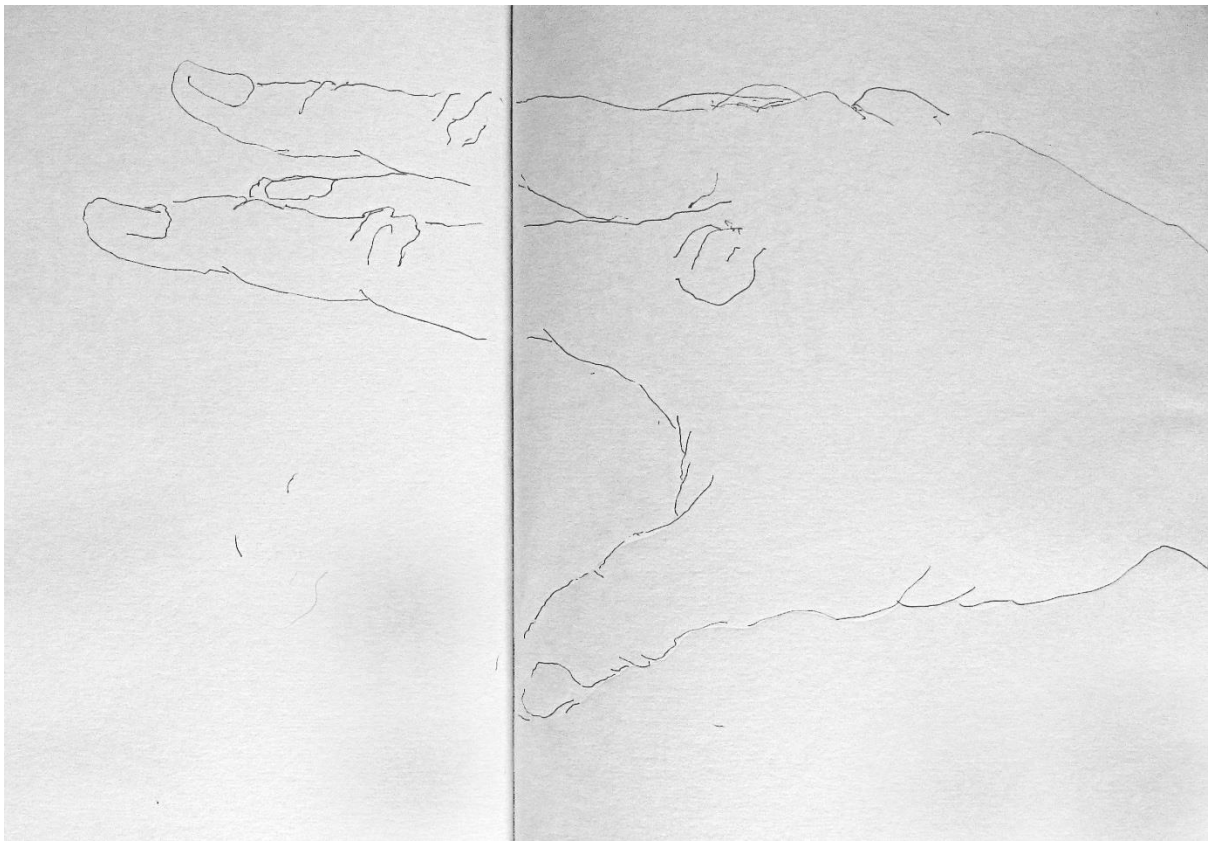


Fig. 96 Studio Notes: *Over-lapping contour illustration I.* 2005-2015. Gel pen on 90gsm paper. 29.7 x 21cm.

The result is an outline that must continually enter into the body of the drawing, an outline that is composed of numerous lines that describe the skin as covering three-dimensions, implying the continuation of the form not flattening it.

As Geer observes (Section 2.2 *The line as plane*), when beginning to draw from observation there is a tendency to try to pin down the outlines of a subject before proceeding to describe such information that lies inside the outline, creating a shape and filling it in. This effect is fabricated in Figure 97 (Below) by removing the over-lapping contours and tracing only the outlines of the previous drawing, before filling in the detail as separate entities. The result is a flattening of the image due to the lack of notional entities for the eye to back-step from. The point may be asserted by highlighting those areas on the original drawing that introduce the overlapping contour (illustrated in Figure 98), and comparing the two images.

Fig. 97 Studio Notes: *Over-lapping contour illustration II.* 2005-2015. HB pencil on 90gsm paper. 29.7 x 21cm.

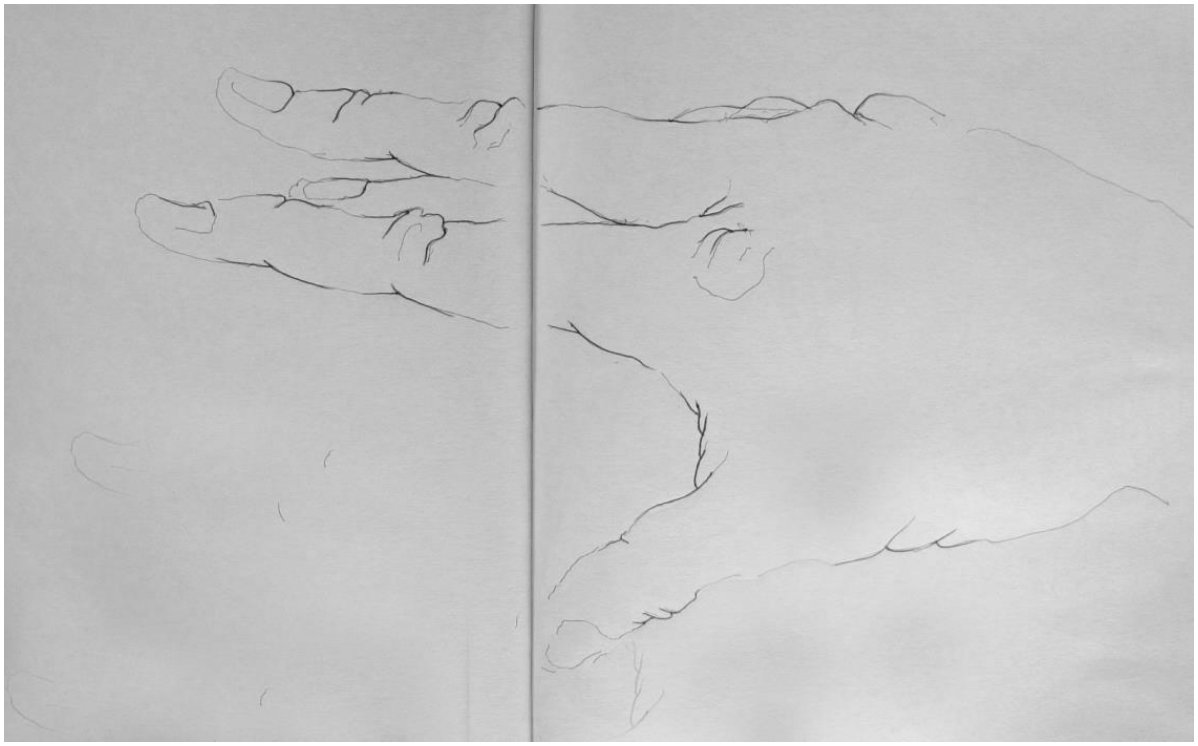


Fig. 98 Studio Notes: *Over-lapping contour illustration III.* 2005-2015. 2B pencil on 90gsm paper. 29.7 x 21cm.

By drawing the eye towards those areas of darker tone, the line acts as cynosure for the eye and brain to then consider the overlap as the focal point of the drawing. Consequently the drawing appears more three-dimensional, the hand defined by the structure of the skeleton.

The use of overlapping contours in *Portrait with stick* are employed in certain areas of the drawing in a similarly conventional manner, to imply small amounts of unseen space, for example, where the ear obstructs the view of the hand (Figure 99, below). However, allied to a flat, gestural drawing style, where tonal variation is not used to model form, the protrusion of the ear is somewhat unexpected, and appears to project forward into *real* space.

The optical illusion that promotes the ear forward, prompts further investigations of space in the progression of the drawing, enabling the drawings that make up the image to compete for space and to drag the viewer into a complex questioning of surface and depth and therefore, of drawing as a physical act and as an illusion.

Fig. 99 Richard Monahan: *Portrait with stick (Detail I), (Portrait with…Series)*. 2011. Monoprint, pen and paper on card. 55 x 70cm.

This is exemplified in Figure 100 (Below), where the rules governing the acceptance of the overlap as a denotation of spatial recession, are continually challenged, objects and gestures that at once appear to present themselves to the foreground of the drawing, are found on further observation, to exist in the background, and therefore in a state of perpetual limbo. Further spatial recession devices in the drawing will be explored over the following pages.

Fig. 100 Richard Monahan: *Portrait with stick (Detail II), (Portrait with…Series)*. 2011. Monoprint, pen and paper on card. 55 x 70cm.

The isolated contour: Curiously there are moments in drawing that come as revelations, though they have been manifestly evident from the beginning. The isolated contour exists as one such revelation in the development of this research. The isolated contour is similar in implication to the overlapping contour, a linear abbreviation of space, but excepting the necessity of the overlap.

Over great distances the perception of a landscape condenses vast amounts of space into small strips of visible land, this giving a horizontal impression to the perceived view. In landscape drawing, the contour is employed to create a sense of deep recession in small strips of the drawing surface. However the use of contour in drawing goes beyond the description of empirical fact, and is closer to a conceptualised process of notation,

manifested through act. Figure 101 (Below) translates the idea of horizontal information into the concept of horizontal act:

Fig. 101 Studio Notes: *Isolated horizontal contours.* 2005-2015. Pen and ink on 90gsm paper.29.7 x 21cm.

The drawing hand works across the page as in writing, to mimic and augment the perception of the horizontal and therefore of spatial recession, giving a horizontal emphasis to even vertical lines. Each contour acts as a barrier or fence over which the eye must jump to reach

the land hidden behind it. The more contours, the more hidden land and the greater the implication of space.

The contour is manifested very subtlety in *Portrait with stick* (see detail Figure 102, below), and across the wider Portrait with… Series, to aid in tilting the head backwards by the diminution in size of the contours to the right of the ear:

Fig. 102 Richard Monahan: *Portrait with stick (Detail III), (Portrait with…series)*. 2011. Monoprint, pen and paper on card. 55 x 70cm.

In drawing, the contour is critical to the suggestion of depth illusion, drawing the focus towards the perceptual phenomenon of *visual completion* (the prediction of what cannot be seen Palmer 2002:11). Whilst visual completion is universally necessary, the underlying schematic importance of the contour to drawing and therefore, to drawing perception, places an unusually strong focus on the point *between* recognisable things.

3.3.2 'Quiet' contributions to depth illusion employed in *Portrait with Stick*

There exist a number of other deceptively simple methods that *can* imply depth that are utilised and developed in *Portrait with stick* and more generally within the *Portrait with… Series* to contribute to the sense of dynamic flux. These I have termed *quiet* as they are consistently activated in drawing and are subsequently often overlooked. They will be briefly stated here.

Tonal contrast (Figure 103, below): On an abstract level, the greater the tonal contrast between mark and ground, the more the mark will be promoted to the surface of the drawing in the perception of the viewer (See 5.5 *The paradox of tonal contrast*). If this is to be obviated then a number of the other methods by which depth illusion can be implied must be employed. In *Portrait with stick*, the contrast in tone between drawing mediums gives a sense of perceptual depth to a flat drawing style:

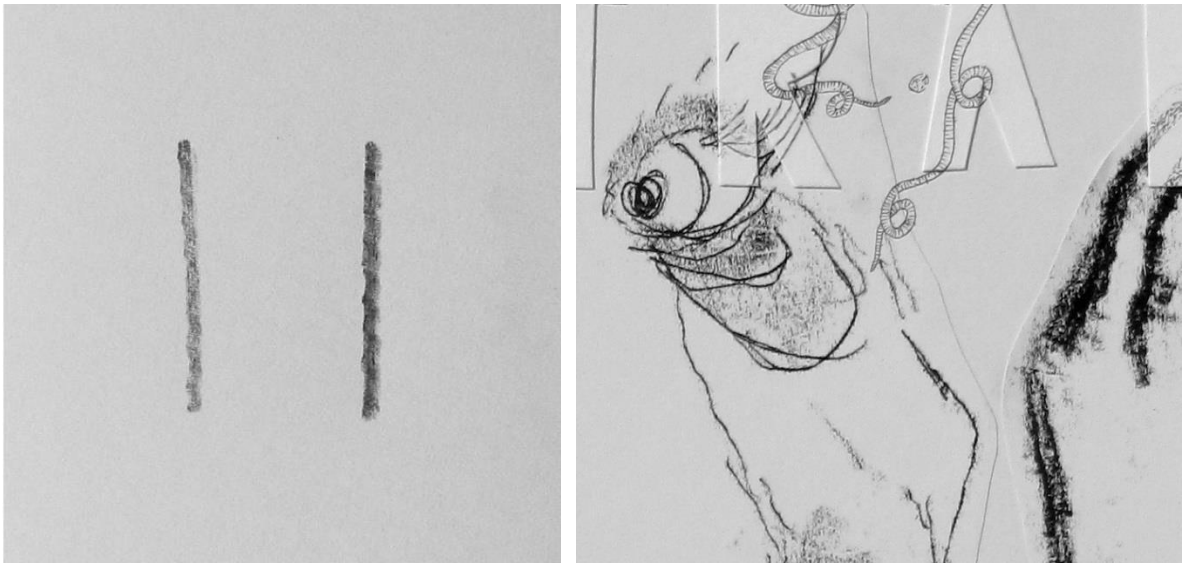


Fig. 103 Studio Notes: *Tonal variation comparison.* 2005-2015. 2B pencil on paper (left), monoprint, 0.05 fibre-tip pen and paper on card (right).

Furthermore, the difference in tone between the drawing styles enables the three drawings to function as one, in the physical space. Where this is altered and the lines of different

layers become similar in tone, the drawing layers merge, ultimately creating the fluctuating depth illusion that characterises the series.

Breadth of line: Variation in the breadth of a line can be read in the same way as the variation in tone (Figure 104, below). Even when the tone of the lines are relatively similar, a larger amount of a single tone will promote itself forward as more obviously *there* than the smaller amount. Though the line that describes the hand holding the stick is no darker in tone than the rest of the darkest monoprint lines that describe the head, the breadth of the line leads it to standout, forcing it forward in virtual space.

Fig. 104 Studio Notes: *Variation in line breadth.* 2005-2015. Letraset marker on paper (left), monoprint, 0.05 fibre-tip pen and paper on card (right).

Variation in sharpness: In Figure 105 (Below) the sharply delineated mark on the left-hand side is clearly promoted to the surface of the ground, whereas the soft-focus of the second mark allows it to fluctuate between notional depths. This can be observed in a comparison between the area of shading to the left of the second illustration in Figure 105, as compared

to the sharp but tonally lighter rendering of the worm. Though the shading exhibits darker tones and is read as a texture, that so often has the implication of act and therefore surface, the clarity of the marks that delineate the worm promote it towards the observer's eye.

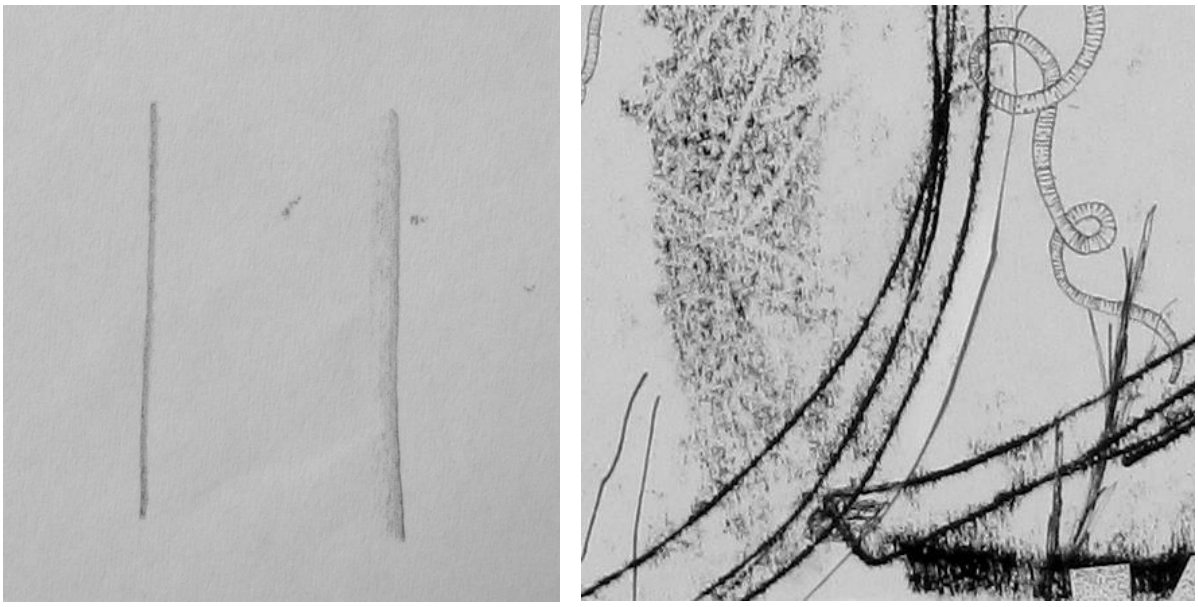


Fig. 105 Studio Notes: *Variation in line sharpness.* 2005-2015. 2B pencil on paper (left), monoprint, 0.05 fibre tip pen and paper on card (right).

A change in shape: When comparing a square to a triangle for example, the square appears to sit at the surface. The diagonal inherent to the perceptual understanding of a triangle encourages the reading of the shape as inherently three-dimensional (See Figure 106, below). This could be related to the idea of converging lines exhibiting distance if the point is read as depth or, if the point is read as in closest proximity to the viewer, the dynamic of the diagonal must present itself as more noticeable than the reading of a square or even a diamond. The combination of the square and the triangle has an interesting effect. The square, appearing to reside at the surface of the drawing, pushes the reading of the triangle into either the space behind the square or projecting into the liminal space between viewer and image. The comparative depth dynamic that exists between differing shapes is consistently utilised throughout the series. In the detail to the right, the circular bubble

exists as a flat shape whereas the triangular shaped sea-creature is read as traversing virtual three-dimensional space.

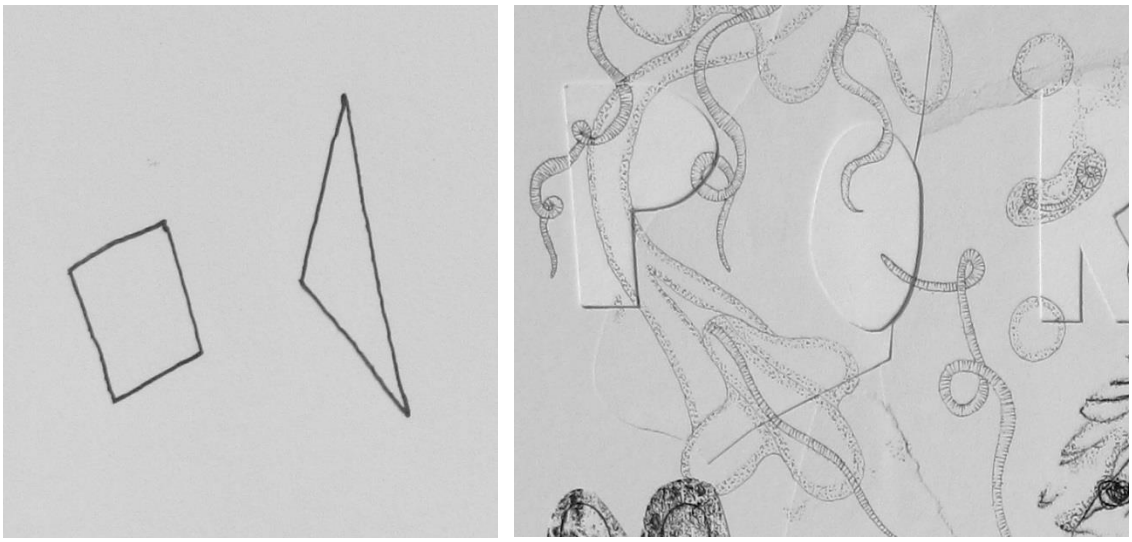


Fig. 106 Studio Notes: *Variation in shape.* 2005-2015. 0.1 fibre-tip pen on paper (left), monoprint, 0.05 fibre-tip pen and paper on card (right).

A change in location: The location of any mark affects its reading spatially. Where each are of a similar tone the reading of the space as a relationship between two marks or groups of marks, will depend on where the implication of eye level is situated and where any subsequent vanishing point is implied. The shapes to the left can be considered in front of one and other, depending upon whether they are read as standing on a ground or flying overhead (Figure 107, below):

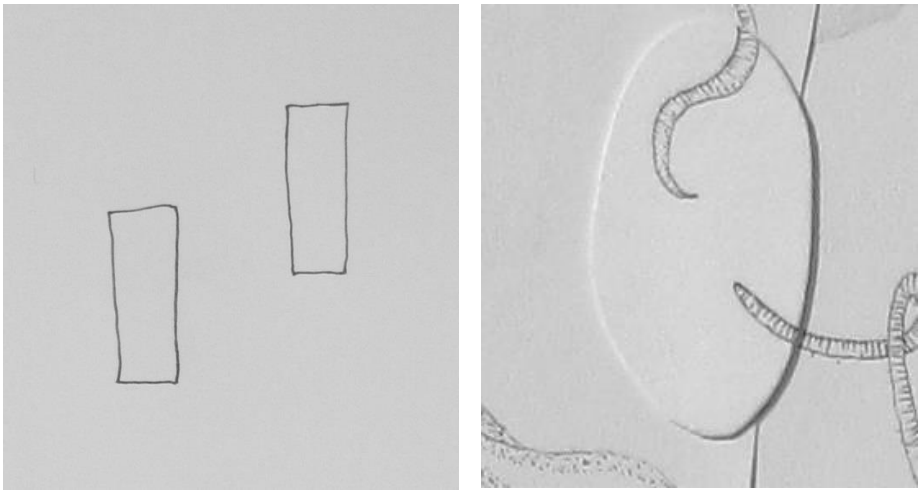


Fig. 107 Studio Notes: *Variation in location.* 2005-2015. 0.05 fibre-tip pen on paper (left), monoprint, 0.05 fibre tip pen and paper on card (right).

A change in scale: Where the meaning or description facilitated by marks are similar, a change in scale of object or groups of marks, will promote the larger to the surface of the image when the drawn objects exist in flat space i.e. with no bias to orientation. In *Portrait with Stick* this projects the furthest eye forwards (Figure 108, below):

Fig. 108 Studio Notes: *Variation in scale.* 2005-2015. Gel pen on paper (left), monoprint, 0.05 fibre-tip pen and paper on card (right).

Summary of the other modes of depth illusion: Disregarding the implication of image, the relationship between abstract marks on a page is activated as soon as a drawing is begun. The drawing in Figure 109 (Below) consists of a few marks committed to paper arbitrarily:

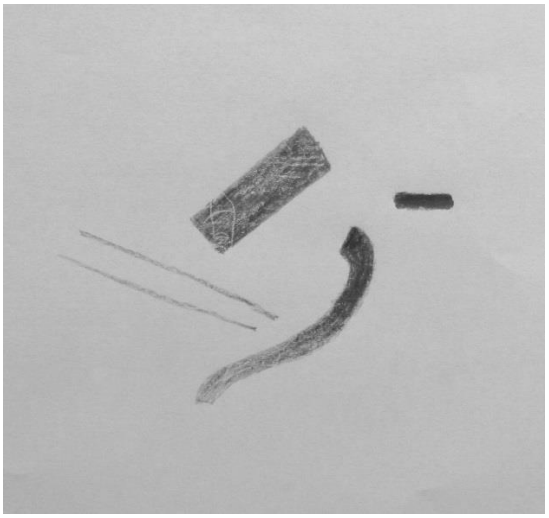


Fig. 109 Studio Notes: *Depth illusion as abstraction illustration.* 2005-2015. Charcoal on paper. 15 x 15cm.

The marks do not all appear to sit on the same pictorial plane, though they are all drawn on the same flat piece of paper literally. At any one point one mark may appear to be nearer or further in proximity to the viewer for the number of reasons already posited. Deciding which marks recede and which advance in such a random grouping becomes more difficult to determine the more marks that are applied. In drawing a subject, the very richness of detail encountered demands an unusual level of scrutiny:

> To draw what lies in front of us, it is helpful to see-almost to feel-the vast ocean of detail that is out there. Though this may not help us navigate, or plan, or identify quickly, or do anything obviously useful or essential to survival, seeing lots of actual detail is very helpful in drawing.
>
> (Geer 2011: 48)

To cope with the mass of detail there are generally agreed systems, such as perspective or contours, to represent depth illusion. However, as has been demonstrated, there are many other variables that contribute to this dynamic, *quiet* contributions to depth illusion that are often activated accidentally, confusing the communication of a drawing. Acknowledgment of these facilitates perception, conditioning the drawer to look for the *quiet* factors that contribute to the mass of detail available to be drawn, and ultimately, enables greater control over the direction and communicative efficacy of drawings.

3.4 Summary of *Spatial Awareness*

An exploration of spatial qualities is undertaken each time a drawing is begun, resulting in a continuous process of evaluating marks against one and other. This process encourages drawers to minutely question the process of trans-dimensional interpretation through the drawing.

The conceptualisation of spatial awareness into a pyscho-visual process, whereby understanding is augmented by the projection of concepts onto that which is perceived, is manifestly underlined by the process of drawing. Linear projection, contour and the myriad other ways of suggesting depth, are each found to be fundamentally part of the perception of the drawer.

The compartmentalisation of perception that is necessary to the translation of a subject through dimensions is a process where each component is analysed and in which, critically, the process of perception is not taken as veridical. However, empirical evidence is subject to interpretation, 'sight is itself thought' (Goethe in Chamberlain 1914: 64), and drawing fundamentally alters how we approach the understanding of spatial awareness by the hyper-detailed and task-specific re-examining of the components that together provide the whole of perceptual understanding.

Piece by piece, the understanding of depth illusion as a comparison between marks on a surface, is incorporated into the drawn practice, re-asserting the drawer's authority over the direction and communicative implication of each mark made.

Component 4: Touch

"The artist 'sees' with hands as well as eyes, both sensory extensors of the body in the world."

(Rosand 2002:13)

In a 2006 interview George Negroponte (*The Drawing Center*, New York), and Kate Macfarlane (*The Drawing* Room, London), were asked to articulate the essential quality that drawing brought to the work of contemporary artists. Their responses were remarkable for the similarity of emphasis:

> George Negroponte – It's the touch. That handmade quality. It's the core and the reservoir. It's that first step an artist returns to all the time. It's the first and best reminder that art is not just an idea, it's an action.
>
> Kate Macfarlane – The capacity for authenticity and directness. A return to the handmade or hand-crafted is a distinctive feature of so much contemporary drawing...
>
> (Negroponte and MacFarlane in Shariatmadari 2006: 15)

Both Negroponte and MacFarlane emphasise the direct contact between artist and artwork as constituting the *essential quality of drawing.* And it is this concept of touch that is central to the definition of drawing that drives this research.

John Tchalenko observes that children typically begin to draw with an emphasis on the physical experience, the movement of the hand leading the eye (Tchalenko 2013). The acknowledgment of the visual result of their actions and the extent to which they control the outcomes, eventually lead to this process being reversed, the eye taking the lead and the hand following. The link is then established, between act and image, that a physical gesture can become a two-dimensional, visual thing, "At about 18 months of age, children

begin to make marks on paper….Usually around the age of 2 or 3, this scribbling begins to be interpreted as a picture" (Foley & Mullis 2008). So the basic rules for drawing are set early on: the concept that ideas can cross dimensions through physical act. Drawing's efficacy as a mode of reasoning is augmented by the lack of an absolute concrete set of rules, governed instead by a set of conventions developed through history. This flexibility enables children to draw immediately, and to absorb the conventions of drawing without conscious acknowledgment. Drawing comes into being as a visual agreement between an innate need to reason physically and visually, alongside, and conditioned by, an experiential and exponentially increasing exposure to images.

The following sub-sections are linked by the premise that the physicality inherent to the drawing process, alters how we perceive real or imagined phenomena. Beginning with reflections on *Touch as a mode of perception* the enquiry continues by extension to briefly outline *Two experiments by Claude Heath*, before concluding with an analysis of the kinaesthetic implications of a visuomotor response to subject, in *Saccades*.

4.1 Touch as a mode of perception

In drawing the accuracy and sensitivity of the tools used in response to the movements of the hand, allow of little room for error. Each nuance and gesture is accurately recorded on the ground, hesitancy and accident are high-lighted, history is difficult to erase. A language of touch is developed heuristically, a physical understanding of subject, observation, interpretation, act and material. This relationship does not travel in one direction, it is a relationship that is built and conceptualised through the development of each facet in response to the other. Moreover, it is an understanding and communication of visual

phenomena in which the motor-memory and physical fitness-to-purpose of the muscle groups, direct the progress of the drawing spatially.

In the study, *Segmentation and accuracy in copying and drawing: Experts and beginners*, John Tchalenko [xv] finds there to be little difference between expert and novice in the performance of basic straight and curved lines. However, coordination in drawing moves beyond the trace of one point to another, developing over time into a flexible and wide-ranging variety of hand movements. Typically, when artists are beginning to draw from observation, the adopted approach is tentative, with multiple *finding* lines approximating the position of one edge or contour (Figure 110, below). Even when tentative marks are replaced by marks of conviction, the inherent difficulty of drawing from life results in the search for shape, or for the two-dimensional location of the mark upon the page, overriding other aspects of coordination, plotting a course that circumscribes the subject. The result is a tendency to neglect the act of mark-making as the proactive physical process that initiated our interest in drawing as children, and to neglect the fact that marks are a visual interpretation that must be flexible to translate across dimensions.

Fig. 110 Studio Notes: *1994 life-drawing* (Detail). Pre-2005. Charcoal on Cartridge newsprint. 84.1 x 59.4cm.

In Figure 110 (Above), the drawn lines are hesitant, unsure, dominated by the search for accuracy. There is little control or deliberation over the medium. The lines are committed in spite of the medium, rather than in tune with it. There is little control exercised over the tonal variation of the line, which arbitrarily varies from light to dark, nor is there control over the breadth of the line. The drawing is defined by uncertainty and a hesitancy of touch in fear of error.

When drawing becomes a consistent method, drawers become more spatially aware within the confines of their practice, enabling a more conscious control of the drawing utensil/medium (See Figure 111, below). This in turn enables artists to expand the range of marks employed, thereby projecting a physical sensitivity of touch onto the observed information, altering how each observed area is perceived as it becomes the forerunner to a potential mark. By expanding the drawn language, each variation in tone, speed, breadth etc., reveals not only something of the subject, but something of the contact between artist and artwork, prioritising the human-driven and ultimately symbolic characterisation of perceived phenomena, thus “making an image by direct extension of the body” (David Rosand 2002: XXI). Figure 111 demonstrates greater coordination, evident both in terms of technique and in acknowledgment of the material qualities of the medium. This second drawing is indicative of confidence in the act of drawing, a line allied to greater experience both in terms of material and in terms of the physical development of coordination, the muscles of the fingers somewhat familiar with drawing. This experience is manifested through the use of a single line to delineate form together with the control of the breadth and tonal qualities of that line. However, the second drawing may be said to be as weighted towards the physicality of gesture as the first was to the location of the marks.

Fig. 111 Studio Notes: *2001 life-drawing* (Detail). Pre-2005. Charcoal on Cartridge paper. 84.1 x 59.4cm.

The detail in Figure 112 (Below) is indicative of a more flexible approach to drawing:

Fig. 112 Studio Notes: *Skeleton study*. 2005-2015. 0.05 fibre-tip pen and 2B pencil on 90gsm paper. 29.7 x 21cm.

A tentative approach is adopted to drawing the skeleton. However, whereas in the first drawing, hesitancy stems from inexperience, here hesitancy stems from an acknowledgment both of the complexity of the subject and the options available when attempting to translate it. The language of marks has been developed and extended to cope with a wider variety of stimuli. Perhaps most notably, in the lines describing the background that present the forehead as solid shape, an acknowledgment of the limitations of linear outlines is manifested.

As drawing practice develops the relationship between observation, thought and act becomes less distinct. Over time techniques become automatically assimilated into an interpretation of the visual properties of a subject, an interpretation that critically has its roots in the translation of perception through act, but that is manifestly a two-way process of information to artist and from artist to information. This balance allows for the projection of drawing methods onto the subject. This process of interpretation, complex and exponentially developed as a form of notation in response to what is experienced and recorded, is not a neutral addition to vision and accordingly, not a neutral addition to perception.

4.2 Two experiments by Claude Heath

The assimilation of touch as a means of interpreting perception is reminiscent of the analogy made by Rene Descartes in his 1637 treatise on optics, *Dioptrics*: [xvi]

> It has no doubt sometimes happened to you, while walking during the night without a light through difficult paths, you have had need of a stick to help direct yourself, and from this you have been able to remark that you feel, through the medium of the stick, the various objects which you encounter around yourself, and that you could distinguish if there were trees, or rocks, or sand, or water, or grass, or mud or some other similar thing. It is true that this sort of sensation is somewhat confused and

> obscure for those who are not used to it, but consider it for those who, being born blind, have used it all their lives, and you will find that they use it so perfectly and so exactly that it may almost be said that they see with their hands, or that their stick is the organ of a sixth sense which was given to them instead of sight.
>
> (Descartes 1637: 2&3)

With the blind man analogy touch is used to see, however it is not as simple as describing drawing as a reversal of this process, that artists see to touch. In *Touch as a mode of perception*, it was proposed that the drawing process is not mono-directional in this sense. Where similarities may be drawn to Descartes' story, they are the relationship between touch and utensil as the means of interpreting a subject. In drawing, the physical is somewhat unusually fore-fronted as a primary mode of perception. The contact between artist and drawing is the trace of a set of questions and answers, optically/imaginatively considered, but also physically considered so that a ritualistic questioning of perception through the physicality of gesture, is manifest.

In 1994 the artist and researcher Claude Heath began a series of drawings that investigated touch as a mode of perception. In *Buddha* (Figure 113, below), Heath approaches the subject blindfold, freeing drawing from the conditioned history of vision:

> This had the advantage that I would not be concerned about what looked aesthetically 'right' or 'good' and I would be able to directly concentrate on what I was sensing. My drawing arm simultaneously recreated on the paper what it was that my feeling arm was discovering—and my attention was operating somewhere between the object and the sheet.
>
> (Heath 2011)

By using touch to both collect and disseminate information, Heath employs different parts of the brain to the normative drawing processes, the motor cortex as opposed to pre-motor cortex (Miall[xvii] in Tchalenko 2013), to conduct the drawing. Adopting a kinaesthetic

approach, Heath effects a direct translation of the subject, asserting the physicality of the drawing process, whilst simultaneously underlining the fact that drawing is not *seeing*, but a constructed interpretation of perception.

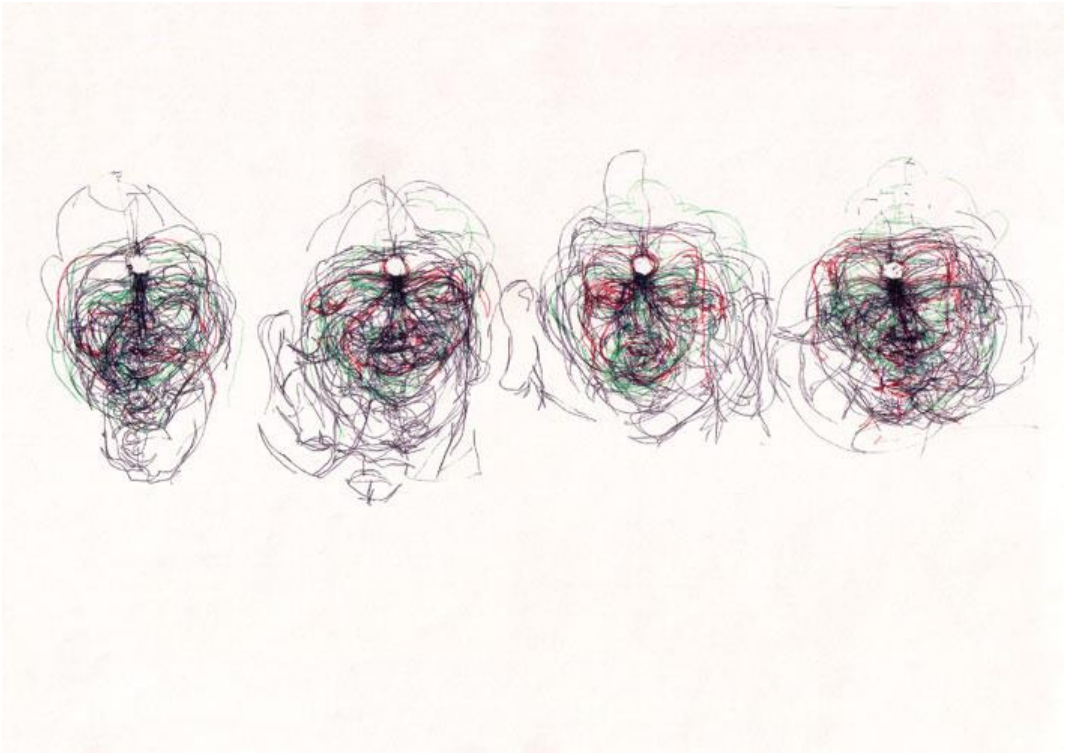


Fig. 113 Claude Heath: *Buddha*. 1995. Biro on paper. 17.5 x 50cm. Henry Moore Institute.

In *Visual Thinking* (1970), Arnheim refers to the "psycho-physical" process of looking:

> In looking at an object we reach out for it. With an invisible finger we move through the space around us, go out to the distant places where things are found, touch them, catch them, scan their surfaces, trace their borders, explore their texture. It is an eminently active occupation.
>
> (Arnheim 1970: 19-20)

Heath's later experiment of 2001 (Figure 114, below), is a continuation of the concepts explored by *Bhudda*, and could be considered a literal response to Arnheim's assertions:

> I wanted to see if this sensation of being directly in touch with my subject, could be achieved while using my eyes. So I used them as if they were fingertips

exploring the surfaces of plants, moving over contours one by one. All this was drawn onto paper that was taped to the underneath of the table that the plants stood on, so that I was working on the underside of the table.

(Heath 2011)

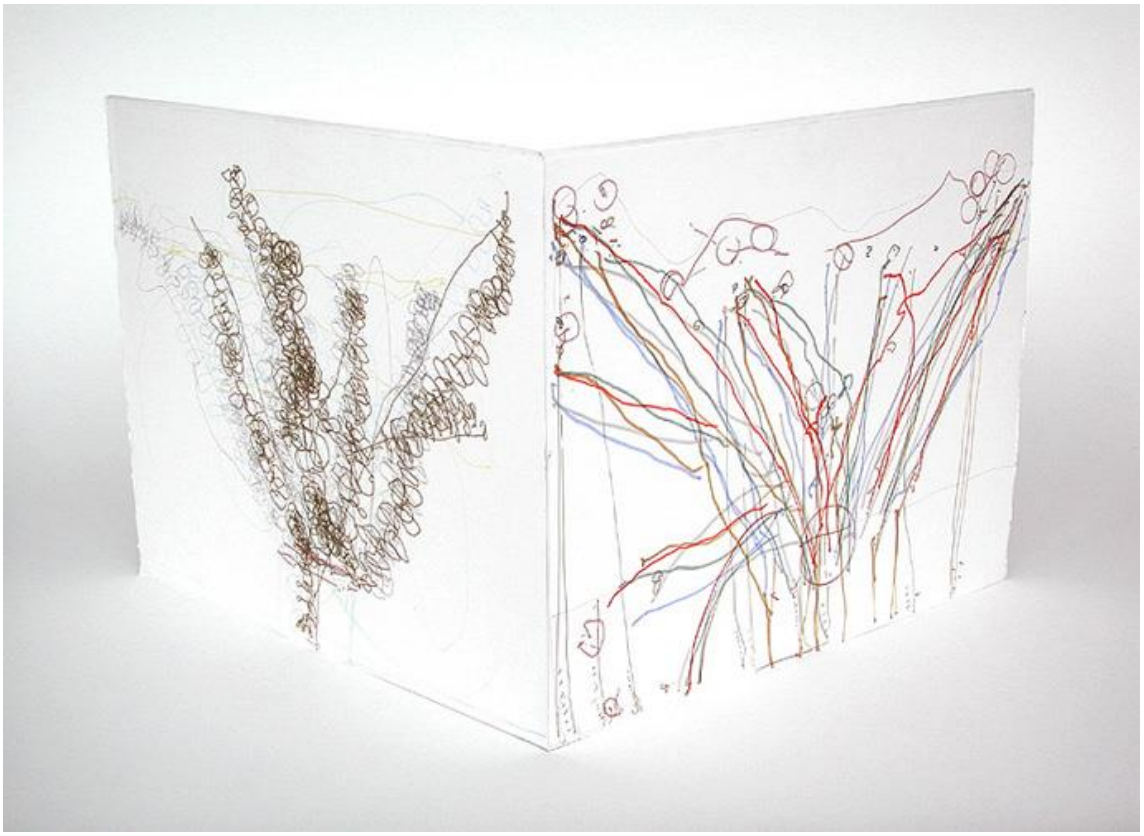


Fig. 114 Claude Heath: *Eucalyptus*. 2001. Acrylic ink on paper, Mounted on board, on 2 aluminium panels. 45.8 x 56cm each. With the Artist.

