By Patricia Cain

Drawing

The Enactive Evolution of the Practitioner

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Introduction

> *Because my own road was so hard, mine is a small but, to me, precious harvest. Mine are very simple thoughts which no doubt have been said before, but I was blind to their meaning until they became part of me.*
>
> (Julie Wylde)

How do we think as we draw? Do we simply have a predetermined idea about what it is that we want to put down on paper and merely carry this out, or is the activity itself a form of thinking that emerges as it progresses? How might it be possible to investigate these ideas in practice and access the knowledge which accrues from doing this, when the activity very often cannot be expressed in words or even consciously identified?

This book is my account of how I have considered these questions whilst investigating the relationship between thinking and drawing when engaging in the activity of drawing. Prompted by two initial hunches that drawing involves both brain and body and occurs within the activity, I started to ask myself, 'how do I think as I draw?' My account is about how I have investigated what it is that I come to know by drawing, and how I have come to recognise that the experience of drawing can make visible our emergent thinking processes.

I did not set out knowing that I would be dealing with these ideas. My interest had initially come from an impulse to understand what happens when I draw (which is part of an artistic process of working that is personal to me as an artist). But this was significantly fuelled by my experience of art education, which highlighted how difficult it was to explain or be explicit about what we, as makers, consider our artwork to be 'about'.

During our time as undergraduate students in Fine Art, my contemporaries and I became used to being asked for verbal validation about the development of our work as part of the assessment process. I came to appreciate how difficult this was, not because articulation eludes me generally, but for the reason that it was not always possible to say what one was doing, and that many reasons for decisions in the activity of drawing were not apparent to me. In fact, if I had been pushed to describe my state of mind or the conditions for the decisions made during making, I might have done no better than to describe a state of absentmindedness. Retrospective explication was sometimes more possible, but during the process this was elusive or at best ambiguous.

I had a hunch that 'not knowing' what I was doing whilst making a drawing was as productive and as formative in terms of thinking as any explicit account could be. It seemed that I 'knew' what I was doing just by doing it, even if I couldn't recognise what that was to begin with.

This inability to explicate what I was doing became particularly difficult as I moved from drawing representational images of the landscape, such as *St. John's in the Vale* (*Fig. 1*), to creating more abstract non-representational drawings such as *Cuillin* (*Fig. 2*). At the time, I was concerned with making two and three dimensional drawings 'about' the landscape, and was developing my work in response to the way in which I alternated between focussed awareness and dis-attention whilst making the drawings.

When asked to describe what the new drawings meant I was initially at a loss to explain because they were just as surprising to me as they were to anyone. Although the old and new 'styles' appeared to be visually different from each other, the experience of making both felt curiously similar to me because I relied upon similar processes to produce both. But how could this be when each looked so different? This dilemma was compounded further when one tutor commented on my drawing process:

> I would very much question the role and validity of 'intuition' as a means of decision making and validating choice in art practice in the 21st Century. After Matisse, Mata and Pollock, is it enough?

I felt perplexed as did many of my contemporaries, that intuitive or tacit processes were devalued, yet 'not knowing' what one was doing was recorded as being a familiar experience for artists. I read that:

> Many painters and sculptors often admit to not knowing where they are going with their work when they first begin. Invariably, the artist's most focussed attention is on the making, the touching and holding of the same worked artefact that will become the final piece.
>
> (Corner 1992: 244)

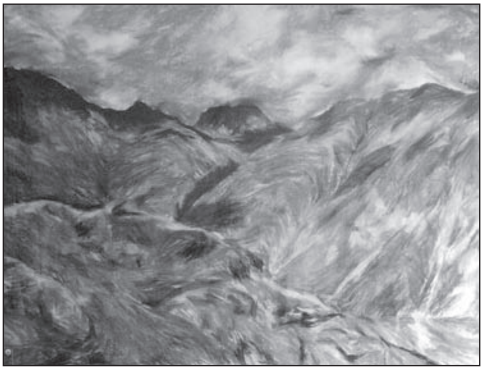

Fig. 1: *St. Johns in the Vale* by the Author.

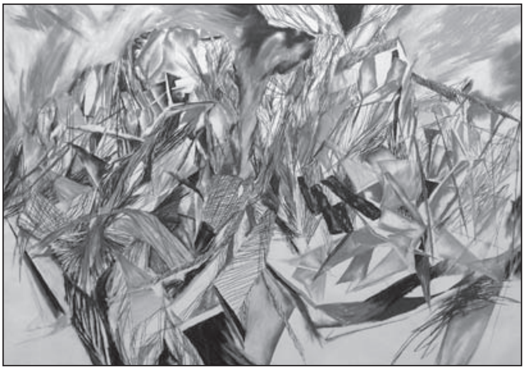

Fig. 2: *Cuillin* by the Author.

I began to think that the real value in a drawing was an essence that was being lost at the expense of not being able to describe it. Yet this aspect of drawings often meant most to me. The conundrum of how I might explicitly express something that was 'unknown' created another set of problems. To start with, was there any need for this to be talked about at all? In many ways, I could see that Henry Moore had a point when he suggested that:

> It is a mistake for a sculptor or painter to speak or write very often about his job. It releases the tension needed for his work. By trying to express his aims with rounded-off logical exactness, he can easily become a theorist whose actual work is only a caged-in exposition of concepts evolved in terms of logic and words…The artist works with a concentration of his whole personality, and the conscious part of it resolves conflicts, organises memories, and prevents him from trying to walk in two directions at the same time.
>
> (Moore in Claxton 1997: 94)[1]

As I moved through my journey to reconcile my own experiences with these differing opinions, my views about the activity changed. From initially considering drawing as a finite event towards the production of an artefact, I began to consider drawing as *process* – as an end in itself. As a consequence, my focus became the evolution of the practitioner rather than the evolution of the drawing, and how to map this evolution became equally as important. The vital question was not as my tutors had asked, 'what is this drawing about?' but rather 'what have I come to know about the world through making this drawing?'

It was only at the point when these discoveries started to emerge through my investigations in the studio that I made connections between the activity of drawing and Francesco Varela's biologically-based theory of *Enactive Cognition*. Considering drawing as an enactive phenomenon allowed me to regard the drawing practitioner not as an individual entity operating in isolation from the environment, but rather as part of an eco-system in relation to the world around him or her. In this scenario, thinking occurs within the processes of interaction between the two. Making this connection made Varela my critical companion as I continued with further studio investigations. He was inspirational in showing how it is possible to traverse and draw upon a variety of disciplines whilst remaining firmly within one's own. As a result, I have come to see what I have done as being at the juncture of many aspects of philosophy, psychology, cognitive science, and pedagogical and artistic research respectively. Possibly the most significant aspect of my findings has been how these issues have been melded and grounded in a very practical way.

I did not anticipate how often I would find myself leaving the parameters of my own discipline in order to question what form knowledge, through the practice of a skill like drawing, might take. Curiously, although my focus throughout the investigation was on the activity of drawing (and at times very specifically particular drawings by specific artists), it wasn't until right at the end of my allotted time that I discovered that the real subject matter of my investigation was, 'how I know I make sense of what I do' – a seemingly personal and subjective topic on the face of it but not if one considers this account as being an in-depth and rigorous example of the nature of learning in creative research.

Perhaps more importantly however, I could not have foreseen the ways in which my search for an answer to my initial question would reveal so much about the symbiotic relationship between *what* I know (my subject matter) and *how* I know it (my methodology i.e. the principles and ideas which govern how I go about my practice). The account of my experience of the methodological evolution of this research is integral to what I have come to know and how I have come to know it, revealing what Mey calls the 'gesture of my thinking' (Mey 2005). In this sense I might therefore say that this book and my drawings stand as evidence of an act – that of my enactive account of coming to know.

One of my two main aims in recounting my journey in this book is to provide insight for other practitioners about how 'research through practice' requires us to face some difficult questions. These include, for instance, how one deals with the notion of subjectivity during an investigation, or how one might deal with the primarily philosophical condition of *self* in practice, or how a situation of 'not knowing' with the head might be incorporated and valued in contexts which often require us to be certain and explicit. Although I have focussed on the artistic practitioner, these issues are not particular to my investigation but require navigation by anybody who wants to find things out for themselves through 'doing' things rather than conceptualising about them. They are perhaps particularly relevant in the context of artistic research due to the contentious issue of whether 'research through practice' is or is not possible. They are also relevant in the sense that research in Art and Design is thought of by some as lacking in academic heritage, and as a consequence often relies on borrowing methodologies from other more academically established disciplines.

As a result of my experience I have come to view thinking as not simply a consciously reflective post-activity event but as a process which occurs on an innately self-reflexive subconscious level as part of activity – a process where 'not thinking' or 'not knowing' might be valued. In relation to the educational circumstances that evoked my investigation, I now see the case for teaching skill (which seems to have been forsaken in the curriculum of many art schools) because of the depth with which I have paid attention to my own experience of learning in an activity.

The second aim of recounting my journey is to share a flavour of the experience of what it's like to be engaged in a process, where often the questions which are at the core of the enquiry are not always visible at the outset but emerge only as the enquiry progresses. In other words, how can we find an answer to a question we don't yet know? The nature of this type of experience is, I suspect, at the very heart of researching through the practice of many physical activities such as movement, music, archaeology, sculpture – the list is endless. I have found that participation in (rather than the easier and more natural avoidance of) this kind of process, has assisted me to practice and value the consistent intention I needed to navigate the points in my working process when I have to just engage blindly.

It is because of this crucial participatory aspect that I have made the decision to write what is in effect an academic piece of research, not only in the First Person, but by incorporating a record of my own thinking process as part of this.

This investigation was not only a personal enquiry but a doctoral research project lasting three and a half years. To comply with the requirements of doctoral research, my thesis was written in a more traditionally academic at-arms-length style in which only the chapters about studio investigation were written in the First Person. In this book I have been able to more honestly extend (as I should have liked to have done in the thesis) my First Person account to cover the whole process of enquiry, because my subject matter is the nature of participatory processual thinking, and this does not simply apply to one part of the enquiry and not others.

This book perhaps more truthfully narrates the circular nature of the process (whereas the thesis was conventionally written in a more linear format). Likewise, the chapters about Varela which had originally been written as a critical theoretical review in the Third Person are now written as it was – from a point of view where his ideas were being filtered through my own understanding of them as an artistic practitioner. Whilst this might take some getting used to for the academic reader, my concern is with making research that has been undertaken in an academic context accessible to a broader readership which might perhaps be alienated by the more usual and distanced academic presentation.

Before and whilst writing this book I thought long and hard about the extent to which my account should incorporate a record of my own thoughts which accompanied the practical task of researching, and the nature of the decisions I made as part of this. This was because the observations and connections I made could be thought of as being highly personal or, at worst, nothing to do with my apparent subject matter. Whilst writing, I came to appreciate how this personalised description of one's experience was indicative of, and in fact absolutely necessary, towards a full account of the nature of experiential thinking. Implicit in this is the realisation that what comes to be known through experience has to be recognised, identified and made sense of by oneself. I can identify what I know about my experience not only by showing to myself what I come to know, but also by showing to myself how I validate this to myself. In other words, my discoveries are only as important as I understand them to be.

Overall, the experience of my particular journey has taught me the value of putting my own trust in what I do. This has helped me to have faith to tackle the unknown, not only when I face the hard initial hesitation of beginning a drawing or face those difficult stages when I am not sure whether I have 'lost' the drawing or not, but also in many other unrelated situations. In short, I can now trust my intuition as a form of knowing because I have started to become aware of how I make sense of what I do and my role in how I come to know what I do. I hope this is helpful to others.

Note

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1. In saying this, Moore also (perhaps unwittingly) makes reference to conscious organisation as enhancing rather than detracting from the process, implying some element of intention or reflection is inherent in the process.

Part I

Theorising about Thinking and Drawing: The Limitations of Theory-led Research to the Practitioner

Chapter 1

About Thinking and Drawing – The Process Rather than the Artefact

The supreme misfortune is when theory outstrips performance.

Leonardo da Vinci

How do I think as I draw?

The question that motivated this investigation was a question I asked myself as a practitioner. Although I could not necessarily articulate it at the time, a major part of what sparked my interest lay in finding out *how* this question could be answered. All I knew to start with was that it was important to ensure that my findings would be meaningful to what occurred in practice, because approaching the activity of drawing through abstract theory often appeared hollow when it came to the real thing.

Putting these initial ideas into words, I initially recorded my aim as being to investigate 'the role of drawing in the creative process and its relationship to thinking'. My interests were however more generally concerned with:

- Drawing as a thinking process.
- Conscious and unconscious aspects of the process.
- The notion that thinking might not just involve knowing with the head, but thinking through the body.

The most obvious way of tackling these issues might have been to head to the studio, but before I could do this I came face to face with perhaps two of the most substantial issues facing anyone setting out on a path like this. The first was 'how is research through practice done?' and the second was 'what distinguishes art research from simply being 'art'?'

I could not assume that I would find answers to these questions by isolating myself in the studio. It became evident that I would have to do some theoretical ground-work to discover how the drawing/thinking relationship had been accounted for by others, and the means by which this had been accomplished. Without being fully aware of the basis for its use, simply choosing drawing as a method of investigation would not necessarily provide a deeper understanding of the situation.

Why drawing?

Drawing as a medium through which to investigate creative thinking is pertinent because of the immediacy of the activity – there is little in the medium that intervenes between the artist and the marks that are made. I read that, 'drawings are seen as a unique form of access to the thoughts of the people who make them. Indeed they are simply treated as thoughts' (Wigley in De Zegher & Wigley 2001: 29).

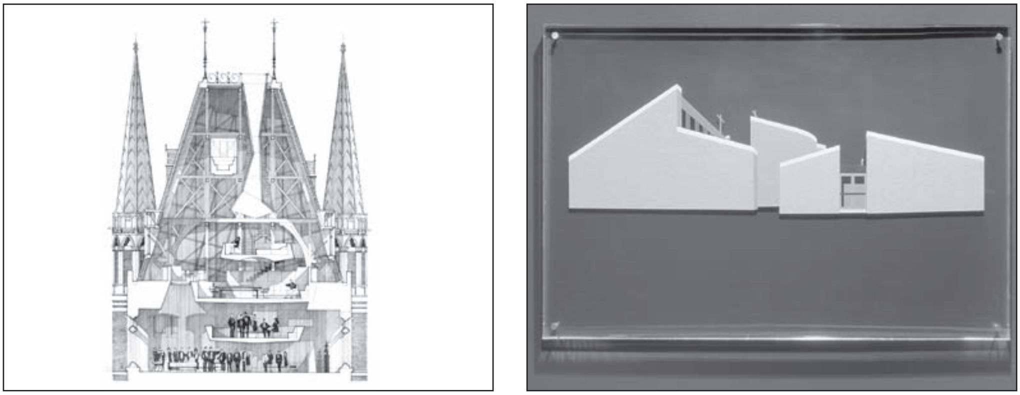
There appears to be a consensus amongst commentators that 'drawing turns the creative mind to expose its workings' (Hill 1966: 4). Some define the activity as a cognitive tool to facilitate and assimilate information (Tversky 1999). Others interpret drawing more personally as being akin to the conflict between signature and outcome of intelligence (Godfrey 1980; Chhatralia in Kingston 2003). Yet others emphasise how drawing plays a developmental role in the process of thinking through 'an interplay between the functions of seeing and knowing' (Rawson 1979: 7). Whilst many of these were the views of practitioners, they were still in effect the opinions of others. I was left wondering how I might have some understanding of these findings for myself, and began by reviewing a number of contemporary theoretical assumptions about the drawing/thinking relationship.

Style and thinking

Perhaps the most easily assumed visual connection between drawing and thinking is the possibility that a drawing's style can reveal the nature of the thinking processes that made it. In other words, style is analogous to mode of thinking and, by extension, its purpose (Thompson 1969).

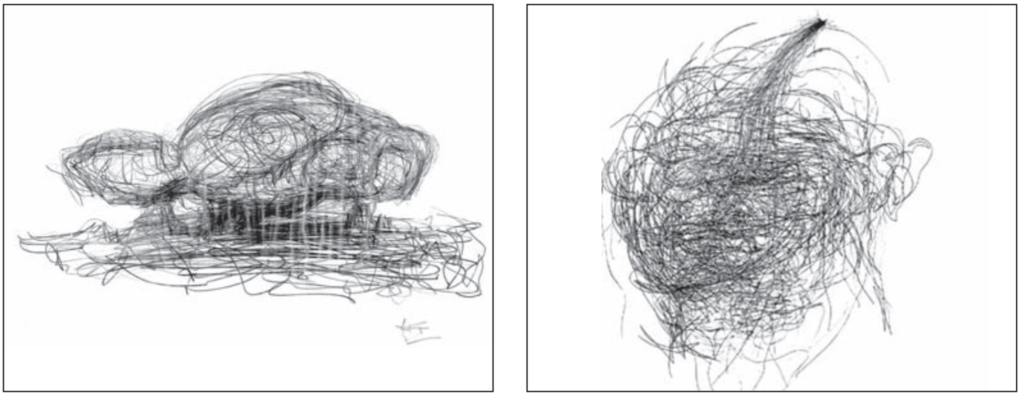
It is often assumed that cool or analytical drawings which are linear, hard-edged and precise in their mark-making are the outcome of pre-determined and conventional cognitive processes (Rawson 1969; Thompson 1969). For instance, the plan (*Fig. 3a*) section and elevation drawings used in the architectural process rely on their ability to operate like a language that is understood by a wide range of disciplines. Warm or intuitive drawings on the other hand suggest informal, gestural and experimental attitudes to mark-making (*Fig. 3d*). They appear to involve processes with no a priori or forward-thinking cognitive strategy, where aims are revealed only on completion of the drawing (Perry 1992).

These assumptions have been challenged on the basis that their use very much depends upon the social and cultural context in which drawing is used (Robbins 1994). I also noticed how a variety of practitioners often use drawing styles out of context; in fact, some practitioners actively play with these assumptions. I investigated the grey area in which architects such as Kiesler (*Fig. 3c*) rely on a range of non-technical drawing conventions for conceptual architectural projects, and where artists such as Paterson (*Fig. 3b*) explore technical drawing conventions more traditionally associated with architectural drawings to make social comments. In these examples I found that style was simply a variable that could be manipulated to various expressive effects.



(a) Alan Dunlop: Elevation of St. Pancras.

(b) Toby Paterson: Suburban Church.



(c) Frederick Kiesler: Endless House Sketch. © Austrian Frederick & Lillian Kiesler Private Foundation, Vienna.

(d) Claude Heath: Head 103.

Fig. 3: Examples of conventional and gestural mark-making in drawings in architecture and fine art.

In addition to this, the notion that style is analogous to thinking implies that a practitioner knows in advance what he or she is doing and can choose to use a particular style accordingly. However, this idea fails to take into account how, in practice, ideas often appear to emerge as the activity progresses. I began to question whether it was actually possible to carry out a totally pre-determined drawing without the process of making it changing one's plans as one went along. Could it be the case that the act of making would always interfere to change one's intentional or logical reasoning?

Moreover, simply identifying a type of thinking by reference to a visual style does not adequately explain the complexities surrounding the bodily processes required for different types of mark-making. I found it possible, for instance, to make gestural marks quite intentionally and vice versa. This allowed me to see the danger of making assumptions about what happens during the making of a drawing by reference solely to the outcome. As a result, I re-focussed my interest from ‘the drawing as an artefact’ to the process that produced it.

This also had the effect of making me appreciate that drawing is much more than simply a visual issue (although it was frequently described as being a visual thinking process). If this were the case, investigating how thinking was bound up in the process of drawing would need to rely on more than just ‘seeing’. Halsall has a point in saying that:

> Any mode of analysis which limits itself to one sense alone will be a floored account of experience. This is because it does not recognise the multi-sensory nature of that experience and as a result will not be a satisfactory basis for a thorough historical account.
>
> (Halsall 2004: 21)

It would therefore be necessary to find a method of investigation that would encompass performative as well as visual aspects to the activity.

Creative thinking theories

With my focus now on asking *how* a drawing is done rather than *what* a drawing is, I looked at how others had accounted for creative process. There was no section on the shelves in the library dedicated to ‘the artist’s creative process as written by the artist’ – what accounts I did find by artists were usually couched in letters or conversations. Much more was written about creative thinking by psychologists.

These texts appear relevant because they talk about processes involving invention, innovation and evolutionary change. Here, thinking is defined as being that which underlies creativity, whereby creativity is ‘the development of original ideas that are useful or influential’ (Paulus & Nijstad in Runco 2004: 658). Many texts explain creativity by reference to ‘models of thinking’ which frequently describe the creative process in fixed stages. *Creative Problem-solving* by Wallis (1926) and many of his successors, for instance, make reference to identifiable stages which include elements such as:

1. *Preparation* – where preparatory work focuses an individual’s mind on a problem and explores its dimensions.
2. *Incubation* – where the problem is internalised by the subconscious mind and nothing appears externally to be happening.
3. *Intimation* – the individual gets a ‘feeling’ that a solution is percolating.
4. *Illumination or insight* – a creative solution or idea appears from the subconscious state into conscious awareness.
5. *Verification* – there is conscious verification and evaluation of the solution, followed by application.

These models helpfully acknowledge that both consciously explicit and subconsciously tacit stages are complementary rather than oppositional in the creative process. This seems resonant with how, paradoxically, both co-exist for the drawing practitioner who at various points depends on losing logic whilst at the same time remaining intentional in terms of engagement with the work. I believe that Newman is referring to this paradox when she describes drawing as, 'the mental and physical act of projection out from the body…is quite a precise act – the most thoughtful and deliberate of acts which…harbours a necessary thoughtlessness' (Newman in De Zegher 2003: 81).

However, two aspects of these models appear incongruent to what occurs in practice. Firstly, the orderly and deterministic labels avoid any detailed reference to the confusion and non-linear aspects of the creative process described by many practitioners (Coulson 1996; Gedenryd 1998; Gray & Malins 2004). Secondly, how appropriate is it to refer to creativity by reference to 'problem solving' or 'problem-finding' (Getzels & Csikszentmihalyi 1975; Garner 1992)? Whilst these descriptions may be relevant in the design process, it is harder to imagine how a problem can be defined either at the outset or at all for others whose focus is in the making rather than the output. It was as if the problem rather than the artefact had now become the finite event in the process rather than being able to focus on the process as an end in itself.

Drawing as a knowledge-constituting process

I began to pursue the idea that thinking within the medium might be a way of describing and capturing what was a far more fleeting, complex and intricate process than could be described by reference to a set of deterministic labels. Similarities in the ways in which artists and writers describe their processes are telling in this regard because whilst each often describe how their thinking emerges through the act of making, the mechanics of this often remain hidden from them. David Galbraith identifies this dichotomy in the writer's creative process by discussing writing as a *knowledge-constituting process* (*Fig. 4*) (Galbraith 1992, 1996 & 1999):

W.H. Auden:	Language is the mother, not the handmaiden, of thought; words will tell you things you never thought or felt before.
Robert Bolt:	Writing a play is thinking, not thinking about thinking.
E. M. Forster:	How do I know what I think until I see what I say?
Shirley Hazzard:	I think that one is consistently startled by things that appear before you on the page when you're writing.
Wright Morris:	The language leads, and we continue to follow where it leads.

Fig. 4: Descriptions of writing as discovery by expert writers selected from Murray in Galbraith 1999: 138.

Galbraith's explanation that the 'hidden decision-making lying behind what seems like a spontaneous process' (Galbraith 1999: 139) occurs as a dialectic or conversation between the writer and what he produces is interesting. The emergence of new ideas in writing occurs, he suggests, through the writer alternately not knowing what he is doing whilst producing an initial text (an implicit act), but knowing what he is doing in responding to it (an explicit act).

Descriptions given by writers and artists resemble each other. E. M. Forster's comment, 'how do I know what I think until I see what I say?' was echoed by artist Richard Talbot in interview when he told me that 'the image that finally arrives on the paper, comes about through me making decisions in the paper.' When I spoke to Galbraith himself he proposed that this dialectic or conversational 'to-ing and fro-ing' between the drawing practitioner's internal and external processes might involve ambiguity in the initial tacit act of externalising a drawing, whilst other more explicit processes could resolve ambiguity.

This explanation seems to have resonance with the way in which the practitioner experiences his or her role in keeping a drawing 'alive':

> Once the pen hits the paper that mark will be there, and there is something challenging about having to be so specific, and trying not to be too specific, because if you are too specific it is not interesting. I don't want to make something that I know I'm making, I want to make something that I don't know that I'm making.
>
> (Ansuja Bloms in Hunt 2001: 79)

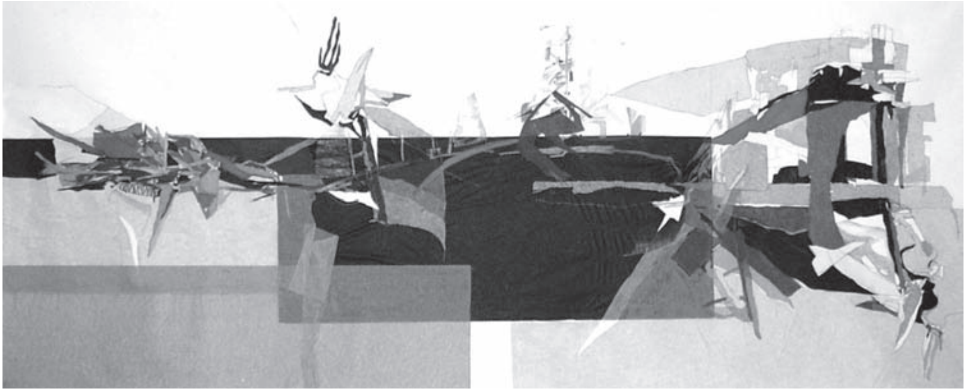
I also noticed in a journal I was keeping that I had described how the drawing 'spoke back' to me whilst making decisions about colour in my own drawings (*Fig. 5*).

Galbraith suggests that knowledge activated within activity cannot be understood in a uniform way that problem-solving models can recognise. Instead, it is likely to be transient and unstable.

The notion of thinking within the medium also prompted me to think about what form the unstable knowledge occurring in the loop of activity between artist and drawing might take. How would I be able to identify what I could know in this kind of process? I conjectured that knowledge which evolved from the making process might accumulate not only from an accretion of events, but 'within' the events themselves as they took place. In effect, thinking would take place 'within the flow' so to speak, rather than simply retrospectively. Moreover, this might be a matter of learning as much as it was a matter of thinking.

As I recognised and considered the fluid nature of this kind of knowledge as a theoretical issue, the most pressing point was how could I deal with this in practice?

As I apply colour, I reference both the work as a whole and the effect that one piece has upon all the others, whilst simultaneously, 'receiving messages' from the drawing, about what colour next goes where and ascertaining the likely effect on previous and proposed subsequent pieces…



Clyde Redevelopment #12

Knowing what's 'right' is perhaps harder to define. For both colours and shapes, I'm looking to add to the drawing in a way that goes against the grain, so that the placing of the colour or shape, is not that which would necessarily be anticipated or easy, but might constitute a fresh combination - an unexpected combination to my eyes. There is a fine line between what is unexpected and what doesn't work, and sometimes I have to haul back if something isn't working to bring it back into the fold to create an answer that is more easily 'read' or acceptable.

And why do I do this?
It's not a deliberate plan… it's just that this way is the nearest thing to what appears 'right' - is of most interest - captures something I can't grab hold of. So I just construct it 'as-near-to' as possible and in doing so, the making of it gets right in there, to mirror how I operate generally.

Fig. 5: Entry from the Author's journal.

Chapter 2

Moving from Theory to Practice – The Methodological Problem

> *If you start with a project, you'll find that you spend time seeking a theoretical framework to 'explain' the work. Theoretical work should address the same problem as practice, not attempt to explain or justify decisions made about the work. Unless you do this, you'll find that your 'theory' will be doomed to lack any literal coherence, as having been doomed to 'explain' your practice it clusters around the work rather than working through the work with any rigour.*
>
> (Palmer 2003)

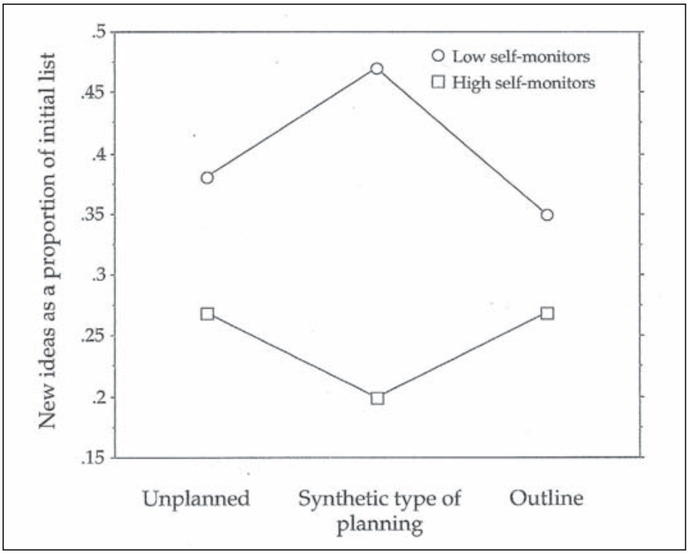
The limitations of objectively getting to hear the practitioner's voice

The problem of reconciling psychological models with what might be considered meaningful in terms of the practitioner's experience appears to have its roots in the methodology or manner of investigation. Whilst on one hand these psychological investigations positively affirm the maker's role in the production of knowledge, on the other, they simultaneously exclude the practitioner by filtering the maker's account through the methodological lens of their own discipline. In effect, creative process is assessed by outside agents and the practitioner as subject is given a limited and objectified role, rather than being an integral part of the investigation.

I can see that this has something to do with the need for investigative methods to be 'objective' rather than 'subjective' because methods that are personal in nature and cannot be proven are often devalued. In a nutshell, the methodological conundrum is about how it is possible to investigate subjective creative issues with methodologies that are designed to provide objective frameworks. Moreover, is objectivity really possible anyway?

Galbraith's work amongst many others seems to exemplify this predicament in the way that the subjective nature of tacit creative process is investigated by reference to quantity rather than quality. Comparing two different groups of writers, he calculates numerically the extent to which 'writers produced new ideas as a function of writing, and whether these new ideas were associated with changes in how much the writer felt they knew about the topic' (Galbraith 1999: 140). Like others, his conclusions come from measuring variables in the fixed circumstances of experimental conditions, which means that his findings about emergent thinking are couched in mathematical terms through the very specific lens of those conditions (*Fig. 6*).

Fig. 6: Graph showing the number of ideas (measured as a proportion of ideas produced before writing) plotted as a function of self-monitoring and type of planning (Galbraith 1999: 153).



This requirement for objectivity seems to be directly opposed to the nature of things in practice. Whilst Galbraith's ideas are interesting because they challenge more linear descriptions of creativity, it is his method that allows me to recognise that my own particular questions demand an alternative way of finding answers; simply rating how much practitioners experience novel ideas cannot tell me anything deeper about the qualities of the experience for myself. More emphasis needed to be put on 'what it is like to be' from the maker's perspective. I began to consider that investigating thinking from within the context of its emergence might be a potentially more realistic way of dealing with making and learning as they occur in practice. However, there were a number of issues that needed to be kept in mind before I could decide how best to practically develop this idea.

To be fair, artistic practitioners are not the easiest of subjects to directly investigate for a number of reasons. Whilst case studies have in part allowed the practitioner's voice to be heard (Ghiselin 1952; Gruber 1999), what practitioners have to say is not necessarily straightforward to investigate. The idiosyncrasies of their descriptions are difficult to categorise when using methodologically reductive formulas:

> Among the individuals who have proved extremely difficult to study under ordinary conditions are artists; such creative persons are few, display little sympathy towards empirical investigations, and possess skills of such fluency that they defy dissection and analysis.
>
> (Gardner 1982: 89)

Perhaps because they are more manageable, descriptions of creativity in the scientific process are more widely commented upon by both psychologists (Roe 1952; Holton 1978) and scientists (Watson 1968; Goodfield 1981). There appears to be a greater acceptance of the way in which seemingly logical thinkers refer to the inexplicable nature of their 'ah-ha' experiences (e.g. Kekule, Poincaré). In the case of scientists, it is perhaps easier to tolerate the mysterious aspects of their process when the eventual outcome is dissociated from the preceding rather intangible process and can be objectively verified in its own right. For artists however, one has the dual problem of not necessarily having a logical conclusion to their 'illogical' process – there is no framework by which to structure the apparent randomness of everything.

How one might deal with the task of capturing multifaceted, complex and often simultaneous processes when one has to work within the confines of linear linguistic descriptions, is yet another issue. In an era where it is commonly accepted that there is no single pathway to thinking (Gardner 1993; John-Steiner 1995), we might have to adopt multiple frames of reference similar to those which already theoretically attempt to address other issues like this (e.g. Couclelis & Gale 1986; Goleman 1995; Nussbaum 2003), in order to investigate the practitioner's process. Is it the case that complex situations are best dealt with by using complex methods?

More practically, how does one overcome the apparent reluctance artists have to discuss their creative processes for fear of disrupting them? The problem of juggling creative and analytical mindsets is also recorded as being problematic for artist-researchers (MacLeod 1999); how would I deal with the non-compatibility of logical and creative thinking not only in relation to others, but also myself?

Perhaps more pressingly I had to consider how I would rigorously describe intuitive decisions – how would I be able to discuss inaccessible subconscious processes when so many others had struggled with this? Although many investigations have attempted to rationalise the nature of intuition (Pask 1975; Ascott 1990; Boden 1990), these have had little impact on practice, yet the use of intuition is widely acknowledged as being a highly relevant part of the artistic process (Beuys 1990; Motherwell 1997).

There seemed to be more questions and fewer answers as I went on. Weighing up each issue made me question the effectiveness of investigating the practitioner's process without including the practitioner centrally rather than peripherally. I doubted that the fluctuating conditions and potentially fluid forms of 'thinking within the medium' could be captured by simply averaging out individual experience. I began to think that rather than isolating the description of one's experience from the process of which it was part, that it might make more sense to examine one's internal compass from within that process itself. What I didn't fully appreciate whilst becoming more aware of the importance of the practitioner's role in the process, was that this constituted a major step in moving from a Third Person to a First Person enquiry.

The practitioner's experience of the process of theoretical research

It was no coincidence that I had started to become aware of my own creative process whilst being so heavily involved in researching those of others. As I spent the first few months of my research defining 'my area' and realising how vast and inter-related this was, I also began to understand and endure the messy process of meshing theoretical, empirical and introspective materials. The lack of specifically relevant literature which dealt squarely with my interests meant that many voices added to the discussion. I had to interweave issues and ideas from diverse disciplines. Although my critical analysis was grounded in the connections I was making between aspects of these disciplines and my experiences of drawing, I couldn't help but notice how this analysis was also at times intuitively driven.

It was no accident that as I was reading about creative processes which involved complexity, chaos and order, I found myself in the grip of these same processes whilst trying to make sense of my theoretical findings.

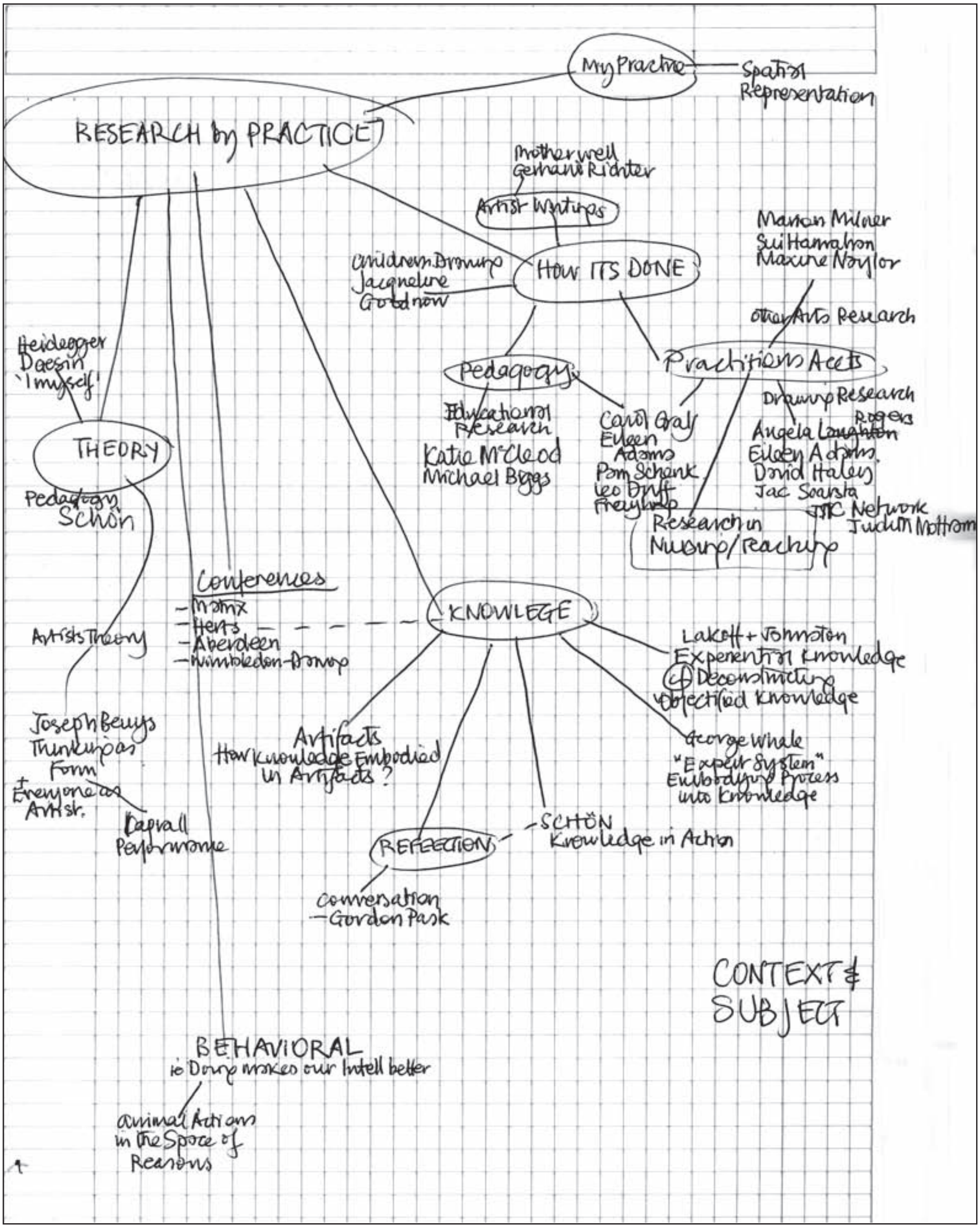
The extent to which I used my drawing skills at this stage was limited to the schematic drawings I was producing in order to make sense of the diverse connections I was making. These served as a method of reduction and antithesis in which I didn't know exactly what it was that I meant, but I could eliminate that which I didn't mean. The outcome revealed a connection between knowing something through the use of a skill and the process of learning (*Fig. 7*).

As a result, I turned my attention to aspects of learning which, because of the nature of their 'doing-ness', might readily slip from the grip of analysis. These included, for instance, aspects of the learning process such as reflection (Emig 1977; Moon 1999); 'in' or 'on' action (Schön 1983); and the experience of doing (Kolb 1984), which might involve seemingly 'soft' features such as emotion (Boud, Keogh & Walker 1985). None of these particular aspects eventually turned out to be my specific focus of investigation but they, with others, formed a mesh of knowledge which served as a basis for the way my enquiry developed over time.

It is tempting to be chronological when recounting a story, but in actual fact the linear format of my account here doesn't truly capture the myriad of events as they occurred. Despite the sequential appearance of the entries in my notebooks, I seemed to apply myself in a spiral when it came to focussing on my subject matter. I might first look in one direction and follow that trail, only to find myself quickly on another and yet another, before twisting back towards my original point and beginning the process all over again along a different line of enquiry (*Fig. 8)*.

Whilst I couldn't crystallise what it was that I was trying to get at, it also seemed as though I was edging nearer through my management of the assorted items I had been collecting in my metaphorical string bag.

The links I was making between various disciplines is perhaps one example of Graham Sullivan's term *transcognition* which he uses to describe the 'wide set of cognitive and


My Practice
Spatial Representation
RESEARCH by PRACTICE
Motherwell
Gerhard Richter
Artist Writings
Marion Milner
Sui Hamilton
Maxine Naylor
Children Drawing
Jacqueline
Goodnow
HOW ITS DONE
other Arts Research
Heidegger
Dasein
'Imyself'
Pedagogy
Practitioners Accts
Educational
Research
Katie McLeod
Michael Biggs
Carol Gray
Eileen
Adams
Pam Schenk
Leo Duff
Freyling
Drawing Research
Rogers
Angela Laughton
Eileen Adams.
David Haley
Jac Saorsta
TRC Network
Judith Mottram
THEORY
Pedagogy
Schön
Research in
Nursing/Teaching
Conferences
– Matrix
– Herts
– Aberdeen
– Wimbledon-Drawing
KNOWLEGE
Artists Theory
Lakoff + Johnston
Experiential Knowledge
cf Deconstructing
Objectified Knowledge
Joseph Beuys
Thinking as
Form
+
Everyone as
Artist.
Artifacts
How knowledge Embodied
in Artifacts?
George Whale
"Expert System"
Embodying Process
into Knowledge
Bagrall
Performance
REFLECTION
– SCHÖN
Knowledge in Action
conversation
– Gordon Pask
CONTEXT &
SUBJECT
BEHAVIORAL
ie Doing makes our Intell better
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Reasons

Fig. 7: Schematic drawing by the Author making connections about learning, knowledge and practice.

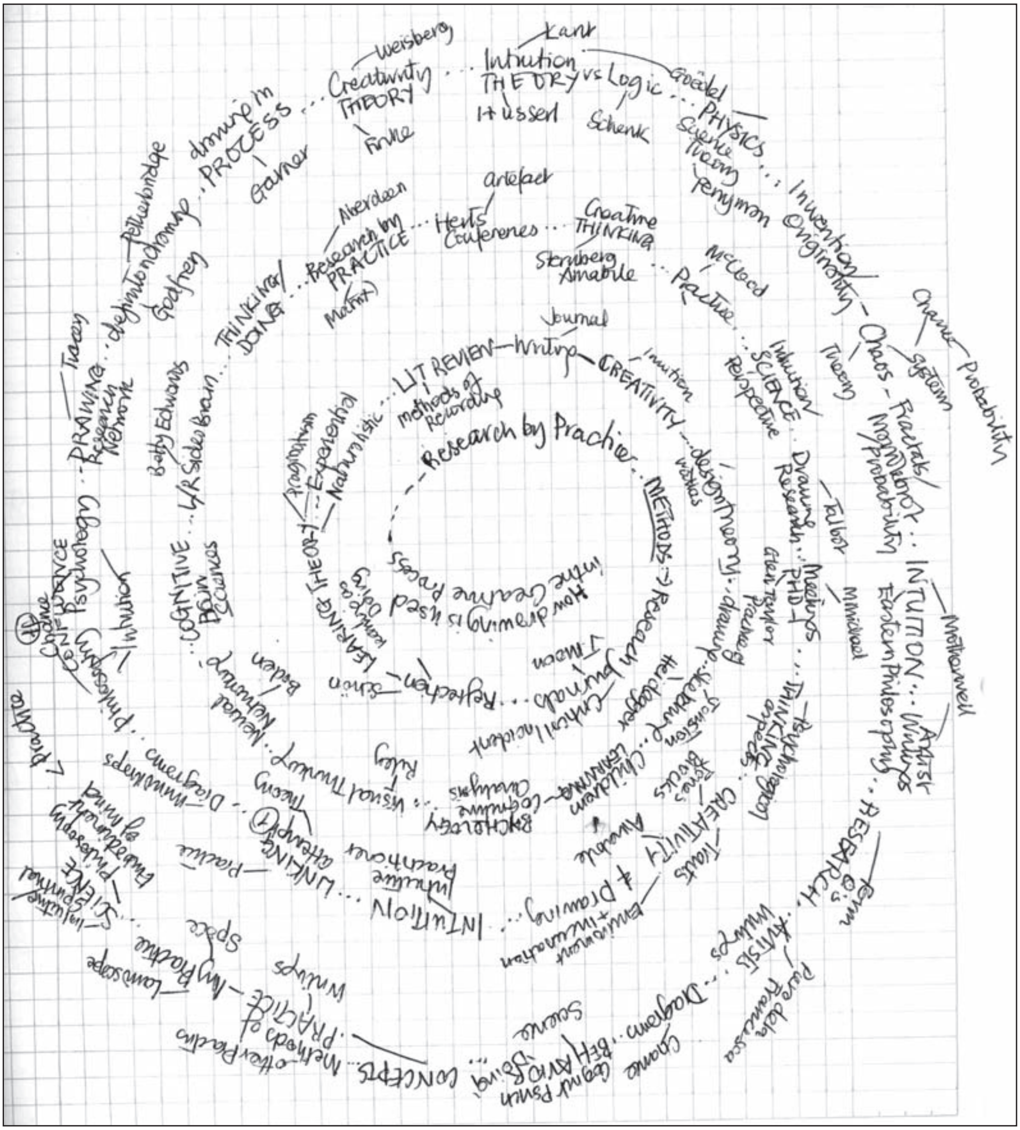

Weisberg
Kant
Creativity THEORY
Intuition THEORY vs Logic
Goedel
Husserl
Schenk
Finke
PHYSICS
Science Theory
Feynman
drawing in PROCESS
Garner
Fetherbridge
definitions drawing
Godfrey
Aberdeen
artefact
Research by PRACTICE
Herts Conferences
Creative THINKING
Sternberg
Amabile
McCleod
Practice
THINKING/DOING
Invention
Originality
Chance
Chaos
Systems
Probability
Fractals
Theory
Intuition
SCIENCE
Perspective
LIT REVIEW
Writing
Journal
CREATIVITY
methods of recording
Research by Practice
Naturalistic
Experiential
Pragmatism
LEARNING THEORY
Betty Edwards
L/R Sides Brain
DRAWING
Research Network
Tracey
Cognitive Psychology
COGNITIVE
BRAIN
Sciences
METHODS
Drawing Research
Talbot
INTUITION
Eastern Philosophy
Motherwell

Fig. 8: Schematic drawing by the Author showing the cyclical nature of her subject matter during her research.

contextual factors that influence visual knowing' (Sullivan 2005). I found myself making connections between aspects of the processes I had experienced whilst drawing and more formal descriptions of phenomena described in mathematics and science, which included:

- Complexity
- Confusion
- Spontaneity/ impulse
- Insight
- Chance and probability
- Intention
- Speculation and uncertainty
- Chaos/order
- Tacit Knowledge
- Reduction

What made these connections relevant was that they were aspects of dynamic processes. There was something in particular that I couldn't quite pin down amongst these 'processual'[1] issues which made me keep returning to the notion that subject and object were indivisible.

I kept catching a glimpse of the significance of this idea out of the corner of my eye and noticed references to this in both Science (Capra 1996; Lorimer 1999) and the process of artistic practice (Milner 1971; Franck 1993; Gray & Malins 2004). How could artists and scientists have come to similar conclusions through their different methods of working? Despite the fact that Art and Science have been thought of as often being incompatible (Wolpert 2002), I could envisage an alternative where the interfaces of both cultures might be combined (Carnie 2002).

I was also keen to find out how those in scientific disciplines had pragmatically dealt with tacit knowledge within the restraints of their own objectively-overseen practices. Naïve[2] Geography, for instance, recognises and aims to reflect upon the way people think and reason about geographic space and time, both consciously and subconsciously. Likewise Naïve Physics, Instinctive Mathematics and Folk Psychology are all practices which are concerned with representing perceptions about 'objects in the real world' (Eilen, McCarthy & Brewer 1999) – they give formal recognition to descriptions of the world 'in ways that most people think about it' rather than 'ways in which experts see it' (Hays 1978). Many disciplines appeared to be becoming increasingly concerned with finding ways of de-objectifying what had previously been objectified

My decisions about what was important in this material came from both my head and my gut. I picked up what I believed to be most relevant from everything on offer, not fully being aware of the prompts about how I did this but allowing myself to be guided by what made most sense of events in the studio. To some extent this echoed Polanyi's description of the process of accumulating knowledge because, like him, I could see myself carving a path almost by 'dis-attending from' a certain thing to attend to others:

> We may say in general, that we are aware of the proximal terms of an act of tacit knowledge in the appearance of its distal term; we are aware of that from which we are attending to another thing, in the appearance of that thing. We may call this the phenomenal structure of tacit knowing.
>
> (Polanyi 1966: 11)

I was never far away from the ideas that the body could biologically learn without consciousness, and that implicit processes were capable of dealing with complex situations that were too subtle to be taken account of in a conscious way. The ideas I had started with – that it is possible to think through the body and that knowledge accrues through action – theoretically appeared to have their roots in biological theory (e.g. Bateson 1973; Maturana & Varela 1980). One scientist in particular was interesting for the particularly pragmatic way he accounted for embodied thinking. Francesco Varela and his colleagues explained cognition as emerging through complex and recursive patterns between an individual and their environment (Maturana & Varela 1980; Varela et al. 1991). Whilst this possibility was to become far more significant after I had taken my investigation into studio practice (and I deal with this more fully in *Chapters 3* and *4*), at this initial stage it allowed me to start considering the activity of drawing as a recursive co-dependent process between the practitioner and the drawing.

At times during these early stages of investigation I felt as though I was moving further and further away from events in the studio. It was easy to concur with Herival when she said that, 'most of what I had read about the creative process in the thought patterns of artists was through speculation by others' (Herival 1997: 64). However, the experience of assessing the terrain in this way allowed me to appreciate how engaging in research as an artistic practitioner required an understanding of the pedagogical context surrounding one's enquiry as opposed to simply contextualising one's art practice.

I was becoming aware of the need to find an alternative method that allowed the practitioner to be investigated within his or her own context which made me realise, even at this early stage, that my contribution to my area of research was likely to be methodological. I had also become aware of how I had, since starting the enquiry, instinctually been watching myself as I conducted my investigation, although I would not fully become aware of the consequences of this until much later.

Excerpt from the Author's journal:

Fixing a methodology within the research is the struggle, and the annoying aspect (particularly at the outset, before the research can be undertaken) is having to explicitly outline for others, this methodology before I can yet say what it is.

This is a perplexing issue for the researcher, where the answer to the question is quite bluntly, 'I don't know until I've done it'. Generative methodology I think calls for the researcher to re-arrange her tools and expectations into a context where acceptance is paramount…A bit hard in terms of deadlines where time and tide wait for no man…

Notes

1. I have borrowed this term from Depraz et al, 2003: 18.
2. The term Naïve stands for spontaneous and instinctive.

Chapter 3

The Relevance of Enactive Cognition to the Practice of Drawing

Introduction

One of the most difficult decisions I have had to make whilst writing this book has been about how to position in the text my discovery that *Enactive Cognition* was relevant to the practice of drawing.

In actual fact I had initially come across Francesco Varela's ideas at an early point in my investigation whilst considering whether the notion of 'embodied thinking' might generally be relevant to the practitioner. At this point I had considered his ideas as being relevant in quite a superficial way. But as my enquiry progressed, I gradually made more and more connections between how he explained emergent thinking and what I was doing. It was not until later, after I had concluded my investigation in the studio by drawing, that it became necessary to reconsider his theories in a much more detailed way. In retrospect, I can now see that his ideas became more relevant thanks to the mindset I had developed as a result of drawing because I had gained a far more nuanced level of understanding from doing this.

Enactive cognition was relevant to my initial conjectures that thinking involved body and brain and occurred within activity. By exposing these conjectures to Varela's propositions I found myself, like Varela, starting to question what knowledge is and how it is understood. These questions were not in my mind at the beginning, but arose as a consequence of trying to understand the nature of my own condition. His ideas provided a sounding board against which I later critically examined the practice of drawing.

Although I have tried to make clear in my narrative in the following chapters at what points Varela's ideas started to become more relevant, I have decided to outline these here despite the fact that this is factually 'out of synch'. In this chapter I specifically concentrate on why Varela is a useful critical companion for a discussion about drawing practice generally and why I eventually took the step of making drawing my means of investigating the activity itself. The disadvantage of doing this now is that the significance of how some of these ideas started to take shape may be lost by plucking them out of the context which made them relevant. I finally considered however that it would give more perspective to the later studio enquiry if his ideas were explained at this juncture.

In this chapter I make reference to three texts which are central to distinct phases of Varela's research:

1968–1986 – Theory of autopoiesis
Autopoiesis and Cognition (Maturana & Varela 1980)
1986–1995 – Embodied thinking
The Embodied Mind (Varela et al. 1991)
1995–2001 – First Person methodologies
On Becoming Aware: A pragmatics of Experiencing (Depraz et al. 2003).

I acknowledge that these texts were co-written, but I refer here to Varela as being their author because I wish to specifically focus on how the continuous threads of autonomous systems and self consciousness, or 'the domain of self-observation' (Maturana & Varela 1980: 137), have continuously developed throughout the whole of his research. I believe that each phase is relevant to how one might investigate emergent tacit thinking processes which occur in the course of using a practical skill.

Why Varela's theories are relevant to the activity of drawing

Varela's ideas took me further than simply considering 'thinking within the medium' because he looks at the bigger picture of what cognition entails; he characterises human cognition as being about self-referential and self-producing processes. As a result, I started to consider the possibility that knowledge which emerges from drawing might be 'brought forth' through the practitioners own recursive circular patterns of human processes and his or her interactions with the environment. It also prompted me to question whether we are essentially bounded in what we do as practitioners by our own capacities, such that what we do is not novel but self-referential.

These potential scenarios allowed me to step away from the conventional view that drawing is a discrete activity, and think of drawing as a process of open-ended discovery which can be investigated through action. I considered enactive cognition might relate to drawing in the following ways:

Likening the drawing practitioner to an autonomous system

Autopoiesis, the biological theory of autonomous self-organising systems, was developed by Varela and his colleague Maturana[1] in an endeavour to understand what makes us similar but all individual. They view living systems as being cognitive or thinking systems, where 'living as a process is a process of cognition' (Maturana in Maturana & Varela 1980: 13). This became relevant for understanding how we think as we draw because there were many parallels between the composition and processes of the self-organising systems they talked about[2] and the practitioner's role in drawing. It was strange at first to liken myself to a system, but what better way could there be of describing my hunch that brain and body acted as one? Once I'd become familiar with the idea it became possible to imagine the practitioner and what she/he did as being part of a system, and that drawing occurred as an interaction within a system rather than as an independent activity.

Varela describes the *autopoietic* system or 'unity' as one which continuously produces itself through the production of its own components. The term 'autopoiesis' can literally be translated as meaning 'self creation':

> An autopoietic system is organised (defined as a unity) as a network of processes of production (transformation and destruction) of components that produces the components that: (1) through their interactions and transformations continuously regenerate and realize the network of processes (relations) that produce them; and (2) constitute it (the machine) as a concrete unity in the space in which they exist by specifying the topological domain of its realization as such a network.
>
> (Varela 1979: 13)

Of central importance is the way in which the autopoietic system is brought forth by itself through recursive generation of its own organisation. In other words, the organisation of the system is not the material properties of its components, but the relations or processes between those components (Varela 1979: 7). It is the processes rather than the physical materials of the system which determine its capacity to interact and transform, and this cannot be varied.

The system's structure is different to its organisation. Its structure is the actual or physical relations between components, and this is variable. I found the distinction between the two difficult to understand. One helpful analogy of the difference likens organisation to 'a car which has properties we might expect any car to have' e.g. wheels and brakes. The structure however is likened to a particular, real example of an entity e.g. that particular 'rusty blue mini in my drive' (Mingers 1989).

This analogy was helpful as I began to note that practitioners' descriptions about drawing often referred to how elements in the process worked together. This resonated with the importance Varela gave to processes between components in his description of cognition.

It is the issue of how knowledge emerges as a process within these autonomous cognitive systems which is most interesting when applied to drawing. Varela's focus on process is crucial in explaining how emergent thinking occurs. In terms of evolution, a system's organisation cannot change, although its structure can without altering its organisation. For example, an acorn can transform into an oak tree because its structure changes but its essential organisation does not. If the organisation of a system changes it is either destroyed or becomes another kind of entity. This invariant organisation means that autopoietic systems 'subordinate all changes to the maintenance of their own organisation' (Varela 1979: 15). In short, living systems are limited in (though not determined by) their capacity for change. Non-autonomous or *allopoietic* systems however rely on processes the equivalent of input/output mechanisms to produce something which is different from themselves (De Magalhães 1999: 79).