Here Heath, like Arnheim, prioritises the proactive nature of perception, rejecting it as a passive instinct and asserting it as a *task-specific occupation*. The consideration of touch cannot be considered secondary to observation. His experiment embodies an approach to drawing that positions the sense of the physical at the forefront of the interpretation of perceived phenomena. Heath underlines this concept and employs his specific methods to free the drawing process from the conventions of drawing. The process adopted is a hyper-literal reflection on the process of observation in drawing that attempts to trace eye-

movements over and above the implication of image. Heath's experiments, by closing the gap between what we see and what we do in drawing, underlines the fact that drawing perception does not accord to survival mode perception. When adopting a normative approach to drawing from observation, the sense of touch is manifested as a conceptualisation *within* the interpretation of sight, ultimately altering the artist's perception as the subject is transferred into marks.

4.3 Saccades

Drawing practice accentuates the process of perception as one of observation/imagination, interpretation and act in time. In this process the movement of the eye between visual stimulants, saccades, is underlined as both guide to the hand and as guided by the hand. This physicality in response to visual stimuli equates to a saccadic movement of the hand. To what extent then, do the movements of hand and eye concur? If drawing a subject is a true trace of the eye movements, then drawing perception and day-to-day perception can be said to be identical in purpose. If they significantly differ then it must be accepted that drawing alters perception.

Over the course of the research period a number of experiments are made that attempt to map the saccadic process. These begin with the drawing process that first drew my attention to the saccadic movement of the eye, then continue as experiments, first of my own, and subsequently in reference to a drawing by the artist and researcher, Catrin Webster, and then followed by those of my experiments that exist as visual quotations from two other artists and researchers, Claude Heath and Angela Brew respectively. This is an attempt to limit the physical influence on drawing and draw as a physiological trace of natural eye movements.

4.3.1 Saccadic Drawing Process 1

The first set of drawings are undertaken, the process deliberately moved away from image-centred drawing and towards process-centred drawing, a manifestation of the physical trace through time. Each drawing is made without lifting the hand from the paper, creating a linear pathway:

Fig. 115 Studio Notes: *Saccadic experiment 1-continuous line drawing II.* 2005-2015. Monoprint on 90gsm cartridge paper. 84.1 x 59.4cm.

The result of this technical ground rule is to free the eyes from constant focus on the drawing surface. The hand to some extent is also freed, the continuous line a constant source of spatial co-ordinates. As this freedom is acknowledged, the drawing's progress is aligned to the sense that the hand can follow the direction of the eye over the observed information, creating a drawing that is physiologically tracing, not just the gestural pathway across the time of the drawing, but also the visual pathway. However, the drawing as an experiment is compromised by aesthetic consideration. In allowing the eye to return to the ground and not tracing this journey from subject to ground, the drawing does not reflect the path of the eye. The resulting drawing comprises a linear visual journey that *interprets* the eye's path across the information within the room, and must be considered as a visual acknowledgment of this process rather than a mapping of it.

The drawing *Italian Landscape* by Catrin Webster[xviii] is illustrated in Figure 116, below. The drawing could be described as a conversation between hand and eye movements. In explanation of the drawing, Webster writes, 'I try to be truthful to the way I look, following my sightline through a place and recording the things that excite me visually – a light switch, wallpaper, street signs, a face or a foot.' (Webster in Boyd 2008: 88). By responding to eye movement more literally, Webster moves the drawing process closer physiologically, to normative perception.

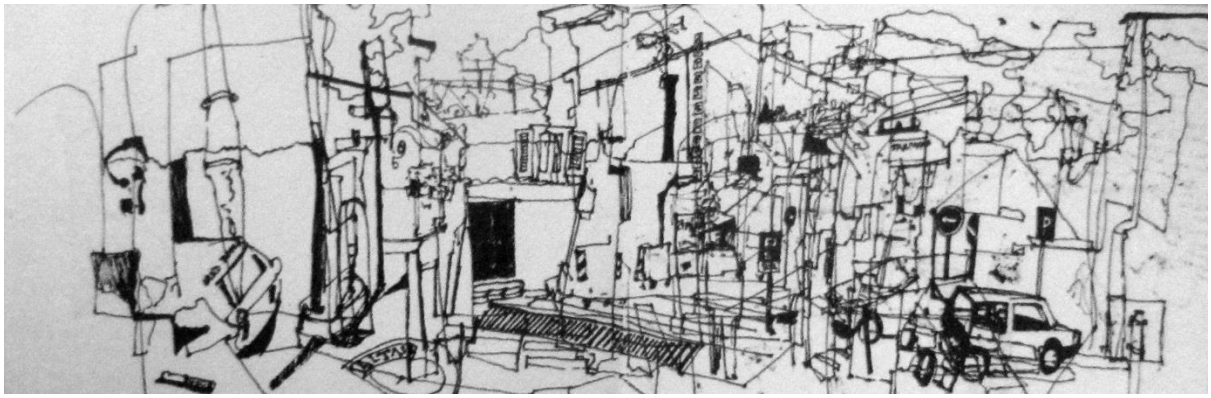


Fig. 116 Catrin Webster *Italian Landscape.* 2006. Ink on paper. 15.5 x 48cm.

The resulting drawing moves between recognisable features of the landscape and the abstracted marks where the hand struggles to encode with sufficient rapidity, the observations resulting from each eye movement. However, as the drawing ideology moves closer to eye movement, the appearance of the drawing is evermore abstracted from the subject, truthful to the *way* of looking, as opposed to the appearance of the subject.

4.3.2 Saccadic Drawing Process 2

The subject for the second set of drawings is illustrated below (Figure 117). The second set of drawings attempt to allow the eye to be influenced naturally, in terms of intuitive visual stimuli, without recourse to the demands of drawing vision.

The drawing progresses as a series of remembered observations resulting from the saccadic movement of the eye, detailing those points at which the eye comes to rest within the visual field for an equal amount of time. This is distinct from my usual drawing process, as it is not compositionally controlled by the reaction to the trace of the hand on the ground.

There is no prolonged fixation on an individual object, the process of looking has not been stopped to draw everything in the mirror in the second illustration. On looking back to the subject, I allowed my gaze to be stimulated naturally, allowing the “gaze-shift” (Tchalenko 2013), to fix on that which caught my attention, to perceive in survival mode between moments of drawing perceptually, rather than conceptually (Figures 118 & 119, below):

Fig. 117 *Studio* Notes: *Saccadic movement source*. 2005-2015. Digital Photograph.

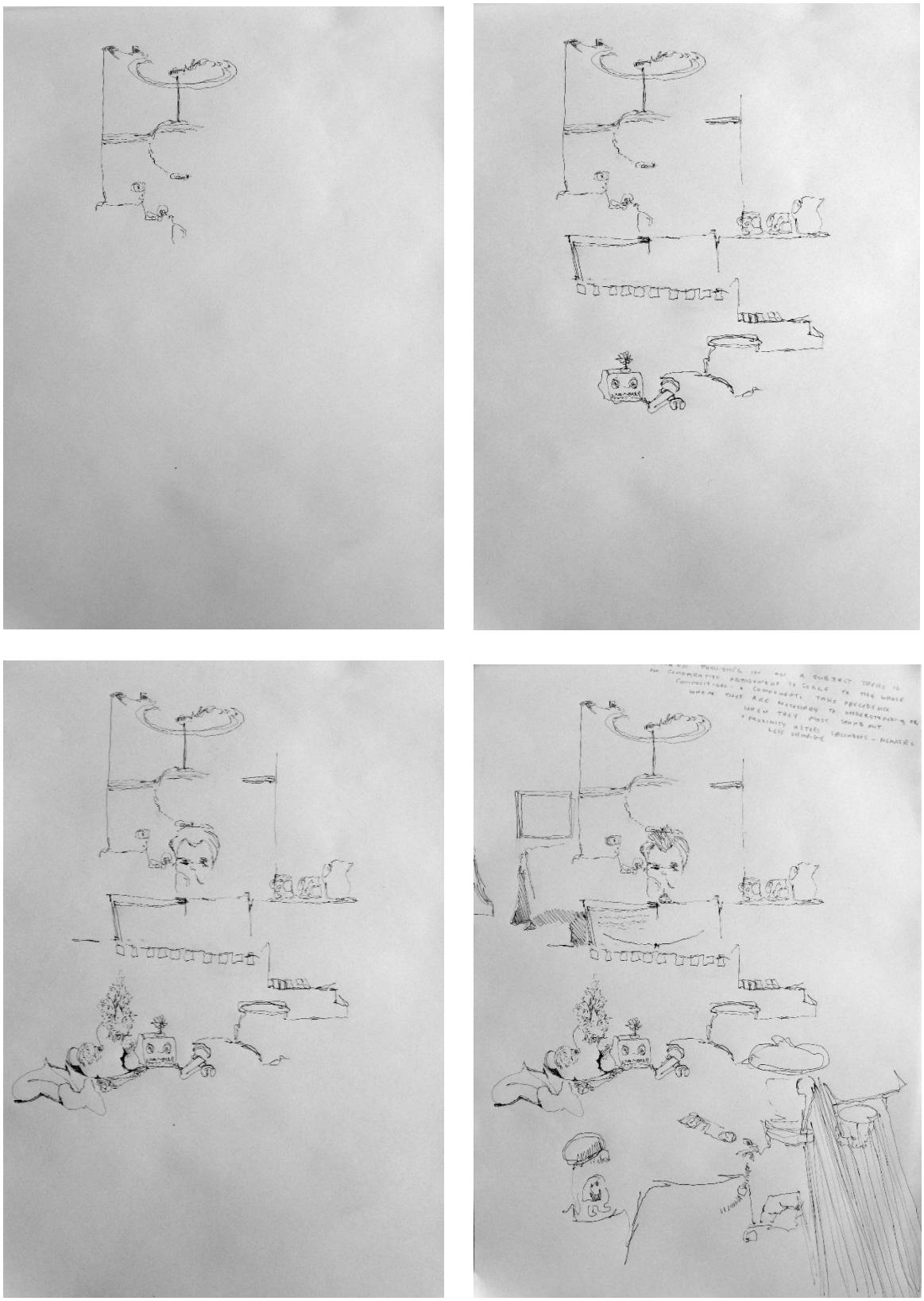


Fig.118 Studio Notes: *Saccadic experiment 2 (stages 1-4).* 2005-2015. Fountain pen on 90gsm paper. 29.7 x 21cm.

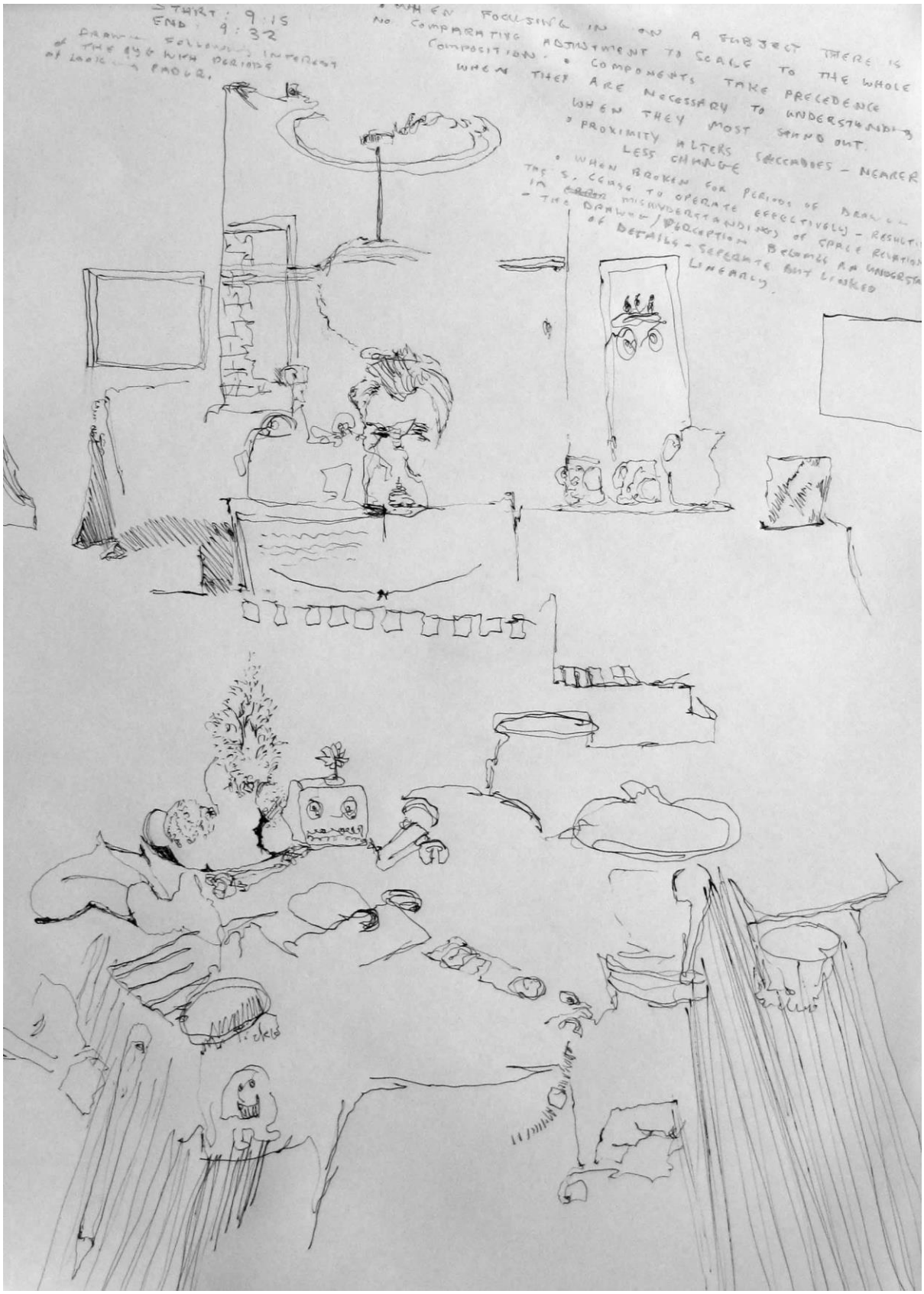


Fig. 119 Studio Notes: *Saccadic experiment 2 (stage 5).* 2005-2015. Fountain pen on 90gsm paper. 29.7 x 21cm.

The drawing is an artificially slowed down process of observation. The limitations set produce a confusion of results. The drawing follows the external stimuli of the eye as a mode of looking for subjects to draw, but then proceeds to draw that subject for as long as possible until the memory is used. In this process the memory of the whole is an inadequate substitute for the rapid succession of observations generally used in both general observation and drawing observation. This mode of drawing removes “detail-access vision” (Geer 2011: 48) from the drawing process and replaces it with memory. The resulting drawing reduces objects to a few lines and loses a sense of spatial proportion. Whilst it is closer to following the saccades than in Figure 115 (Page), the process incorporates comparatively large pauses between saccades, in an exaggerated slowing down of the process, this creates a sense of dramatic anticipation and deliberation between each saccade that removes the drawing from a sense of natural eye movement.

4.3.2 Saccadic Drawing Process 3

To move closer to tracing the saccades, the following drawing (Figure 120, below) adopts Heath’s approach to drawing flowers, drawing *blind*, thus enabling the gaze to be concentrated fully on the subject. The drawing attempts to de-conceptualise the process of looking whilst drawing by isolating each from the other, relying on the proprioception of the hand to trace a coherent drawing. By combining actions of the hand to movements of the eye over the subject, the drawing is closer to a trace of survival mode perception. It is a trace of the positioning of the eye in response to visual stimuli. The short time in which to render each fixation establishes the capability of the hand to draw the shape blind. However, the stepping down between objects on the

mantelpiece in the centre right of the drawing, suggests an inability to relate shapes spatially:

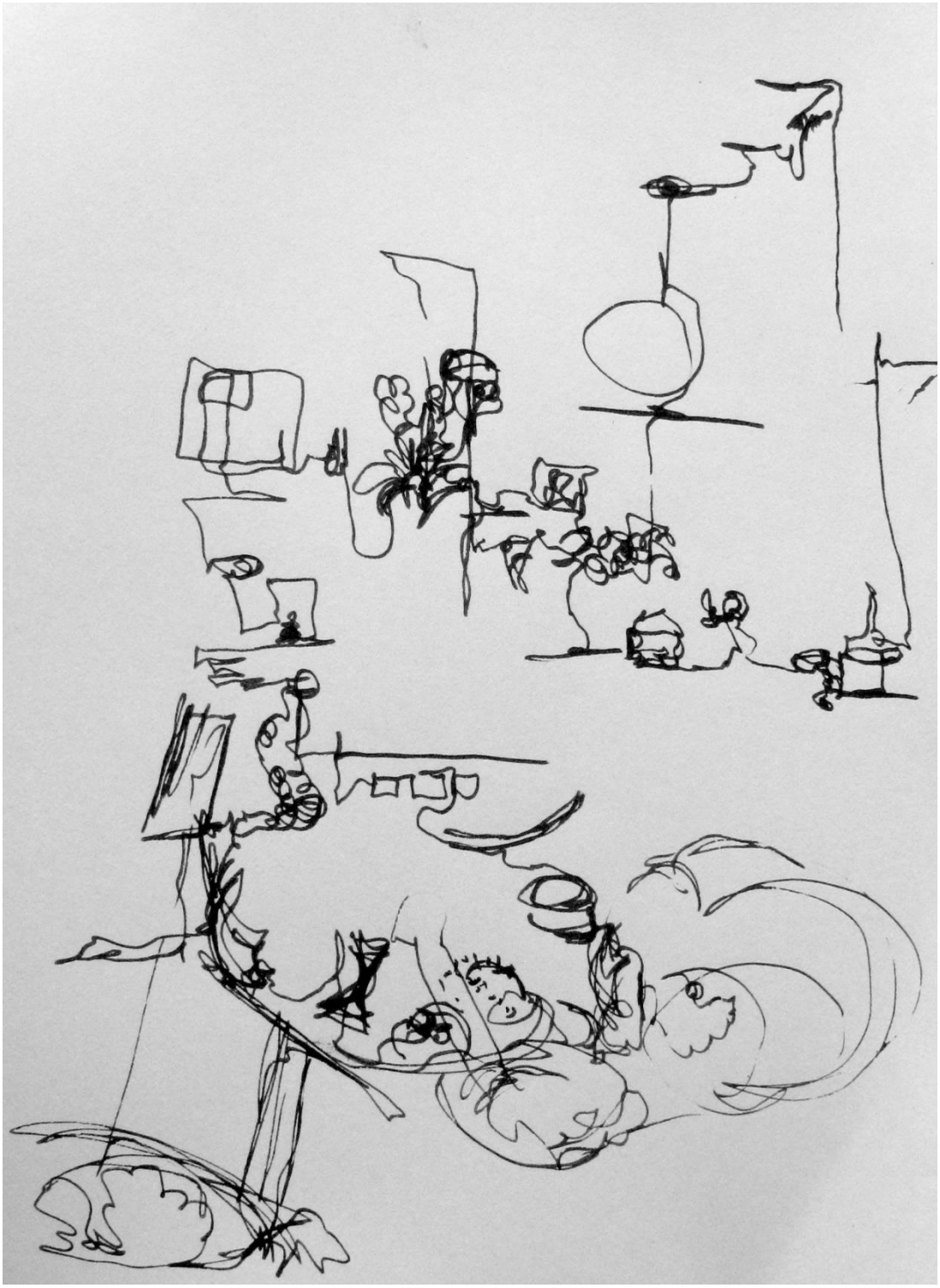


Fig. 120 Studio Notes*: Saccadic experiment 3 (adapted from Claude Heath's 'Plants' drawings).* 2005-2015. Fountain pen on 90gsm paper. 29.7 x 21cm.

The drawing is an extension of the last in that it attempts to be responsive to external stimuli. The drawing reduces all hand movements to graphic traces of the saccades, eschewing representation of the subject. The drawing refers less to the image but how the eye travels between and over each subject.

The difficulty with the blind drawing approach pertains to the deliberate delineation of objects in the observed environment. Delineation comes from drawing, but we see in great vistas and do not convert each item into neatly outlined shapes.

4.3.2 Saccadic Drawing Process 4

The last set of drawings (Figures 121-2, below) is an adaptation of a process employed by Angela Brew in *Learning to Pause*:[xix]

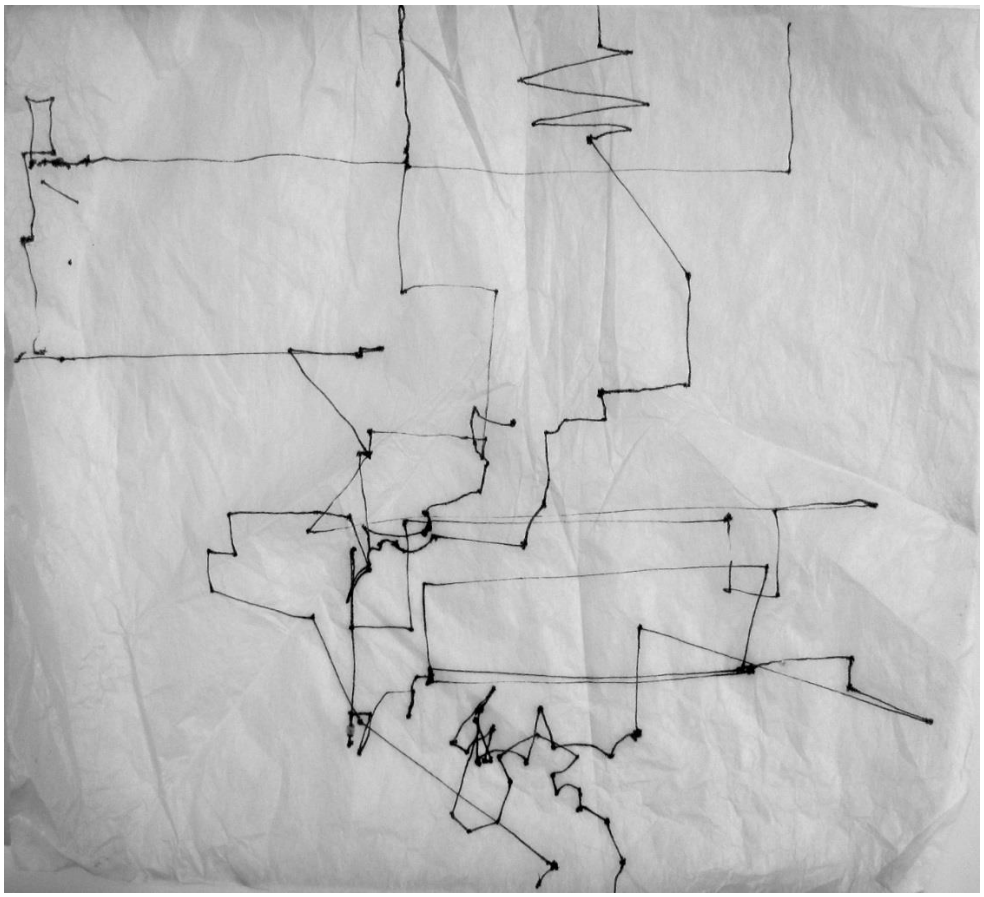


Fig. 121 Studio Notes: *Saccadic experiment 4 (adapted from Angela Brew's 'Learning to Pause').* 2005-2015. Berol writing pen on tissue paper. 29.7 x 21cm.

By using blotting paper as a ground, Brew documented each pause in the drawing process with a blot of ink. Combining these materials with the *blind* drawing technique establishes an abstract, but much more literal, trace of eye movements across the observed environment, first in the linear version and subsequently, in the second layer of paper, in the form of dots (Figure 122). This technique pushes drawing closer to a representation of saccadic movement. The final reservations are a lack of accuracy in tracing the movements of the eye onto the ground and that there remains an acknowledgment in the process that a drawing is being created, therefore the trace of perception remains one of drawing as opposed to everyday perception.

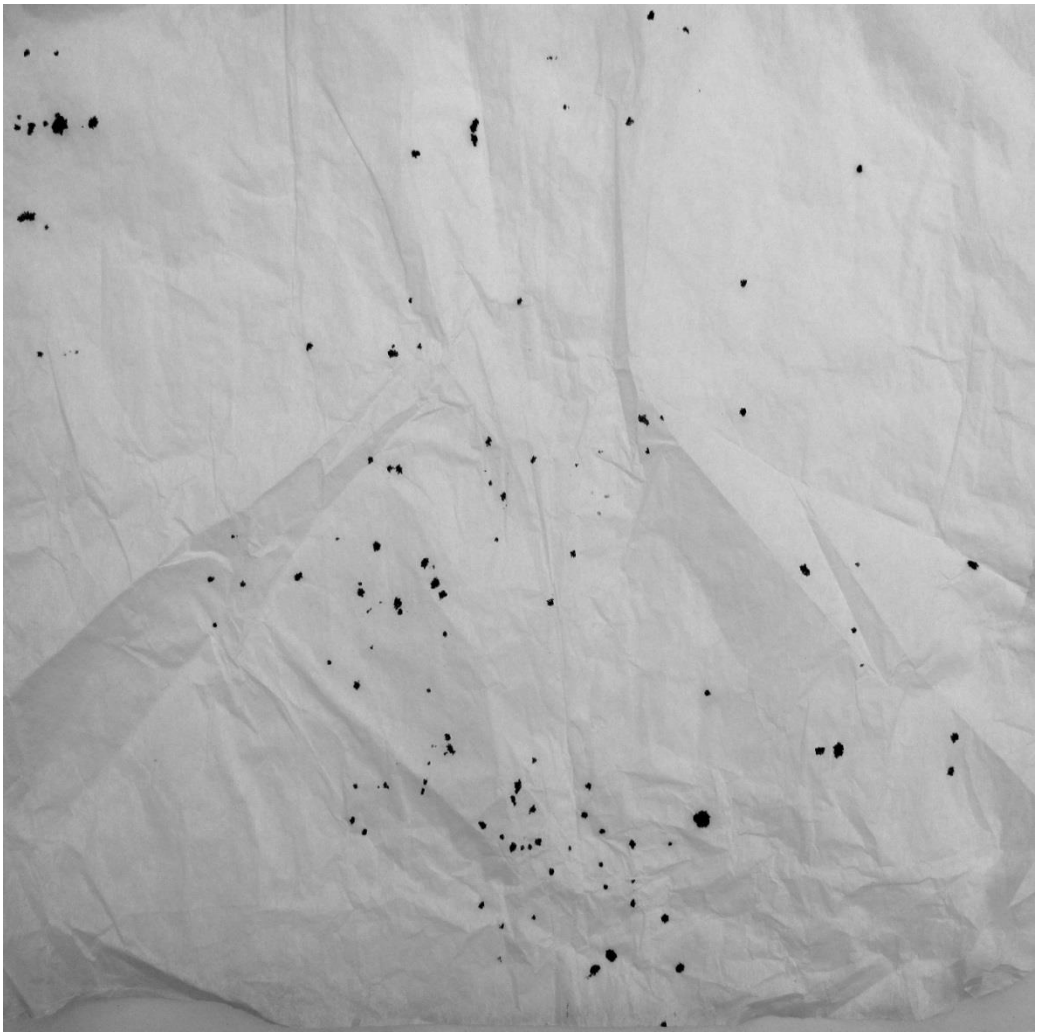


Fig. 122 Studio Notes: *Saccadic experiment 5 (adapted from Angela Brew's 'Learning to Pause')* 2005 -2015. Berol writing pen on tissue paper. 29.7 x 21cm.

The experimental drawings undertaken here begin as an investigation into the process of drawing and end in a drawing that appears to be abstract, resembling a chart or map. The attempts to co-ordinate drawing to the movements of the eye, underline the fundamental difference between drawing and seeing. The closer each drawing approaches to a linear trace of normative saccadic movement, the more abstract they become. If artists were to draw as an approximation of day-to-day survival mode perception, the rapidity of the saccades would require the graphic results to equate to a series of dots, a trace of the relocation of focal points. An acceptance of this assertion determines that observational drawing does not re-present an accurate reflection of optical perception, it cannot. It must remain, therefore, for drawers to conceptualise and exert control over optical perception in order to render a drawing that would be a recognisably figurative representation of the subject. This control stems from the requirements of encoding vision i.e. from drawing. The process of drawing, the transferral of information across dimensions, requires a period of interpretation. This progresses throughout the drawing process. Across the processes of observation and act, thought defines how this interpretation is to be conceptualised into the drawing. This process is the point at which drawing can be said to structure perception, for it defines how we interpret information and is based on a personal experiential and art historical learning process.

John Tchalenko on the saccades in drawing: In drawing the eye is usually concentrated on either subject or ground. Research into the visuomotor implications of drawing, by the artist and researcher John Tchalenko, utilises eye-tracking cameras to plot the movements of the eye whilst simultaneously filming the progress of the drawing. Tchalenko finds that artists draw without observing the hand 30% of the time during

simple observational drawing tasks. The percentage rises to 70%, during complex tasks. The motor memory, by physically locating the position of the tool on the ground in the context of the preceding marks made and the edge of the ground itself, allows the progression of the work whilst directly observing the subject for a significant amount of time in the progress of a drawing.

In drawing, a saccadic process is traced on the ground, but one that combines an understanding of the relationships within the whole field of vision with a hyper-detailed string of observations. The eye informs and directs similarly saccadic movements of the hand. The hand, in turn, guides the eye, as visual and gestural manifestations of the subject. The drawing of a subject changes the way in which it is observed, not slowing the saccadic movement down, but at points, investing more time observing sections within a subject, as fits the requirements of the drawing and the time taken to render the image. The drawer compartmentalises the observed subject into small segments:

> Expert copying is seen to be founded on the perception of the original as a compilation of simple lines. Such a selective vision is dedicated to producing hand movements for drawing. For most people it is not the natural way of perceiving the external world in everyday activities. For example, when recognizing a person, a nose would be perceived as a facial feature with certain characteristics – big, small, pointed, red, etc. Only an artist drawing the portrait would perceive it as a succession of four consecutive simple lines – a perception allowing direct visuomotor transformation and providing maximum graphic accuracy.
>
> (Tchalenko 2009: 797)

Tchalenko's research is supported up by Angela Brew's use of eye-tracking technology in a study of beginner drawers:

> It was found that after 5 days of drawing training and practice subjects took longer to copy the same original line drawing, drew at slower speeds per mm of

> line and looked back and forth between the original and paper more times, looked at the paper more whilst drawing, and broke up the drawing into more, and shorter, line segments.
>
> (Brew 2011: 8)

Tchalenko's and Brew's research suggests that artists who use drawing consistently are prepared to perceive optical information as a reduced combination of lines and that this is Tchalenko states "not the natural way of perceiving" (Tchalenko 2009: 797). The drawing process is found by Tchalenko and Brew, to position perception beyond normative processes and into a task-specific realm that is driven by the conceptualisation through drawing, of the observable world.

Saccades as an assimilated concept: In drawings made from observation, the processes artificially exaggerated in the previous drawings, occur in a less exaggerated fashion, resulting in multiple focus-points being assimilated into a single drawing. This in turn has three principal consequences:

1. That the drawing can process and focus on a variety of distances and subjects in one composition.
2. That the drawing makes small leaps between points of interest.
3. That these points of interest can be a result of observation/imagining of the subject, but as the drawing develops also respond to the visual fact and progression of the drawing.

Over the course of the research period the progression of drawings on paper are developed as a result of the listed consequences and in response to the experimental

drawings detailed in the previous sub-section. Three drawings (Figures 123-5, below) demonstrate developments to this line of inquiry.

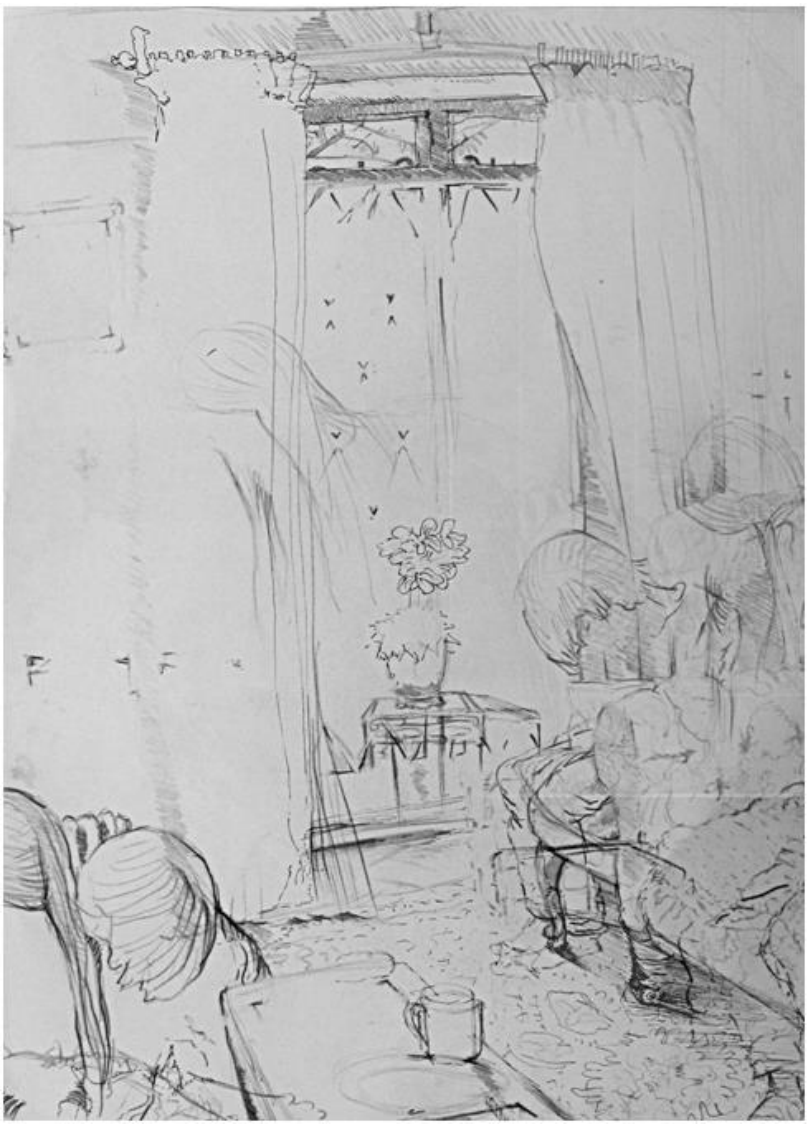


Figure 123 Studio Notes: *Mapping the locations of people in a room over twenty minutes*. 2005-2015. Pencil and ballpoint on 90gsm paper. 29.7 x 21cm.

In Figure 123, a room is drawn at intervals. By allowing the eye to direct the drawing in a reactive sense, by constantly re-focusing on elements that had moved or changed, and by highlighting this change through the use of different media, the drawings over-layer one another, drawings in which the ghost of past drawings intermingle with the present. By

allowing the eye to dominate, the drawings contain multiple points of focus and exist in a state of flux, mirroring the journey the eye makes in response to its surroundings. This process of re-constructing optical perception as a series of overlapping images radically re-invents the underlying schema of the practice that leads this research. As each drawing develops, a schematic visualisation of movement, and of multiple imagery, dominates the process.

Fig. 124 Studio Notes: *Saccadic experiment 4 (adapted from Claude Heath's 'Plants' drawings) with pencil additions.* 2005-2015. Fountain pen and HB pencil on 90gsm paper. 29.7 x 21cm.

Fig. 125 Studio Notes: *Saccadic experiment 4 (adapted from Claude Heath's 'Plants' drawings) with pencil and pen additions*. 2005-2015. Fountain pen, HB pencil and 0.05 fibre-tip pen on 90gsm paper. 29.7 x 21cm.

In Figures 124 and 125 (Above), the opposite approach is adopted. The *blind* drawing is overlaid with two further *blind* drawings, each from alternate positions in the room. The use of different media: fountain pen, HB pencil and finally 0.05 fibre-tip pen, enables the three drawings to co-exist so that three more or less distinguishable viewpoints are integrated into a single drawing, underlining the perpetual motion that is so much a part of optical perception.

The methods employed in the exploration of the saccades are fed back into the evolving drawing practice and come to define the later *Portrait with… Series* (Figures 126-7):

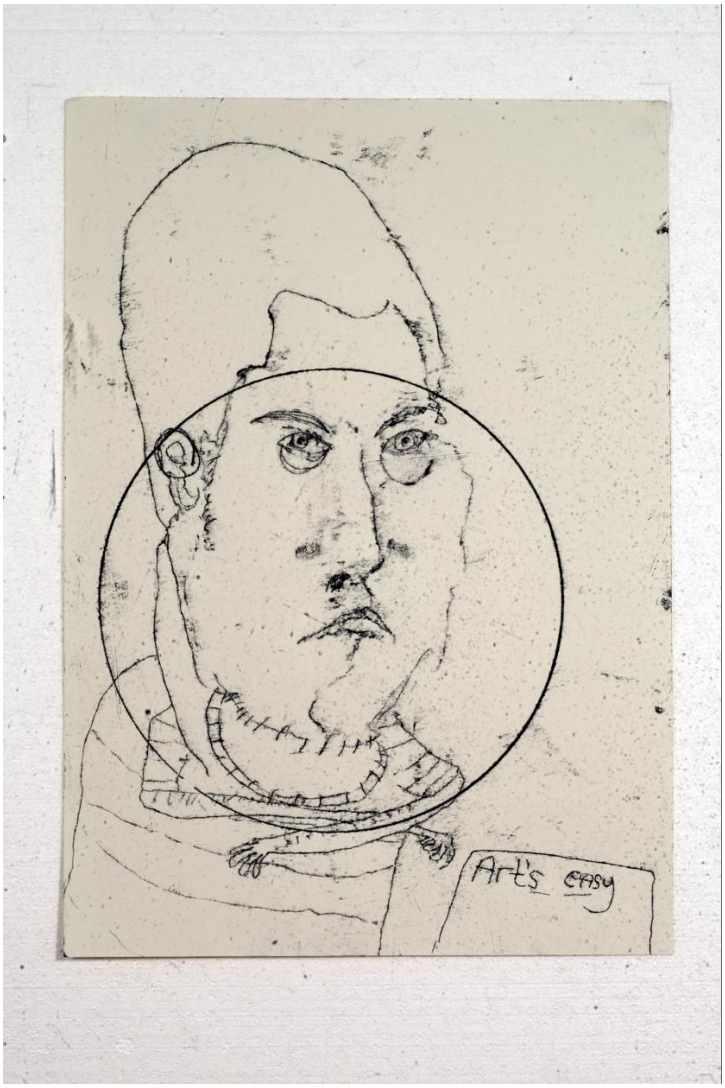


Fig. 126 Richard Monahan: *Portrait with Circle* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84.1 x 59.4cm.

Fig. 127 Richard Monahan: *Portrait with Circle* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84.1 x 59.4cm.

The concept of multiple observations becomes an underlying strategy for the production of drawings, allying a natural response to saccades to a more fundamentally conscious and choreographed visual explication of the gaze-shift and by extension, the imaginative shift. Multiple and disintegrated imagery are placed together, side by side and over-lapping, resulting in a practice that develops into a visual acknowledgment of movement and time as a record of process in drawing. By questioning the nature of perception, this work does not present itself as a temporary concept applicable to a certain time or place, but asserts that drawing should always be fragmented and uncertain if it is to best reflect human experience.

4.4 Summary of Touch

The innate physicality of the drawing process forces drawers to compartmentalise a subject through touch: “The artist looking at the model not to capture its snapshot image, but to capture the hand and eye actions required for its execution as a drawing” (Tchalenko 2013). Manifested as a succession of observations and responses to both subject and artwork, the space for interpretation between the reception of the image and the rendering of the drawing is a space in which multiple decisions are made in order to embody the idea of the subject.

Through a series of drawn experiments directed by the saccadic movement of the eye, it was demonstrated how a drawing process aligned to normative perception would appear as an abstraction, establishing drawing perception as an atypical interpretation of vision, centred on touch. At this point of interpretation two worlds collide, that of phenomena/objects and that of drawing/concepts. When decisions are made to make a drawing, perception through drawing re-structures both that which is perceived and the hierarchical order in which it is

perceived and subsequently re-interpreted. Acknowledging this restructuring led to the development of a series of drawings that fundamentally question the veracity of perception (*Portrait with…Series* Figure 127).

Component 5: Tone

5.1 The synthesis of touch and tone

Drawing is a process that is overtly gestural. The accuracy of drawing utensils record and isolate gesture as a single linear trace, an individual act. For this reason drawing, as opposed to painting for example, is fundamentally a monochromatic medium. That is not to say that drawings are not coloured or drawn with different colours, but that the understanding of drawing, over and above the implication of image, positions the viewer to acknowledge the linear gesture, to distinguish the individual monochromatic marks that construct the whole. In this sense, according to Stephen Farthing, the drawn line is manifestly 'readable, two-dimensional matter' (Farthing 2011: 21), similar to writing. Acknowledging the fragmentation of drawing in this way, results in the consideration of each individual line as being possessed of a fundamental signatory value whereby the implicit importance of each gesture is emphasised.

The immediacy attributed to drawing is largely a result of this monochromatic linear understanding, a fact accompanied by clear implications relating to the perception of tonal values. When drawing with a single utensil (such as a pencil), gesture as a mode of interpretation is greatly facilitated by the synthesis between touch and tone. In drawing touch can be considered the precursor to tone, each are manifestly part of the other. When unencumbered by material/utensil change, a drawing can develop with a spontaneity of gesture that elevates the interpretation of tone from a conscious, pre-meditated decision, to a more subconscious, intuitive and embodied interpretation, where optical information is incorporated into a physical response. That is not to say that drawing is not considered and

at times pre-conceived, but that the pencil becomes an extension of cognition; touch and tone become part of a schematic understanding of vision. Where tonal variation is responded to through a physical act, the process of interpretation is further entwined in the perceived subject, projecting the self bodily onto the subject.

Tonal variation and flexibility is a key component of the embodiment of touch in drawing and therefore to the unique qualities of drawing. Tonal variation that can be incorporated into each mark enables drawers to effectively and efficiently push and pull the image through notional dimensions. The following drawings demonstrate the incorporation of tonal variation using a single utensil/medium, by altering the angle (Figure 128), or the pressure (Figures 129-30) of the drawing utensil.

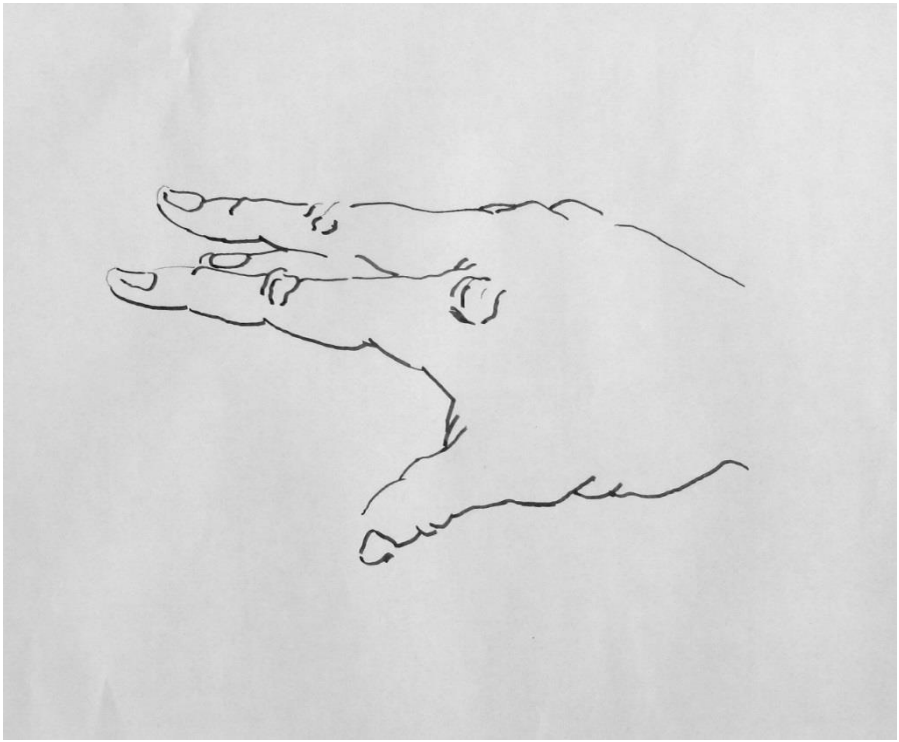


Fig. 128 Studio Notes: *Variation in line width of an italic fountain pen.* 2005-2015. Pen and ink on 90gsm paper. 29.7 x 21cm.

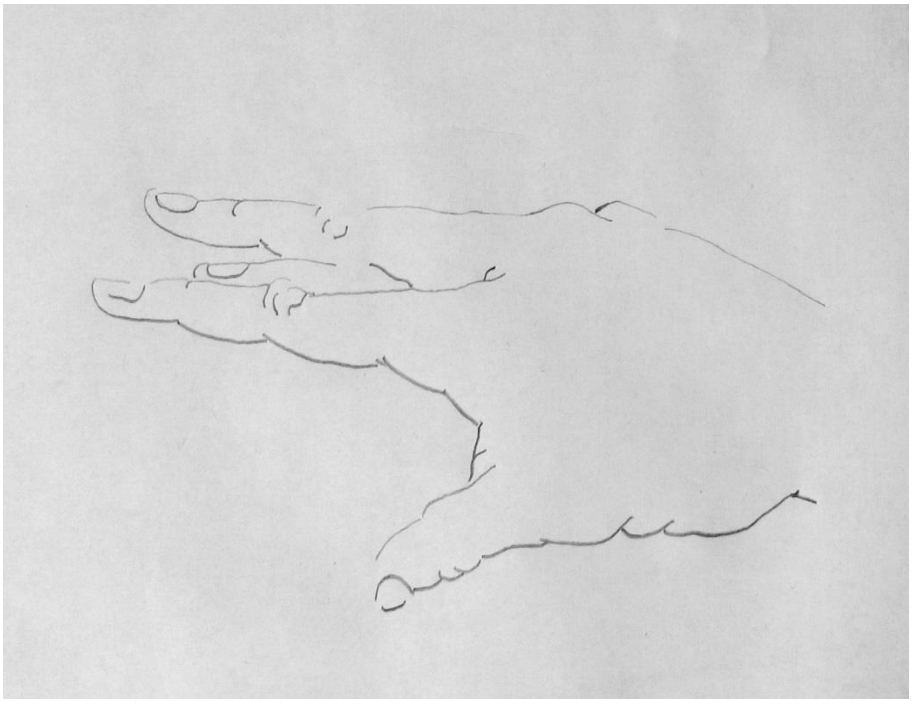


Fig. 129 Studio Notes: *Variation in pressure leading to variation in tone in the line of a pencil.* 2005-2015. 2B pencil on 90gsm paper. 29.7 x 21cm.

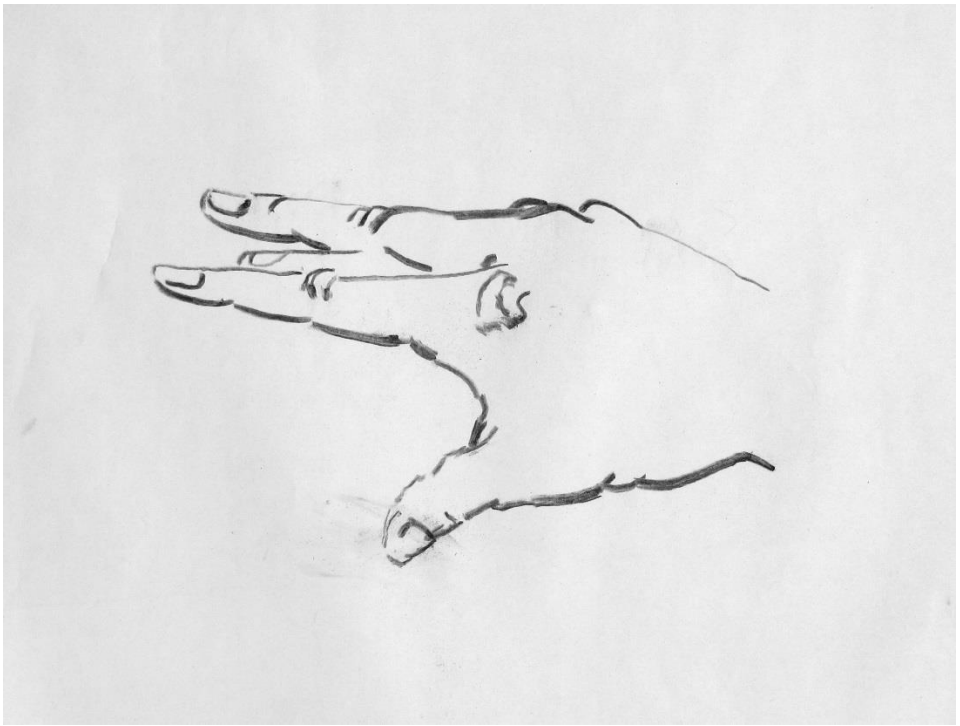


Fig. 130 Studio Notes: *Variation in pressure leading to variation in tone in the line of charcoal.* 2005-2015. Charcoal on 90gsm paper. 29.7 x 21cm.

The extraordinary physical relationship between the drawn line and tone, emphasises the complexity of tonal phenomena and tonal arrangement. The nature of the medium means

that drawings progress section by section, tone by tone, and demand a great level of detail in the consideration of tonal variants. This leads to an understanding of tone that is significantly removed from that which is necessary for normative perception. Over the course of this study, working with tone has moved from a position of mimicking it in the drawing process towards a more phenomenological analysis pertaining to how tone is perceived through the drawing process and the inherent inconsistency of tonal vision. In the stages of the study, the drawing practice was primarily concerned with the concept of touch and tone, and posed the question: Can drawing use light as a medium?

5.2 Drawing with light

In the *Wallpaper Composition* drawings (Figures 131-3, below), a series of attempts are made to centre the understanding of drawing on the synthesis between touch and tone. Over the course of the research period a number of experiments are made at inscribing the drawn line into a surface so that the drawings are committed in relief. This creates a three-dimensional line that embodies gesture with a sense of physicality and enables the drawings to incorporate two lines to every gesture. One of these is described through pigment, the other is described through light and shade.

Drawn in specific light conditions, the relief drawing progresses as shadow, joining the act of drawing to the play of light, creating drawings that do not simply mimic tone materially, but that, in part, are made of tone, constructed by light and subsequent shade (Figure 131). The use of light as a medium imbues each drawing with a luminance that is fleeting and inconsistent, catching the eye of the viewers as they move through the space in front of the drawing. The drawing makes constant optical demands on the viewer by refusing to remain

static and constant, questioning our complacency in relation to light as a fixed and external entity.

Fig. 131 Richard Monahan: *Wallpaper composition in blue and grey* (Detail). 2008. Oil paint and pencil on canvas. 200 x 150cm.

This method of drawing intensifies the three-dimensional quality of touch and tone. By using light and shade as a medium, the physical relief of each line must be altered to prevent the line from becoming visually flat. This can be achieved by switching utensil size, but primarily is acquired through consideration of the pressure exerted in each gesture. The deeper the utensil goes into the surface, the darker the resulting shadow.

The *Wallpaper Composition* drawings highlight a significant concept within the development of this study: the inconsistencies in the perception of tone. By using light and specific lighting conditions in which to draw, the resulting images are entirely dependent on the conditions in which they are placed. Logistically, this is difficult when presenting them, as they require total control over light sources. In the studio, and as their position moves in relation to the sun, the drawings noticeably change in dynamic, as the shadows move, as illustrated in Figures 132-3 (Below).

Critically, the optical effect of each drawing alters depending on the relative position of the viewer and the drawing. This change in how the drawing is optically received defines the temporal character of the drawings, whilst visibly demonstrating the complexities of tonal variation to perception.

The process of manipulating light and shade in the *Wallpaper Composition* Series, leads to two significant lines of inquiry. The first is that the manipulation of light through relief can play a substantial role in the development of drawing and can contribute optically to the aesthetic qualities of a drawing (discussed in Section 7.2). The second line of inquiry acknowledges light as an uncertain medium, presenting endless difficulties and yet endless opportunities for challenging the reception of optical information. This takes the understanding of tone back to the saccadic movement of the eye (Section 4.3).

Fig. 132 Studio Notes: *The impact of a light source on Wallpaper composition in blue and grey I.* 2005-2015. Oil paint and pencil on canvas.

Fig. 133 Studio Notes: *The impact of a light source on Wallpaper composition in blue and grey II.* 2005-2015. Oil paint and pencil on canvas.

5.3 Tone and the Saccades

The *Wallpaper Composition Series* visibly demonstrates the inconstancy of tone. In doing this the drawings underline some of the key questions faced by artists in drawing; namely those concerning the veridical understanding of tone. The monochromatic nature of drawing engages the artist with tonal variation. This relationship is augmented by the number of gaze-shifts involved in even the simplest of subjects. Perception is largely an understanding based on necessity. The intense process of optical scrutiny necessary for drawing, is greatly different to that which is necessary for normative perception. This leads to optical variants that are usually overlooked because they do not aid in day-to-day survival, and are elevated in importance for drawing.

By changing in reaction to the fluctuation of light and the relative positioning of the viewer, the *Wallpaper Composition Series* asks the viewer to consider the fluctuating nature of tone and how it is received and perceived. Principal amongst these considerations are Rudolph Arnheim's remarks:

> ….we cannot account for the facts by talking about the "constancy" of brightness, certainly not in the sense of asserting that objects are seen "as bright as they really are." The brightness we see depends, in a complex manner, on the distribution of light in the total situation, on the optical and physiological processes in the observer's eyes and nervous system, and on an object's physical capacity to absorb and reflect the light it receives.
>
> (Arnheim 1970: 305)

The acknowledgment of tone as an inconstant variable dependent on light, receptor and object, is critical to drawing practice. It constitutes a phenomenological acknowledgment of the human role in the experience of vision, essentially underlining perception as a temporal, participatory activity, an activity in which we give to that which we see. Where the

movement of the eye is a factor in the reception of tone, the experiential history of an individual will introduce a sense of purposiveness to the process of looking. If this is based on survival, the focus of the gaze-shift will differ considerably from an interaction centred on drawing.

Physiologically tone is inconsistent because it relates to the amount of light the eye's pupil allows to reach the retina. The most straightforward way of demonstrating this is to observe an object and then observe the same object with a light source placed directly behind it, when the object appears darker as the eye pupil contracts.

When observing a subject the process takes time, information is pieced together. In drawing the eye is in constant movement between subject and drawing, extending the time looking at the subject and the time thinking about the structural make-up of the subject. With each movement of the eye a new set of tonal variations is established. This is a very different understanding of tone to photography, for example. The multiple saccades and the lack of a quantifiable measure, position drawing, as a process, towards an intuitive and experientialist time-based interpretation of vision, the prolonging of the observational process augmenting perception through the heuristic history of drawing practice, specific to the individual.

This all presents a problem to the drawer pertaining to the unification of the whole. To demonstrate this, a drawing is made of a piece of wood suspended in front of a window and a curtain. It is then altered twice in accordance to areas of focus permitted for each drawing (See Figures 134-6, below).

In Figure 134, the drawing is allowed to progress without restrictions, the eye and hand attempting to interpret a dramatic alteration in tonal contrast. Even though I am aware the wood has not altered in luminance itself, the light conditions that surround it and the dilation and contraction of my pupil as my eye moves from one area to the next, are so

extreme as to alter the appearance of the wood. Only with difficulty, and focusing on the area between the curtain and the glass, is it possible to make an interpretation, gradating the tone to enable the drawing to suggest that the wood is all of one material.

Fig. 134 Studio Notes: *Tonal variation in reference to the saccadicmovement of the eye I*. 2005-2015. HB pencil and charcoal on 120gsm paper. 59.4 x 42cm.

In Figure 135 (Below) the drawing is altered, with gaze-shifts limited to two focal areas, the wood in front of the curtain and the wood in front of the glass. The image acknowledges the

light source and the physiological workings of the eye and denies an interpretation via the focal point in between the two. The drawing is therefore fragmented in two, approaching a Cubist methodology.

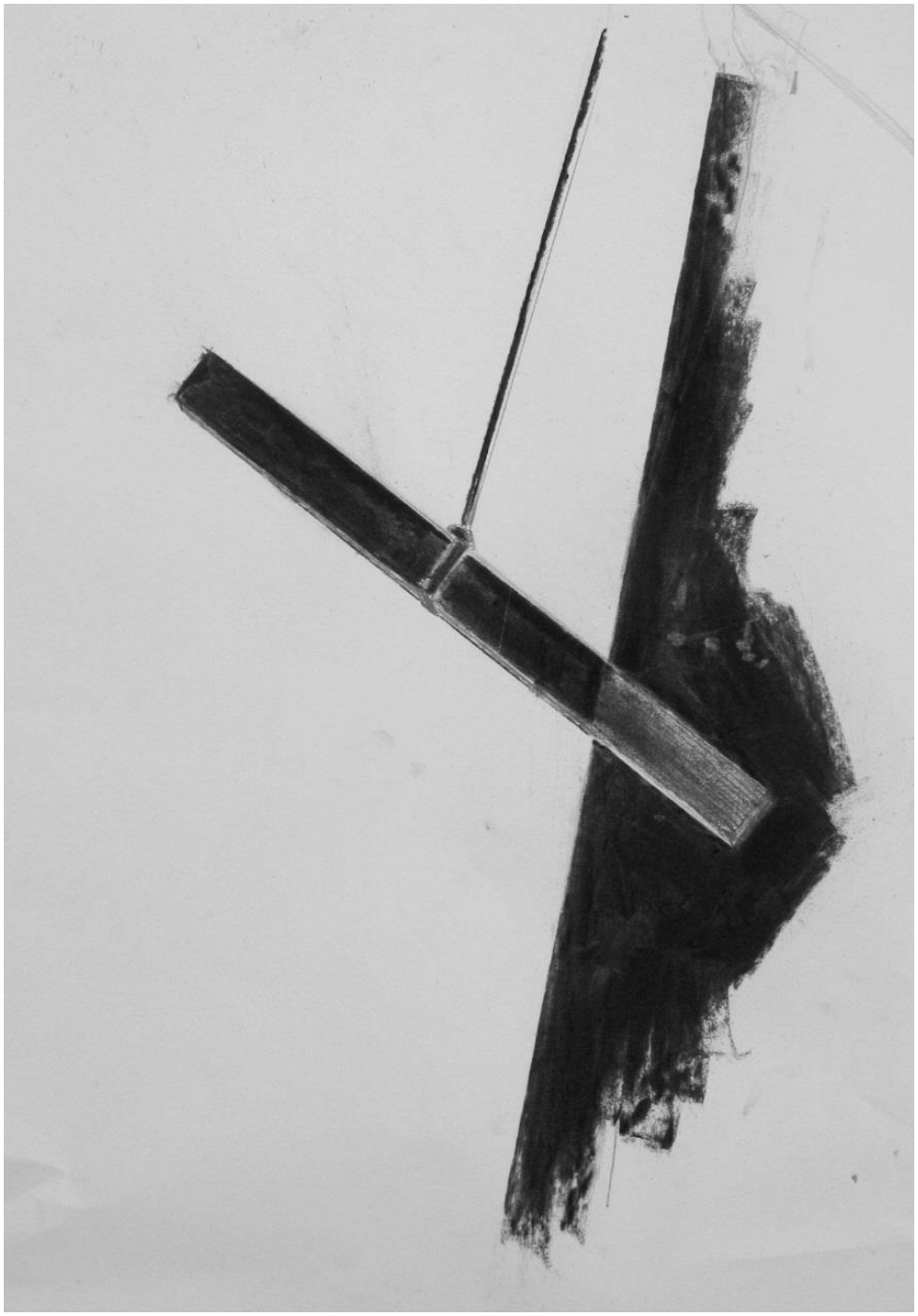


Fig. 135 Studio Notes: *Tonal variation in reference to the saccadic movement of the eye II*. 2005-2015. HB pencil and charcoal on 120gsm paper. 59.4 x 42cm

In Figure 136 (Below) the drawing is altered and the eye is limited to one focal point of the subject, the end of the wood in front of the curtain. It is almost impossible to image the remainder of the wood in front of the glass, which is completed out of the corner of the eye as an unfocused area. This drawing is a single image, and comes closer to photography in that it is representative of one single point of focus.

Fig. 136 Studio Notes: *Tonal variation in reference to the saccadic movement of the eye III*. 2005-2015. HB pencil and charcoal on 120gsm paper. 59.4 x 42cm.

If one is to strictly draw images that hit the retina, the drawing would result in a series of over-layered, fractured elements that vary tonally from one to another and that vary in focus. In drawing, the artist chooses either to employ a fractured and inconsistent tonal range, or to make an approximation of the whole, both are atypical alterations to perception. The process approximating the whole in drawing or fragmenting the whole, is a conceptualised one and is not a part of normative perception, where whole images are based on differing stimuli. Drawing perception questions how we see by addressing the interpretation of moving and time-based phenomena, two-dimensional marks, a process that has no basic evolutionary necessity, it is a process that is built and developed through the cerebral mechanisation of the brain.

5.4 The use of the saccades and tone

Tonal variance may be used by artists outside of the purely observable truth to direct the saccades of the viewer around a particular drawing, by offering the eye visually novel stimulants. In drawing this is often manifested in two related strategies which may or may not refer tonally to the optical information?

Firstly, an effort by the artist to animate the dynamics of the drawn line and so pull the attention of the viewer onto the linear journey that relates to the gestural act of mark-making (Figure 137, below).

Secondly, an effort to focus attention to areas of a drawing (Figure 138, below), where the tone of the line is specifically employed to emphasise those aspects of a skeleton that define its structure. Here a significantly darker line is introduced in contrast to the white of the ground. At every joint the stark change in contrast draws the viewer's eyes to those points

Fig. 137 Studio Notes: *Variating line countering two-dimensional implications of negative space.* 2005-2015. Pen, correction fluid and coffee on 90gsm paper. 29.7 x 21cm.

Fig. 138 Studio Notes: *Skeleton study*. 2005-2015. 0.05 fibre-tip pen and 2B pencil on 90gsm paper. 29.7 x21cm.

that demarcate significant change in the form. The use of contrasting tonal marks in the skeleton drawing not only suggest shadow, thereby defining the object as a three-dimensional entity distinct from its surroundings, but also define areas of certainty, points of reference initially for myself as the artist but ultimately for the viewer, acting economically as an implication of more complex structures.

The fact that the eye is drawn to novelty, in this case to tonal contrast, allows the drawing to lead the eye on a journey from point-to-point, from joint-to-joint, a journey that relegates the remaining lines to an important, and yet supporting role within the drawing, with the darker points giving the viewer enough information to construct a reality from their presuppositions.

Fig. 139 Richard Monahan: *Portrait with Backwards* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84.1 x 59.4cm.

Both strategies are employed in Figure 139 (Above), where the use of tonal variance animates the line and enables multiple points of focus to exist, over-layered in the same drawing. This encourages the viewer to shift gaze and focus between images.

5.5 *Simultaneous Brightness Contrast*[xx]

The lighting conditions under which Figures 134-6 were committed (Page), were of extreme contrast to demonstrate the movement of the eye and subsequent reaction to tonal variance. A similar optical effect is now described. Tonal constancy appears to vary in comparison to tonal values that are optically dominant within a composition, or that are directly adjacent to the constant, an effect described by Purves et al. in the paper *Why We See What We Do*:

> In fact, two surfaces reflecting the same physical amount of light to the eyes typically look differently bright— or light—if the surfaces are observed in surrounds that are themselves returning different amounts of light. This phenomenon is called simultaneous brightness contrast.
>
> (Purves et al 2002: 1)

Figure 140 (Below) demonstrates how two identical tones may appear darker or lighter dependent upon comparison with the surrounding tone. The contrasting degree of luminance surrounding each grey square produces a perceptual comparison in the understanding of what is seen. We perceive the tonal contrast of each square and each surround rather than a comparison of the two isolated squares. This is not an illusion as such, but constitutes a different type of veridicity. Drawing necessitates multiple minute observations of a subject and converts those observations into monochromatic marks. As demonstrated in the discussion of *Tone and the Saccades* (Component 5.2), the appearance

of an object that traverses in front of two diametrically opposite tones, is difficult to interpret as it requires multiple observations to make sense of it, and so does not easily translate to a single sheet of paper.

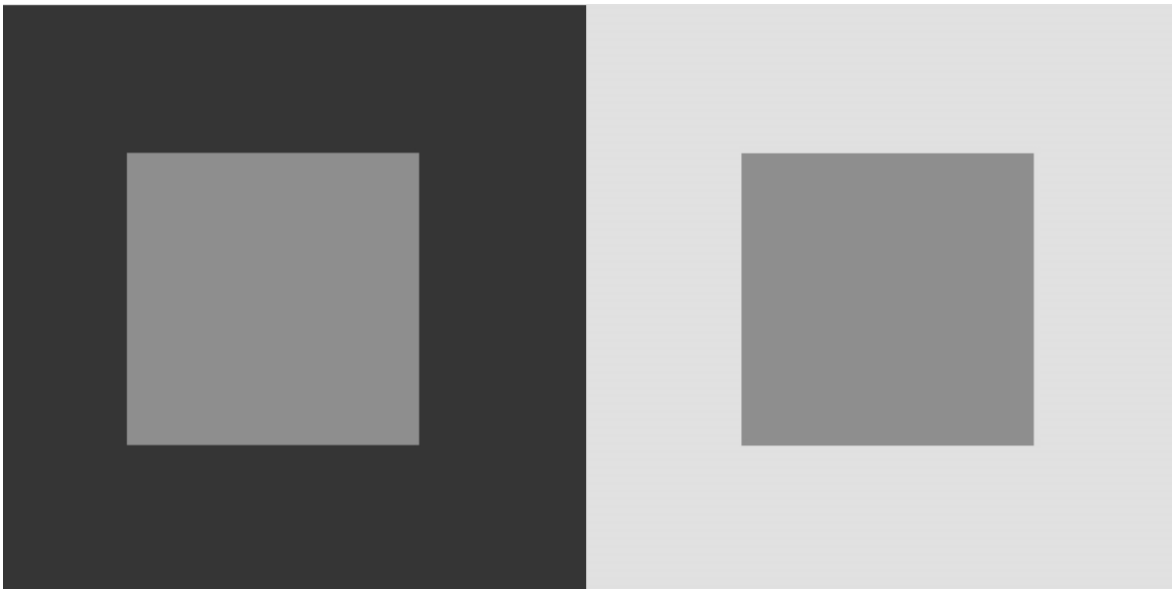


Fig. 140 Studio Notes: *Simultaneous brightness contrast*. 2005-2015. Digital image.

In drawing, those elements of vision that do not seem to visually compute, or that appear to defy logic are brought to the forefront of the process, and a careful re-examination of the veridical truth of vision is undertaken.

The underlying obstacles encountered in attempting to interpret a temporal, shifting experience onto a static, two-dimensional surface, is in some senses compensated for by the use to which the acknowledged phenomena can be put. The underlying importance of the simultaneous brightness contrast to drawing is that it exists somewhere between optical truth and perceptual understanding. The appearance is an optical collision, and as such, produces a pulsating dynamic that goes beyond the sum of the individual parts, bombarding the eye with novelty.

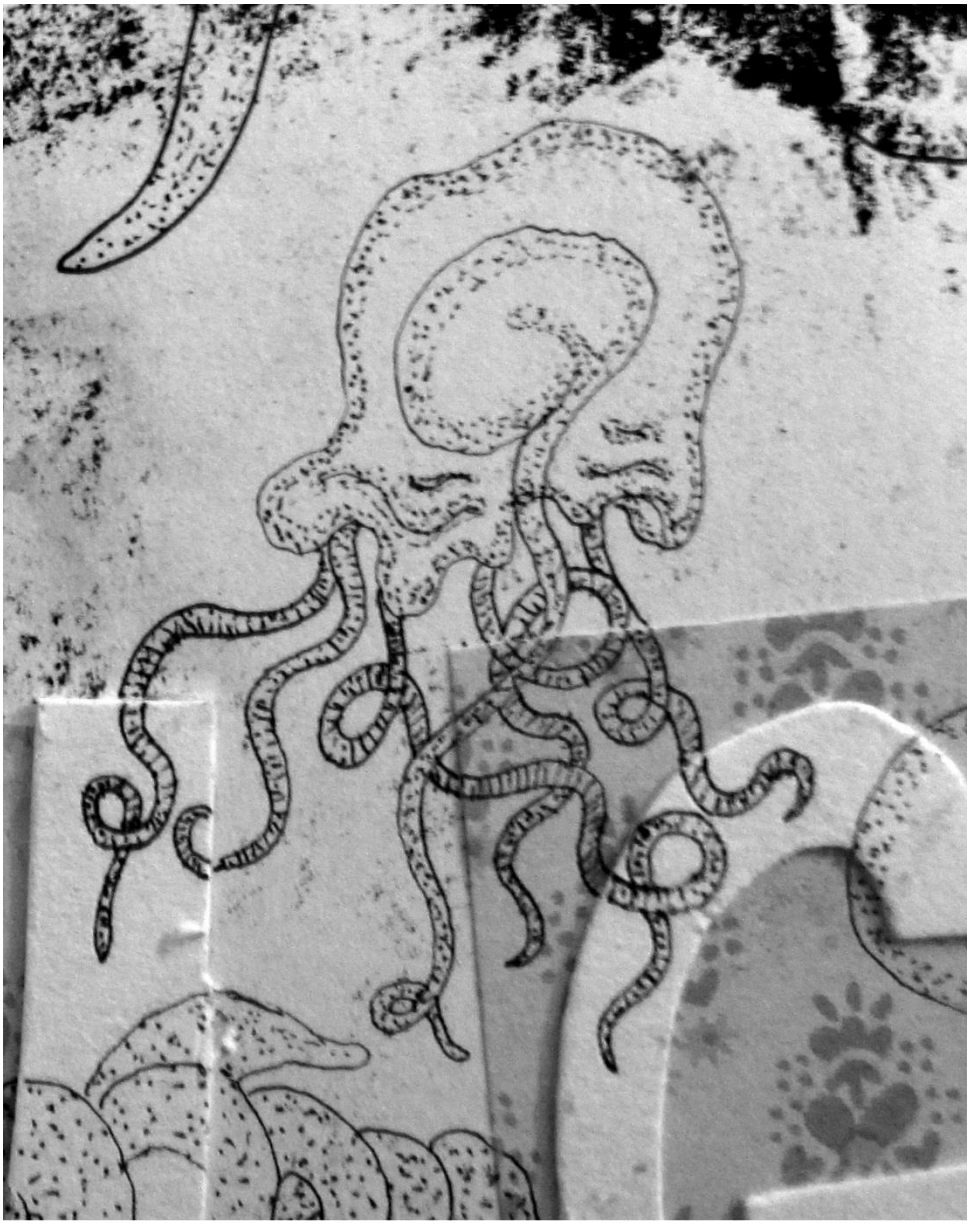


Fig. 141 Studio Notes: *Variation in tone on the perceived luminance of drawn line Detail from 'Portrait with Arts Star.'* 2005-2015. Pen, monoprint, wallpaper and paper on card. 84.1 x 59.4cm.

Figure 141 (Above) is a depiction of a sea-creature. Simultaneous brightness contrast draws the viewer into the image by altering the contrasts between parts of the creature and its surrounding. The continuous black line that describes the creature changes in the viewer's perception of it, as it traverses adjacent areas of tonal contrast. This takes the perception of the line between the realms of optical truth and perceptual contrast, creating an uncertainty

as to the consistency of the line, the tone of the line and, therefore, the illusory depth of the creature.

The phenomenon is repeated, to a greater or lesser extent, throughout the work made during the research period. Returning to the *Wallpaper Composition Series* as one example:

Fig. 142 Richard Monahan: *Wallpaper composition in blue* (Detail). Oil paint and varnish on canvas. 150 x 100cm.

Here the concept of contrasting luminance is used more conventionally, following the defined negative space areas. Varnish is used to create a reflective gloss to the pigment. As the viewer moves past the drawings, different areas catch the reflected light in the eye of each individual viewer, continually drawing the eye to the surface (Figure 142, above). As the viewer approaches the surface of the drawing, their own environment and their reflection begins to be incorporated into the surface of the drawing, taking the image beyond flat wallpaper, and into the illusory, three-dimensional space beyond the picture surface.
The manipulation of tone leads to one further line of inquiry concerning tonal variance, and particularly the use of tonal opposites prevalent to drawing practice.

5.6 The paradox of tonal contrast

Tone as an aspect of spatial awareness can relate to our perception of the world in terms of aerial perspective but can also lead to paradoxical statements of representation particularly when concerning the play of light on form.

Over a short distance the tone of a shadow cast does not denote proximity in the same way as in aerial perspective perception. The shadow's tone is decided by the restriction of light, by the tonal and material qualities of the object on which it falls and by comparisons made by the eye. This necessitates the use of tonal contrasts unrelated to the relative proximity of subject to drawer, particularly in observed scenes in which the horizon line is close. This can lead to the description of the dark, recesses of a fold of skin or a crack in a cliff face. Perceptually advancing beyond those elements that are notionally nearer the viewer, the black shadow demanding attention in contrast to the lighter ground and, therefore, in an abstract sense, projecting the picture surface into the liminal space between viewer and artwork, ultimately flattens the image.

The drawing process, a linear progression of thought and act, allows an artist time to consider each mark in response to the next and in so doing encourages the acknowledgement of the mark as an abstract form as well as an interpretation of reality. Attached to this knowledge are numerous visual caveats that an artist must consider and use/overcome/discard. One such relates to the concept of tonal contrast promoting the abstract mark.

In an abstract sense, once a mark has been made the comparative tone and tonal variation of the following mark and the ground upon which both marks are drawn will determine the situation of each in terms of their angle, position and depth in comparison to one and other and in comparison to the edge of the ground and frame if existent. The abstract understanding of tone as a creator of a notional three-dimensional space in drawing is inconsistent when applied to observation, and indeed is often at odds with our understanding of tone as an indicator of reality.

The two lines drawn in the lighter left-hand square in Figure 143 (Below) are different tonally:

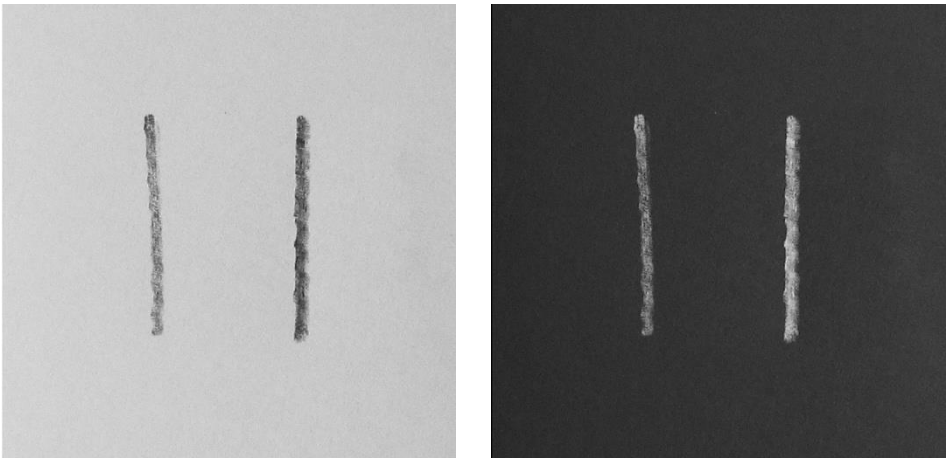


Fig. 143 Studio Notes: *Tonal contrast illustration.* 2005-2015. Pencil on 90gsm paper and Digitally manipulated drawing. 5 x 5cm.

This affects the viewer's perception of where they sit in a notional three-dimensional space, the darker line appears to advance and the lighter to recede. In an observational sense this accords with the idea of aerial perspective; that tonal contrast decreases as the distance between viewer and object increases. The darker line appears to advance because it contrasts more tonally, to the ground on which it is drawn, than the lighter line. The darker line is less like the ground tonally and is therefore more conspicuous and promotes itself forward in the eyes of the viewer. It is not the tone of the line, but the comparative contrast in tone between the line and other lines, and the line and the background, that is decisive. By inverting the image it is possible to see that the lighter line appears to advance as it displays the greater contrast to the background.

This presents a problem. For example, when drawing, the tendency is to outline the extremities of the subject, to enclose it in a line. If drawing a person, the dark outline will promote forward a description of the part of the body farthest away from the viewer, a reversal of depth perception where the abstract notion of depth (the tone of the line) does not accord to our understanding of what should be (our knowledge that the edge of the head is the part of the head farthest from the viewer). Drawers use numerous strategies to overcome this tonal paradox either by implying depth by other means, by rejecting illusory depth or by making the marks that describe the extremities in the lightest marks.

There is another method of overcoming the paradox of tone.

When drawing in charcoal, the consistency of the medium induces the variation in pressure and angle in the drawing process. Often this will result in a line that is sharp on one side and softer at the point of least pressure. The affect is exaggeratedly demonstrated in Figure 144 (Below) and produces what is known as the *The Craik-O'Brien/Cornsweet Illusion*:[xxi]

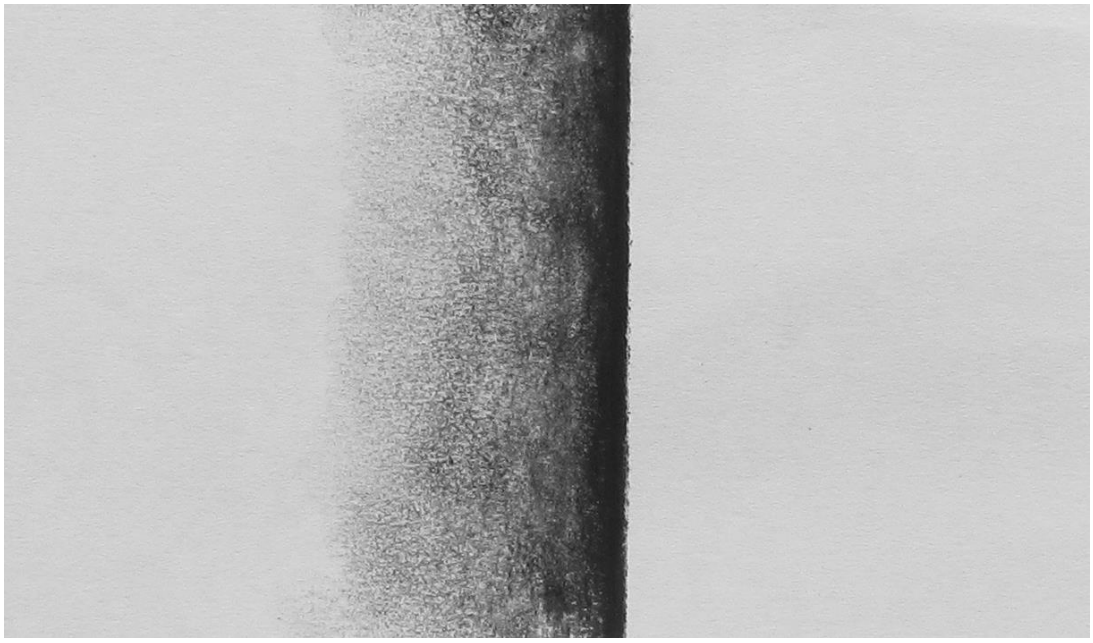


Fig. 144 Studio Notes: *The 'Craik O'Brien'/'Cornsweet' illusion.* 2005-2015. Charcoal on 120gsm cartridge paper. 10 x 15cm.

The illusion at first appears to oppose simultaneous brightness contrast, the left side of the paper fades from dark to light, and appears to be much darker than the right side of the paper, though both are of the same tone at their extremities. But the illusion is essentially the same. The dark extremity of the left side of the paper providing the stark contrast with the right side, whilst the gradual fade darkens the left extremity through comparison.

The effect is more clearly demonstrated in the detail in Figure 145 (Below) where the forehead of the skeleton is perceived as much brighter than the background, though when the hatched fade lines are eliminated the tonal contrasts are observed as being the same. This effect can be observed in day-to-day perception, but is experientially discovered and particularly germane to drawing. It enables the white of the paper to be promoted forward in the eyes of the viewer, removing the dominance of the black mark. When applied to the understanding of an image, the Craik-O'Brien/Cornsweet Illusion offers an answer to the problem presented by the tonal paradox. As noted above, typically inexperienced drawers will repeatedly outline a shape in an effort to clarify it.

Fig. 145 Studio Notes: *Skeleton study* (Detail) *demonstrating the 'Craik O'Brien'/'Cornsweet' illusion.* 2005-2015. 0.05 fibre-tip pen and 2B pencil on 90gsm paper and digitially manipulated drawing.

Fig. 146 Pedagogic Notes: *Counter-acting the Paradox of tonal contrast*. 2011-15. Charcoal on 120gsm cartridge paper. 84.1 x 59.4cm.

This has the effect of promoting the outline and flattening information inside the shape.

Where students are made aware of this phenomenon they are empowered to obviate or

embrace it as a peculiarity of linear drawing. In Figure 146 (Above) a student begins to employ the illusion to parts of the drawing, particularly the shading of the hairline, promoting the ear forwards, and the negative space next to the shoulder, solidifying the arm. Where the drawing remains linear, the information is flattened by the promotion of the horizon.

Returning to the skeleton (Figure 147, below):

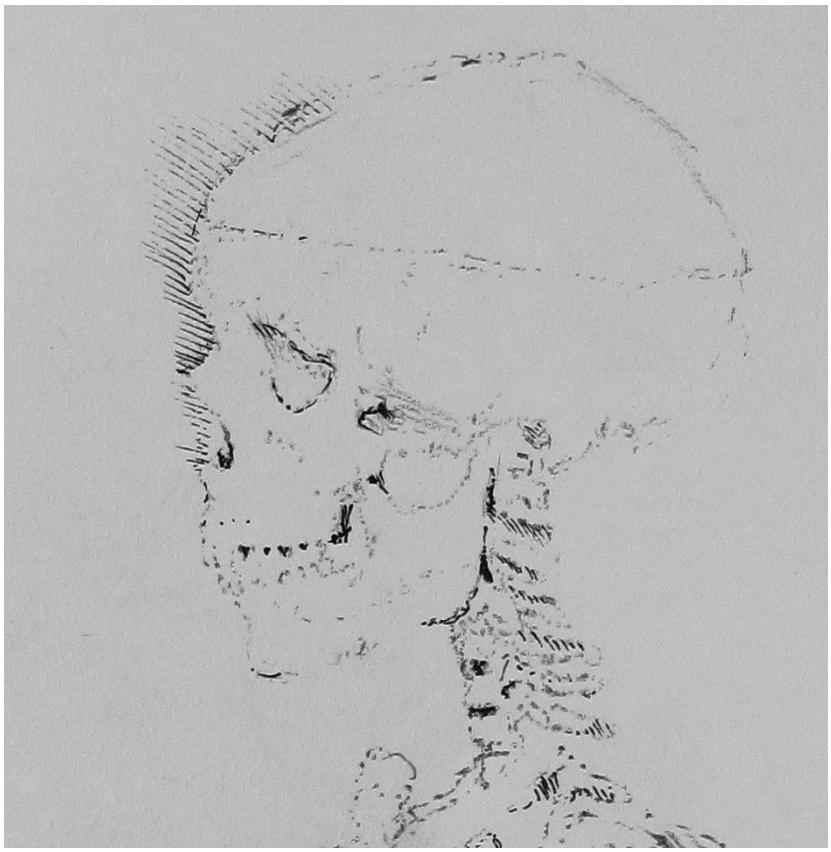


Fig. 147 Studio Notes: *Skeleton Study* (Detail). 2005-2015. 0.05 fibre-tip pen and 2B pencil on 90gsm paper. 29.7 x 21cm.