I started to ask myself how then would any real change be possible? As a living system, could the drawing practitioner be considered a 'domain of interactions'? If so, what is the organisation of the practitioner and how can we evolve if we are bounded by our own organisational constraints? Could it be that the drawing activity is a self-referential phenomenon in which my capacity is inseparable from what I am producing? By drawing, am I defining my own phenomenal domain in which it would be impossible to separate process from product?

Varela explains that evolution occurs as a result of the operation of two specific mechanisms. Firstly, change occurs within the autopoietic system itself. Autonomy creates a closed causal circular process in which the system brings forth itself. This is the consequence of a mechanism called *organisational closure* which occurs 'if the results of its action remains with the system itself' (Bourgoine & Varela in Rudrauf et al. 2003: 33 footnote 8). The circularity of organisational closure makes the living system a unit of interactions which retains its identity and allows components subservient to maintaining (but not determinate of) the basic circularity itself to evolve (Maturana in Maturana & Varela 1980: 9&12). Because self production constantly relies on past knowledge for its continuance, evolution is therefore not novel but self-referential.

Secondly, an autopoietic system's relationship with its environment can create change. Although autopoietic systems do not rely on environmental inputs for self-production, they still depend on their interactions with their surroundings to exist.

Independent environmental events known as *perturbations* trigger changes in an organism, but invariant organisation and operational closure mean that the system determines itself what can or cannot be a trigger. All changes are determined by the structure so long as they maintain autopoiesis:

> Autopoietic machines do not have inputs or outputs. They can be perturbated by independent events and undergo internal structural changes, which compensate these perturbations […] Whichever series of internal changes takes place, however, they are always subordinated to the maintenance of the machine['s] organisation, condition which is definitory of the autopoietic machines.
>
> (Varela in Maturana & Varela 1980: 81)

These changes are not determined by the environment because this would imply that the system is allopoietic and that the environment specifies change (Mingers 1989: 35). Instead, an interactive process called *structural coupling* occurs, in which an organism and its environment operating as independent systems trigger or select in each other structural changes (Maturana in Maturana & Varela 1980: xx&70). In other words, the behaviour of one becomes the trigger for the behaviour of the other and vice versa, and this process is evidenced through a history of interactions (*Fig. 9*).

What would happen if I applied these propositions to the drawing process as a way of investigating cognitive issues? How useful would it be to consider myself as a system and treat artistic processes as a set of systematic rules by which the evolution of what I

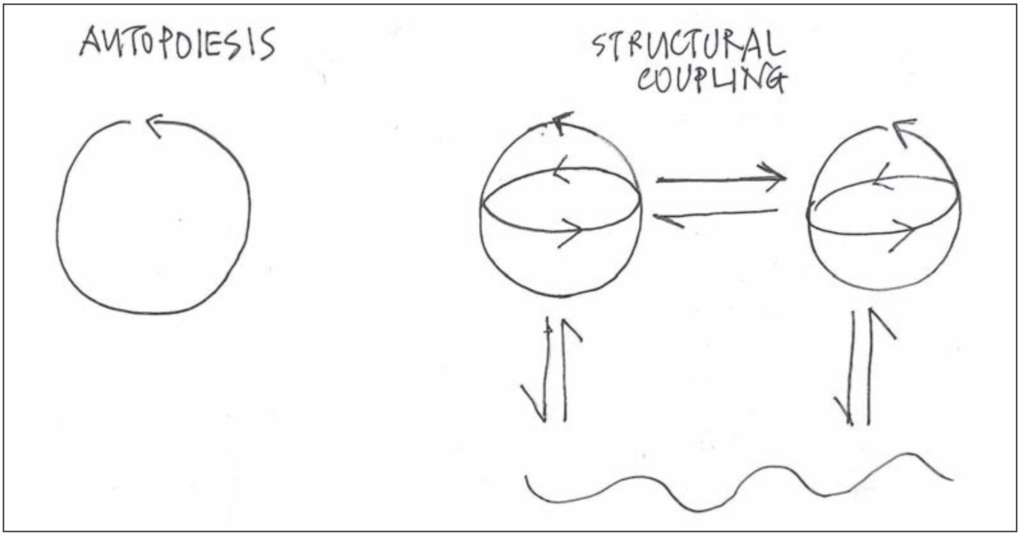


Fig. 9: Diagrams of the interactions of the autopoietic entity copied by the Author from images shown in the film Monte Grande (2004).

know and do is limited to my self-referential domain of interactions? These propositions appeared to me to be a completely new way of considering drawing. They contradicted alternative assumptions that a drawing evolves as the practitioner acts through specific and independent moments of intervention. They also appeared contrary to the goals and values of contemporary Western art, where creativity implies innovation, novelty, expression and individuality (Lowry & Wolf 1988; Winner 1989).

The indivisibility of body and mind

What had initially drawn me to enactive cognition was Varela's recognition of the idea that the mind is not in the head but in the whole environmentally-embedded being (Thompson & Varela 2001).[3] This resonated with my initial conjecture that thinking is a bodily process:

> The mind cannot be separated from the entire organism…the organism as a meshwork of entirely co-determining elements makes it so that our minds are literally inseparable, not only from the external environment, but also from what Claude Bernard already called the milieu intérieur, the fact that we have not only a brain but an entire body.
>
> (Varela 1999b: 73)

Varela defines *enactivism* as embodied thinking. He questions the assumption that cognition is independent of the world and asks whether thinking is a matter of representation at all

(Varela et al. 1991: 150). Thinking is not a form of representation but a matter of enaction in which knowledge occurs from knowing through the body.[4]

He compares enactivism to other cognitive schools of thought, namely *cognitivism* and *connectionism*, both which see the mind as essentially being a matter of input/output i.e. allopoietically. Cognitivism, for instance, explains cognition in terms of the inner mind representing an outer world, much as a computer would. Thinking in this sense is a matter of the re-presentation or symbolisation (Varela et al. 1991: 42). Connectionism accounts for emergent thinking by reference to patterns of networks which can be metaphorically likened to a neural system (Varela et al. 1991: 93). Enactivism, however, is found within the active processes of the loop between the brain, body and environment; it is therefore presentable through action.

As a practitioner I found this particularly interesting because I could identify emergent processes as being physical events. The circularity of the loop necessarily involves processes in movement, such that 'animality invents a mode of being which is inseparable from movement, going towards, seeking in movement' (Varela & Depraz in Rudrauf et al. 2003: 41). Varela's reason for developing an active and physical explanation for thinking was connected to his practical experience of scientific experimentation which required him to mesh the physical with the theoretical. Because of this he realised that science needs to address what has been called the 'phenomenological gap' of reconciling the computational and phenomenological minds (Jackendoff in Varela 1991: 52) – in other words, he was driven to find a way of investigating a more complete picture of the mind.

In comparison, my own interest in embodiment arose because I wanted to know what I was doing as I was drawing. As a practitioner I was approaching matters from the physical event. I was concerned with the interlocking of gesture and intention in which, 'the physical balance and readiness of the entire body equate the accord of mind; in fact, one requires the other and the gesture mirrors the symmetry of the mind and body' (Hill 1966: 7).

I did not therefore think it strange that Varela's processually orientated concepts might be juxtaposed alongside the physical domain of drawing. Whilst his ideas might originally have seemed distant to events in the drawing studio, I now began to connect the two as 'whole organism events' (Thompson 1999). I started to think of drawing as a method by which to explore the world in its own right instead of being simply a matter of representing an outer world.

The idea that knowledge is situated in the context in which it is made

Having earlier found that the artist's thinking process had defied categorisation, I recognised that it might instead be more profitable to investigate drawing within its own context. To do this I had to consider accessing a type of knowledge that was situated in activity in the real-world, because 'biological bodies move and act in rich real-world surroundings' (Clark 1997: 1). Enactivism appeared supportive in trying to achieve this because whilst explaining cognition in a general way, its central reference to process enables it to be situated in many contexts, so it can also be subject dependent:

> …if we wish to recover commonsense, then we must invert the representationalist attitude by treating context-dependent know-how not as a residual artefact that can be progressively eliminated by the discovery of more sophisticated rules but as, in fact, the very essence of creative cognition.
>
> (Varela 1991: 148)

The aspect of drawing which had in the past prohibited its categorisation was its complexity. Compared to other theories about thinking, enactivism appeared to be able to subsume or 'hold' this quality because it involves by its very nature the interaction of multi-faceted and complex processes. Enacted knowledge derives from multiple locations through recurrent patterns of perception and action. Focusing on the relational ways in which these patterns interact, Varela suggests that the mind is 'constituted through complex and delicate patterns of sensorimotor activity' (Varela et al. 1991: 164) and enacts the world in two relational ways:

> (1) perception consists in perceptually guided action and; (2) cognitive structures emerge from the recurrent sensorimotor patterns that enable action to be perceptually guided.
>
> (Varela et al. 1991: 173)

Perception is embedded in the world, yet is constrained. It both initiates and is shaped by the world (Varela et al. 1991: 174). Like a chicken and egg situation, it is 'impossible to say "which started first", in the exchange of stimuli and responses' (Merleau-Ponty in Varela et al. 1991: 174).

The body is the junction of these different identities which intertwine both inside and outside (Varela & Cohen in Rudrauf et al. 2003: 41). I began to consider that perhaps the drawing practitioner was concerned with making visible what it means to experience being at the juncture of these complex events. Drawing might be about developing the practitioner's particular capacity to pick up on the nuances and balances of the interactions which develop between these relationships.

I thought about the kinds of decisions I had to make whilst making a drawing. They appeared to be based on what seemed to be 'right' to me – most meaningful. I speculated about what place meaningfulness might have in the enactive equation. I found that Varela suggests that we create our own meanings through 'selecting or enacting a domain of significance' in the dynamical ongoing process:

> …over time, this coupling selects or enacts from a world of randomness a domain of distinctions…that has relevance for the structure of the system. In other words, on the basis of its autonomy, the system selects/enacts a basis of its significance.
>
> (Varela et al. 1991: 155–6)

I wondered how apt the term ‘significance’ might be when considering the internal compass that appeared to guide my decisions. What if my choice was not simply the product of my personal intention? How then should I view the practical interventions I make in the process of drawing through selection, choice or interpretation? Are these interventions simply part of ‘selecting or enacting a domain of significance’? Or is there an opportunity to suggest that the experience of finding what is significant through co-determination is a far more qualitative device than that supposed by Varela? I wondered if these ideas could be tested through the practice of drawing.

What form does enactive knowledge take?

Shifting from the idea of representation to enaction started to make evident the tenuous and unfixed nature of knowledge that is formed *within* the dynamic interrelations between an individual and his or her environment. Like Varela (and Galbraith), I had started to consider what form enactive knowledge might take.

Varela describes knowledge as being brought forth in the ‘loop’ of self-referencing processes and recursive coupling between organism and environment. It is formed within the process:

> We are talking literally about ‘in-formare’; that which is formed within. In-formation appears nowhere except in relative interlock between the describer, the unit and its interactions.
>
> (Varela 1979: xv)

In enactivism, the individual plays a role in what comes to be known. What the individual comes to know is created from the inter-subjective relationship between oneself and the world; the self is not sealed off but part of the knowledge-making process. Knowledge is subjective because it is not independent of the knower but has the mark of an individual’s structure on it (Varela et al. 1991: 16&150). In other words, what we come to know is generated by and relative to ourselves:

> …we cannot say anything…which is independent of us and with which we cannot interact; to do that would imply a description and a description as a mode of conduct represents only relations given in interactions.
>
> (Maturana in Maturana & Varela 1980: 53).

As an individual’s understanding of the world is brought forth, knowledge arises in the relational domain between organism and environment, unfixed to either. Varela refers to this type of knowledge as being ‘groundless’ or decentralised. He also proposes that emergent behavior does not follow a precise trajectory but comes through the selection of one of many possibilities – not because it has to, but because it can. In this sense enactive cognition is non-objectivist and even purposeless because it is not determined by reference to a 'final cause', but occurs as a consequence of the operation of the system. 'Coherence is a *fact* and not a 'supposed design' (Varela in Rudrauf et al. 2003: 35).

Recognising that enactive knowledge is subjective, unfixed and non-objective would, I thought, have a significant impact on the role the artefact plays in the drawing process. Rather than being the subject of that process, its importance now lay in being the visible and tangible by-product of what had evolved from the practitioner's experience of making. In this case, it became relevant not to ask 'What is the purpose of this drawing?' but rather 'What do I come to know through making this drawing?'

As my focus shifted from the evolution of the drawing to the evolution of the practitioner, my views about the nature of knowledge also changed. I was able to imagine a fundamentally new set of possibilities upon which to base my investigation:

- The drawing practitioner is a unity of body and mind with internal dynamics and a capacity to engage with his/her own processes in the activity of drawing.
- The activity evolves through circular patterns of processes between the practitioner and his/her interactions with the world; each mark is made through renegotiation in relation to its history in a processual way.
- The evolving patterns of behaviour affect and change both the practitioner and the way the drawing is proceeded with.
- The processes and mechanisms between practitioner and world become visually evident as the activity progresses. The drawing becomes the externalised evidence of the activity, but in doing so also forms part of the world outside or 'other'.
- The practitioner's self-awareness of engaging with the drawing as 'other' is part of the evolving process in which patterns of behaviour arise. She/he is capable of dually engaging in the process and of observing that process as part of that engagement.
- The practitioner observes the outcome of mutually affected selections through processes which she/he may describe, for instance, in terms of constraint, intention or chance.
- The practitioner's knowledge and understanding emerges through the circular patterns of experiential engagement between self and other.
- The practitioner creates his/her own world and context of meaning through experience. In essence, one creates oneself through engagement with the activity.

Notes

1. Autopoietic theory is outlined in texts by Maturana 1974, Maturana & Varela 1975, Maturana 1978, Varela 1979, and Maturana & Varela 1980 (comprising two essays by the individual authors).
2. The interest in self-organisation as a means by which to consider cognition has its roots in the cybernetic era of cognitive science in the 1950's, which produced an array of explanations including those which defined cognition as computation i.e. computations of symbolic representations (Varela 1991: 40).

3. Varela's proposal that cognitive processes are rooted in the body's interactions with the world, synthesizes elements of autopoiesis with phenomenological traditions in philosophy and psychology. *The Embodied Mind* is thus a multidisciplinary work in which Varela, Rosch and Thompson, draw together aspects of biology, cognitive science, psychology, and philosophy.
4. This assumption places Varela within the arena of Biology of Cognition which broadly deals with human experience as wholeness. In this regard, he can be identified with others such as Gregory Bateson, Margaret Mead, Heinz Von Foerster, Gordon Pask and Norbert Weiner.

Chapter 4

Accessing Enactive Knowledge Through the Lived Experience of the Practitioner

The role of experience

Varela proposes that embodied knowledge can be accessed through experience. I had registered this during my initial superficial readings about enactive cognition, but the idea became more significant over time and helped me to retrospectively understand why my enquiry had eventually shifted from being theoretical to practical.

Influenced by Merleau-Ponty[1], Varela suggests that the body as a lived experiential organism serves as a conduit for us to understand how the embodiment of knowledge from experience occurs (Varela et al. 1991: xv). The individual's experience is central to the production of relational knowledge because what comes to be known is enacted through the bodily history of the individual; 'experience is always that which a singular subject is subjected to at any given time and place, that to which she has access "in the first person"' (Depraz et al. 2003: 2).

The basis for examining experience in the First Person can be traced through the constructive path of Varela's work. Based on autopoiesis, enactivism emphasises the individual's ability to define his/her own point of view of the world (Thompson et al. 2005: 42). Investigating our own cognition in the First Person is valuable because 'our direct knowledge of subjective experiences stems from our First Person access to them' (Chalmers 2004). In comparison, a Third Person approach involves others observing our experiences from the outside.

Like Merleau-Ponty, Varela suggests that perception is always a lived experience in which the body is central. Philosophy, however, does not easily deal with the pragmatic and embedded aspects of human experience because philosophers tend to produce theoretical discourses about experiences rather than recapture them (Varela et al. 1991: 19) – the best philosophy can do is to provide for 'immediacy after the fact'.

To overcome this dilemma, Varela fuses the central role given to the lived body in terms of enactive emergence, with the phenomenological emphasis on experience as a means of understanding mental states. By doing this, he hopes to address the 'hard problem'[2] of explaining the subjective nature of our experience (Chalmers 1995: 201).

As I progressed with my own enquiry, I started to ask myself how in practice I could provide an account of my own experience of drawing as a practitioner? How could I observe my experience whilst at the same time living it? Would my observation effectively change the experience into something different? How would I be able to record this without simply ending up with a theoretical discourse about life after the fact?

These issues are partially addressed by Varela when he talks about the necessity of describing what we experience as we experience it (Nagel 1974). Our description becomes part of the continuum of the loop between physical structure (outer) and lived experiential structure (inner). In other words, our observation becomes part of the experience itself.

Similarly the experience of making art has also been described as a continuous process. For instance, Dewey had defined experience not as an independent event but as the 'consummation of a movement' which can incorporate a vast array of diverse elements (Dewey 1934: 38). If experience was fluid in nature, I conjectured that the movement within the practitioner's account might demonstrate the loop in which the practitioner actively 'brings forth' his/her own cognitive domain.

To simply rely on one practitioner's account for research purposes might of course be criticised as being unreliably subjective. But what if the subject under examination was not the individual *per se* but the account of their experience? Surely the subjective nature of that account would become part and parcel of what was being observed. If this was the case, what would be important would be the management of one's own subjectivity rather than the eradication of it.

Despite its wide range of meanings, Varela uses the term *phenomenology* to mean 'access to First Person data which is scientifically credible' (Depraz et al. 2003: 8). Scientific credibility for my purposes would not necessarily mean being 'objective' by keeping a distance between knower and known as this was precisely what had prevented me from gaining the 'inside' story in the first place.[3] Credibility instead could come from the honesty and rigour with which one records the movement of one's account.

Drawing as an act of 'becoming aware'

Because there appears to be 'no direct, hands-on, pragmatic approach to exploring experience in the First Person' (Depraz et al. 2003: xviii), Varela had to grapple with the difficult issue of how one could observe what one was living through. To meet this need he developed a dialogue between descriptions of 'living systems' (from autopoiesis) and human experience (from phenomenological and Buddhist philosophical traditions). In his posthumous book *On Becoming Aware: A Pragmatics of Experiencing*, he suggests that the transformations inherent in experience can be accessed and investigated in a disciplined way through 'the act of becoming aware' (Depraz et al. 2003: 1).

'Awareness' is the reflective and disciplined meta-cognitive act inherent in First Person experience which allows us to examine that which we live through. This state of being can be achieved by suspending one's own beliefs through the co-ordination of body and mind in order to simply be present with one's experience as one is experiencing. In this, Varela borrows from the Buddhist practice of 'mindfulness', which is an attentive state of being in which one is able to reflect whilst living the experience. Attaining a state of mindfulness allows an individual to experience dispassionately through open-ended reflection. The aim is to maintain a presence which:

> …is attentive not by becoming concerned with the contents of the thoughts or with the sense of thinking, but rather by simply noting 'thinking' and directing […] attention to the never-ceasing process of that experience.
>
> (Varela et al. 1991: 62)

Whilst I do not intend to examine mindfulness in any great depth here, I want to pay attention to the way in which awareness and mindfulness both enhance one's capacity to contemplate one's own conscious activity. Through these practices one can become aware of how the mind clings to the idea of 'I' and 'mine' as aspects of the fixed sense of self, and through this start to get a glimpse of the non-unified or decentred self. The tension between these two senses of self are recognised in Buddhist philosophy as being centrally important in understanding the nature of the human condition.

Varela partially attributes developing the method of awareness to having been mindful of his own experiences. He and his co-authors give examples of how they achieved a sense of awareness[4] within their diverse practices[5], suggesting that this 'way of being' is malleable to many contexts rather than being discipline-specific. Despite the fact that awareness seems by its very nature impossible to pin down, Varela and his co-authors structurally break down the act as a cycle that can be analytically dissected into five stages. Because there are aspects of these stages which I found to be resonant with the experience of drawing, I briefly outline these stages below:

The basic cycle

1. The movement of epoché, incorporating the three phases of:
   Suspension;
   Re-direction of attention and;
   'Letting go'
2. Intuitive evidence as the criterion of truth.

Optional elements

3. Expression of the content of each act.
4. Inter-subjective validation of findings.
5. The becoming aware of the multi-layered temporality of each act.

'The movement of epoché' forms the minimal cycle of the reflecting act of becoming aware, which at its heart involves contemplation rather than manipulation (Monte Grande 2004). This involves a movement of self-induced suspension where we simultaneously re-direct our attention and a letting go of what we expect to find.

The first phase of reflecting involves 'suspension' which connotes a break with ones 'natural attitude' (Depraz et al. 2003: 25). For instance, when recalling an experience one suspends one's conscious thoughts in order 'to let [the] moment come back to me', and continue with this in order to allow the act to 'orientate me to pay attention and to accept what comes back' (Depraz et al. 2003: 28). This act of suspension is often experienced as a state of emptiness where the quality of recall is not strong. One has to be on guard against prematurely filling this void with verbalisation or denial ('I can't remember').

As we move from inactivity to activity, we stop looking and let things happen. This is where a simultaneous qualitative 'change of attention' and 'letting go' occurs. When redirecting your attention from exterior to interior 'you have to inhibit your outer actions in order to leave open a place of apperception, for turning inward' (Depraz et al. 2003: 39). As activity tunes out the spectacle of the world one can substitute the 'apperceptive' act for the act of perception (Depraz et al. 2003: 31). Varela's advice is 'to let go of looking for something and let something find you instead' (Depraz et al. 2003: 37).

These three elements of 'epoché' emerge as a dynamic movement. Suspension and redirection involves a return to yourself (contraction) – letting go is an opening to yourself (dilation). Varela visualises these contradictory yet complementary simultaneous movements in diagramatic form (*Fig. 10*).

Certain qualities of the movement of epoché were familiar to aspects of both my experience of drawing and those reported by others. The way in which the activity of drawing appears to make everything else fade into the background makes it similar to an act of self-induced suspension. Descriptions of being 'lost' in the activity were not uncommon:

> I sometimes look at the drawing and think I don't understand how I got here. It's almost as if…I'm not saying you go into a trance when you're doing these things, but you are… in a sense, you are going into a mode of thinking that you suddenly kind of snap out of.
>
> (The artist Richard Talbot in interview)

I could also equate the phases of redirection and 'letting go' with how I had to have faith to commence a drawing whilst at the same time not fully understanding what I am doing – in fact, just that kind of speculative intention Newman describes above. Very often in the act of making, one has to forget oneself and just see what happens. This has a double effect; 'It must both make us forget at the same time as it makes appear' (Piquet in Depraz et al. 2003: 40).

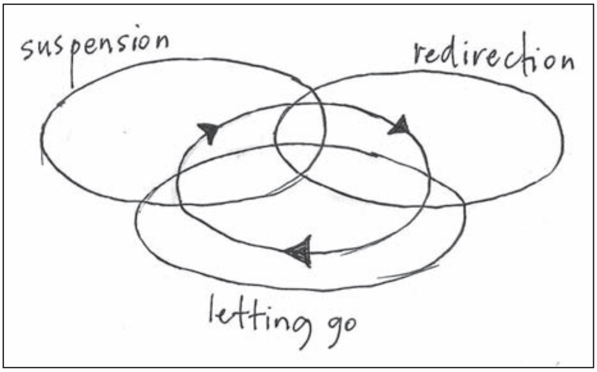


Fig. 10: The basic cycle of *epoché* copied by the Author from Depraz et al. 2003: 25.

Other elements in Varela's description of awareness were, however, more difficult to reconcile in practice. The second and third elements of expression and validation seemed to be concerned with communicating and objectifying awareness.

His definition of the second stage of intuitive fulfillment, for instance, was not derived from practice, but was based on Husserl's philosophical work. Put briefly, Varela explains this as an act which makes the initial inaccessible temporal movement of epoché more accessible – a kind of 'bringing forth' through its own separate little epoché (Depraz et al. 2003: 50). But when I came to think about this in relation to drawing I questioned whether this dissected theoretical description of intuition might be useful to the practitioner.

'Expression of awareness' (stage 3) was necessary because without this the experience of epoché might otherwise remain internal and unsaid (Depraz et al. 2003: 66). Without the 'accumulated know-how or theoretical articulation…across generations, a refined practice would be impossible' (Depraz et al. 2003: 21). Expression might take many different forms, but only verbal expression could allow awareness to be open to what Varela calls 'inter-subjective validation' (stage 4).

It was difficult to imagine how aspects of drawing that appeared resonant with re-direction, change of attention and letting go could either be verbally articulated or require validation except perhaps for the purposes of teaching. Although an artistic practitioner might use some form of intrinsic internal validation, I was unclear about whether validation (in terms of providing proof to either oneself or anyone else) had any relevance in the process of simply making art, although research may be another matter. Varela himself was unclear about how practitioners validated their own data, saying that, 'we don't yet have the means of differentiating between the problems of validation specific to different domains of research' (Depraz et al. 2003: 79). He did however make a distinction between the 'expression of the product of the reflecting act' (i.e. the outcome) and 'the expression of the reflecting act itself' (i.e. the act), a distinction I would later return to myself.

As I considered whether awareness might be a useful way of accessing the experience of drawing, a number of questions came to the fore:

- Could awareness be attained through the activity of drawing?
- If so, was there any practical need to break down the elements of awareness as Varela had done? Might this simply be important in the context of research rather than to the way in which practitioners worked outside that context?
- Varela incorporated elements of expression and validation as part of the structure of awareness. Was this simply to satisfy the scientific context of his work? Were these stages superfluous to the practice of art? Were they part of the experience of making art? Was there any need for a drawing practitioner to be concerned with 'scientifically verifiable methods' even in a research context? What effect would it have on the process of art to frame matters in this way?
- Varela suggested that intuition could exist without being expressed. Is there a possibility that in creating drawings the practitioner continually and inherently uses meta-cognitive processes and that these are continually being expressed in the making of the work?

- I questioned Varela's notion that only verbal expression could bring about inter-subjective confrontation, especially if one considers that drawn non-verbal expression might speak to us in these ways, albeit 'outside' the rules of verbal communication.
- Overall, one cannot ignore the fact that Varela was still attempting to address pragmatic issues by using philosophical ideas. Is this of limited use to the drawing practitioner?

Varela's role in my enquiry

The aim of my enquiry has never been to test out Varela's theories through the practice of drawing. His theories became useful because they allowed me to keep in mind what my role as practitioner would be in relation to the knowledge I gained from practice. He became my critical companion as was Galbraith, Milner, Franck, Zwink and Talbot at various points during my venture.

Perhaps the most significant consequence of investigating what I do by reference to Varela's ideas is the insight I have gained from his unique way of dealing with far-reaching issues in an attempt to answer questions that were grounded in his biologically driven practice. The way in which he tried to find an answer to these questions conceals a desire to get to the heart of understanding what are in fact deeply philosophical issues. It is as if he is able to ask these questions from outside his own discipline by using biology to look at the world in different ways. The nature of this type of enquiry had something to teach me about how I might answer questions that arise from within my own context.

Varela acknowledged that familiarity with the act of becoming aware made it easier to systematically observe, and that training in awareness was more than just obtaining a skill: it requires us to become skilful in the qualitative aspects of reflective activity (Depraz et al. 2003: 101). In fact, he uses the analogy of drawing to illustrate this:

> Describing your experience is no more a natural act than drawing. In fact, that's a pretty good analogy, if you abstract from the difficulties of learning how to draw the line, the actual embodied skill of your hands, for just like in learning how to draw, you have to translate what you have observed of yourself into what you note.
>
> (Depraz et al. 2003: 102)

What seemed important to do with drawing was to 'grasp what the thing says in its own language' (Depraz et al. 2003: 69). In terms of how I would go about doing this, I took Varela's advice to learn 'on the fly'. In this, his inspirational outlook only took me so far, because paradoxically (and as I was to find out), 'what we study is at the very centre of the methodological practice we propose'.

Notes

1. Varela acknowledges how Merleau-Ponty's philosophical work draws on earlier work by Husserl who attempted to examine the structure of experience and that this in turn had expanded on Brentano's work whose concept of 'intentionality' defined all mental states as being about something (Varela et al. 1999: 15–16). Varela had difficulty with these phenomenological reflections because they were of limited relevance to practical situations.
2. In contrast, the 'easy problem' attempts to explain the physical functional capacities of the brain by using conventional scientific methods such as response, monitoring and reportability.
3. Identifying the need to record and make explicit experience in these practical ways distinguished my enquiry from others concerned with more theoretically-based investigations of art as an enactive phenomenon (e.g. Noë 2004 and Keane 2006).
4. It is interesting to see how each author's discipline describes similar phenomena in different terms. *Awareness* is variously described as a 'first-hand account', 'introspection', 'first person access' and 'phenomenal data' (Depraz et al. 2003: 3).
5. Their examples include for instance, a debriefing interview (guided introspection); shamatha (seated meditation); stereoscopic vision; a psychoanalytic session; and a writing session (Depraz et al. 2003: 22).

Part II

The First Phase of Methodology – Using the Experience of Others as Subject: The Limitations of a Third Person Methodology

Chapter 5

Experiential Accounts of the Activity of Drawing by Others – Marion Milner and Frederick Franck

Keeping in mind the evolution of the practitioner, I needed to find a practical and rigorous way of examining the practitioner's experience of drawing. My first step was to locate experiential accounts by other practitioners, where revelations about thinking had emerged through the generative experience of making drawings. I had a hunch that I should be looking for accounts that were concerned with interrogating *how* things are, rather than *what* things are.

Two texts appeared to be particularly pertinent. The first was Marion Milner's book *On Not Being Able to Paint*, which is an account of how she made discoveries about her own creative process whilst being immersed in unplanned 'free' drawings (Milner 1971). The second was Frederick Franck's *Zen Seeing, Zen Drawing: Meditation in Action*, in which he describes drawing as a contemplative activity (Franck 1993).

Neither text makes any direct reference to the notion of embodied thinking. Indeed Milner interprets her drawings through the spectacles of psychoanalysis,[1] whereas Franck describes drawing in terms of personal acts of meditation. For both however, the experience of drawing became a way of making discoveries about the nature of thinking with regard to themselves and the world at large. Both allude to having formed a conscious understanding about their own parts in the dialectic between themselves (self) and their drawings (other) from engaging with the activity. Both also record their self-revelations about the nature of togetherness and separateness, because for them the process of drawing revealed an integrated mode of thinking.

As I began to look at their work in detail, I started to pay more attention to the connection between their findings and Varela's idea that thinking enactively emerges through the autonomous and co-determined processes between individual and environment. The following chapter explains why I found these texts fundamental in strengthening this connection.

Marion Milner – Experiencing the dialectic

On Not Being Able to Paint is Milner's account of her quest to learn how to paint. Whilst investigating this, she became aware how previously hidden aspects of her creative process became revealed whilst making drawings that were not consciously willed or planned.

Her observations were built on a previous awareness that there was quite often a duality in her ways of thinking; there was 'all the difference in the world between knowing something intellectually and knowing it as lived experience' (Milner 1986: 14). She described this duality by reference to what it was like to experience these different modes of thinking. Having a 'narrow focus' was 'seeing life as if from blinkers and with the centre of awareness in my head' (Milner 1986: 15). A 'wide focus' however involved her 'knowing with the whole of my body', yet this ignored the laws of logic and was unknown to her (Milner 1986: 125). This 'wide focus' revealed unexpected aspects of her thinking process whilst the 'narrow focus' often took precedence.

Milner charted similar experiences during her engagement with different ways of drawing and described the effect these different processes had on her mindset. Her method relied on her ability to identify matters through the experience of making her drawings. Deliberate attempts at image composition from preconceived ideas using a narrow focus of attention were less successful in representing the nature of her subject matter than drawings which had been produced by using the wider focus by following what her eye liked (Milner 1971: 13). *Fig. 11* illustrates two accounts of what it was like to engage in these different processes.

As I read these accounts, I recognised that Milner had been struggling as I had to describe the difference between making a drawing that held within it some essence of the thing it represented and making a drawing that did not. For Milner, this had something to do with the push and pull between her mindset and the drawing – between the intent required by the narrow analytical focus, and the 'letting go' asked for by the wide focus. Her process of making appeared to emerge from the dialogue or dialectic between these two mindsets:

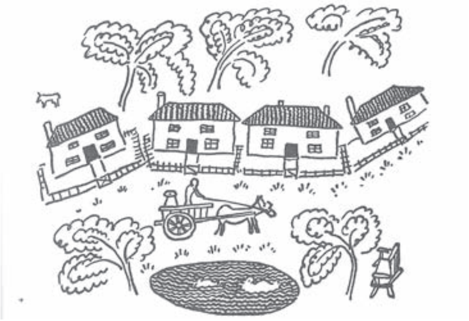
> But there is something in between drawing random lines with all thought shut away, and trying consciously to make the lines follow a mental image. This is to draw a little at random, spots shadings or lines, then feel what these suggest and let the line go on holding both it and the idea it suggests in mind, as it were organically with a whole body awareness, not trying to develop any thought line by line, but letting the hand go where it will and letting the line call for an answer from the thought.
>
> (Milner 1971: 72)

This was not a matter where one mindset prevailed entirely because in practice each existed simultaneously. For instance, far from being exclusively the subject of freewill, conscious planning and will-power both played a role in the spontaneous process of making drawings, particularly by shutting out interruptions and maintaining the attention necessary to frame an emptiness in which to work (Milner 1971: 104).

As she became aware of the generative nature of this dialectic process, Milner's terminology became more nuanced. In order to describe what drawing 'was about' she felt that she had to substitute 'the word "expression" of certain relationships into "experiencing" certain relationships' (Milner 1971: 115), because:

> …the phrase 'expression of" suggested too much that the feeling to be expressed was there beforehand, rather than an experience developing as one made the drawing.
>
> (Milner 1971: 116)

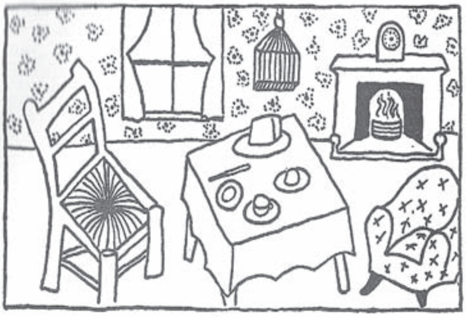
The Narrow Focus



One drawing certainly illustrated the curious lengths this narrow focus could lead to. It was not a free drawing but a deliberate attempt at imagery composition and at first it was not at all clear why two of the houses were at right angles to the slope of the hillside; the drawing defied the elementary facts of gravity and yet I felt a determined impulse to draw it like that.

But now it just seemed likely that it was a matter of narrow focus, the two end houses were thought of so much in isolation that each had its separate base-line of the earth regardless of the fact that it was “together with” other items in the picture (Milner 1971: 12–13).

The Wide Focus



…I had recently found that whenever a drawing showed more or less correct perspective, as in drawing a room for instance the result seemed not worth the effort.

But one day, I had tried drawing an imaginary room and after a struggle, had managed to avoid showing the furniture in correct perspective. The drawing had been more satisfying than any earlier ones but I had no notion why.

Now it occurred to me, that it all depended upon what aspects of objects one was most concerned with. And so with the chairs, the important thing about a chair seemed to be that it is below one, ready to support ones weight; and that was how I wanted to draw it…

It was as if one’s mind could want to express the feelings that come from the sense of touch and muscular movement rather than from the sense of sight…It seemed one might want some kind of relation to objects in which one was much more mixed up with them than that (Milner 1971: 9–10).

Fig. 11: Examples of Milner’s drawn and written descriptions of the differences between the narrow focus and the wide focus (adapted by the Author from Milner 1971: 9–13).

The dialogue between 'inner' and 'outer' was particularly revealed whilst making the more formal aspects of drawings.[2] For instance, in the analytical narrow focus, one consciously made an outline having a sense that it would promote a separation between inner and outer. In the wider focus however, one experienced making an outline as if it promoted a wholeness, because it took on 'a greater willingness than those made by conscious effort to combine the fragmentary nature of direct sensory experience in an imaginative whole' (Milner 1971: 17).

It was the act of 'letting go' which promoted connection rather than separation. Milner began to see how the illusion of the self as a separate entity to the outside world appeared to be maintained whilst involved with the narrow focus. This was not necessarily a safe experience; an 'uncomfortableness' accompanied the sense of losing boundaries and engaging with the fear of relinquishing the emotional need to keep everything separate and in its place (Milner 1971: 16). It was easy to see how one might shy away from drawing if it meant having to challenge the fixedness of one's views about one's place in the world:

> People must surely be afraid, without knowing it, that their hold upon reason and sanity is precarious, else they would not so resent being asked to look at visual experience in a new way, they would not be so afraid of not seeing the world as they have always seen it and in the general publicly agreed way of seeing it.
>
> (Milner 1971: 17)

I began to understand why being faced with what could be described as the indefinite nature of 'not knowing' might make making the prospect of drawing so hard to face, and how the experience of drawing in these terms might equally be revelatory and alarming. My journal revealed that I was sensing something similar as I formed a suspicion that I might only be able to understand things in a deeper way if I were to start letting go and engage in the activity itself (*Fig. 12*).

I noticed how Milner's account of what it felt like to engage in the deliberate and premeditated attempt to draw with a narrow focus resonated with Varela's cognitivist description of a human mind representing an outer world. The mindsets of each kept everything divided. In contrast, Milner's awareness of the connectedness between herself and the object she was drawing, that was revealed when using the imaginary wide focus, had similarities to the act of letting go in the enactive process. Experiencing the unplanned wide focus was similar in nature to Varela's awareness of how one's self was integral, and in fact connected to everything in that process. It was as if Milner's descriptions were driven by what it meant in practice to locate the selfless

…I know the only way is really to give up and immerse myself in drawing and observing my own experience. In doing that though, there are repercussions about how I generally then go about the rest of my daily life. Surrendering, even for a few hours produces a mindset which is submerged, lost and coming up for air after that is disorienting and de-stabilising.

Fig. 12: Entry from the Author's journal.

sense of self talked about by Varela, and that drawing might be an activity in which the merging of these descriptive boundaries could be practiced.

Milner shows us how it is possible to observe the selfless sense of self that occurs as one draws through an exploration of the physical processes involved. She describes self-observation as being 'a state of reciprocity', involving a balance between the dreamy state of losing conscious attention whilst at the same time maintaining a responsive alertness to what one is making on the paper:

> In fact, it was almost like playing a game of psycho-analyst and patient with oneself, one's hand 'talked' at random, the watching part of one's mind made running comments on what was being produced.
>
> (Milner 1971: 72)

This reciprocal mood depended on remaining in contact with the activity and maintaining a balance between 'ideas and action', something she describes as '*contemplative action*' (Milner 1971: 153). I thought it might be possible to develop this capacity in order to better understand different types of thinking through drawing. For me, these descriptions undoubtedly echoed Varela's vocabulary but in ways that specifically pertained to the act of drawing.

I speculated that Milner had also observed what it was like in practice to experience what Varela had called the relational aspects of knowing – where knowledge was directly related to oneself. This helped to partially address an issue I had previously found difficult to discuss – the issue of what I had meant when I had placed the condition upon myself at the beginning of my enquiry, to ensure that my findings would be meaningful to the practitioner. The term 'meaningful' is of course highly subjective, and I had had no ability at that time to logically defend why what was personally meaningful to me would be relevant to anyone else (and therefore 'valid' research). It was only as I listened to Milner's accounts that I started to become more certain and give more value to what I meant by 'meaningful'.

Varela's explanation of 'meaning' as deriving from how the individual selects or enacts a domain of significance had been useful, but Milner added to this by describing what it was like to experience this transformational process of enacting a domain of significance. 'Meaning' was now bound up in how, through subjectively experiencing this enactive process of relatedness, one could come to understand the world in a different way.

Milner anticipated how the subjective nature of this type of relational knowledge might be received generally when she wrote, 'I could already guess that it might be prejudice that made the knowledge of one's own part in the transfiguration detract from the value of it' (Milner 1971: 28).

These comments I believed, were directly related to what had motivated my own enquiry; I had wanted to know why knowledge about and acceptance of tacit and personal thinking processes were so absent and, I conjectured, undervalued in art education. They also directly addressed why the apparent subjective nature of describing experience in the First Person was so unacceptable in the context of artistic research, where objectivity is so often the evaluative criteria for these methodological processes.

Frederick Franck – Drawing as a whole

Like Milner, Frederick Franck also wrote about the connectedness he perceived from the experience of drawing (Franck 1973 & 1993). Franck's description of what he called 'seeing-drawing' involved the practice of a self-reflective capacity similar to that described as 'awareness' or 'mindfulness'. He proposed that we could come to develop an awareness of ourselves through the activity of drawing.

Franck's belief that drawing was a 'way of being' arose from his perception of that 'seeing and drawing had fused into one single undivided act' (Franck 1993: ix). Experiencing the fusion of these acts demonstrated to him the indivisible nature of the artist and the drawing process and transfigured his understandings about the world at large. In his book *Zen Seeing, Zen Drawing: Meditation in Action* (Franck 1993), he gives an account of his own experiences and then encourages his reader to partake of 'seeing/drawing' so that they may experience this way of being for themselves.

He suggests that the practitioner can attain a state of awareness by cultivating a certain way of seeing. The first step involves de-conditioning the eye to understand the different qualities of 'looking-at' and 'seeing'. To draw whilst simply looking-at one's subject matter is an issue of 'aesthetic estrangement' which comes from a disconnected state of being (Franck 1993: 2). Drawing can however prompt the maker to become connected with what they are observing. Through the concentrated attention that drawing evokes, where 'all choosing planning thinking stop[s]' (Franck 1993: 36), a manner of seeing can be brought about in which the observer (subject) and observed (object) become indivisible. In this way, the practitioner comes into contact with the world about them in a re-connected and empathetic way. The practitioner is not an independent entity because the act of drawing effectively co-joins the practitioner and what (s)he sees. Having recognised this, Franck comes to understand something of the indivisible nature of the self through practice. He suggests that the following drawing exercise might assist his reader to start seeing from themselves (*Fig. 13*):

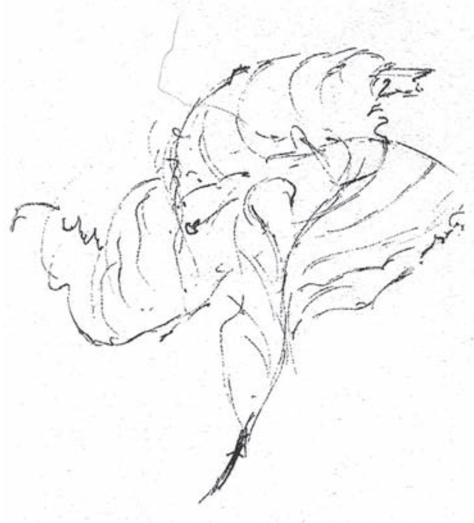
In this exercise, Franck encourages us to disengage with our conscious mode of thinking by focussing on activity. By actively seeing in this new way, the practitioner might also perceive a change in the quality of their accompanying mindset:

> Almost at once the very quality of my perception changed. Nothing interfered now between my eye and what it 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 1993: 6)

For Franck, these experiences were transformative in nature. He identified that the process which had created these substantial changes had a contemplative quality. Both he and Varela made connections between meditative practices of Eastern philosophy and the methods they respectively developed by which to examine what we live through:

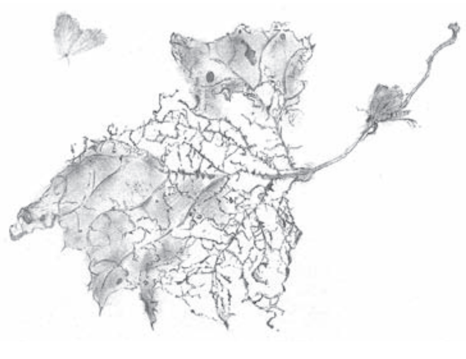
- Start with pencil and paper.
- Avoid all small talk.
- The focus is on experiment and the non-competitive character of the activity.

- Pick up a leaf from your garden.



- Look at the leaf as intensely as you can for 4–5 minutes. '*Notice that it is not just a flat oval thing. The slender stem becomes its main vein, and it and the secondary and tertiary veins form a system of channels, of blood vessels so to speak, through which the sap rising from the earth through the trunk of the tree, through branches and twigs, reaches this leaf to nurture it. It is far from a mere herringbone pattern – it is alive!*'

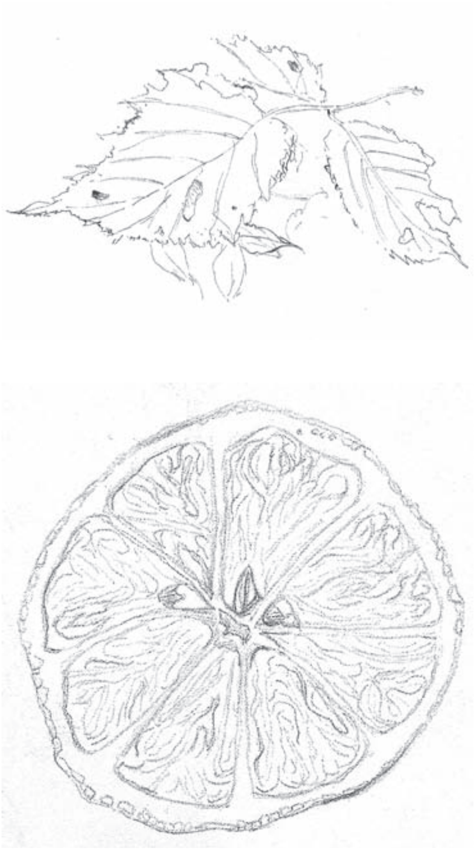
- Place the leaf on the upper left corner of your paper, look at it again for a few minutes, then close your eyes and try to visualise it in every detail while you hold your pencil loosely in your hand with the point resting on the paper.



- '*Now open your eyes and let them focus on the leaf. You are no longer merely looking-at the leaf, you may begin to see it!*' Keeping your focussed attention on the leaf, '*…let the point of your pencil start to glide on the paper, and feel as if the pencil point were caressing the contours of the leaf…*'

- Do not check the marks the pencil makes on the paper, '*Just keep on feeling that the pencil's point is caressing that contour*' for half an hour or more.

- '*You will become aware that your pencil has, almost on its own, been in touch with other, unsuspected contours as they strike you*'.



- ‘*…let go of your expectations of how a drawing of a leaf should look. Even if the drawing turns out not to look like the leaf, it will reflect some of the truth of the leaf, its contours and textures, its being-as-it-is*’.

- Start another drawing, placing the leaf as before, ‘*…letting yourself check once in a while where the pencil is going*’.

- ‘*“I wonder how to draw that billowing leaf with its hills and valleys?” you ask. The answer is, there is no how-to. There is only seeing! Just follow some of those secondary veins very sensitively…and let your pencil follow them from there over hills and valleys to the edge of the leaf, and lo and behold, the leaf begins to billow, the edges begin to curl where you see them curl*’.

- If you squint you notice at some points the contour stands out sharply against the background. Press a little harder with your pencil when you see a sharp contrast. ‘*The line has become an expressive line… it expresses light and dark…even…a third dimension*’.

- Start the next drawing with a dry run, an essential prelude to whatever you draw. ‘*The dry run consists of gesturing on the paper the place, the shape and the size of whatever you are going to draw before you allow the pencil to come into action…. Let your finger gesture it in its actual size where you want it to be*.’ In this way the image you are about to draw imprints itself on your awareness, and then you can start drawing with a pencil.

Fig. 13: Franck’s drawing exercise to practice the way of seeing/drawing (adapted by the Author from Franck 1993: 49–77).

> As I continued drawing…it became clearer that seeing/drawing was indeed a Way, in the Oriental sense of the word. It is my Way of meditation. The eyes not closed, but as wide as possible!
>
> (Franck 1993: 18)

Franck did not dissect the movement from 'looking-at' to 'seeing' in the way that Varela did by structurally breaking down the act of awareness, but one can pick out resonant characteristics in each author's way of proceeding. Franck's act of awareness was self-induced through engagement with drawing. In the drawing exercise above, I could equate closely observing an object to the exclusion of all else with Varela's description of suspension as a 'break with the natural attitude', which required blocking out the rest of the world (Depraz et al. 2003: 25). It was the act of drawing which shifted Franck's attention from events outside himself to focus on events inside his *self*. Becoming connected through the act of seeing allowed him to break free from the stranglehold of representation by letting go of his expectations of how a drawing should look (Franck 1993: 55). This appeared to me to be an actual example of Varela's structural dissection of 'the temporal dynamic of the intuitive act' (Depraz et al. 2003: 48).

Summarising the processes used by Milner and Franck

I considered that Franck and Milner had added to Varela's description of awareness because they practically demonstrated the mechanisms Varela only talked about. Most significantly their pragmatic accounts revealed that their processes involved both intelligence and feeling. Looking-at was cold-hearted, whereas seeing was a matter of compassion which touches the 'hsin' or heart (Franck 1993: 36). Franck described drawing as a way of thinking that involved the heart:

> It is the Kokoro [The Japanese word for mind/heart, the spiritual core, our soul] that brings drawing to life, that transmits its spirit to the one who views it. The drawing becomes the communication from heart to heart, from Kokoro to Kokoro. Art is the function of the Kokoro.
>
> (Franck 1993: 37)

These almost spiritual descriptions of what it means to engage in the experience of thinking through drawing had been surprisingly absent in other accounts of thinking and drawing. They appeared to me to be an important part of the process of making for a practitioner and should not, I thought, be excluded because they were a necessary part of the logic which developed through practice.

Franck and Milner's experiential accounts, whilst only two of many were relevant for the particular way in which they had made discoveries about their experiences. Each practitioner made not only a visual record of the experience, but recorded the qualitative differences in awareness which were integral to the perception of that experience. I had not focussed on them as practitioners *per se*, but on their accounts which demonstrated that drawing was a particularly rich example of the enactive phenomenon.

Both practitioners demonstrated a capacity to engage with their own processes whilst drawing, and to make personal discoveries through a process which moved between the known and the unknown. The inner gauge directing these transformative experiences appeared to be driven by the way in which each responded to the qualitative changes in their experience as they occurred. This gave me some idea about what it meant for the practitioner to 'enact the world in relational ways'.

Each referred to aspects of drawing which were readily identifiable in the vocabularies of enactive cognition and First Person methodology without making direct reference to these ideas. They indicated that Varela's ideas were very much in evidence in the experience of the practitioner and that drawing could be a medium through which to investigate cognitive issues. Each account could be considered an enactive account for three particular reasons:

1. Thinking with mind and body

Milner and Franck both challenge the importance of thinking with the head because they refer to modes of thinking which occur through the bodily organism of the practitioner. Milner refers to this as 'contemplative action'. Franck suggests that seeing is effected 'by not "looking-at" it from the conditioned head, but by seeing it from the belly' (Franck 1993: 9). Seeing/drawing is the mechanism which disconnects thinking with the head, where knowing what one is doing is forfeited in order to fully connect through the body.

2. A lack of boundaries

Both authors make reference to an awareness which develops from the interrelatedness perceived when one loses conscious concentration. This arises as one perceives that the boundaries between self and subject are being dissolved through the act of drawing. Both practitioners suggest that the experience of being fully involved in drawing can evoke a state where one forgets oneself, and in this sense knowledge arises from a state of emptiness. This is evocative of the condition of nothingness or 'wrongheadedness' (Harding 1981: 1) often referred to in Eastern Philosophy where:

> Those who see into the Conscious are able to create all kinds of things. Those who see into the Unconscious embrace all things within themselves.
>
> (Suzuki in Brennan and Walsh 2005: 88)

3. The relational effect

Engagement for Milner and Franck did not stop once certain realisations about drawing were made. This knowledge was then fed into what they knew already, in a way that is similar to Varela's characterisation of the relational and recursive 'loop' of enactive thinking. Varela described how the individual emerged within a bounded system through a circular and continuous process. Each artist was also able to individually make this connection (*Fig. 14*):

Franck	Milner
Having discovered the artist within me, I began to see the artist-within others, sometimes hidden within others, the human core of EveryOne. (Franck 1993: x).	*For in the satisfying experience of embodying the illusion there has in fact been an interchange. Since the object is thereafter endowed with a bit of the 'me', one can no longer see it in quite the same way as before; and since the 'me', the inner experience, has become enriched with a bit more of an external reality, there is now a closer relation between wishes and what can really exist…In fact, the aesthetic experience has modified the wish, moulded a bit of oneself into a new form by giving it a new object; and at the same time it has given a previously indifferent bit of the outside world a new emotional significance.* (Milner 1971: 131).

Fig. 14: Examples of descriptions of the 'relational effect' of knowledge by Milner and Franck.

In these ways, it appeared that the experience of drawing might offer opportunities for making 'the transcendent characteristic of indeterminacy' in this loop to become explicit (O'Callaghan 2002). Reviewing these accounts made me consider afresh the activity of drawing as a mode of self-learning in which the student lives through what is being learnt. As a result, I started to give more consideration to the idea that discovering something new for oneself might rely upon what it personally means to experience the qualitative aspects of drawing for oneself i.e. what it means to engage in the relational effect.

These findings, together with others from interviews I was simultaneously undertaking with other practitioners (outlined in the next chapter), eventually altered my trajectory from investigating others as subject to scrutinising my own experience through the practice of drawing.

Notes

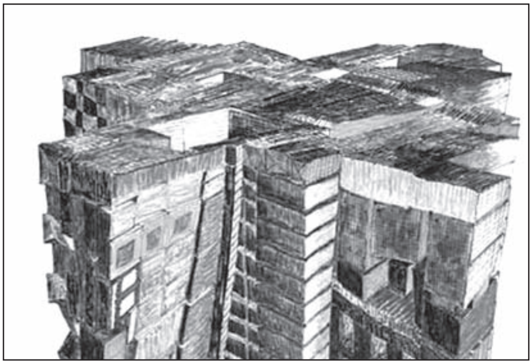
1. Milner's accounts were a response to what she saw as being the 'educational problem' in terms of the way educators could address and involve experiential knowledge as part of their teaching practices. In this sense, her investigation was concerned with the process of learning and it was with this in mind, that she approached painting as a specific area in which she had failed to learn something she had wanted to learn (Milner 1971: xvii). She also had in mind the therapeutic context of her work, and as a consequence trained as a psychoanalyst.
2. Like McMahon I took the term 'formal' to mean aspects of the drawing such as line, shape, colour, tone and texture, and the relationships between them from which form emerges (McMahon 2005).

Chapter 6

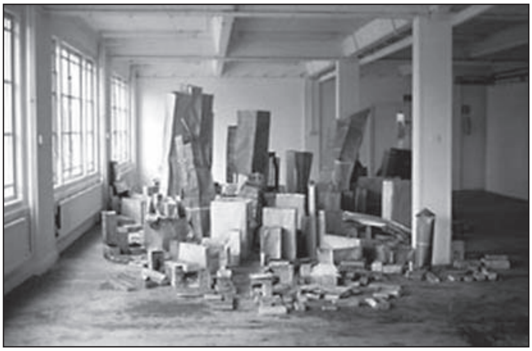
Interviewing Drawing Practitioners about How They Think

Whilst I was locating texts by practitioners whose discoveries about thinking had emerged from drawing, I also conducted interviews to find out how other practitioners explained their thinking processes. These interviews had a profound effect – I remember at the time telling a colleague that the experience had seemed vital, even jewel-like after having been holed up in the library for months on end; it felt as though I was finally touching base with something real.

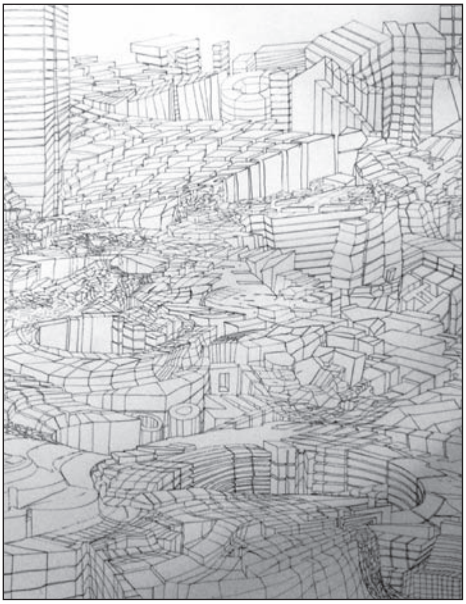
I undertook two sets of interviews with two contemporary artists, Oliver Zwink and Richard Talbot. Each artist has a particular interest in drawing. Oliver Zwink's drawings are closely linked to the processes he uses for making his sculptures (*Fig. 15*). His work has been described by reference to processes of construction and deconstruction:



(a) *Block*.



(b) *Zora*.

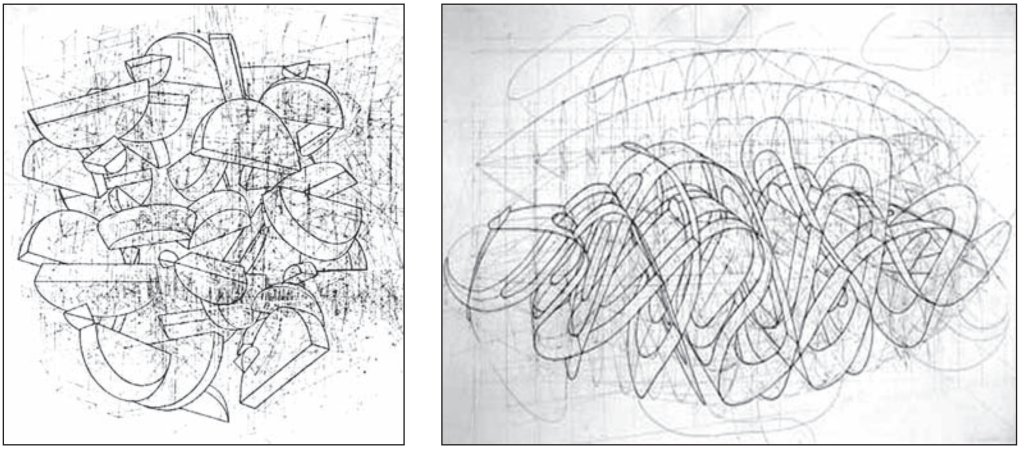


(c) *View*.

Fig. 15: Examples of Oliver Zwink's work.

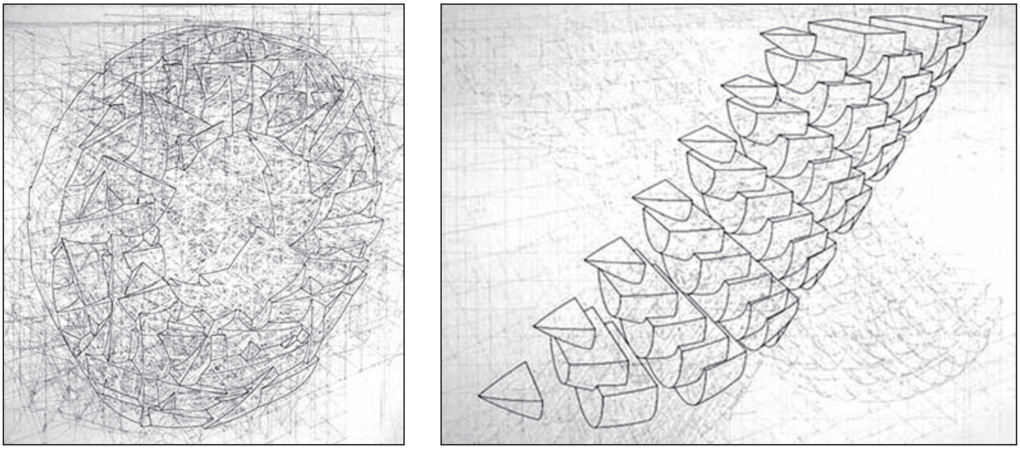
> [Zwink is] exploring spatial contexts and relations through drawing and 3-D installations concerning decay of urban life – paper townscapes. He explores the utopian ideal, the city, and its decay. Yet this decay does not imply destruction for him, but rather alteration and metamorphosis.
>
> (Doyle *et al.* 2002)

Richard Talbot describes making his perspectival drawings in terms of thinking and part of his practice involves writing about the findings he makes from doing this (Fig. 16):



(a) *Floating.*

(b) *Missing the Target.*



(c) *RandomMoves.*

(d) *Stepupstepdown.*

Fig. 16: Examples of Richard Talbot's drawings.

> I use drawing as a way of thinking, and a way of bringing together apparently disparate ideas and images. Through drawing I can start with a gut feeling, a vague thought, a hunch or an idle observation, and can distil and combine these into something concrete. Within the drawings I develop forms associated with architecture, maps, landscape, water, vessels, and containers using a process (geometric linear perspective) that involves producing a complex and almost transparent matrix. This web of lines acts as scaffolding in which the images are created and then held. Importantly and possibly paradoxically, a strict geometric drawing system such as perspective, allows me to have an almost purely intuitive response to ideas and images.
>
> (From Richard Talbot's website,
> http://www.richardtalbot.org/pages/writings.html accessed on 16.05.07)

I chose Zwink and Talbot from a number of practitioners I had earlier identified when spatial representation had been a possible avenue for research. Their drawings were visually interesting in this context, but in truth, there was also an underlying aesthetic attraction or connection that had drawn me to their work. Like Milner, I am used to following what my eye likes in my own art practice – it has a follow-on effect of making me want to interrogate what my eye picks out. I don't limit using this to simply making connections with work by other artists; it also acts as a kind of pick-up device for choosing the subject matter for my own drawings. In effect, I allow my eye to edit my visual interest – so much so that I sometimes think that half the work is done before I actually begin to make anything. Whilst this device is of course highly subjective, I also had a hunch that these connections might be showing me how I visually and perceptually identified aspects of my own processes in the work of others.

My aim was to critically observe how each artist identified and described the thinking process they used during the activity of drawing. The second interviews mined their responses more deeply after I had started to discover parallels between drawing and enactive cognition. Each interview took place whilst I was paying attention to similar issues in my own practice. Although I had not planned it as such, these observational studies formed a triangulation with the textual analysis of the accounts by Milner and Franck. The triangular shape of the methods I used as I was considering the experience of others subsequently changed shape in the later stages of my enquiry when I began to investigate matters through practice using myself as subject (*Fig. 17)*. For me, these shapes mark the difference between externally viewing an issue and inhabiting the same issue within an internal investigation.

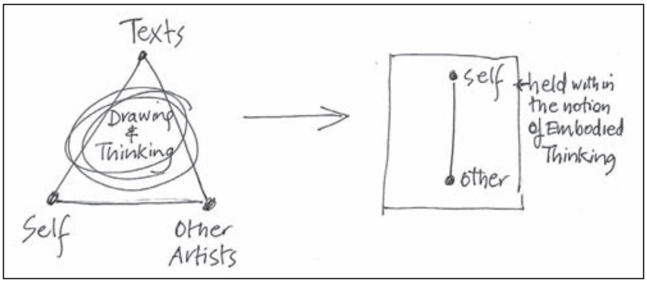


Fig. 17: The Author's diagram showing the change in shape of the methodological phases of her investigation.

The first interviews

Because the interviews were feeling their way towards filling the gaps I had earlier identified in psychological enquiries, I just had to take the plunge of asking questions about 'what drawing was like from the inside', unsure of what I might achieve from doing this. As one practitioner interviewing another, I wondered if I would be able to capture anything that might not have been picked up on by a non-practitioner. My questions were drawn from theoretical texts and the journals I had used to interrogate my studio work. I did not know what mode of analysis I would use to evaluate the answers so left this in abeyance, allowing my method to generatively emerge from what transpired.

Both artists talked about thinking as if making was itself a form of thinking. When asked to identify how they were thinking at particular points, their responses were couched in descriptions of processes rather than specific cognitive states. For each, thinking was closely bound with the physical experience of engaging with the medium and their perceptions of the different qualities of those experiences. Cognition was for them an active issue, and as a result, I found myself trying to locate a 'practitioner's grammar' to describe thinking in terms of its processual qualities.

Certain themes were common to the processes of both artists. Although there was diversification within each theme, I could make progressive sense of the main elements of each theme in order to consider whether each artist's account differed or was similar to the other. These themes can be summarised in a way that emulates a process itself:

1. Starting off with no pre-conceived ideas.
2. Making decisions on the page – 'thinking as doing'.
3. Identifying what one does in terms of gesture.
4. Needing to work through chaos.
5. Being and staying connected with the work.
6. Trying to keep the drawing alive.
7. Unexpected evolution through changes in the quality of involvement.
8. Reflection
9. Awareness of different modes of thinking during the activity.
10. Clarity comes through the process .
11. The role of language.
12. Identifying one's role in the process.
13. Making connections between drawing and 'reality'.

The most significant finding that came from the evolution of these themes was how each artist's relatively structured drawings concealed a hidden process that was not predetermined. Talbot and Zwink both described how thinking took place on the paper and evolved through processes that moved from 'not knowing' to 'coming to know'. Emergence and development involved chaos, clarity and unexpected evolution in which each artist created and responded to what he was experiencing as part of the process, and there were some specific examples of this:

The artist's (not necessarily conscious) awareness of his own part in thinking

Each artist began a drawing accepting that he could not foresee the eventual outcome:

> I don't think I think with images. But the drawings…when I'm setting out to do the drawing, I don't have a pre-conceived image. I mean I might have just a hunch about a particular shape or something… (Talbot)

This unknowingness was coupled with an intention to engage in a relatively non-objective activity rather than a finite event:

> …when I start drawing…I mainly have a will to draw…mostly I don't have a specific form in mind. There's more a certain kind of energy which I want to use and to form something…
>
> (Zwink)

Fig. 18: Interviewing Richard Talbot.

As their work developed, both artists were aware of being part of the process of thinking through the medium:

> … the image that finally arrives on the paper comes about through me making decisions on the paper…I suppose you're making quite small decisions at one point, but then you start making larger decisions, possibly just to do with the size of the paper. You actually start thinking about how this thing you've created actually works within the confines of the paper…it comes from doing.
>
> (Talbot)

Each accepted that unexpected evolution would be part of the process and reported being quite often consciously absent whilst this occurred:

> I sometimes look at the drawing and think I don't understand how I got here. It's almost as if…I'm not saying you go into a trance when you're doing these things, but you are…in a sense, you are going into a mode of thinking that you suddenly kind of snap out of.
>
> (Talbot)

Conscious reflection was more likely to occur once a certain amount of work had been completed:

> Then there is the point, where I…where there's reflection…and it varies…but it comes only when the work comes together…I think when the work finds itself…then and not before that point can I really reflect much.
>
> (Zwink)

> …it is part of the thing of absorbing what you've actually done. Sometimes you cannot realise what you've actually done on the paper…you know…you're making decisions… but sometimes you're not aware of what is visually there…you know, you're working with your eyes making a visual thing. You stand back, you need to stand back and see what's actually there…and sometimes it takes a long time, sometimes to actually realise where you've gone.
>
> (Talbot)

At certain points, each artist became aware of changes in the quality of his involvement with the process, as different kinds of attention emerged from the engagement. Both described how a more tacit form of self-observant awareness took hold as the activity progressed:

> ….in the beginning, [it's] quite analytic, but then becomes a working method more or less, and the more I'm into this working method and this process, the more I'm into the drawing…
>
> (Zwink)

> …there is that different mode of thinking when I'm actually doing the drawing. Not when I'm about to start doing the drawing because I think you're still working in everyday mode, and so you start worrying about what it is that you're going to do. But as soon as you start doing it, I suppose you are in a different mode of thinking, and you actually stop worrying about what you're doing. You just do it.
>
> It's not to say that I don't then stop worrying about what I'm doing. But there is a…once you've got the drawing on the go and you're involved in it, that is quite a different mode of thinking.
>
> (Talbot)

Sometimes being more self-consciously aware could be problematic:

> ..and I'm very aware of that…and I think sometimes I'm too aware…I have to find…I have to find techniques to get this awareness…make this awareness get quiet or something, so I mean there's always these turnarounds…where you suddenly think 'stop being so aware' or something, and sometimes you have to get yourself into this awareness again…
>
> (Zwink)

Each artist revealed different levels of self-awareness not only about the progression of their work, but also about their own part in how this was happening. Whilst the interviews had the effect of making these experiences uncharacteristically explicit, each described these capacities as being an inherent part of their working processes.

Thinking through the body

I had not mentioned the notion of embodied thinking to either artist before the first interviews, yet their comments about making decisions on the paper and reading lines made through gesture provided strong evidence of 'knowing through the body'. When it was not intellectually possible to be aware of one's thinking whilst engaging with the materials, the artists' responses suggested that thinking could be identified in terms of what one does as gesture:

> …I was thinking at some points when I was painting, this was a Richter, this was a Polke… this gesture was a…Bernard Frieze, this was a whatever… And I think this is quite an important process that I got…that I went through this, because you went physically in other painter's minds somehow, and…or other painter's studios or whatever…And I think slowly there is another definition…because you go through all these other painter's spirits or something…you start evolving your own…find your own reference.
>
> (Zwink)

It was interesting to hear how Talbot and Zwink both identified themselves by reference to physical and spatial processes – as a sculptor:

> …but when I do the actual work…which is for me…it's like drawing…cutting out these forms… I feel sometimes when I do my drawings, as if I'm thinking as a sculptor really… that for me, there is a form which is invisible, and the form is somewhere on the paper… the form is somewhere there… you just have to exclude…drawing is about exclusion… when you draw lines you exclude the space around it to make it visible somehow.
>
> (Zwink)

> I still feel that I'm some kind of sculptor. I do feel as though I'm making sculpture on a piece of paper. The kinds of decisions that I'm making on paper, are the kinds of decisions I would be making if I was working with some kind of material, sort of cutting, and shaping…yes cutting…
>
> (Talbot)

Each artist sought to navigate the complex physical and internal patterns arising between themselves and their drawing in ways that involved working through chaos or negotiating confusion:

> …one needs to reorganise, to re-structure things…to be able to reflect about it…I think at the end of the day, that's…you're unconsciously searching. You're unconsciously searching for order…
>
> (Zwink)

> …the drawings can become highly confused… they reach points where it could go off in lots of different directions…They all start off with the same basic structure, and at any point I make a decision about which direction it's going to go in.
>
> (Talbot)

At particular points, working through this process of negotiation led to the emergence of some kind of clarity:

> I don't know if it's a difference in thinking, but it's a sudden kind of excitement…so, I suppose it's something becoming slightly more clear, as you've started off with something quite vague and as the drawing goes on it becomes more and more clear. There's a point where the drawings…I know it's a cliché to say take on a life of their own, but there's a point where I think I start making different decisions.
>
> (Talbot)

Fig. 19: Interviewing Oliver Zwink.

> … there's some kind of clarity comes out of the drawing, but it might have moved away from the initial inspiration if that's the right word for the drawing…it might have moved on.
>
> (Talbot)

Very often the artist found himself having to make sense of his engagement with the loop between himself and the drawing as part of that process:

> Sometimes I have the feeling that there is the addition of certain gestures, tries and things which during the process, and at some point they add up to a certain emptiness, which then…results in a gesture, in a major decision, which either puts those things together, or which gives the whole or a certain area where I'm working a totally different movement …often…often these things bring you forward or something…and they…And I think for me, these…to get into work, is to get into such a process…
>
> (Zwink)

There was some evidence that these patterns or loops created something significant for the artists, allowing them to make connections between drawing and other situations. Zwink identified his process as being 'something between me and the world'. Talbot made associations 'between ideas in one discipline and what I'm making and the kinds of decisions I'm making in the drawing, or the kinds of things I'm just generally interested in'.

Some kind of internal language played a part in making bodily engagement evident. Sometimes this voice was that of a reflective decision-maker:

> …as if you have a small guy sitting in the back of your brain…now you're doing that…now you're doing that…you know what you're doing?…you're actually doing this kind of thing…
> (Zwink)

At other times, this voice might be validating one's decisions:

> I'm quite aware that when I'm drawing I'm telling myself stories about why things are in certain…why I'm making certain decisions and how certain forms are generated.
> (Talbot)

The ease with which this integral language formed part of their way of working contrasted to the way in which each struggled at times with having to be explicit about these tacit processes in interview.[1] Having to describe their experiences to me in interview appeared also to make their thoughts become more apparent to themselves:

> …so there's always points of reference…points of memory kind of thing…which are maybe talking in the background…I think it's getting clearer now I'm talking about it…and these are…these are what you describe as…you could also say, certain strategies or something.
> (Zwink)

Despite trying to give a loose structure to the interview, the 'fixedness' of my questions was not compatible with the fluidity of the artists' experiential accounts and this caused problems. Zwink in particular sent an e-mail afterwards describing the unnaturalness of discussing the process of drawing in such a set format:

> I thought afterwards that our chat before the interview was possibly more flux, more easy going than the interview. I felt that the systematic questioning did not allow the adequate space for a conversation about "chaotic cognition and unstructured process in the creative process" as you name it.
>
> It was too much question-answer-thankyou-next one…some of the subject matters were so directly hit that they became somehow banal and I felt somehow empty when I talked about it.
>
> Maybe you should consider the conversation as a creative process too and leave more space for it to go where it wants to and then find a method of analysing what has been said afterwards.
> (Zwink)

The second interviews

The second interviews aimed to mine the artists' initial responses to gain deeper insights about their processes with a view to testing them in the studio. By throwing their original responses back to them, my questions were couched in terminology which the artists themselves had initially used.

Acting on Zwink's post-interview comments, I allowed myself to embrace being part of a two way conversation between practitioners without having to worry about maintaining an isolated response. Whilst this carried with it a risk that I might potentially 'contaminate' the interview by subconsciously directing questions and answers, this seemed a worthwhile trade-off towards being 'on the inside' rather than the outside.

I asked each artist, 'what I would have to do to step into your shoes and use your process in the studio?' Their descriptions made clear that what they came to know from making a drawing was linked to their perceptions about the process of making it. In the first interviews I had identified that their thinking was bound up in the physically active and re-active patterns of the process of making. What now became more apparent was how each artist navigated and gauged these events by reference to his own perception of his experience.

Talbot and Zwink described not only the literal progression of their work, but the way in which their transformative experience was part of that progression. Whereas the emergent physical activity might be visually evident in the literal content of the drawing, the qualitative aspects of the artists experience were not necessarily visually evident but were driving the work. Their descriptions of this included how these aspects were managed, maintained and identified by them.

I speculated about whether this might be evidence of Varela's circular loop of how knowledge was constructed in the space between 'inner and outer' or 'self and other'.

Amongst the uncanny similarities in each of their descriptions, there were some good examples of the phenomena of 'inner' and 'outer'. For instance, each described forming a framework which he could then either work with or against to develop the drawing. Each began drawing by laying out a plan or general terrain and thereafter refining the space they had set up for themselves. Each had an awareness about how he would feel in control of this process at certain points, and not in control at others.

Zwink for example described the first stage as literally setting up some kind of sculptural framework or mesh:

> The first stage is like…if you would think about a sculptural process…the line would be like…like a mesh that a sculptor would use…which he would then form in a long process…it's a kind of a master plan of how the work is kind of evolving…It's like a network…like an image which makes the others possible more or less, which…which the others grow out from… You should be quite fast…in kind of filling…in laying out a plan and to define a certain geography or topography…Practically I would say, fill the page but

> try to be as complex…try to…create a situation which is as complex as possible…stay as long as you can in this complexity.
>
> (Zwink)

Talbot similarly described literally breaking up the space to begin with:

> First of all I'd actually draw a very simple elevation of this form… and try and work out a fairly simple way of breaking it down…I'm actually working this out on a full size sheet of paper…These initial stages are actually quite quick…and I am looking at the whole paper… I'm using a dead white paper, and I'm using as hard a pencil as I can.
>
> I'd start drawing out some kind of plan…or an elevation… that's laid out on the paper. I have to make judgements about its orientation on the paper.
>
> I'm just using lines…they are quite faint…It is an absolutely diagrammatic flat drawing… they're absolutely precise definite lines.
>
> (Talbot)

In addition to these quite technical descriptions however, there was something more that each artist added which gave an insight into his personal understanding of what it was like for him to do this:

> It's like a mass…which is undefined…something that you can then form shape, shape something out of…and if this first layer is shit, then the whole work doesn't work, so this first layer is unsatisfying, it's not really inspiring to go on working.
>
> (Zwink)

These qualitative descriptions gave an indication of the artist's motivation for transforming the space he had made for himself:

> I'm creating scaffolding as a kind of space in which I can work. It's like this…I mean I suppose the term people would use now would be virtual space that I'm able to work with… I'm working with this…as if it's like a block… and I think that's why it's important that I work on these drawings vertically…it's almost as if I have actually got this material, this form in front of me, that I'm able to cut or slice or whatever, in whatever way that I want.
>
> And it's quite important that it's…it's almost a space I could put my arms around…like… it's that kind of space…it's that amount of space. It's very much dealing with something like this object, this kind of block of space that you can manipulate, and you don't have to worry about it being heavy or anything…just deal with this, almost like…pure form… and you can see through this form; and you can add things onto it, make things link into it or cut through it…you can chop a bit off and chuck it away.
>
> (Talbot)

Both artists go on to describe developing the space thereafter. Zwink expressed how he honed his initial framework through a process of exclusion:

> …there is a form which is invisible, and the form is somewhere in the paper…when you draw lines, you exclude the space around it to make it visible.
>
> …that's something which is near the end of the process…it is really something which… it's like a definition machine more or less…
>
> (Zwink)

This was not just about the literal act of exclusion – it was also about experiencing the decisions he was making in order to do this. He felt as though the drawing was asking certain decisions of him as much as he was making his own independent decisions. His priority was to ensure that he maintained contact with the work to further this two-way process:

> …out of this complexity, you have to refine things down. There is this kind of…urge really to create, to create surprising constellations of forms out of this thing…
>
> …at some point, after this initial decision…the work also wants certain decisions from you as well…There's a certain like expectation coming from the work…this you have to be very sensitive for… and this brings certain situations, and if I would say control, and I would then use the idea of control and not control…
>
> …I think at that point, where I lose connection with what the work is…wanting from me… then I have the feeling I lose control… and the funny thing is that I then, at that point, I try to regain …a contact with the work through something which is actually maybe completely out of control…which is…which makes no sense…but which brings me into the work, and that is mostly not a strategy, it's something I've…I come into a process…That's like a re-initiation of the work…then I've a feeling I'm back into the work.
>
> (Zwink)

Likewise Talbot explained how he physically developed the drawing from his framework:

> …so I'm responding to several things…I'm responding to this three-dimensional form that I'm dealing with as a structure, but I'm also responding to the quality of this line…
>
> But I suppose what I'm doing is try to use it as a medium more than a tool, so I'm kind of working within it…I'm not thinking, right I've got this form I want to develop…I'm using actually the process…the kind of processes that are…of construction and perspective… as a way of developing something I couldn't have imagined…rather than use perspective as a tool to have a form already in mind that I then draw.
>
> (Talbot)

But part of his description related to what it was like to move through a process where his decisions generatively emerged from the space between the expected and unexpected:

> …there's always this kind of push-pull thing of what this…of the diagrammatic aspects of this, and then the three-dimensional thing, and also sometimes, just the quality of some lines that are developed sometimes…it just produces some extraordinary unexpected forms, something you'd never actually realise, and you then kind of see this developing… if I…possibly take a shape and cut it so…you suddenly realise that it produces these amazing lines, that you couldn't then draw out of your head…
>
> (Talbot)

Whilst it is inaccurate to suggest that one can separate out one's physical actions from the experience of partaking in these actions, what I was coming to appreciate by making these distinctions was the irreducible aspect of drawing as a qualitative rather than simply gestural act. I came to see that whilst it may be possible to visually witness the emergence of a drawing in terms of physical activities such as the creation of shapes or forms, the restatement of lines, or creating growth from the line, making sense of these actions could not be separated from one's experience of producing them. Varela's proposition that representation simply maps rather than embodies our interactions seemed to make sense in this context. This finding effectively excluded the idea of using video as a means of capturing a complete picture of experience

We could say fine – all we have to do then to understand a practitioner's thinking process more fully is to ask him about the qualities of his experience. But would this be sufficient to allow us to gain a fuller understanding of what it is like for ourselves? Talbot and Zwink demonstrated their own particular involvement with their processes, but these descriptions were not fully accessible to me. Whilst I could follow their advice on how to emulate their physical process, I would only be able to find out what it was like to do this by experiencing their processes for myself.

I came to the conclusion that in order to be able to understand the enactive qualities of the lived experience that drawing gives, I would have to enact that experience, or more precisely enact my own understanding of that experience. I could not get a sense of drawing for myself from merely being told about it because it was not possible to reflect in an embodied way on what was being said. This helped me to understand that I could not discover further insights into someone else's experience of drawing without allowing my enquiry to be centred upon and directed by the act of drawing.

Note

1. I had to take into account the fact that Zwink's first language is German (although he undertook the interviews in English), and that Talbot has a practice which involves writing and reflecting on drawing (Talbot 2003 & 2006 and Talbot et al. 2006), which made him particularly verbally articulate about aspects of his drawing practice.

Chapter 7

Making the Decision to Use Drawing to Investigate Thinking: Methodological Issues

> *…What do you come up against when you have a vision? – You come up against the problem of incarnating it in a denser way, in a material. The very fluid and open way of the world of imagination is infinite. The problem is how this infinity is to be condensed in the material object.*
>
> (Collins 1994: 115)

The decision to use the method of copying

How could I reconstruct another artist's process with a view to examining how he thinks as he draws? How could I inhabit his practices and take studio practice into active cognition to explore the notion of embodied thinking?

After interviews failed to give me an in-depth insight into the particular qualities of Talbot and Zwink's creative methods, the following options appeared possible:

1. I could stay within the linguistic boundaries of the interviews to further develop the notion of a 'practitioner's grammar of drawing'.
2. I could construct the artists' processes from the linguistic descriptions given in interview.
3. I might reconstruct a drawing with the artist in order to gain a first-hand account from him about the choices and judgements he makes as he draws.
4. I could engage in a literal copying of one of the artist's drawings just as artists in the past would copy drawings by great masters as part of their training. In this sense, copying would be a matter of learning about the artist's processes by re-enacting these processes and putting myself in the mindset of the other artist's judgements.

Of these options, I chose the last. It seemed the most direct way to glimpse another artist's experience. I asked myself, 'can I embody another artist's thinking process by copying his drawing?' anticipating as Franz does that:

> It might be possible through copying a drawing, to closely observe the original artist's intent, process and product and to come to understand, even share, a bit of the creative spirit and intellect of the maker of the drawing that is copied.
>
> (Franz 2006)

My aim was to try to understand another artist's decisions through the logic and force of drawing. By doing this, I might discover something about his approach that could not have been accessed by simply looking at or theorising about the original drawing. As a 'visual to visual' model, copying would have the advantage of avoiding the synaptic jump one has to make as one moves from 'looking at' a drawing to making assumptions about the intentions of the artist.

Copying was not an arbitrary choice. It is a time-honoured method used by artists as a fundamental way of observing, and is a necessary aspect of the training for practitioners in many cultures (Leeds 1984: 42). By choosing this option, I would be questioning why the method works rather than if it works, and trying to find out what stops it from merely being a transaction around style.

By re-enacting a drawing I suspected that I would be aligning myself with Bolt's proposition that the logic which arises from practice offers 'a very specific way of understanding the world which is grounded in "material thinking" rather than in conceptual thinking':[1]

> …by focussing on enunciative practices, that is, the systems of fabrication rather than the systems of signification, there is a possibility of investigating the field of an 'art of practice' starting from the bottom rather than the top down. It is only through an analysis of the subtle logic of artistic process that we can begin to articulate the logic of practice. This logic follows on from practice rather than prescribing it.
>
> (Bolt 2004: 7)

I questioned how useful the specificity of this type of knowledge would be to more general situations. If one used methods that were as Bolt had suggested 'grounded in the logic of practice', would it be possible to move from the specificity of one particular practice to form understandings about thinking generally? In my case, I anticipated making observations in the studio about a particular manifestation of a quality of drawing and how it was arrived at. Should I not perhaps be worried at this point that by doing this, my findings might not be more widely applicable?

Reaching the point of being able to articulate research questions

It was only now as I found my place amongst the strands of my various interests, that I became able to define my area of research (*Fig. 20*) and formulate my research questions. I could not have articulated these questions at the outset of my enquiry – they had not been hypotheses or *a priori* assumptions upon which the enquiry had been based but only became revealed as a result of the journey of research to this point. (Like Sawdon [2003] I questioned whether my creative development would have been restricted had I known how I was going to have set about my project).

It was only at this point that I became able to ask:

- to what extent if any, can the drawing practitioner throw new light on the assumptions made about embodied thinking? and
- How is it possible within the practice of drawing to use First Person methods as a tool to investigate the notion of embodied thinking?'

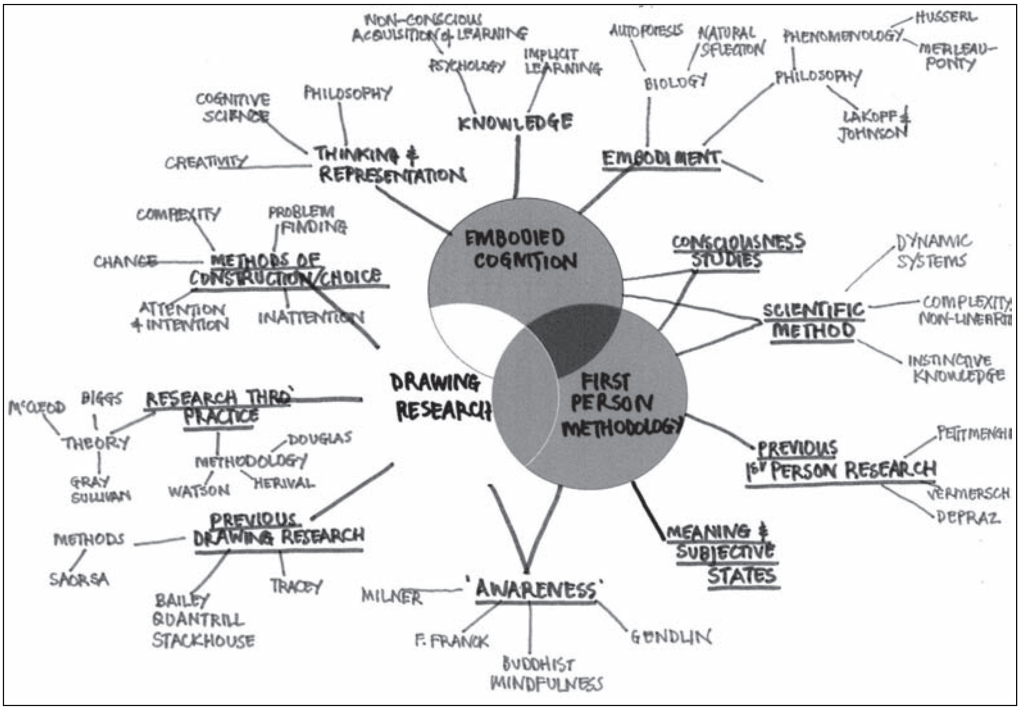

NON-CONSCIOUS ACQUISITION of LEARNING
PSYCHOLOGY
IMPLICIT LEARNING
KNOWLEDGE
AUTOPOIESIS
NATURAL SELECTION
BIOLOGY
PHENOMENOLOGY
HUSSERL
MERLEAU-PONTY
PHILOSOPHY
LAKOFF & JOHNSON
EMBODIMENT
COGNITIVE SCIENCE
PHILOSOPHY
THINKING & REPRESENTATION
CREATIVITY
COMPLEXITY
PROBLEM FINDING
CHANGE
METHODS OF CONSTRUCTION/CHOICE
ATTENTION & INTENTION
INATTENTION
EMBODIED COGNITION
CONSCIOUSNESS STUDIES
DYNAMIC SYSTEMS
SCIENTIFIC METHOD
COMPLEXITY NON-LINEARI
INSTINCTIVE KNOWLEDGE
DRAWING RESEARCH
FIRST PERSON METHODOLOGY
McLEOD
BIGGS
THEORY
GRAY SULLIVAN
RESEARCH THRO' PRACTICE
METHODOLOGY
DOUGLAS
WATSON
HERIVAL
PREVIOUS 1st PERSON RESEARCH
PETITMENGI
VERMERSCH
DEPRAZ
METHODS
SAORSA
PREVIOUS DRAWING RESEARCH
BAILEY QUANTRILL STACKHOUSE
TRACEY
MEANING & SUBJECTIVE STATES
MILNER
'AWARENESS'
F. FRANCK
BUDDHIST MINDFULNESS
GENDLIN

Fig. 20: The Author's diagram of the context for her enquiry.

The first question was about my subject matter – the investigation by a practitioner of a particular way of thinking that evolves through participatory activity. The second question was about how the first question could be answered in practice by a practitioner. When placed together, I started to appreciate how these two questions formed a symbiotic relationship where the 'what' and the 'how' were intertwined in a kind of chicken and egg situation. I came to the conclusion that the best way of breaking into this cycle might simply be to start copying, but before I did this I had to give some thought to how I would practically approach my role as First Person.

Drawing: an investigation in the First Person

Copying offered drawing as a different embodied space or method through which to consider thinking. In many ways, this had the effect of positioning my enquiry in the space between Art and Science. In two particular respects, my decision to copy obliged me to engage in what Douglas describes as the simultaneous 'unlearning of science' and an 'unlearning of art' (Coessens, Crispin & Douglas 2009).

Fig. 21: Varela speaking at the 'Art meets Science and Spirituality' conference in Amsterdam in 1990.

The first aspect of unlearning has to do with how valuable it is for an artist to investigate cognitive issues which are more usually the province of scientists. How can the artist contribute towards our understanding of thinking in ways that scientists have not? My hunch was that the answer to this lay in how the artist *practices* thinking. Varela's comments about his understanding of the artist's role in this regard were incredibly insightful and helped me to figure out the difference between simply making art and using artistic practice for other endeavours (*Fig. 21*):

> I have come to the conclusion after all the time I spent looking at perception as a bodily activity, that what the visual arts do is to draw out the invisible into the visible…so there is a freshness to what we see and what we appreciate with our eyes.
>
> That's what artists know because they do it. It is something that in fact they know much better than scientists. But for a number of years in cognitive science – and when I say cognitive science, I mean neurobiology and artificial intelligence – we were convinced over the last forty years that visual perception was a matter of finding the way things are. There is no indivisibility, it's all out there as a given set of properties. For example, you would have an edge, you would have a colour, and the task of the brain was actually to get it right. Therefore art could not be other than some kind of funny, chaotic comment on what already is. What is, is the reality, and then art is something that is just added for the benefit of museums. What I'm trying to say is that in fact what visual artists know and do and show is closer to the heart of what visual perception is…
>
> But there is a school within neuroscience and within cognitive science, to which I adhere that has begun to question this notion that, in fact the act of seeing – although this extends to any cognitive activity, hearing, moving, thinking – is something to do with this information pick-up and processing. That fundamental act of perception is precisely that drawing out, into the visible, something that wasn't there as visible previously. Thus, the great genius of being alive, of having a brain, is to actually bring forth that reality.
>
> (Wijers 1990: 130)

I understood Varela's comment that 'what visual artists know and do and show' somehow gets closer to the heart of cognitive activity to mean that practitioners inherently consider issues that are raised in practice through their own practices. What I took from this was that I should not be focussing on drawing as a visual practice but on drawing *as a practice that makes visible*. Doing this would take the artist beyond 'the "naturalness of just making art" to a consciousness (perhaps even self-consciousness) of experience that could inform issues that go beyond our own idiosyncrasies as artists' (Coessens, Crispin & Douglas 2009: 55).

Contributing to a topic that is usually the province of science would mean having to 'unlearn' my usual role in art making, and putting my drawing practice into the service of an enquiry rather than simply drawing for myself.

The second 'unlearning' factor involved the way in which my decision to copy would effectively make myself the subject of my own investigation. By examining my own experience of drawing in the First Person, I was taking myself out of a more conventional scientific investigation and exploring drawing as a First Person methodology. I could align this type of investigation with others in cognitive science and consciousness studies, which explored similar methodologies, to expand how we investigate 'what it is like to be' (Petitmengen 1999; Gallagher & Shear 2000; Zahavi 2009).

The numerous objections to First Person accounts were similar in nature to criticisms made about subjectivity; they are not objective, quantifiable or repeatable. Neither are they easily accessed because they are 'reflexively tangled in mediation' (Pickering 2004: 279). Considered as being superficial rather than investigative, they are liable to distortion not only because being introspective changes an experience, but because they can also intentionally be changed at will. If one employs a First Person approach, one is fundamentally challenging the ideas inherent in conventional scientific research approaches which are based on scientific method.

Making my self the subject of my investigation

If I was going to make myself the subject of my investigation, where in practice was my *self*? Moreover, how could I observe my self? Although we generally perceive ourselves as an ongoing static presence whose experiences change in relation to our surroundings, in practice, locating this permanent sense of self in a deeper way has always been tricky for reasons similar to those encountered by Hume:

> For my part, when I enter most intimately into what I call myself, I always stumble on some particular perception or other, of heat or cold, light or shade, love or hatred, pain or pleasure. I can never catch myself at any time without a perception, and never can observe anything but the perception.
>
> (Hume in Varela et al. 1991: 60)

I recalled that Varela had situated the idea of 'I' within emergent behaviour. He described how a selfless sense of self was located in the dynamical relations of the cognitive being in terms of process.

The embodied mind could be found in how the individual emerges through cycles of processes constrained by the individual and his or her surroundings. One's mind is thus 'a coherent whole which is nowhere to be found and yet can provide an occasion for coupling' (Varela in Rudruaf et al. 2003: 41). How did one practically locate and observe this mind which did not physically or functionally reside anywhere?

Having already made the association that drawing and enactive cognition were 'whole organism' events, I could see the difficulties of breaking down 'this coherent whole' into components. Likewise, Varela suggested that phenomenological embodied experience could not be reduced into sub-categories because this lost the processes one wished to investigate:

> As soon as a unity is specified, its phenomenological domain is defined. The composite unity has a different domain to that in which components operate. Therefore, phenomenological reduction is impossible.
>
> (Maturana in Maturana & Varela 1980: xxi)

Rather than trying to observe the self as a component of experience, I decided to try to approach the activity of drawing as a complete and undivided practical means of being able to locate this groundless sense of self through process.

The practitioner's role as observer

Observing this process would be another matter. How would I be able to both live through and identify these processes at the same time? What part of my self would be observing my conscious experience and chronicling these processes? Am I separate from the self I observe?

By making distinctions between what is our self and what is other, we see ourselves as observers employed in the action of observing something. Varela's view was that an observer is outside the interactions of the domain he is observing and interacts separately 'with the entity he considers and the universe in which it lies' (Maturana in Maturana & Varela 1980: 8).

According to Varela, as a living system I would not be able to observe my self because I am not an object that can observe or describe; I am only a self-referencing self-contained unity. My capacity to be self-observant occurs only because of my ability to function in simultaneous ways by interacting with domains of description and language. In effect, my ability to be explicit about my self-observation arises as yet another process:

> The linguistic domain, the observer, and self-consciousness are each possible because they result as different domains of interactions of the nervous system with its own states in circumstances in which these states represent different modalities of interactions of the organism.
>
> (Maturana in Maturana & Varela 1980: 29)

My self-observant descriptions would also be relative to me. Varela reminds us that the observer plays a subjective role – the observer's knowledge always pertains to the observer. We can never escape from the domain of descriptions and have access to an absolute objective reality (Maturana in Maturana & Varela 1980: xxii). Events in the environment may trigger a response or description, but the observer's representation of events remains structurally determined and therefore relative to the observer. Thus, in reflection 'we find ourselves in a circle; we are in a world that seems to be there before reflection begins and that world is not separate from us' (Varela et al. 1991: 3).

Like Varela, I was caught in the trap of considering how I could evolve if my representation of events was limited by the parameters of an already given condition. Varela's answer was that an observer can escape from this structurally determined circle through the interaction of our self-reflective and descriptive domains, which take us outside the boundaries of our knowledge. Self-observation is possible because the process generates the self-observer whose role in the constitution of meaning is irreducible.

In practical terms this would mean investigating the implementation of, rather than the description of, 'processes that specify series of transformations from initial states, […] can be decoded only through their actual implementation, not descriptions that the observer makes of an environment which lies exclusively in his cognitive domain' (Maturana in Maturana & Varela 1980: 53).

It appeared that only direct practical experience could reveal the answers to these issues; to get into this new train of thought one had to inhabit it. Like Varela, I would be trying to develop a 'skill of phenomenological description' (Depraz et al. 2003). All that was left was for my engagement to direct proceedings because

> …you can only be sure you've described the act you say you have, rather than something else, if you've already defined it. But the only way to check your definition is to experience an act, and that's something no definition can ever do for you: you have to jump in there and experience it for yourself!
>
> (Depraz et al. 2003: 22)

Note

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1. I identified with Bolt's concern with how one could transcend the representational structure of an image in order to consider the performative qualities by which it was made (Bolt 2004: 3).

Part III

The Second Phase of Methodology – Using My Own Experience as the Subject of a First Person Enquiry: About the Nature and Form of Knowledge that Emerges from the Experience of Drawing

Preface to Part III

In the final phase of my enquiry, I make myself the subject of my investigation and describe how the method of enactive copying evolved as a self-investigative means of learning. By asking if I could embody another artist's thinking process by copying his drawing, I re-enacted drawings by other artists to internalise their methods and mine their thinking processes in a deeper way.

Chapter Eight outlines how I began by familiarising myself with the method of copying generally. By reproducing numerous drawing I became able to identify key features of the method and become familiar with its use. My findings derived from the physical processes in which I engaged. Re-enacting the processes required to re-produce another's drawing took me outside my habitual practices to experience something new for myself. This not only enabled me to make personal judgements about the original artist's processes, but also revealed the qualities of copying that make it a method of learning.

In *Chapter Nine* I use these findings to explore one drawing by each artist I had previously interviewed, Richard Talbot and Oliver Zwink. Although neither artist set out to specifically deal with chance, I became able to describe how each set up a framework for himself through which he could create opportunities for transformative experiences. Zwink did this through a dialogue between discriminate and indiscriminate drawing processes. I was familiar with this technique as I use it as part of my own drawing practice. Accessing Talbot's thinking process proved to be more difficult however, because his lines were gesturally inscrutable and did not easily reveal the process by which they had been made. Although I could identify from the physical effort involved in remaking his drawing that his processes were constructive in nature, I could not gain any greater insight into the more nuanced qualities of his specific process from simply making this copy. I had to mine his process further if I wanted to delve deeper.

This problem established the basis for what I suspect forms the heart of my investigation in which I examine Talbot's drawing *Glass* as a deep case study, with the aim of accessing and discovering the key qualities of his thinking process (*Chapter Ten*). I deconstruct the processes Talbot uses to create the drawing in four stages, making explicit my experience of doing this through drawn and written narratives, each of which take me deeper into an understanding of Talbot's thinking process and also that of myself. Each narrative recounts what I do to access the qualities of Talbot's process, as I obtain insights into how he and his drawing create possibilities for each other in a more sensitised way. By doing this, I demonstrate through drawing how Talbot establishes a framework to create unexpected opportunities and how he acted on these possibilities.

What I come to know and the method by which I access this knowledge through drawing, evolves in accumulation with the activity and relies upon being open to change. As the practitioner who re-enacts the drawing, I experienced the distinction between watching what I do and observing what I do as I do it – I developed an increasing awareness throughout the activity of how I make sense of what I do as I do it. *Chapter 11* is an overview of the method of enactive copying which evolved throughout the process.

Chapter 8

Can I Embody Another Artist's Thinking Process by Copying his Drawing? – Familiarisation with the Method of Copying

Having no prior experience of copying, I spent my first three months re-enacting a number of diverse drawings which were unrelated in style and content in order to become better acquainted with the technique.

I did not seek out advice from others about how to copy before trying it for myself because I wanted the method to emerge from practical engagement. Once the period of familiarisation was over however, I contextualised my practical findings by reference to historical and educational texts about copying. There appeared to be very few texts by practitioners giving specific advice about copying as a form of learning. Most texts made only general reference to the method from either the historical perspective of art education (Bambach 1999; Aimes-Lewis 2000) or, (and this was usually negatively), in the context of children's education (Kellogg 1969; Gardner & Winner 1982).

I therefore began my project having very few expectations about what or how I should learn from copying. As I visited local art galleries, I allowed my eye to choose which drawing I would copy. This created a natural interest that motivated the initial process and helped me to maintain contact with the work when my interest waned during duller or harder stages. Each drawing created different experiences that allowed me to become aware of what makes copying a form of learning, the most significant of which are outlined below:

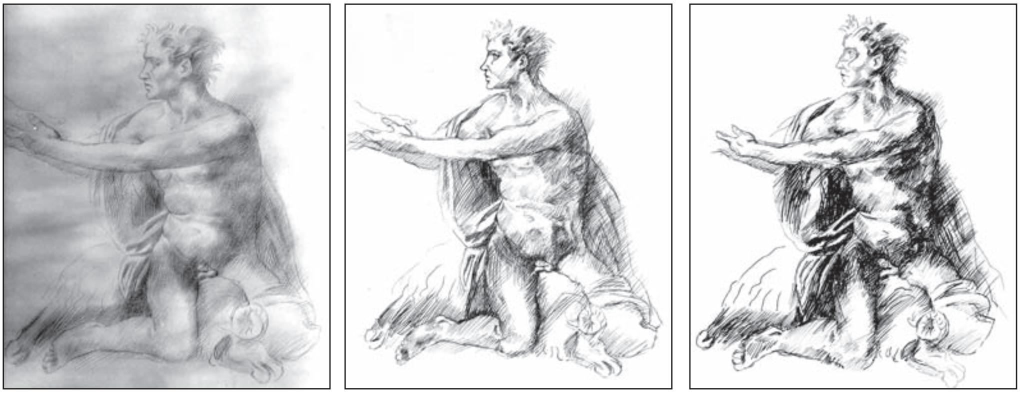
Cennini's advice to young artists in 1437

Take pains and pleasure in constantly copying the best things which you can find done by the hand of great masters…take care to select the best one every time…and as you go on from day to day, it will be against nature if you do not get some grasp of his style and of his spirit. (Cennini 1954: 15)

Learning about the method – becoming a trained observer

Copying was not that easy to start with. My mind was not restful and rather than labour with the careful reproduction of marks, I had a constant urge to experiment with the image and make it more my own. My first copy was of a silverpoint by Alphonse Legros (*Fig. 22a&b*). I had enough concentration to accurately complete this but found myself running out of interest when it came to tackling a second copy.

I was not quite sure what I should be looking for, but as I made the first copy I became aware of having to fight off a continuous physical urge to experiment and diversify from the



(a) (b) (c)

Fig. 22: (a) *Sacrifice of Noah* by Alphonse Legros (b) The Author's first copy (c) The Author's second copy.

original. It was difficult to stay on task, so when it came to making a second copy I thought I'd let this impulse take free reign by introducing colour instead of staying as close as I could to the original materials (*Fig. 22c*). I had to exercise even more self discipline to return a third time to something I'd already fully attempted (*Fig. 23a*).

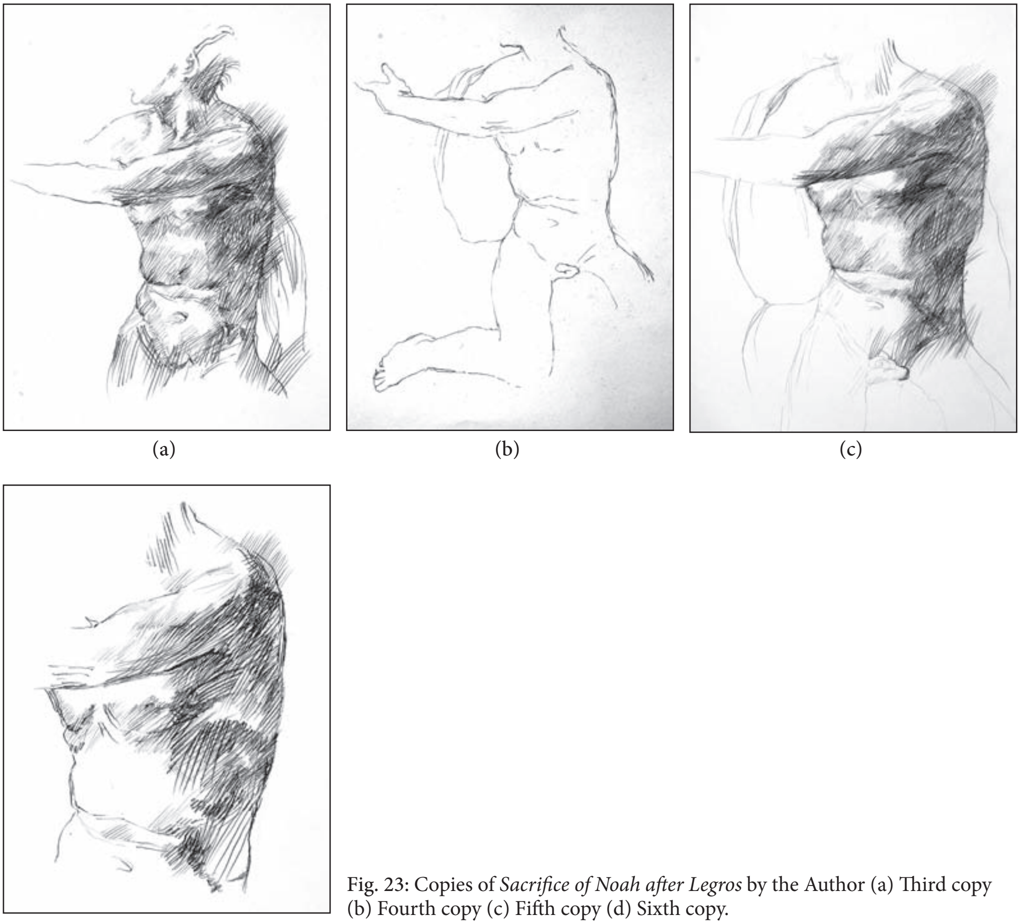
I realised that part of the aversion to making more than one copy was connected to the conflict between on the one hand, staying to the straight and narrow of something that was fixed, and on the other, experiencing the pull of trying to make my own version.

Excerpt from the Author's journal

Already there is a tussle between me and the thing I'm copying. I suppose it's to do with the conflict between what is from me and what is 'given' from the other i.e. keeping to the parameters of the other.

I tried to faithfully reproduce the marks and take an overview of the work by looking at it as a whole and in relation to the original. At this point, I began to notice that a faithful rendition of the lines alone failed to imbue the image I was recreating with a life of its own. There was a tussle between trying to keep solely to a reproduction of marks (something asked for by the original drawing) and trying to imbue the resultant marks with a sense of liveliness (something given according to my own sense).

I am used to trying to imbue my own drawings with a sense of what I'm trying to represent, but with copying one is trying to re-present marks which have an essence imbued by someone else. Am I simply experiencing a struggle between two mindsets?



(a) (b) (c) (d)

Fig. 23: Copies of *Sacrifice of Noah after Legros* by the Author (a) Third copy (b) Fourth copy (c) Fifth copy (d) Sixth copy.

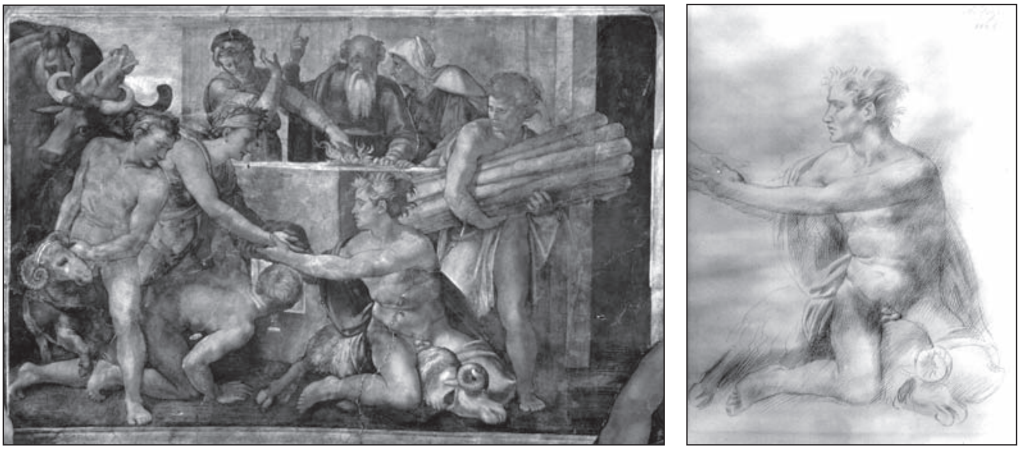
Not knowing how else I could ‘read’ Legros’ mindset after already having made two copies, I began to look at his marks in detail, trying to copy them in different scales in an attempt to stay with the image more, yet satisfy my wander-lust (*Figs. 23a–d*).

I began to see that as a form of observational drawing, copying was different to observing from life because one had to observe the marks made by another in quite a physical way. Taking on another artist’s marks created a conflict between my natural style or signature and that of the other artist. I would have to master these contrary aspects if I was going to learn anything about the mind of the other. This left little room for interpreting the drawing in my own way because that would mean I was making findings on my own terms. I started to see that learning something new depended upon remaining on the other artist’s terms, because nothing new could come from simply re-iterating my already known vocabulary.

Cennini's advice to young artists in 1437

For if you undertake to copy after one master today and after another one tomorrow, you will not acquire the style of the one or the other, and you will inevitably, through enthusiasm, become capricious, because each style will be distracting your mind. (Cennini 1954: 15)

In choosing to copy Legros' drawing I had unwittingly stumbled across a void in my artistic knowledge because I knew nothing about Legros' work generally or how this drawing related to the rest of his practice. Neither did I know anything about his techniques or the context of his practice in relation to his contemporaries. I was even unaware that I had in fact chosen a drawing which he had himself copied from Michelangelo's original version (*Fig. 24a*):



(a) (b)

Fig. 24: (a) *Sacrifice of Noah* by Michelangelo Buonarroti (b) Silverpoint copy by Legros.

As I made the copies, I became increasingly interested in what I was copying and of Legros himself. I searched out information and other examples of work by Legros to give context to what I was doing and gain insight into the artist, his materials and methods (*Fig. 25*).

By doing this, I realised that I was also beginning to contextualise my own situation of copying in relation to how other artists have used the method. I began to see that it was possible to visually trace this lineage of learning.

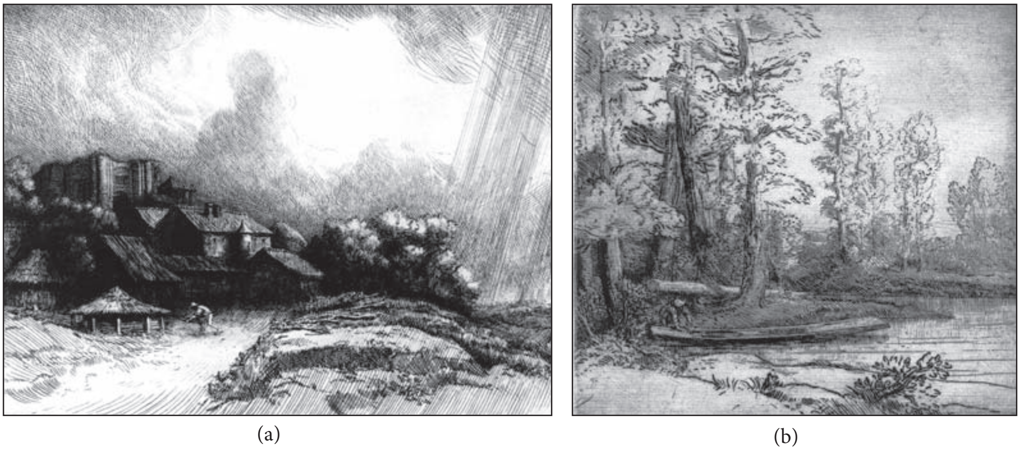

(a) (b)

Fig. 25: Examples of other work by Legros.