Where the fade is employed, adjacent to the forehead of the skull the background appears darker than the surface of the skull. The hatched lines prompt the perception of the ground around the drawing, to be considered as being of a darker tone than the bone, setting the space around the skeleton as the background and therefore, at that point, anything that is

left white on the skull is thrown forward as a direct contrast to the apparently darker paper. The result is the front of the skull appears not to be drawn but shaped and solid, made from the light of the paper, in comparison to the lines that denote the back of the skull which are dynamically predisposed to promote themselves forward and ultimately flatten the image.

5.7 Summary of *Tone*

Through the discussion of *Tone*, an argument has been posited that where a different hierarchy of importance is imposed on visual stimuli, an alternative understanding of optical information is reached, and that this hierarchy takes for its underlying value the monochromatic description of phenomena.

Ongoing experiments to draw with paint, developed through the research period, underlined the inconsistency of tonal values. In response to this finding, further experiments were undertaken based on the *Saccades and tone*, discovering that to draw employing a normative perception foundation is not typical. The experiments demonstrate that drawing is an interpretation of vision that involves numerous compromises to communicate vision. Subsequent experiments found that acknowledgment of tonal inconsistencies such as *Simultaneuous Brightness Contrast*, *The paradox of tonal contrast* and the *Craik-O'Brien/Cornsweet Illusion*, are fundamental to drawing perception and can be further developed when consciously identified and adopted as strategic approaches, within practice.

Beyond the differing hierarchies of visual stimuli, survival mode perception and drawing perception are significantly different because drawing mode perception forces the drawer to engage with the world in a hyper-detailed way. Tara Geer's description of drawing as a process of "Detail-access vision" (Geer 2011: 48), is a mode of looking that enables the

interpretation of phenomena through the composition of monochromatic marks. In drawing the intensity of the gaze and the amount of gaze-shifts (Tchalenko 2013) allocated to a single subject, result in the discovery of the tonal paradoxes and illusions discussed in this section. These are overlooked in normative visual processing as they are generally unimportant. The drawing process underlines tonal inconstancy by physicalizing and abstracting vision, thereby focussing on the minutiae. Drawing then further impresses the uncertainty of vision, by adopting these anomalies to create optical stimuli in drawings. This invites a perceptual re-appraisal by drawer and viewer, of what we see and how we see it.

Component 6: Pattern and Rhythm

> "The repetitive occurrence of an incident does not guarantee that the same thing will happen again"
>
> (Bacon in Stokes 2003:65).

Pattern and rhythm represent unifying characteristics or requirements amongst human beings. Each are physiologically a part of us, consistent and yet always variable. Each one is also embedded into the world we experience, from the replication of plants and animal species to the greater movements of the solar system. Drawing as a process, exemplifies and acknowledges their fundamental importance, by uniting pattern and rhythm in the perceived environment with those that are a prerequisite of our cognitive and physiological functions.

Differentiating between pattern and rhythm presents some difficulty as each are defined by repetition. In *An Inquiry Concerning the Principles of Natural Knowledge*, Alfred North Whitehead provides the distinction that is adopted for this study:

> A rhythm involves a pattern and to that extent is always self-identical. But no rhythm can be a mere pattern: for the rhythmic quality depends equally upon the differences involved in each exhibition of the pattern. The essence of rhythm is the fusion of sameness and novelty.....A crystal lacks rhythm from the excess of pattern, while a fog is unrhythmic in that it exhibits a patternless confusion of detail.
>
> (Whitehead 1982:198)

Drawing practice, precluded by human error from attaining perfect duplication, further blurs the distinction between the terms. In drawing, the essential difference between pattern and

Fig. 148 Studio Notes: *Landscape V.* 2005-2015. Pen on 90gsm paper. 29.7 x 21cm.

rhythm largely stems from intention: pattern equates to a search for sameness, utilising repetition to identify order; rhythm pertains to the variations that establish similar entities as unique.

Through the course of the research, the intrinsic value of pattern and rhythm to drawing is clarified in a series of landscape studies (Figure 148, above). An attempt to translate a large amount of information forcibly demonstrates that in drawing a subject is not re-made, but interpreted. The reductive quality that characterises the finished drawings, results from an inability to effectively abbreviate the quantity of visual information. The drawings are demonstrably a mode of notation; a series of signs that denote information that is not itself present (a powerful argument for abstraction in drawing).

Attempting to draw every piece of information in detail, and as a composite of marks is an impossibility. By involving a secondary phase, the making of representative marks on paper, drawing interpretation operates at a slower pace than normative interpretation of vision. As an abbreviation, groups of similar information are transposed by signs, signs that whilst remaining a two-dimensional linear trace, must symbolise an incredibly diverse array of phenomena. Even when simplified in this way, that which is represented by a sign/signs is too numerous to incorporate, and must be replaced with the suggestion of continuation of phenomena. Two conclusions are reached: 1. Vision interpretation and drawing interpretation operate at different speeds, and so normative visual interpretation must be compromised to incorporate the secondary phase which is the act of drawing. 2. The compromise involves an alteration of vision in acknowledgment of drawing as a two-dimensional interpretation of a subject, not a copy of the subject. Drawing must therefore be considered as a form of notation, reliant on a limited pattern of marks to describe any given subject, transposing a pattern of marks onto our visual interpretation of the subject.

From these conclusions can be drawn a further correlative: that the slowed down process of drawing demands perception be less cursory and more *detail-focused*, enabling the translation of perceived phenomena into the lines and shapes that represent alternative entities. Critically, the resulting lines are developed from a group of marks that are far more restricted by the medium than the phenomena they attempt to describe. These restrictions can be considered as the pattern and rhythm of drawing, and they are imbedded both in the process of looking through drawing, and the consequent process of drawing a line.

6.1 Pattern of vision becomes pattern of gesture

The deconstruction of perception into a pattern of marks that can be extensively varied to synchronise with perceived patterns, is an intrinsic part of the drawing process, and comprises a linear visual record of the multiple segmentations that characterise our visual perception of phenomena (Figure 149, below). The record of visual compartmentalisation is key to understanding how drawing alters perception through pattern and rhythm. John Tchalenko's research highlights segmentation as a significant difference in approach between expert and novice drawers:

> Expert copying is seen to be founded on the perception of the original as a compilation of simple lines. Such a selective vision is dedicated to producing hand movements for drawing. For most people it is not the natural way of perceiving the external world in everyday activities…Only an artist drawing the portrait would perceive it as a succession of four consecutive simple lines – a perception allowing direct visuomotor transformation and providing maximum graphic accuracy.
>
> (Tchalenko 2009: 800)

Fig. 149 Studio Notes: *Skeleton study*. 2005-2015. 0.05 fibre-tip pen and 2B pencil on 90gsm paper. 29.7 x 21cm.

Tchalenko's findings present drawing as a way of perceiving that projects a code of translation onto perceived phenomena, a process where visual or imagined subjects are converted into lines that are acknowledged and then carefully mapped. Bearing in mind that drawing is limited to gestural movements across two-dimensions, the projection of drawing

onto a given subject must be confined to the pattern of gesture and personal signature that defines the individual artist's drawing practice. This process abstracts observed or imagined phenomena, replacing normative perception with a mode of perception that prioritises the understanding of the subject as the future trace of a finite set of two-dimensional gestures

Understanding drawing as a pattern and rhythm of gesture responding to a pattern and rhythm of perception, closely unites sensory understanding to motor understanding. Drawing maps not only a pattern/rhythm encountered in a subject, but the pattern/rhythm of the optical saccades that reveal the subject *and* the pattern/rhythm of the recording process. Three competing patterns/rhythms must be merged, each embedded with the characteristics manifestly related to their status in the human-object relationship. Over-arching these three, is added a fourth pattern/rhythm: interpretation. What subject is chosen? Which pattern/rhythm is focussed on? How is this recorded? Subject, vision and act, and how they are merged in drawing is therefore subject to interpretation, moving the rationale for drawing away from the physical truth of a subject, and towards a concept of a construction made in reference to a subject. In this sense drawing cannot copy subjects, but conceptualises subjects into historically and physiologically determined, two-dimensional codes.

6.2 Encoding perception through *Pattern and Rhythm*

Considering the diversity of drawing in art; considering the universal scope of drawing outside of art, it is a medium that is limited. Drawing is confined by monochromatic understanding (See introduction to Component 5: Tone), by its two-dimensional status and physiologically, by the movements of the hand. Restricted by gesture, drawing limits the possibilities of a graphic representation of perception to a signature, personal to each

individual, but in essentials, defined by a motor-sensory coupling that communicates via a two-dimensional code of marks.

The limitations of drawing can aid communication through employment of the *Similarity Principle* in Gestalt psychology[xxii]. In Figure 150 (Below), three abstract groups of marks create three different patterns:

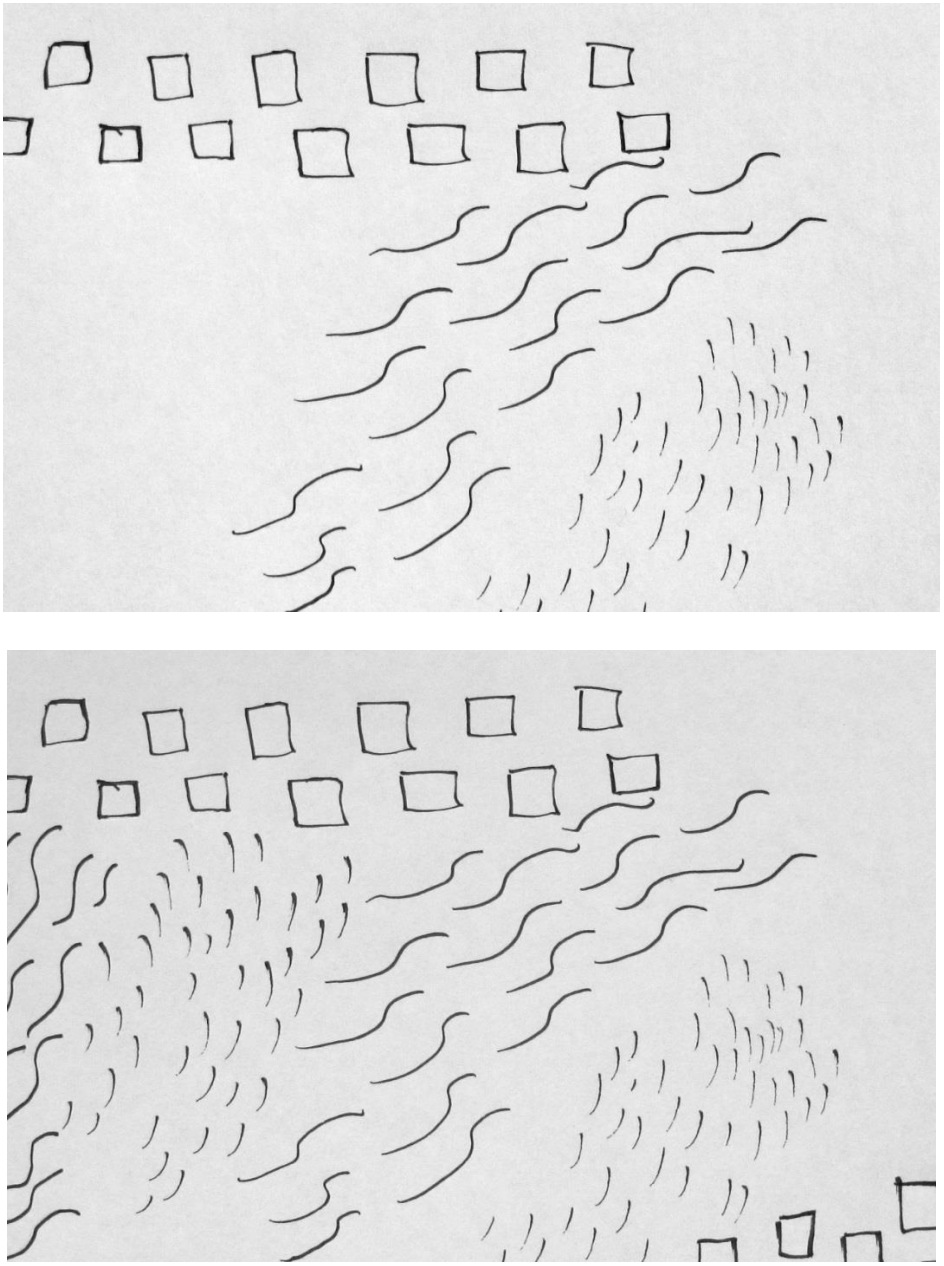


Fig. 150 Studio Notes: *Pattern as communication.* 2005-2015. 0.05 fibre-tip pen on 90gsm paper. 29.7 x 21cm.

That they are different in shape and implication is indisputable, this in turn promotes the understanding that the difference in marks made is the first step to defining different representations of observed subject matter, and one of the simplest strategies an artist can implement to compartmentalise a drawing:

In the second drawing three corresponding patterns of marks for each of the original groups is drawn. The effect of introducing this second set of marks is one of partial understanding. Whilst they remain abstract, their relationship with another set of marks on the same ground stimulates the brain to recognition not in terms of a subject, but recognition of a pattern that has been previously encountered, though this encounter occurs only fractionally previous to the current one. The repetition of abstract shapes, enable the drawer to communicate familiarity, to imply the continuation of a subject by the mere suggestion of it and critically, to abbreviate/encode perception in a way so as to set up a pattern of understanding that is not wholly reliant on realism, but returns to the concept of notation, as argued by Arnheim, “In the perception of shape lie the beginnings of concept formation” (Arnheim 1970:27).

However, the restrictions that define drawing and that proved so useful in communicating similarity in the two abstract groupings of pattern, can also confuse communication. In Vincent Van Gogh’s (1853-1890) *Wheatfield with Cypresses* (Figure 151, below), the sky and the plants are each encoded into dots. Figuratively, the limitation of gesture at a componential level can render drawing an absurdity; how is it possible for a dots to represent sky if dots represent plants?

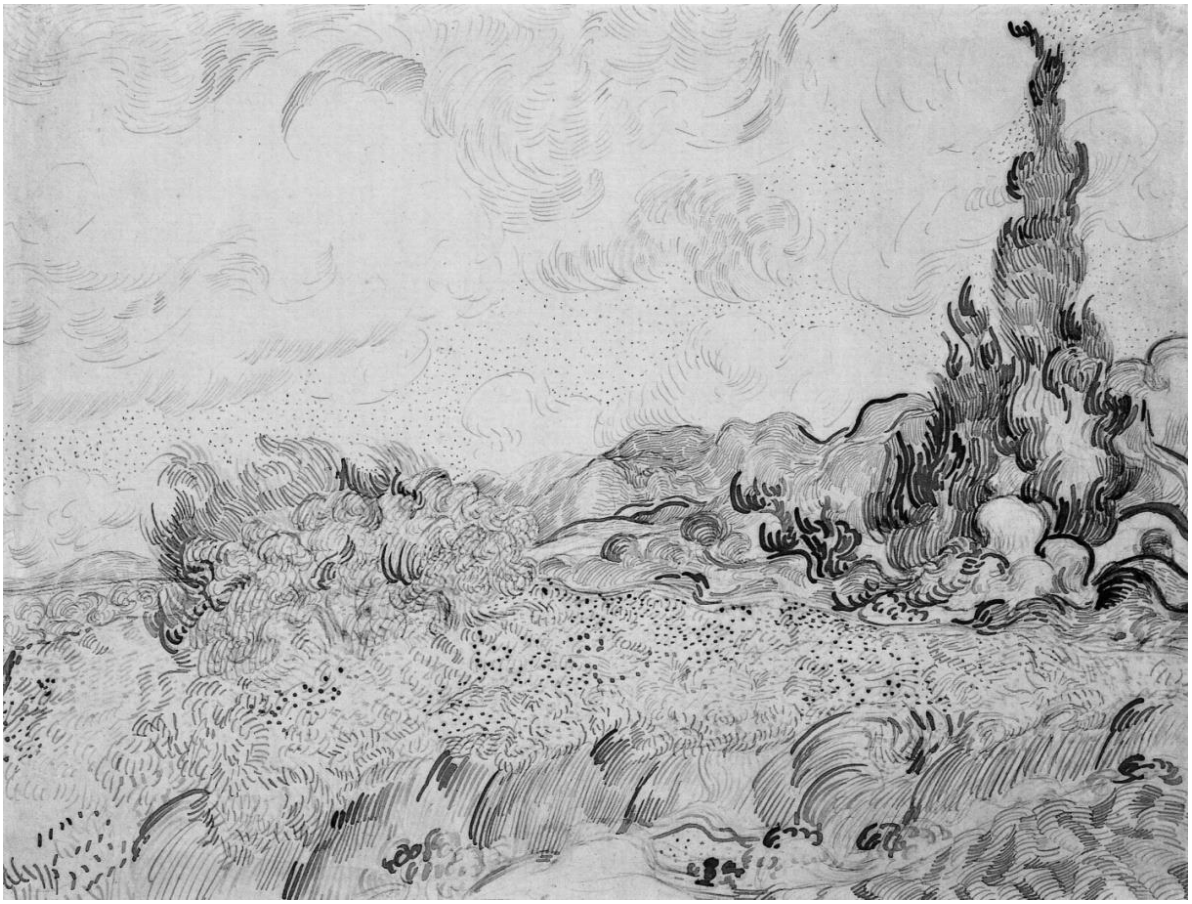


Fig. 151 Vincent Van Gogh: *Wheatfield with Cypresses*. 1889. Black chalk and pen on wove paper. 47.1 x 62.3cm. *Van Gogh Museum*, Amsterdam, Netherlands.

Though the limitations of drawing can both aid and confuse communication, they ultimately contribute to its greatest power. The restricted mode of mark-making establishes a universally understood, underlying graphic coherence, one that is flexible enough to transcend language barriers and that is conditionally absorbed from birth without overt explanation. Here drawing again, for all its limitations, may be seen to be aligned to notation, but *less* limited.

The next question to be considered is the extent of drawings limitations. Phillip Rawson asserts that in drawing there exist only “four general categories of linear inflexion” (Rawson 1969:88):

The straight line

The symmetrical curve

The pointed or angle curve

The asymmetrical curve

When attempting to vary the drawn mark to describe differing phenomena, it soon becomes apparent that each mark is either a variant of the line, or a combination of variants. A pattern is therefore established by the process; rhythm contributes by varying the directions, pressures and combinations of marks that result in the infinite shape and compositional variations in drawing, but the drawn mark remains limited. Drawing as defined in the hypothesis then, may be considered as emerging from the combination of one or more of the following elements:

Straight line

Curved line

Dot

The limited code of marks may be considered in relation to the medium, dimensions and means by which drawing is carried out, providing the graphic coherence of drawing. Outside of this consideration, the variables are endlessly flexible, and this is where drawing retains an inherent flexibility of expression. The combination of pattern (the limitation) and rhythm (the variation) contributes to a universally recognisable, and yet endlessly flexible mode of communication that amounts to a person-specific, graphic alphabet.

A graphic alphabet may be perceived as the way in which the straight line, the curved line and the dot are employed in terms of shape, inflection, width, tonal variation, groupings, speed and so on. Each individual has a restricted number of marks they use within the framework of their practice, relating to the way each drawer's muscles are developed experientially. Each mark is then, the visual trace of a physical memory, available to be reproduced when required. This is critically important for the development of drawing, for not only does it assign a sense of signatory coherence to an individual's work, it ties perception and the communication of perception to a physical pattern of gesture, that results from a motor-memory that is intrinsically experiential in its development.

The muscles of the hand have a large role in the positioning and inflection of the marks made, defining both the limitations and spacing of the graphic alphabet. However once the limitations of linear inflection are acknowledged, the boundaries that essentially confine expression may be deliberately broken. The more the boundaries are broken down, the greater the opportunity for flexibility in the drawing process. Over the course of the research period my acknowledgment of this has resulted in significant developments in my practice. At the beginning of the research period my drawing technique is largely intuitive and flows in a like manner to my cursive writing, unconsciously awkward and cack-handed, but natural and personal (Figure 152, below). Over the course of the research, as the breadth of possibilities are further explored, an increasing variety of marks are developed and incorporated into a more flexible, conscious drawing strategy, adopting techniques that do not come naturally to my hand, as a counterpoint to signature (Figure 153). Broadening of a graphic alphabet, has facilitated the drawing process in communicating many more distinctions between phenomena, enlarging the scope of my practice as a mode of notation.

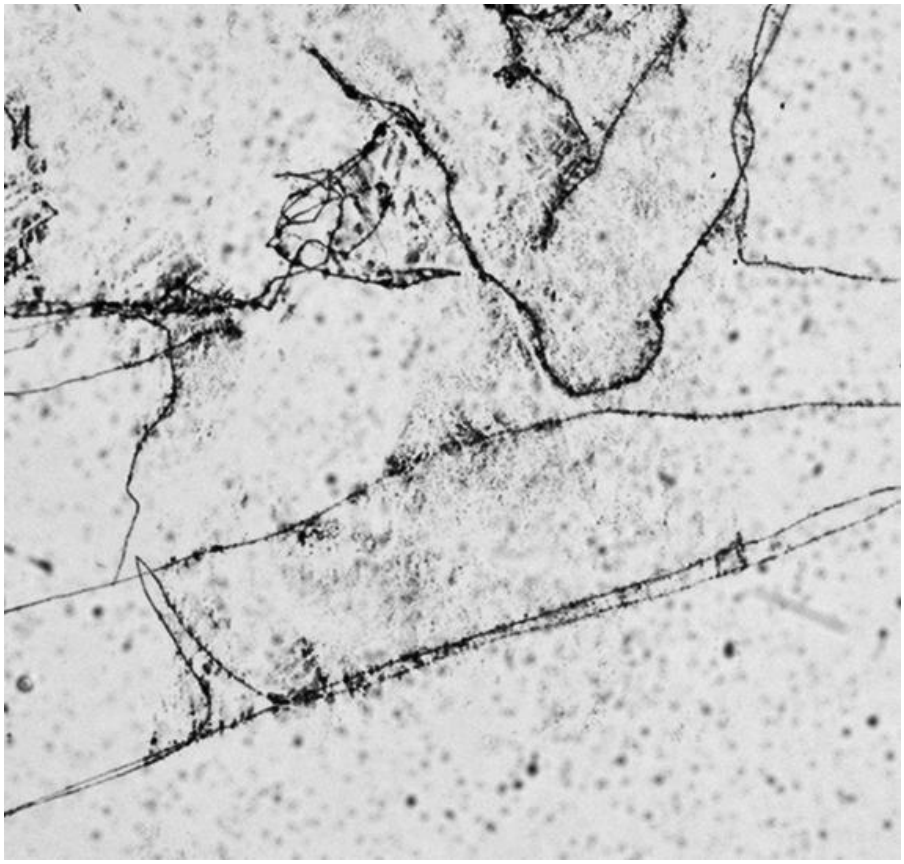


Fig 152 Studio Notes: *Saccadic experiment I-Continuous line drawing II* (Detail). 2005-2015. Monoprint on 90gsm paper. 84.1 x 59.4cm.

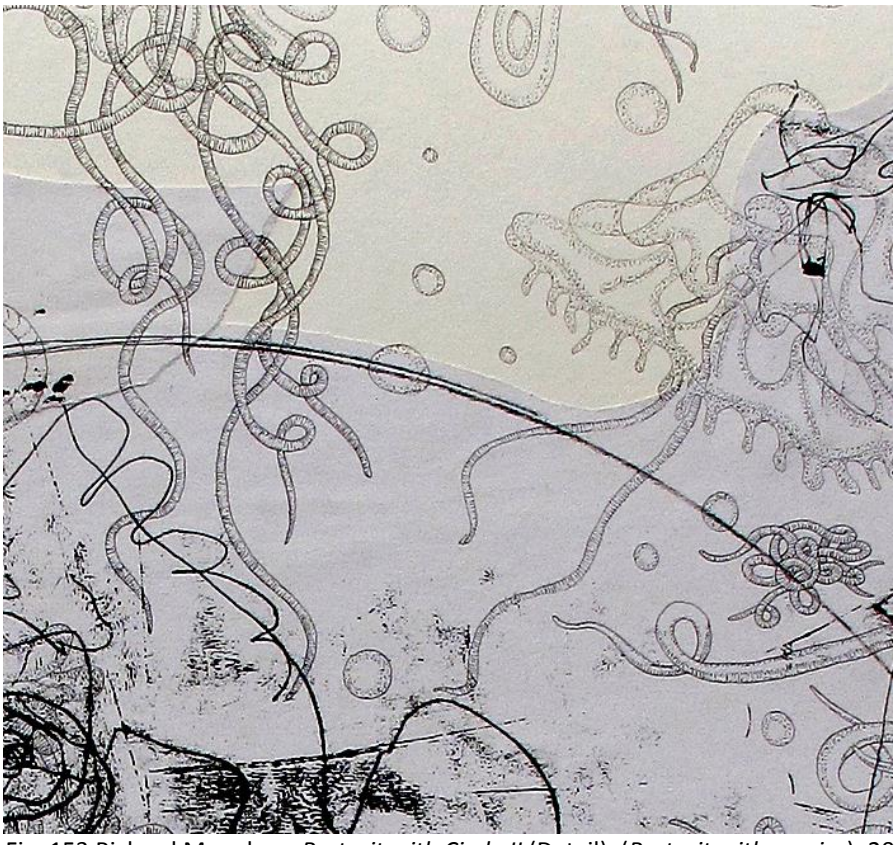


Fig. 153 Richard Monahan: *Portrait with Circle II* (Detail), (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84.1 x 59.4cm.

Once an acknowledgment of the limitations, and also the possible variants of the graphic alphabet are made, a flexibility of gesture can inform, and be informed by, the synchronisation of patterns of gesture to patterns of perception, enabling greater flexibility in the interpretation of perception.

6.3 'Shape Primitives' and 'Boundary Rules'

Once it is accepted that a subject's pattern is encoded through the drawing process, the interpretation of motor-sensory processes, over and above the choice of subject, are important to understanding how this translation occurs and how it is affected by drawing. Due to the physiological make-up of the eye, the interpretation of phenomena is conditioned to segment a subject into distinct parts. In his text, *Photons to Phenomenology,* Stephen E. Palmer divides the discourse on 'Part-Segmentation' into two historically opposing theories, 'Shape Primitives' (structures perception around a limited set of recognisable shape derivatives), and 'Boundary Rules' (structures perception around the point at which one part becomes another):

> In the shape primitive approach, parts are primary and boundaries are by-products of finding parts. In the boundary rules approach, boundaries are primary and parts are by-products.
>
> (Palmer 2002: 353)

Both theories concern the compartmentalisation of phenomena and a sense that prior episodic knowledge contributes to the understanding of previously unobserved phenomena. Both theories therefore, ultimately concern the identification of recognisable patterns of perception and critically, both rely on qualities common to drawing practice: a two-dimensional understanding of shapes, and the linear incision that divides objects.

Pattern recognition is vital to normative perception, which relies heavily on information connected to known visual phenomena, Palmer presents the argument that:

> Perceptions actually correspond to the models that their visual systems have constructed rather than (or in addition to) the sensory stimulation on which the models are based.
>
> (Palmer 2002:10)

Pattern enables a prediction as to the properties of unknown phenomena. This concept of perception implies a fundamental acknowledgment of past experience of shape primitive or boundary rules, whereby a comparison can be made to that which has gone before; accordingly, a pattern of perception continually develops.

An inclusive argument can be forwarded here in reference to the shape primitive and boundary rules theory. When patterns of gesture unite with patterns of perception, as developed through drawing, the physical limitations that define drawing practice result in a medium that relies heavily on both part-segmentation theories, in drawing, both theories can be accepted without either being discarded.

This may be demonstrated by returning to the *Camberwell* drawing (Figure 154, below). It cannot be said that shape primitive or boundary rule takes precedent in this drawing. Much of the core linear structural contours suggest an adherence to the boundary rule theory. The brickwork appears to forefront the boundary rule as a process of linear communication, but is a result of the recognition of the bricks as a pattern of shapes, and might have been drawn fore-fronting shape whilst acknowledging boundary. Other parts of the drawing emphasis shape primitives: the repetition of repeated leaf shapes, the attention given to the negative space shape of the sky (redefined by marks with a rubber) and the outlining of the seat and van, are more concerned with the delineation of a recognisable shape primitive.

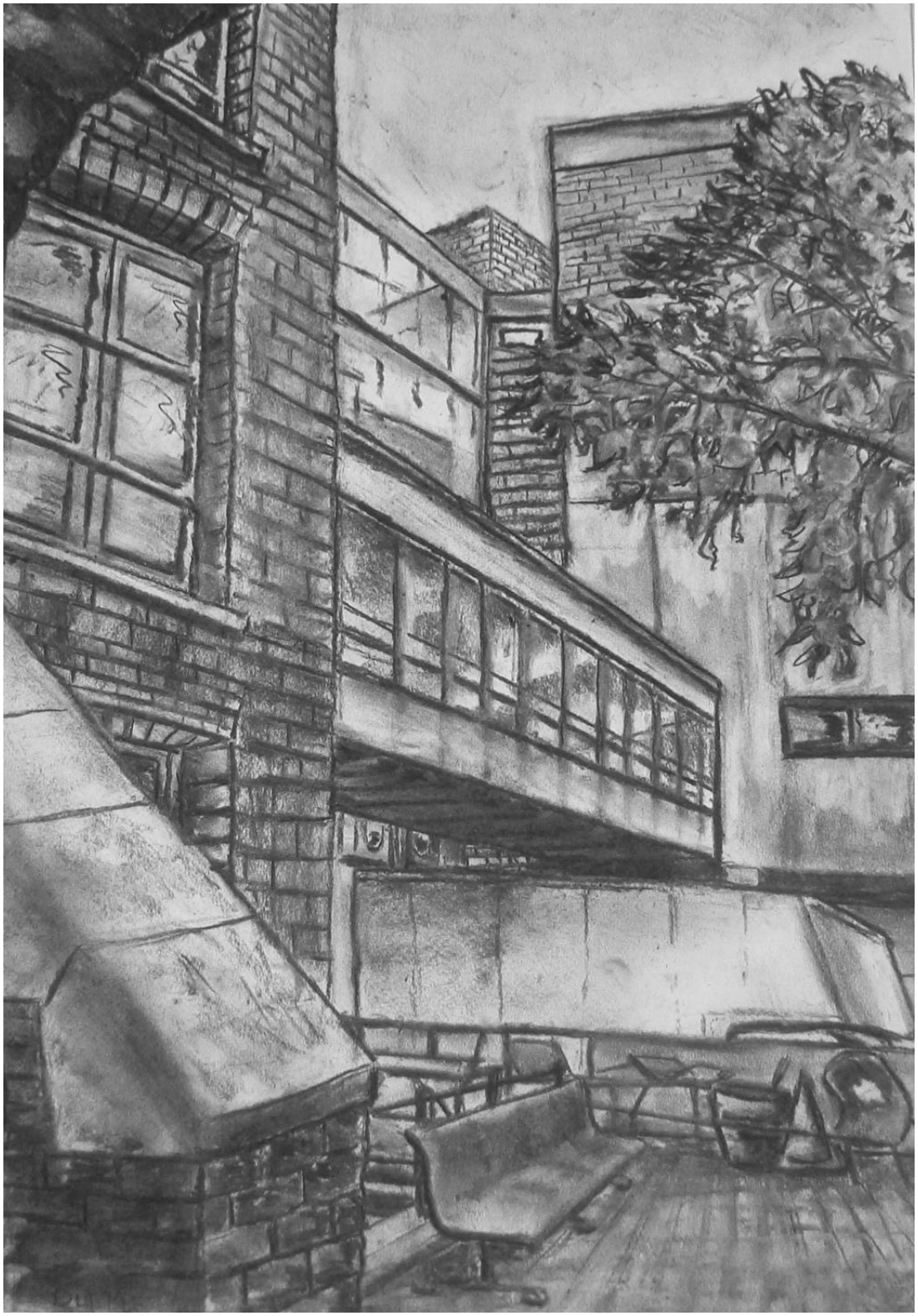


Fig. 154 Richard Monahan: *Camberwell*. 2000. Charcoal on paper. 84.1 x 59.4cm.

In teaching drawing it is noticeable that students are often divided into those that prefer drawing the human form and those that prefer to draw a skeleton. A consistent reason for

this is a split between those drawings that focus more on boundary rules (human form) and those that focus more on shape primitive (skeleton). The divide in approach is, on occasion, so great as to result in markedly differing performances by the same student in each task. It is certainly possible to forefront one mode of perception over the other, as in Figure 155 (Below). However drawing practice and drawing pedagogy tends towards a flexible perceptual understanding and critically, incorporates multiple motives for the conception of each drawing, ultimately interpreting a subject through the most relevant marks.

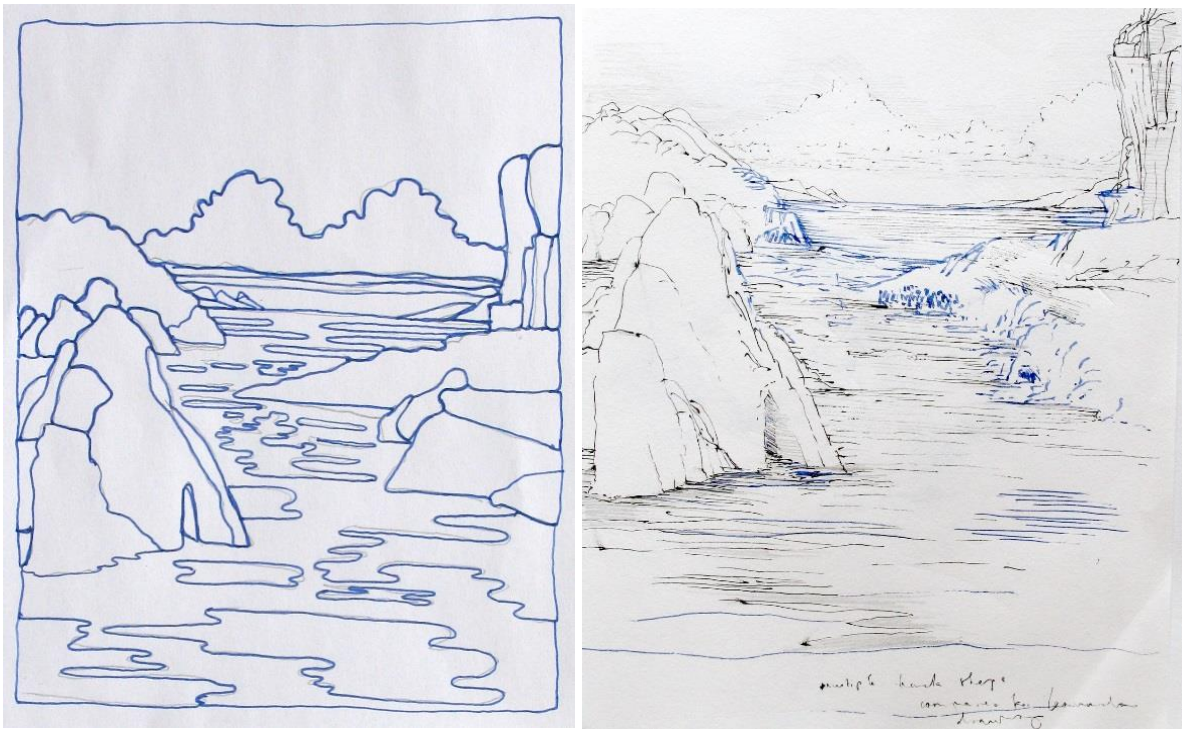


Fig. 155 Studio Notes: *A comparison between shape primitive perception and boundary rule perception in drawing.* 2005-2015. Berol handwriting pen (left) and pen and ink (right) on 90gsm paper. 29.7 x 21cm each.

In the wider context of drawing practice and pedagogy, each approach to perception is utilised depending on the function of the drawing. Moreover, the perpetual analysis of perception that is so integral to drawing's development of sensory-motor relationships, leads drawers not only to analyse the nature of perception, but to alternate between

different modes of perception, where brickwork could be perceived as shape, or boundary, or both (Figure 156, below):

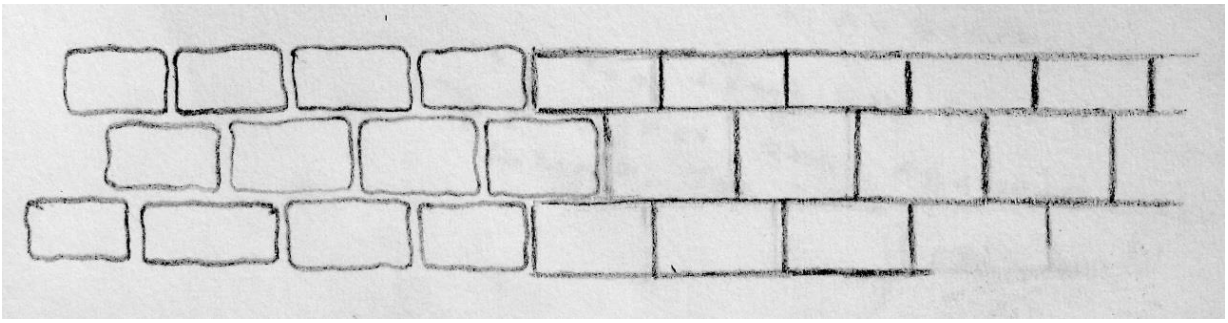


Fig. 156 Studio Notes: Shape primitive pattern vs boundary rule pattern. 2005-2015. Pencil on 90gsm paper. 4 x 15cm.

This flexibility of approach points to the conclusion that drawing is a mode of perceptual understanding that consistently evokes two diametrically opposed theories of visual perception, through the search for pattern and consequent rhythm.

Reflecting on the possibilities of part-segmentation theory moves each from the semi-conscious understanding inherent to all drawing practice, to a conscious understanding that can be manipulated into a deliberate strategic approach. In the preparatory sketches for *Wallpaper Composition Series* (Figure 157, below), a distinction is made between modes of drawing, a shape primitive-centred mode is adopted for the description of pattern/negative space, to communicate the repetition of areas of the design. This is counter-balanced by a boundary rule approach to the figure drawing that is better suited for the description of contour. The drawing is subsequently split between the two approaches, providing a shift in understanding that emphasises the figures as not part of the original design.

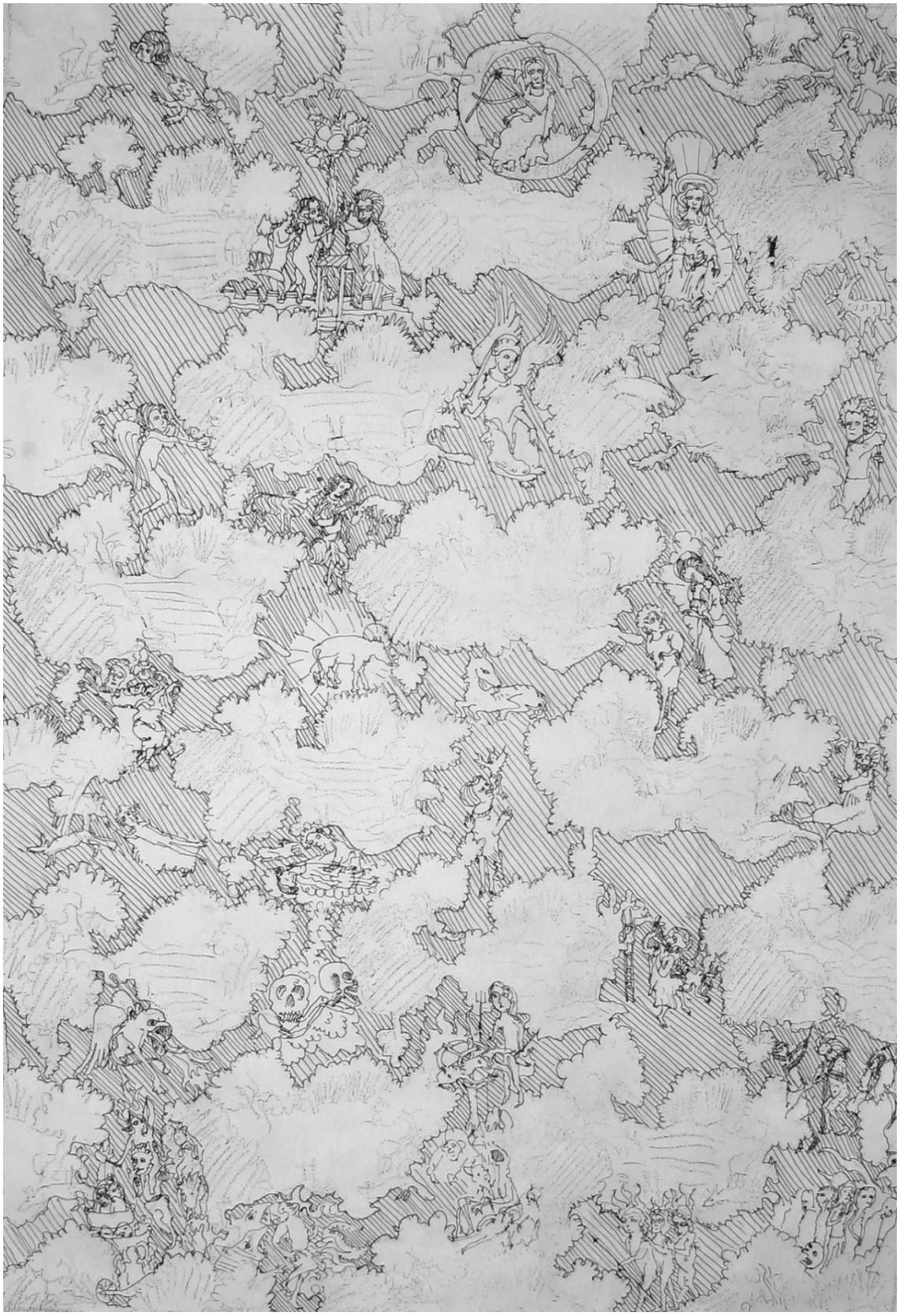


Fig. 157 Richard Monahan: *Wallpaper composition study.* Pen and correction fluid on paper. 84.1 x 59.4cm.