Excerpt from the Author's journal

Concentrating on Legros' strokes-as-marks today, I was able to see the ease with which he uses his method, the familiarity of his developed style and materials. These aren't my ways; I am not a master etcher…Likewise when I compared his drawing to the original fresco by Michelangelo from which he copied, I could see an entirely different reading. The copy by Legros is a thing of cushioned beauty – more personal than the figure of Noah by Michelangelo…In my drawings I am looking at how Legros uses lines and crosshatchings to mould the form of muscles. I am concerned with a physical rendition of the body…I feel as though I want to take the very physical-ness of this being into a more sculpted form.

My findings from this experience are that:

- Perseverance and fortitude are required if one wants to copy.
- I have to put myself and my drawing practice into the service of copying by quelling my own creative response.
- Copying takes me out of my own way of drawing into that of another.
- Copying prompts a reflex in the practitioner to place the original artist within a tradition or context and to place themselves by reference to that context also.
- Copying raises questions about the differences between the original and subsequent copies.
- Problems arising in the process include dealing with the conflict between exact reproduction and the urge to experiment, wanting to play with the method without full engagement, and finding the discipline necessary to stay with the method in order to allow knowledge to pass between practitioners.
- There is a possibility that I am trying to find a way to 'get into' another's work by deconstructing it according to what is already familiar to me.

By-passing the literal content

I worked on trying to lose the self I was fighting with in the hope that I might blend more with what I had to do to re-enact the original drawing. It became apparent as I made numerous copies of numerous drawings, that making the first copy was very often accompanied by a stream of conscious thoughts which arose alongside the act of drawing: 'Where do I start? Where does this bit go? Is the angle of this line right? What is the spatial relationship between these two points? How is the medium used? What did he know about his medium?'

I came to think that the intrusion of these 'head thoughts' had something to do with trying to become spatially familiar with the form of the image. Making the first copy involved a sense of accurate concentration or alertness as I tried to make a particular spatial sense of what I was doing, and the mind was very directive in this phase. Compared to later copies, I noticed the first drawing was often spatially inaccurate compared to the original, yet despite this it seemed to capture quite intensely some essence of the original – more so in some ways than copies which followed. This was evident for example in the first copies I made of Da Pontormo's *Head of a Woman* (*Fig. 26*) and Rubens' *Study for Abraham and Melchizdek* (*Fig. 27*).

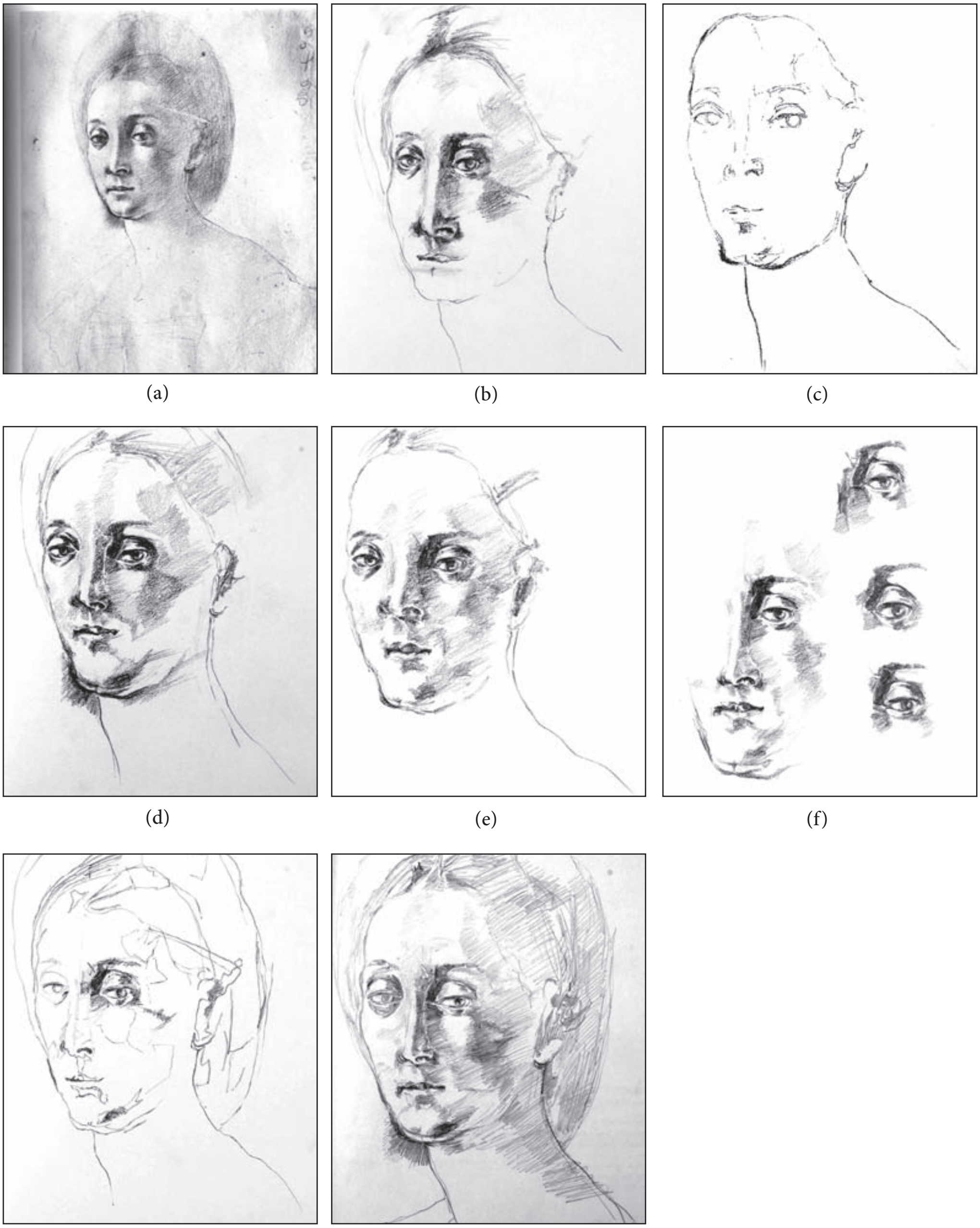
It occurred to me that if I was to remain at this level of concentrated involvement that copying would be in the service of the conscious mind rather than the body. But slowly, as the activity developed through making repeated copies, a different focus of attention started to set in, and this was key in establishing a change in my engagement with the activity. It was as if the marks I made became temporarily etched in a kind of physical memory, and it was this which I would build on in every further copy I made.

This change of engagement occurred as I began to take less notice of the literal content of the original drawing in favour of the quality of its structure. As I let the activity of re-enacting the particular quality or energy in a line take over, I stopped thinking self-consciously in a focussed way. When this happened, I was not so much trying to reproduce the line itself but a 'sense' of what it conveyed or contributed towards the whole. This form of engagement took me beyond merely reproducing the image.

Excerpt from the Author's journal

Despite my experience using chalk pastel, I am aware that I have to learn specifically how Rubens handles his chalk because it is different to my way of doing things. I have to concentrate on how he makes his marks. It's hard to do this whilst also concentrating on the scale of the form… There's a struggle between wanting to know the image and wanting to know the marks.

Whereas Rubens might have been focussed on literally representing his original subject matter, I am more concerned with analysing the nature of the marks. Perhaps his drawing primarily represents his process of making it.



(a)

(b)

(c)

(d)

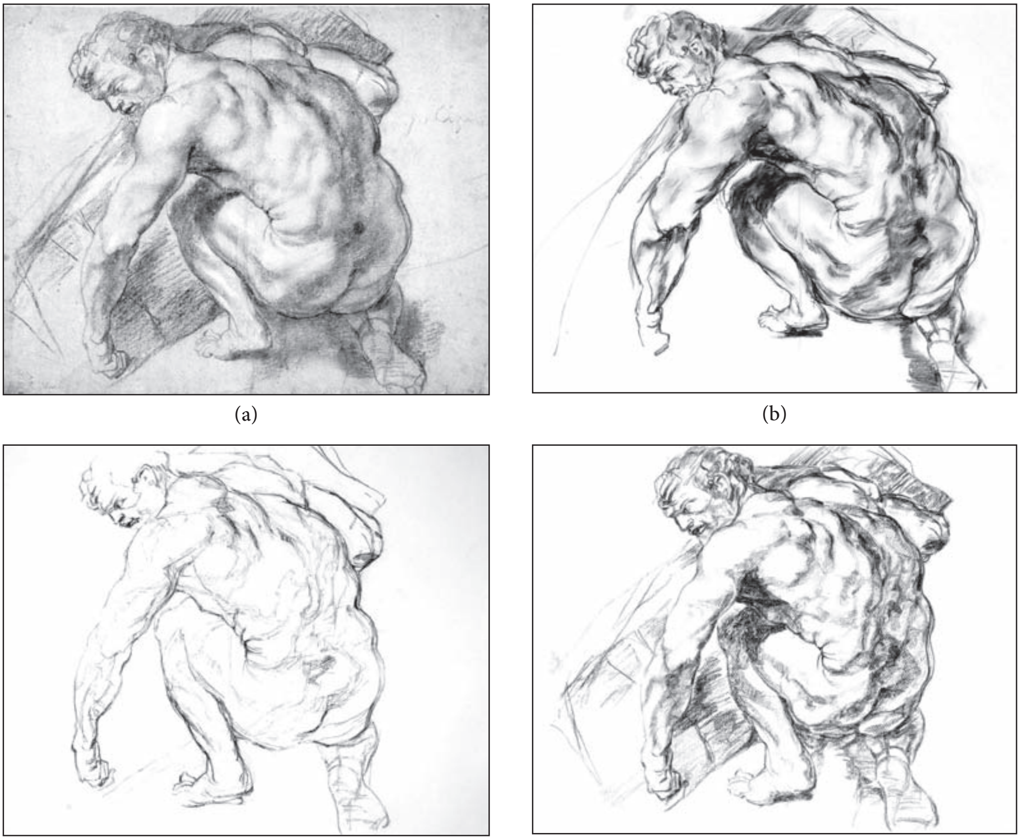
(e)

(f)

(g)

(h)

Fig. 26: A sequence of copies of *Head of a Woman* by the Author after Da Pontermo, with the original by Da Pontermo shown first.



(a) (b)

(c) (d)

Fig. 27: A sequence of the Author's copies of *Study for Abraham and Melchizdek* with the original by Peter Paul Rubens shown first.

When I reached this point, I stopped trying to direct what I was doing and the act of drawing seemed to take over – I began to allow the activity to direct me. By doing this I could identify how Rubens used chalk in a way I can only describe as 'groping' towards finding the form of his subject matter – somehow allowing the chalk to find the accurate form for him.

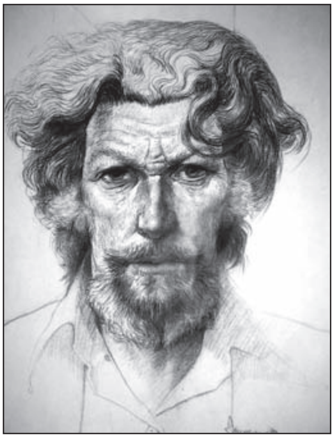
As activity took over, something happened to my head too (or should I say the loss of it) because being involved with activity forced my conscious mind to become quiet, and this was not replaced by anything explicit apart from the act of making. This helped restore the rhythm or fluidity of the lines which had been lost as I had concentrated on accuracy. Emulating the sense of energy in the quality of a line felt more fluid than emulating detail by conscious concentration.

It also became evident upon re-reading what I had written as I copied, that part of my process of observation involved explaining to myself what my findings were and the reasoning behind this:

Excerpt from the Author's journal

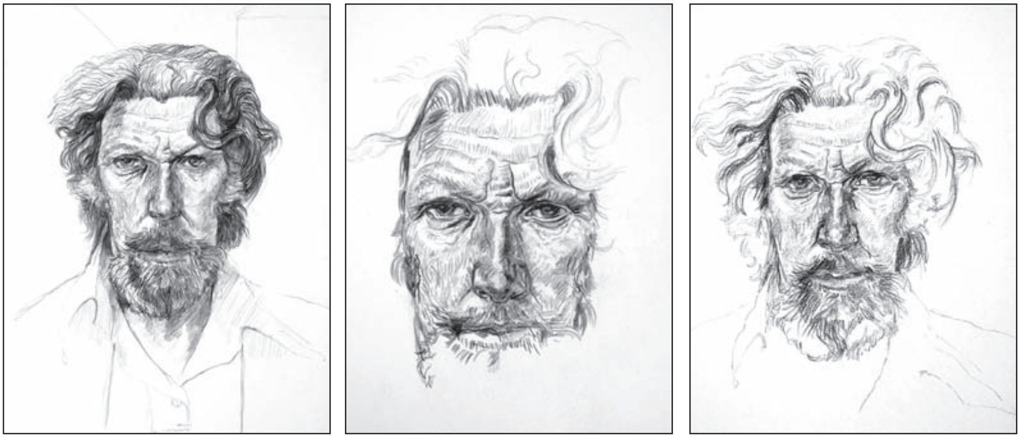
I did find myself struggling with the subtle differences between our uses of the chalk. Perhaps this was because I was using a familiar material but not a familiar technique. I found myself starting to act in a way that was unnatural for me as I attempted to reproduce the marks I saw. This very much brought home the nature of this artists touch. The unfamiliarity was the difference between our styles and what could be learnt arises in that difference I think.

As I copied Danny Ferguson's *Self-Portrait* at the Lillie Gallery in Glasgow (*Fig. 28*), I came to think about how the copying process also involved the re-enactment of the approximation (or balance) between what is seen (accurate representation) and what is sensed (what the artist gives of him/herself in a drawing).



> *The end goal is to acquire "a style individual to yourself" but it must be carefully nurtured.*
>
> (Cennini 1954: 15)

Fig. 28: A sequence of copies of *Self-Portrait* by Danny Ferguson by the Author with the original shown first.



My eye had picked out Ferguson's self-portrait because there was something about the way in which it revealed him to be enquiring, self-critical, intense yet generous and open.[1] These qualities were the focus for approximating what I saw and sensed of his drawing. It seemed no coincidence when I was completing my final copy to be handed a piece of Ferguson's hand-written text which had been written for an exhibition at the Gallery in 1981:

> Danny Ferguson paints "about" objects, not the objects themselves. His works are not abstracts. They are abstractions of the subject. He abstracts from the subject and paints what he feels about it.

This explanation was surprisingly resonant with the 'aboutness' of the approximation I had been engaged in whilst copying his portrait, and the words held a significant meaning for me when I read them.

Excerpt from the Author's journal

By copying this self-portrait, I am copying Ferguson's act of seeing himself. Questions arose in my mind as I drew: 'Is this what he sees of himself?' 'Am I seeing what he sees?' And rather than trying to see what he saw, I felt that I was losing myself in what he saw, and that this was part of becoming more accurate about what I was trying to re-produce in the drawing.

So whilst it is not possible to say with accuracy exactly what Ferguson's intentions and thoughts were as he made his drawing, I began to have a very personal understanding from my own judgements about what the key qualities of his process involved. I was nonetheless still confused about whether I really was inhabiting another person's thinking process or merely my own interpretation of it.

I realised that copying taught me something about the mindset that accompanied another's process because re-enacting these took me outside the familiarity of my own processes into those of another. I was required to suspend my usual ways of drawing; the decisions and judgements about what I physically had to do were not my own, but those of the original artist. Whilst I could sense that I was dis-inhabiting my usual terms of reference, I was also very much aware that what I was experiencing was still located within my own practice.

My findings from this experience are that:

- Copying another artist's drawing displaces my habitual drawing practices; it allows me to participate in another's way of drawing on their terms rather than my own.
- As I copy I experience changes in attention which occur as I move between directed and non-directed activity.

- Directed activity seems to be concerned with conscious spatial thinking 'with the head'; when I focussed on the quality of a line, the activity became non-directed and I experienced an absence of conscious thought.
- Copying shows me that drawing involves an approximation between 'self' and 'other'.
- Copying gives me very personal understandings about the way in which the drawing is made from experiencing the processes involved. From this I can make judgements about what I deem to be key qualities of the thoughts of the original artist.

Pure reproduction leads to nothing new

> *The need to write neatly or correctly prevents the production of something powerful and alive.*
>
> (Flint-Sato 1999: 9)

Copying two drawings in particular raised questions about the value of simply reproducing lines; these were copies of *Worth Matravers* by Charles Rennie Mackintosh (*Fig. 29*), and *Glass* by Richard Talbot (*Fig. 30*).

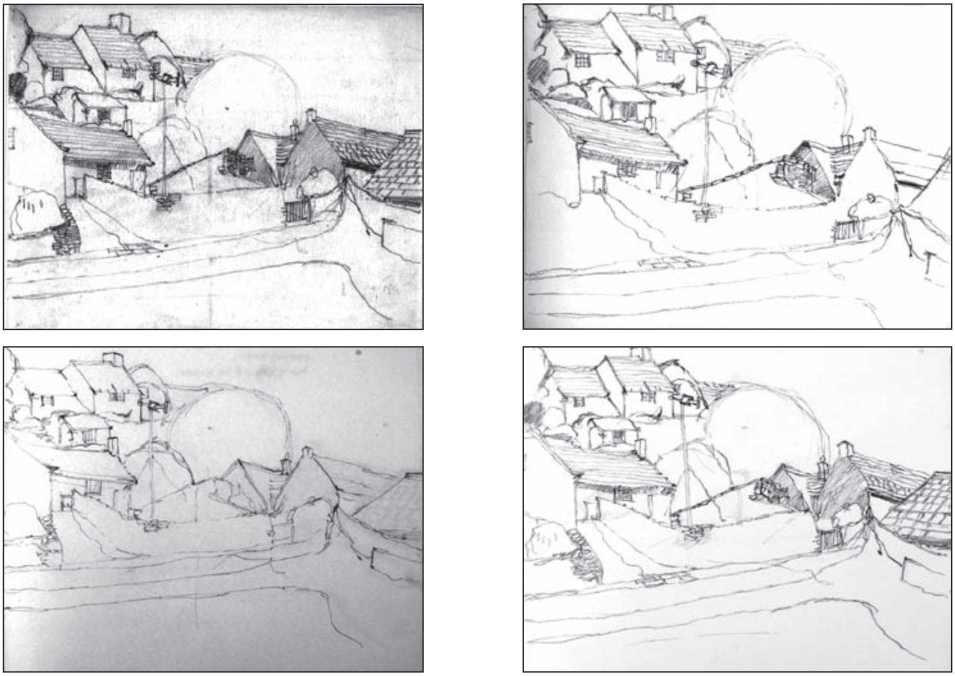


Fig. 29: A sequence of the Author's copies of *Worth Matravers Verso sketch of Cottages* after C. R. Mackintosh with a copy of the original by Mackintosh shown first.

Mackintosh's drawing looked deceptively simple, but his economy of line and sense of composition were hard to reproduce without possessing those skills. Copying his lines became tedious after a while because I had to place the spaces and lines so exactly in order to reproduce them.

Excerpt from the Author's journal

There is a sensitivity to his line. It's easy to see it as an enquiring line but his enquiry comes from a 'knowing self'. It's hard to reproduce these elements without having this skill and knowledge for oneself. A great sense of composition comes from re-enacting this drawing. I am mindful about not only the view he has chosen to draw, but how he makes what he sees into his personal design.

Mackintosh's lines were created through the plotting and joining up of points – this was the nature of the exploration that was going on in the drawing. Whereas his lines were vibrant between the points, mine were subdued and sketchy because my desire for correctness killed the vibrancy of each line. At first I thought I was merely impatient, but it dawned on me that there was something more fundamental going on concerning the unattractiveness of the fixed line. This was particularly noticeable in the differences between copying 'gestural' and 'non-gestural' lines.

By noting that nothing could be learned from 'flat' lines, I had unwittingly identified that my mode of learning could be affected by the type of line (or process) that was being reproduced. In other words, the way in which I learnt depended on the activity I was involved in. Whilst all lines would be made through bodily gestures, there was a distinction between what I termed at the time as being 'gestural' and 'non-gestural' lines. There was a difference between lines whose main purpose was not in the expression of its hand-made quality (non-gestural) and other types whose purpose this was – where the act of moving the limb was the expression (gestural). Imitation was more likely to happen when the line was less expressively gestural because there was less for me to take up in a physical way.

Excerpt from the Author's journal

Copying is a disciplined activity in terms of the focus one must give to one's gestural observation. This takes time. Accurately putting down the energy in the lines so that it tallies with that which is sensed in the original cannot be done in an impatient manner. Somehow it is necessary to perceptually gauge in a physical way the energy or essence in the line and retain this long enough to be able to translate what is picked up and then put down. It takes a lot of energy to do this. In many ways, I feel I am a conducting agent.

In order to re-enact Talbot's lines in his drawing *Glass* (*Fig. 30*), I had to allow my conscious thoughts to direct the physical actions of my body. By comparison, to re-enact Rubens' more gestural lines, I had to allow my body to be in charge of directing the production of the line (*Fig. 31*).

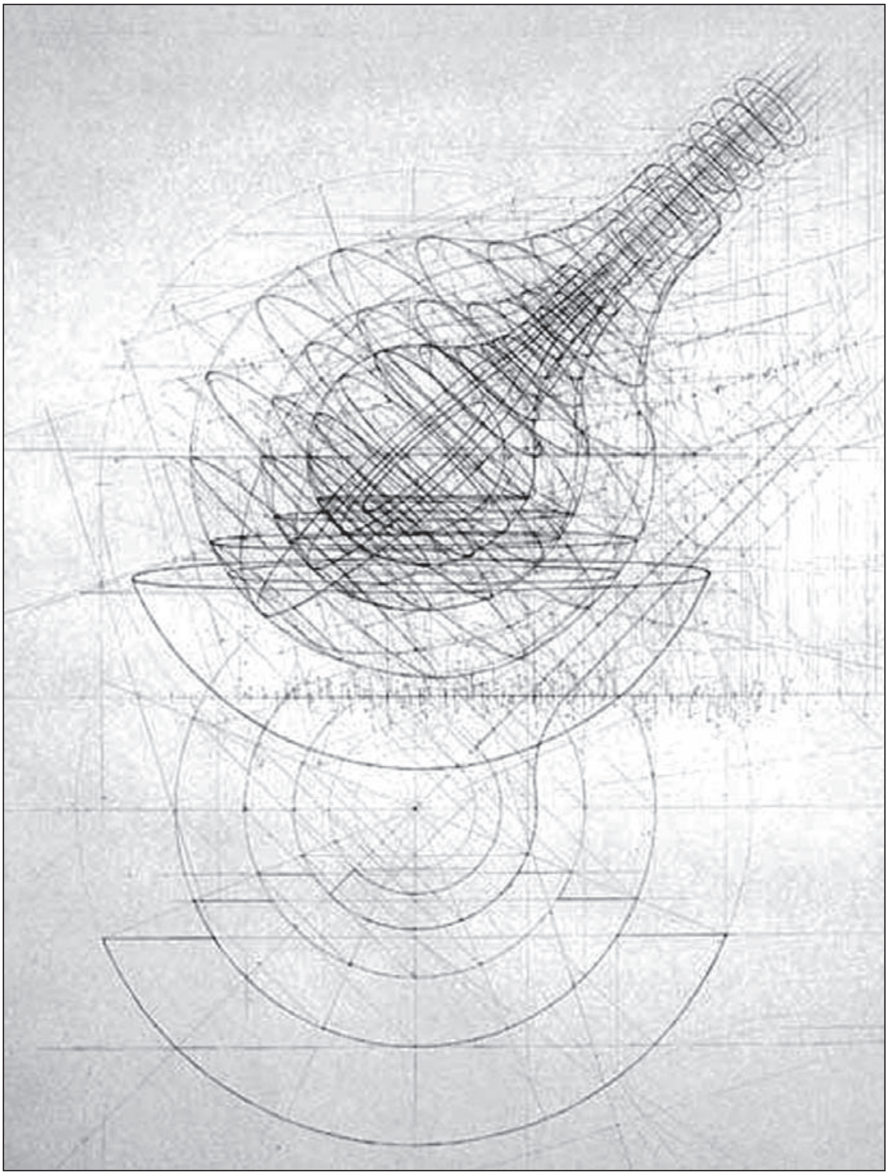


Fig. 30: *Glass* by Richard Talbot.

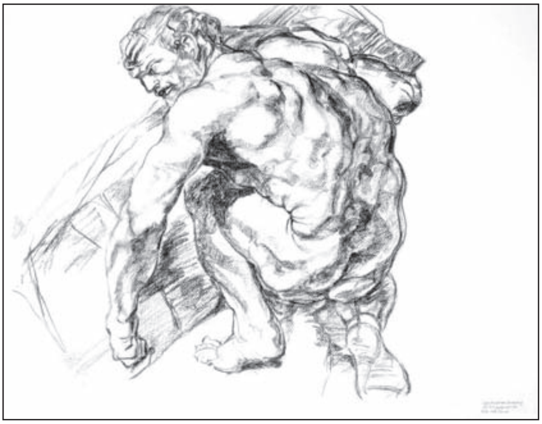


Fig. 31: The Author's third copy of *Rubens' Study for Abraham and Melchizdek.*

It was easier to identify the alternation between instances of certainty and hovering in Rubens' line because Talbot's non-gestural lines were implacable. If I could read this alternation when re-tracing the lines, I could get a sense for myself of how the original artist had also alternated between focusing and de-focusing whilst making the drawing.

It was harder to penetrate this alternation in Talbot's drawing because its lines gave no scope for interpretation. There appeared to be no joy connected with the performance of making them, no room for my own manoeuvres. I concluded that lines required some sense of energy in order to engage me. Flat or sterile lines did not do this, because I only got a sense of imitation rather than engagement with their qualities and this did not allow me to put anything back into the drawing.

Advice from Leonardo Da Vinci:

> I say to painters that no one should ever imitate the style of another because he will be called a nephew and not a child of nature with regard to art.
>
> (Da Vinci in Bambach 1999: 83)

From this I concluded two things. Firstly, that the object of copying was not to make a faithful reproduction but instead to reproduce the action required to make the marks and identify the subsequent effect this had on one's mindset as a result. In other words, what I could learn from copying arose from closely observing particular manifestations of the quality of the line and how this could be achieved. It was harder to physically investigate non-gestural drawings because there was less for the body to understand. Because of this it would be necessary to find a way of exploring this type of drawing in a deeper way.

Secondly, I concluded that because copying inscrutable lines might not engage the copyist as much as copying more gestural lines, this in itself might affect the qualitative experience of copying and what could be learnt as a result. More than this, I conjectured that it might not be possible to engage in learning about the conscious spatial behaviour of another artist using the gestural method of learning because this non-directional method might only be suitable for that type of line. In other words, copying might not only tell us about the differences in the line but also about the differences in what we have to do to learn about those lines.

My findings from this experience are that:

- Concentrating on technical reproduction inhibits my ability to reproduce the quality of the line and makes the resultant marks sterile.
- Copying a 'non-gestural' mark is more difficult to connect with because I cannot bodily put as much of myself into the activity as I can with a more 'gestural' mark.
- Copying a 'non-gestural' line can make the experience of copying onerous and hinder a more immediate understanding of the process which lies behind the original.
- Copying involves observing a particular manifestation of a quality of the line and how it is arrived at.

An overview

Becoming familiar with the method of copying enabled me to gain insights into what I had to do to re-enact the processes of the original artist. I was not aiming to be able to say with certainty what the original artist was thinking when the original drawing was made – neither was I trying to recreate the original artist's experience. Both of these propositions would regard the method as being able to prove some sort of finite aim based on there being certainty about what could be known about the original artist's thinking process. Instead, this familiarisation period confirmed that what could be known from copying primarily related to one's engagement with physical processes.

Copying works because physically reproducing another artist's marks displaces one's habitual and familiar drawing practices.

Although my focus had initially been to learn about other artists' thinking processes, as I progressed I started to pay attention to aspects of my own experience whilst engaging in unfamiliar physical processes. The insights I gained about the original artists' processes arose from my experience of physically re-enacting them. This gave me very personal understandings about how drawings were made from which I could make judgements about what I regarded as being the key qualities of the original artist's thinking process. It was clear that at times this process also involved me making explicit to myself what it was that I was coming to know, by describing and creating for myself overviews about the methods I was using. The by-product of doing this was a substantial body of work which started to tell its own story, from which analysis and conclusions could be drawn.

At this point in my enquiry I was only briefly acquainted with Varela's ideas about enactive thinking and had no in-depth knowledge about his methodological ideas concerning awareness. In retrospect, I can see how the insights I gained about the part physical process plays in copying corroborates the central tenet of Varela's enactive ideas that thinking is located in the relations between the processes of the individual. I found evidence of this in copying, as my understandings became revealed through physical processes rather than in relation to finite events. In this sense, it was inevitable that my understandings would relate to my own engagement in these processes and that my knowledge was relative to having done this.

At the conclusion of this period I could place myself within a tradition of copying and could distinguish three types or 'models' of copying:

a. Copying to replicate
Used for instance by forgers, the aim of this is simply to produce work which serves as a visually proximate or facsimile of the original. One's only concern here is whether or not a copy ends up looking like an original. Engagement with the process in this sense takes us no further in investigating the thinking process of the original artist.

b. Copying to transcribe
This type of copying is used to investigate issues in the artist's own practice (for instance, the kind of copying that Picasso was involved in when making a group of paintings influenced by *Las Maninas* by Velazquez). This model is differentiated in terms of intentionality because copying is used as a framework for the self-development of the person copying, rather than the terms of the original artist.

c. Copying to learn
This was the type of copying that was most relevant to my enquiry. It involved copying with an intention to investigate the original artist's processes in a deeper way. By re-enacting a drawing one can learn about the original artist's thinking process in a way that is not accessible by simply viewing or theorising about a drawing. This was the model I would use next to try to make explicit what could be known about drawings by Richard Talbot and Oliver Zwink and, through doing so, evolve the method further.

Note

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1. This view was confirmed by visitors who had known him and happened to be visiting the gallery.

Chapter 9

The Case Studies of Richard Talbot and Oliver Zwink

Glasgow School of Art
167 Renfrew Street,
Glasgow
G3 6RQ

Dear Richard and Oliver,

I wanted to ask you both if for the next part of my investigation I might borrow from you one of your drawings. I'm asking this because I want to filter what you said in interview about your process through studio practice.

As you know, I am keen to investigate thinking as an embodied process by trying to inhabit your drawing processes. My hunch is that practice can more ably provide reliable findings about thinking as an embodied activity than theoretically based approaches can.

The problem I had after we last met, was how I could reconstruct the processes you outlined in interview. From the range of options about how I might do this, I have opted to use the time-honoured method of copying to reproduce one of your drawings. I would not do this with a view to imitation but as a means of gaining an insight into the judgements and thought processes you used when making the work. By re-enacting your drawings I hope that it becomes possible to observe and gauge the personal understandings which come from that experience. The copies I make of your drawings will be used only in the context of my enquiry.

Two particular issues discussed in the interviews helped to develop this practical 'model of thinking'. Firstly, you both mentioned how you had developed your practices through a visual 'taking in' of the work of others. Oliver described this as 'physically going through other [artists] minds somehow… and because you go through all these other painters spirits or something… you start evolving your own reference points and they can be physical'. Richard mentioned feeling as though he had actually absorbed something from different kinds of drawings and that his own drawings probably involved every type of drawing one way or another.

Secondly, you both referred to the effect the experience of drawing had upon your understanding of the world at large. Richard mentioned that he could relate what he came to know through drawing to his subsequent responses about work by others: experiencing something in his own work suddenly allowed him to become aware of similar concerns in the work of others. Oliver referred to this in terms of what was from 'inside' and what was from 'outside' his artwork. He saw himself as a medium 'for the outer world going through him' which involved a metamorphosis or translation through which he could make the world recognisable.

These accounts were important because they suggested that you had both come to identify what you know through visual and physical processes. Your accounts highlighted the importance of your respective roles in what you came to know. The qualities of your experience of being involved in the process seemed to be the driving force in making drawings.

The idea to copy your drawings arose from thinking about whether drawing is a particular type of thinking which can be accessed through experience. I hope by recreating your drawing that I will gain insight into the experience of making your drawing for myself and will be able to put myself into the mindset of your judgements in a way that is not accessible through other verbal, theoretical or visual methods. From this I hope it might be possible to establish a generative yet relatively unfixed model of thinking as an alternative to other models.

It would help enormously if you are agreeable to this, if I could borrow one of your original drawings.

I look forward to hearing from you,

Kind regards,
Trish Cain

Copying Richard Talbot's drawing *Glass*

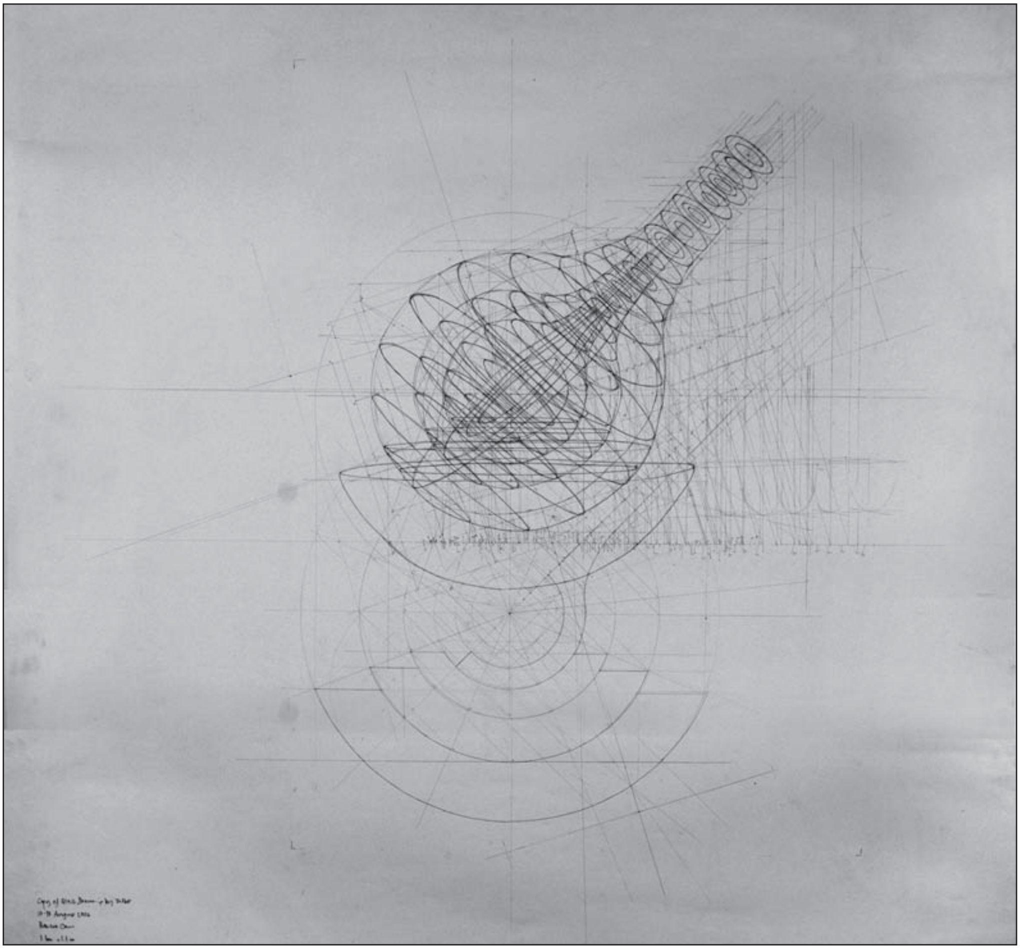


Fig. 32: *Glass* – copy by the Author after Richard Talbot 1.1 x 1.1 m.

It took me a week and a half to make a full size copy of Richard Talbot's drawing *Glass* (*Fig. 32*). Its complexity and size meant that the process was very intense and time-consuming. I kept a journal to record the experience and reverted to the interview transcripts at various intervals.

Initially, I saw *Glass* as a brilliant technical drawing of various perspectival views of a real object. The task of reproducing the drawing seemed impossible because I had very little knowledge about perspective drawing generally. I was also aware that I was trying to visually read the image as an 'object' both before and during the process.

Excerpt from the Author's journal

I am overwhelmed by its complexity and the thought of trying to get it right as an object threatens to overthrow any intentions I have to try to concentrate on his process rather than his forms…. I am fearful of getting things wrong: of not knowing the 'set' language of perspective.

Not knowing where to start, I re-familiarised myself with what Talbot had said in his interviews, hoping this might give me a way into the drawing:

a. Re-visiting the interviews

Talbot in interview

There was another drawing that has had its basis in seeing something called a Glass Armonica that Mozart composed for, and it was a series of concentric glass dishes…that revolved on a…they were concentrically placed on a spindle. Then they would be spun and you would wet your finger…So one of the drawings was based on that…basically the idea of concentric forms.

[I began by using]…dead white paper…using as hard a pencil as I can.

…as large a piece of paper as I can actually find……establish an absolute vertical and an absolute horizontal…

What seems quite important is just to actually get on and start putting pencil onto paper. That's quite an important thing…but once you're there, actually on the paper, working on the paper there are some things which are going on in the paper…it seems to make more sense.

Taking what Talbot had said in interview, I began to make the drawing.

b. Starting with the plan

Talbot in interview

And then I…depending on what it was…what the idea was, I'd start drawing out some kind of plan – it would be a plan actually on this paper, or an elevation, because I'm quite interested in where the two things can actually act as both, where the plan can actually act as an elevation and vice versa.

I began copying the lower section of the drawing – the part I considered to be the plan, drawing out very faint lines using compass ruler and protractor. I made a series of lines, the main central line of which had an orientation to the left (*Fig. 33*).

Taking my measurements from the original drawing, I tried to be as exact as I could. The circles were so large, that I had to make my own compass. I couldn't understand the relationship between each of the six circles but I was aware that they decreased proportionately in size from the largest. Each was then dissected into 16 equal segments and each segment was dissected by the lines of each circle, so that the final plan was quite complex, with 80 different sections.

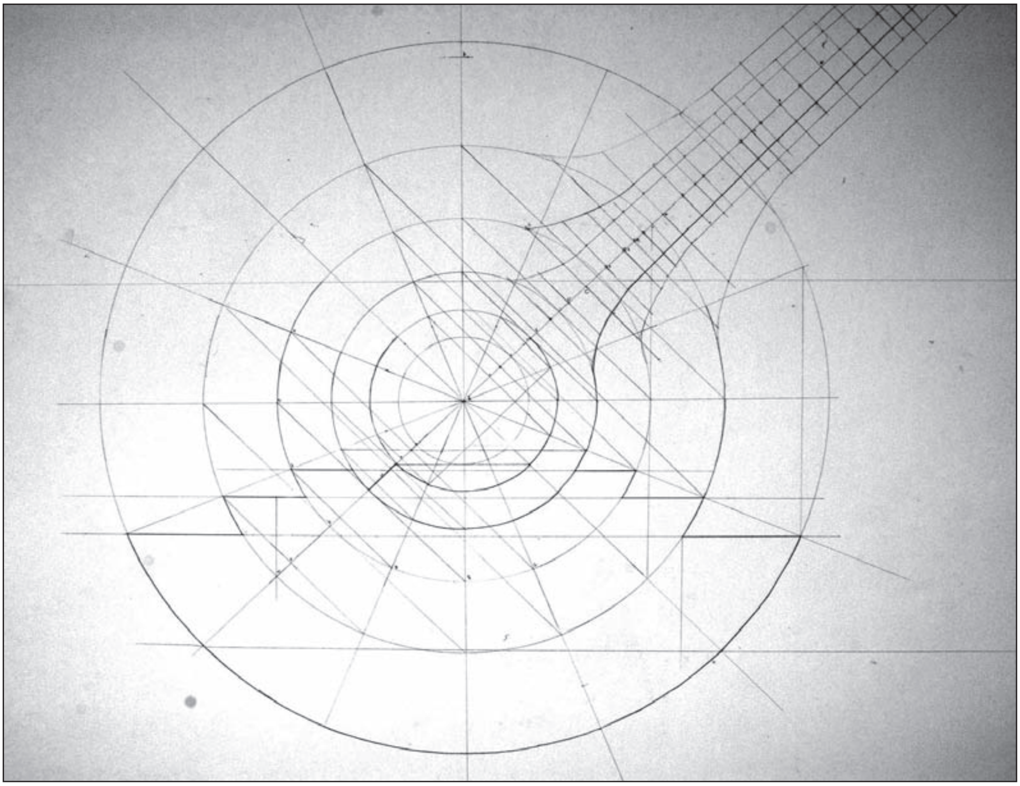


Fig. 33: *Glass*: plan drawing by the Author.

c. The Scaffolding

Talbot in interview

I'm developing some kind of scaffolding in which to make decisions.

For the next part of the drawing, I tried to make what Talbot calls 'scaffolding'– a space on the paper in which to work (*Fig. 34*). This was not straightforward however, because the lines which formed the scaffolding or mesh were constructed according to rules, which again I did not understand. This meant that I was blindly following patterns and trying to work out with my head what their purpose was as I went along:

> *Excerpt from the Author's journal*
>
> …I am spending a lot of time trying to work out the role of each line and mark in relation to the others. It seems like I'm working backwards to try to pinpoint the point at which I can 'enter' the work.

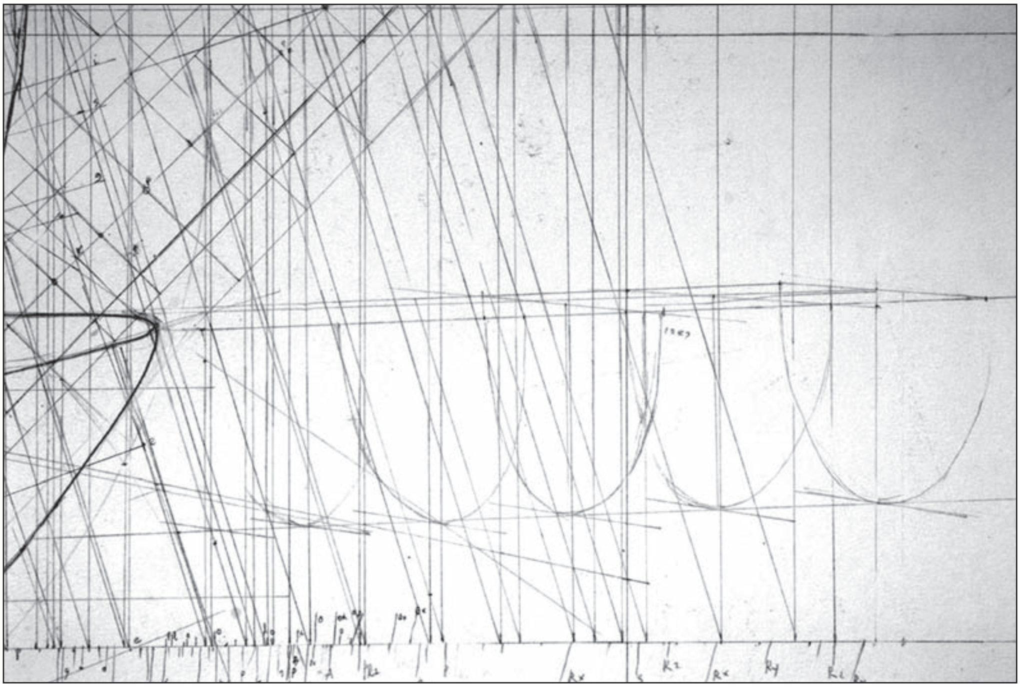


Fig. 34: *Glass*: constructing the scaffolding.

I soon realised that what I was doing was outside the familiarity of anything I had drawn previously before, both in relation to the marks Talbot used and their role in an unfamiliar system. It was hard to locate anything I could identify with because everything was so new. Consciously making the straight lines a certain length, joining them to others at certain angles, and trying to establish their purpose interfered with my body's ability to just get on and make the copy. As I continued making the patterns however, I started to feel a certain sense of playfulness by imagining what I might myself have made of the lines if I were not copying the whole thing:

Excerpt from the Author's journal

Whilst I was doing this, it was as though my eye was dragging me toward making something not quite right about the pattern – I enjoyed playing with a 'wrong interpretation' by imagining darker lines that would disrupt the pattern in a new way. I recalled Richard as having said, 'You can add things into it, make things link into it, or cut through it.' It was this playful response that was the most pleasing aspect of making the construction at this stage, yet at the same time the most difficult to overthrow when it came to reproducing the marks accurately.

I thought that like me, Talbot would have had to almost constantly remind himself about what he was doing and that this would have meant that his conscious thoughts would have intervened in the physical process at regular intervals.

Talbot in interview

I'm having to actually label marks sometimes, and then…because I'm plotting them…so, so there's a different kind of mark there.

Progress was very slow, often because my eye was continually distracted away from the feint lines of the scaffolding to the darker lines. These heavier lines appeared to me to constitute decisions Talbot had made about which lines he should highlight in order to make his final forms more visible (*Fig. 35*). I had the advantage of knowing what his process would lead to, whereas Talbot would be blind to this whilst making the drawing. It was hard to imagine what it was like to make the drawing from scratch when the final form was in front of me.

Excerpt from the Author's journal

The outcome (the concentric image formed from darker lines) is already visible and if I were to concentrate on these lines only, I would miss the process by which they became defined. So I am trying to go behind the more visually evident darker marks to concentrate on the less visible structure that is underpinning the forms to see how the construction of the final thing comes about.

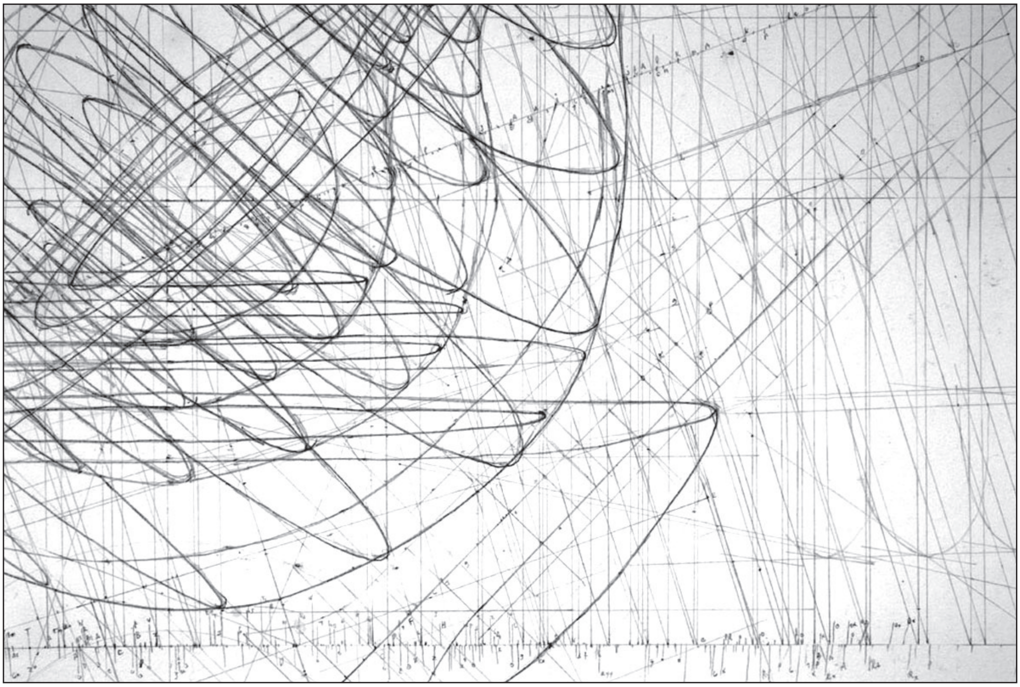


Fig. 35: *Glass*: trying not to look at the lines of the final form.

It was difficult to appreciate what was being represented because I was paying so much attention to making many detailed lines, so in this sense my concentration was in an active process rather than the re-presentation of an object.

d. Considering gesture

Many of the initial stages in the drawing involved the slow process of plotting lines in a fairly exact manner. But at a certain point the forms that become accentuated in Talbot's matrix are made with freehand lines which visually suggested that there was some change in the type of decision he was using to create them. I made these lines darker than others by going over them again by freehand. By doing this it was as if I was affirming Talbot's decisions or choices (*Fig. 33*).

Talbot in interview

People will look at them and think they're not in any way gestural, but I think there is always an element of the actual quality of the line…I'm quite aware of the kind of line that is produced if you trace a technical drawing type of line. It is actually quite different from the kind of line I produce freehand.

What this apparent change in gesture meant was intriguing. The freehand lines had a quality of 'feeling their way' with the pencil instead of being decisions that were certain in nature or products of 'seeing a decision through'. The gestures required to make these freehand lines were totally different in character to those required, for instance, to re-produce Rubens 'groping line'. In many ways making the freehand lines was not that different from the processes I had used to make the ruled lines. To make the freehand ellipses I still had to plot points within the grid and join these up by reference to how my eye judged the forms as being balanced. Anticipating that this might be difficult, I had practiced drawing a few ellipses before copying those in *Glass* (*Fig. 36*).

Talbot in interview

If I am plotting, if I'm drawing a curve, I'm kind of actually drawing that by hand, so that kind of mark is quite different. But if I am plotting a curve…I mean when I say plotting, it possibly would be by plotting points where I know that curve goes, so I'm then making a curve by hand, and so that the quality of that line is quite particular.

In the end, although I could not come to any firm conclusions about what the particular differences between the freehand and ruled lines might mean in relation to Talbot's thought process, I did think that it was necessary to overcome stylistic references associated with perspective drawing in order to be able to discover more about what this change might mean. The trouble was that I could not identify Talbot's thinking process by reference to the quality of his lines. All I could identify generally was the way in which his conscious thoughts must have intervened with making the line, so that he was playing 'in his head' rather than 'through his body'.

Talbot in interview

But what I'm trying to do is find the form…develop the form within the scaffolding that I feel I can then work with.

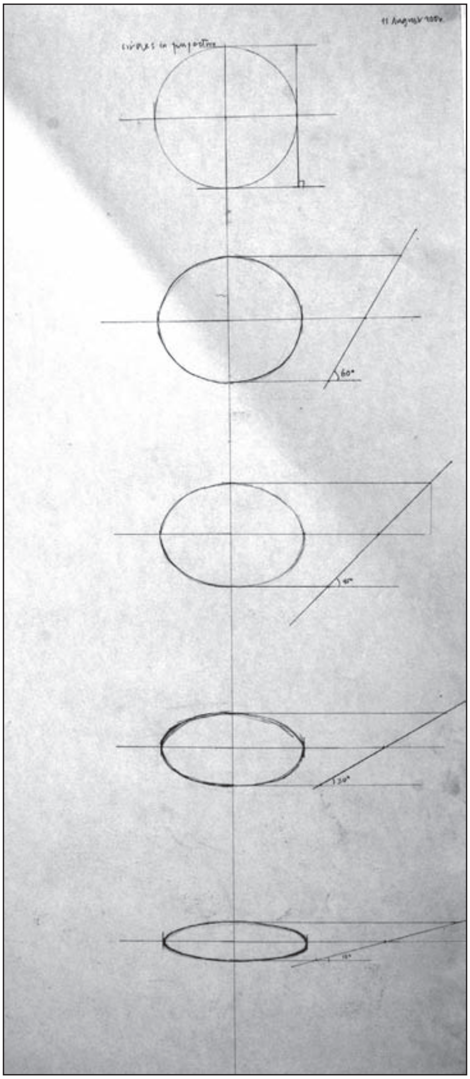


Fig. 36: Ellipse practice study sheet by the Author.

e. The overall experience of making this copy

In my journal I described the task of re-making Glass as a huge task of work – 'an out-of-the-ordinary duration'. Being caught up in the bodily process of re-enacting made it difficult to talk about things in a concrete manner, away from the action of making. Although my written observations were limited, the act of drawing had raised its own set of questions; How did all the sections of the drawing link up? How much did Talbot know to start with?

Which decisions in the drawing were made by a system of perspective drawing, and which decisions were independent of this? There was a lot still left to investigate about Talbot's unfamiliar hand and system.

Despite my limited observations, I felt intimately acquainted with the drawing because of the long close physical and mental observation I had been involved in whilst re-making each line. I felt as though I had a lot of 'knowledge' about *Glass* even though I could not immediately say what this was because this intimate acquaintance was bound up in the physical ways I had made the drawing. There was an overwhelming sense of construction to the way in which *Glass* had been made. Different, almost separate, stages were involved but the logic about where these began and ended and how they were put together was not immediately evident.

Excerpt from the Author's journal

By drawing the whole thing I have became aware of how the layers of perspective have been constructed. I have done this partially with a blind eye because I have not understood the rules. At times I've simply just had to follow the lines, but more than that because making those lines has given me something that I have tried to make sense of. Even though I might not be able to account for what I've done by reference to a standardised set of rules, I am beginning to have some idea of what using the rules feels like just by having followed Talbot's patterns.

Various forms seemed to have been developed not only by reference to the plan but also to other subsequent stages. I could visualise the shape of Talbot's constructive thinking process and the way in which each stage was linked to the original idea in the plan yet extended by reference to all other stages (*Fig. 37*).

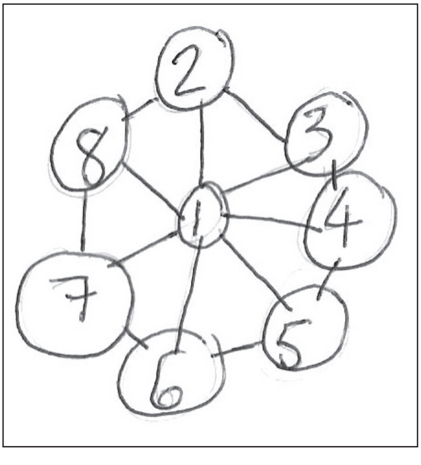


Fig. 37: The Author's diagram of Talbot's constructive model of thinking.

Excerpt from the Author's journal

After starting relatively blindly when I had to take each line as an individual unconnected to its surroundings, an intersecting pattern now reveals something of the interlocking nature from which the final image is constructed. The scaffolding appears to suggest and lay out a basis for further forms. Whilst re-making this, I began to think quite specifically about the relationships between the lines – not just chronologically, but the visual effect one line had upon another in quite a detailed way.

My initial thoughts about *Glass*, that it looked like a brilliant technical drawing of various perspectival views of a real object, were replaced by the notion that Talbot had been engaged in a speculative and elaborate fantasy that had initially been based on an object in the real world once I had re-made it. It wasn't until I had done this that I started to get an understanding for myself about the way in which his process had contributed to its final form. I wasn't drawing a real object; I was drawing the way in which Talbot evolved and managed his processes in this constructive undertaking. I started to question how something so apparently 'representational' was not about what I had imagined, and was persuaded to see that *Glass* was a drawing about a drawing.

Once I realised this, I felt more able to deconstruct the drawing to see how it had tricked me. I think that because our eye tends to imbue technical drawings with a trusting sense of reality, it is possible to forget in some ways that we are looking at drawings and are simply imagining what they can be. I stopped seeing the drawing in this way and started to read the marks by reference to process instead. I suspected that this involved the interplay between Talbot and what he was drawing on the paper, but it wasn't possible to be more specific about this without delving deeper.

Copying Oliver Zwink's drawing *Wave*

I copied Oliver Zwink's drawing *Wave* in a piecemeal manner over a number of days (*Fig.38*). The process was interrupted by an intervening period during which I had to make seven other drawings for an exhibition I was committed to as part of my own art practice. It was during the process of making these exhibition drawings that I ruminated on the experience of copying *Wave*. I inadvertently found myself making comparisons between our processes. I remembered what Zwink had said in interview about starting a drawing:

Zwink in interview

I mainly have a will to draw…mostly I don't have a specific form in mind. There's more a certain kind of energy which I want to use and to form something […] Drawing is about exclusion… when you draw lines you exclude the space around it to make it visible somehow.

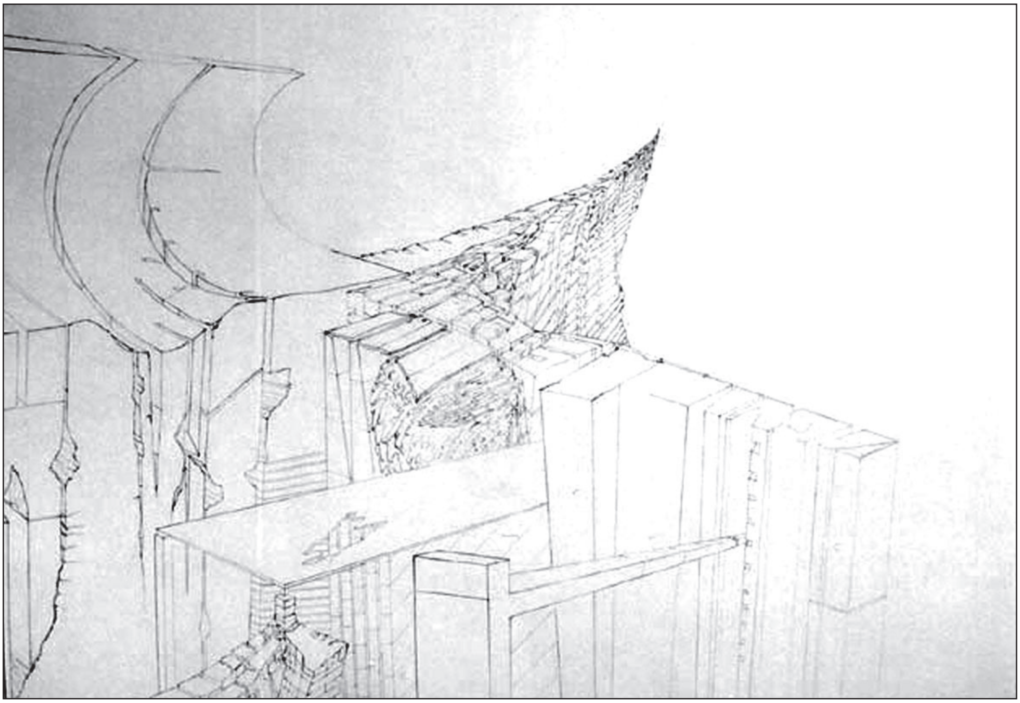


Fig. 38: *Wave* by Oliver Zwink.

I was interested to know whether Zwink's description of 'finding the drawing' on the paper would be part of my experience of reproducing it. Whereas Talbot had assisted in leaving all the construction lines visible in his drawing, Zwink had not, so there was less direct visual evidence about what part of the drawing was made first. Zwink had mentioned that he often drafted out a complex terrain to start with which he would then shape or cut into, but the carefulness, clarity and singularity of the lines in *Wave* made me question whether this drawing had not been drafted out like that. So instead, I picked a point at the top left hand corner of the paper and began copying whilst ruminating on his description of having 'no specific form in mind'.

Two contradictory things struck me as I began to draw; firstly, his lines were very carefully drawn and not hasty. Some lines had to be made with a ruler. These were then followed on with freehand lines, but each was similarly crafted in the way that they appeared to be 'thoughtful' (*Fig. 39*).

Secondly, compared to Talbot's process, copying Zwink's drawing was archaic. I very much got the sense from following his lines that his construction process was partially led by opportunity and partially led by resolve, but that these processes had to do with direction, movement and linking. I wondered whether this dichotomy was what he had described in interview as being a process which was directed by 'two wills'.

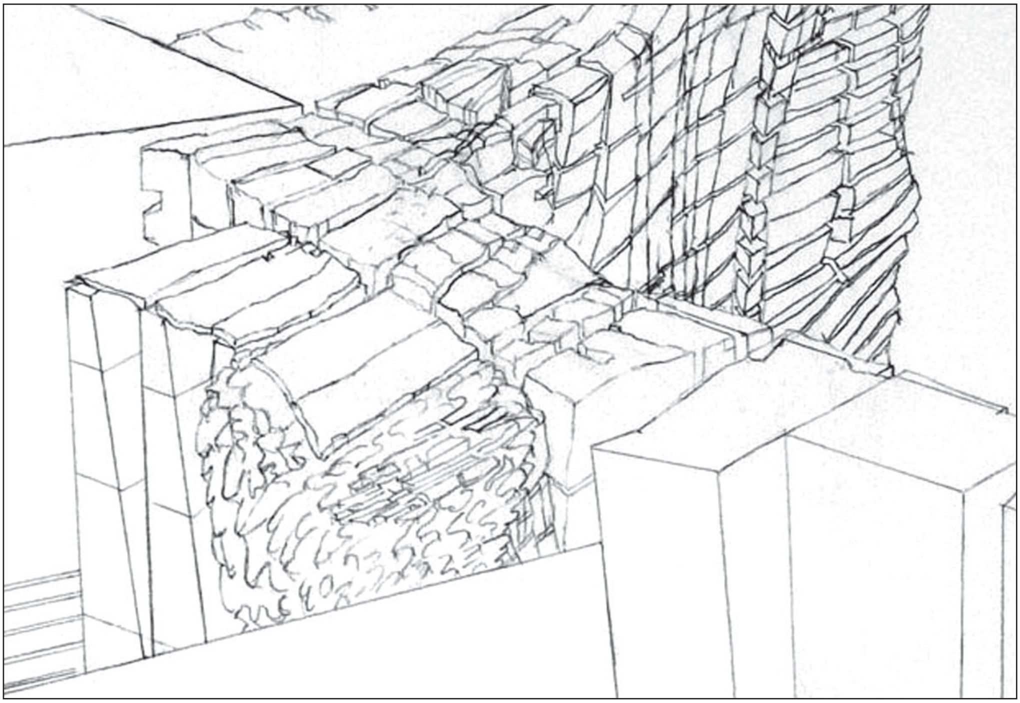


Fig. 39: *Wave*: some lines were made by hand whilst others were made with a ruler.

Zwink in interview

I think that there are two different…wills maybe, which are…which are maybe struggling with each other…the one is…the one is more gestural, has to do more really with hand work or with doing…with an obsessive occupation.

…The other one is to control this occupation, in terms of constructing, in terms of controlling, in terms of composing, in terms of forming an image…and at times, the force of…the gestural force…or whatever you call it, is more important.

So there are these two elements, which are I think quite important, and maybe they're…they're both, they're kind of dialectic, you know, in the sense that they meet, and that they come and go. I think there's a good…it's a good way of working when these two things…are not in balance, because balance is boring…and this keeps the process alive.

Following Zwink's lines very much gave me a sense of being drawn into a process which alternated between being discriminate at certain times, and indiscriminate at others.

Excerpt from the Author's journal

Despite not knowing the order in which his marks were made, the drawing pulls me into a way of working whereby its form follows where the pencil leads to some extent…In this it differs significantly from Talbot's drawing, because in Talbot's drawing there seems to be too much predictability and not enough chance. What chance there is, is built from existing predictable forms, whereas in Zwink's drawing there is more freedom to somehow use chance to direct the pencil.

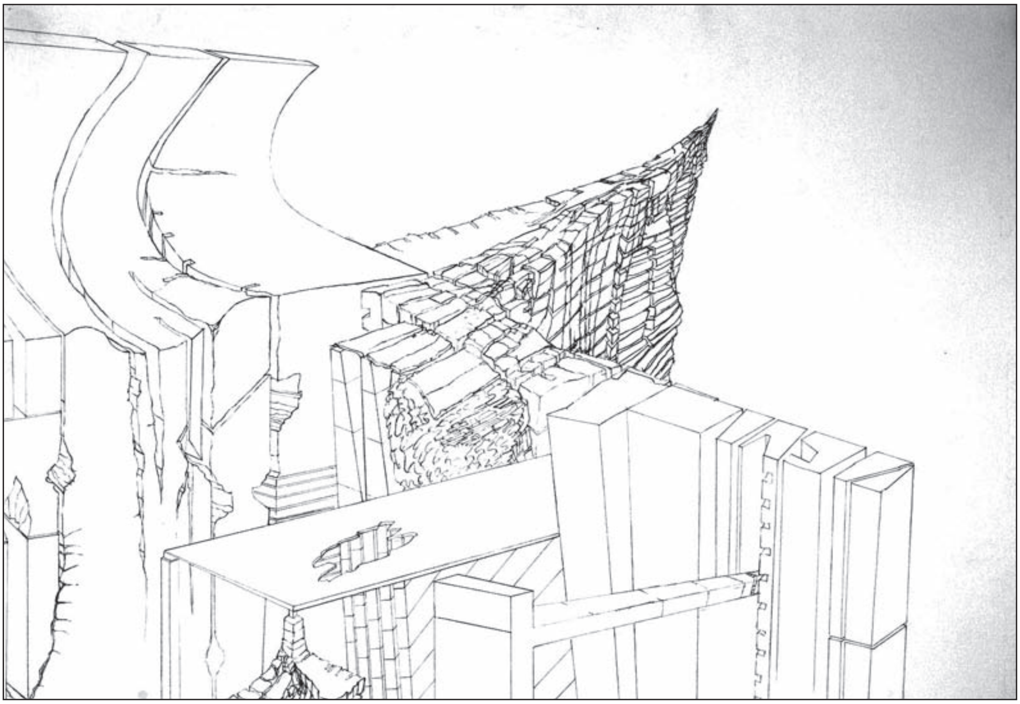


Fig. 40: *Wave*: copy by the Author.

Occasionally certain lines had the effect of making me 'pull back' to view the whole drawing, whereas other lines kept me closer to what was going on in the paper. I had the feeling that this process effectively helped to mould the form and composition of Zwink's subject matter as a result. In comparison to Talbot, who seemed to use a strong conceptual focus to play with and kept within the ambits of his original concept, Zwink allowed his pencil to explore over the terrain of the paper. It was this dialectic that formed his process and provided the framework for how his drawing emerged (*Fig. 40*).

Excerpt from the Author's journal

Zwink's lines convey a sparse accurateness and I find myself constructing them very carefully, yet wandering aimlessly too. In making the copy I experienced a real give and take between the different qualities of his lines, and this is resonant of a slow thinking process…I can sense that a kind of mulling over had been gone through whilst making the work and I know from my own experience that this type of drawing is never very quick.

The way in which *Wave* almost appeared to be falling off the paper made me think that it hadn't been planned (although no doubt the most major lines would have been made to fit the paper). It was as though each thing Zwink had drawn had come about as a result of its direct relationship to the last thing he had drawn, rather than from being part of some greater framework. It was not forward looking other than in the sense that it was a response, but whilst this method was archaic, it was also quite carefully archaic. I could identify from this engagement that Zwink's mode of thinking or making was sequential compared to that of Talbot; each new stage seemed to rely on his last thought or action rather than on its relationship to the whole (*Fig. 41*).

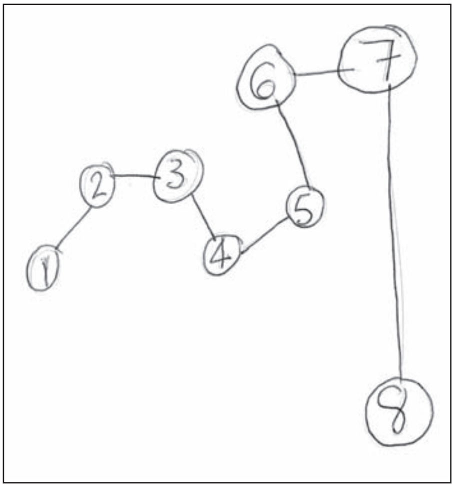


Fig. 41: The Author's diagram of Zwink's sequential mode of thinking.

This was similar to the process I had used to whilst making some of the drawings for the intervening exhibition. This similarity was most pronounced whilst making two complex pen drawings of the urban landscape in Glasgow (*Figs. 42 & 43*).

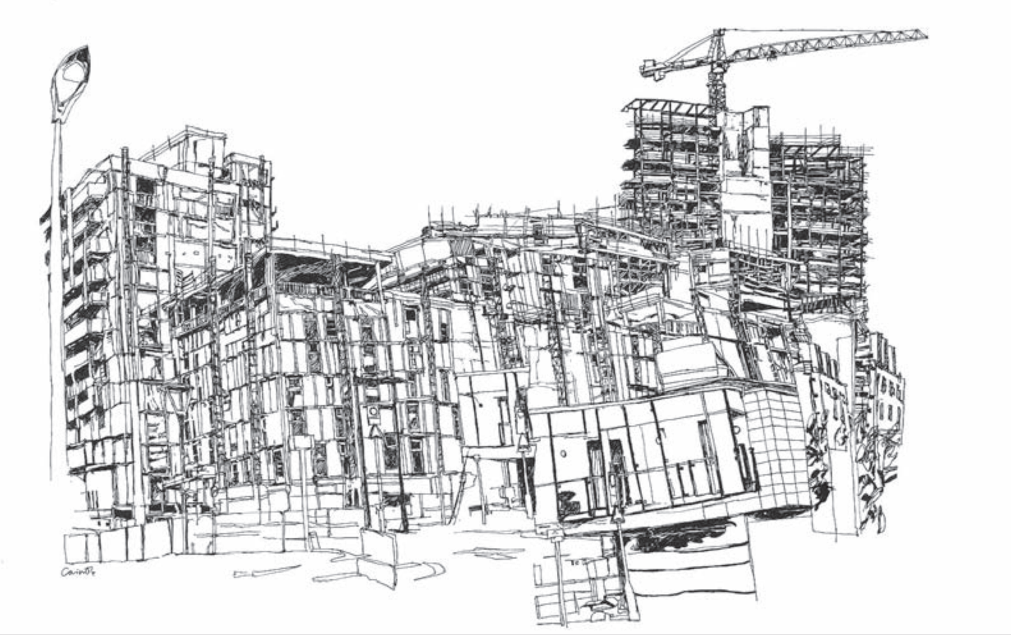
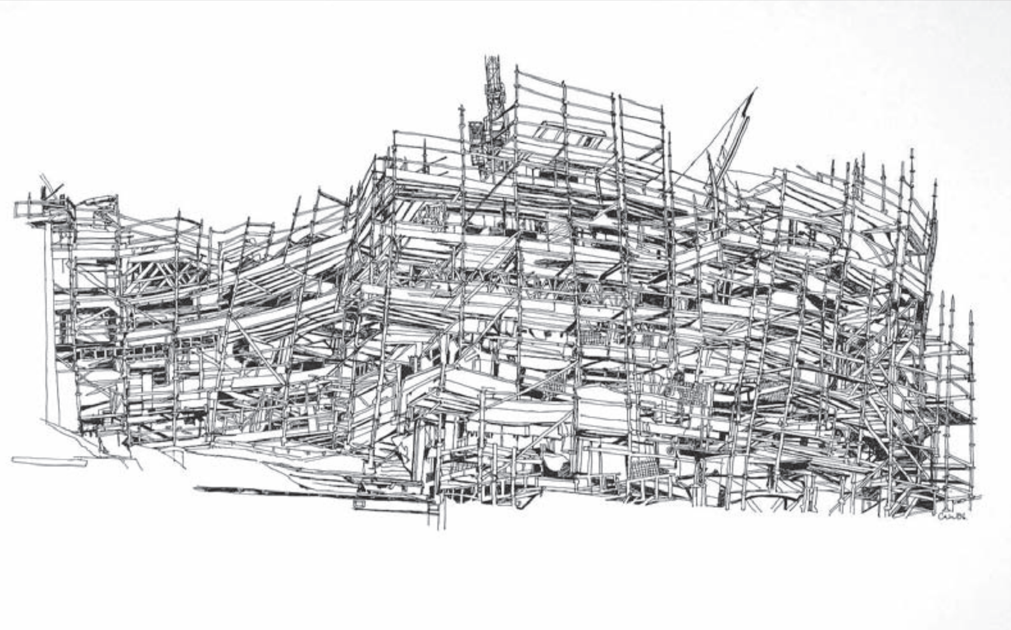


Fig. 42: *Glasgow Harbour #4* by the Author.

Fig. 43: *Partick Scaffolding #2* by the Author.



For each of these drawings I had started from one side of the paper and created the image as I spread out across the page. As a result each drawing was technically inaccurate in scale, but encapsulated something of the essence of the constructed-ness of my subject matter. I recognised whilst making these that Zwink too had engaged in a process where he had simply made the drawing 'on the hoof', rather than letting a conscious overall strategy lead the process.

> *Excerpt from the Author's journal*
>
> This was not a strategy I was aware of before I had made my drawings – it was afterwards that I realised what I had done. I'd had no structured framework within which to make the drawing, so there were no preparatory lines other than those which became the 'final version'. My engagement in the process of making, rather than a pre-determined strategy, had led me. There is a resemblance between our working processes and the way in which we made our respective judgements.

This kind of drawing is made completely differently to the type of drawing which has a framework to ensure that it is accurate in scale. To explore these differences I took the *Partick Scaffolding #2* drawing, which had evolved in a way where each mark was made in relation to the last (*Fig. 43*), and made a second drawing of the same subject (*Partick Scaffolding #3*), in which I set up a framework for the whole at the outset and kept within its parameters throughout (*Fig. 44)*. I wanted to see what would happen if I transposed my subject matter into a different kind of thinking-process and curtail the influence of my usual sequential process. By creating what I considered to be a fixed framework within which there was little room to manoeuvre, I was strongly going against a process that had naturally developed within my own practice.

The pre-determined framework in the second drawing gave its composition a sense of 'fixedness', whereas in the first drawing the process of moving from one side of the page to the other had constructed more of a 'lean-to' affair (*Fig. 45*). The framework had served as a constraint to the process I was familiar with. Although this had made the image more exact in terms of scale, I had experienced a feeling of constant irritation whilst making the drawing because there was less input from me and more input from the framework (or to be more precise, the constraint I had imposed on myself by making the framework).

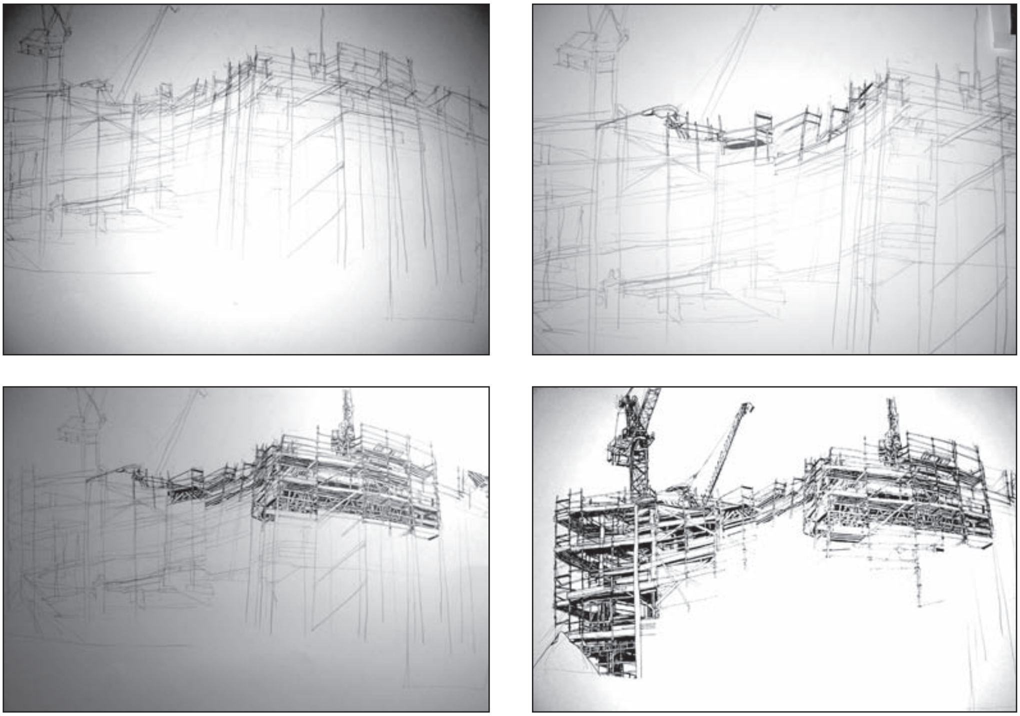


Fig. 44: Images recording the development of *Partick Scaffolding #3*.

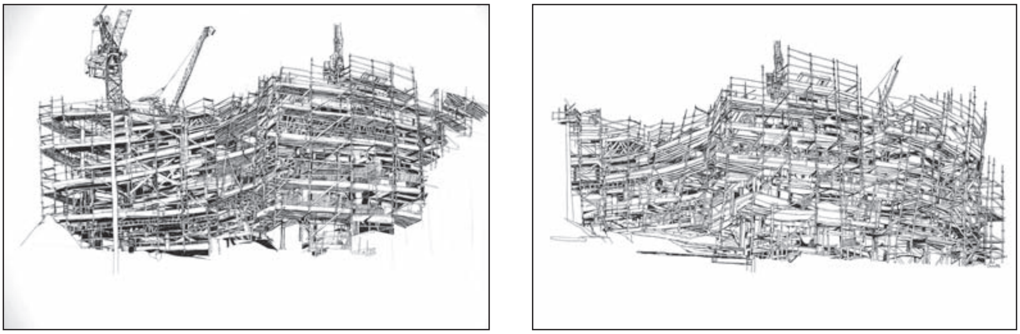


Fig. 45: A comparison between *Partick Scaffolding #3* and *Partick Scaffolding #2*.

An overview of the case studies

By physically re-making Talbot and Zwink's drawings, I began to have an awareness of each artist's process of construction, and although these were different, there were also similarities between the two. Each artist had some knowledge about what he was doing when he began the drawing but encountered the unknown throughout his process. Neither specifically set out to deal with chance, yet each created opportunities to allow himself to encounter a transformative experience.

Zwink's framework for *Wave* came from allowing himself to be drawn into a way of working which was a dialectic between processes that were discriminate or controlled, and others which were indiscriminate or gestural. Recognising the similarity between this and the framework I use in my own practice, I extended the method of copying to isolate these qualities and explore them in further drawings. Copying was not now limited to the orthodox representation of an original drawing, but was a way of exploring another artist's processes by drawing in other ways.

I could not access Talbot's process as easily thanks to my unfamiliarity with perspective drawing and because Talbot's lines were gesturally inscrutable. What I knew about Talbot's thinking processes was closely tied in with the physical effort of re-making *Glass*. From re-producing his patterns of lines (which I suspected represented different levels in his decision-making), I could identify that he had constructed *Glass* in specific stages, but it was difficult to reveal more about the nature of his judgements.

Because there appeared to be so much more hidden in Talbot's drawing, I next decided to use *Glass* as a deep case study to examine through drawn exploration what I could find about the key qualities of his decisions.

Chapter 10

Four Narratives About the Experience of Re-enacting Talbot's Drawing *Glass*

Introduction

In this chapter I describe in four narrative accounts how I explored Talbot's process further through drawing. These accounts which form the heart of my enquiry, demonstrate how I developed the limited conscious knowledge I had from making my initial copy of *Glass.* I suspected that Talbot had constructed the drawing in stages through a process that involved different kinds of decisions, but I had not been able to identify what was cohesively binding these stages.

My first narrative compares the experience of re-enacting Talbot's lines with re-enacting Rubens' lines as a means of exposing the qualities manifested in each, and how these were arrived at. By doing this, I began to identify the distinct ways in which each artist had relationally made his marks and how this indicated different decision-making processes. Copying involved re-enacting the action required to re-produce another's marks and the mindset that accompanies doing this.

The second narrative shows how I attempted to find out what cohesively bound each stage in Talbot's constructive process. By isolating what I believed to be key stages as separate drawings on acetate paper, I could piece together certain qualities of Talbot's decision-making process. This arose in the interactions between the conventions of perspective drawing and the independent decisions he made. Talbot's way of working or 'transformation-in-movement-in-the-line' was the way in which he consciously intervened in the physical process of making his lines.

Having found that it was not possible to mine anything further about Talbot's moments of determinacy and indeterminacy by fixing each stage as a separate drawing, I show in the third narrative how I investigated Talbot's process along paths rather than points of observation. Through a series of sketches I demonstrate where Talbot's opportunities lie in the continuum of his process in a drawn narrative, which incorporates an account of my own thinking process as I made these drawings.

The final narrative describes what it was like after the intense sketchbook investigation to then experiment by making a series of unplanned drawings, with a view to physically reviewing what I had bodily learnt from interrogating Talbot's process. At the stage of my enquiry I found the most difficult in a personal sense, I discovered that although I had been focussing on Talbot, the real object of my investigation had been to discover aspects about my own process of thinking through my understandings about those of Talbot.

Through a combination of recording and reflective analysis, these four narrative accounts demonstrate how I have come to make sense of what I do; their quality and character demonstrate what and how I have come to know, from the increased awareness of my own situation that has evolved through drawing.

NARRATIVE 1 – COPYING A SECTION FOR COMPARISON

My strongest impression from making the initial copy of *Glass* was that Talbot's linear construction hid a creative process which was not immediately visible from looking at or even initially copying his lines. My first impulse was to try to express more clearly what I had physically done to re-create Talbot's lines. I decided to compare the rigidity of Talbot's lines with other more expressive and gestural lines to try to make evident the particular manifestations of qualities of each type of line and how each was arrived at. As Bolt had suggested, it might be possible to make observations about material thinking by focussing on specific aspects rather than on generalities to examine a proposition (Bolt 2006).

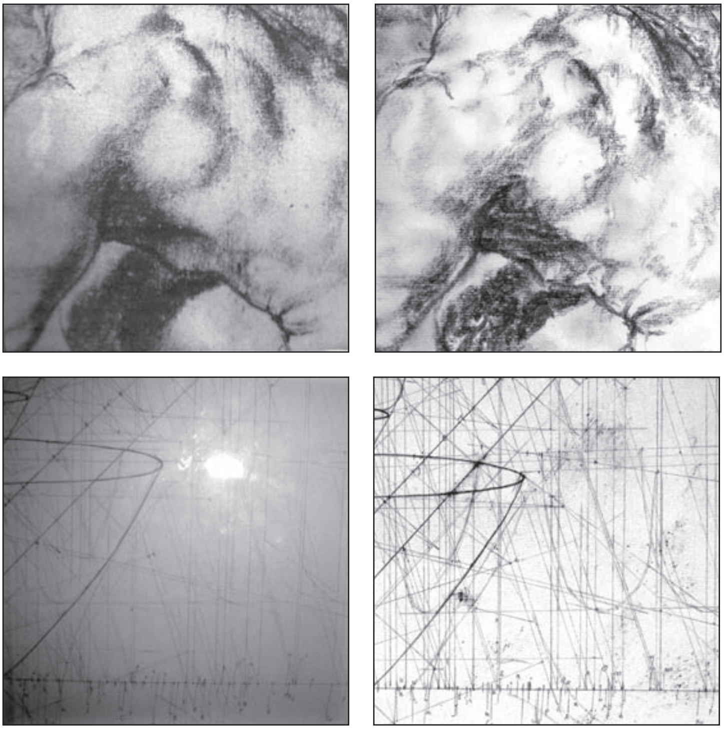


Fig. 46: A section of Rubens' *Study for Abraham and Melchizedek* compared to a section of Talbot's *Glass*.

With this in mind, I made and compared a section of the *Glass* drawing with a section of Rubens' drawing *Study for Abraham and Melchizedek*, experimenting with a hunch that comparing each process might make the qualities of Talbot's process more evident (*Fig. 46*). Focussing on a section rather than the whole meant that I was less tempted to consider each drawing as a representation and could concentrate on the nuances of the processes, even if this meant that some marks lost their relevance by being disconnected from their origins (*Fig. 47*).

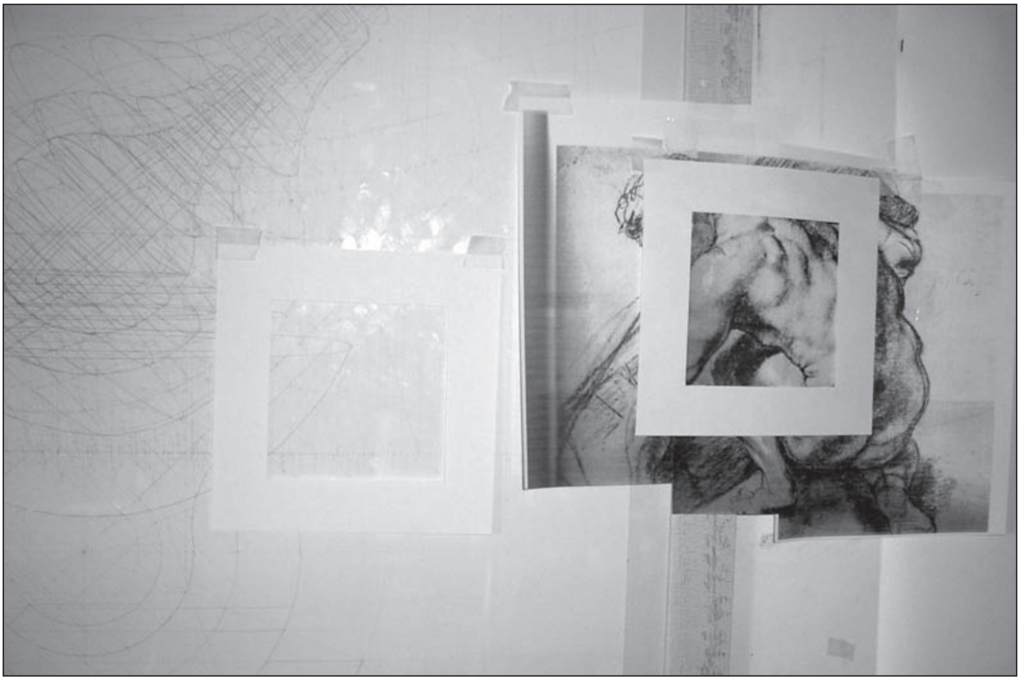


Fig. 47: The Method of taking a section.

Part of this experience of comparison involved simultaneously jotting down in my journal what came to mind as I was doing this:

The experience of making a section of *Glass* seemed to be about:	**…..whereas my experience of making Rubens' drawing suggested that:**
Intersections: placing: plotting. Some marks serve as the approximation for points: others rely on carefulness to create a certain length of line.	I am groping, dealing with outline, defining shapes. There is a fight between the processes of approximation and exactness that comes with 'eyeballing' his subject matter.
There is an interruption of marks because of the use of instruments. New lines come from plotted trajectories. The lines served as junctions to give meaning to the placement of other lines. Points in time are relational.	The lines seek to find out form, but are replenished as more become established over the originals. There is a build up – the accretion of events.
The fixed points are the perpendicular and the horizontal. These are used to judge angles and positions for others. …some are arteries from which others branch off…	Nothing of Rubens' marks is accidental. The light-handedness of his lines evokes a sensitisation. I concentrate on learning how I can use the inclination of my hand to master the chalk. In this way I'm trying to improve my understanding of how he makes his marks.
Some lines are not followed through. The process of plotting is not necessarily pre-determined, but serves as the next line of enquiry.	I may not know the scale well and the image is awry but at least I'm starting to understand how to hold the chalk.
His notation is unconnected. I have to join things up to make sense. I have to be orderly to make sure I don't miss anything. I can't sidetrack the system as lines don't make sense then.	Some of his lines are single and uninterrupted. I can see he has made a foray into the paper with a certain faith about what will arise. Other lines hover. I try to emulate their hesitations or adventurousness.
I am looking for patterns to aid my understanding.	

Excerpts from the Author's journal

These descriptions, which formed part of the experience of making, made clearer what I was physically doing to re-create the artist's marks. I could describe how each artist had made marks that were relational to others within the drawing (by relational I meant the way each mark gained its meaning) by reference to previous or subsequent marks. To me this indicated different modes of decision-making because each artist was tying the production of his lines together by using different sets of judgements.

Whilst making these sections, my focus was on learning how I could alter the inclination of my hand to master the chalk or pencil in order to improve my understandings about how the artist had made his marks. Remaking Talbot's section had involved the actions of placing and plotting. This was indicative of an activity that was not necessarily predetermined but in which each mark served as the next line of enquiry. Once the drawing was underway it was not possible to move easily to an unconnected point; each mark seemed to relate to another in an overall construction. From this, I began to see that Talbot's framework was not simply formed by the rules of perspective drawing, but rather the way in which he made decisions about his next line of enquiry whilst using perspective drawing.

In comparison, re-enacting Rubens' section revealed how his lines appeared to 'seek to find form'. They were made with the aim of representing anatomy and the relational characteristic of his marks was determined by the precision of scale and tone. Despite seeming 'softer' in tone than Talbot's lines, I was surprised to find that Rubens was perhaps more concerned with exactness than Talbot was.

By remaking each, I realised that I was not reproducing the lines as such, but rather the action required to reproduce them and the associated mind-set which was formed as a result. This enabled me to redefine the distinction I had made earlier between 'gestural' and 'non-gestural' lines. At that point, I had thought it easier to judge the quality of a line if a more gestural movement was required to reproduce it because I had been able to physically put more of myself into the process of re-enacting it.

Now I thought these descriptions were misleading because simply referring to gesture (even though it was usefully couched in action) was too clumsy. Describing how one re-enacted lines needed to be more nuanced and I now thought a better description should include reference to aspects of 'thinking-in-movement-in-the-moment' or 'transformation-in-movement-in-the-line'. This could embrace the unique aspects of each artist's relational process. It was with this in mind that I continued to dismantle Talbot's mindset further.

What have I done? Reflecting on and in my narrative about the comparisons

As I made this narrative, I realised that I had formed these understandings by using drawing as a means of reflection.

Varela had distinguished between 'the reflective act' and 'the act of reflection' (Depraz et al. 2003: 30). My understanding of what each means comes from recognising differences in how I reflect as I draw. At this point I was able to distinguish between the content of the reflective act (i.e. what I knew about the relations between the lines) from the reflective act itself (i.e. how I was watching myself making comparisons as part of the drawing process).

But I was also interested in Varela's proposition that we reflect whilst living our experience, and this to me was about whether drawing was in itself a reflective act – in other words, an inherent mode of reflexivity. Pushing myself further I asked myself whether there was any evidence to suggest that I was reflecting as part of the process. In practical terms, I asked myself; 'How is it that I know I make sense of what I'm doing?'

I believe that by creating this narrative I am making sense of my experience of drawing and this appears to be close to Varela's view that, 'What we are interested in is not the transcript of what I said at the time of reflecting, but the narration after the fact of my lived experience of reflecting' (Depraz et al. 2003: 2).

I make sense of using the method of comparison as an instinctual response to 'out' the different qualities of each drawing and how they had been arrived at. It is not that I have a problem to solve and that I need to find the best way to do this; rather it is the way I make sense of this to myself, as I intuitively respond through action whilst doing this.

I made sense of the decision-making processes of Talbot and Rubens through the physical act of remaking their drawings, although at the time I was doing nothing more than physically responding and recording my results as rigorously as I could.

Whilst I appreciate this physical response must have been premeditated in some way, I suggest that this was mediated as a physical response, one that has its roots in how I make sense of my own situation rather than by reference to a pre-thought out strategy. My focus is not therefore on an intellectual but a physical process. The point here is to show how I identify and make sense to myself what I know through *how* I know it. In this sense, what can be learnt is not evaluated according to the truth of its content, but by reference to how we can evaluate what we do as we do it in terms that are credible to ourselves.

My response to recording events is one example of this. I recorded the 'fleeting temporal process' of copying as directly as possible through diary entries, drawings and photographs. Doing this not only recorded the experience, but formed my process of making sense. By registering what I believed I was learning from that experience, I demonstrated my awareness of the bigger picture of events whilst engaging in them (*Fig. 48*). From this I started to form an awareness of my own part in how the content and method of investigation were becoming formed.

I am well aware that my findings are applicable to me in these specific circumstances, but I am beginning to see from this example how this methodology might work. The benefit of putting myself through this type of examination has shown me how it may be possible to interrogate each drawing in a unique way according to the individual and his or her singular circumstances.

	Talbot	**Rubens**
Summing up the activity:	Placing/plotting	Eyeballing
Identifying the artist's process:	Relational points serve as the next line of enquiry.	Building up the line over time.
Findings from engaging in activity:	Lines not necessarily pre-determined.	Nothing is accidental.
How I identify my method of learning:	I learn by looking for patterns to aid my understanding.	I learn by trying to emulate the line's hesitation/ adventurousness.

Fig. 48: A graph showing how the Author identifies her own methods of learning from a comparison of re-enacting drawings by Talbot and Rubens.

NARRATIVE 2 – IDENTIFYING KEY STAGES OF TALBOT'S THINKING THROUGH ACETATE DRAWINGS

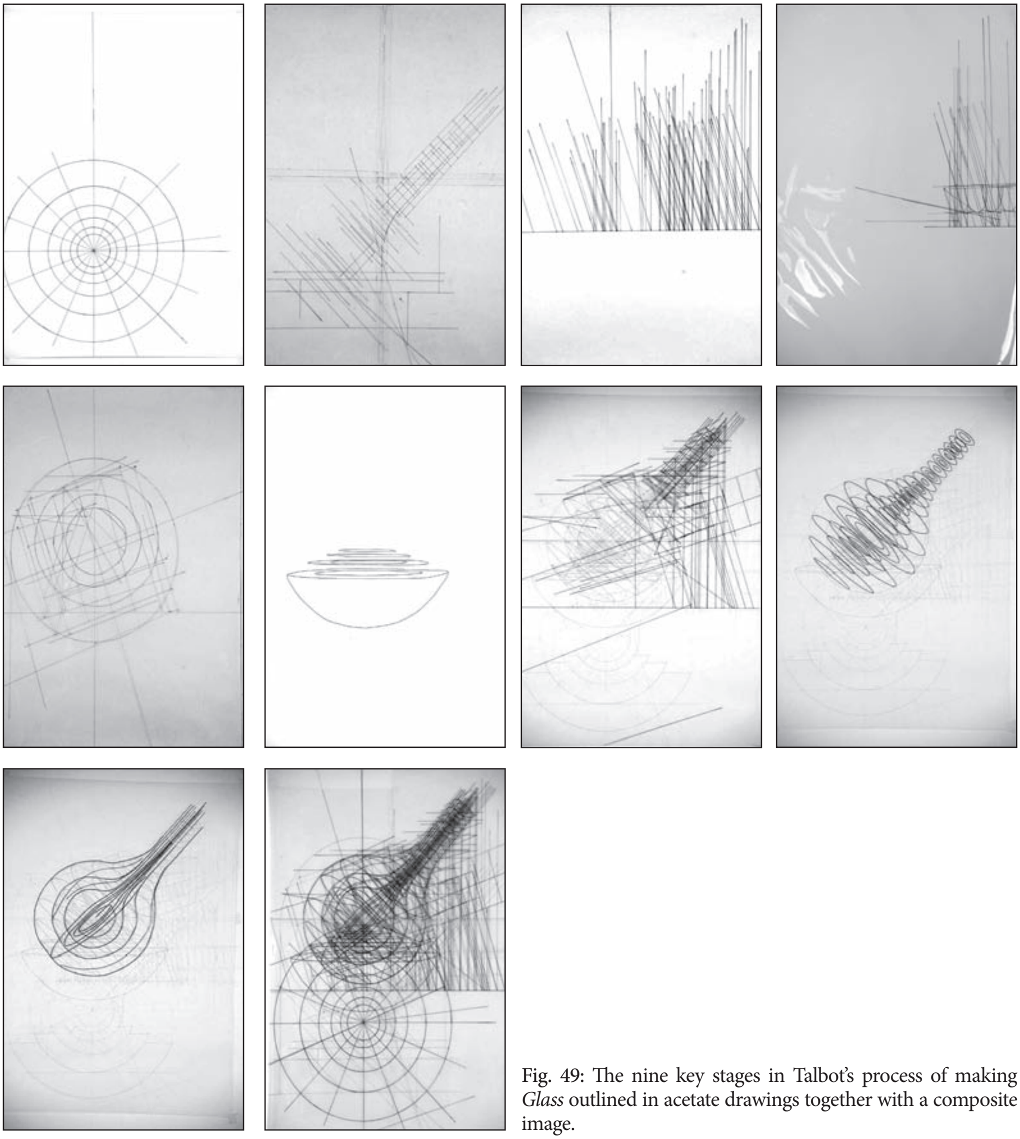


Fig. 49: The nine key stages in Talbot's process of making *Glass* outlined in acetate drawings together with a composite image.

Having discovered that Talbot's lines relationally created points for his next line of enquiry, my instinct was to investigate the cohesion that bound these stages in a series of acetate drawings. I began by breaking down and isolating each stage as I saw it, identifying each in different colours on separate sheets of acetate paper. I identified nine stages in total (*Fig. 49*).

By laying the acetate layers one on top of the other I could play with visually deconstructing and reconstructing the drawing either as a whole, singly or in a group of stages.

I photographed each stage to record the chronological development of the drawing as a whole and the relationship of each stage to the others. These images were incorporated into a journal, which took the format of a table created on the word processor rather than being written by hand. I thought this would be a malleable way of constructing a chronological account of the drawing from my observations. It allowed me to incorporate further observations on each stage as I made them. Choosing to write in this way had quite a profound effect. Being able to write 'out of synch' in different areas of the journal was a far more consciously constructive process than the almost 'automatic' linear sequential format I had handwritten before then. In some ways there appeared to be a link between how I was constructing the journal and how I was unpicking Talbot's drawing through a series of drawings.

It became evident whilst making the acetate drawings that I would have to understand the conventions of perspective drawing if I was to assess whether Talbot was using this system conventionally or not. Simply knowing about the rules of perspective was not in itself sufficient to understand what he was doing. I found this out during a conversation I had with one of the two architects at Glasgow School of Art with whom I discussed *Glass*, who was familiar both with perspective drawing and Talbot's work:

> *I heard Richard Talbot speak at a drawing conference…I was drawn to his work but it seemed to me that he knew exactly what he was doing – there were no surprises in his drawings. I didn't really understand what he was saying about his drawings being a mix of pre-formed thought and intuition.*
>
> *…but still, I was wondering why did he bother because using perspective drawing didn't seem to offer very great insights – but perhaps that's because I can think in 'plan-section-elevation'.*
>
> *Overall when I first look at the drawing I think it's neither one thing nor another. There's a sense of a bottle and cuts through it. I'm reading it as a series of parallel ellipses and a section of a tilted bottle. I seem to be looking at hypothetical sections through a bottle.*
>
> *In regard to the striation… it looks like he's generating a pattern from the analysis of the object. By slicing into it, the slices he's made relate to one another. It's not about the object itself – that would be easy. It's trying to put a rational analysis into it.*
>
> One architect's initial views about *Glass* whilst in conversation with the Author.

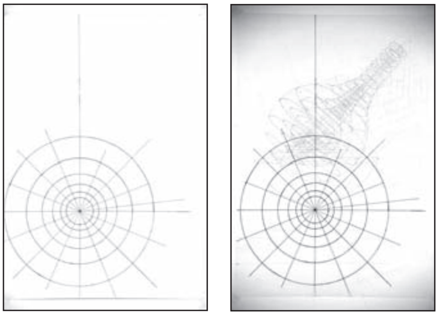
These conversations with the two architects were primarily to clarify aspects about perspective drawing that had arisen because of my inexperience of using the system, and I added their comments to my journal. However, the sketches made during our conversations to interpolate key points of Talbot's process into drawings were a particularly effective way of explaining Talbot's process to others.

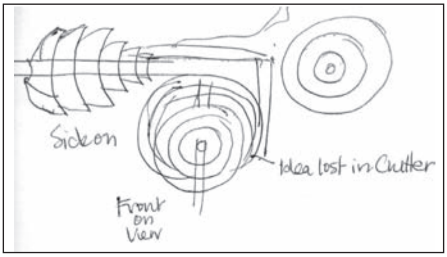
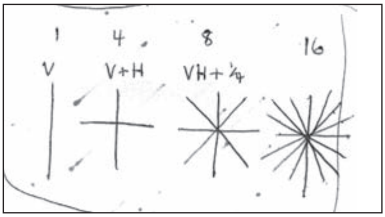
What follows is an edited version of my findings from making the acetate drawings in tabular journal. My discoveries about each stage were noted under the following headings:

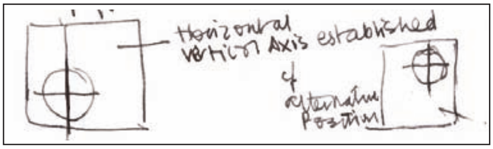
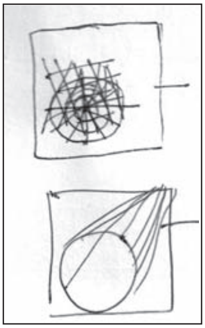
- The overall purpose of the stage.
- My initial observations.
- What kinds of decisions does Talbot make here? What are the key qualities? What does this stage do in terms of thinking? What is his method?
- Findings about the stage by reference to others.

In the final column of the table, I noted questions that arose as the drawing was being made, together with the comments made about these by the architects (in italic).

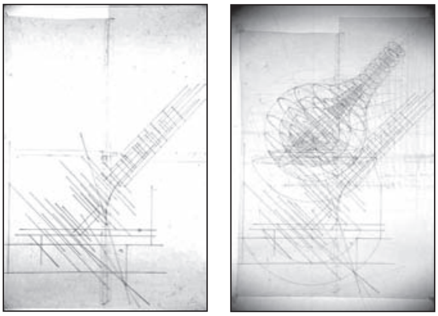
Stage 1 : Black Plan – Creating a space of opportunities

	Questions arising from the investigation
	
Purpose To create a base for the rest of the drawing	
Initial observations The forms are simple. The plan is made partially by machine (compass) and tool (ruler). Talbot has honed his concept to the abstract and singular visual outline of five concentric circles as a starting point. This encapsulates his concept – five concentric circles inspired by the Armonica. The plan	What are the conventions of plan drawing? Does Talbot use the plan in a conventional way?

	Questions arising from the investigation
represents the reduction of the 3-D objects to a 2-D but still retains a sense of the objects. How else could this have been represented?  Side on Front on View Idea lost in Clutter I think his idea is to develop the circles in a relational way. **What kinds of decisions is Talbot making here? What are the key qualities? What is this stage doing in terms of thinking? What is his method?** He's *setting up* – showing us his original idea. He's setting out a layout, base, site or anchor. His decisions are visually basic in nature. They involve putting down, plotting, measuring, emplacing, establishing. Creating a fixed anchor, some sort of holding place. **What is his methodology?** His methodology involves the relationship between the circles**.** Each circle is divided into 16 parts with a ruler:  	*The way in which he's using the plan is appropriate in this context. It's a transcription of reality from which he's giving us a clear definition of facts rather than abstracts. It's quite factual.* What would happen if it was not so fixed or exact?
He uses pencil and line throughout the drawing. He makes parts of the plan more visible than others by making certain lines more tonally pronounced. The clarity of the geometry and the exactly measured lines convey the fixedness of his idea.	When is Talbot likely to have made certain lines in the plan more visible and what purpose does this serve? Is it to clarify relationships or give 3-D depth?

	Questions arising from the investigation
His decisions are fixed in some ways and open in others.	What are the qualities of these decisions?
There is an exact sense of proportion housed in the plan in terms of its shape and orientation on the page. This has consequences for the scale and space of what will be developed, but the orientation of the basic form is still left in abeyance – it could still go in any direction.	(n.b. I want to look outside the drawing to check on my knowledge about perspective so that at least I have some idea of the basic building blocks I am playing with).
 Horizontal Vertical Axis established & alternative Position	
Talbot's making major decisions which affect the proportion and nature of things to come. Placing the plan on the paper is a decisive act which will affect the space and scale of subsequent developments. This creates particular spaces in which to develop the drawing – for example the space on top of the plan or the empty space above it.	
	
Talbot is creating a space of opportunities. They are not fixed at this point but it is possible to begin to visualise opportunities by working with what has been put down in the plan. He's setting up the plan so that he can play with this space by reference to what is 'inside' and what is 'outside'.	

Stage 2 : Orange#1 – Extending the plan



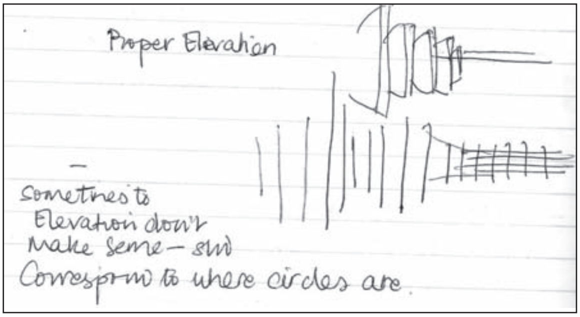
Purpose

Extending the plan to incorporate the shape of a spindle.

Initial observations

At first glance this looks like a plan but something is odd. It looks like a spindle shape has been projected from the plan. All the lines are ruled.

The spindle is tipped onto one side to the right, so it can't be a plan. In some ways it looks like an elevation but it's not a proper elevation either because the lines don't correspond to where the glass circles should be if it were a standard elevation.



Proper Elevation

Sometimes to
Elevation don't
Make Sense – still
Correspond to where circles are.

This stage seems to be about *further establishment* – the lines are notations or reminders of the proportionate relationships between the circles – present and future. This stage stabilises in some ways but the circle is still volatile.

Questions arising from the investigation

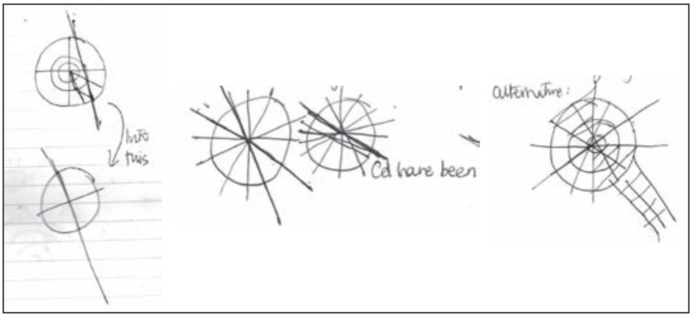
What does an elevation of the plan look like?
Is this an elevation?

The drawing could be a plan or elevation. It might have arisen from co-ordinates but could equally be two separate drawings – for instance a projection from 2-D to 3-D and the formulation of the spindle.

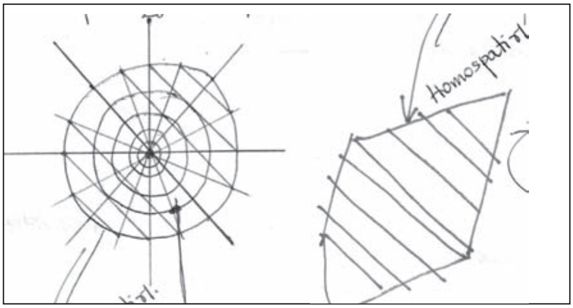
It's not unusual when doing drawings of this nature to be thinking of 3 or 4 different things at the same time.

He's possibly fixing certain dimensions within which to play.

What kinds of decisions is Talbot making here? What are the key qualities? What is this stage doing in terms of thinking? What is his method?
The spindle takes shape as an extension of ruled lines. Its orientation is off centre, taken from one of the 16 spokes of the circle. Talbot's choice of orientation is one of many – one from a choice of 16. He's chosen to orientate the axis at 45 degrees. This causes the grid to be tilted.



He is setting up a grid in a space on top of the circles by joining points of the circle to the lines in the grid.



It's as if two sets of circles are being produced in elevation on either side of the axis line, so this isn't a true elevation because a true elevation would result in a series of lines going from large to small.

He makes additional lines to break up the space further and a matrix is created. From this it's possible to see how the circles are starting to form something that is 3-dimensional.

Questions arising from the investigation

Does this stage show a relationship between the spindle and the plan or is this imaginary?

Should the spindle be where it is if perspective is being used conventionally?

Putting a plan drawing into another kind of drawing wouldn't be unusual.

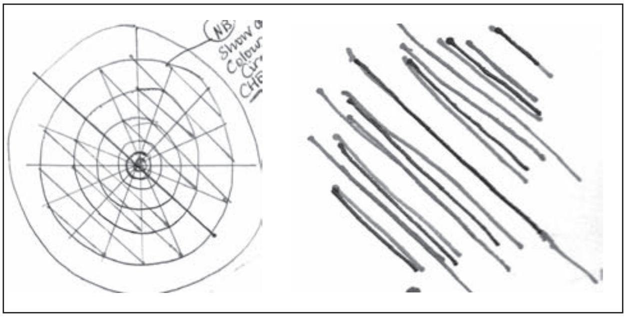
Is there a particular reason for his choice of orientation in terms of technical drawing?

To understand the nature of this musical instrument you wouldn't need to put it at an angle and this suggests he's not so much interested in this aspect.

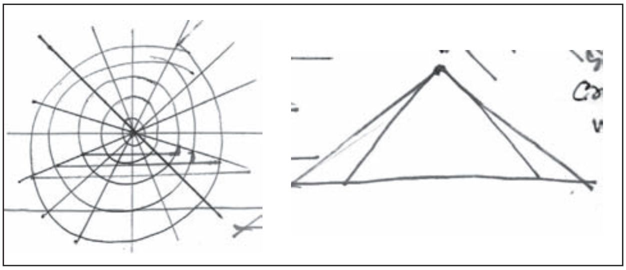
The decision he's making here relates more to making the drawing elaborative rather than making the drawing represent factual information.

Representing factual information is usually the end product or a result of using technical drawing conventions.

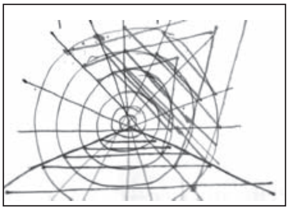
Therefore you could say it's logical for him to complicate the application of conventions. There's no other intention for him than to make the drawing. He's chosen to take out bits from the conventions and extend them.



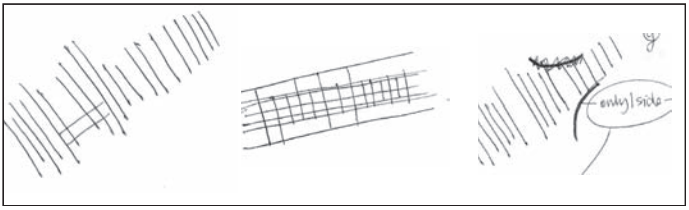
In the same manner, joining up points in the circles also create a perspective.



The grid that is formed from doing this suggests a series of perspectival planes can be derived from each circle:



The spindle shape is made from the continuation of these parallel lines between points in the concentric circles. These are then also crossed by a series of shorter parallel lines of mixed length:



Questions arising from the investigation

The lines he seems to choose are not 'logical lines'. He's not trying to explain an object so much as create a theme for variations.

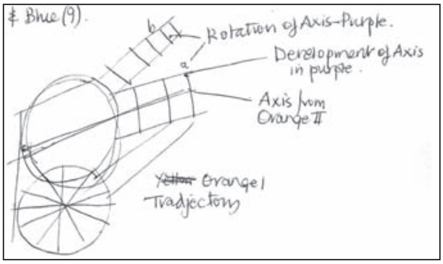
He's not dealing with a shape in a logical way. He takes the object as a starting point and is not attempting to represent it. He's making entirely different kinds of objects.

What is the purpose of these spindle lines? Are they used to set up another space in which to work?

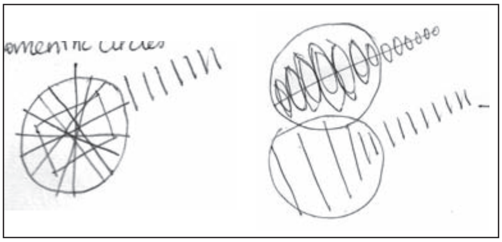
At some point a decision has to be made about cutting the plan to make a section. For instance when drawing a section of a building, that decision is made for you because it's usual to draw a section starting at 1.2 metres above the ground. So therefore cutting into the plan is not a departure from the normal kind of decision you would make.

He's playing. He's involved in a gratuitous activity whereas these techniques are usually an imposed activity. It appears that he's waiting for something to offer itself then continues with using these techniques. From the word go he's not trying to represent an object. He's just taking the object as his starting point.