Fig. 158 Richard Monahan: *Portrait with stick (Portrait with…Series)*. 2011. Monoprint, pen and paper on card. 55 x 70cm.

Combining shape-primitive with boundary-rule understanding, is progressively acknowledged through the research period, as an underlying drawing strategy that can be consciously adopted to control the way in which a drawing is perceived, as in Figure 158 (Above) where the cut shapes of the letters, the part shape-primitive part boundary-rule

approach to the sea-creatures and the boundary rule approach to the monoprint portrait, effectively separate three layers of drawing, that can consequently co-exist on one drawing.

6.4 The symbiosis of pattern and rhythm in observational drawing

There exists a paradoxical and yet essential relationship between pattern and rhythm in drawing practice concerning the interpretation of repeated phenomena.

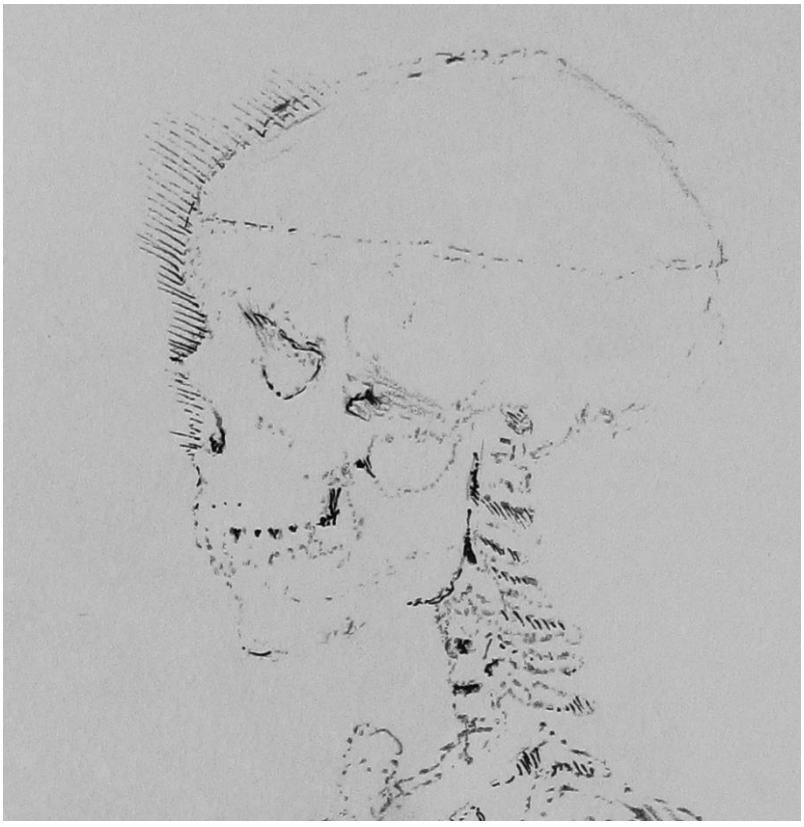


Fig. 159 Studio Notes: *Skeleton Study* (Detail). 2005-2015. 0.05 fibre-tip pen and 2B pencil on 90gsm paper. 29.7 x 21cm.

Returning to the drawing of the skeleton (Figure 159) in response to which the following notes were taken:

…the marks made are concerned primarily with location, rhythm and pattern due to the complexity of the subject and the similarity of certain bones. The pattern of the spinal column is immediately noticeable through the similarity of shape between individual bones, but it is the rhythm created by the small differences between each bone, in terms of shape and angle, that defines the structure of the whole….

(Monahan 2007-15: 4)

The spinal column of any skeleton consists of a sequence of similar, and yet distinctly different bone shapes. On drawing the first vertebrae, the process requires time and focussed observation to transform the visual information into an understandable code of graphic marks. However the second vertebrae, though subtly different, retains similar challenges of interpretation to the first, the experience of which results in the second vertebrae taking less time to draw, as a strategy has already been developed to cope with the complexity, and critically the *type*, of detail. In this sense the vertebrae pattern is stored as a known and encoded, visual subject, both aiding future drawings of vertebrae in the knowledge gained from interpreting the encounter, whilst paradoxically able to undermine future drawings of vertebrae that may differ from the original.

This is where the paradox lies; in observational drawing encoded shape only aids the drawer when it is allied to observation, not when it is used as a perfect template. At first this acknowledgment appears to defeat the premise of this study. However the encoded vertebrae still contributes to the perception of the next by the development of appropriate drawing strategies, but it is allied to a mode of observation, through the hyper-detailed translatory lens of graphic perception, that identifies the rhythm in the pattern and consequently prevents the drawing becoming overtly symbolic. This is perhaps explained by John Tchalenko (2009), who highlights the difference between novice and expert drawers:

> The expert segmented the visual information, captured it rapidly and spent time rendering the drawing, whereas the beginner did not segment, spent a long time capturing the information and only a short time rendering it.
>
> (Tchalenko 2009: 798)

The quick capture of the subject by the experts in the study, infers that in drawing, the detailed focus of observation is allied to a previously learned pattern referring to the type of

information confronted, and the strategies that have been previously developed to translate it. The following drawings (Figure 160) demonstrate how more experienced students focus on the variation of the pattern of the spinal column, identifying the defining characteristic of the spinal column in the unique differences between vertebrae, incorporating a balance of pattern/shape strategy with empirical evidence.

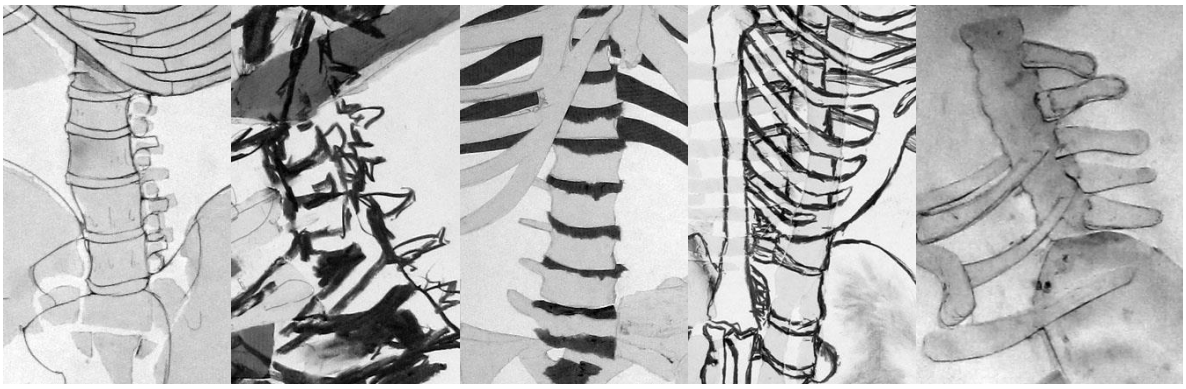


Fig. 160 Pedagogic Notes: *The identification of variation in the pattern of vertebrae*. 2005-2015. Charcoal and paper on 120gsm cartridge paper. 84.1 x 59.4cm.

Typically less-experienced drawers approach a complex arrangement of varied pattern either by abbreviating the spinal column as a single whole element, or by drawing the first vertebrae and subsequently over-relying on the initial drawing as a perfect pattern to be replicated. Two drawings made in response to the paradox of pattern and rhythm as observation, demonstrate the distinction between a sole reliance on an encoded pattern and the utilisation of an encoded pattern, allied to observation.

In the drawing to the left of Figure 161 (Below), the bottom-most vertebrae is drawn from observation, the remaining vertebrae are then drawn from the pattern created initially by the first observed drawing, then each subsequent vertebrae informs the next. The result is a spinal column that is too componentially self-identical. Added to this is a rhythm created by

the characterisation of each vertebrae as it responds to the last. Here shape becomes a concept projected onto a subject without observation and so based on assumption, producing a categorisation of perception that misleads:

> The perception of shape is the grasping of structural features found in, or imposed upon, the stimulus material. Only rarely does this material conform exactly to the shapes it acquires in perception. The full moon is indeed round, to the best of our viewing powers. But most of the things we see as round do not embody roundness literally; they are approximations. Nevertheless the perceiver does not only compare them with roundness but does indeed see roundness in them.
>
> (Arnheim 1970: 27)

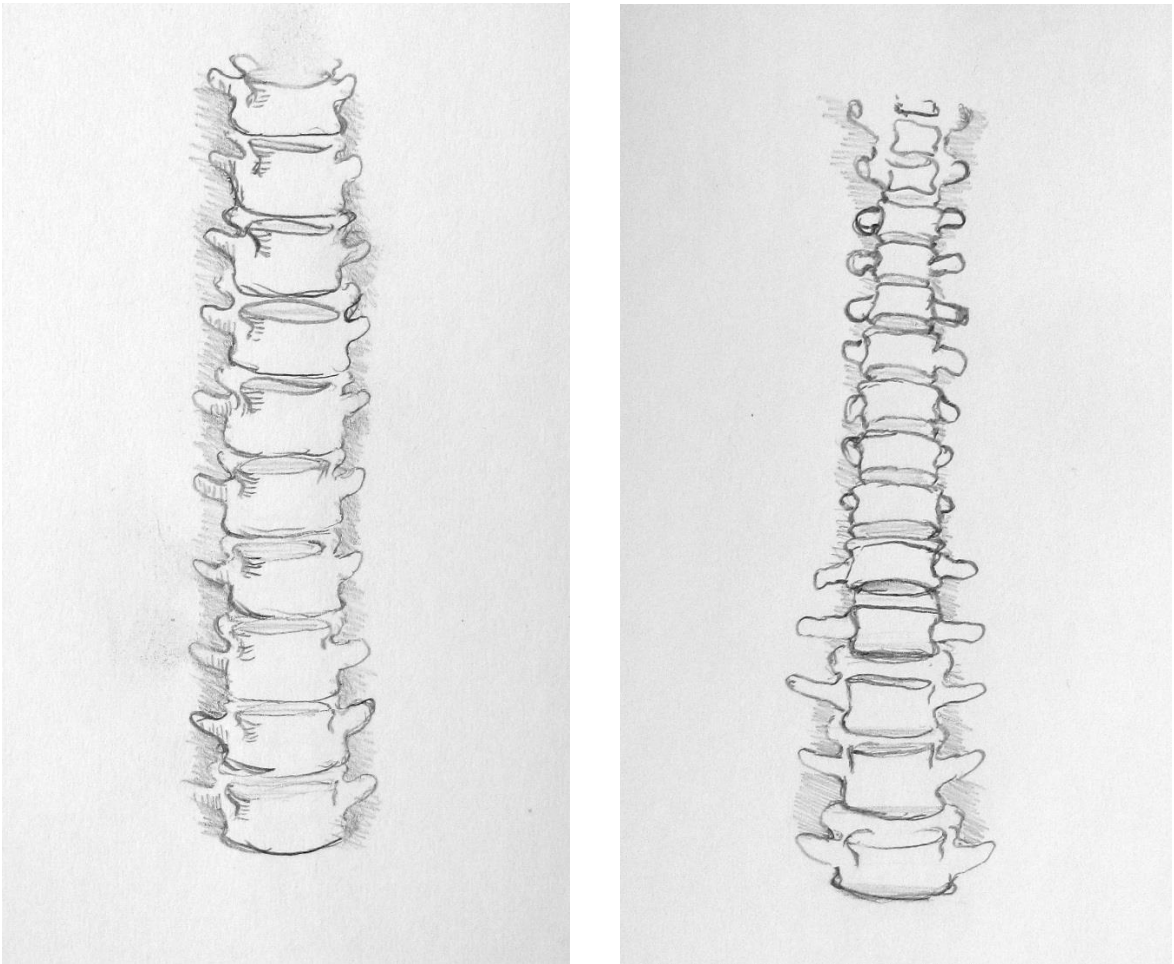


Fig. 161 Studio Notes: *Pattern as template paradox.* 2005-2015. HB Pencil on 90gsm paper. 29.7 x 21cm.

In the drawing to the right of Figure 161, the bottom-most vertebrae is drawn and the pattern of vertebrae shape and graphic interpretation is stored in the memory. As the

drawing moves up the spine, the recalled pattern and strategy of interpretation augments and is augmented by the recognition of the variation to repetition that defines the spinal column. Storing the strategies that interpreted the first vertebrae as a task-specific code, memory of the first vertebrae and subsequent observation each become complicit in the visual interpretation of the subject. Experienced drawers unconsciously utilise experiential drawing strategies to augment observation, not to supplant it.

6.5 The perception of pattern as geometry

The relationship between drawing and geometry manifests itself in a variety of guises that are closer in ideology to mathematics, including the diagram for construction and/or underlying projections. However in terms of a pattern of perception, it is also possible to consider geometry in a more empirical sense, a proportional lens to calculate relative distance, scale, angle and shape. This search for comparisons in a subject equates to an expectation of universal order predicated on the notion that the repetition of an occurrence does in fact guarantee it happening again.

6.5.1 The expectation of pattern

The experiment carried out in *4.3 Saccades*, visibly demonstrates the path of the eye seeking out pattern (Figure 162, below). On encountering part of an expected shape, the eye pauses and then seeks out the corresponding angles that visually complete the shape. This can be observed clearly in the horizontal lines that dissect the drawing; during the search for the corresponding opposite edges and corners of the objects the eye travels over an observed subject (eye direction highlighted by red arrows):

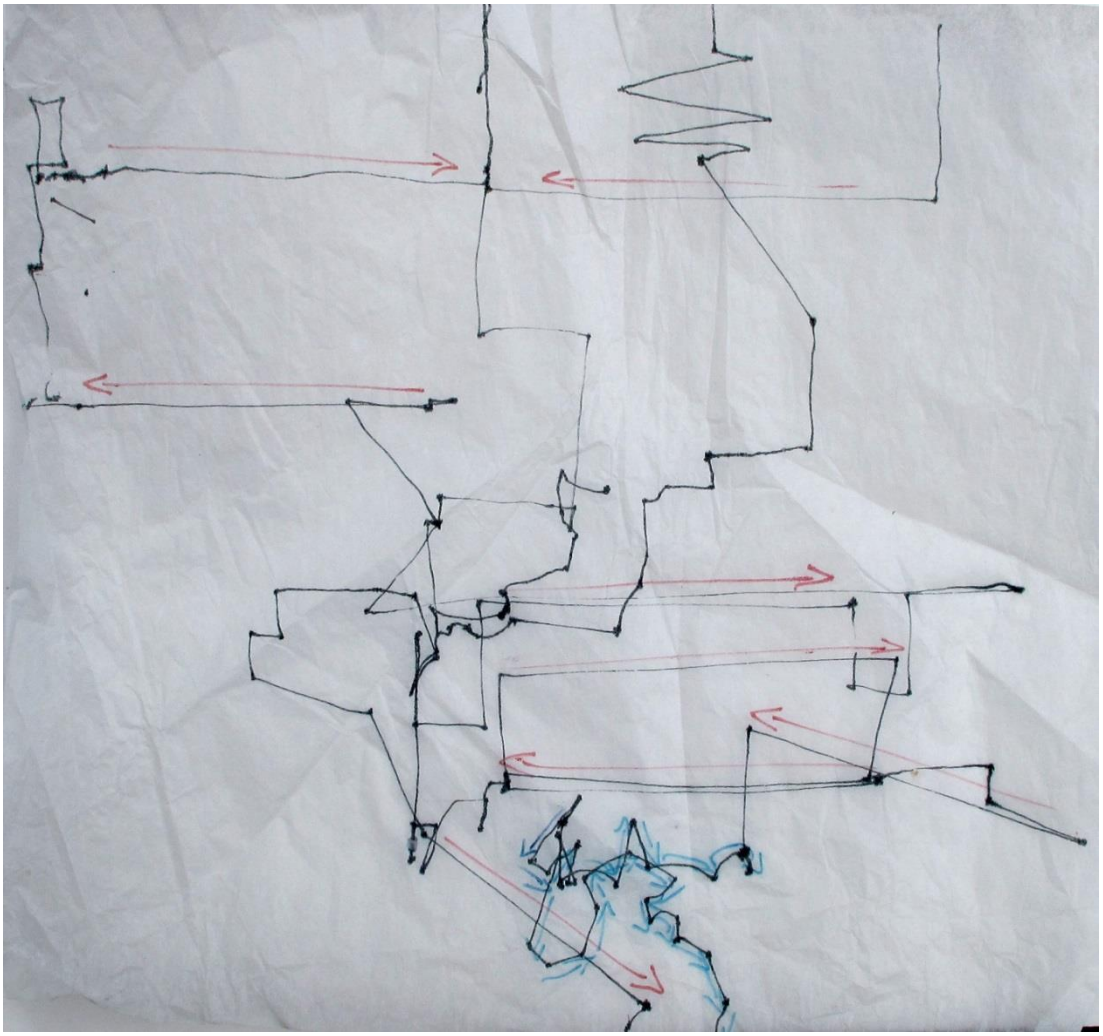


Fig. 162 Studio Notes: *Drawing experiment 4 with directional arrows.* 2005-2015. Berol writing pen on tissue paper. 29.7 x 21cm.

The subconscious presumption of a shape's continuance in line with our previous experience of similar entities, even if that shape is not wholly visible, is termed 'visual completion' (Palmer 2002: 11). The drawing process re-positions visual completion as a search for commonalities integral to perception *and* two-dimensional interpretation, constantly cross-checking observed phenomena to establish a pattern of measure across the drawing. In the blotting paper drawing, where the subject reduces in scale and becomes another recognisable shape, the bowl of pears at the bottom of the paper (blue arrows), drawing perception becomes more segmented, again seeking to visually complete a familiar pattern

shape, as the type of subject is recognised. The distinction exists as one of necessity, normative perception presumes shape completion as a pattern of understanding, drawing perception presumes shape completion as a pattern of understanding, but must verify it in order to translate it, necessitating a more conscious acknowledgment of the phenomenon. Drawing further consolidates the recognition of visual completion, by employing it as a communicatory device to imply greater detail than is physically drawn, an example is the depiction of brickwork (Figure 163). The suggestion of pattern continuance is utilised constantly in drawing as an economic strategy to overcome the incapacity of the medium to cover large areas quickly.

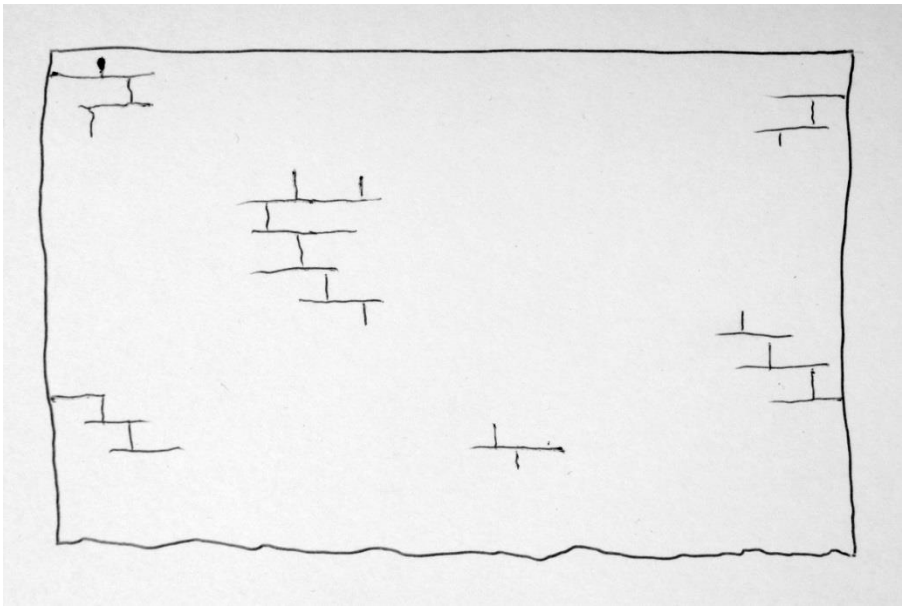


Fig. 163 Studio Notes: *The visual completion of bricks in a wall.* 2005-2015. *Berol* handwriting pen on 90gsm paper. 8 x 13.5cm.

The critical importance of the expected continuity of pattern to the observational drawing process is demonstrated in the development of a single drawing in Figure 164 (Below). The initial drawing process maps the pattern of the windows. The experiential expectation of a window is one of geometrical certainty. Initiating the drawing by adopting the windows as

measure, transfers a pattern of perception to the remainder of the, as yet undrawn, drawing. The future drawing is compositionally structured by the scale of these first marks.

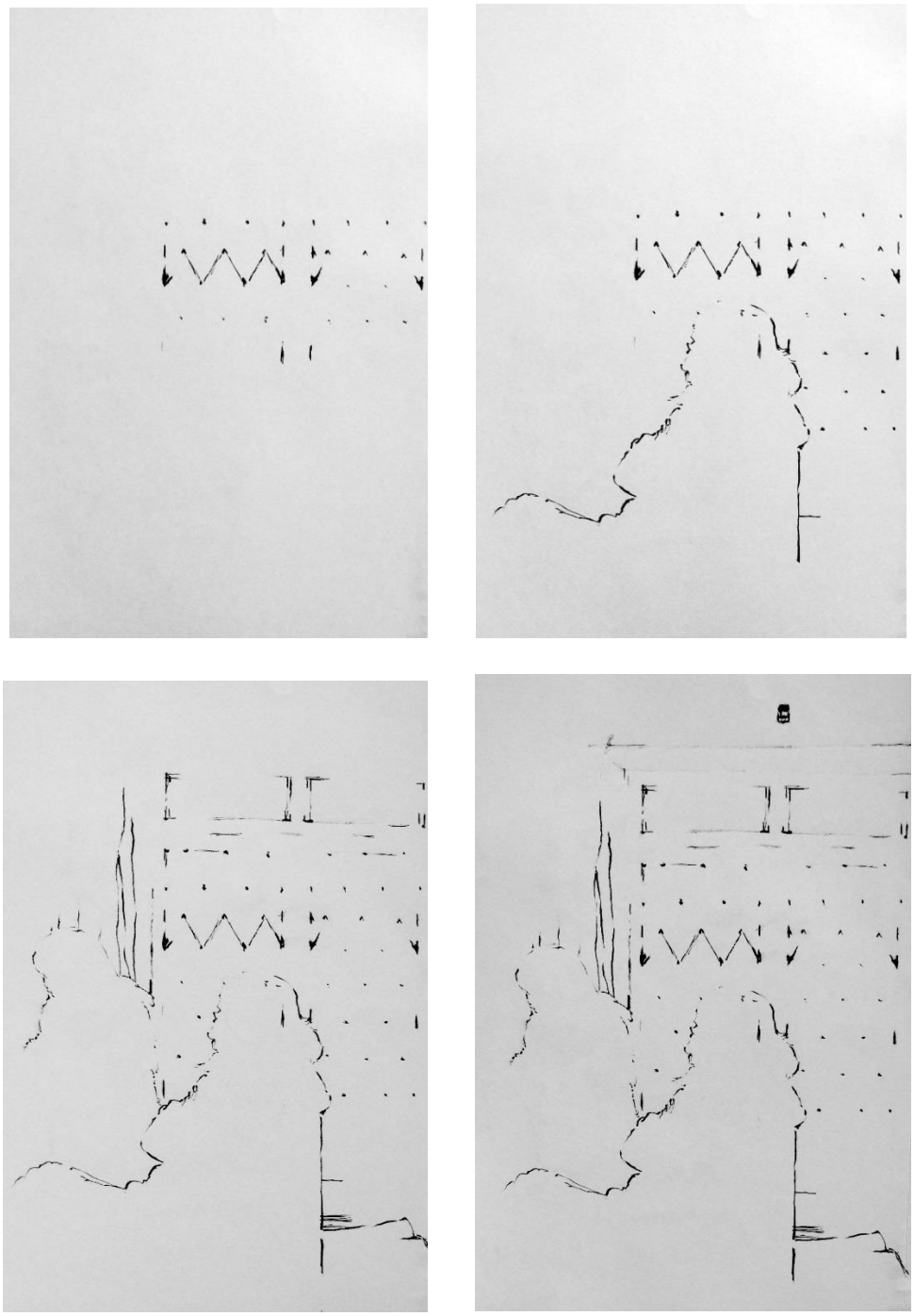


Fig. 164 Studio Notes: *Pattern as geometry in the development of Sitting Room.* 2005-2015. Gel pen on 90gsm paper. 29.7 x 21cm.

To control the potential of the future composition, a drawing must be pre-imagined, so as to begin the drawing with a scale of pattern proportionally suitable to the scale of the paper. As a mode of perception, prediction of the scale of marks on the ground as an interpretation of the observed/imagined subject, leads the drawer to adopt *drawing perception* prior to physically drawing, altering the perception of the subject as it is considered as a group of potential marks on a limited surface area.

The *Portrait with… Series* (Figures 165-6, below) utilises the expectation of pattern to encourage the viewer to predict or complete an implied shape, usually a circle:

Fig. 165 Studio Notes: *Portrait working drawings 13.* 2005-15. Monoprint on cartridge 120gsm paper 84.1 x 59.4cm.

Fig. 166 Studio Notes: *Portrait working drawings 1.* 2005-15. Monoprint on cartridge 120gsm paper 84.1 x 59.4cm.

The implication of shape impacts on the composition of a drawing. By visually completing the circle, the viewer introduces non-existent lines to the structure of the drawing. These lines are perceptually positioned at a point of latent potentiality, effecting the space that would be inhabited were the shapes complete. The result is a subtle layering of spatial understanding, with the viewer encouraged into a state of cognitive flux, where material fact presented as marks on a ground, is countered by the unseen, an ingrained, psycho-visual expectation of shape.

6.5.2 Rhythm in perfect pattern

In drawing, perfect patterns (machine made) are often imbued with rhythm through the trans-dimensional process of interpretation (Figure 167, below):

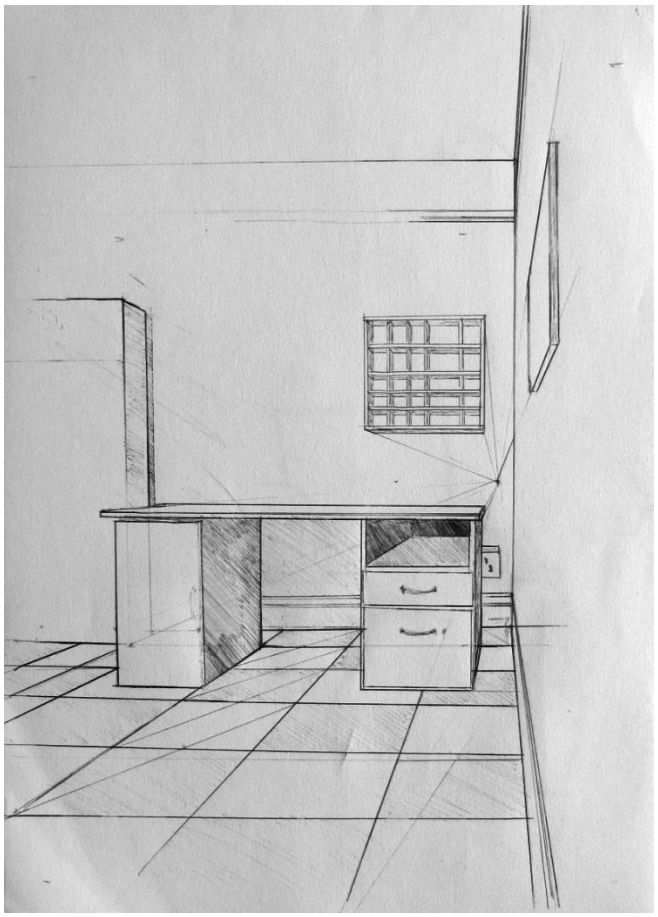


Fig. 167 Studio Notes: *Linear perspective.* 2005-2015. Ballpoint pen and HB pencil on 90gsm paper. 29.7 x 21cm.

Wallpaper, bricks, or, as in Figure 167, the square tiles of a floor, must all be altered beyond their manifest dimensions, to participate in the conceit of illusion. In normative perception, the same variation is observed, but the observed objects are left unchanged, understood as receding from the eye and therefore diminishing. In drawing, the impact of the rhythm of change to pattern is consolidated by the fact of physically re-interpreting the subject, changing its dimensions so that it is no longer geometrically the same shape as the subject. This process involves a hyper-detailed conscious recognition of the phenomenon, together with the inherent differences between the marks on the page and the physical fact of the subject, underlining that, not only is the drawing an illusion, but to some extent, vision itself, could be said to move beyond fact.

The understanding that perfect pattern is perceptually at variance with its inherent mathematical certainty and dominated by rhythm, is established as a core working methodology, underpinning the practice through the research period. This is demonstrated by a brief overview of its impact across the three major bodies of work completed within the research period.

In the *Portrait Series* (Figures 168-70, below) pattern is established through subject and through materials. Materials are limited, as are colours and techniques; the ground, mount and frame are all identical. Each individual portrait is then created along a like theme of exaggerated face/head, printed from a previous drawing and glued in place, onto a drawing on yellow paper that is subsequently cut-out and placed on the gold/brown card. Crucial to the outcomes of each drawing is the cutting-out, which provides a silhouette that flattens each image, thereby accentuating the shape of each figure and consequently activating the negative space (See Section 1.2).

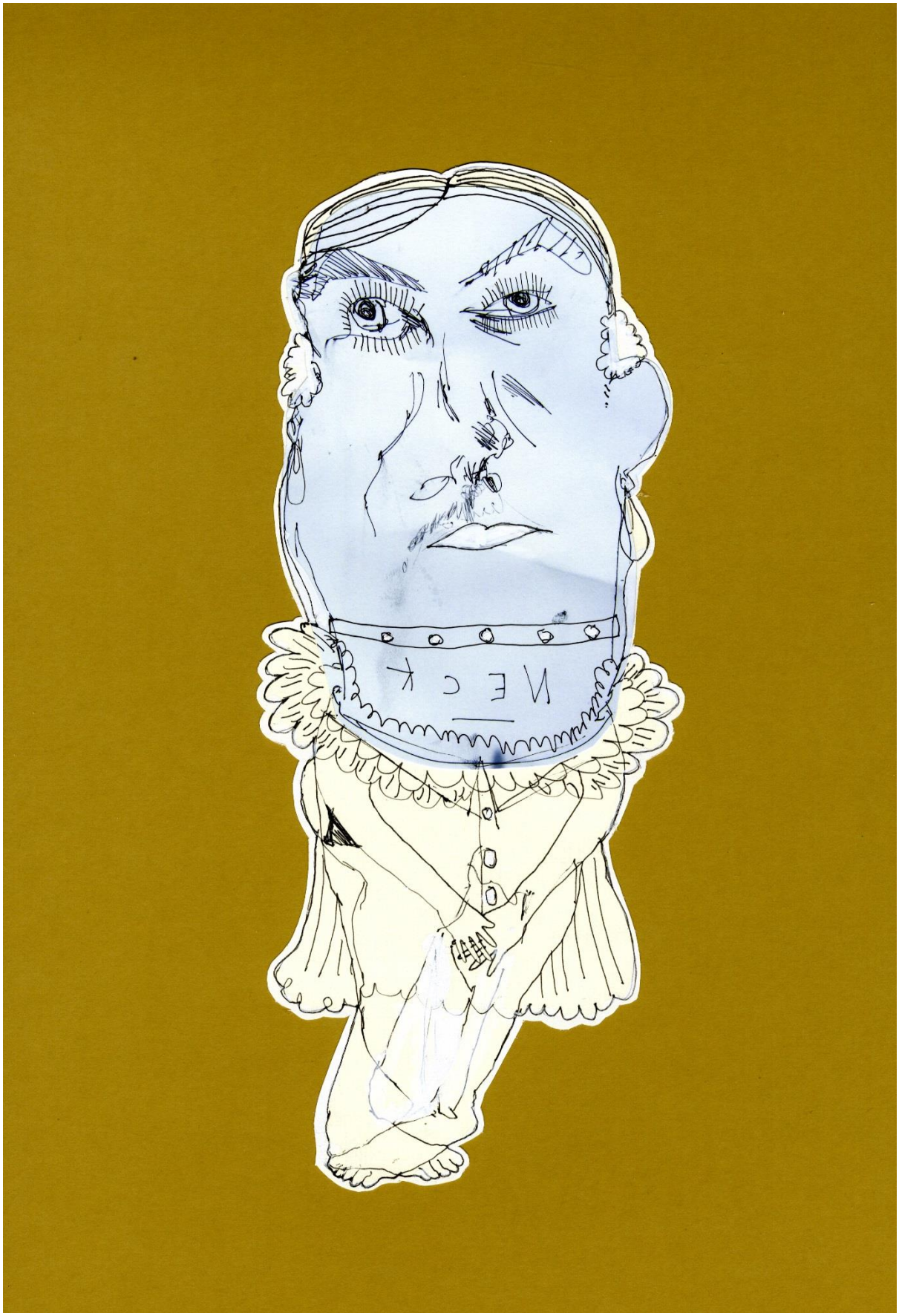


Fig. 168 Richard Monahan: *Neck/Portrait Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 50 x 40cm.

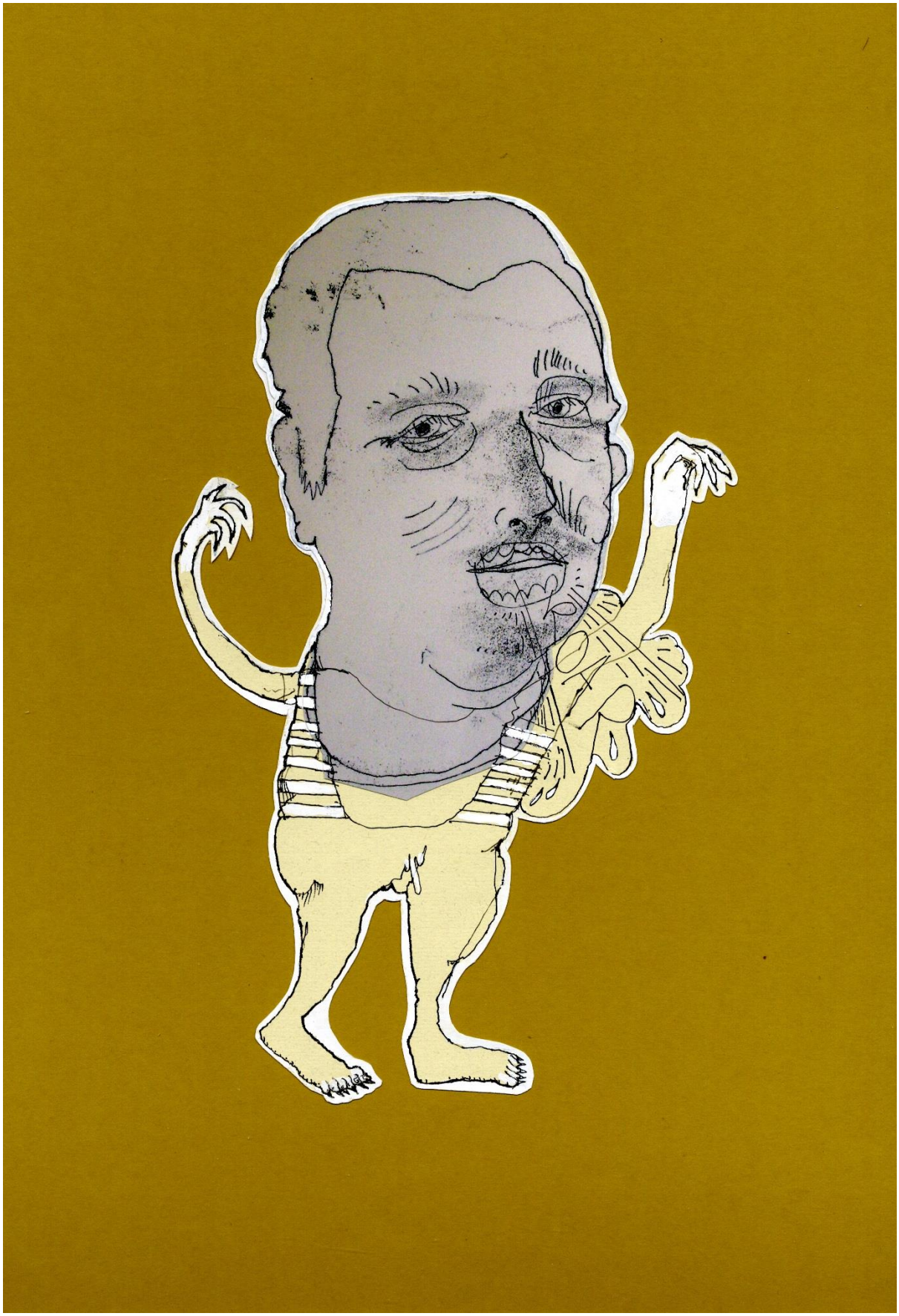


Fig. 169 Richard Monahan: *Roar/Portrait Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 50 x 40cm.

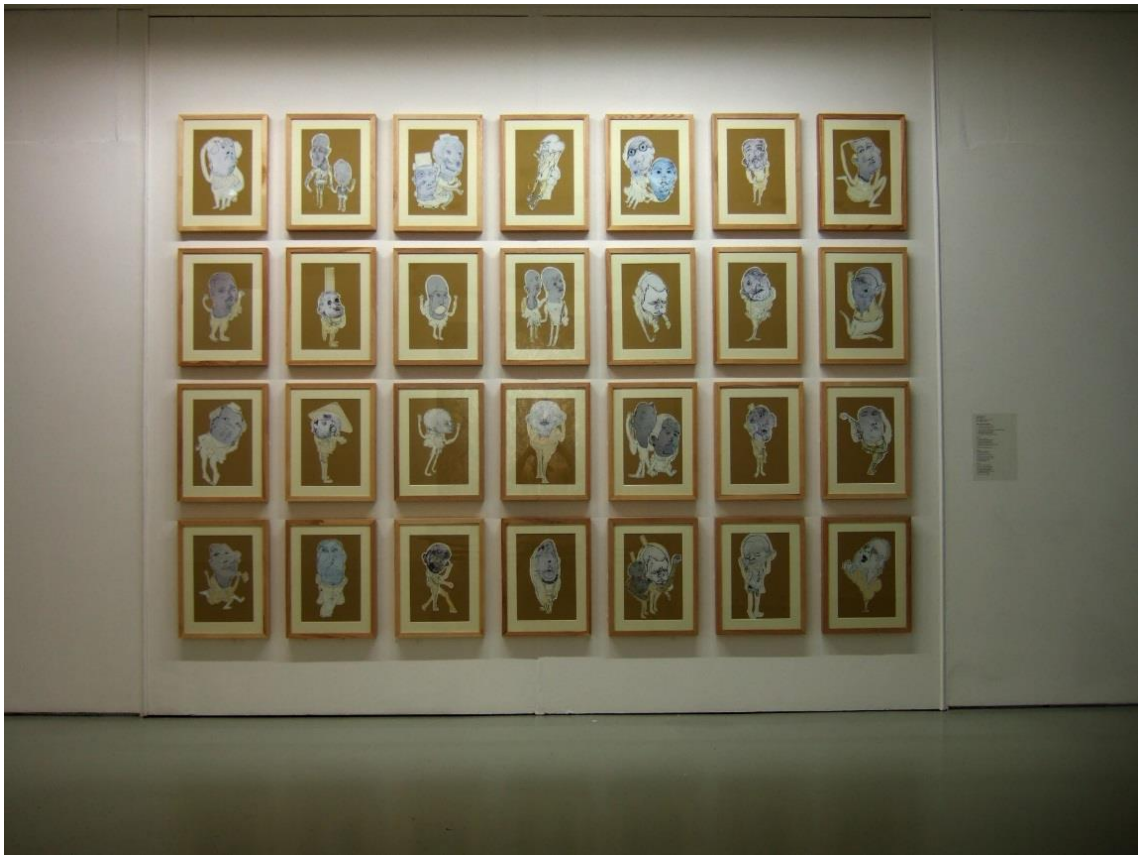


Fig. 170 Richard Monahan: *Portrait Series*. 2005-08. Pen and correction fluid on printed drawing and paper on card. 50 x 40cm each whole dimensions variable.

Both drawing and ground then become felicitous participants in the pattern and rhythm of the whole. The variations to each individual drawing are further complimented by the natural variations of the perceived whole, where the light and the viewer's position, again alter the shadows cast and also the orientation of them (this time by the frames), thus acting as a counterpoint to the symmetry of the remaining elements.

The concept of an underlying pattern gradually becomes more prominent as my practice develops. In Figure 171 (Below), in drawing out the initial designs and measuring the correct intervals into the final drawing, the underlying wallpaper pattern in the *Wallpaper Composition Series* is mathematically spaced in order to resemble wallpaper. From this point

Fig. 171 Richard Monahan: *Wallpaper composition in pink and grey.* 2008. Oil paint, pen and pencil on canvas. 200 x 150cm.

of perfect repeat, the drawing of the wallpaper and subsequent scenes are characterised by a loose line, creating a juxtaposition between the mechanised, mathematical composition that underlies the natural pattern of my drawing.

In delineating repeated elements, tiredness and boredom are permissible human factors, admitting errors and deviations to the design as a natural consequence of repetitive action and thought. This leads to the wallpaper repeat establishing itself as a ritualistic, visuo-motor version of 'Chinese Whispers', whereby the first pattern drawn bears little resemblance to the last (Figure 172):

Fig. 172 Richard Monahan: *Wallpaper composition in pink and grey* (Detail). 2008. Oil paint, pen and pencil on canvas. 200 x 150cm.

Between the repeated designs I have drawn a sequence of couples that, apart from their numbers, are completely removed, visually, from the idea of repeat. This introduces a further break to the expectation begun with the perfectly spaced underlying composition Figures 173-4 (Below):

Fig. 173 Richard Monahan: *Wallpaper composition in pink and grey* (Detail). 2008. Oil paint, pen and pencil on Canvas. 200 x 150cm.

Fig. 174 Richard Monahan: *Wallpaper composition in pink and grey* (Detail). 2008. Oil paint, pen and pencil on Canvas. 200 x 150cm.

The use of rhythm to interrupt pattern characterises both previous series with the constrained energy of a gestural mark that is restricted. The later Portrait with…Series (Figure 175, below), adopts a less mechanistic approach to pattern and rhythm:

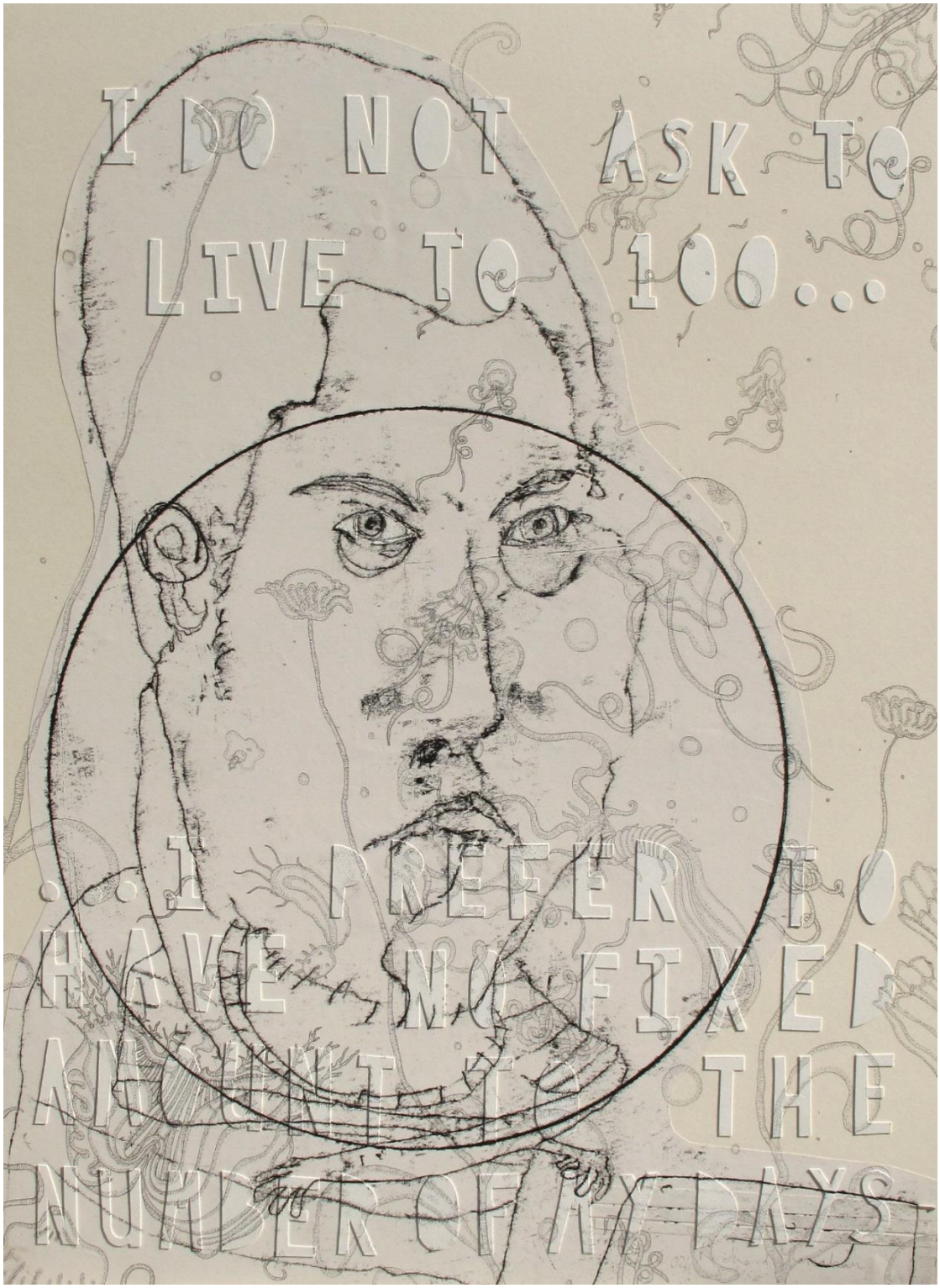


Fig. 175 Richard Monahan: *Portrait with Circle* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84.1 x 59.4cm.

Utilising the concept of repetition of like elements to continually draw the viewer's attention to the over-arching aims of each drawing. This is manifested both as mark and shape to separate the layers that comprise each drawing.

The primary drawing utilises monoprint to delineate the figure, a technique that incorporates an inherent sense of pattern and rhythm in the quality of the line produced. This single drawing is subsequently cut up and re-imagined onto the card ground, disrupting the flow of like components. To underline the distinction between that and the next layer, the sea creatures are drawn using a 0.05 fibre-tip pen in a technique that is more decorative and emblematic, characterised by a slow-paced linear description, where each line is accompanied with a row of dots or dashes. By establishing a distinct pattern of style to draw the sea-creatures and plants, they retain an innate connection with each other and an equally strong repulsion from the primary drawing. The letters are then added as a third pattern to exist on an equally separate plain. By subsequently drawing over the letters and mimicking the monoprint with the pen, the layers at points become fused, leading to the fluctuating sense of rhythm that pervades the whole.

6.6 Summary of *Pattern and Rhythm*

Pattern and rhythm are multilateral modes of understanding perception. The landscape drawings that introduced *Pattern and Rhythm*, underlined that drawing perception and normative perception operate at different speeds, whereby the drawing process is necessarily iterative, requiring more time to translate phenomena into signs. The translation of subject to sign, positions drawing as an atypical compromise to normative perception, slowing and macro-detailing the information gathered.

Categorising drawing as a medium restricted by material and action, the discussion of pattern and rhythm identified drawing as significantly less flexible than sight, a fact that is found to both facilitate and hinder communication, but that ultimately provides drawing with a universally recognisable graphic coherence.

The study recognises motor-memory and personal signature as contributing to the experiential origins of an individual's graphic alphabet that is subsequently employed to interpret perception.

Drawing as a mode of perception is found to adopt both shape primitive and boundary rules' part-segmentation theories to interpret phenomena, demonstrating how each may be adopted as diametrically opposed strategic lenses through which drawing can be approached.

The study proposes that pattern is adopted by experienced drawers as an experiential drawing strategy that augments vision, projecting previous experience onto observed subjects. Further findings demonstrate that pattern in drawing is used to predict the future of a drawing, positioning drawing perception as altering perception outside of drawing practice. Finally the study outlines the fundamental role of variation to perfect pattern in the development of practice.

So much a part of drawing's manipulation of perception stems from the patterns and rhythms that bridge phenomena, physiology and cognition. In drawing, the drawing takes precedence and directs the pattern of understanding perception in reference to the aims of the drawing. If the aims of a drawing are to find repetition, the lens of repetition can be

engaged, likewise if the aims of a drawing are to find variation, the lens of variation can be engaged.

Component 7: Texture

A picture, photographic or chirographic, is always a treated surface...a plaster wall, or a sheet of canvas, a panel, a screen, or a piece of paper... The picture is both a scene and surface, and the scene is paradoxically behind the surface.

(Gibson in Riley 2009: 3)

Texture, like pattern and rhythm, is defined in drawing by the limitations of drawing as a medium, and by the cypher-like quality that those restrictions induce. However, with texture, the sense of touch predominates, referring to what something feels like, or appears to feel like. The sense of the haptic, refers not only to the surface appearance of a subject, but to the translation of that surface appearance to the surface of the ground on which the drawing takes place, so at once the artist is seeing, interpreting, feeling and mimicking texture.

Over the course of the study, the relationship between texture and drawing, its impact on the perception of texture and consequent impact on the progression of practice, largely stems from two very separate definitions: *Texture as illusion*, which is concerned with the rendering of the appearance of texture in a drawing through technical manipulation and the combination of marks. *Texture as fact*, which concerns the choice of materials used to draw with and to draw on. The following is a collation of the development of both lines of inquiry.

7.1 Exploring texture as illusion

7.1.1 Assimilation

The textural qualities of an object are perceived as tonal variants on a surface, but it is through touch that these variants are discovered to feel differently. Over time, physical and

optical interaction with surfaces becomes assimilated and stored in memory, enabling the prediction, with reasonable accuracy, of how an object will feel prior to contact. In contemplating texture through drawing, at one end of the interpretative process exists a comparison of the observed/imagined texture with an original, visuo-motor episodic memory (the surface qualities of a remembered and assimilated physical and visual encounter). At the other end of the drawing process, the sense of visuo-motor contact is mirrored, the episodic memory is contrasted to the subject and then converted to a procedural memory: the hand and drawing implement recalling the technical skills required to create the apposite illusion as an interpretation of a newly encountered/imagined surface:

Contact with object > Assimilation > Interpretation > Contact with drawing

The return to physical contact inherent to the interpretation of the episodic memory of texture via procedural memory through the physical act of drawing, projects a latent physicality onto optical/imagined perception, where sight, memory, and crucially, the physical act, join to conceptualise the subject. However, the physicality of drawing remains latent in its relationship both to the memory of the initial texture and the current subject. In drawing it is not typical to reach out to touch the subject, thereby gaining new information pertaining to how it feels. In drawing the process of physical discovery that provided us with knowledge of texture as infants is reversed, rather, we are projecting what we know onto the physical texture of the drawn subject, and use this information to create, not the physical properties of the subject, but an illusory conceptualisation of it.

7.1.2 Translating texture

Whilst there is a close relationship between the perception of touch and using touch to create perceivable objects (drawings), there exists an innate difficulty in translating surface

texture into marks on paper. In traditional drawing processes an artist does not physically reproduce texture through touch in the same way as a sculptor, but interprets that which is essentially three-dimensional into two-dimensional marks. The two-dimensional fact of drawing underlines the fundamental importance of assimilation and interpretation. By assimilation, textural information is compared to that which is known, and through interpretation a strategy is formulated that can successfully transfer the information onto a two-dimensional surface. However, graphic marks are the result of a considered and deliberate movement of a utensil across a surface whereas, in many cases, texture is a result of machine processes, organic growth or the arbitrary residual results of other processes and so on. In Figure 176 (Below), the drawing attempts at reproducing the texture of a painted piece of wood via close inspection of the surface:

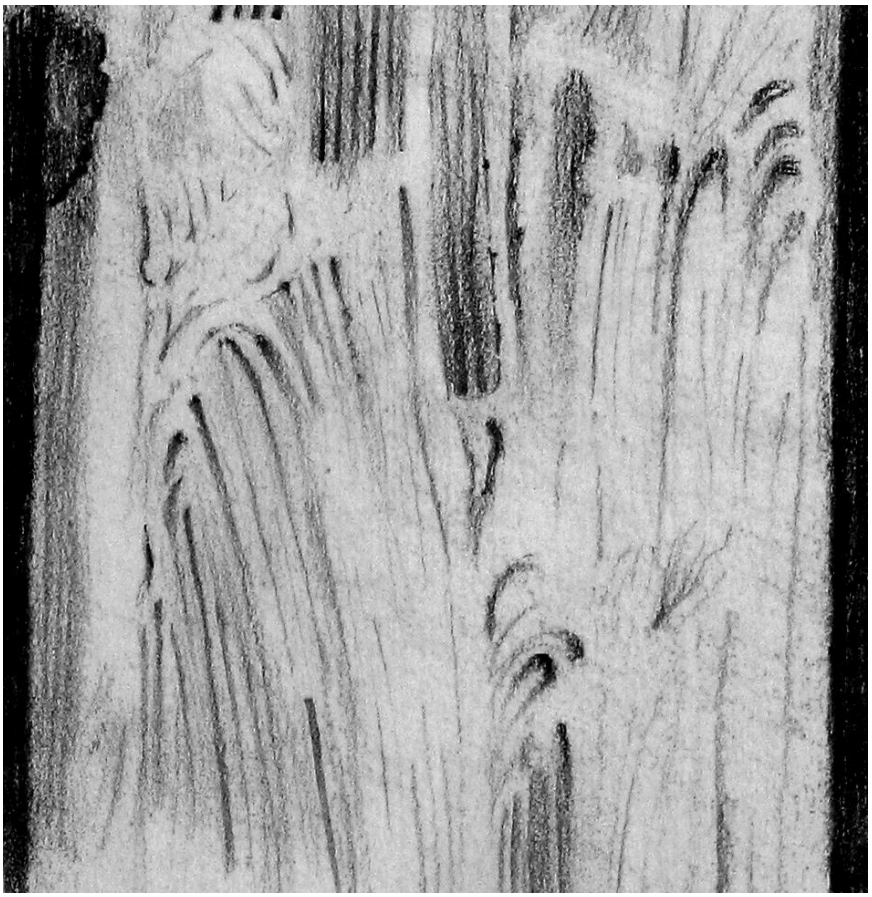


Fig. 176 Studio Notes: *Pencil drawing of painted wood surface* (Detail). 2005-2015. 3B pencil on 120gsm paper. 29.7 x 21cm.

Making a drawing of texture may be said to be an attempt to disguise the paper, every mark exists to create an illusion that removes the viewer from the material fact of the drawing. In itself, manifestly two-dimensional, drawing demands a great level of ingenuity and endeavour to create an accurate reproduction of texture, a process that necessarily promotes an extensive engagement between drawer and subject, because a drawing of texture must be highly detailed to communicate a reality without recourse to other recognisable elements. The underlying impediment to reproducing texture is a direct result of drawing's manifestly gestural signature, requiring the pen or pencil to translate texture mark by mark. The very deliberations of this kind of drawing process, tend towards a controlled and accentuated *illustration* of texture that over-emphasises areas, and that exhibits a sense of contrivance to a subject that exists (in this instance) as the unintended, and largely arbitrary consequence, of a few strokes of a brush. The difficulties presented through this approach to the subject, further demonstrates the limitations that define drawing as a practice, and cite it as a loosely agreed abstraction pertaining to the perception of a subject.

7.1.3 Encoding perception through texture

Like *Pattern and Rhythm*, Texture is limited by the materials and physiology inherent to drawing as a process, rendering the encoding of texture a necessity. The hand is much more suited to describing recognisable shape or segmentation, than to reproducing texture. Figure 177 (Below), is a detail taken from of a sheet of textural 'effects' made with a 0.1 fibre-tip pen. Immediately apparent in a process that strives to develop an indexical taxonomy of textures for future reference, is how quickly marks are repeated.

After the first ten or twenty textures it is clear that gesture is limited, but shape is less so. Each texture feels repetitious in terms of hand movements, and only in the groupings of the gestures does variation occur. This positions texture as illusion as a more limited graphic alphabet than pattern and rhythm, as it tends to rely more heavily on repetitious hand movements.

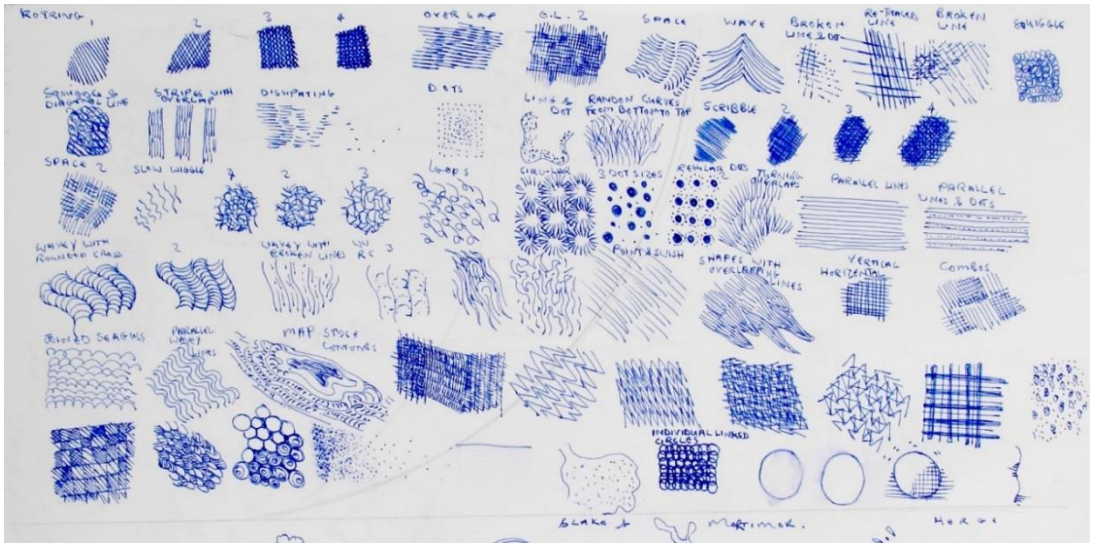


Fig. 177 Studio Notes: *A texture 'Alphabet'*. 2005-2015. 0.1 Fibre-tip pen on 90gsm paper. 13 x 28cm.

In Figure 178 (Below), the limitations that circumscribe drawing as a process, remove drawing from the reality of a subject, the marks equating to a visual alphabet of textural procedures. The drawing divides the ground into distinct separations and enclosures. As areas are drawn in they become defined by the kinds of marks that fill them. In the second image dots have been added to fill rectangular space at the top of the drawing. In the third drawing the main the lower rectangle of space, is filled with horizontal lines establishing a different illusion of texture to the top rectangle and implying a different material. This greatly facilitates the process of communication between artist and viewer as it compartmentalises a drawing into recognisable segments that in turn aid the understanding of complex, whole subjects. The final drawing materially distinguishes between the four

enclosed shapes in the foreground, which are now recognised as being two of one material and two of another. Devoid of overt representation, the communication of texture through abstract marks has begun a new language of communication based on ink marks denoting illusory textural familiarity and distinction.

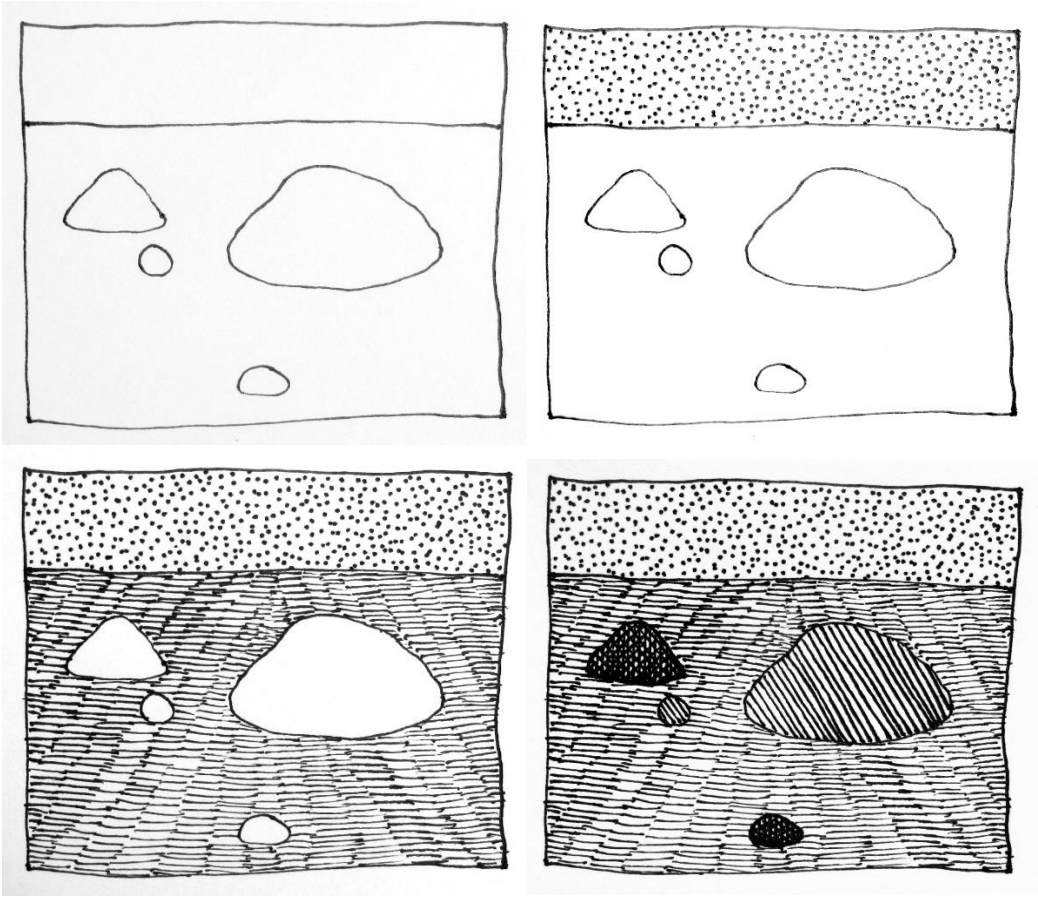


Fig. 178 Studio Notes: *Abstract texture as communicatory device.* 2005-2015. 0.8 fibre-tip pen on 90gsm paper. 6 x 7cm.

An abstract encoding of texture is developed by the drawer and transmitted vicariously through the drawing, to the viewer. The viewer then becomes complicit in validating the proposed code of marks, and a perceptual agreement is reached to re-consider perceived reality as a day-to-day environment, and also to build a new conceptualised, symbolic reality. The abstract understanding of a graphic coherence pertaining to textural values is demonstrated as a unifying technique in Figure 179 (Below), where the use of dots and

dashes to supplement the finer line-drawing, establishes a fundamental familiarity, binding disparate elements into one plane of vision.

Fig. 179 Richard Monahan: *I do not ask to live to 100…I prefer to have no fixed amount to the number of my days* (Detail). 2011. Monoprint and 0.05 Fibre-tip pen on 100gsm paper.

Applying abstract marks in the 'alphabet' of texture to an observed subject, alters the perception of the subject from what we see/imagine to what can be successfully communicated through marks. So long as the viewer is complicit in the conceit, textural illusion is an effective way of disguising the explicit fact of pen on paper and can aid drawers via a hierarchical re-ordering of the priorities of drawing. This study has previously identified beginner drawers' adherence to the outline as a description of subjects in an effort to define shape, a mode of drawing that is a conditioned and endemic 'right-way-of-drawing', for post-school students. Encouraging students to re-focus in life-drawing, on the skin for example (Figure 180, below), presents a new set of challenges to the drawer. Making this simple switch in focus introduces an alternative perceptual lens that in turn activates an alternative

set of priorities with which to approach observational drawing. The shift in the hierarchy of the components of drawing opens the door to further question normative *drawing* procedure, and empowers each drawer to best develop person-specific skills:

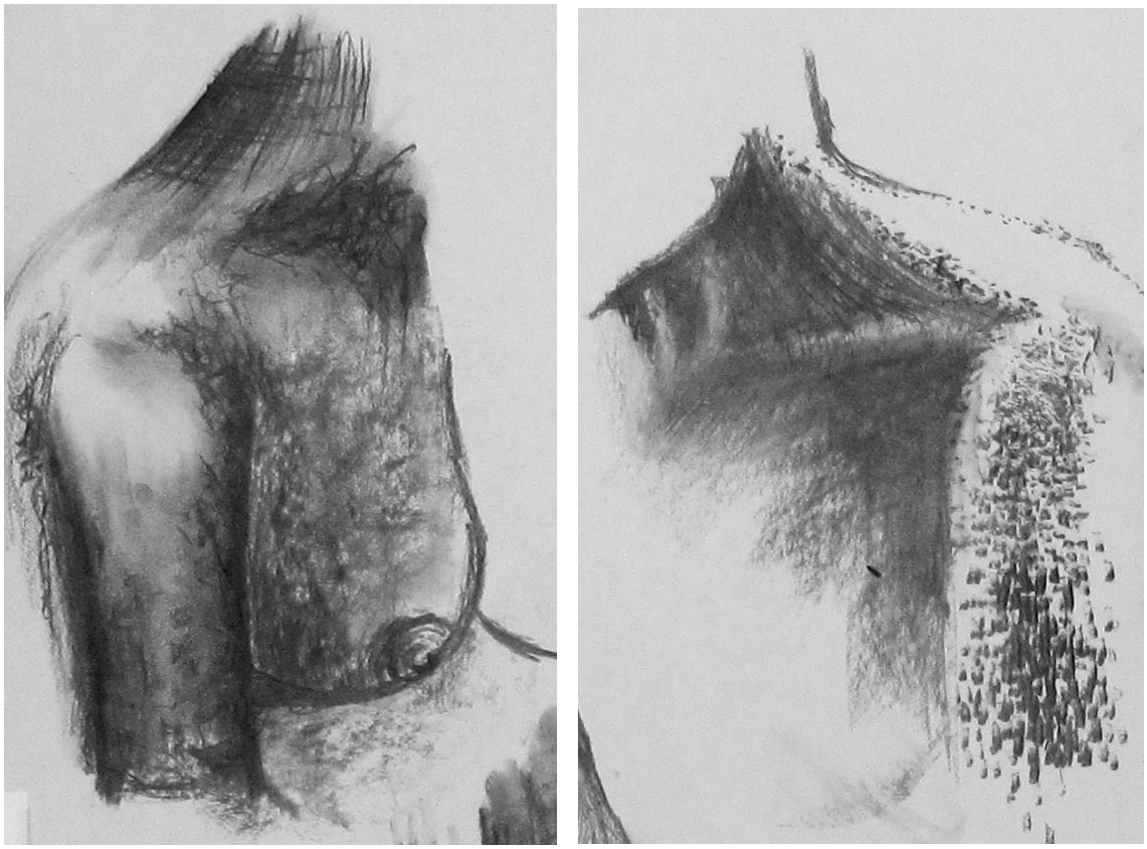


Fig. 180 Pedagogic Notes: *Prioritising textural illusion in life-drawing* (Details). 2011-15. Charcoal on 120gsm cartridge paper. 84.1 x 59.4cm.

7.2 Texture as illusion becomes texture as fact

The underlying limitation of process positions the drawing of texture as a cypher or symbol, the ghost of an absent subject, not *the* subject. When this limitation is applied as an interpretation of growth, residue, or any minutely detailed surface, the drawing process can become an absurdity, owing to the gesture of the hand which is ill-adapted for capturing the quantity of information. It is possible to make realistic interpretations of texture, but a camera is perhaps much more effective and efficient. Drawing then, is an inefficient and

inaccurate recorder of texture as we see it. The extreme inefficacy of the pencil to efficiently describe texture demands more from the drawer, necessitating a greater engagement with the subject and great ingenuity in its interpretation. Texture is undoubtedly never subject to such visual scrutiny as when it is drawn.

However, drawing texture must be understood as explicitly unreal as a comparative version of a subject. This is not a negative critique of drawing's integrity, but an explication of the symbolic nature of the process. As the study progresses, and in response to the conceptual/aesthetic direction of practice, the investigation of texture as illusion is transposed, the direction of the drawings alter from a latent physicality to a more concrete physicality, that in many ways returns to the problem of representing the painted surface of a piece of wood.

Fig. 181 Studio Notes: *Rubbing taken from painted wood surface* (Detail). 2005-2015. Charcoal on 90gsm paper. 84.1 x 59.4cm.

Making a rubbing of the wood provides a more concrete interpretation of the subject, resulting in a graphic quality that exhibits some of the careless velocity of the brushstroke (Figure 181, above). Over the course of the study a number of experiments are carried out to utilise the graphic stillness and paradoxical energy that the process of rubbing produces. Figure 182 (Below) demonstrates the influence of six surfaces used to create textures on 100gsm cartridge paper with a wax crayon.

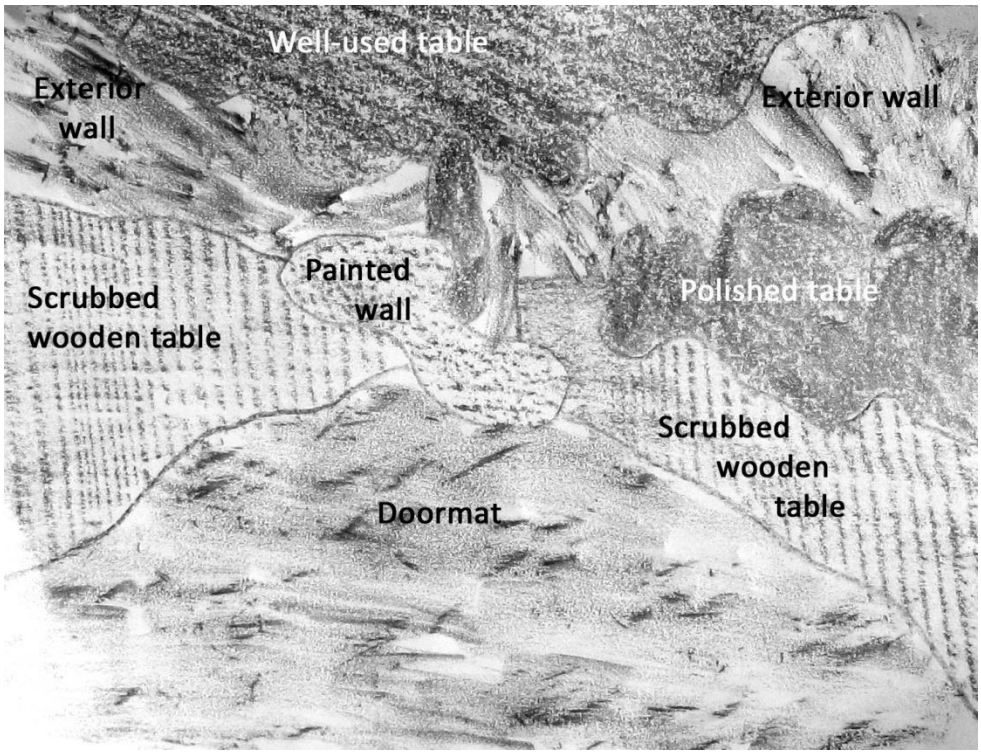


Fig. 182 Studio Notes: *Crayon on 90gsm paper drawn over the rough surface of a scrubbed wooden table, a polished table, a painted wall, a door mat and a stone-washed wall.* 2005-2015. 10 x 13.5cm.

Adopting an overtly physical interaction with the subject to reproduce its inherent physical texture, results in the stillness of the textural quality of the subject being countered by the dynamic action that gave trace to the process. This graphic paradox is inherent to rubbing, and becomes an integral aesthetic device in the practice, an acknowledgment of drawing as part conceptualisation and part physical reality.

Over the course of the *Portrait with…Series,* a large quantity of portraits were produced (See appended DVD). Initially the portraits progress as a figurative response to subject. Introducing texture as fact to the process began as an experimental technique to create two drawings at once. In Figures 183-4 (Below), a sheet of paper is covered with graphite, placed onto a further sheet onto which the drawing is committed:

Fig. 183 Studio Notes: *Portrait through lens.* 2005-15. HB and 4B pencil on 200gsm cartridge paper. 29.7 x 21cm.

Fig. 184 Studio Notes: *Portrait through lens print.* 2005-15. Graphite on 200gsm cartridge paper. 29.7 x 21cm.

The result is a secondary, printed drawing that is divided between the notion of image and the material/gestural fact of the drawing process. In response to this synthesis of image and texture two further drawings are made in which the hierarchies between image, gesture and material are continually rebalanced (Figures 185-6):

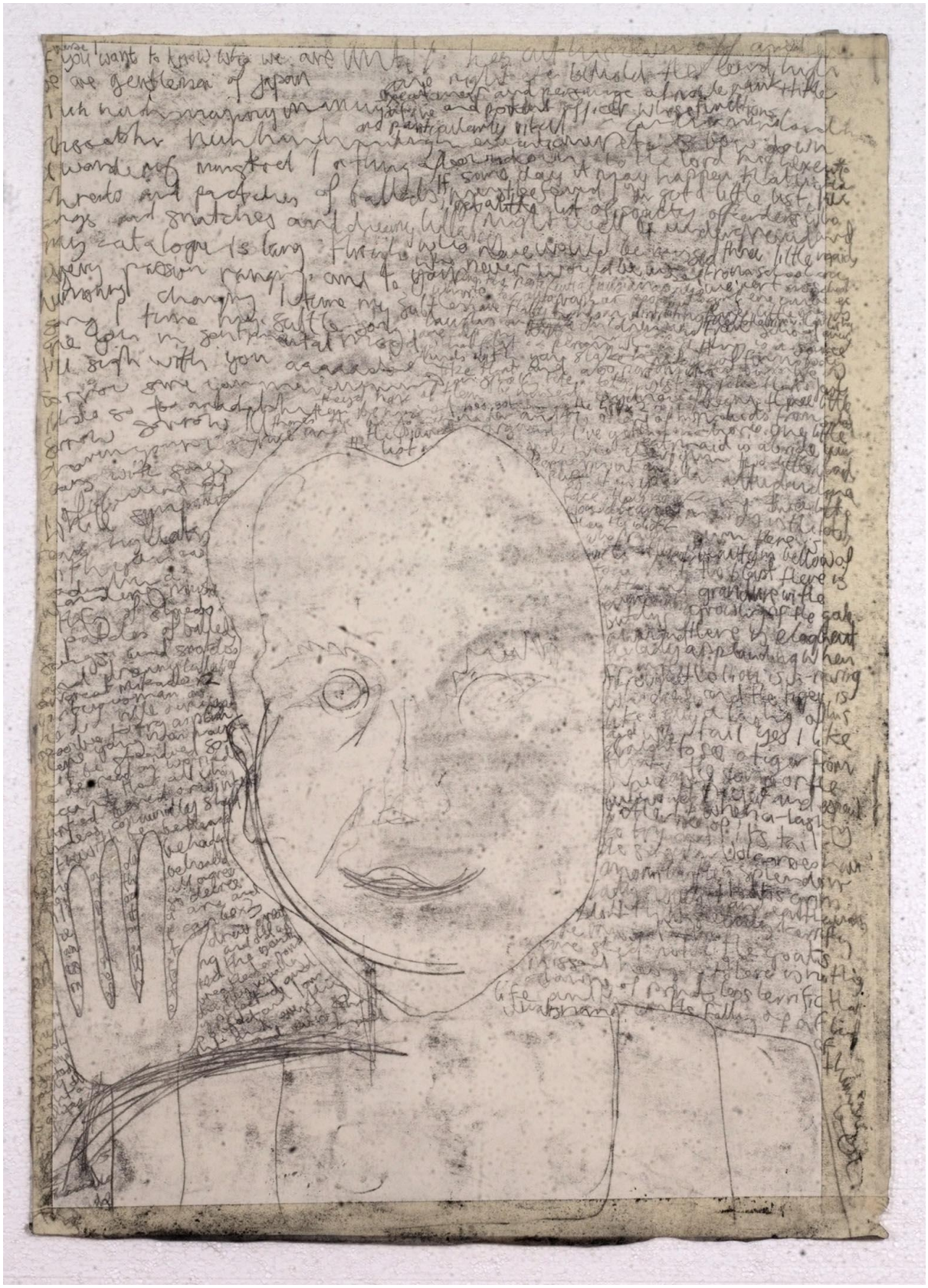


Fig. 185 Richard Monahan: Portrait with Mikado. 2006. Graphite and masking tape on paper. 80 x 64cm.

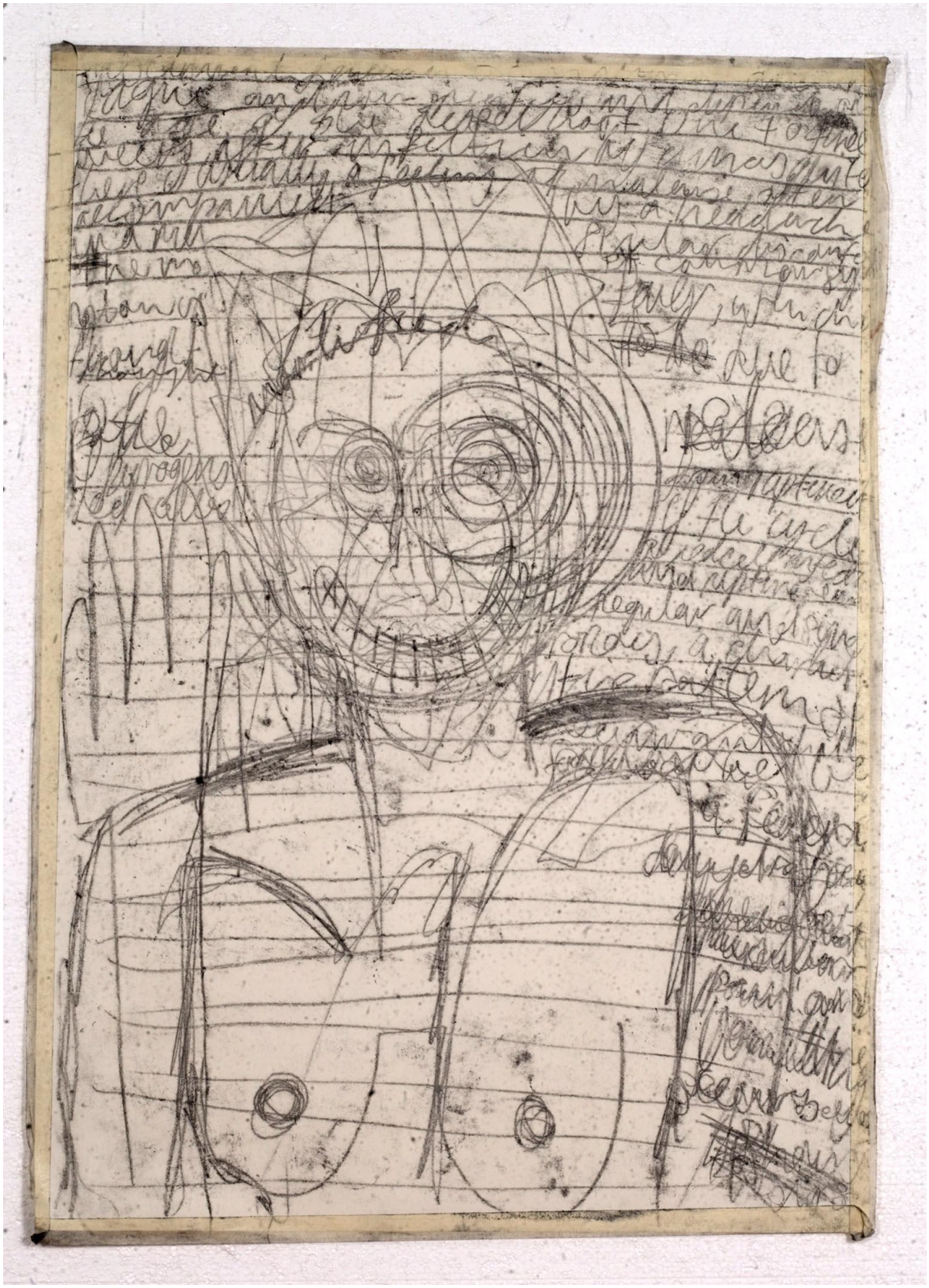


Fig. 186 Richard Monahan: Portrait with disease. 2006. Graphite and masking tape on paper. 80 x 64cm.

Texture as fact facilitates the understanding of the drawings as physical objects. As the series progressed, more traditional monoprinting techniques are adopted, repeatedly drawing on a single sheet of glass. Over the years this sheet is never washed, building up an extended pentimento of portraits that continually add to and develop the next:

Fig. 187 Studio Notes: *The impact of textural build up in Portrait with Backwards.* Monoprint, pen and paper on card. 55 x 70cm.