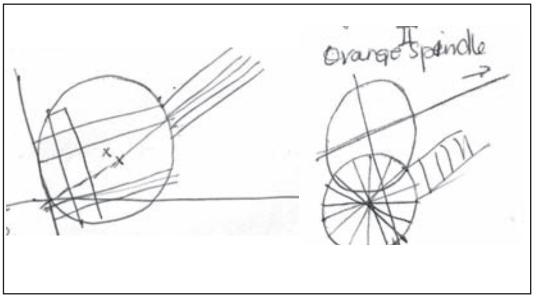
	Questions arising from the investigation
The spindle has been attached to one side of the plan only, and the line doing this has been drawn by hand. I thought that doing this was the product of a decision that would have arisen during the process of drawing – Talbot had probably not wanted to develop the other side of the plan in a similar way as this would result in confusing the space he was about to use to develop the drawing further.	*He's not concerned with accuracy, but develops the form using a kind of irrationality – looking at the drawing, and thinking 'What do I pick up next?'*
Findings about this stage by reference to others I formed a suspicion that there were references to the spindle idea in three different parts of the drawing (i.e. in this stage and stages 4 & 7).	*So he's working off the original, drawing and superimposing and a spindle emerges.*

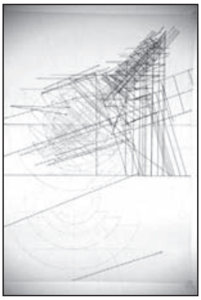

& Blue (9).
b
a
Rotation of Axis-Purple.
Development of Axis in purple.
Axis from Orange II
~~Yellow~~ Orange I Trajectory

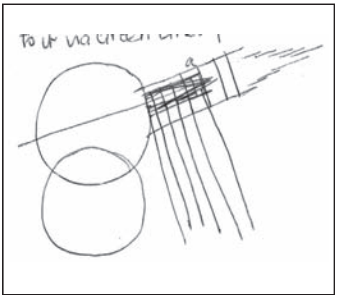
The spindle in this stage might be anticipating the final free-hand ellipses in Stage 8:



The trajectory of the spindle in Stage 4 uses the same axis as the spindle in this stage but is developed from a grid around a second upper circle:

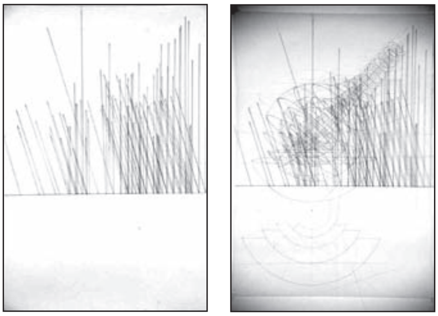

Orange II Spindle





Stage 3 : Green – Transferring measurements

Questions arising from the investigation



Purpose:

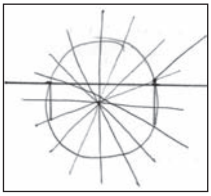
(a) To transfer measurements from the axis in the plan to a new horizontal line.

(b) To establish a matrix of vertical and 72 degree lines from the main horizontal line upwards.

What kind of decisions is Talbot making here? What are the key qualities? What is this stage doing in terms of thinking? What is his method?

(a) The horizontal line:

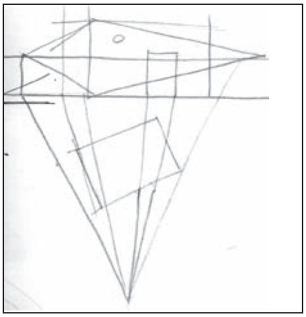
I am unclear about where the points on this horizontal line come from or what purpose the horizontal line forms generally. The points are precisely measured out along this line and look as though they've been transferred from somewhere else. Where does this main horizontal line come from? Does it relate to two points in the plan?

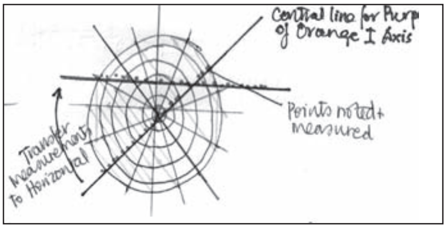


The horizontal line doesn't seem to bear any relationship to the second circle. It might derive from the axis that runs through the plan or the lines made between certain points in the plan:

Where does the main horizontal line come from? Is the line a conventional line in technical drawing or is Talbot making a decision from a range of options?

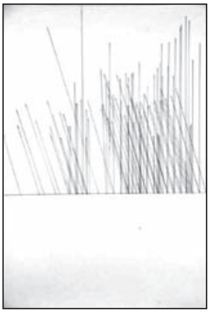
This line is the horizon line in perspective drawing. This is a usual example of a 2-point perspective drawing where you have a plan underneath and project it up through a line on the plane.





I have to make deductions here in order to make sense of this line. I wasn't aware of having had any hunches about its purpose whilst making the first copy because I was so involved with the complexity of the lines when making them that I didn't have time to stop and think – I preferred to push on to find possibilities for connections and I've not focussed intently until now. There is a disconnectedness between having made them and what they mean as a result.

(b) The matrix of lines:
Talbot has drawn a horizontal line across the page, marking exact points off along the line. He projects further lines from these points, some vertically at 90 degrees and others at an angle of 72 degrees. This creates a matrix of lines of varying lengths in the space half way up the paper to the right of the main horizontal line.



Talbot appears to be working through a system of making lines, allowing them to fill in the space for him. He's allowing an established system to take his projections further rather than making his own independent decisions to do this. I can't understand why the lines are orientated either vertically or at 72 degrees.

Questions arising from the investigation

These look like the kind of lines that are setting up perspective although nothing seems to be coming out. This might be because he uses some lines as conclusions and some as means to conclusions. I simply assume that Talbot's going into perspective here – 3rd, 4th and 5th perspective. I'm assuming that technical conventions are taking him further.

I don't know why he's chosen a 72 degree line. The vertical can be explained, but he doesn't seem to be generating any particular form by it.

Is Talbot transferring measurements and setting up points for his matrix of lines?

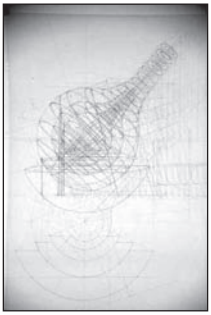
It would be speculative to retrace Talbot's method to be able to say for definite whether he's rigorously relying on a method or feeling his way. But what he seems to be doing is creating a series of underlays to make a different space. It's the underlays which are most interesting.

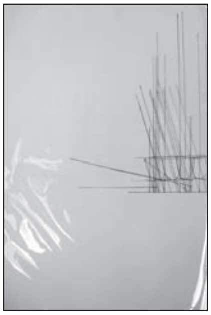
Is the positioning of points on the horizon line a conventional approach in perspective drawing?

I imagine he's obsessive about perspective because ordinarily you'd draw only the points you need. He's committing

	Questions arising from the investigation
The positioning of the lines comes from a convention in perspective drawing which I don't at present understand, but I have a feeling that these seem to have the role of being a rough guide only as they are not carefully made in some senses – they are of different lengths and appear unfinished. I think that the basis for their purpose can be found in the measurements of the plan. My observation is that this is about positioning and building a framework towards an end which from his experience of perspective drawing, he can predict or at least choose to then play with. He could be messing up the space to give it a complexity from which to pick out the next stage.	*himself entirely to the technique therefore. He's thinking 'I'll project all the lines up', maybe to generate enough stuff.* *I'm not sure about the use of his 72 degree lines. It may be possible that down the line he realises that his viewpoint is not correct and he decided not to go further. He was making a number of decisions and needed to find one that suited him.*

Stage 4 : Yellow – The '*try-out*'



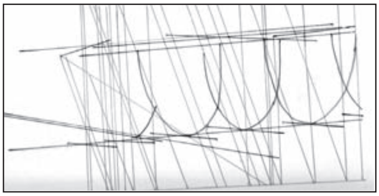


Purpose
A try-out which isn't taken up.

Initial observations
It seems in this stage as if Talbot is testing out a hunch about how he will build the drawing up, but in the end he doesn't take this option up. This try-out is developed from the projected lines of the last stage, but his lines are suggestive rather than decisive. Although not taken further, this stage is indicative of how the forms might develop.

What kinds of decisions is Talbot making here? What are the key qualities? What is this stage doing in terms of thinking? What is his method?

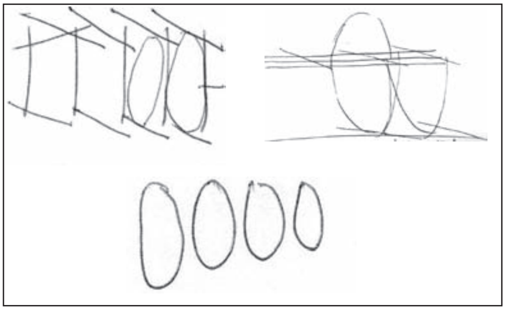
Talbot tests out a projection and I'm making a presumption that this is done at this point in advance of later stages on the basis that these lines are left unfinished. He's setting up a framework from the projected lines of the last stage in order to plot the dimensions for a series of ellipses. The plotted dimensions are ruled and measured but the ellipses are drawn freehand.



His lines signify a tentative foray into uncharted territory in terms of the space available, suggesting that he is testing out space and orientation. Their continued presence will remind him of his options and future possibilities for decisions.

By leaving the lines in the drawing, Talbot is showing us the archaeology of his decisions: the tentative form his lines take before he makes the decision to accept more firmly what he's drawn. In effect these lines both show and form part of his decision-making process.

Findings about this stage by reference to others



Questions arising from the investigation

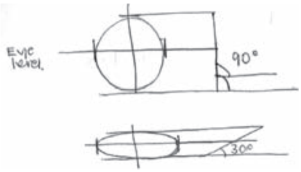
When was this stage done in relation to the others?

He may have been setting up an arbitrary matrix on the idea of repetitions and semi-spheres. I'm inclined to say that's the end of the option. He draws until he reaches a point, until he's satisfied with it, and then he stops, irrespective as to whether it's related to the original object.

What decisions lie behind the way he plots the ellipses out?

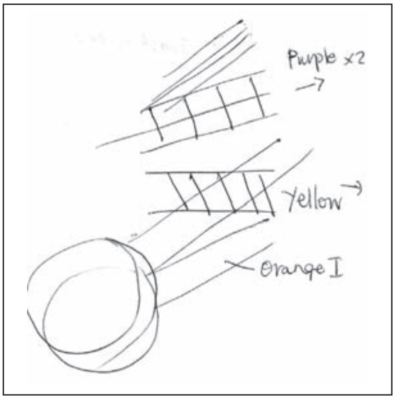
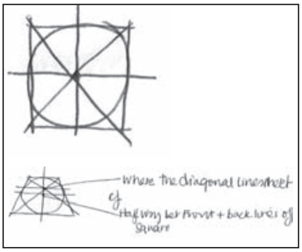
How are ellipses drawn in perspective drawing?

An ellipse is the image that appears when a circle is seen at any angle other than square on.



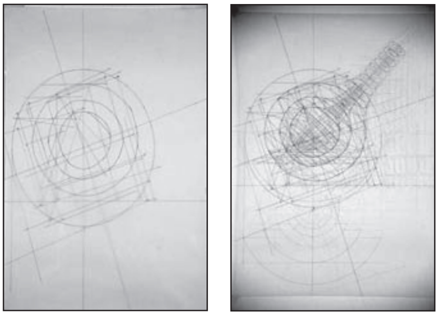
There are 2 axes in an ellipse:

1. The major axis, which is the longest and represents the diameter of the circle
2. The minor axis – the shortest measurement of the ellipse i.e. the element of foreshortening.

	Questions arising from the investigation
Looking at how this try-out appears to form a potential spindle shape, it is possible to consider the spindle shape in Stage 2 as being the basis for this stage as well as the eventual projection in Stage 7. Each has different trajectories.  Purple x2 → Yellow → Orange I	When drawing a circle in perspective, the centre will not be the same as the geometric centre of the ellipse.  Where the diagonal lines meet cf Half way bet Front + back lines of Square The geometric centre is where the diagonal lines meet. The perspectival centre is half way between the front and back lines. It is therefore a necessity to draw a square around the circle. Talbot is plotting this framework in order to create the ellipses.

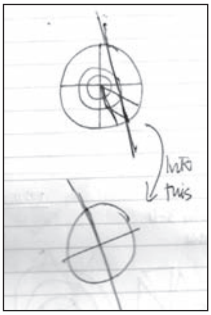
Stage 5 : Orange #2 – A grid which orientates a second circle

Questions arising from the investigation



Purpose
This is a grid orientating a second circle or plan in relation to the original plan and other major lines.

Initial observations
This second plan is projected from a perpendicular axis developed from the initial lower plan.



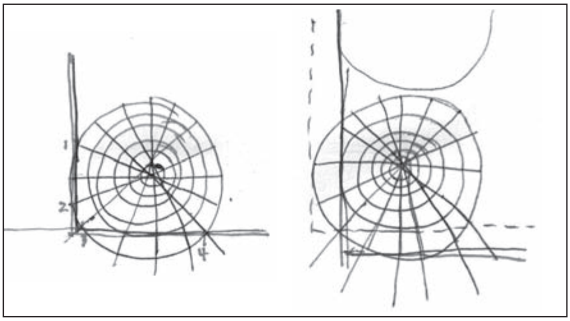
Again, Talbot is establishing further forms, and despite the axis line stabilising the circle, everything is still volatile.

What kind of decisions is Talbot making here? What are the key qualities? What is this stage doing in terms of thinking? What is his method?
These are major decisions, crucial for establishing the space Talbot will work in on the paper. He's physically transferring measurements from the plan drawing into the space above by spatially outlining a second circle above the plan. This stage seems to represent a movement in the drawing – taking something known forward into another stage.

Is there a technical reason why these points were chosen?

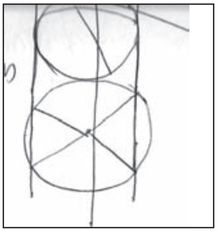
I think it's an arbitrary decision. If you're making a plan you make subdivisions to make shapes, so there's quasi-rationality behind this.

I think that the circle has been positioned by reference to lines that extend upwards from the plan:

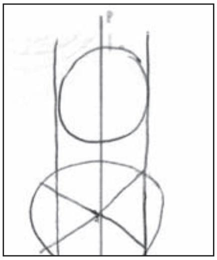


What would happen if other co-ordinates had been chosen instead? Changing the coordinates has the effect of shifting the circle. This only affects its position not its scale.

It appears as if the scale of the upper circle is decided upon by the scale of the plan, so Talbot is abdicating from making a personal decision about this; he's allowing the convention of perspective to dictate the scale for him:



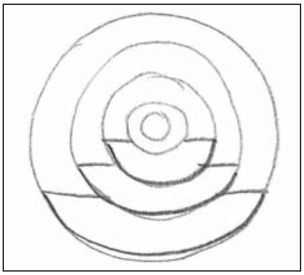
How is the axis line made and what kind of decision prompted this? He could have easily have used the central vertical line from the plan to become the axis for the second circle:



Questions arising from the investigation

The conventions of technical drawing offer limitations on the choices there are made – there is a logic belonging to geometry and mechanical drawing.

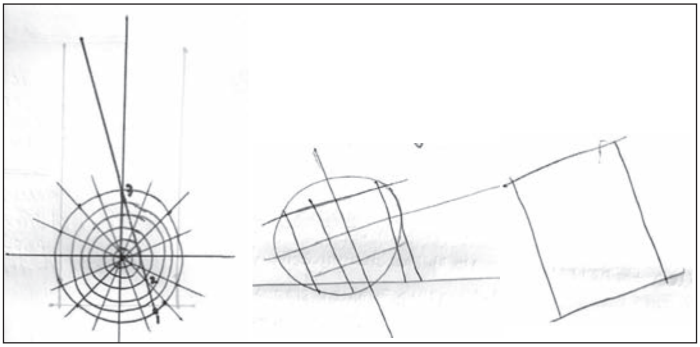
This has a lot to do with the impulse to make geometric sense of objects. For instance, I look for squares and circles and keeping to the legitimacy of circles or the proportions of the radius.



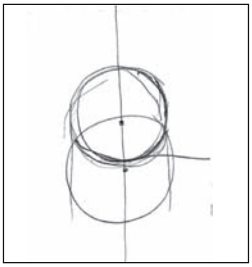
So for instance, the way Talbot has decided to make the lines in the plan a darker tone can appear rational, but these are arbitrary decisions about how to subdivide the form – they just lock into the legitimacy of the legitimate geometric forms.

It's like trying to impose an order without a rational form. If he can begin to impose a geometric rationale, this is the discipline imposed to think or go against. It forces him to change his view and makes the context for change. It then becomes rational and precise.

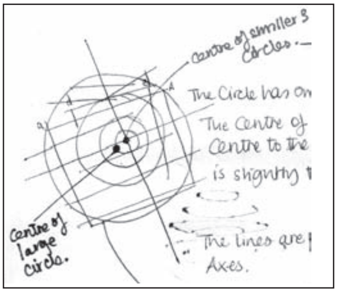
Instead he chooses to orientate it on an axis of 72 degrees. This is one decision from a choice of many possibilities:



The base of the upper circle rests just above the centre of the lower circle.



The upper plan comprises of four circles compared to the six used in the lower plan. The three inner circles have a different centre to that of the outer circle:



It's as if once he's made a decision to tip the circle on the axis, he just processes the coordinates.

Questions arising from the investigation

Is this a standard perspective drawing procedure?
He's making a guess where he wants his view-point to be.

Is there any reason for this?
He's gone with a set of rules – there's room for manoeuvre. Ultimately he's trying to express his concept.

Does the upper circle come from the projected lines in Stage 3 or vice versa?

The grid lines suggest making a decision about a sphere. Talbot is demonstrating his commitment to spheres and is tilting them here.

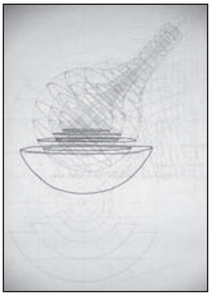
Are the grid lines which traverse the circle used to plot the circle or are they made after the circle has been plotted?

Why do the three interior circles have a centre point that is different from the outer circle? What does this say about his decisions? Is it premeditated? What effect does it have on the space between the circles?

Why are the points not accurate? Are they notations only?

None of the angles are particularly significant – they are random choices. This compares to the angles of the projected lines in Stage 3 which appear to follow a specific technical drawing convention.

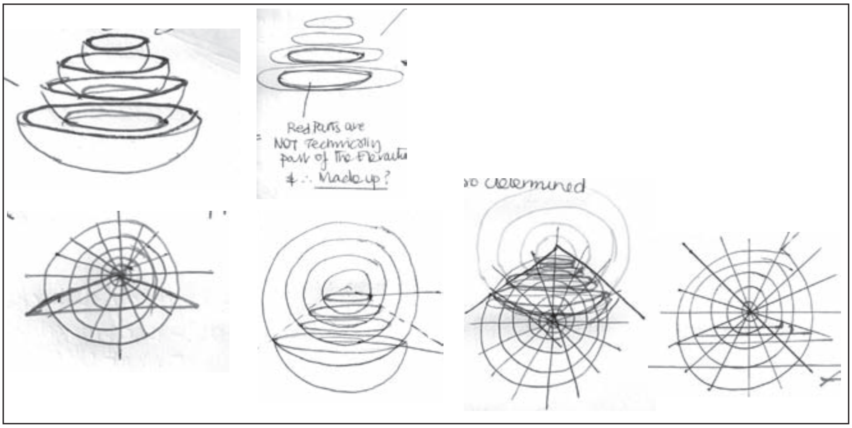
Stage 6 : Red – The Elevation



Purpose
A recognisable elevation drawing.

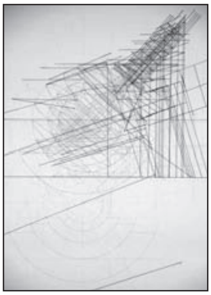
Observations
I thought that this elevation could have been drawn at any stage whilst Glass was being made. Its measurements depend upon those in the plan and it's likely that Talbot envisaged making an elevation before starting his drawing. The lines are drawn freehand.

What kinds of decisions is Talbot making here? What are the key qualities? What is this stage doing in terms of thinking? What is his method?
The elevation literally represents the plan in a different view. It is visually incomplete in the sense that not all the lines in the plan are represented. It could therefore be said to be an abstracted version of an elevation – Talbot limits it to four circles rather than six and has created inner circles for the lower two:



The elevation sits or floats in a space above the plan, taking its axis from the central line of the plan and its perspective from the upper rather than the lower plan. The elevation creates a similar perspective to that created by the grid made in Stage 2:

Stage 7 : Purple – The extension which orientates the final form



Purpose
An extension projected from both the upper plan and matrix that orientates the final form.

What kinds of decisions is Talbot making here? What are the key qualities? What is this stage doing in terms of thinking? What is his method?

There is a strong suggestion of progression in this stage. It seems to serve as a go-between linking previous and future stages. In this sense, later imaginary stages are being anticipated or at the very least set up in some way.

Whereas the other stages have emerged from the lines of pre-organised systems the making of this stage somehow feels like a major decision. It's more than just a building block – there's a change from simply forming a framework to deciding 'what it's going to be'.

The preceding stages of the plan (1) matrix (3) and grid (5) could have taken the final form anywhere. This stage involves settling on a choice – taking a specific path from those on offer and reducing down the options for placing final forms in the architecture that's been created. This decision is not necessarily 'the best' – just one which is taken.

My hunch is that this purple construction picks up from the spindle of the original plan in Stage 2, but there is also a second trajectory coming from this circle:

Questions arising from the investigation

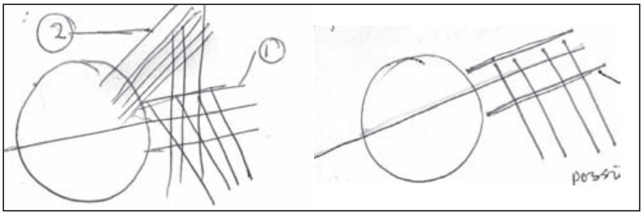
It's difficult to decide if the lines represent something below or above. This section could be turned inside-out – it may be below, not above, I can't tell. It reminds me that it's easy when reading technical drawings to get into a tangle with the perspective. All of a sudden you could be turned inside-out.

Where does the idea for the two trajectories come from?

Why are there two projected 'spindles' coming off the second plan/circle?

Do these lines form a grid of boxes for potential ellipses?

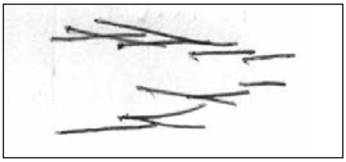
It's strange that the larger ellipses don't have boxes.



The first trajectory
The axis of the first trajectory is the main horizontal line that goes through the circle, but the lines of the matrix from Stage 3 also cross this spindle, suggesting that it has been set up by previous stages.

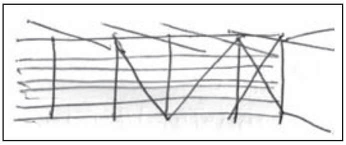
This projection forms a framework that ultimately houses the ellipses in the ‘final form’, so Talbot is quite knowingly setting up the ellipses at this stage.

This stage is characterised by forward planning in quite a refined way. Talbot’s lines are a series of graduated short lines:



The second trajectory
It is difficult to be certain of the basis for the second trajectory, but there are two possibilities: (a) It has been constructed from the matrix of green lines (Stage 3) in such a way that the centre of the spindle runs through the central point of the circles: or (b) the second trajectory runs along a different unknown axis.

This spindle appears like the ‘try-out’ in Stage 5, to create a matrix of parallel lines crossed by perpendiculars, which effectively creates a series of boxes.



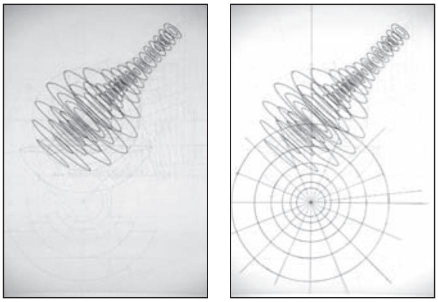
Talbot is again forming a grid from which to carve out a series of ellipses.

Questions arising from the investigation

What is the role of these graduated lines and from where do they get their measurements?

What is the basis for the second trajectory?

Stage 8 : Black – Playing on the concept in the plan



Purpose
An improvisation or inventive stage.

What kinds of decisions is Talbot making here? What are the key qualities? What is this stage doing in terms of thinking? What is his method?
Talbot develops a series of ellipses within the inner upper circles which effectively change the image from being 2-dimensional to 3-dimensional. They fit within the contours of the four concentric rings in the upper circle. Only 3 of the 4 rings are used, the outer ring is not. The drawing now has the appearance of glass flasks inside glass flasks.

Talbot's lines are not exact and their perspectives differ slightly because of the inaccuracy of the freehand lines. They are drawn within the confines of existing lines but without the grids he was previously setting up in Stages 4 and 7. His lines suggest different levels to the form – patterning makes it multilayered. These forms are made more visible by being darker. Is he fixing an idea he is happy with? It's as if this stage stands as the outcome of all previous stages. It's as if the concept of the five concentric glasses in the plan comes into view/optical reality. Does this stage therefore simply reiterate the concept in the plan? Has this all been an optical game?

Some ellipses have others drawn inside. There is no standard pattern to how this is done. Talbot has been free to fill the space as he sees fit so there is an element of play going on about choosing which patterns will fit into the space. Spatially the forms are impossible. They appear to be disconnected from the grid yet also within its confines. The forms appear convincing because the grid lines give a false sense of reality to the imagined lines. My eye is taken in by the qualities of the technical line which legitimises the visual possibilities – the construction suggests its own reality.

Questions arising from the investigation

Ellipses are difficult to draw. He's set himself difficult drawing tasks. They require a lot of discipline. They're not technically elaborate to do but one requires a lot of discipline to make the drawing.

There seems to be no pattern to the ellipses. You could say he's come to the conclusion or point where he just chooses to be arbitrary.

You don't need plans and sections to decide whether something's significant – you decide yourself.

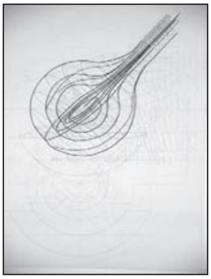
If there's a pattern I assume it to be the nature of the spindle.

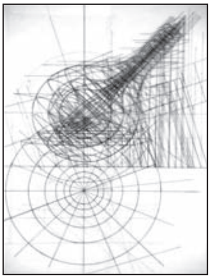
Questions arising from the investigation

I keep asking myself, ‘How much did he know about these forms before making them?’ I think they’re a mixture of the original concept, his method of construction, what was anticipated beforehand and what making the lines have suggested.

Visually, it appears that one’s centre of vision is the centre of the concentric circles, so it’s as if one is looking ‘up’ the spindle and ‘down’ to the base of the flask.

Stage 9 : Blue – Filling in another dimension





Purpose
Fitting in another dimension – imaging what form the space takes.

What kinds of decisions is Talbot making here? What are the key qualities? What is this stage doing in terms of thinking?

In this stage it looks as though Talbot is adding further imaginary lines to the forms which already exist. Making this stage evokes a feeling of adding to what has been envisaged. He’s playing further with the space he’s defined by the grids and concentric circles.

This stage is drawn by freehand and is the most inaccurate compared to the other stages – although the inaccuracies are hidden within the technicality of the image.

This stage is to do with taking the imagination further, making the space more impossible, taking the dimensions beyond three dimensions. The drawing makes us ask the question he himself is interested in – which is inside and which is outside?

Which comes first – this stage or the previous stage?

This looks like another slice through the thing. He’s slicing through a different object – it’s a series of concentric circles in perspective. Perhaps he’s just making a section going through the spindle.

My own instinct is to keep going back to the starting point, but I can see now that these are my own inclinations and what he’s doing here may have very little to do with the starting point…. but I’m still looking for lines to identify.

Where do the spaces overlap, where do they join? What is the relationship between these spaces?

A summary of the findings

These drawings were based on what I considered as being key stages in Talbot's process. Although these may not have been accurate, the method I used for doing this was vital to discovering that an exploration of processual experience of drawing cannot be broken down into parts. What I could know about Talbot's process from fixing these points rather than working through a process to identify them was limited – despite the fact that physically deconstructing his drawing was a process in itself.

The problem was that whilst each stage was discernable, it was also nebulous. Each was frayed at the edges because the beginning and end of the process was not immediately visible and was often couched in the projections of the previous or following task. Because of this it often felt as though I was searching for answers with my head rather than allowing the process of drawing to tell a story. By asking, 'What is this stage doing in terms of thinking? What is his method? What kinds of decision is he making here?' I was trying to make sense of each stage through a conscious means as well as letting the action of drawing generate answers.

By drawing out each stage however, I did start to get a sense for myself of the decisions Talbot was taking, and how the conventions of perspective limited his choices and imposed themselves as a physical presence with which to think or go against. Each stage showed me something about this relationship.

For instance, although the lines forming the plan in Stage 1 indicated that Talbot was making decisive decisions about scale and proportion, he was also creating a space open for opportunities, which demonstrated that his thinking was also not fixed at this point. Whilst his lines appeared to be certain during the stages of growth and establishment which followed, he was still feeling his way through forms which were still volatile (Stage 5) or simply try-outs (Stage 4). At other times it seemed as though Talbot acted quite knowingly in testing out possibilities by, for instance, plotting the ellipses in Stage 7. It was also evident in later stages (8 and 9) that he allowed himself to play in the space he had built for himself, reaching a point where he could choose to become more arbitrary.

It is clear to me now that some of my initial views about his key stages are incorrect. Whereas I had been unsure about the origins of the lines of the Matrix in Stage 4 whilst making them, I now know (because of my sketchbook investigation in Narrative 3) that these were created from measurements taken from the plan in order to plot the points necessary to create ellipses. However, it was still a useful exercise to work these issues out through drawing, getting some idea for myself about what it was like for Talbot to transfer coordinates between different points and move around the paper in ways that was so different to my usual practices. The process had revealed that Talbot's constructed lines had a quasi-rationality embedded in them which encouraged an impulse to make geometric sense of objects.

There were substantial differences between this deconstructive method of re-enacting Talbot's drawing and the method had to compare Talbot and Rubens' action-in-the-line.

This acetate method had involved rational deductive thinking as well as thinking through the body's action whilst drawing. To re-enact Talbot's lines I needed, like him, to interrupt the process with conscious thinking – his line required me to use my head in the experience of reproducing it. Whilst this deconstructive method had unearthed something of the hidden aspects of making the first copy, it had also revealed more through new experiences:

> *Excerpt from the Author's journal*
>
> I started by looking for and seeing new relationships between stages that I'd not noticed before, but also experimented by placing all manner of permutations together, following hunches about possible connections.
>
> In this way – by exploration and investigation within the fixed parameters of the number of possible variations – I was able to visibly discern hunches that had occurred to me whilst drawing my initial copy and make these hunches more accessible.

The fixedness of the acetate drawings was not sufficiently refined enough to reveal Talbot's processes 'in action'. The subtle distinctions of his lines, for instance, were lost because the material qualities of the acetate paper; this could not capture the nuances of pencil lines. The sketches used in my discussions with the architects were better at showing what I understood of his process in a more fluid way. It was this method which I decided to next take further to explore the interactions between Talbot and his drawing.

NARRATIVE 3 – MINING THE ELEMENTS OF TALBOT'S PROCESS THROUGH SKETCHBOOK DRAWINGS

Introduction

In this narrative I describe how I more deeply investigated Talbot's processes through a sequence of sketchbook drawings.

Having recognised that Talbot's moments of determinacy and indeterminacy would be better perceived along 'paths of observation' rather than points (Gibson in Ingold 2007), I decided to explore whether I could demonstrate and expose where Talbot's opportunities lay in the continuum of his process of drawing, by moving through a drawn sequence of sketches.

I felt instinctively that Talbot's decisions and judgments were manifested through a 'continuous forging of conditions' (Ingold 2007), and that spaces of opportunity arose within the continuous unfolding of relationships. My response was to draw out Talbot's method to show the points of attention between something that was fixed or predictable and something that was generative or gestural. From the acetate drawings I had learnt that Talbot allowed the conventions of perspective to build a framework for himself, and that he made other decisions to improvise with opportunities arising in the space that was formed.

By going back to basics in the sketchbook and 'listening to the line', I started to see how relationships between drawn elements were formed and how this could establish new narratives or spaces and account for the moments of getting new ideas. Going back to basics required me to reassess my understandings of the conventions of perspective drawing, visually checking what I knew through drawn examples.

I started to look at Talbot's line in an elementary way, similar to that described by Klee and Kandinsky in their own investigations of the line (Klee 1961; Kandinsky 1979). By paying attention to elementary aspects of *Glass* I found myself making discoveries about basic characteristics of the activity of drawing. My linguistic narrative altered as events unfolded before me. My references to texts by Klee, Ingold and others show how their investigations became relevant to me through the common need to develop a taxonomy of the line. Rather than allowing my findings to be a development of what others had discovered, I considered these descriptions to more pointedly form ways of describing my own findings. Ingold's desire to locate a taxonomy of line to describe how the line is manifested was useful in this regard, as was his idea that knowledge is integrated along a line of movement[1] and is accrued from multiple sites of observation in order to assemble a comprehensive representation of the world (Ingold 2007). I realised that I was looking at something similar by investigating through practice how drawn enactive thinking was manifested.

Setting up Talbot's environment – a conversation between the judgments Talbot makes and the conventions of perspective drawing

To be able to appraise the nature of Talbot's decisions I had to revisit my limited knowledge of perspective drawing, and by drawing this out I began to appreciate how many of his decisions had been made before a drawing was even started.

Perspective drawing is concerned with accurately describing the appearance, scale and size of objects through linear representation. It is 'a form of geometric projection of 3-dimensional objects onto a flat plane' (Kemp 1992: 342), which involves the extrapolation and imitation of measurable space. Each drawing is seen from a single specific viewpoint which 'is essential to the integrated nature of a mental picture' (Gill 1974: 11).

By choosing to use this system Talbot is immediately curtailing the types of mark-making decisions and judgements he might have made had he chosen to use other methods or materials, because perspective drawing adheres to a formalised set of rules or conventions which rely on representation through the measurement of ruled lines. As a consequence, his decisions are perhaps more visibly explicit than they otherwise might have been because they can be identified by reference to this fixed set of rules. It could even be said that the lines in a perspective drawing represent not just the object being drawn, but also the rules that are being used to create the image.

Perspective drawing is based upon the notion that a ray of light is carried in a straight line to our eye from each point of an object we look at. These rays of light between the object and the viewpoint of the spectator are represented on paper as ruled lines of vision (*Fig. 50*):

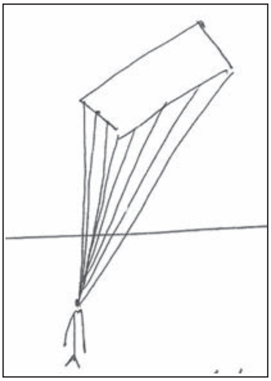


Fig. 50: Lines of vision.

Perspective drawing is usually concerned with projecting a 3-dimensional representation from a 2-dimensional plan using accurate measurements from the object that is being portrayed. Implicit in the system is an assumption that objects which are further away are smaller than those which are nearer (*Fig. 51*). The plan is usually drawn as a horizontal section of the object being represented (*Fig. 52*):

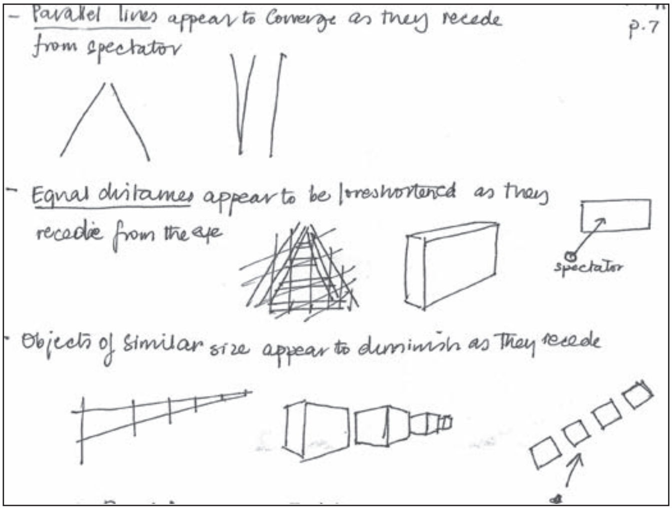

- Parallel lines appear to Converge as they recede from spectator
p.7
- Equal distances appear to be foreshortened as they recede from the eye
spectator
- Objects of similar size appear to diminish as they recede

Fig. 51: Assumptions about the relationships of lines in perspective drawing (informed by Gill 1974).

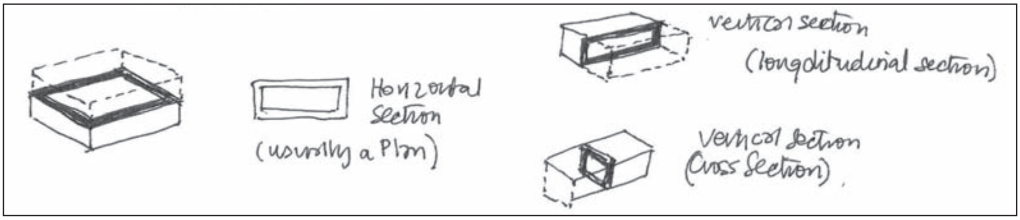

vertical section
(longditudinal section)
Horizontal
Section
(usually a Plan)
Vertical Section
(Cross Section)

Fig. 52: Different types of drawn sections (informed by Gill 1974).

By projecting or extending from measurements in the plan, one can create related views of the object. This demonstrates how proportionality is central to the method (*Fig. 53)*:

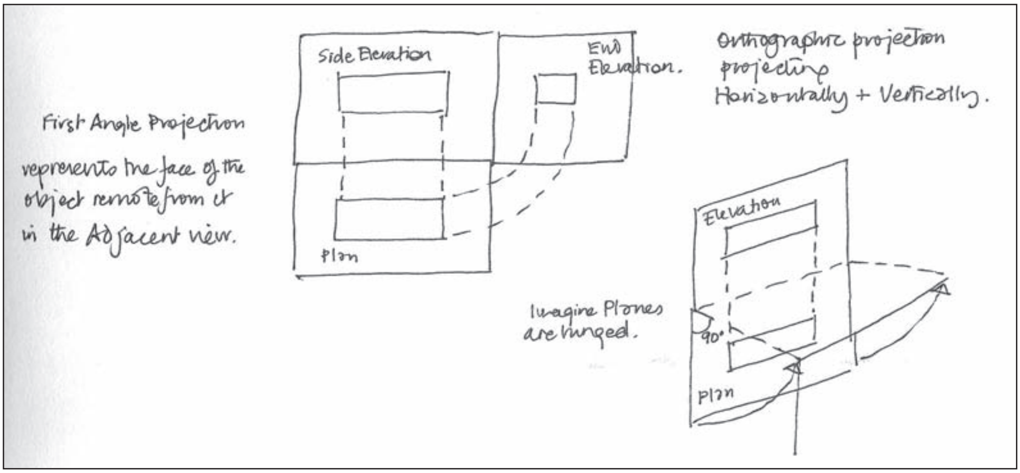

Side Elevation
End Elevation.
Orthographic projection
projecting
Horizontally + Vertically.
First Angle Projection
represents the face of the
object remote from it
in the Adjacent view.
Plan
Elevation
Imagine Planes
are hinged.
90°
Plan

Fig. 53: Projections of related views of 3-dimensional objects in 2 dimensions (based on a diagram from Gill 1974: 14).

The rules for setting up a projection follow a format. Before the plan is drawn, the maker must first consider from what viewpoint she/he wishes the object to be seen. In practice this entails imagining (often from experience) how the drawing will be positioned on the paper (*Fig. 54)*:

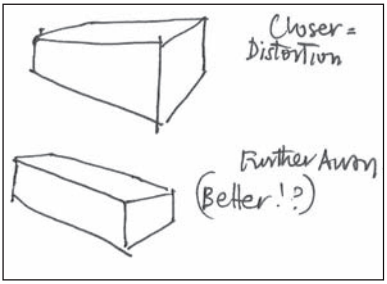

Closer =
Distortion
Further Away
(Better!?)

Fig. 54: Viewing the object from different points.

Choosing a viewpoint effectively allows the maker to have some control over where a potential spectator must stand to view a drawing because the spectator can only see objects within his or her 'cone of vision' i.e. the spectator's visual limits *(Fig. 55)*. This fact affects what size the drawing will be and this in turn materially determines the size of the paper:

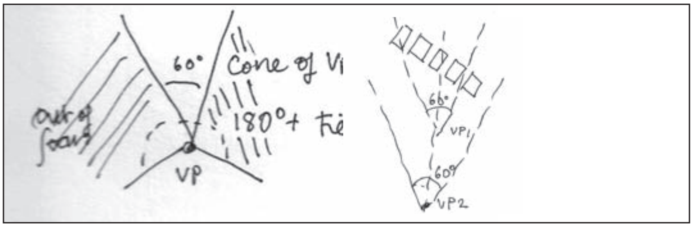


Fig. 55: Examples of cones of vision (informed by Gill 1974).

The maker decides where the central line of vision will be from a range of options within the cone of vision, thereby deciding which part of the object the spectator will see *(Fig. 56)*. A vertical line visually represents the point at which the spectator's line of sight meets the object (*Fig. 57)*:

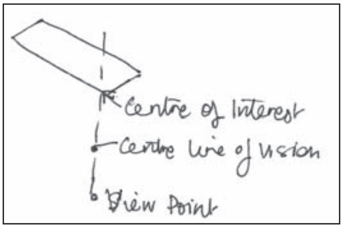


Fig. 56: An example of a viewpoint.

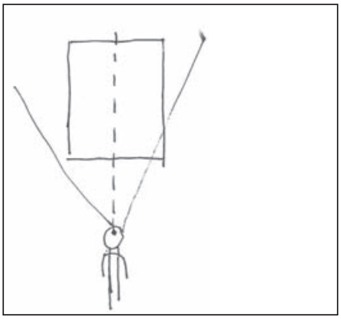


Fig. 57: The central line of vision and cone of vision in *Glass*.

The plan's position in relation to the central line of vision will depend upon where the maker imagines the final image to be. Projections from a plan use a picture plane – 'an imaginary vertical plane on which the perspective drawing is done' (Gill 1974: 19). The picture plane is akin to an imaginary window or sheet of glass placed in front of or behind an object upon which it is possible to trace the shape of the object (*Fig. 58*).

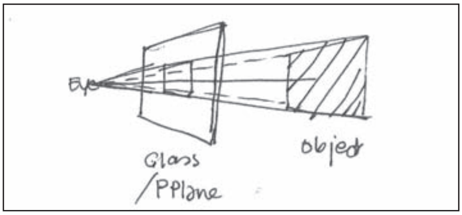

Eye
Glass
/PPlane
object

Fig. 58: The picture plane (informed by Gill 1974).

Having an understanding about the relationship between the viewpoint and the picture plane enables the maker to control the size and scale of the drawing from the outset. The closer the viewpoint is to the object, the larger the drawing will be (*Fig. 59*).

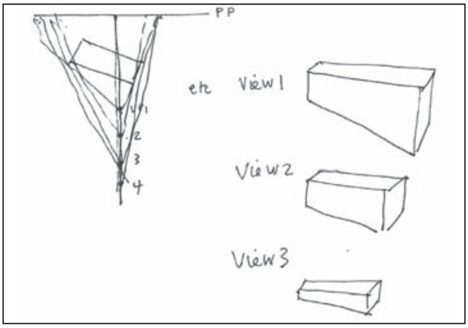

PP
1
2
3
4
etc
View1
View2
View3

Fig. 59: The relationship between picture plane and view point – changing the position of the viewpoint (based on a diagram from Gill 1974: 2).

The further the viewpoint is from the picture plane, the smaller the image will be, although the scale of the object will remain the same (*Fig. 60*).

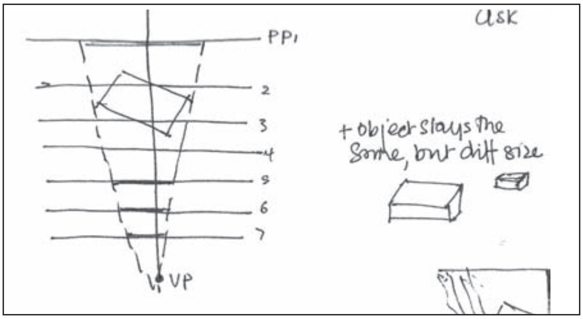

ask
PP1
2
3
4
5
6
7
VP
+ object stays the
Same, but diff size

Fig. 60: The relationship between picture plane and view point – changing the position of the picture plane (based on a diagram from Gill 1974: 2).

This potential degree of control caused me to speculate about how much Talbot knew about what he was going to do before he started to make *Glass*. Obviously the more familiar one is with the relationships between the viewpoint, picture plane and object, the easier it is to manipulate these relationships at will. I thought it quite likely that Talbot would have a lot of experience of using perspective and would consequently be able to quite accurately envisage the position, size and scale of the eventual drawing at the outset. He would also have a good idea about how to go about achieving his aims in terms of the processes he would use.

In *Glass*, he conventionally places his picture plane perpendicular to his centre of vision (*Fig. 61*):

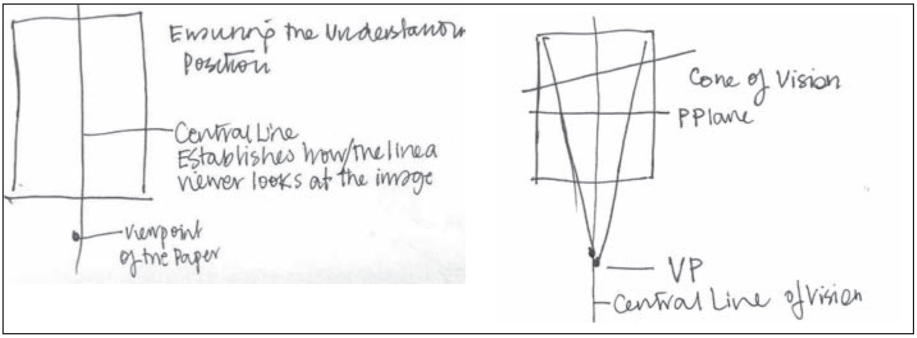

Ensuring the Understanding
Position
Central Line
Establishes how/the linea
viewer looks at the image
Viewpoint
of the Paper
Cone of Vision
PPlane
VP
Central Line of Vision

Fig. 61: The central line of vision and picture plane in *Glass*.

I tried to imagine him at this initial point, visualising how the position of this picture plane would affect the overall space that it would give him in which to work, and how this would all fit on the paper (*Figs. 62 and 63*):

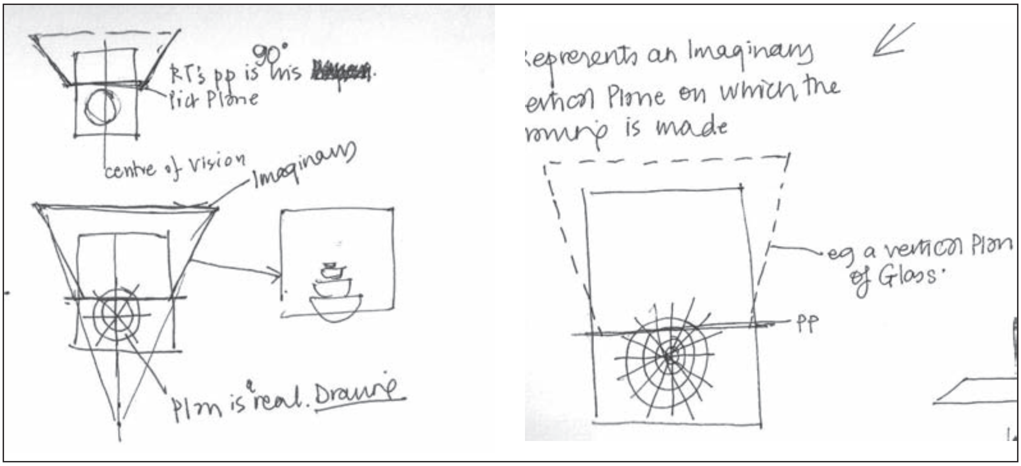

90°
RT's pp is this
Pict Plane
centre of vision
Imaginary
Plan is a real. Drawing
epresents an Imaginary
ertical Plane on which the
rawing is made
eg a vertical Plan
of Glass.
PP

Fig. 62: The relationship of picture plane to plan in *Glass*.

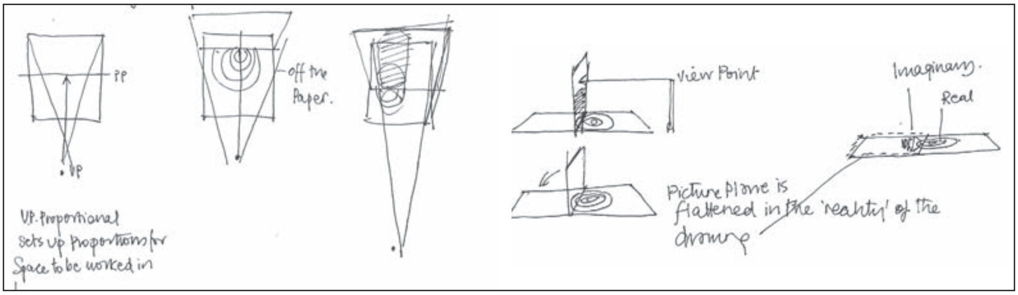

PP
VP
VP. Proportional sets up proportions for Space to be worked in
off the Paper.
View Point
Imaginary.
Real
Picture Plane is flattened in the 'reality' of the drawing

Fig. 63: Intersecting the plan drawing with the picture plane in *Glass.*

Whilst complying with the perspectival convention of using a picture plane, Talbot's decision about where to place this comes from personal choice – he could decide to place this conventionally or not. The lines which form his central line of vision and picture plane will have been the first marks he makes. They are one-off major marks which divide up the paper (*Fig. 64*).

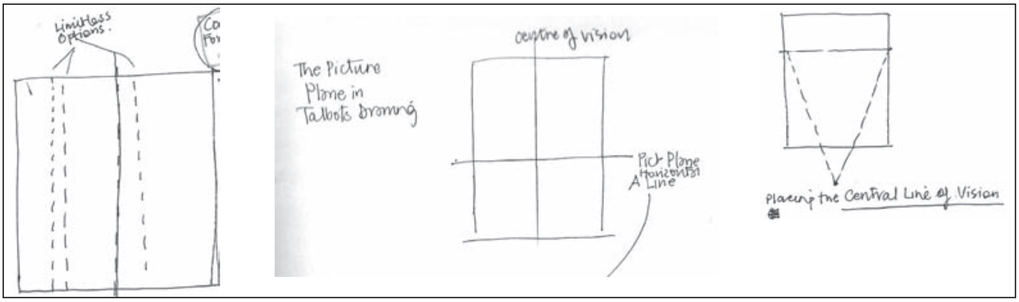

Limitless Options.
The Picture Plane in Talbots drawing
centre of vision
Pict Plane Horizontal Line
Placing the Central Line of Vision

Fig. 64: The major decisions in setting up the *Glass* drawing.

These one-off individual decisions are going to have a substantial impact on how the work progresses thereafter. I found evidence of similar decisions throughout the drawing which were visible in their singularity and distinguishable, for instance, from repetitive series of lines whose role appeared to be to 'hold onto' an idea and see it through (*Fig. 65*):

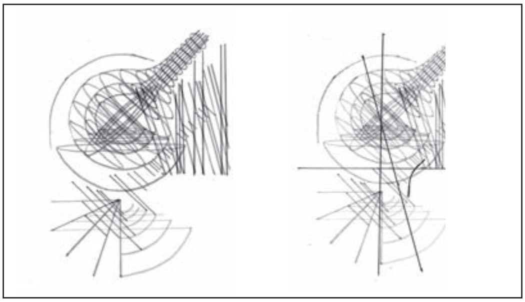


Fig. 65: Lines involving major decisions (compared to repetitive lines which extended an existing idea).

Having drawn out these understandings about perspective, I realised that *Glass* had a 'pre-history' to it. Prior to putting pencil to paper, Talbot was already involved in the interplay between decisions that were 'fixed' by the system and others that were personal judgements made either from a range offered by the system or from outside that range (*Fig. 66*).[2] I began to see how Talbot's process might be formed from a series of limitations 'given' by different aspects in the process which were not necessarily accessible from simply visually reading the lines of the final image.

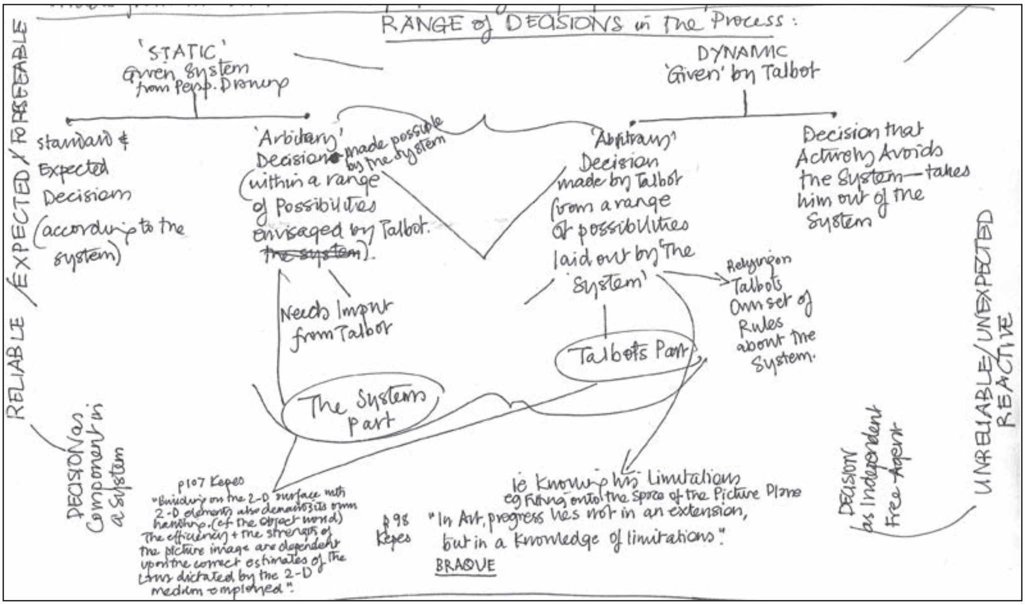

RANGE of DECISIONS in the Process :
'STATIC'
Given System from Persp. Drawing
DYNAMIC
'Given' by Talbot
standard & Expected Decision (according to the system)
'Arbitrary' Decision (within a range of Possibilities envisaged by Talbot. ~~the system~~).
made possible by the system
'Arbitrary' Decision made by Talbot from a range of possibilities laid out by 'The System'
Decision that Actively Avoids the System — takes him out of the system
Relying on Talbots Own set of Rules about the System.
Needs Input from Talbot
Talbots Part
The Systems part
RELIABLE / EXPECTED / FORESEEABLE
UNRELIABLE / UNEXPECTED REACTIVE
DECISION as Component in a System
DECISION as Independent Free Agent
p107 Kepes
"Building on the 2-D surface with 2-D elements also demands its own harmony. (cf the object world) The efficiency + the strength of the picture image are dependent upon the correct estimates of the laws dictated by the 2-D medium employed".
ie Knowing his Limitations
eg Fitting onto the Space of the Picture Plane
p98 Kepes
"In Art, progress lies not in an extension, but in a knowledge of limitations".
BRAQUE

Fig. 66: Recognising the range of options in Talbot's process.

Whilst the principles of perspective might guide Talbot in terms of the format of his layout, his own judgements equally shaped that environment (*Fig. 67*). I made a connection between what I myself was experiencing of these continuous interactions whilst drawing these sketches, and both Milner and Franck's earlier description of the dialectic, and Varela's portrayal of how entities select or trigger changes in each other through structural coupling (Varela et al. 1991: 173). As a consequence, I started to consider more seriously that Talbot's thinking process involved recurrent patterns of perception and action between himself and his drawing – his form of 'inner' and 'outer'. I suspected that the continuous forging of conditions between the conventions of perspective and Talbot's personal choices created his own personal framework for discovery.