In areas of the series where shading is employed through monoprint, the built-up texture produces a rubbing and the resulting black offers a three-dimensional imprint of the history

of the series, each shaded area containing a line, or lines, from every drawing that came before it:

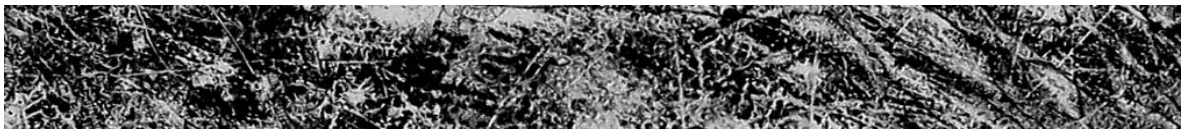


Fig. 188 Studio Notes: *Textural build up in 'Portrait with Backwards'.* Monoprint on paper.

The textural qualities, particularly in the arm and hand holding the pencil have the effect of flattening the arm/hand shape, separating it from the remainder of the drawing and promoting it to the notional surface of the image. There exists in texture as fact, a concrete materiality that removes the viewer from the conceit of the drawing. The drawing is perceived as referencing itself, a piece of paper covered with ink, inviting the viewer to engage with the materials, to reach out and touch the surface. Moreover, focusing attention onto the materiality of the drawing invites the viewer to participate in the acknowledgment of the perceptual illusion that has been physically created.

The textural qualities inherent to rubbed prints, whereby the three-dimensional surface of the source material creates a slight relief in the ground, can be considered as an integral bridging-concept between the division of texture as illusion and texture as fact. Initiating a fundamental change in the direction of practice, comprising a technical and conceptual exploration of the materials of drawing.

7.3 Adopting texture as fact

The sensitivity of drawing to touch demands that the tactile qualities of the materials used to draw with are given technical and conceptual consideration. The materials of drawing, and the physical responsiveness of touch, promote a heightened awareness of the influence

of the ground on the flow of the hand and the subsequent impact of this on a drawing's efficacy of communication. The interaction between surfaces is limited to three variables: the ground, the medium and the utensil. Over time a wide range of drawing grounds, mediums and utensils are encountered, building up a knowledge and perceptual understanding of material properties and thus broadening the scope of an individual drawing practice. Furthermore, material experimentation pertains to a physical understanding of texture as it is physically encountered and manipulated.

The variation of materials in the drawing process has a profound effect on the dialogue between artist and viewer. The physicality of textured surfaces, or textural variety, transmits a sense of haptic fact between artwork and viewer that is at odds with the expectation that drawing is a representation or an illusion. This invites the viewer to contemplate the material concretely, to imagine how it would feel to physically encounter the surface:

> In general smooth textures have a 'cold' quality, implying remoteness and, perhaps unexpectedly, repelling the sense of touch. Rougher textures feel 'warmer', inviting the hand…
>
> (Rawson 1969: 189)

Humans are perceptually programmed to be stimulated by novelty. Textural variation in a drawing offers novelty in a physical form, removing a part of the illusion, and forcibly reminding the viewer of the material of drawing, accentuating and binding the interaction between artist and art work, with the sense of touch of the viewer, moving visual communication to a quasi-physical level. Over the course of the research period, bodies of work developed that were continually shaped by experimentation with texture. These may be roughly divided into two separate and yet thematically related journeys of material experimentation: *Experimentation with paint* and *Experimentation with paper*. Discourse on

both lines of experimentation will be largely confined to a process-centred, explication of practice.

7.3.1 Experiments in paint

Concurrent lines of process-led inquiry concerning the immediacy of drawing and the material qualities of paint, established a period of experimentation that took for its goal the possibility of drawing with paint. These binary motivations quickly developed into two further related motivations: 1. To manipulate light (outlined in Section 5.2), enabling the drawings to contain light and shade through their three-dimensional presence, rather than through the alteration of the reflective properties of the ground i.e. through shading. 2. To embody the drawn line in the finished work with a sense of the physicality inherent to the drawing process, making overtly physical the trace of a physical act, thus adding a notational counterpoint to the image.

The process of experimentation developed over the research period and employed a wide variety of techniques. Examples of the development are illustrated over the following pages annotated with studio notes made in response to each stage:

Experiment 1

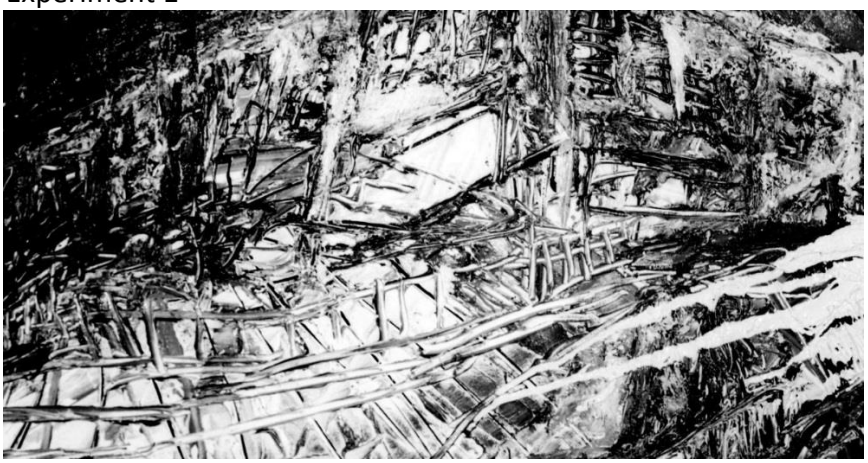


Fig. 189 Studio Notes: *Drawing in paint experimentation 1*. 2005-2015. Oil and gloss on hardboard. 84.1 x 59.4cm.

A method that combines painting with drawing. Layers of oil paint are painted onto a wooden board in combination with different utensils including palette knives and sticks to produce marks. The process lacks flexibility of gesture and control. The resulting work is too close to palette knife work - not the intention.

Experiment 2

Fig. 190 Studio Notes: *Drawing in paint experimentation 2*. 2005-2015. Oil on canvas. 180 x 120cm.

The combination of painting with a brush and palette knife is combined with a syringe filled with oil paint. This produces a line that is flexible. When moving over dry surfaces the syringed paint sits on top of the surface like icing on a cake and so has to be released slowly, whilst the drawn line must be completed at speed. When moving through wet surfaces the syringed line moves more smoothly, but requires constant cleaning, especially through areas of deeper paint. It remains difficult to vary the tone of the line with any control, the drawings are perceptually flat, the texture reinforcing the drawing as marks on a surface.

Experiment 3

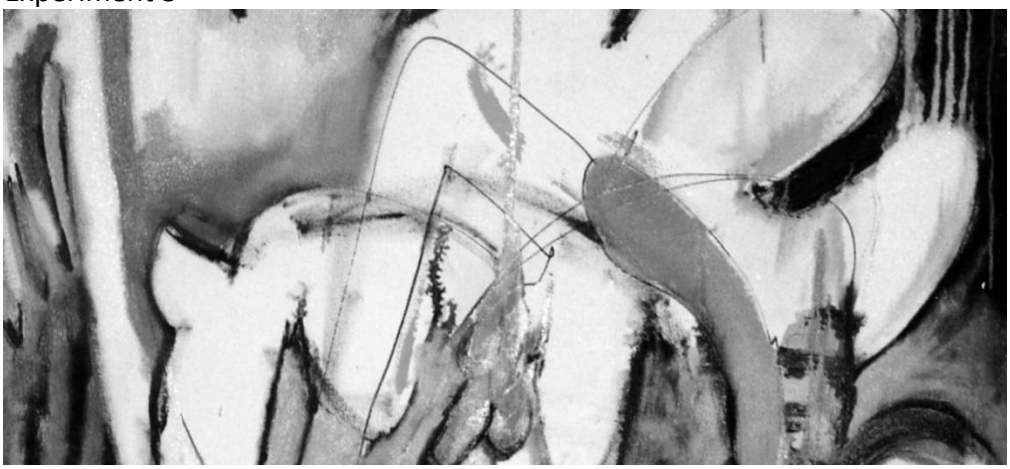


Fig. 191 Studio Notes: *Drawing in paint experimentation 3*. 2005-2015. Oil, acrylic and emulsion on canvas. 100 x 100cm.

The syringe is used again in combination with a dry but very smooth surface. This produces a flexible and consistent line that can progress speedily and therefore intuitively. It is a method to be returned to at a later date.

Experiment 4

Fig. 192 Studio Notes: *Drawing in paint experimentation 4*. 2005-2015. Oil and glass paint on canvas. 180 x 120cm.

Continuing with the syringe into a painted surface. By varying the pressure on the plunger and allowing a build-up of paint to accrue on the end of the syringe, the line can alternate between a black line embodied in the paint and a white, inscribed line with black either side of it. This offers scope for variation in the consistency of line. The syringe is found to have an unpredictable flow.

Experiment 5

Fig. 193 Studio Notes: *Drawing in paint experimentation 5*. 2005-2015. Oil, glass paint and gloss paint on mdf. 84.1 x 59.4cm.

Using glass paint results in similar marks to a syringe, but the paint, and therefore the marks made, have a gloss finish. The glass paint container flows more readily than the syringe, but there is significantly more wastage.

Experiment 6

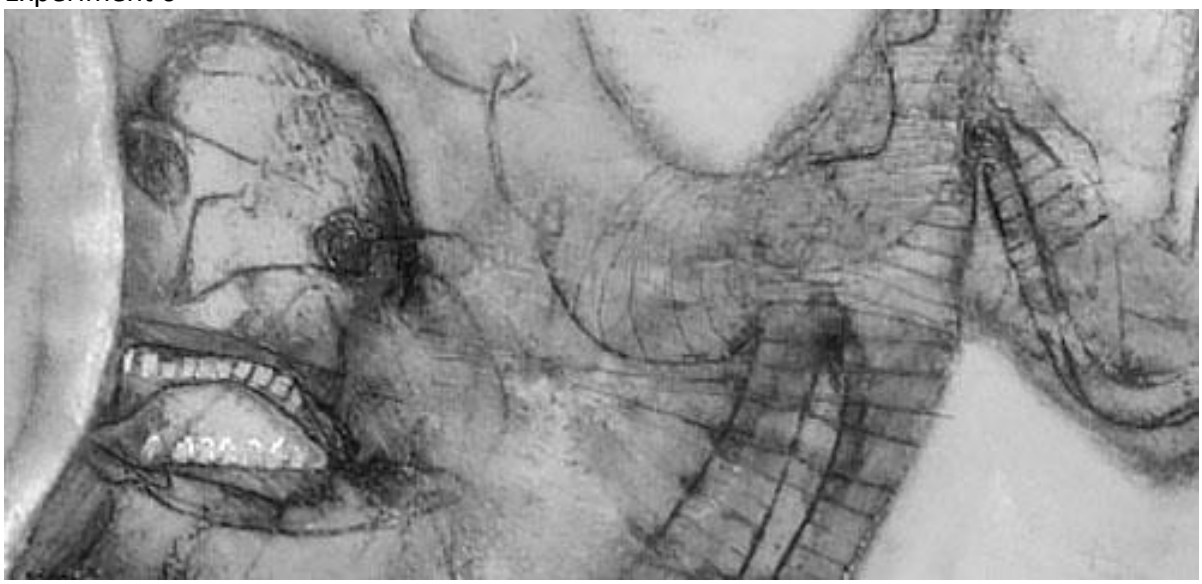


Fig. 194 Studio Notes: *Drawing in paint experimentation 6*. 2005-2015. Oil, biro and pencil on canvas. 120 x 90cm.

Syringes and glass paint are abandoned. The surface of the paint is scratched into using pins and sharp pens. The line is inflexible and difficult to control.

Experiment 7

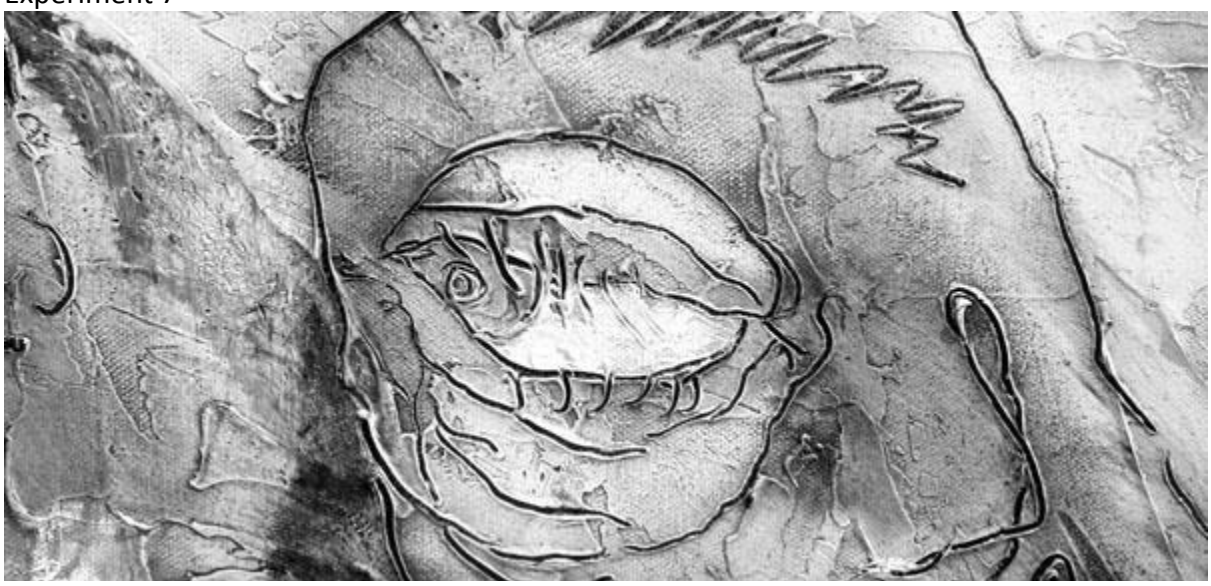


Fig. 195 Studio Notes: *Drawing in paint experimentation 7*. 2005-2015. Oil and biro on canvas. 180 x 120cm.

A painted surface is drawn into using pens, and colour is added to each line separately. This technique enables a flexible gesture, but difficulties remain concerning the intuitiveness of the technique, particularly in reference to tonal variation, with depth illusion reliant largely

on contours. A further problem relates to the subsequent adding of colour representing a contrivance in compared to fluid line drawing.

Experiment 8

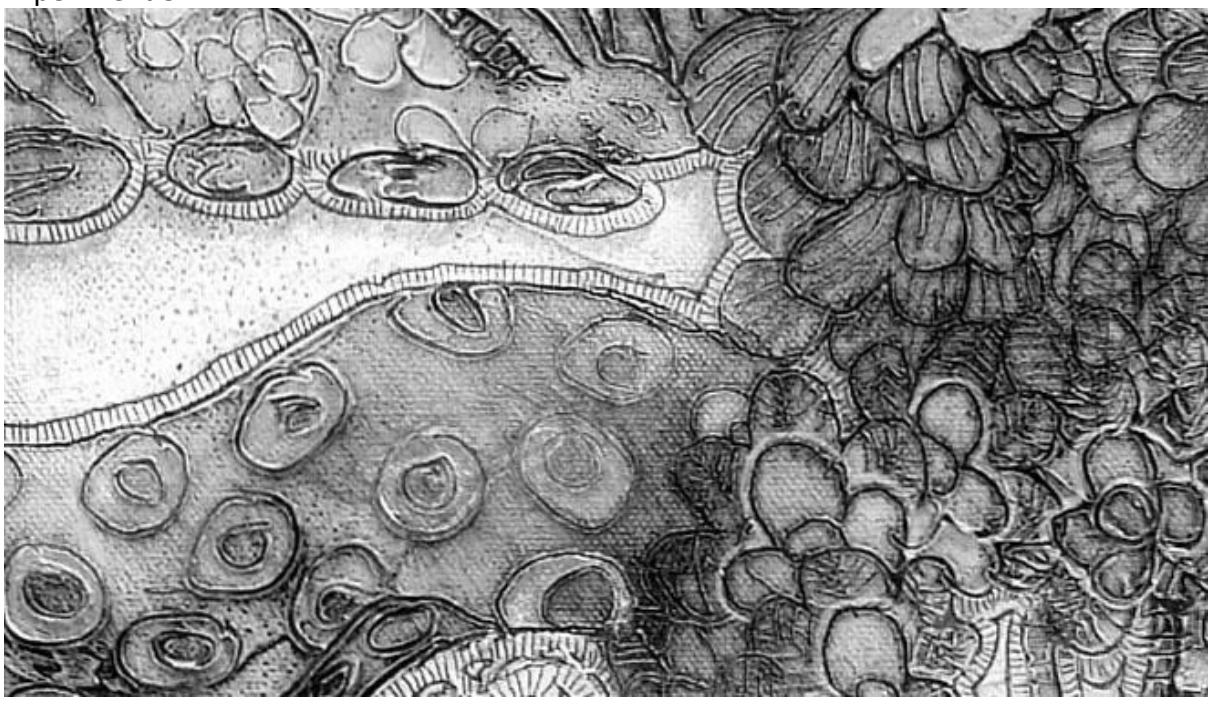


Fig. 196 Studio Notes: *Drawing in paint experimentation 8*. Oil, correction fluid, 0.1 fibre tip pen and plastic eyeballs on canvas.

As above but here a change of utensils (between pens and pins) enables a change in the amount of tone exhibited by each line. This process demonstrates a more pronounced abstract depth variation, though it remains dependent on utensil change which inhibits the intuitive freedom of the drawn line.

Experiment 9

Fig. 197 Studio Notes: *Drawing in paint experimentation 9.* 2005-2015. Oil and gloss varnish on canvas. 180 x 120cm.

The line is drawn as above and the surface is flooded with paint and turpentine. The resulting line is consistent but lacks definition against similarly toned backgrounds. Experiments are carried out to paint subsequent to the application of tone and colour to the background, but these destroy the sense of drawing as the primary goal.

Experiment 10

Fig. 198 Studio Notes: *Drawing in paint experimentation 10.* 2005-2015. Oil, ceramic, acrylic, sand and gloss varnish on canvas. 200 x 300cm.

Lines are drawn into the surface medium and brushed over with a dry brush technique. Added to this, the last three techniques are employed to create a wide diversity of marks. Further experiments are made at combining line with colour, no absolute solution is reached.

The first developed process of drawing in paint where gesture is fluidly embodied into the drawing utilised the findings of Experiment 7 (Figure 199, below) to describe simple forms. The lines were inscribed in order to create ridges and troughs of paint in high relief. The simplicity of form and the depth of relief resulted in an image that projected a linear, tactile quality to the viewer. The inscribed marks created a visceral pathway between artist and viewer, whereby the viewer could visualise the physicality of the hand movement as it

crossed the surface of the drawing, uniting the creative act of drawing with the creative process of interpreting drawing.

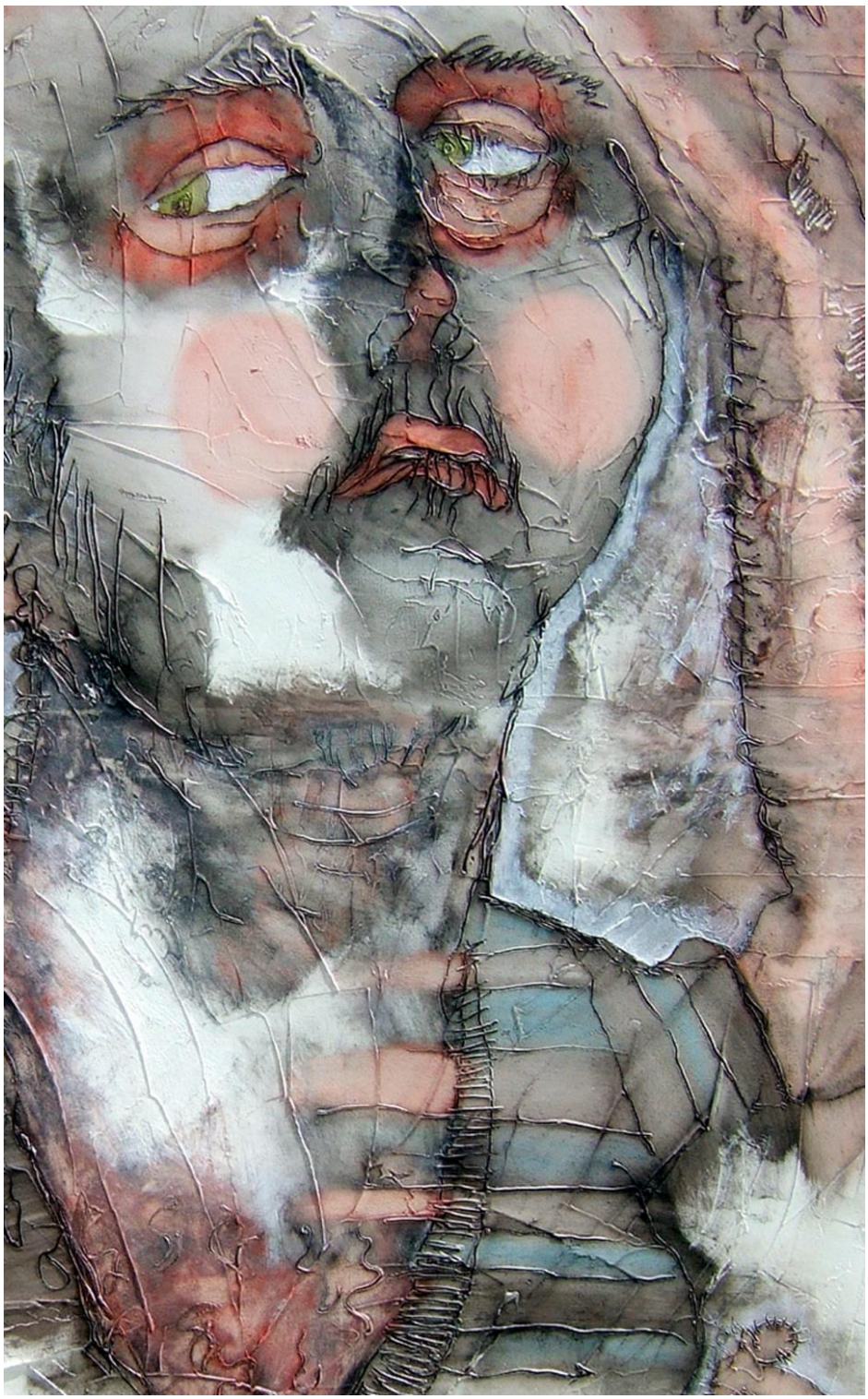


Fig. 199 Richard Monahan: *Portrait with arts star* (Detail). 2005. Oil and biro on canvas. 180 x 120cm.

Early in the study period the direction of the drawings change, focussing on wallpaper as an alternative ‘portrait’. The change in perceived subject leads to a change in process and the conceptual and perceptual implications of drawing a pattern, affects the underlying technical schema that directs the drawing. As the process develops, use of texture is married to an understanding of pattern and rhythm. In the earlier portrait drawings (Figure 199) the drawn line is counterbalanced by the texture of the paint onto which it is inscribed. When subjected to an oblique light, the textured surface of the ground offers a counterbalance to the relief of the line, producing a dual image, one figurative, the other abstract and utilitarian. This duality is further exploited in the *Wallpaper Composition Series* by employing a more detailed and varied line, coupled with a repetitious design, to create a clash between the arbitrary texture of the surface, the formulaic and contrived nature of wallpaper and the expressive freedom of the gestural pathway (Figures 200-3, below). Each catch the rays of light that illuminate the image, creating a sense of tension between chaos and control (reminiscent of the paradoxical split between gesture and stillness inherent to the rubbings). The dynamic created elevates the luminescence of the line in accordance with the angle and relative reflectance of the uneven ground it traverses. To the viewer this presents a line that fluctuates in accordance to light variables, imbuing the line with an optical quality directly related to its inherent, textural, three-dimensionality, creating lines that are made of light.

The resulting series of drawings physically embody the drawing process. In doing this, they partially disassociate themselves from the concept of image and draw attention to the notion of drawing as a movement in time. Furthermore, real texture presents each drawing as a compilation of material, positing drawing as a gestural response to a subject, not the subject.

Fig. 200 Richard Monahan: *Wallpaper composition with black tree* (Detail). 2008. Oil on canvas. 200 x 150cm.

Fig. 201 Richard Monahan: *Wallpaper composition with black tree* (Detail). 2008. Oil on canvas. 200 x 150cm.

The developed technique for drawing in paint is an ongoing one. Through the research period it did not reach the stated aim of fluidity of gesture in paint. The principal difficulties relate to the attainment of a clear and spontaneous line production without recourse to further additions, and the permanence of the drawn structure once committed to ground. At the end of the research period the process remains one of half-realised potential. To further develop it a method needs to be found to enable the alteration of the structural composition through the drawing period and to incorporate the tone and the line into one fluid, controllable gesture.

Fig. 202 Richard Monahan: *Wallpaper composition in green.* 2008. Oil paint, pen and pencil on canvas. 200 x 150cm.

Fig. 203 Richard Monahan: *Wallpaper composition in pink and grey.* 2008. Oil paint, pen and pencil on canvas. 200 x 150cm.

7.3.2 Experiments on paper

At its simplest, material experimentation involves a methodical and systematic process of combining materials to see how they look together. Over the course of the study the importance of material choices in drawing is acknowledged. Figure 204 (Below) is a drawing produced under the self-imposed condition forbidding the use of linear description. The resulting drawing demonstrates the impact of the ground on the pencil:

Fig. 204 Studio Notes: *Texture effect on a medium study.* 2005-2015. Graphite pencil on watercolour paper. 29.7 x 21cm.

The materials chosen for the drawing are graphite pencil on rough water-colour paper which create an unusual finish: the graphite is too hard to take easily to the surface, and the surface too rough to produce smoothly gradating tonal change. The failure to control the direction of the drawing proved to be a simple but revelatory shift in approach to practice,

with the drawing visibly demonstrating the necessity of material experimentation. An overview of these experiments is detailed in the following pages with reference to the drawing: *Portrait with Backwards.*

Material alterations: Figures 205-6 (Below) demonstrate the impact of material alterations in drawing. In Figure 205 the impact of differing ground materials on a soft, grey crayon is tested:

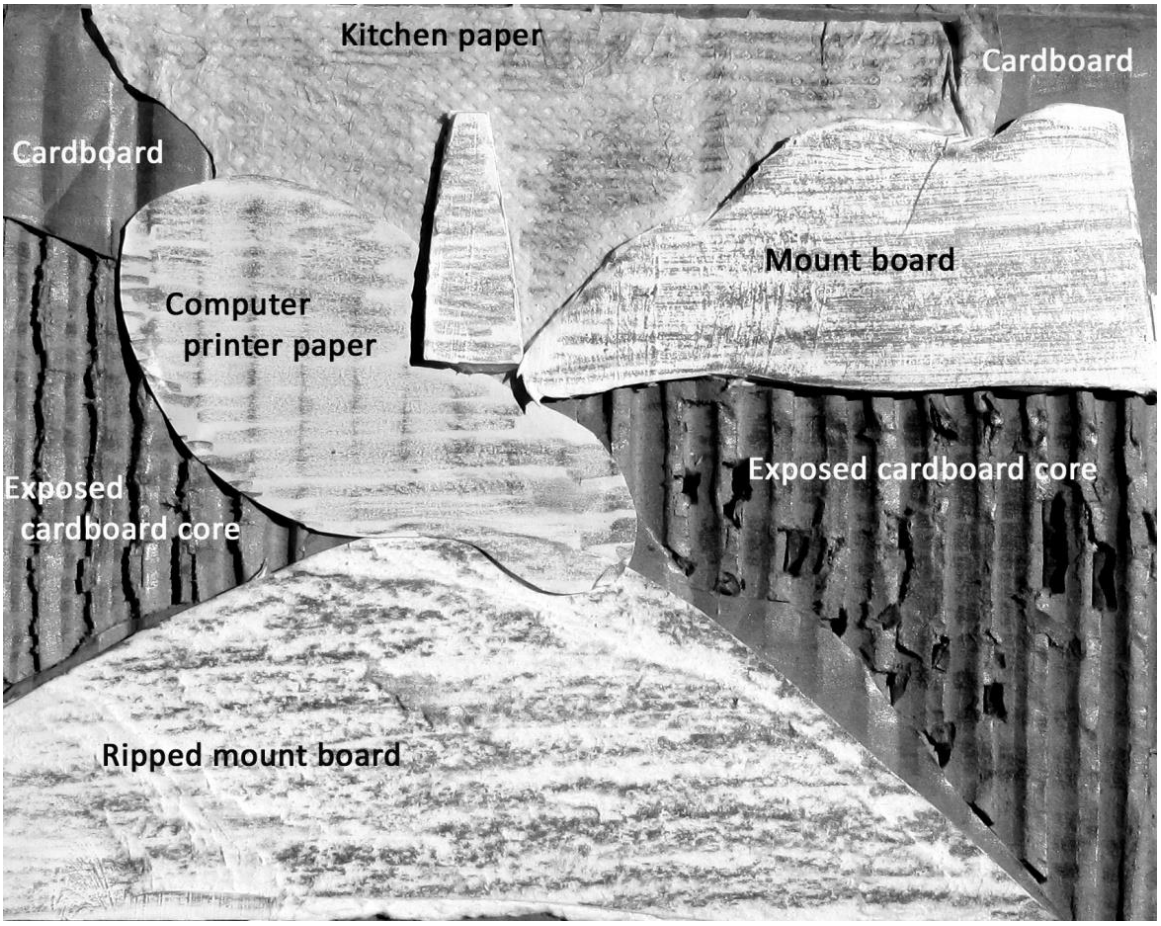


Fig. 205 Studio Notes: *Texture as fact illustration V: Crayon on computer printer paper, mount board, ripped mount board, kitchen paper, cardboard box and exposed cardboard box core.* 2005-2015. 11 x 14cm.

In Figure 206 the process is reversed, the ground remains constant, the mediums and utensils are altered:

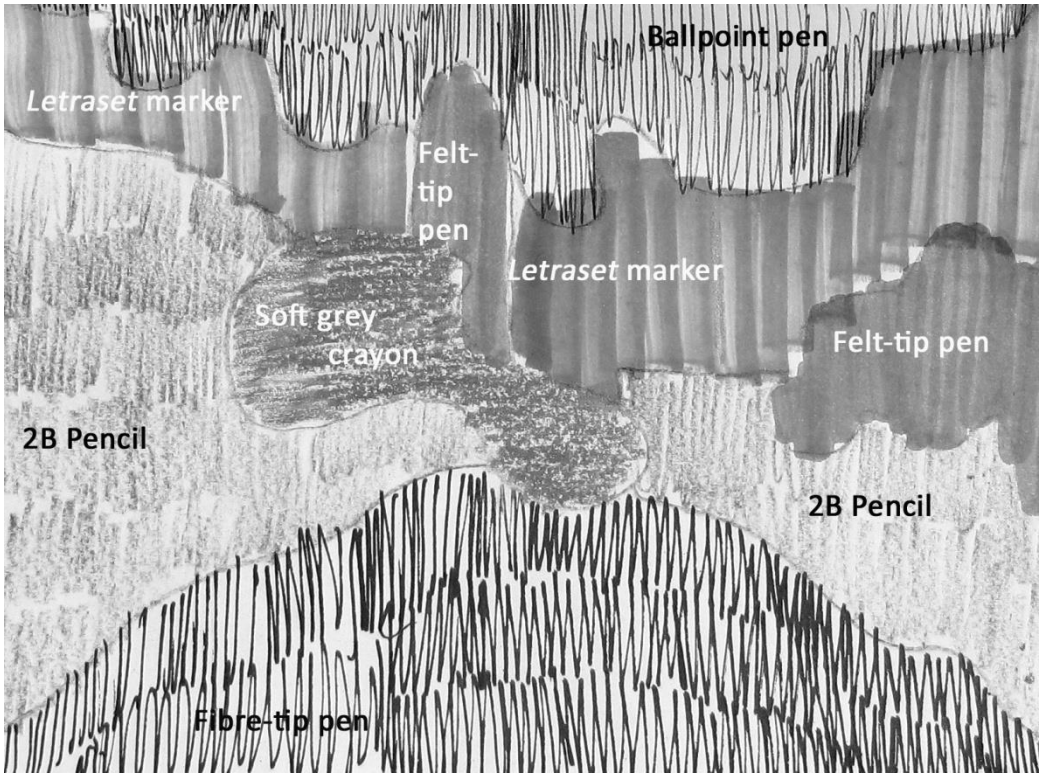


Fig. 206 Studio Notes: *Texture as fact illustration VII: Ballpoint, felt-tip, Letraset Marker, fibre-tip pen,2B pencil and crayon on computer printer paper.* 2005-2015. 11 x 14cm.

Texture as fact represents a coming together of different grounds, mediums and utensils. The impact can be as simple as researching one medium with which to draw, and one suitable ground on which to draw, or as complex as the use of multiple utensils and mediums on a collage of grounds. For purposes of efficiency it proved useful to carry out a systematic approach to explore a number of variables.

Figure 207 (Below) is a sample of this process:

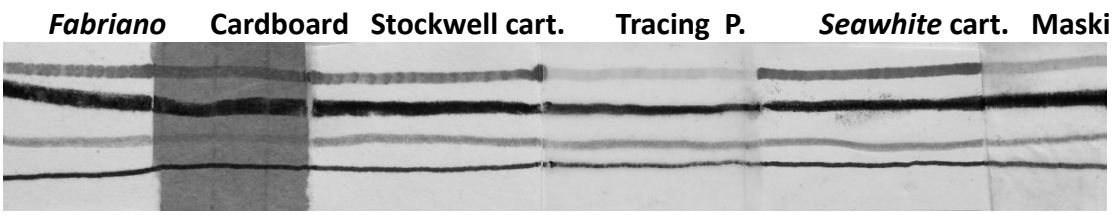


Fig. 207 Studio Notes: *The effect of six grounds (Fabriano Rosaspina 285gsm, cardboard, Stockwell drawing cartridge 130gsm, tracing paper, Seawhite drawing cartridge 100gsm, masking tape) on a Letraset marker, charcoal, crayon and 0.8 fibre-tip pen.* 2005-2015.

A number of material grounds are placed side by side, and lines are drawn across each one with different utensils and mediums. Here the impact of six varieties of ground on four varieties of utensil/medium are illustrated. Arranging the lines of pen and ground in a grid formation, allows for comparisons to be made between material effects, each utensil/medium reacting differently to each ground, impacting on the way in which a mark is perceived.

In Figure 208 (Below), the impact of the papers on the 0.8 fibre-tip pen is magnified, demonstrating that each combination varies subtly:

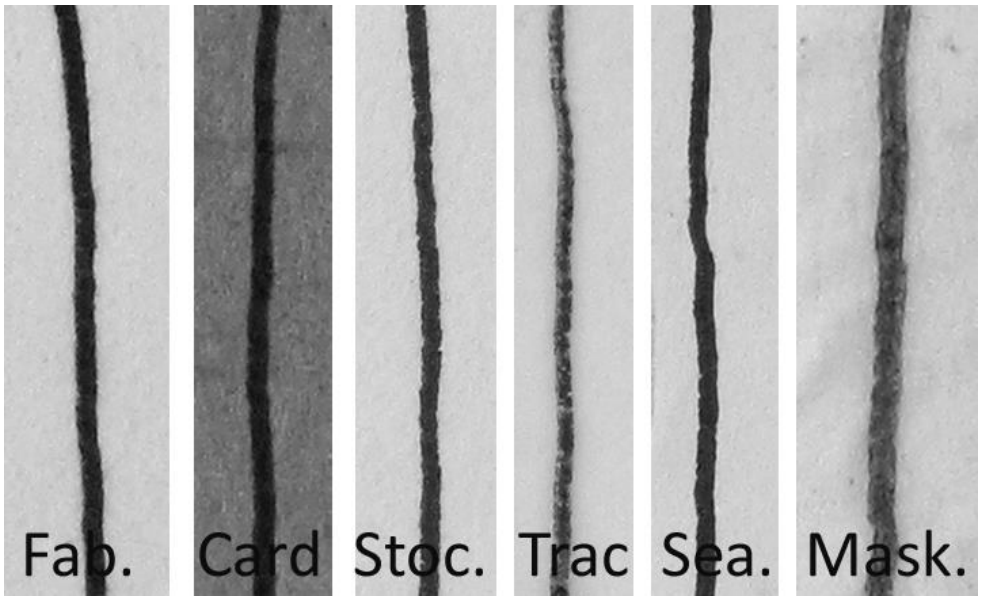


Fig. 208 Studio Notes: *The effect of six grounds upon a 0.8 fibre-tip pen.* 2005-2015.

On *Fabriano* paper, that is both heavy and absorbent, the line is slightly sunk, strong in consistency but with a rough edge where the ink has been drawn away from the line and into the paper. On the cardboard a similarly consistent tonal quality is matched with a smoother edge as the ink sits on top of the paper. The *Stockwell* cartridge paper does not absorb ink as fully as the previous two, so the tone is lighter, the texture is slightly rough and so the line is inconsistent of tone and absorption, leaving a slightly jagged line. Tracing paper

provides a line that is variable in tone and consistency, the ink and paper repelling one and other and the edge jagged. On the *Seawhite* cartridge paper the effect is similar to that of the *Stockwell*, but the line is a little smoother and darker in tone. On the masking tape the line is rough and tonally light.

In Figure 209 (Below) the 0.05 fibre-tip pen on *Fabriano* paper is further magnified to demonstrate the subtle variations of the consistency of the line. In drawing, the line typically appears so small to the naked eye that the effect of the ground on the utensil/medium is not always recognisable. When drawing with one ground, medium and utensil, there exists a continuity of surface against surface. When one or more of the mediums are altered, a wealth of contrasts are accessed, embedding an ethereal dynamism into the drawn line or mark. A line is drawn on the *Fabriano* paper and then, immediately below, is drawn crossing from tracing paper to the *Fabriano* paper. The alteration in material consistency offers the line a perceptual quality that at this scale is discernible, the consistency of the line changing from rough and light toned, to smooth and dark toned. Beneath the magnified lines, the image is repeated to demonstrate the subtlety of the change at 1:1 scale:

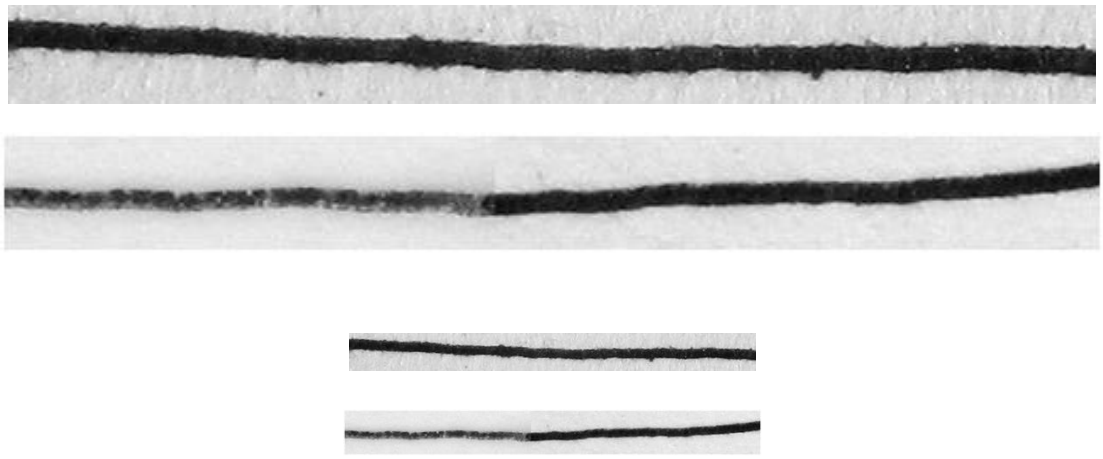


Fig. 209 Studio Notes: *A comparison of a line drawn with a 0.8 Fibre-tip pen on top: Fabriano Rosaspina 285gsm paper. Second top: on tracing paper (Left) and Fabriano Rosaspina 285gsm paper (Right).Above magnified and below 1:1.* 2005-2015.

The alteration of the ground impacts on the line, which attains a radiance beyond the sum of its material parts in consequence of the contrasting textures and tones of itself and its surroundings. In the *Portrait with…Series*, the perceptual frission that this simple material alteration elicits, is exploited to create tension and a sense of dynamic energy between different layers of the drawing and different parts of the same layer in the drawing. Figure 210 (Below) is a detail taken from *Portrait with Backwards*, at a point at which three separate material grounds converge: 100gsm cartridge paper, mountboard and 283gsm *Fabriano Rosaspina* cloth paper.