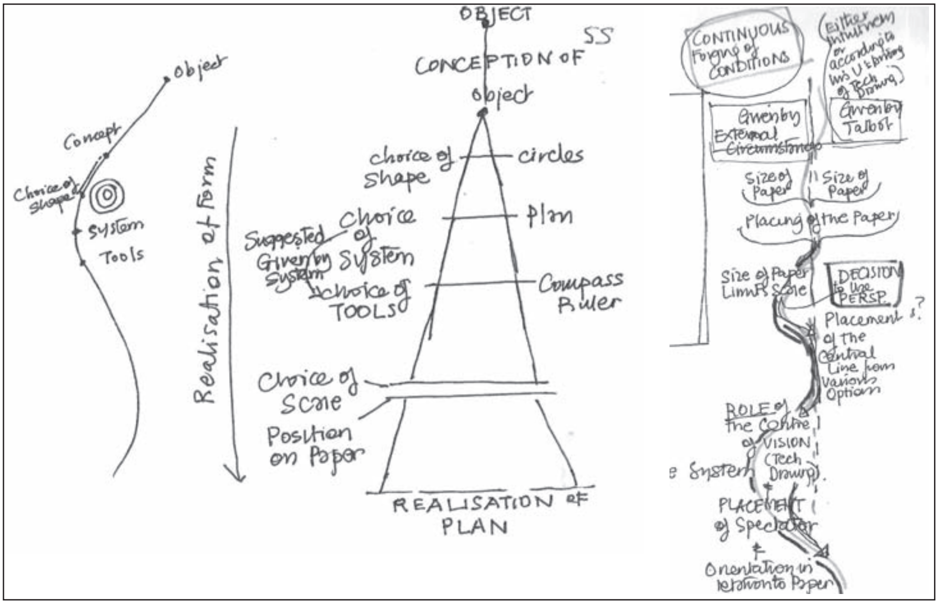

object
Concept
Choice of shape
System
Tools
Realisation of form
OBJECT
SS
CONCEPTION OF object
choice of shape
circles
Suggested Given by System
Choice of System
Plan
Choice of TOOLS
Compass Ruler
Choice of Scale
Position on Paper
REALISATION OF PLAN
CONTINUOUS Forging of CONDITIONS
(Either intuitively or according to his U'standing of Tech Drawing)
Given by External Circumstances
Given by Talbot
Size of Paper
Size of Paper
Placing of the Paper
Size of Paper Limits Scale
DECISION to use PERSP.
Placement ?
of the Central Line from Various Options
ROLE of the Centre of VISION (Tech Drawing)
System
PLACEMENT of Spectator
Orientation in relation to Paper

Fig. 67: Mapping Talbot's 'continuous forging of conditions'.

Growth within Talbot's environment

I next focussed on how the dialogue between Talbot and the system of perspective would have worked within the environment which was being formed on the paper. As I did this, a different quality started to emerge in my findings as I began to appreciate how Talbot's line might be read by being 'listened-to' rather than 'looked-at'.

The Plan – the representation of the concept

Inspired by the forms in a glass Armonica, Talbot began his drawing by creating a plan which represented the spaces between and around six concentric glasses. The Armonica, an eighteenth century musical instrument, comprises a series of glasses that lie sideways on a spindle in a wooden case. Its player would rub the rims of the concentrically placed glasses with moistened fingers to produce different tones as the spindle was rotated from a foot treadle (*Fig. 68*).

Talbot's plan emphasises the spatial intervals between the glasses by reducing other representative information (*Fig. 69*). In doing this he uses the plan in a conventional way, whose function it has been said, is to be a key drawing or generator, and to hold in itself 'the essence of the situation' (Le Corbusier in Frazer & Hemni 1994: 25).

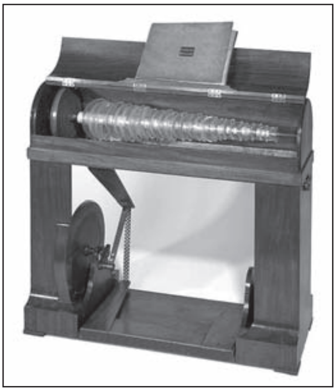


Fig. 68: A glass Armonica.

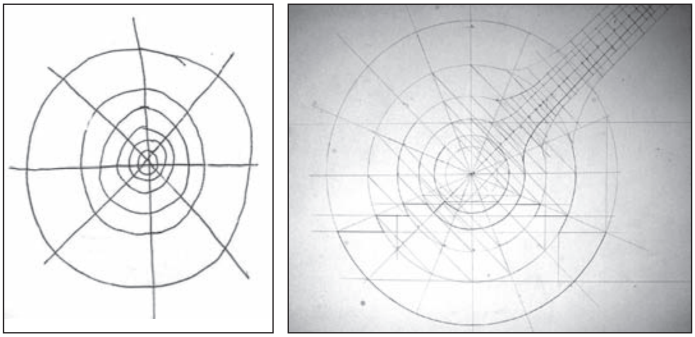


Fig. 69: Talbot's plan drawing.

I was able to experience for myself the relationship between and proportionality of these six circles. When redrawing them, I found that the measurements for each were encased within a drawn square, the scale of which was provided for by the proportions of the circle immediately surrounding it, so that the drawing was developed from the 'outside, in' so to speak (*Fig. 70*):

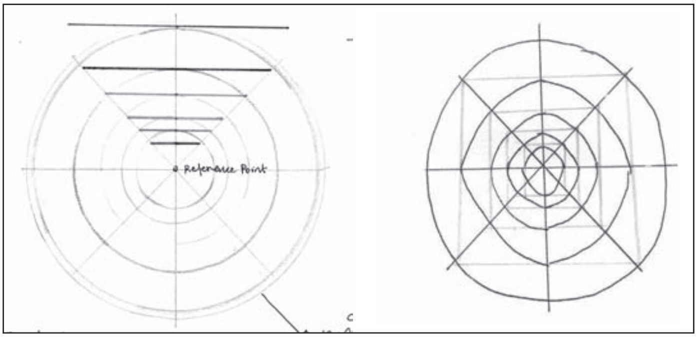


Fig. 70: Showing how the circles in the plan had been proportionally made.

By marking the notational intervals of where each glass would occur, Talbot was establishing certain principles about their size and the spaces in between them which would become the basis for how the drawing evolved. Each line held the space inside it in tension (*Fig. 71*):

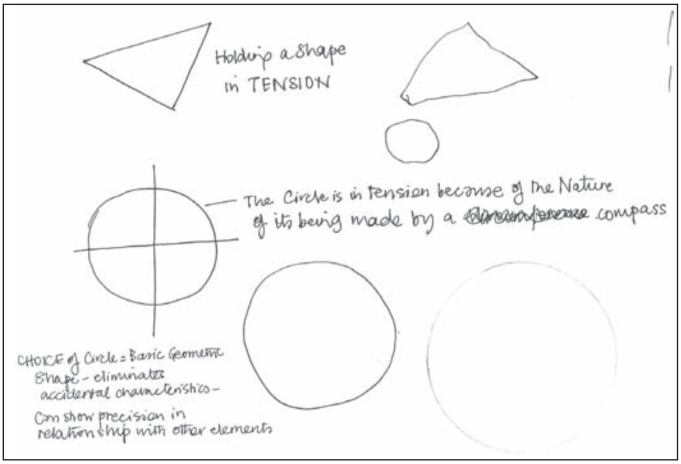

Holding a shape in TENSION
The Circle is in tension because of the Nature of its being made by a ~~circumference~~ compass
CHOICE of Circle = Basic Geometric Shape – eliminates accidental characteristics –
Can show precision in relationship with other elements

Fig. 71: Holding a shape in tension with the line.

The tension created by each circle exerted an equal and opposite effect on the others. Each circular line served as both an inner and outer line and this created a proportionate tension between them all (*Fig. 72*).

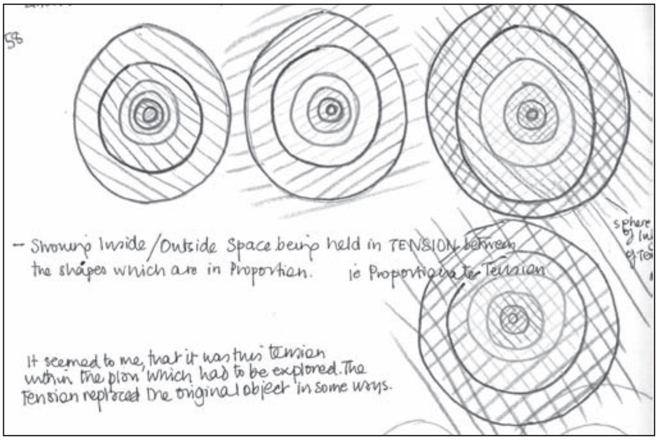

58
– Showing Inside/Outside Space being held in TENSION between the shapes which are in Proportion.
ie Proportionate Tension
sphere
It seemed to me, that it was this tension within the plan which had to be explored. The Tension replaced the original object in some ways.

Fig. 72: The double tensions created by the proportionate concentric circles.

I began to see how placing mechanically made lines next to each other could evoke dynamic effects, even if this dynamism was visually hidden in lines that one might initially assume as having passive or static qualities. When I looked more closely, I could see how the circle was inherently dynamic in ways that involved different forces, and I thought that it was possible to visually and actively respond to these properties whether or not one consciously realised their presence (*Fig. 73*):

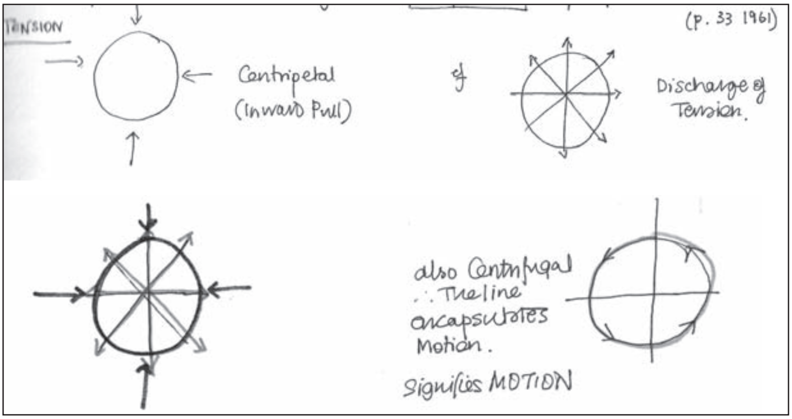

TENSION
(p. 33 1961)
Centripetal
(Inward Pull)
Discharge of
Tension.
also Centrifugal
∴ The line
encapsulates
Motion.
Signifies MOTION

Fig. 73: Exploring the dynamic properties of the circle (informed by Klee 1961).

Discovering these basic elements of drawing for myself made me look afresh at Paul Klee's *Pedagogical Sketchbook* (Klee 1961), which had not seemed particularly relevant to the nature of my investigation when I first looked at it. At this point however, as I became concerned with the growth of the line, his investigation of movement in drawing and his discoveries about the qualities of basic elements of drawn forms started to take on a new significance.

Taking Talbot's lead once again, I dissected the original circles by ruling lines through a central point. I became aware that this disrupted the integrity of their shapes and their inherent dynamic qualities, despite the fact that the symmetry of the proportionate segments I had created visually fought against this by simultaneously working to keep the integral quality intact (*Fig. 74*):

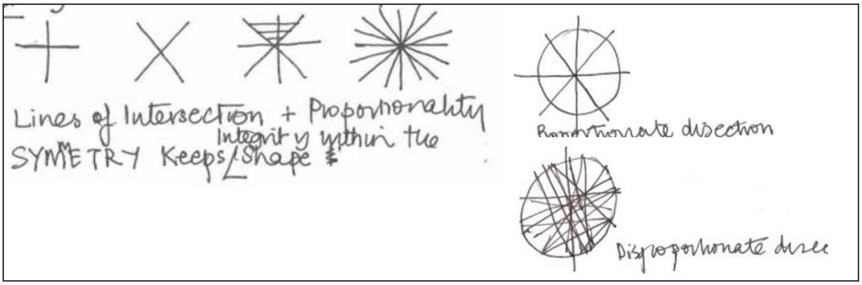
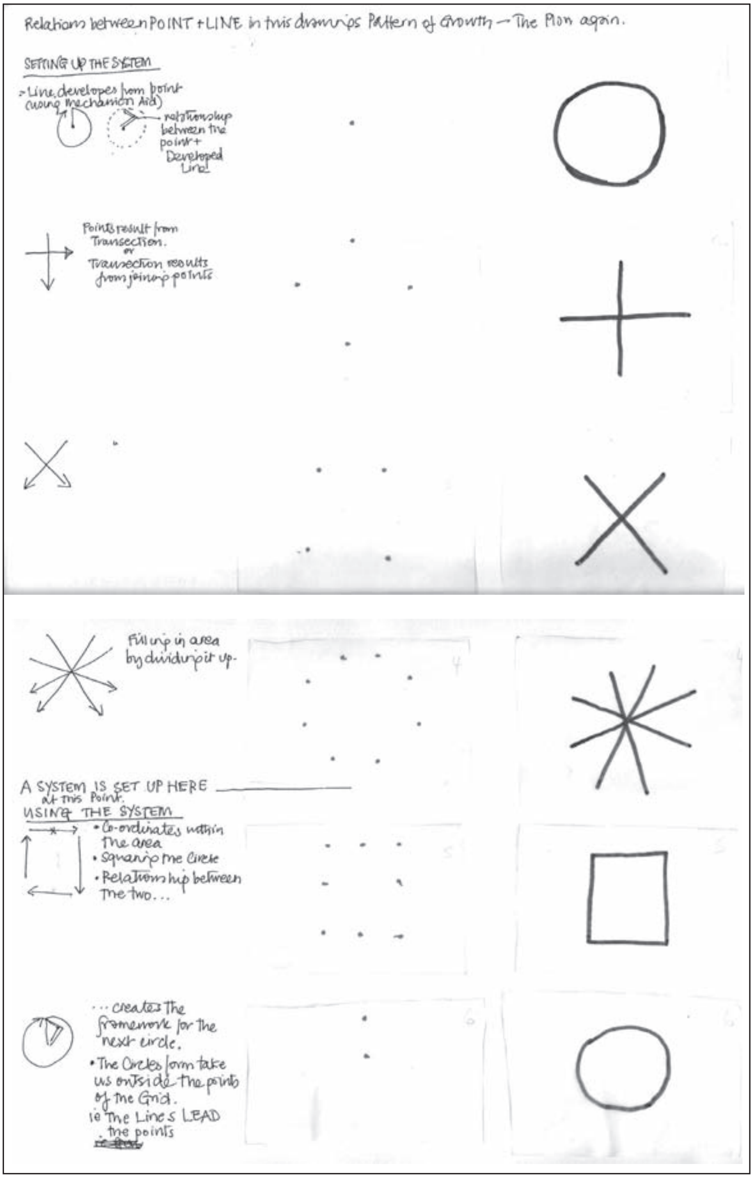

Lines of Intersection + Proportionality
SYMMETRY Keeps Integrity within the Shape
Proportionate disection
Disproportionate disec

Fig. 74: Dissecting the circle.

I dismantled how the plan had been made even further into sets of points and lines in a series of mini acetate drawings (also recording the gestures I used to make these shapes). When placed side by side or on top of each other, this literally showed the build-up of the sequence, with the lines always developing from the points (*Fig. 75*):


Relations between POINT + LINE in this drawings Pattern of Growth → The Plan again.
SETTING UP THE SYSTEM
→ Line develops from point (using mechanical Aid)
relationship between the point + Developed Line
Points result from Transection.
or
Transection results from joining points
Filling in area by dividing it up.
A SYSTEM IS SET UP HERE at this Point.
USING THE SYSTEM
• Co-ordinates within the area
• Squaring the Circle
• Relationship between the two…
… creates the framework for the next circle.
• The Circles form take us outside the points of the Grid.
ie The Lines LEAD the points
4
5
6

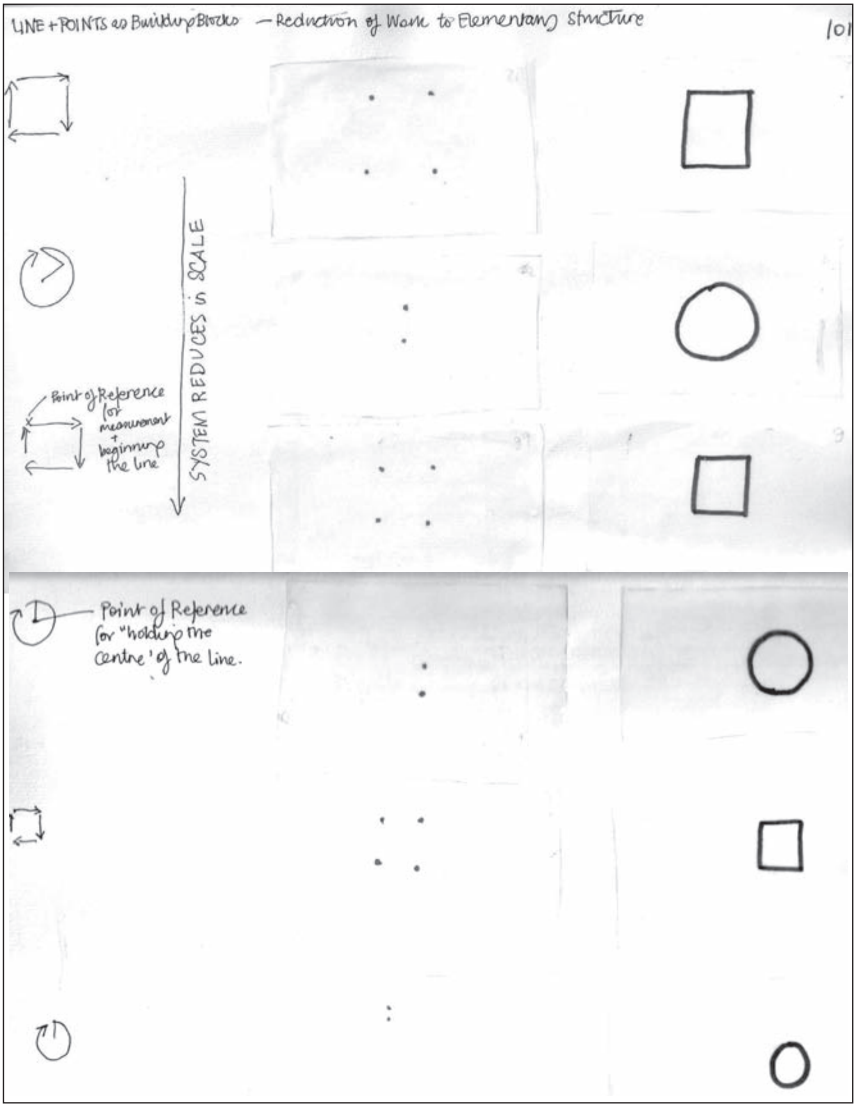
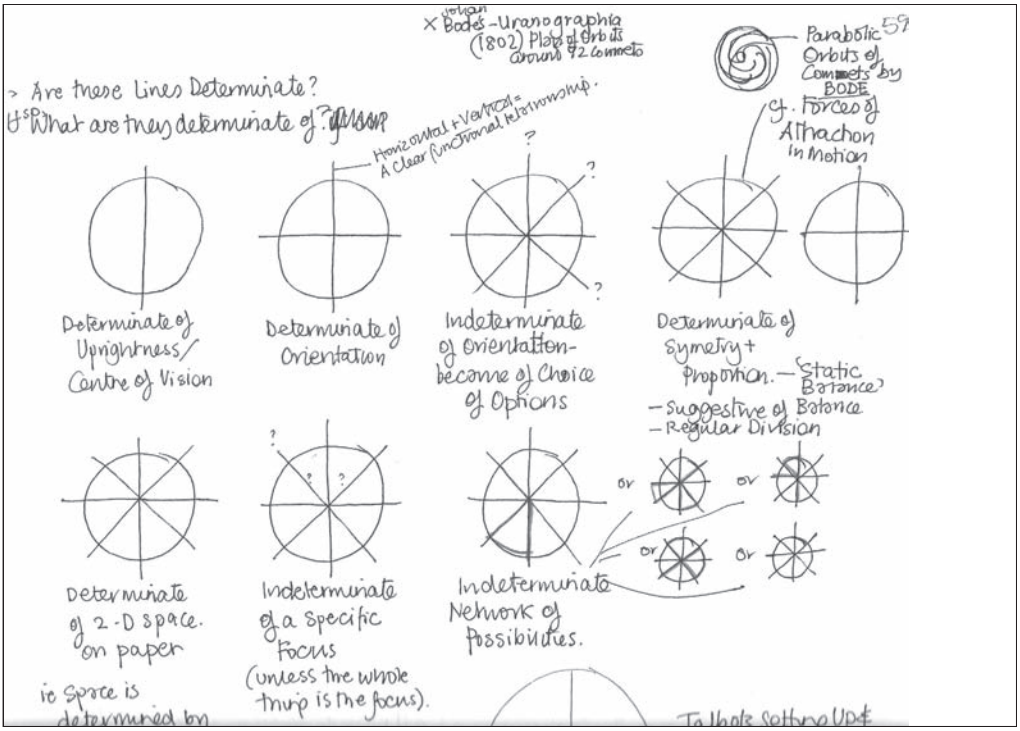

LINE + POINTS as Building Blocks — Reduction of Work to Elementary Structure
101
SYSTEM REDUCES in SCALE
Point of Reference for measurement + beginning the line
Point of Reference for "holding the centre' of the line.

Fig. 75: The points and lines which create the plan.

Exposing how the plan had been made in such a detailed way did not seem to be terribly dynamic. Neither had the experience of re-making the initial copy of *Glass* seemed to have been particularly lively because plotting with a compass and ruler in a fairly mundane manner had distanced my human input. Despite this however, I was starting to catch a glimpse of excitement. Notwithstanding the seemingly mechanical and predetermined nature of how these lines had been made, the action of making each did not turn out to be as determinate as expected because each line evoked an alternating visual sequence of determinacy[3] and indeterminacy as one made them (*Fig. 76*).

Had I been at liberty to re-make the drawing at will instead of remaining on Talbot's terms, I would have put to good use the effect that making each new line was having on my impulse to react to what I saw – particularly to respond by 'putting the line right' and somehow balance things up. Simply intersecting the circle was in itself a vibrant activity because each action created new structures and very much brought to mind the evolutionary phenomenon of cell division (*Figs. 77 & 78*):



Johan
× Bode's – Uranographia (1802) Plate of Orbits around 72 Commets
Parabolic Orbits of Commets by BODE
59
> Are these Lines Determinate?
U's What are they determinate of?
Horizontal + Vertical = A Clear functional relationship.
?
?
?
cf. Forces of Attraction in Motion
Determinate of Uprightness/ Centre of Vision
Determinate of Orientation
Indeterminate of Orientation – become of Choice of Options
Determinate of Symetry + Proportion. – Static Balance?
– Suggestive of Balance
– Regular Division
?
? ?
or
or
or
or
Determinate of 2-D space on paper
ie Space is determined by
Indeterminate of a Specific Focus (unless the whole thing is the focus).
Indeterminate Network of Possibilities.
Talbot's Setting Up

Fig. 76: A sequence of determinate and indeterminate effects from intersecting a circle.

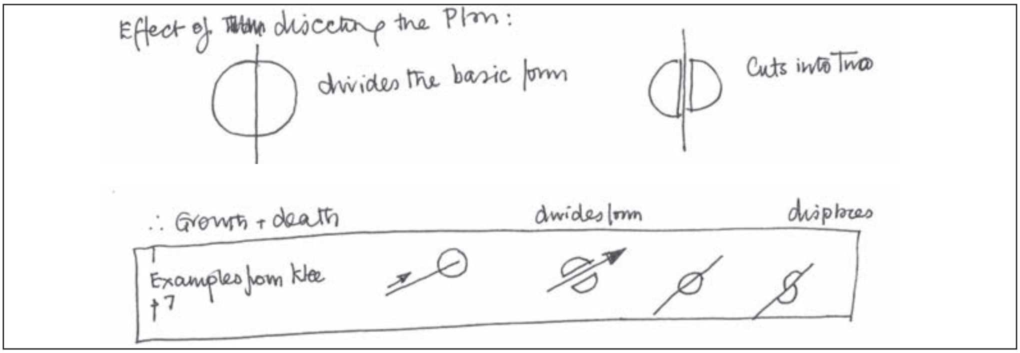


Fig. 77: The effect of dividing the circle (taken from Klee 1961: 7).

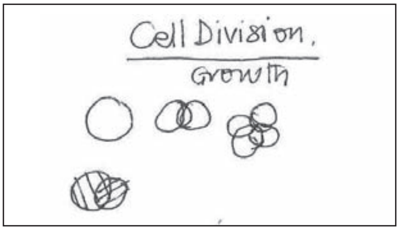


Fig. 78: Cell division.

Dividing the circle prompted me to recall how Klee had described lines that intersected a plane as being dynamic in so doing, whereas the intersected plane remained static (Klee 1961: 115). In comparison, lines connecting adjacent points in a series were 'the quintessence of the static' (Klee 1961: 109). I was to come back to the issue of the static and dynamic line more fully later on.

> *Excerpt from the Author's journal*
>
> Is Talbot using static as a 'given' to react against in going forward… because these static lines, whose route is predetermined by convention, are still ripe with opportunity and subject to the ways in which practitioner decides to use them…? Is this another device along the path of observation and another opportunity for evolution to occur through reaction?

Breaking down elements in the plan also provided insight into how possibilities for new spaces could arise from this basic impulse to respond to each new line as it was made. The action of cutting onto 2-dimensional forms changed both the format of the form and the quality of the space which one then inhabited (*Fig. 79*). In this I was reminded both of what I had read about Stereoscopy (the cutting of solids) in Evans' book *The Projective Cast* (Evans 1995), and Talbot's own description of being some sort of sculptor:

> I still feel that I'm some kind of sculptor. I do feel as though I'm making sculpture on a piece of paper. The kinds of decisions that I'm making on paper are the kinds of decisions I would be making if I was working with some kind of material, sort of cutting and shaping…yes cutting…
>
> (Talbot in interview)

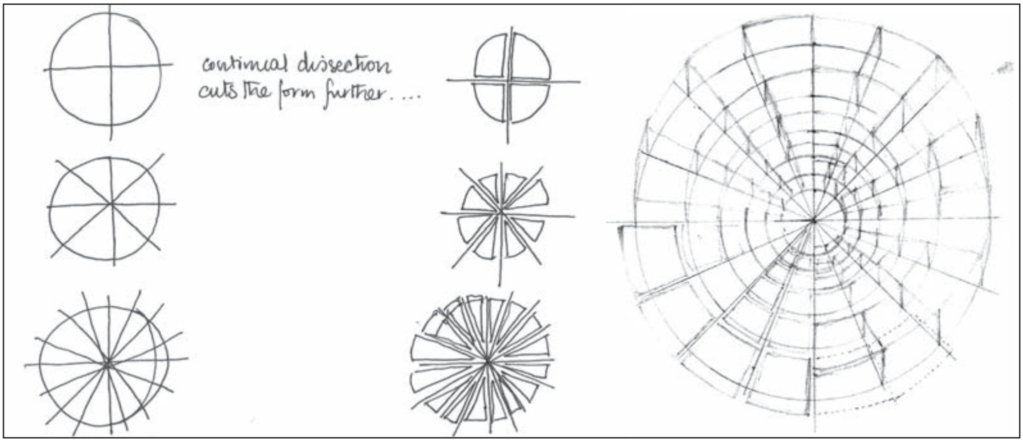

continual dissection
cuts the form further. ...

Fig. 79: Cutting into forms.

By choosing one particular line from many that were available, Talbot re-orientated the axis of his plan so that he could subsequently develop his drawing at an angle. His central line of vision had previously had the effect of grounding the circles through a kind of gravitational pull, but his decision to choose another line as the new axis had the effect of unbalancing the circles (*Fig. 80*):

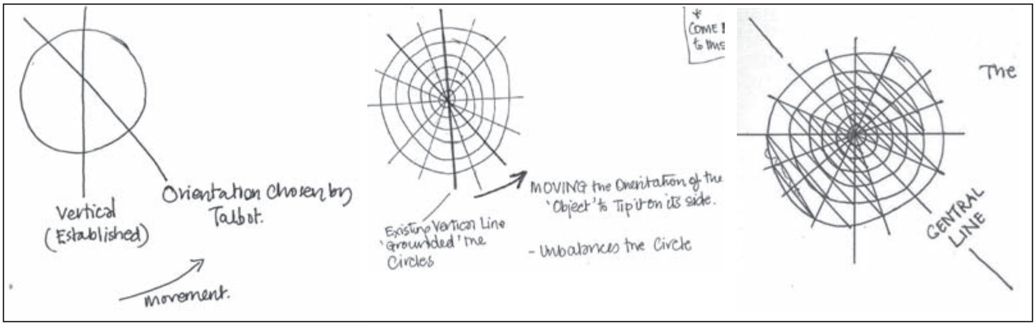

Vertical
(Established)
Orientation Chosen by
Talbot.
Movement.
Existing Vertical Line
'Grounded' the
Circles
MOVING the Orientation of the
'Object' to Tip it on its side.
- Unbalances the Circle
*
COME I
to this
The
CENTRAL
LINE

Fig. 80: Unbalancing the plan by changing its orientation.

By putting the plan on a tilt, one's eye was constantly trying to even it up by gravitationally bringing it round to the vertical. The tension caused by the conflict between these two dominant lines encased a sense of movement in the drawing (*Fig. 81*):

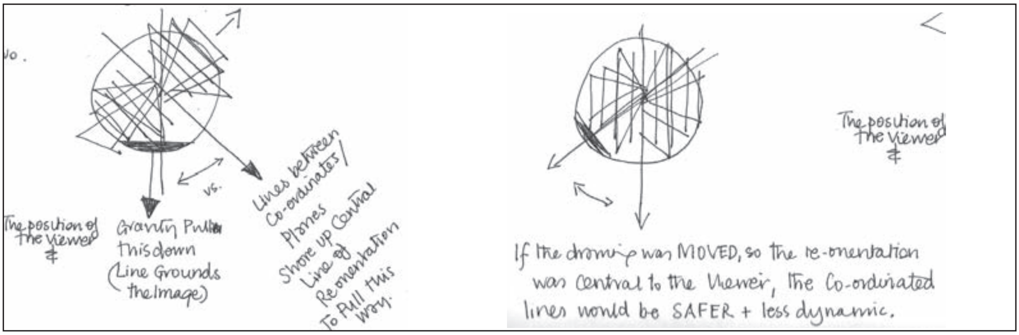

The position of the Viewer
Gravity Pulls this down (Line Grounds the Image)
vs.
Lines between Co-ordinates/ Planes Shore up Central Line of Reorientation To Pull this way.
The position of the Viewer
If the drawing was MOVED, so the re-orientation was central to the Viewer, the Co-ordinated lines would be SAFER + less dynamic.

Fig. 81: Reorientation – working against the gravitational pull.

My hunch was that Talbot had deliberately (albeit perhaps intuitively) set up a dynamic where the image was constantly on the verge of a gravitational balancing act, and that he used this conflict as something he could either work with or against. This would be more visually interesting than working with a form that was solidly grounded. I experimented with how such a balance could be achieved, wondering if Talbot was in essence providing himself with a 'dynamic-static' framework (*Fig. 82*). I was unsure about whether Talbot would have been consciously aware of responding to the hidden effects of placing each line because, in practice, creating and maintaining a 'dynamic-static' framework might be nothing more than an intuitive and fleeting response.

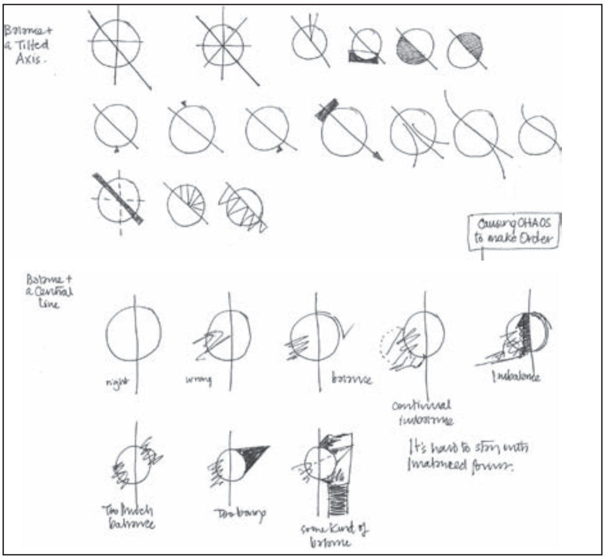

Balance + a Tilted Axis.
Causing CHAOS to make Order
Balance + a Central Line
right
wrong
balance
continual balance
Imbalance
Too Much balance
Too heavy
some kind of balance
It's hard to stay with balanced forms.

Fig. 82: Experimenting with the balance created by central and tiled axes.

Excerpt from the Author's journal

Building = constructing to form an equilibrium between movement and counter-movement, between active and static. Does static mean 'actively dormant?'

Active/Positive:	*Static/Negative:*
animated	lull
quick	suspension
forceful	inactive
pushing	laborious
enthusiastic	indifferent
alert	heavy
fussy	lifeless
energetic	sluggish
resistant	idle
expansive	empty
agitated	neutral
take steps	unproductive

Considering Talbot's plan in such a detailed manner was also having an effect on my written descriptions about this experience. The weight I had initially given to the rules of perspective dwindled as I replaced the 'language of the drawing system' with the 'the language of the line'. At the same time, I could not escape the feeling that talking about the line was contrived because continually focussing on what I was doing in so much detail took me out of the usual flow of my process of working.

Excerpt from the Author's journal

…it's hard to continue looking into this drawing using these methods…having to look so intensely feels unnatural. Always asking 'what does this mean?' feels very forceful and intrusive…

Usually in my own practice I'd just start making, letting the materials and the making take over so that in its own time, perhaps one or two certain things would start to appear evident, and then I would focus on these perhaps…

…but here I'm being bombarded. A lot of things are being made very visible all at once and I'm experiencing a huge shift in how I'm coming to discuss the line…I'm being hemmed in by detail rather than going out on the plain to explore which is my more usual practice…this process is very uncomfortable…

Paths versus points – the nature of extension and growth by using co-ordinates

There is a sense of limitation about how a circle might grow visually because its form also serves as a natural line of a boundary (*Fig. 83*):

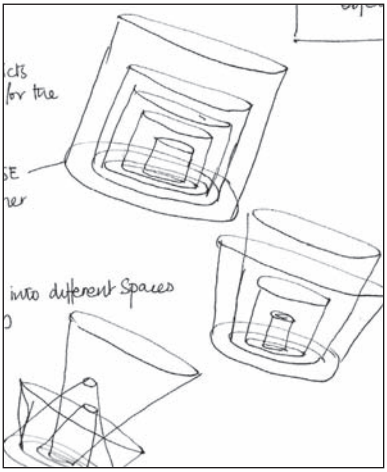

cts
for the
SE
ner
into different Spaces

Fig. 83: How the line of a circle acts as a boundary.

Overcoming this boundary in order to take the circle's dimensions and proportions into new spaces on the paper can be achieved through the use of motion, by for instance rotation or repetition (*Fig. 84*):

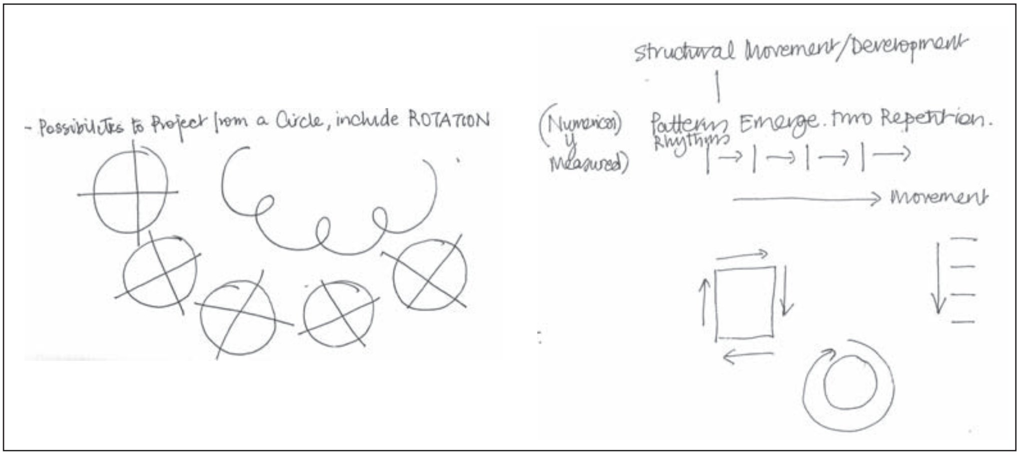

- Possibilities to Project from a Circle, include ROTATION
Structural Movement/Development
(Numerics)
y
Measured)
Patterns Emerge. thro Repetition.
Rhythms
Movement

Fig. 84: Moving the circle through rotation and repetition.

Talbot overcomes the circular boundaries of his plan by projecting lines. Translated into 'line-speak' rather than 'system-speak', this involves using the rhythm and motion of repeating lines from points in the plan to transfer his spaces proportionately. Trying this for myself, I began to see how growth in a drawing was literally a matter of spatial movement (*Fig. 85*):

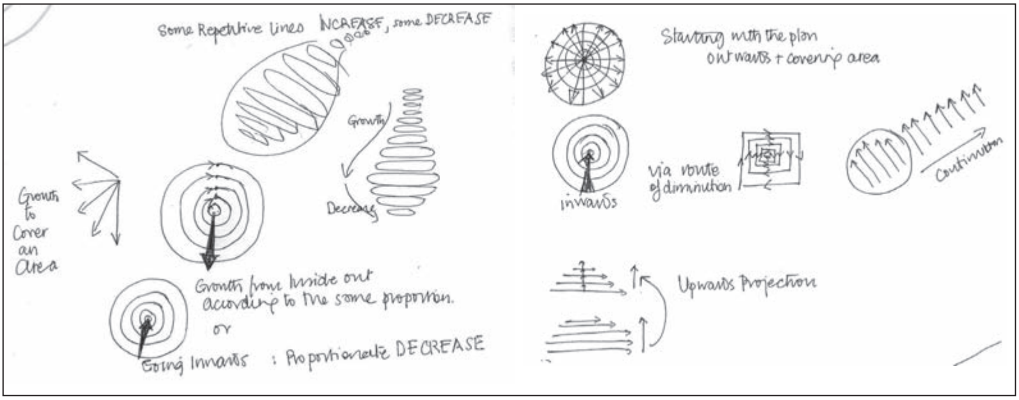

Some Repetitive lines INCREASE, some DECREASE
Growth
Decrease
Growth to Cover an Area
Growth from inside out according to the same proportion.
or
Going Inwards : Proportionate DECREASE
Starting with the plan
outwards + covering area
inwards
via route of diminution
Continuation
Upwards Projection

Fig. 85: Moving through lines.

Talbot creates a network or grid within his plan by connecting up a series of points with lines. The spaces between these points create a series of measurements which embody accurate information about proportions that can later be transferred to other spaces on the paper (*Fig. 86*):

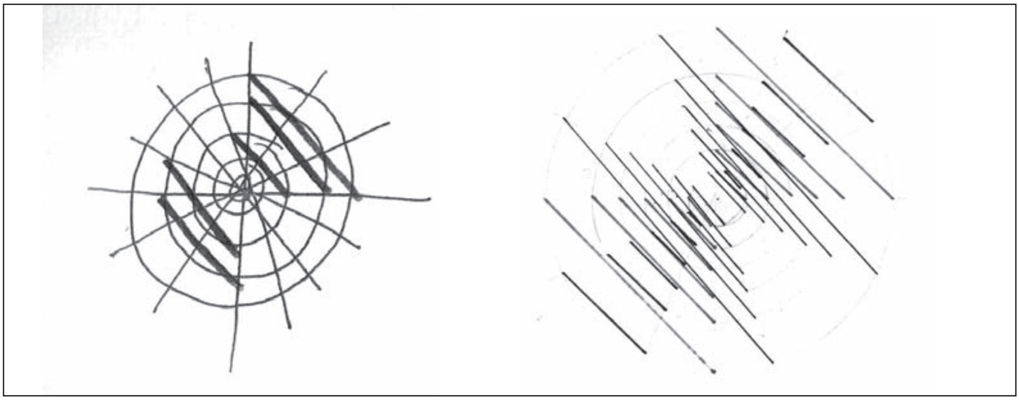


Fig. 86: Forming intersecting lines from plotted points in the plan.

Intersecting the plan in this way is only one of many ways of (and reasons for) moving through a network of coordinates. By experimenting with other ways of doing this (*Fig. 89*), I started to question whether growth required a structure, and if so, whether this had prompted Talbot's development of *Glass* even if he may not have been consciously aware of this.

I experienced different senses of development by experimenting with organised and random approaches for developing a structure (*Fig. 88*):

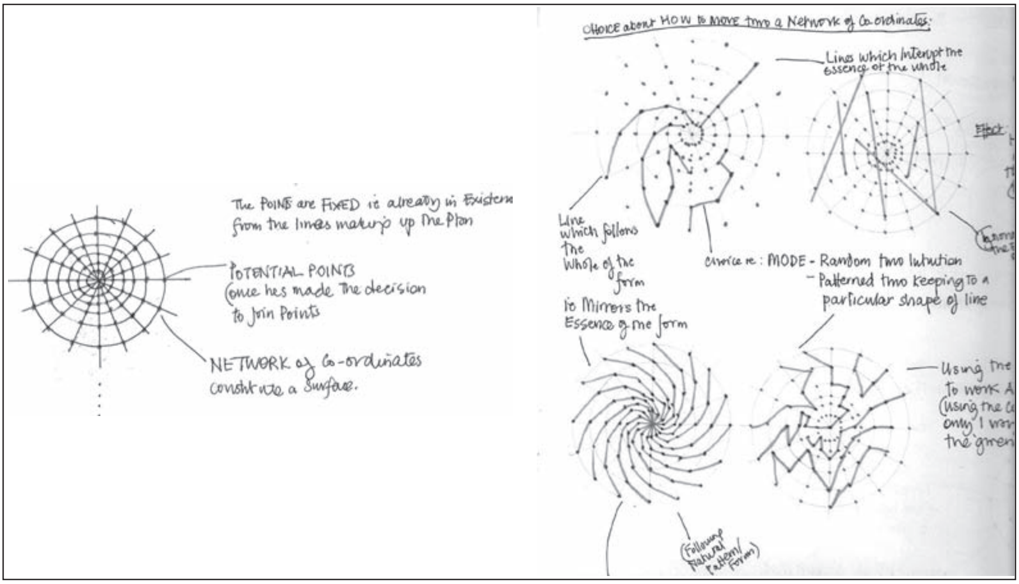

The POINTS are FIXED ie already in Existence
from the lines making up the Plan
POTENTIAL POINTS
(once hes made the decision
to Join Points
NETWORK of Co-ordinates
constitute a Surface.
CHOICE about HOW to MOVE thro a Network of Co-ordinates:
Lines which Interupt the
essence of the whole
Effect
Line
which follows
the
Whole of the
form
Choice re: MODE - Random thro Intuition
- Patterned thro keeping to a
particular shape of line
to Mirrors the
Essence of the form
Using the
to work A
(using the c
only I wor
the given
(Following
Natural
Pattern/
Form)

Fig. 87: Alternative ways of intersecting points of a circle.

When I developed lines in random ways it was as if there was nothing to react against whilst making them. There was a different quality to developing lines in a more coordinated way that somehow allowed me to gauge more clearly how the development was evolving whilst it was evolving, and I felt as though I was somehow putting things in order by doing this.[4] Even when there appeared to be no specific structure to a process, the framework was that 'there was no framework': the structure of development was a process of continued random action which I could identify as such.

I began to consider that chance might play a part in the evolution of a drawing whether or not one felt in control of one's process, but that aspects of this might only be recognisable if one provided a framework through which to identify this:

> …this suggests…that chance operates within the fence we throw around it. Outside of that fence, the concept of chance is, in fact, meaningless. To say that everything in the universe happens by total chance is to say nothing at all.
>
> (Flint in Walwin & Krostatsis 2006: 20)

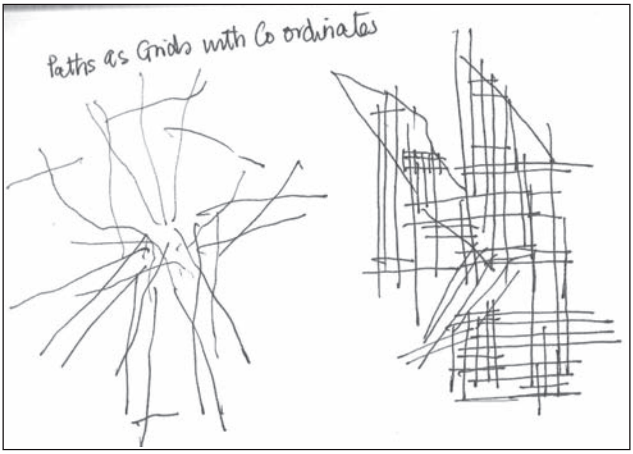

Paths as Grids with Co ordinates

Fig. 88: Visual differences between grids which were spatially developed through the use of organised and random methods.

It was as if one's development could only be understood through a structure of one sort or another, and I began to consider how the framework for understanding change might have to be designed by oneself; only by doing this would one understand what one recognised as a new development by reference to one's current knowledge.

Talbot's framework for developing a drawing might then be to create an environment in which he could recognise when opportunities occurred – a kind of causal structure between known and unknown. In effect, his process would be to set up a situation whereby he could work in ways that were within his own knowledge, yet through which he could discover things which were unknown or unanticipated and recognise them as such.

A self-generating system like this would be similar to the self-referencing nature of Varela's autopoietic system because Talbot's understanding was self-referential. Although Talbot was inviting change into his framework, he was doing this on his own terms through his own processes, subsuming the consequences of these dynamics as far as his understanding permitted him to.

It was difficult to imagine what it might take to breach the artist's self-referential boundaries although I recalled Milner's comments about the apprehension caused by engaging in a process where one was inviting in the unknown and losing one's boundaries. In comparison it seemed as though Talbot might have found a way of safely inviting in the unknown on his terms and self-managing a mechanism through which he could engage with the unknown. I wondered about his ability to control an experience as he engaged in it, making it safe for himself in so doing. Perhaps one of the most useful capacities an artist could develop is an ability to live through the experience of change safely in order to emerge relatively unscathed, yet knowing oneself better.

Returning to the drawing, by joining up his coordinates in the plan Talbot had in effect been visually intersecting something organic with a kind of Cartesian logic, which consciously or not, had the effect of imposing visual order or logic on a situation (*Fig. 89*). I made a connection between this and the way in which the development of natural forms had been accounted for in terms of Cartesian coordinates by D'Arcy Thomson (Thompson 1961).

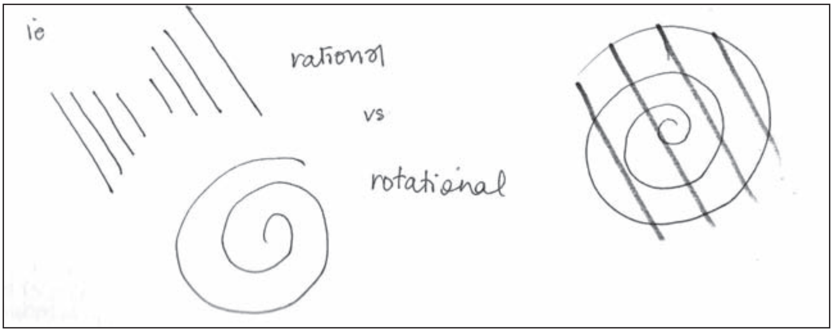


Fig. 89: Rationalising the irrational.

I realised that it was Talbot's method of 'making sense through making order' which was driving the progression of *Glass*. What he came to know from making the drawing would depend on making sense of a situation by reference to prior experience about what was happening on the paper. I could imagine from this how his knowledge of using perspective had accrued through some kind of caterpillar effect, as the activity hauled his understandings forward with each new experience.

Talbot's coordinated lines extended his drawing into new spaces in two particular ways; firstly, by joining lines to points; and secondly, by repeating lines. The first activity of connecting points with lines did not prepare me for the sudden spatial possibilities which formed as a result.

Something visually dynamic occurred from the innocuous act of connecting two points with a line. As I joined up points in the plan, a new space was immediately generated on top of (or below) the plan. It was as if a set of planes were jumping out of the centre of the plan and coming towards me. This had the effect of changing the intervals, pattern and rhythm of the whole drawing (*Fig. 90*):

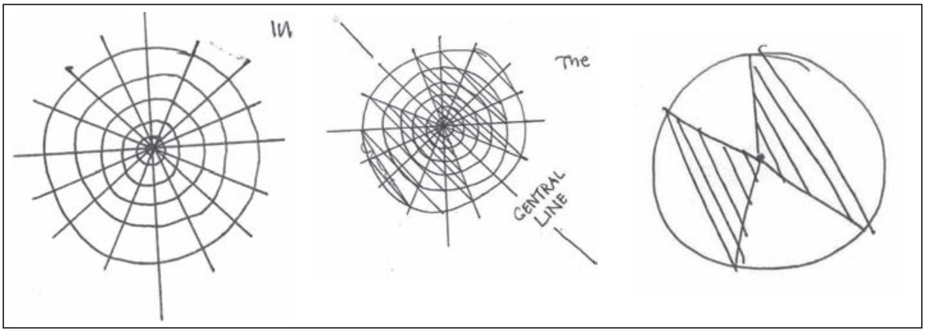


Fig. 90: Unanticipated planes that arise as a result of joining up points in the plan.

At this point, I entered the hybrid world between real and imaginary that is created by illusionistic perspective. These illusionary structures had created a homospatial effect by occupying the same space as the plan, and as soon as I saw this, my mind was filled with a wealth of spatial possibilities for taking the drawing further (*Fig. 91*):

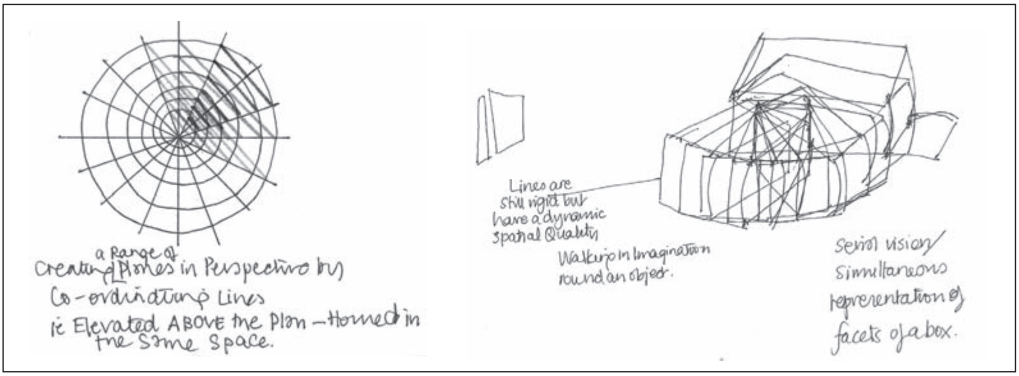

Creating a Range of Planes in Perspective by
Co-ordinating Lines
ie Elevated ABOVE the Plan – Homed in the Same Space.
Lines are still rigid but have a dynamic spatial Quality
Walking in Imagination round an object.
Serial vision/
Simultaneous
representation of
facets of a box.

Fig. 91: Multiple views that use the same space.

I realised that Talbot must have made a calculated decision to allow alternative views of his 'object' to inhabit the same space, and that he was playing with the system of perspective by overcoming the static fixation of the single view in favour of multiple views (*Fig. 92*).

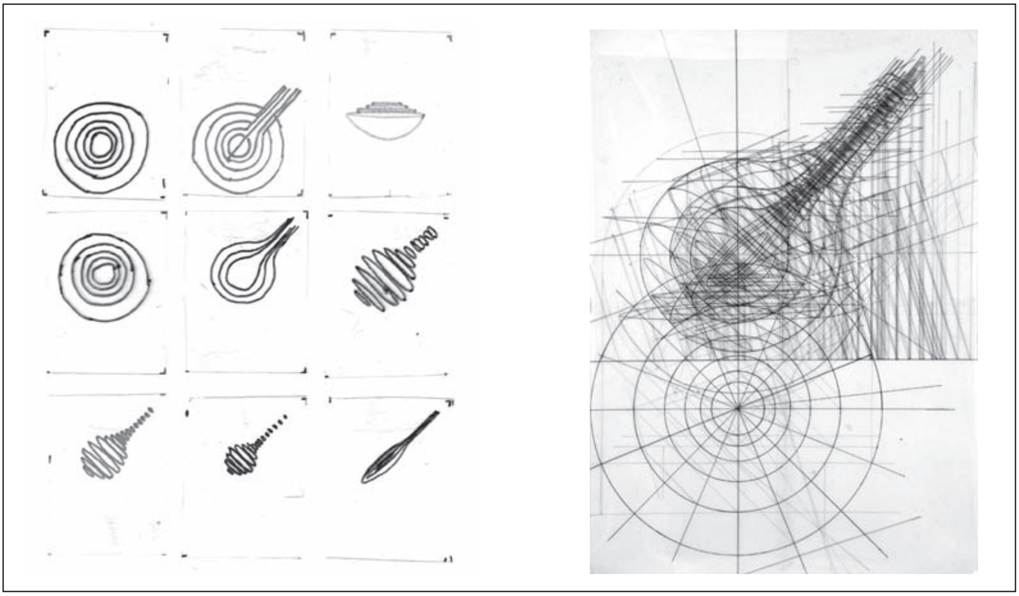


Fig. 92: Views that share the same space in *Glass*.

Whereas I could no doubt have identified this eventually from simply looking at *Glass*, the important thing here was that I had come to realise this from the physical experience of moving within drawn spaces on Talbot's terms rather than my own. The distinction between these two ways of coming to know was significant. There was a world of difference between gaining an understanding about spatial matters from what one had done through the body, and the quality of something that is simply imagined. When one's understanding comes from having experienced something for oneself there is an extra sense that one knows something for certain – as if there were some sort of extra proof that it had been discovered in that way.

It was at this point that I made a personally significant finding about my own drawings which became crucial in identifying to myself what I was coming to know through this enquiry.

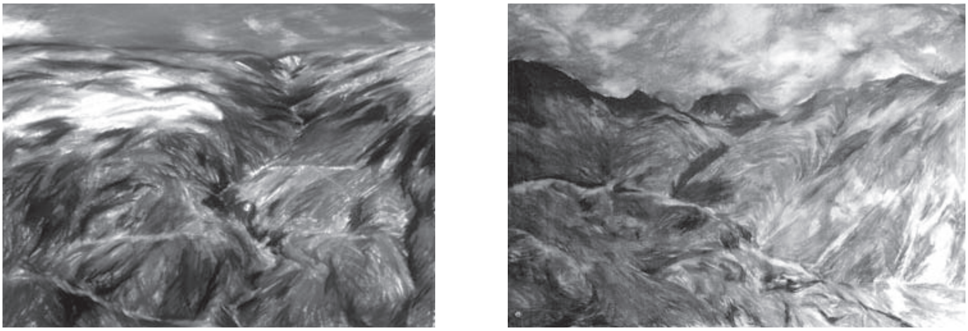
Throughout my investigation I had put my drawing skills in the service of my research, but had independently maintained a drawing practice as an artist throughout. This was relevant not only because issues from my practice had initiated my enquiry, but also because the skills I had formed through this practice informed how and what I could visually 'read' (but not necessarily explicate) from the drawings of others. As a result of investigating *Glass*, it now occurred to me that what might have inexplicably drawn me to Talbot's work was a visual recognition of similarities in our processes – I was somehow able to 'read' in Talbot's drawing that our respective moments of determinacy and indeterminacy similarly created (albeit in different guises) a multitude of forms within one space.[5] Whereas the differences in our drawing styles had previously clouded such matters, this realisation had become evident from recognising similar aspects in our processes – the difference was between simply reading the visual and being able to read the processual in a drawing:

Excerpt from the Author's journal

I now look back at how I have represented experiences spatially in my own work and am starting to see things in different terms.