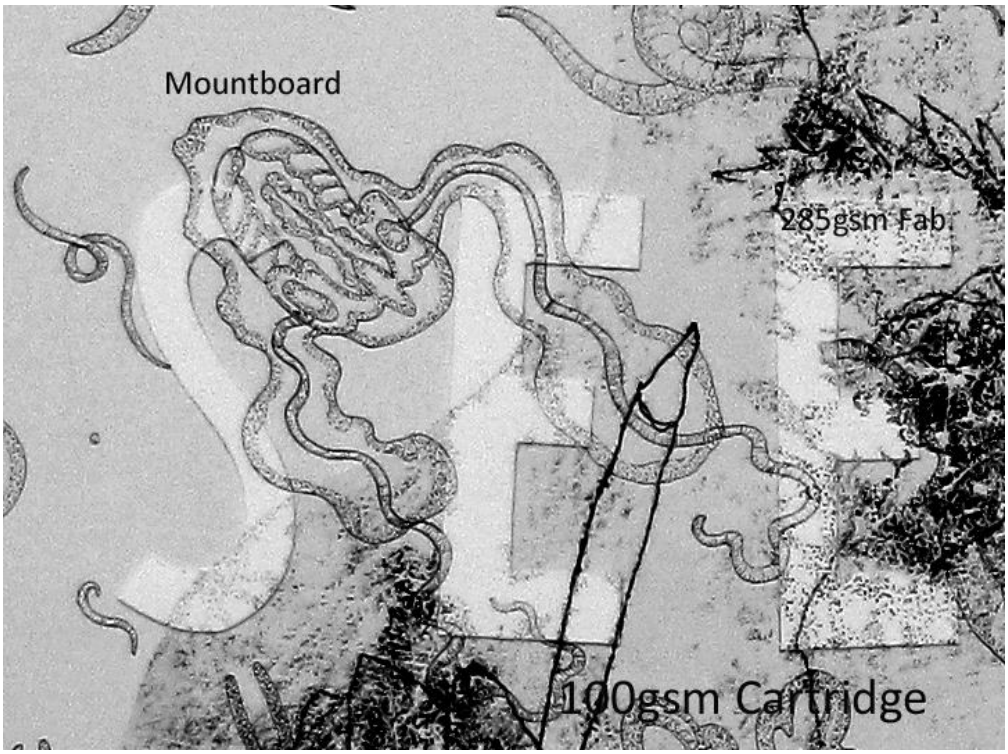


Fig. 210 Studio Notes: *The impact of material variation on 0.05 fibre tip pen in 'Portrait with Backwards'.* 2005-2015.

There is little difference in the surface qualities of the cartridge paper and the mount board, the effect on the line traversing each corresponding to tonal change. Between the two and the cloth paper, there exists a marked difference in surface texture. The absorptive qualities and rough texture of the cloth paper envelop the 0.05mm fibre-tip pen that is used to draw

the tendrils of the centre-left sea-creature. The line that sits proudly on the cartridge paper and mountboard, becomes broken, and at times is swamped by the white of the paper as it crosses onto the cloth. This reduces the contrasting qualities of the white paper and black pen, that would normally be promoted forward as tonal opposites, and gives the impression that the section of tendril drawn over the cloth is blurred, faded or out of focus, sharpening the quality of the lines elsewhere in the drawing by contrast. In turn, this contrast promotes the lines on the mountboard/cartridge paper forward as abstract marks, introducing a sense of dimensional shift to an otherwise flat line and shape drawing (paradoxically presenting the lines that are physically nearest on the cloth letters, as perceptually farthest from the viewer).

The process is then reversed in the drawing at the points where the monoprint is obscured by the cut letters (Figure 211, below):

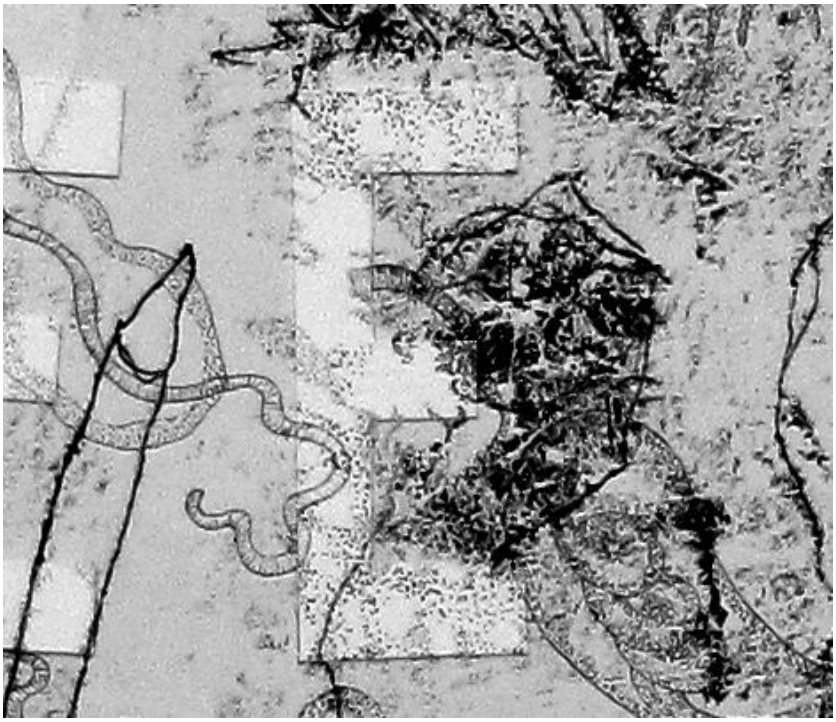


Fig. 211 Studio Notes: *The impact of utensil change from 0.05 fibre-tip pen to monoprint in 'Portrait with Backwards'.* 2005-2015.

The lines and dots are subsequently re-introduced, but with a 0.05 fibre-tip pen mimicking the monoprint, altering the utensil/medium to lighten and diminish the marks and again, introducing the perception of dimensional flux to the dynamics of the lines and dots. The effect is subtle but can be observed in the line describing the image of the pencil as it crosses the letter 'E' to the left, and in the dots and the line that describes the cheekbone on the right-hand letter 'E'.

Fig. 212 Richard Monahan: *Portrait with Backwards* (*Portrait with...series*). 2010. Pen and monoprint and paper on card. 84.1 x 59.4cm.

When ‘quiet’ alterations are made to a drawing, such as those described, the impact to the whole is very great, although not immediately apparent. Figure 212 is an illustration of the finished drawing. The letters provide a jolting interruption to the flow of the drawing, providing a third layer of ground while simultaneously providing a third layer of drawing. Their addition to the uniform, layered, dual images of sea-creature pattern and portrait, spatially disrupts this harmony, causing elements of the drawing to appear to oscillate from foreground to background, asking the viewer to reconsider the hierarchies of normative perception.

7.4 Summary of *Texture*

Texture is divided into *Texture as illusion* and *Texture as fact.* Through the investigation of texture as an illusory construct a comparison is drawn between the initial visuo-motor contact with texture stored as memory and the visuo-motor contact in its interpretation through drawing, where episodic procedural memory augments observation. The thesis argues that this positions drawing perception in reference to texture, as a synthesis of memory and observation/imagination.

The study further argues that drawing is an inefficient method for recording texture in two-dimensions, claiming that the inefficacy necessitates greater concentration on the subject, leading to a more detailed perception of it. As a means of perception the understanding of texture is found to be limited by the material and physical fact of drawing, in projecting a limited code of marks onto the perception of phenomena.

In developing the concept of texture from a translatory mode of understanding to a core, underlying methodological approach to practice in *Adopting Texture as Fact* as a component

of drawing, it has become unusually important to the practice. The underlying reason for this stems from the concrete manifestation of material as an embodied trace of contact between artist and art work. This establishes a moment of connection or bridge between artist and viewer, whereby the notion of the hand-made becomes a powerful exegesis for the justification of drawing practice. Texture in this instance becomes a manifestation representative of a philosophy of touch that explores the possibilities of an embodied gesture into/onto the surface of the drawing, creating drawings that operate directly through light, binding drawer and viewer into the concept of the drawing as an object. Through texture, the drawings question the nature of the illusions created in drawing, and by extension also question both drawing and normative perception.

Summary of The Components of Drawing

The inter-connected series of experiments that comprise The Components of Drawing and their manifestation within my art practice has been an intense journey of discovery, and has significantly altered both my approach to drawing practice and my understanding of drawing as a process. The experimental approach that has adopted drawing as the most efficacious interrogator of drawing has resulted in a series of revelatory progressions in my understanding of the drawing process that, together, add significant evidence to the concept that drawing structures perception. The study consistently demonstrates that the process of encoding phenomena through two-dimensional marks forces the drawer to withdraw priority from the default mode of survival perception and onto those elements within a subject that are a priority within the general parameters of drawing practice and, more specifically, that are directly relevant to each individual drawing's motives. This alteration in priorities results in a mode of perception that is specific to the drawing process and thereby different from normative perception.

In compartmentalising drawing perception into the Components of Drawing, this study was able to focus on each aspect of drawing perception in relative isolation from the remaining concerns going into each drawing, providing a detailed insight into drawing perception and practice, ultimately leading to two bodies of work, the one comprising multiple small experimental sketches and notes, the other comprising finished artworks in response to the drawing experiments. This process led to a continual reappraisal of my drawing practice as each new body of drawing experiments were adopted into my practice. The resulting body of work responds to these experiments over the course of the research period, incorporating each discovery into practice as proof of the underlying changes effected by the investigation

into the Components of Drawing. Individually the discoveries made during this period of research can appear insignificance, but they belie their apparent smallness by effecting great and subtle changes in the development of practice. By developing an increased understanding as to how each small aspect of drawing practice structures perception, I have been able to introduce a level of purposiveness to my practice and my pedagogy, that is fundamentally linked to how we perceive and to the acknowledgment of the idea of drawing as an abstraction, acknowledging drawing as a mode of communication that does not recreate its subject, but is a process that encodes it.

When considered as a whole, the multiple experiments and findings that comprise the investigation into the components of drawing, is a collation of a wide range of information that may be employed as a method of learning/teaching and analysing drawing processes. This is critical to the contribution the research makes to the understanding of drawing as a mode of inquiry, for it allows for the tectonics of making to be effectively and clearly discussed, where the components of drawing become an effective tool of analysis that is capable of verbalising the complex visual language that is mark-making.

Conclusion

The hypothesis that prompted this inquiry posed the following two questions: How does drawing practice structure the interpretation of visual perception? Can an understanding of this structure develop an artist's drawing potential? The conception of the hypothesis was a prognosis in response to specific trends within art pedagogy and the wider art community, where there exists a substantial movement to promote drawing as a medium deserving of its own domain, an autonomous position as an art form in its own right, not simply a support to other practices. The promotion of drawing as a separate branch of study within art education is a position that must invite discussion of the applicatory relevance of drawing as a support to each medium, offering the opportunity to directly challenge the universality of drawing as a medium going forward, and to endeavour to understand with what justification drawing persists as the most common practice within art schools.

By undertaking an extensive analysis of the formal, tectonic, structure of drawing as a process, an understanding was sought, that could establish the fundamental alterations to perception that a consistent drawing practice instils. This inquiry was undertaken not in an attempt at a definitive answer to the question of drawing's continuing relevance to art practice, but to open the debate with an analysis of the fundamental influence of a consistent drawing practice on the creative potential of the artist to build artworks. The findings of the research could subsequently be adopted to argue that drawing is universally applicable, thus justifying its continuation as a support to practice. Alternatively the findings could be argued to cement the notion that drawing is didactic, limited and no longer relevant as *the* foundational core practice that underpins art education.

In defining drawing as 'The human act of making a mark on a surface, with an inflexible point' and perception as 'fundamentally a cognitive activity, distinct from purely optical processes' (Palmer 1999: 5), the study was predicated on the concept of drawing as a physical and cognitive response to phenomena. As such, the line of inquiry posed by the two research questions, is intrinsically embedded into the notion of practice-led research, pertaining to the notion that drawing is principally a heuristic process and that therefore, practice is best positioned to develop the drawer's practice. This mode of approach to researching drawing, where the results are directly fed into an ongoing professional art practice, results in a body of work that retains a conceptual authenticity to the themes and ideas inherent to the reading of the image in each drawing, whilst simultaneously operating as a visual meta-analysis of formal drawing structures. This position develops the historical lineage of the arguments discussed by being directly applied to practice.

The historical lineage of which this research is a continuance, bridges a gap between formal drawing theory and perceptual psychology. As this lineage becomes more contemporaneous, the lines between art and science have been increasingly blurred. What is more, the position of the individual researcher's interrogation has developed from theoretical postulation (Bell, 1914; Arnheim, 1954; Rawson, 1969), to an increasingly experimental approach, utilising large numbers of participants in relatively short visual tests undertaken in laboratory-style conditions (Cohen & Bennett 1997; Miall & Tchalenko, 2001; Kozbelt, 2001; Cohen, 2005; Seeley and Kozbelt, 2008; Cohen and Jones, 2008; Miall, Gowen & Tchalenko, 2009; Ostrofsky et al., 2012; Chamberlain et al., 2012).

A response to the *Background Theory* of the study, is articulated in a body of research that questions drawing's fundamental, formal properties through an embedded, concurrent

studio practice. This positions the exploration primarily as a heuristic inquiry that expands on the field of research, not by engaging numbers of participants as other studies have done, rather, my methods have been to consistently 'live' the inquiry as an experiential, focussed and constant engagement with the findings as they are uncovered and re-incorporated back into the developing practice. Conducting the research through practice rather than through others' practice, instils it with a first-hand integrity, based on the experiential inculcation of the findings into an authentic, professional practice developed over many years. Adopting personal practice as originator, researcher and vector of the findings, constitutes an original contribution to the research lineage.

Whilst the study draws on the lineage for support for theories, it also examines both the history of the subject and the original contributions it posits, from a practical, sequential practice-led point of view, casting the lens of drawing over each discovery. Significantly the utilisation of drawing in this way demonstrates that drawing practice consistently explores historical drawing theory concepts together with historical perceptive research, as a natural by-product of the process.

The project has succeeded as a valid response to the hypothesis as outlined below. The thesis proceeds to forefront practice to expand the investigation. This is initiated through seven drawn postulations concerning drawing practice and its impact on my previous perception of an observed subject. Seven re-drawings of the *Camberwell* drawing comprise seven imperative *Components of Drawing* practice that are identified and interrogated through the research period. The *Focal Theory* of the thesis argues that the initial identification of the basic Components of Drawing is necessarily *not* original, but a conditioned, collective subjectivity that is endemic to an experiential engagement with

drawing. The thesis then progresses as seven components of drawing, each analysed through drawing. The original contribution to knowledge exists in the further development, collation and application of these components to answering the hypotheses. Throughout, the study is permeated with multiple original discoveries, and collations and developments of established theories. Together these contribute to a greater, original whole, producing findings that demonstrate how drawing structures perception, before relating each discovery to practice. The collation of information and original discoveries will be briefly outlined below, in an overview of the Components of Drawing.

The first subsection of Component 1: *Structural Composition* (Section 1.2), proposes the principle compositional element within drawing as the effect of the restricted boundary on compositional decisions, an effect that is observed to be decisive in the choice of subject for the original *Camberwell* drawing. By identifying the controlling influences exerted by the dimensions of the paper on the outcome of a drawing, the study acknowledges the normative drawing boundary, the rectangle, as a psycho-visual influence to the decision-making process, thereby altering perception. This component continues to analyse the impact of negative space on drawing perception, demonstrating how drawing practice is intrinsically tied to negative space perception, a mode of perception that promotes shape and therefore two-dimensionality, onto perceived phenomena. The investigations into negative space (Section 1.2) introduce the idea that the constant interrogation of negative space inherent to drawing practice, results in the understanding of negative space becoming a normative spatial understanding to drawers. I further develop original concepts that interrogate the interplay between negative and positive space and their impact on drawing practice, for example in Section 1.2.2 *Negative space as communication*, where I develop the

concept that the broken line as a method of drawing can define a drawn shape as an object within the delineated area, resolving the ambiguity between positive and negative space description.

Component 2: *The Linear* identifies the intrinsic abstraction of the line as a mode of communication linked to notation. As such, the study argues that consistent linear interpretation promotes a linear perceptual understanding of phenomena that is fundamentally an abstraction based on drawing, and one that fundamentally alters perception. The thesis develops this concept further by actively deploying the inherent duality of the line to develop an understanding between the drawing as gestural fact and the drawing as image in order to instil in each subsequent drawing, a visual dichotomy between the marks made on the surface of the paper and the illusions they create.

In Component 3: *Spatial Awareness*, I introduce the original concept and term, *Trans-Dimensional Interpretation*, as a psycho-visual phenomena that drawers' experience due to the consistent abstraction and interpretation of observed subjects through dimensions, from subject to drawing. I argue that this process of interpretation becomes a two-way cognitive understanding whereby the artist not only receives information and transfers it into a two-dimensional drawing, but in fact, projects two-dimensional formal structures onto their perception of the subject. This in turn converts three-dimensional objects into potential movements of the hand, thus the artist conceptualises the subject through the lens of drawing, re-ordering the hierarchy of perceptual priorities. The study proceeds to establish the original use of this spatial ambiguity as a core aesthetic philosophy that significantly alters the direction and development of practice, by cementing the importance of the illusory space, in front of, and beyond the picture surface.

In Section 3.2 Linear perspective I argue that the ubiquitous understanding of perspectival spatial recession forces the viewer to comprehend convergent human-made lines as space beyond the surface of the ground, before proceeding in 3.3 *Depth Illusion as Antithesis to Linear Perspective* in order to outline the strategies adopted by drawers to create spatial recession and which I employed in my practice.

Through the concept of Component 4: *Touch,* I advocate that the process of physically tracing a line adds a secondary phase to the perceptual process, allowing time to 'give' to perception through the translation of phenomena into hand movements. I argue that in observational drawing we both guide and are guided by the hand, and introduce several experiments, both original and a collation and development of other researchers' theories, (4.3 *Saccades)* to fundamentally demonstrate that observational drawing is a constructed interpretation of the subject, not an accurate description of how the eye moves over an observed subject, as contemplation of each potential mark is critical to drawing practice. This space is occupied by what is known of the subject, and critically, what is known of drawing, allowing the drawer time to alter his/her cognitive relationship with the perceived object as an object to be considered through drawing, rather than through normative perceptual processes. This leads to the conclusion that the eye works differently when engaged with drawing than in normative observational processes, and therefore, that drawing provides a structure to how we perceive. The difference between drawing perception and normative perception is then established in a series of drawn experiments that attempt to draw how we see. The conceptual pathway of these experiments subsequently demonstrate that these are incorporated into the ongoing *Portrait with…Series*.

Component 5: *Tone*, begins by introducing the concept that drawing is essentially monochromatic as an act, manifestly adhered to the gestural act, linking drawing more closely to a form of notation and tied to a tonal understanding that is beyond normative perception. Accordingly, in Section 5.5, the progression of the findings originated in the analysis of tone, stem from a mode of drawing that deliberately focuses on the line as a monochromatic gestural act. The original technique developed through the research, of drawing in paint, underlines the inconsistency of tonal perception by utilising light on a three-dimensional line thus drawing attention to, and inevitably questioning, the tonal values of the light. The original methods and techniques developed in the *Wallpaper Composition Series*, whereby the inconsistency of tonal contrast is harnessed to animate the surface of the drawing, lead to a series of experiments that question the consistency of tonal contrast.

I progress to establish an original link between drawing practice and perception theory in Section 5.6 *The paradox of tonal contrast*. Here drawing and drawers are shown to develop an intuitive understanding of, and technical mastery over, the Craik O'Brien/Cornsweet Illusion. At first this appears to be a small factor integral to drawing, but it is often key in drawers presenting form to the viewer and moving away from a linear description of a subject, and thus reflects an experiential understanding of complex visual paradoxes that is built through drawing practice. In addition to the investigations into *Craik-O'Brien/Cornsweet Illusion*, the study demonstrates drawing's intuitive understanding of other perceptual phenomena, *Simultaneuous Brightness Contrast* and *The Paradox of Tonal Contrast,* and ultimately leads to findings, both original and collated, that demonstrate how an understanding of tone through drawing differs from an understanding of tone through

normative perception, establishing drawing perception as atypical as a mode of perception, before subsequently proceeding to demonstrate how they can be further utilised as effective techniques in a developing drawing practice.

Component 6: *Pattern and Rhythm* finds in response to a series of landscape drawings that drawing perception and normative perception operate at differing, task-specific speeds and intensities, resulting in drawing abbreviating perceived phenomena into symbolic representation. This is found to be restricted by the medium and act of drawing, which produces a mode of perception that conceptualises the subject. Furthermore, pattern is found to be an embedded mode of approach to perceived information, whereby a memory of like procedural encounters combine with observation to identify the rhythm in pattern. I demonstrate how an intuitive relationship between hand movement and eye movement elicits a response to pattern that is atypical. I proceed to argue that drawers' display an intuitive understanding of *Shape Primitive* and *Boundary Rules* (Section 6.3) and subsequently demonstrate how each can be utilised to develop practice. I further underline how drawing elicits an expectation of pattern via *visual completion* as part of the hyper-detailed process of interpretation through act. This is followed by a demonstration of how visual completion (See Section 6.5.1 The expectation of pattern) is utilised within drawing to imply detail, and thereby enhance the efficacy and economy of the drawn line to rapidly depict vast quantities of information.

Both pattern and rhythm are demonstrated to be significant drivers of drawing practice throughout the research period.

Component 7: *Texture* establishes *Texture as illusion* as based on an episodic understanding of touch combined with a procedural interpretation through drawing. This is posited as a

mode of conceptualising the haptic qualities of phenomena through drawing. The study proceeds to state the reasons for the practice moving towards a more physical use of *Texture as fact,* before systematically outlining the central role that the use of texture as fact had in the development of practice, leading to a number of original contributions in terms of technical approaches to drawing practice. The research period has been one of conceptual exploration of visual perception, but also one of technical exploration in which two significant and original contributions to drawing are made, firstly in the development of a method of graphite monoprinting (See 7.2 *Texture as illusion becomes texture as fact*) and secondly, as discussed in Section 7.3.1 *Experiments in paint*, the development of a number of original drawing processes that combine the gestural accuracy of drawing with the material qualities of oil paint.

The exploration of the Components of Drawing comprise a piecing together of a multitude of disparate findings and postulations, to establish an original argument for drawing, not teaching us to see as such, but fundamentally structuring our perception preternaturally, as phenomena are conceptualised through the act of tracing a line in response to subject. This exists as a significant and original contribution to knowledge outlining as it does, that to choose drawing as central to art practice is not a neutral decision that will simply promote more analytical observation. By centralising drawing in practice, the artist is engaging with a process that will significantly alter how they perceive visually, and thereby alter how they create visually.

The study addresses the acknowledgment of the components of drawing from an unconscious, intuitive position, into a conscious recognition of the multi-layered

understanding of perception that drawing entails. This in turn enables the drawer to consciously analyse the components of drawing, before returning to an intuitive approach to drawing that is vastly more comprehensive in its scope and that may be manipulated to his or her advantage. This is evidenced through the progression of the practice that comprises this thesis in response to the studio notes, drawing pedagogy and theory. These 'finished' works then pose the next set of questions in a continual process of sequential hypotheses.

Throughout the thesis a multitude of small drawing experiments consistently demonstrate how drawing structures our perception of phenomena. The research repeatedly finds that when drawing, the drawing process takes precedence over and above normative perceptual considerations and, to some extent, directs the pattern of understanding perception with reference to the aims of the drawing. The nature of creative endeavour and the specificities of drawing as a practice, inevitably result in a task-specific, conditioned perception of a subject that is not normative. This sequence of findings, both original and collated, together answer the first part of the hypothesis, that drawing does structure perception, and together comprise the thesis' over-arching contribution to knowledge.

Here we return to the exhibition of finished drawings as a reflection of development in practice. Drawing as a process instigates an engagement with the subject that is iterative and hyper-concentrated. The physicality of each gesture adopted to communicate ideas operates as a secondary interpretation that opens the space for concept to significantly alter percept, suggesting that artists are conscious of the aims of each drawing. Where each idea is manifested through the act of tracing a line, the resulting drawing equates to the visualisation of the concepts through which the artist worked to produce the drawing. The variety and amount of marks evidence the idea of an intense engagement with a subject,

the components are evident as consistently in use by the artist, and *of* use to the viewer in contemplating how a drawing is built. This engagement, over the course of the research journey develops from an intuitive but limited approach to drawing (in the early *Portrait with…Series (Oil)* completed prior to the research starting), on to a more expanded and flexible approach that opened up the potential hypothesis (in the *Portrait Series)*, through a preconceived demonstration of the research (*Wallpaper Composition Series* developed in the middle of the research period), before arriving at the *Portrait with… Series (Paper)*, whereby the components of drawing are acknowledged but are incorporated more intuitively, back into a more flexible and multi-faceted approach to drawing practice. The second part of the hypothesis, how an understanding of drawings influence on the structures of perception can develop the artist's drawing potential, can be answered by contrasting drawings made at the beginning and end of the process. Below is a drawing selected from the first *Portrait with…Series (Oil)*, *Portrait with Arts Star* (Figure 213) to contrast with one of the final drawings, *Portrait with Stick* (Figure 214) from the *Portrait with… Series (Paper).*

The starting point for this period of research was to acquire a more complete understanding of the formal structures of drawing rather than to alter the narrative purpose of practice. Both drawings are conceived from a similar conceptual/narrative drive and essential physical signature however, they each significantly differ in their formal structural make-up. This is an initial proof of the successful response to the hypothesis, that some change has been affected that alters the way the drawings have been constructed.

Both drawings begin with a loosely described self-portrait, so loose as to describe the character of a man rather than any description that is likely to be understood as

Fig. 213 Richard Monahan: *Portrait with Arts Star* 2005. Oil on canvas. 180 x 120cm. With the Artist.

representing a portrait; each begin with an attempt to study an image. The drawing completed at the commencement of the research (Figure 213) is largely concerned with gesture and texture, and in some sense could be said to be in thrall to the early development of the self-originated technique of drawing in paint. Formally, this series is largely focussed on the materiality of the work, the visceral and alluring tactility of thick oil painted inscribed with deep cut lines, that appear like scars across the surface, and that when illuminated, created a secondary image in the shadows that accompanied each line. Drawing as a practice, as an idea, had largely been supplanted by a technical exploration of one material. The material thickness of the oil paint resulted in an image which was drawn in relief, however the technicalities of drawing in paint and the employment of a consistent breadth of line render the appearance of the drawing as an image as percpetually flat, the whole optically sited in two-dimensions. What is more, the technique of drawing in paint requires each drawing to be completed within a short period of time, resulting in drawings that are necessarily more spontaneous, but that lack the time to develop further. Success or failure of the drawing is not the concern here, but the road travelled through this technique had by its limitations, shut down options and narrowed the scope of each drawing's potential. It was in reaction to the perceived limitations of this process that a re-appraisal of what drawing was to my practice, and of drawing practice more generally, was instigated and the research was begun.

The second drawing (Figure 214), undoubtedly presents a more complex challenge to the eye and perceptual understanding of the viewer. It retains the inherent two-dimensionality that characterises all of the drawings produced during the research period. However the flatness developed to emphasise gesture, is countered in the later works, by a multi-layered

composition and spatial recession that implies multiple understandings of spatial recession. The variation in line style, speed, pattern, thickness and tone create a layering of the images that allows one image to overlap and interact with another. A variation in texture, mediums and tools similarly vary the marks made, and in so doing present a more eclectic arrangement of marks within the composition. This series is characterised by a more complex use of marks than the original drawings. The process of compartmentalising drawing into its components and analysing each individually, has led to an approach to practice that is more open to the vast array of options available to each drawer as they put pen to paper. By focusing on individual components during the research period, the understanding of each component's potential is much larger in scope than a mere acknowledgment of their existence would have been. My drawing process has progressed to a position in which the perceptual potential of each mark can be harnessed in an overt recognition of the concept of making, understanding drawing as an arrangement of marks. Initially this flexibility came at a cost, whereby the components of drawing were literally and pedantically introduced into what became a demonstration of certain findings. However, over the course of the study, the components of drawing were more naturally reabsorbed back into practice, and incorporated into an intuitive understanding of drawing that allows for space to focus more fully on the conceptual drive of each drawing. The components are manifest now in a more comprehensive and flexible approach to each drawing, as are the options they open up; but they are no longer systematically employed.

The intuitive deployment of the components does not confirm a change in quality, but has reengaged my practice and understanding of drawing with the variety of options that are open at the start of each drawing. What is more, a more complete understanding of

Fig. 214 Richard Monahan: *Portrait with stick (Portrait with…Series)*. 2011. Monoprint, pen and paper on card.55 x 70cm.

drawings formal structures has significantly developed my perceptual understanding as a viewer, adopting each sub-component as a lens of perception with which to better understand how a drawing delivers its message. Now, on perceiving *Portrait with stick* (Figure 214, above), it is possible to see it the through an engagement with Component 2.2 *The duality of line*. And this perception of the drawing manifestly alters the visual characteristics of the same drawing when compared to its perception through Component 6.2 *Encoding perception through Pattern and Rhythm* and alters further when perceived through the lens of Component 7.1 *Texture as illusion.* Looking at the drawing through the *Components of Drawing* equates to a visual re-enacting of the psycho-visual schema of the drawing processes as developed through the research period, enabling an acknowledgment of the myriad different considerations, alterations and strategies that contribute to drawing as a state of altering the perception of those who practice it. This demonstrates that the developed Components of Drawing are not only an original aid to developing practice, but also an original aid to perceiving drawing and also to teaching drawing.

The compartmentalisation and detailed study of drawing's components and subsequent adoption of the isolated components into the development of practice, constitutes a method of re-learning drawing that provides the basis for a deeper understanding of how we perceive through drawing, and how this can impact upon our practice and our reading of others' practice. Thus together, as a tool of analysis capable of verbalising the abstracted language of mark-making, the components of drawing constitute a further contribution to knowledge.

Perceiving through drawing enables the drawer to observe through a perceptual lens that is not normative, but that elevates drawing principles to the top of the perceptual hierarchy,

perception stripped of day-to-day concerns and supplanted by the processing necessary to translate phenomena into two-dimensions. The Components of Drawing compartmentalise drawing perception further, to concentrate individually on each aspect of drawing perception. Over the course of the research it has been demonstrated that an understanding of this can impact upon an individual's approach to drawing. The components are not concerned with the specifics of narrative and subject matter of my practice throughout the study. A deliberate method of research and use of terminology is employed that has enabled the research to be universally applicable, concerned, as it is, with the concept of making. This approach was adopted so that the components of drawing could be utilised as a pedagogical strategy throughout the research period and going forward. A strategy that is applicable through drawing, to all subject matter and that, by compartmentalising the abstract language of drawing, underlines what we do when we draw. Although the components effectively communicate to students that which they are already doing when drawing, critically, they demand that each student questions their default methods of putting pencil to paper, and closely consider the array of options and strategies that can be employed and further developed when beginning to draw. Adopted as a tool of analysis, teaching through the components of drawing communicates ideas that are highly useful to the understanding of the structure of a subject. Returning to the skeleton subject (Figure 215, below), the components enable drawers to ask not what am I looking at? But how should I look at this? Asking this question empowers each student to take control of the direction of their drawing, by opening up possibilities and encouraging each to interrogate at first the nature of perception, and ultimately, the direction of their practice.

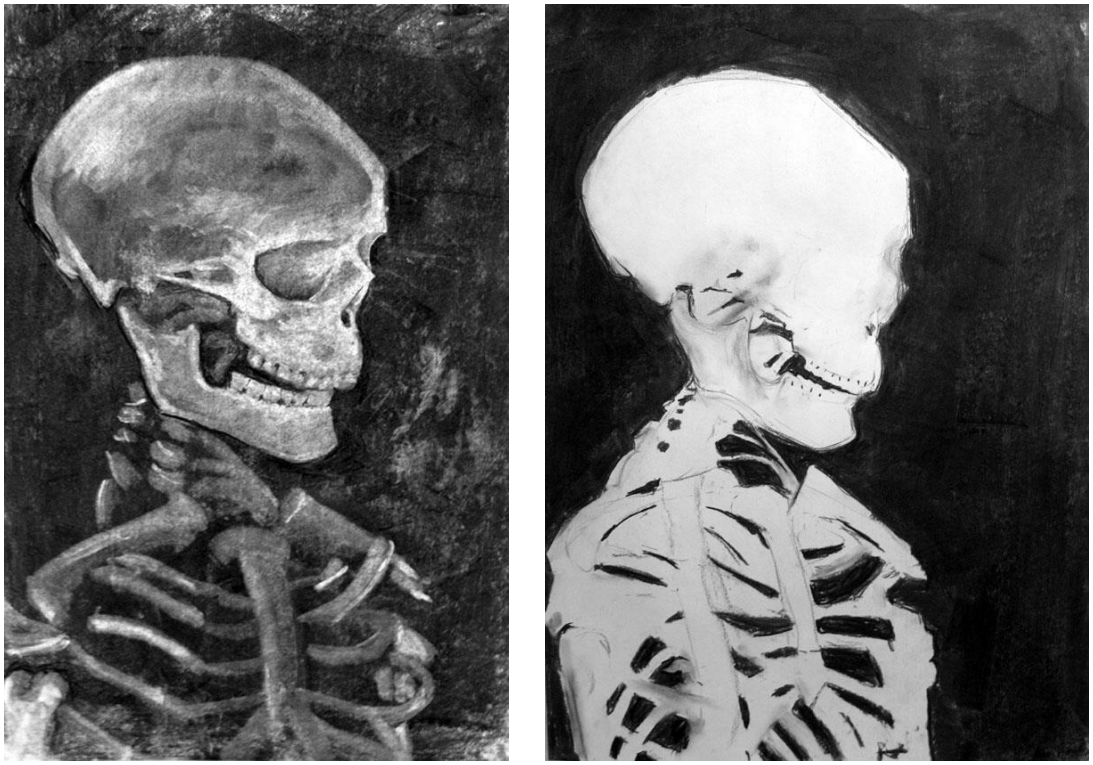


Fig. 215 Pedagogic Notes: *Tonal and negative space drawings*. 2005-2015. Charcoal and paper on 120gsm cartridge paper. 84.1 x 59.4cm.

There remains the question concerning the universality of drawing practice. On this I will only put forward an opinion in response to the findings of this research: that drawing is a medium that *is* limited and restricted and *not necessarily* universally applicable to all art practice. Drawing practice develops a mode of perception that is preternatural and subject-specific, and therefore uniquely conditioned to identify those components of a subject that can be translated through marks in two-dimensions. However, that the limitations are necessarily a consequence of a particular mode of notation, may as easily be applied to writing; art must adopt some form of notation as universal in order to communicate. As such, and as a visual form of notation that is universally comprehensible and widely adaptable, drawing comprises the *most* universal *visual* language available to artists, thus justifying its position as the underlying core element of art education.

Notes

[i] Nouchine Hadjikhani, Kestutis Kveraga, Paulami Naik & Seppo P. Ahlfors, 2009 *Early activation of face-specific cortex by face-like objects* in https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2713437. In neuroscience, pareidolia is the perception of recognisable phenomena, typically faces, in other objects or phenomena. The study finds that face recognition is a 'relatively early process, and not a late re-interpretation cognitive phenomenon'. The findings suggest that humans are 'hard-wired' to recognise visual phenomena such as a face rapidly, as essential to survival.

[ii] Rorschach inkblot test is the psychological experiment whereby individuals are asked to respond to a series of random shapes made by blotches of ink, and to describe what they see in them.

[iii] J. Briffa, *What do artists do all day?* (http://www.bbc.co.uk/iplayer/episode/b03v2vcb/what-do-artists-do-all-day-9-frank-quitely, Retrieved 28/01/15). Graphic artist Frank Quitely likens drawing on a computer to trying to touch your finger in the mirror, "it never quite meets", whereas Quitely describes as having a heightened "level of sensitivity, you've got with the tip of a pencil on the paper, it's like there isn't a gap at all."

[iv] G. Graham, *Philosophy of the arts: An introduction to aesthetics* (Routledge, London, 1997), p.153. An overview of the history of 20th Century Art's principal philosophical positions. Chapter III 'Art and Understanding', Graham makes the case for Aesthetic Cognitivism – how art can contribute to understanding.

[v] R. Arnheim, *Art and Visual Perception. A Psychology of the Creative Eye*, (Berkeley: University of California Press *1954*). An artist and psychologist, Rudolf Arnheim proposes an analysis of art that moves away from language and that uses visual means as the principal means in the communication of concept.

[vi] R. Monahan. The studio notes comprise visual experiments with occasional written notes. The studio notes are drawn in sketchbooks, on scraps of paper, envelopes – anything that is available. They are dated collectively as a series 1994-2015 to include two early life drawings.

[vii] N. Zangwill, *Defusing Anti-Formalist Arguments* (British Journal of Aesthetics, Vol. 40, No. 3, July 2000. Zangwill's proposes three strategies to defend a Moderate Formalist position: 1. The tactical Retreat – 'Aesthetic properties that depend on a work's representational or contextual properties are indeed non-formal. But that does not entail that… many representational or contextual works do not have other aesthetic properties that are formal.' 2. Irrelevance – In countering the argument that we bring with us a history or understanding of art that contextualises even the most abstract painting Zangwill suggests that this is irrelevant as 'it does not show that the aesthetic properties of of a particular work of art depend on those other works of art. It just shows that being in a position to ascribe or *know* its aesthetic properties often involves knowing about other works.' 3. The Benign Dilemma – Either the proffered property is an aesthetic property and it is formal, or else it is not aesthetic at all.

[viii] J. Wright is a PhD student at UAL, researching correlations between drawing and touch-centred innovations in surgical technologies.

[ix] D. W. Ross, *A Theory of Pure Design: Harmony, Balance,* Rhythm, (Houghton Mifflin, Boston, 1907). In the study Ross attempts to demonstrate how Harmony, Balance and Rhythm effect Order in Pure Design, 'Instead of trying to teach people to produce art, which is absurd and impossible, we must give them a training which will induce visual sensitiveness with aesthetic discrimination, an interest in the tones, measures and shapes of things, the perception and appreciation of Order, the sense of beauty. In these faculties we have the causes of Art.' p.193

[x] Tara Geer, 2011, 'What we illustrate when we Draw: Normative visual processing in beginner drawings, and the capacity to observe detail', a paper delivered at the *Thinking through drawing: Practice into knowledge* symposium in 2011 in New York and published as a collection of papers titled *Thinking through drawing: Practice into knowledge-Proceedings of an interdisciplinary symposium on drawing, cognition and education*, Edited by Andrea Kantrowitz et al, Published New York, pp.45-52. Geer reflects on the contrasts between novice and experienced drawers, describing what she terms, 'detail-access vision' as a means of moving away from normative perception that quickly identifies and labels objects as a means of survival.

[xi] D. J. Cohen & S.Bennett, 1997 'Why can't most people draw what they see?', in *Journal of Experimental Psychology: Human Perception and Performance.* Vol. 23, no. 3, pp. 609-21. Cohen (Psychologist specialising in Art and Perception) and Bennett (Psychologist) propose a 'theoretical and empirical' investigation into the drawing process of adults. The study focuses on observational drawing finding that misconception of the perceived subject is the critical factor that determines the persons ability to draw with 'visual accuracy'..

[xii] H. Riley, *Drawing as Transformation: From Primary Geometry to Secondary Geometry*, contribution to TRACEY: Drawing and Visual Research. Riley's analysis of projection systems distinguishes between Primary Geometry (pertaining to depth illusion) and Secondary Geometry (the marks as two-dimensions) to make cross-cultural comparisons. http://www.lboro.ac.uk/microsites/sota/tracey/journal/index.html Retrieved 10/10/12

[xiii] R. Newell, *Landscape Painting: Redundant Genre or Viable Practice* (PhD Thesis, Swansea Institute of Higher Education, University of Wales, 2005). P. 3. The cited passage is extracted from number 6 of *The Negative Critique of Landscape: Eight Propositions*. Newell's thesis seeks to counter a 'negative critique' that pervades the contemporary landscape painting genre, including a discourse on the nature of perception and representation.

[xiv] D. Kirsh, *Using Sketching: To Think, To Recognise, To Learn*, a paper delivered at the *Thinking through drawing: Practice into knowledge* symposium in 2011 in New York and published as a collection of papers titled *Thinking through drawing: Practice into knowledge-Proceedings of an interdisciplinary symposium on drawing, cognition and education*, Edited by Andrea Kantrowitz et al, Published New York, pp. 123-125. Kirsh focuses on drawing as act, a kinaesthetic process by which we physically respond to problem solving, to understanding and to creativity.

[xv] J. Tchalenko, 2009 'Segmentation and accuracy in copying and drawing: Experts and beginners', in *Vision Research*, Volume 49, Issue 8, pp. 791–800. Tchalenko uses eye-tracking technology to analyse the movements of the hand and eye when drawing. Expert, student and novice drawers are used and comparative approaches to the tasks are analysed.

[xvi] R. Descartes 1637 *Dioptrics* http://science.larouchepac.com/fermat/Descartes%20--%20Dioptrique.pdf. Retreived 05/05/15, A treatise analysing the nature, and physiological reception, of light, pp.2-3.

[xvii] Chris Miall, Head of Psychology at the University of Birmingham and researcher into sensorimotor control. Divides the brain into different areas activated in observational drawing.

[xviii] C. Webster, Head of Fine Art at the University of Wales Trinity St. David, Swansea. Webster drawings and paintings question the traditional dichotomy that divides the 'lived' and the 'abstract'.

[xix] A. Brew, *Learning to Pause.* In the paper Brew outlines findings discovered in her Drawing and Cognition Project, where she uses eye-tracking equipment to document the different movements of the eye in beginner drawers' as they progress through an intensive five day drawing course.

[xx] D. Purves, R. B. Lotto & S. Nundy, 2003 'Why we see what we do'. The American Scientist Vol. 90, No.3, pp 236-243. A neuroscientific paper in response to George Berkeley's "Essay Towards a New Theory of Vision",analysing the discrepancies between what we see, what we perceive and scientifically measurable truths. Specifically focussing on Brightness, colour and geometry, the study argues that where optical perception does not accord to reality, perception employs a probalistic understanding of past experience make sense of observable phenomena.

[xxi] S. E. Palmer (Psychologist), *Photons to Phenomenology* (MIT Press, 2002), p. 128. The psychologists T. N. Cornsweet and K. J. Craik and V. O'Brien are each credited with the discovery of the illusion.

[xxii] In Gestalt Psychology The *Similarity Principle* (one of the Six Principles of Gestalt Perception) states that components that share visual characteristics will be perceived as belonging to one and other or grouped together.