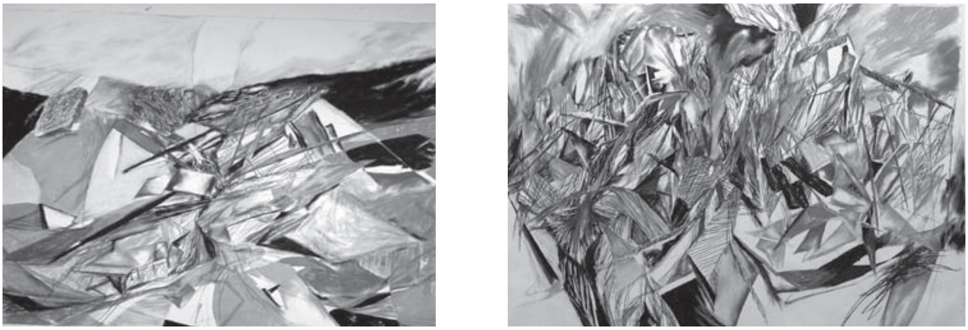
A while ago (between 2002 and 2003), I was involved with making drawings that were concerned with the experience of 'being in' the landscape of the Lake District. I knew the landscape very well having been brought up there and felt a sense of it engrained in me.

I initially tried to capture what I could of the landscape in a representational way, trying to re-create the essence of what it was like 'to be' there (2002 drawings):



2002 drawings

But on trying to better define the essence of my experiences and experimenting with my materials, I let go of what the landscape looked like and produced some 'unwilled' drawings that at the time, were frightening in their unrecognisable-ness – every plane and mark seemed so harsh and spiky (2003 drawings).



2003 drawings

Although I couldn't give an account of why these images turned out to be as they were or how they had come about (because they really were so surprising), what I could see from what I had drawn was something that had always struck me as I'd walked over the land – and that was how I had to continuously re-navigate the terrain whilst crossing it. I thought these drawings were 'about' this phenomenon.

I later found a connection between this and Cullen's idea of 'serial vision' in which he describes how viewpoints constantly change as we travel (Cullen 1961). But other than this and being able to describe how I had used my materials, I struggled to explain the transition from pictorial to abstract.

Making such bold yet unrecognisable drawings overawed me, and I have used this experience as a basis for developing ideas concerning the differences between premeditated and unpremeditated drawings as part of my practice ever since. It also accounted for my interest in being able to articulate the value of 'not knowing' with the head, and I have focussed on this issue since to the detriment of developing other aspects in my work. What I am trying to say is that I marginalised other potential ways of understanding my work by focusing on this particular aspect.

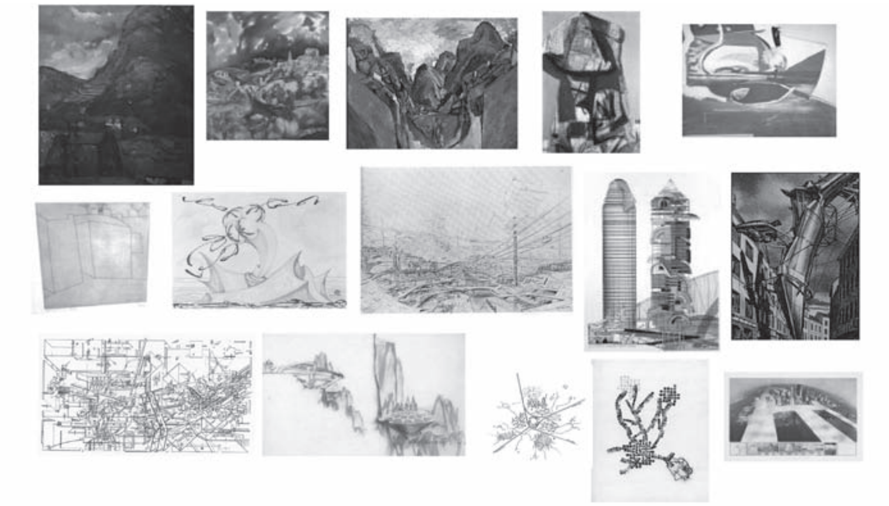
It is only now, today, that I have begun to recognise for myself a different way of accounting for the visual content of these drawings. Looking at each type of drawing I see more similarities than I do differences. Both come from experiences of 'being' in the landscape and are the outcomes of experiences during which I used a kind of navigational serial vision. Whereas I had visually been able to identify these similarities, I could not have defined what I do now – that my use of space in the drawings is as much a part of the representation as the 'landscape-as-subject' is.

In fact, I could even say now that my 'subject' is one of 'spatial representation' and that the process of how that representation becomes formed (i.e. the differences between knowing and not knowing what I'm doing during the process), informs the outcome as much as the original experience in the landscape does.

Although someone else may have seen this fairly basic connection, I am not sure that I could have said this for myself without the intervention of this research having forced me out of my own head/body space, and therefore mind-set. The point is how I've come to find this thing out for myself – not by asking 'What do I know about my own work?' or even 'What do I know about Richard Talbot's thinking?' but rather 'How am I thinking that Richard Talbot draws?'.

I have previously had a kind of blindness when it came to discussing spatial issues in art. I often got lost in texts describing spatial concepts because I don't naturally abstractly think in spatial ways that can be discussed in text or even by looking at diagrams. Somehow these abstract descriptions didn't permeate. For me, the spatial dimensions within my drawings existed as part of the whole drawing – something that I have never really been able to abstractly separate – and I didn't realise this until now.

So even if I had been partially aware on one level that I was always dealing with 'space' in my work, the experience of making the drawings did not naturally lend itself to the trajectory of a spatial analysis. The best way I could have identified the spatial context at the time was by reference to the visual influences I had surrounding me in the studio:



Images I had been looking at in the studio between 2002–2003

I've come to see that re-making Talbot's drawing has invited into my practice a form of spatial analysis that relies on experiential engagement. Analysing Talbot's process has involved physically experiencing for myself how the visual overlays of perspectival construction occurred from a procedural balancing of the dynamic between himself and his drawing.

Having made these realisations, I returned to *Glass* to concentrate on the second way in which Talbot's lines extended from the confines of his circle – through repetition. Creating a series of repetitive lines in the shape of a spindle had the curious effect of making the plan into something new, and confusing how the plan might then be read. If the function of the plan was to house Talbot's concept, it was now visually evident that the object, and possibly the concept, had changed from being six concentric glasses to something reminiscent of a flask (*Fig. 93*):

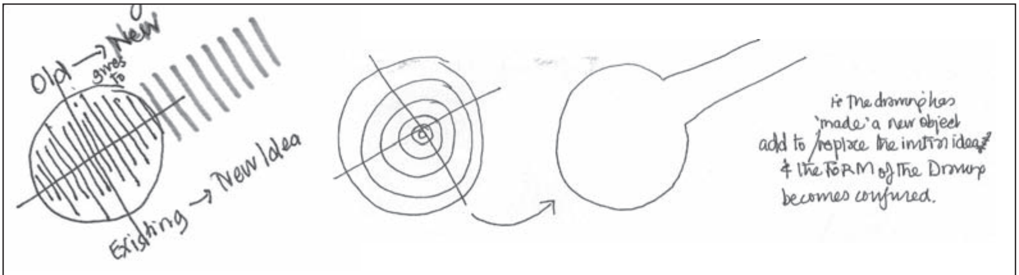

Old → New
gives to
Existing → New Idea
i.e The drawing has 'made' a new object
add to / replace the initial idea
& the FORM of the Drawing
becomes confused.

Fig. 93: How repetitive lines create a spindle.

Using fixed points to create the spindle and indeterminate points to establish an axis, Talbot establishes through this narrative a new space in which to create moments for new ideas to intervene (*Fig. 94*). These possibilities for conceptual change prompted me to consider how the physical activity of drawing was at this point leading Talbot's process in a major way, in which the drawing was starting to have a life of its own.

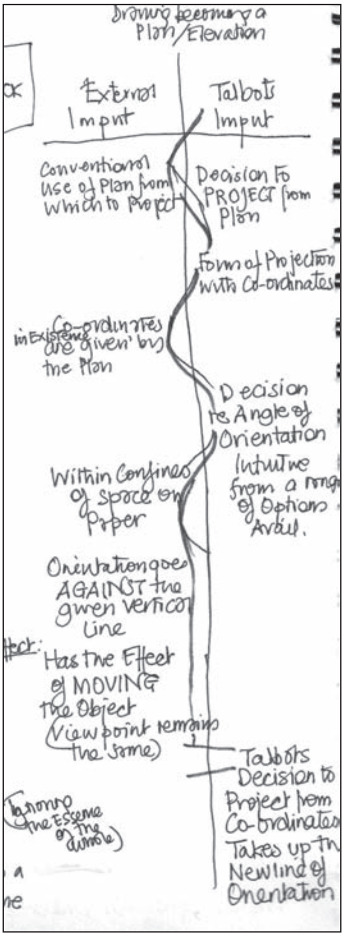

Drawing becoming a Plan/Elevation
External Input
Talbots Input
Conventional use of Plan from which to Project
Decision to PROJECT from Plan
Form of Projection with Co-ordinates
Co-ordinates in Existence are 'given' by the Plan
Decision re Angle of Orientation
Intuitive from a range of Options Avail.
Within Confines of space on Paper
Orientation goes AGAINST the given vertical line
Has the Effect of MOVING the Object (Viewpoint remains the same)
Talbots Decision to Project from Co-ordinates Takes up the New line of Orientation
(Ignoring the Essence of the dimple)

Fig. 94: A narrative to create a new concept?

Projections – growth along extended lines

Perspective drawings use the method of projection to move from one fixed view to another, and the projected lines describe the relationship between views.

Talbot uses this method to create a sequence of views in *Glass*. Measurements from the plan are transferred along either visible or invisible straight lines to other spaces on the paper, so that proportionate relationships are created between each view (*Fig. 95*):

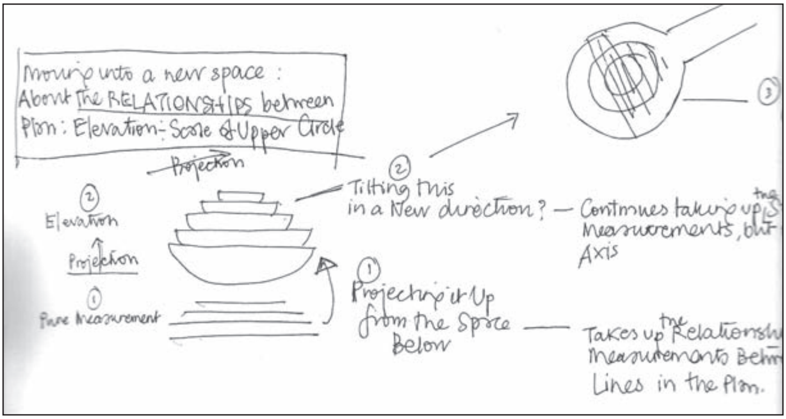

Moving into a new space :
About The RELATIONSHIPS between
Plan : Elevation - Scale of Upper Circle
Projection
②
Elevation
Projection
①
Pure Measurement
②
Tilting this
in a New direction ? — Continues taking up the measurements, but
Axis
③
①
Projecting it Up
from the Space
Below — Takes up the Relationsh
Measurements Betw
Lines in the Plan.

Fig. 95: Changes between views that use measurements from the plan.

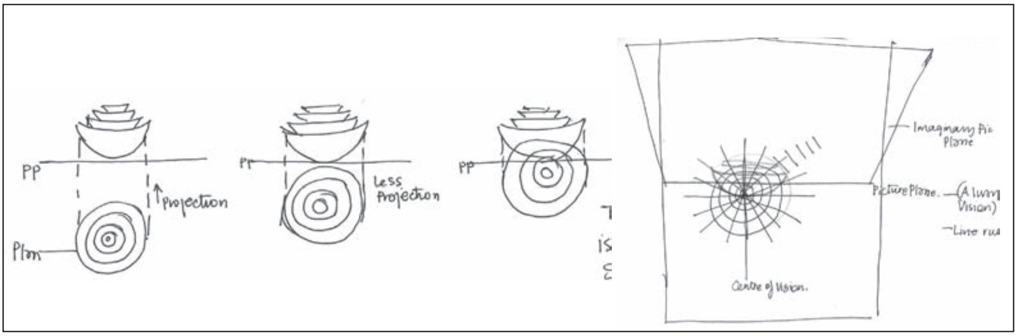

PP
Projection
Plan
PP
Less
Projection
PP
is
Imaginary Pic
Plane
Picture Plane.
(A lum
Vision)
Line ru
Centre of Vision.

Fig. 96: The placement of Talbot's elevation.

Compared to other views, Talbot's elevation was easy to identify (*Fig. 96*). This is the view of an object from the front, rear or side to illustrate how the object is situated topographically, and it clearly visualises the relationship between the plan and his original inspiration of the concentric glasses in the Armonica.

I could not understand how this elevation was smaller in scale than the plan, because if Talbot had taken his measurements directly from the plan, the elevation would have been similar in scale. At first I suspected that the measurements had been taken from the second smaller plan above the first (*Fig. 97*):

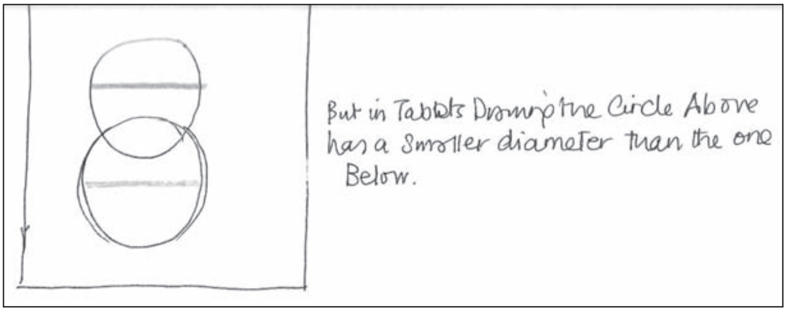

But in Tablets Drawing the Circle Above
has a Smaller diameter than the one
Below.

Fig. 97: Identifying that the scale of the elevation is smaller than that of the plan.

But on closer inspection I could see that the scale of the elevation did not match that of the upper plan either, because the largest 'glass' in the elevation did not match that of the largest circle in the plan (*Fig. 98*):

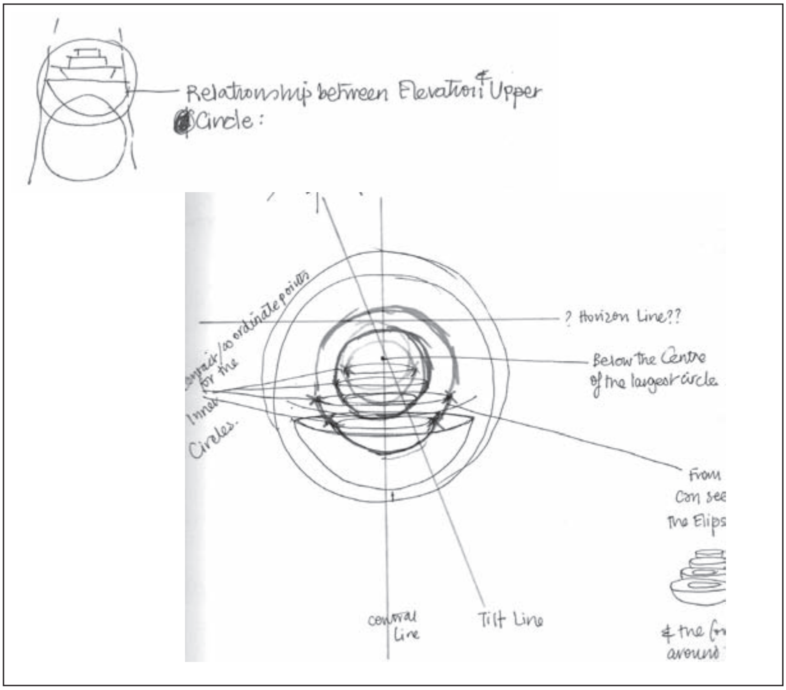

Relationship between Elevation & Upper
Circle:
ntact/co ordinate points
for the
Inner
Circles.
? Horizon Line??
Below the Centre
of the largest circle
From
Can see
The Elips
central
Line
Tilt Line
& the fr
around

Fig. 98: The placement of the elevation in relation to the plan.

One explanation for this might be that Talbot had picked alternative points in the plan to project up from, and that this would have given the elevation a smaller diameter (*Fig. 99*):

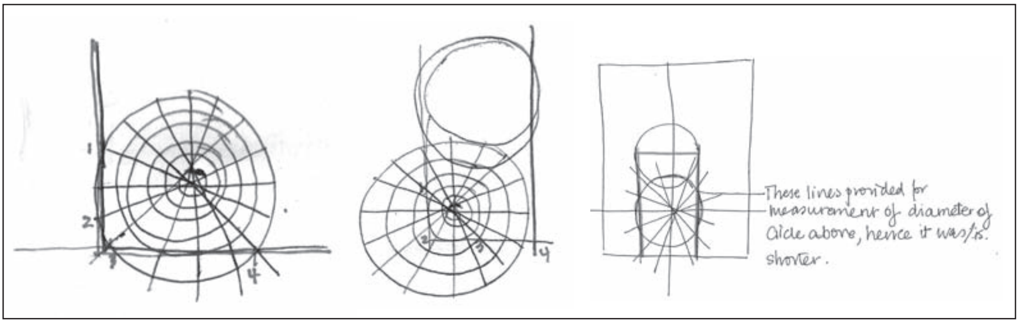

1
2
3
4
3
4
These lines provided for measurement of diameter of Circle above, hence it was/is shorter.

Fig. 99: Methods of controlling the scale of the elevation by reference to points in the plan.

But I now began to see that a more likely alternative was that the scale had been reduced because Talbot had used a 'vanishing point'. Defined as being 'two or more lines which are extended and appear to converge and meet at a point' (Gill 1974: 23), this point can be below or above a plan, and it is possible to have any number of points in a drawing. For example, the two point perspective in *Fig. 100* has two vanishing points:

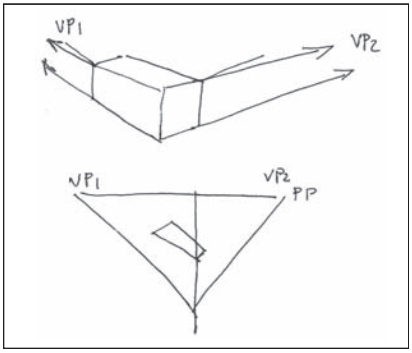


Fig. 100: An example of 'two point' perspective (based on a diagram from Gill 1974: 23).

To check this out, I set about looking for 'ghost lines' (invisible construction lines), and worked out that Talbot's vanishing point would have had to have been above his paper because if it was below, the upper circle would be larger than the one beneath (*Figs. 101 & 102*):

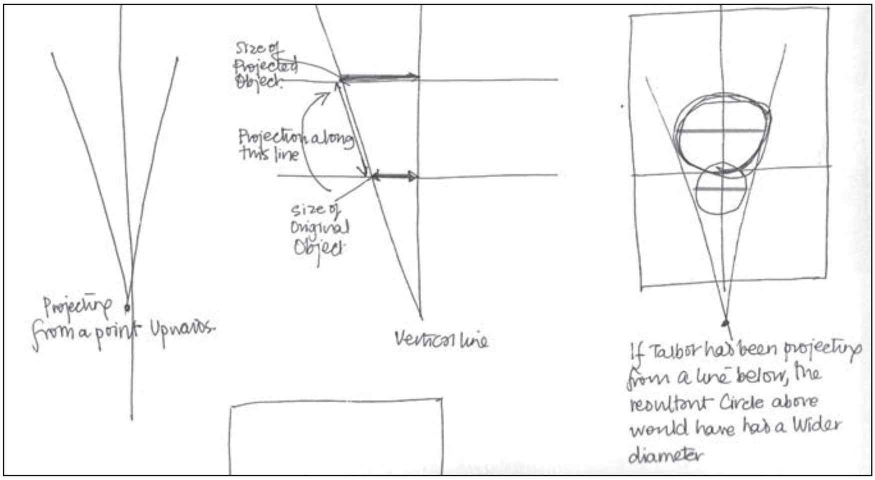

Size of Projected Object
Projection along this line
size of Original Object
Projecting from a point Upwards.
Vertical line
If Talbot has been projecting from a line below, the resultant Circle above would have had a Wider diameter

Fig. 101: Circles measured from a vanishing point below the paper.

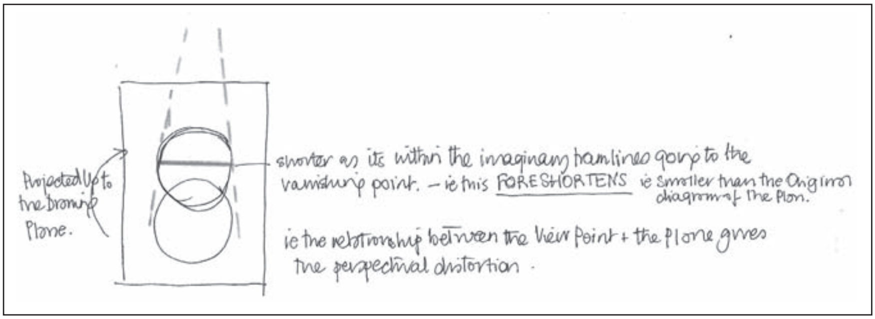

Projected Up to the Drawing Plane.
shorter as its within the imaginary framlines going to the vanishing point. – ie this FORESHORTENS ie smaller than the Original diagram of the Plan.
ie the relationship between the View Point + the Plane gives the perspectival distortion.

Fig. 102: Using a vanishing point above the paper.

The existence of a vanishing point did not explain how the distances between the ellipses had been calculated, and I conjectured that this might have been done from having been drawn by eye or by reference to a calculation from the plan that was not visually evident (*Fig. 103*).

Vanishing points are only recognisable to those who know about them. Once aware of their existence, I noticed how the device created a space that was both real and imaginary in the sense that it created a space full of potential (*Fig. 104*):

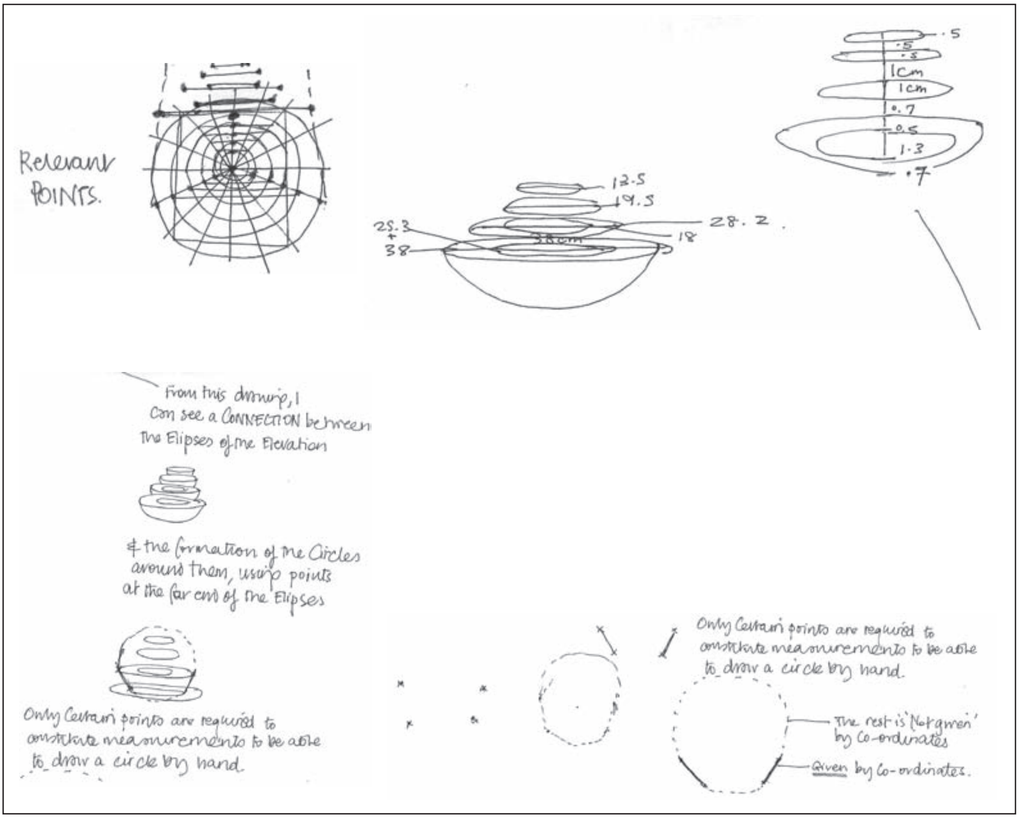

Relevant POINTS.
.5
.5
1cm
1cm
.7
.5
1.3
.7
12.5
19.5
25.3
38
28.2
18
38cm
From this drawing, I can see a CONNECTION between the Elipses of the Elevation
& the formation of the Circles around them, using points at the far end of the Elipses
Only Certain points are required to construct measurements to be able to draw a circle by hand.
Only Certain points are required to construct measurements to be able to draw a circle by hand.
The rest is 'Not given' by co-ordinates
Given by Co-ordinates.

Fig. 103: Measuring the points used to calculate the depth of the elevation.

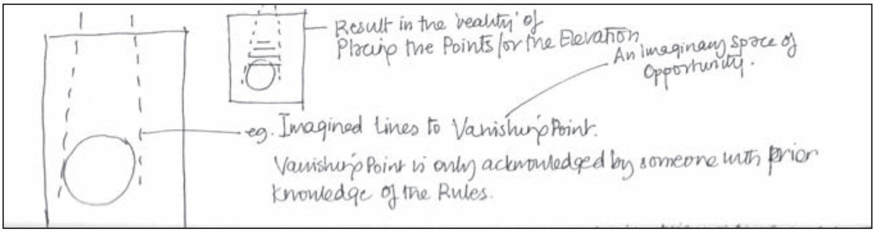

Result in the 'reality' of Placing the Points for the Elevation
An imaginary space of Opportunity.
eg. Imagined lines to Vanishing Point.
Vanishing Point is only acknowledged by someone with prior knowledge of the Rules.

Fig. 104: An imaginary space of opportunity.

By joining up measured points to create the elevation, Talbot was capturing and realising an imaginary space created by having established a vanishing point. I wondered how much he might have relied on this kind of device to stoke his imagination whilst evolving his drawings, and whether making a drawing was in fact simply a matter of realising potential.

Excerpt from the Author's journal

So there is a distinction between imagined views on an imagined plane, and the 'reality' of the plan and the elevation when these are realised on the paper… Talbot can predict 'what is likely to happen' to a certain extent, but once he makes an imaginative choice based on previous experience, he commits himself to seeing what he imagines…to seeing what his imaginary form looks like, and what he sees may not be something he expected…

I could see how using a 'predictive' system and not quite knowing what would happen might be different to using it in a premeditated way and hoping that it would ensure pre-mediated ends. There was always a chance that the visual reality might look different to the imagined space, and if this was the case, one might expect the maker to react in an unanticipated way as a result. This raised a possibility that something like 'accidental logic' could occur in a drawing like *Glass*, where unanticipated outcomes could easily be visually hidden within the apparent integrity of the system. I conjectured that whether a line was ruled or made by hand, it would be difficult to assess from simply looking at it whether that line had been anticipated or not without having some idea of the process to which it belonged.

I also considered how imaginary spaces created by projected lines had been used within the drawing generally. The lines that had created a relationship between the elevation and the plan had also served as a basis for the final rotated 'flask' form – these measurements had literally been transported up from plan to elevation, and then rotated to flask (*Fig. 105*):

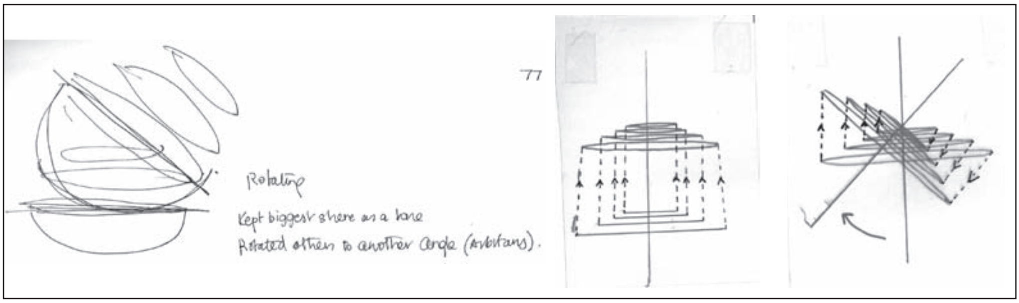

77
Rotating
Kept biggest sphere as a base
Rotated others to another angle (arbitrary).

Fig. 105: Rotating the measurements from the elevation to the 'flask'.

Talbot had similarly set up lines to create the correct scale for his ellipses by directly projecting lines from the plan rather than via the elevation (*Fig. 106*).

Projected lines had also provided the framework for setting up the perspective between two vanishing points, giving the flask its eventual rotational quality and making it look as though the top end of the flask was receding into the distance (*Fig. 107*):

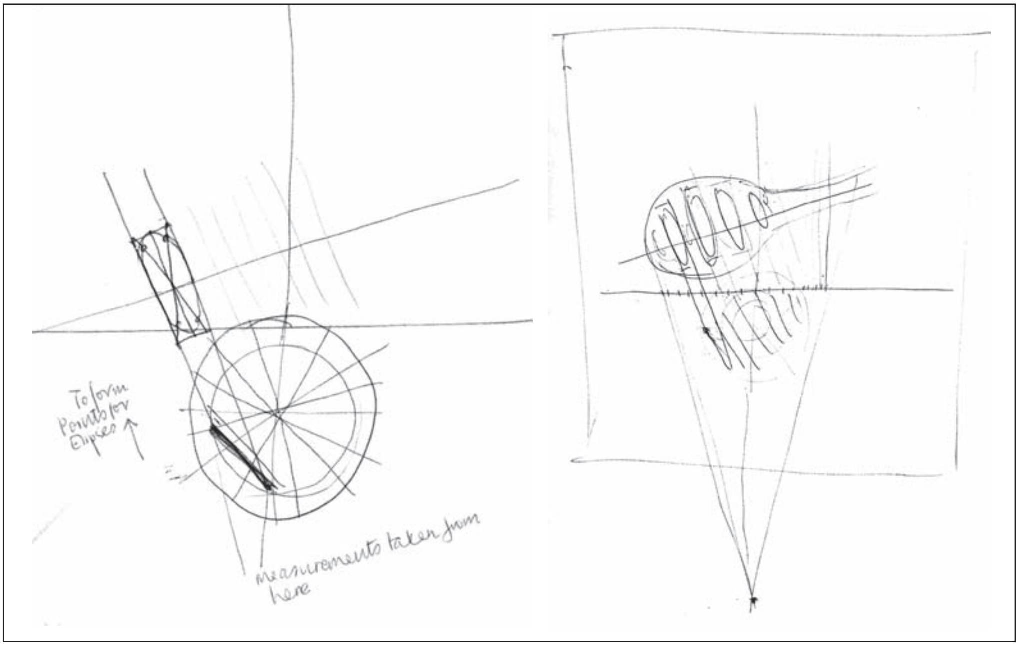

To form
Points for
Ellipses
measurements taken from
here

Fig. 106: Plotting the ellipses directly from the plan – drawings by Talbot in the Author's sketchbook.

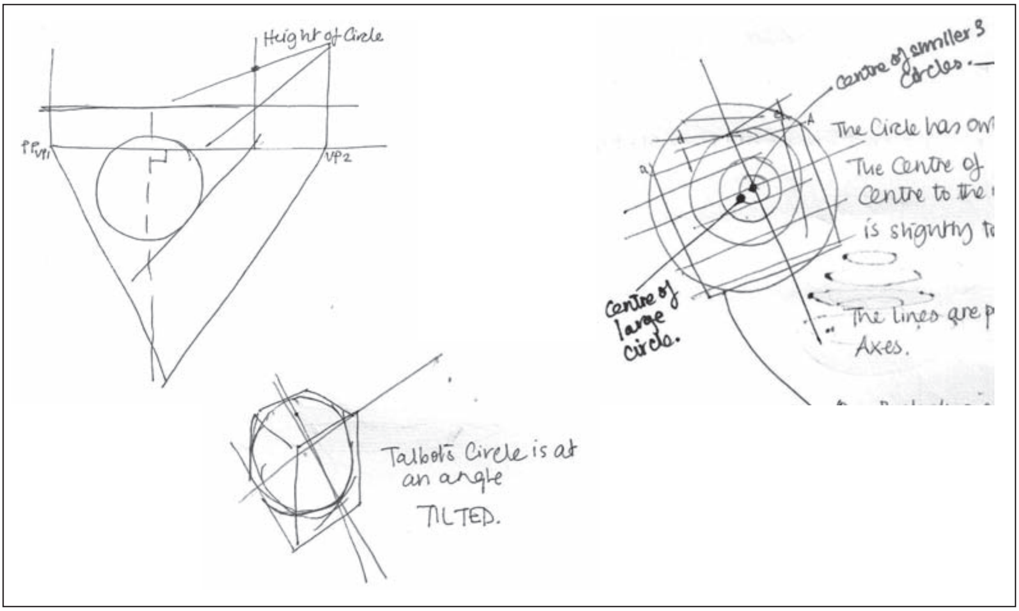

Height of Circle
PP VP1
VP2
Centre of smiller 3
Circles.
A
a
The Circle has own
The Centre of
Centre to the
is slightly to
The lines are p
Axes.
Centre of
large
circle.
Talbot's Circle is at
an angle
TILTED.

Fig. 107: Making the space for the flask rotate towards the vanishing point.

Talbot was also making distinctions between the real and the imaginary in the ways he had allotted different tonal qualities to his lines. His ellipses (which had been imagined) were drawn freehand, assisted by the eye, whereas the projected lines which created the structure for their dimensions (whose role it was to make real the imaginary) were feint ruled lines that appeared to be incredibly sensitive despite being mechanically made *(Fig. 108):*

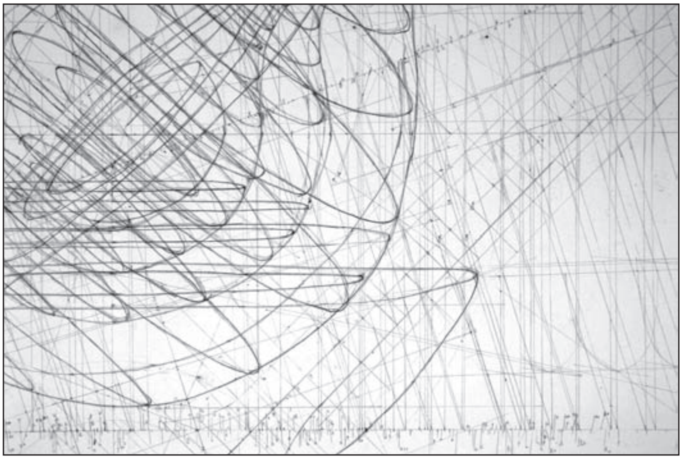


Fig. 108: Different tones in Talbot's lines – detail from the Author's initial copy of *Glass*.

Talbot's use of freehand lines coincided with the way he allowed himself to play in the spaces of the framework he had created. In comparison, the actions required to project the lines of the framework appeared to be 'predictably active', as if the reason for their creation had been to take a thought somewhere else (*Fig. 109*):

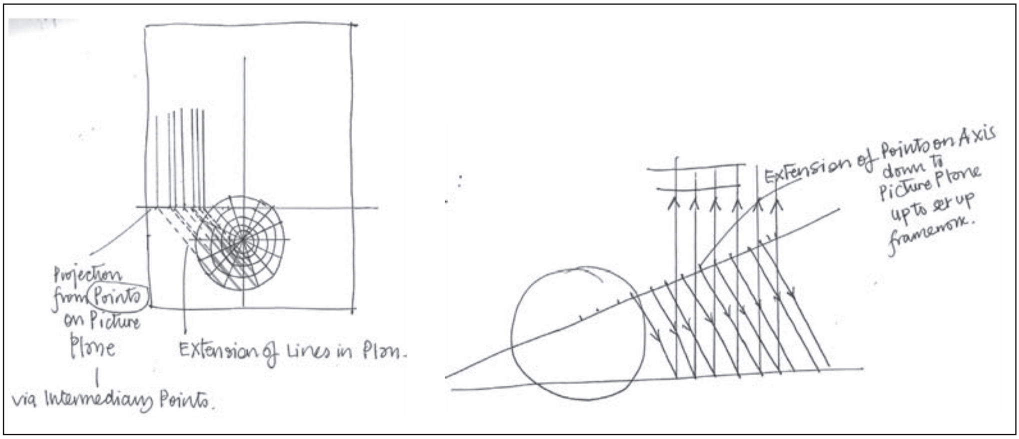

Projection from Points on Picture Plane
via Intermediary Points.
Extension of Lines in Plan.
Extension of Points on Axis down to Picture Plane up to set up framework.

Fig. 109: Taking a thought elsewhere on the paper.

Each point from which a line was projected appeared to signify the point at which Talbot had decided to act, whereas the projected lines simply appeared to carry these decisions out. But what upset this idea was the way in which gesture intervened in the process. Taking the measurements through different stages of projection requires a lot of physical endeavour and constant awareness, which is not merely a mindless occupation – any loss of concentration and the whole thing is off-track. This suggests that the gestural action of making continued to intervene in the decision-making process.

The projected lines might easily be considered as having an innate static quality, whereas the more gestural freehand lines might demonstrate traces of a more inherently dynamic activity (*Fig. 110*):

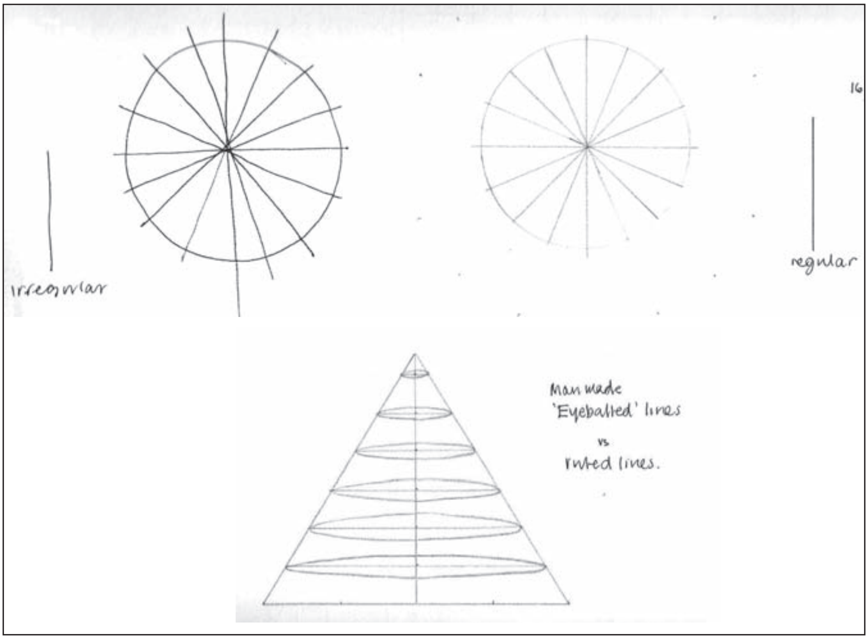


Fig. 110: The difference between freehand and ruled lines.

Going beyond the visual however, I was more interested in understanding the nature of the underlying processes which made these lines. Ingold is also concerned with the notion that gesture is indicative of the mind's intent and proposes that the quality of a line is linked to the movement that it gives rise to (Ingold 2007). I questioned how my experience of re-enacting the different qualities of Talbot's line could be aligned with Ingold's propositions.

Ingold suggests that knowledge is inhabited along a line of movement. He distinguishes two modes of action in the line – 'transport' and 'wayfaring' – that are qualitatively different paths of acquiring knowledge:

> I set out from a distinction between wayfaring and transport. Wayfarers work out their paths as they go along, adjusting their movements in response to an ongoing perceptual monitoring of their surroundings. In transport, by contrast, the route is predetermined. In the extreme case, the experience of the transported passenger is one of enforced mobility and sensory deprivation. Pure transport, however, is an impossibility, just as it is impossible to be everywhere at once. (Ingold 2007: 3)

I pondered Ingold's question of 'How in practice are the principles of wayfaring and transport combined?' in relation to *Glass*. Using Ingold's criteria, one might consider that Talbot's knowledge accumulates at the point from which each line is projected (as I had assumed in making my acetate drawings) (*Fig. 111*). If this was the case, his projected lines would simply 'transport' him from one decision point to the next producing 'the kind of linearization that makes a break with the consciousness of the past' (Ingold 2007: 3).

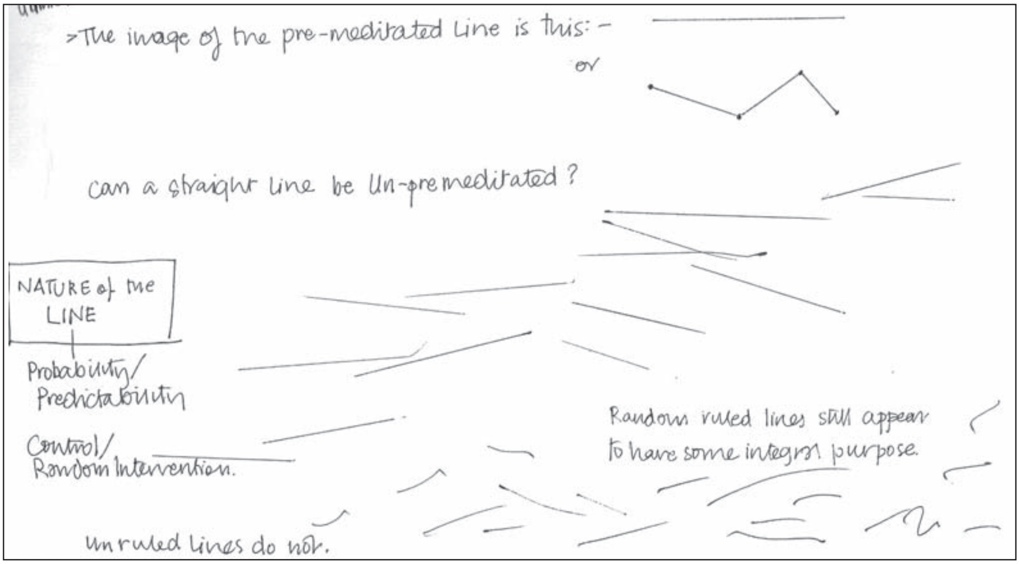

>The image of the pre-meditated line is this: -
or
can a straight line be Un-premeditated ?
NATURE of the LINE
Probability/ Predictability
Control/ Random Intervention.
Random ruled lines still appear to have some integral purpose.
unruled lines do not.

Fig. 111: Is the quality of a line linked to the movement that gives rise to it?

According to Ingold's proposition, at the point when Talbot breaks free of his framework and goes it alone by gesturally creating the ellipses, this might signify that he was living in the moment whilst drawing these lines, because he is wayfaring. The meandering path of wayfaring produces knowledge in an integrated way from a movement Ingold describes as being 'alongly'. This defines an engagement with the moment that has a flexible and dynamic quality, where each aspect of the movement is made in response to 'ongoing perceptual monitoring of a person's surroundings'.

But from my experience of recreating *Glass*, I suspected that the qualities of Talbot's lines were hidden within the process in which they were made and that the movement giving rise to them was part of a larger picture. I experimented by making drawings in which gestural outcomes arose from rigid frameworks (*Fig. 112*). This demonstrated that connecting points was a gestural act that was motivated by something more than simply a premeditated mind-set because I could not help but register the possibilities which arose from the movement of making the connection as I was making it.

I began to think of the evolution of *Glass* as not simply being formed from the motion which had formed the lines, but from the interrelation of Talbot's reactions to the unanticipated potential of opportunities which arose as the line was created. Evolution did not wholly reside either in the quality of the line, nor in Talbot's movements as he made it, but as momentary holistic responses to his environment and the potential which evolved from these interactions i.e. within the experience of making it.

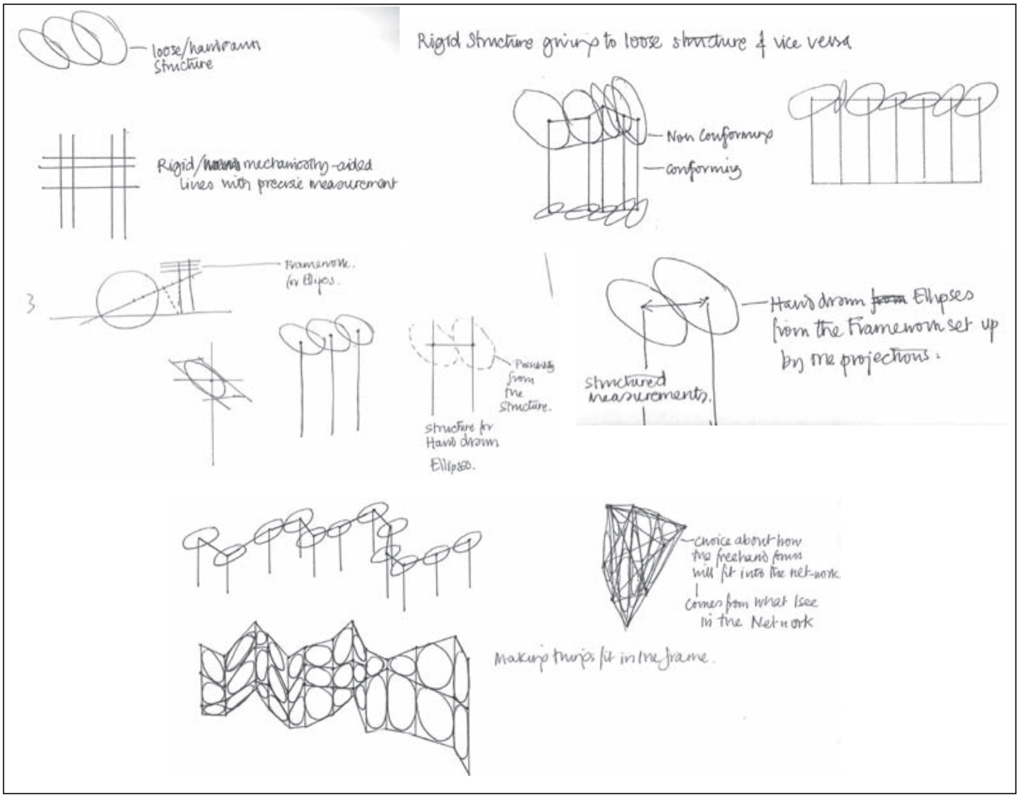

loose/handrawn Structure
Rigid/ mechanically-aided lines with precise measurement
Rigid Structure giving to loose structure & vice versa
Non Conforming
conforming
Framework for Ellipses.
3
Possibility from the Structure.
structure for Hand drawn Ellipses.
Hand drawn ~~from~~ Ellipses from the Framework set up by the projections:
Structured measurements.
choice about how the freehand forms will fit into the net-work
comes from what I see in the Network
Making things fit in the frame.

Fig. 112: Experimenting with gestural outcomes from rigid frameworks.

All the attendant assumptive ‘baggage’ that perspective and its quality of lines bring with it could be overcome to a certain extent because the process of re-enacting *Glass* had overcome the issue of style. This revealed the paradox that whilst (in Ingold’s terms) Talbot’s lines appeared initially to simply ‘transport’ him between points of decisions, his process was in actual fact entirely to do with wayfaring i.e. fully lived through the precarious balance between determinacy and indeterminacy in constructing lines and space throughout the journey of making the drawing. From the experience of re-enacting Talbot’s process, I could see for myself that ‘alongly’ for Talbot was to be found within the narrative of relations between himself and what he was creating.

More fundamentally, Talbot’s underlying motivation could be said to be found in establishing some kind of eventual equilibrium between these processes. The line cannot help but interact with the space about it because it is an individual in relation to other things – it always relates to something else even if this might only be space around it. What Talbot seems to be creating is a framework in which he can play with this very concept: a process through which he can play with the balance of oppositions to form an equilibrium (*Figs. 113 and 114*).[6] His decision to use the symmetrical circle allows us and him to more easily read these developments – one would quickly lose sight of the sense of ambiguity developed from a more complex form. This, I think, is the physical manifestation of what Talbot is interested in – relational space, the idea that what is not inside is outside, and the confusion of apparent opposites and their relationships.

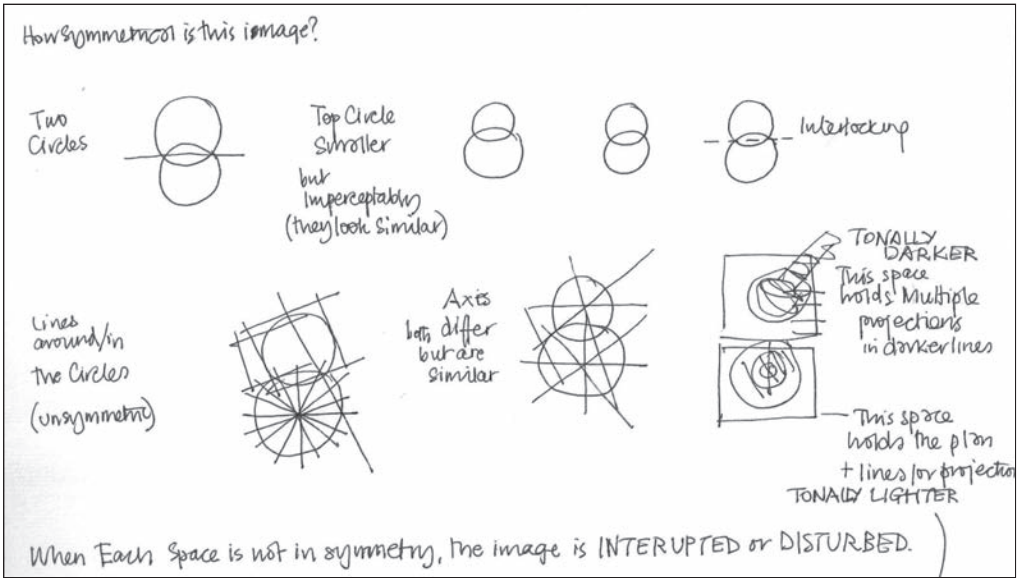

How symmetrical is this image?
Two Circles
Top Circle Smaller
but Imperceptably (they look similar)
Interlocking
TONALLY DARKER
This space holds Multiple projections in darker lines
Lines around/in the Circles (unsymmetric)
Axis both differ but are similar
This space holds the plan + lines for projectio
TONALLY LIGHTER
When Each Space is not in symmetry, the image is INTERUPTED or DISTURBED.

Fig. 113: Experimenting with interruption and disturbance of symmetry.

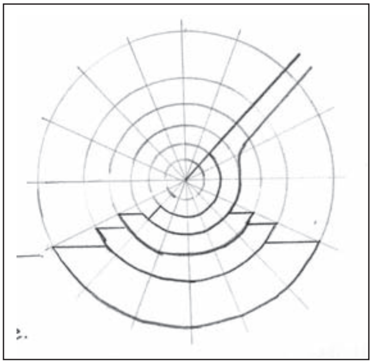


Fig. 114: Acts of balancing up.

NARRATIVE 4 – THE 'WALL DRAWINGS' – TAKING WHAT I 'KNEW' BACK INTO MY OWN PRACTICE

The final part of my exploration of *Glass* involved taking what I had 'bodily' come to know from the ways I had re-enacted *Glass* back into my own practice of drawing. Almost as an afterthought, I decided to see what would happen if without thinking or planning I started drawing, developing aspects of what I had physically done whilst interrogating *Glass*. I produced a series of 'wall drawings', so called because of the technique I borrowed from my own practice of displaying each piece of work on the studio wall as it was completed in order to visually absorb what I had done.

This was not a matter of taking what I had learnt into my own drawing practice on my own terms, but extending the interrogation of Talbot's methods by remaining on his terms and seeing what developed. The important thing was not to think about things too much but to play. This was hard to do after the intensity of the sketchbook exploration because it was difficult to locate an unintentional mindset at a time when I was required to conclude my enquiry for reasons of time. I experienced a hopeful anticipation that what I had learnt from re-enacting Talbot's process would have somehow become embodied within me and would miraculously become evident in these drawings.

Trying not to be too self-conscious about what I was doing, I began drawing by bodily following what I had done to re-enact *Glass*. My journal entries were sparse because I wanted to maintain an awareness that was as non-self-conscious as possible. I focussed on playing with aspects of Talbot's process, but at a certain point when playing started to become hollow, I realised that I was missing an important aspect of his process – that of having a real object as the basis for my drawing.

Having little prior experience of using the processes I had just discovered, I proceeded blindly to a great extent. It was only as I became familiar with using these processes myself that I started to get an innate understanding of their potential, and feel confident enough to play with them for myself. I began by concentrating on playing with projecting lines from the plan. I tried to lose my conscious thoughts by starting without any preconceived ideas about the consequences of my actions, but my conscious brain continually kicked in, sometimes by reminding myself what Talbot had done or sometimes to get an overview in order to make visual sense of what I was making. I often found myself having to add paper as the lines took me in directions I was not prepared for.

The following pages show these drawings together with an edited version of my journal.

Drawing 1

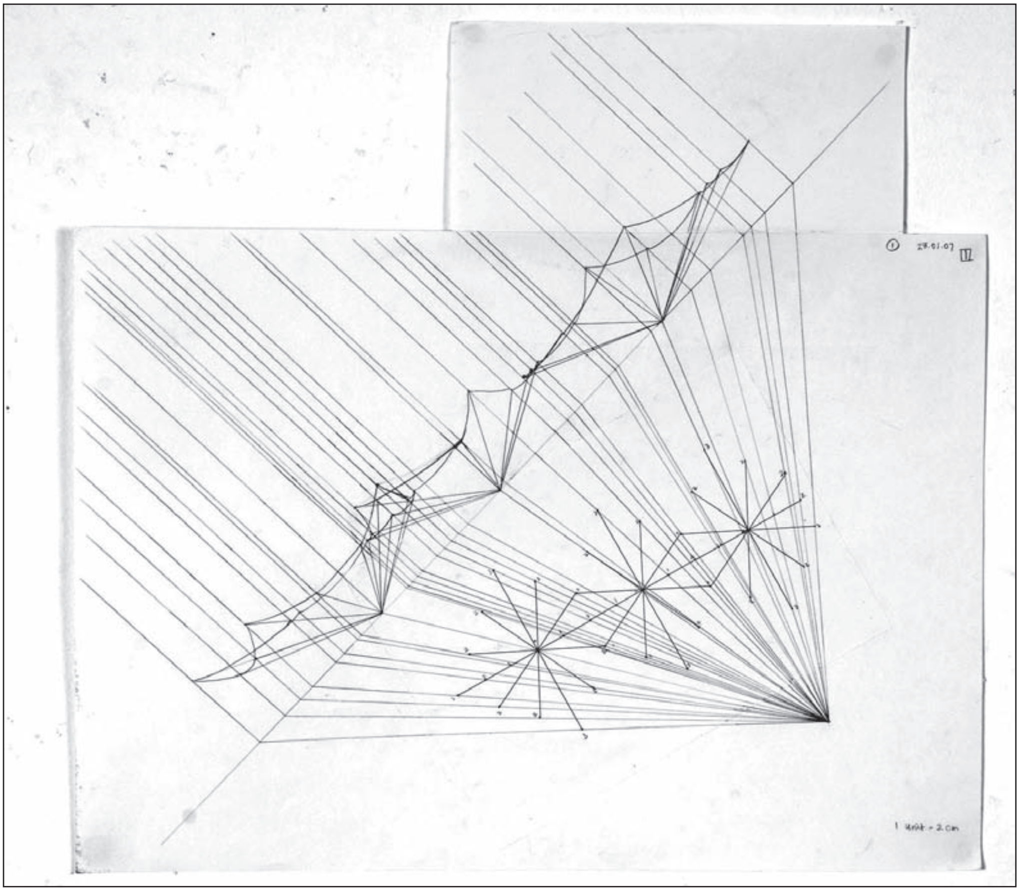


Fig. 115: Wall Drawing 1.

Journal entry

I've made a grid of points into an imaginary plan and projected the co-ordinates from the plan through a picture plane to get the feel of making a 3-dimensional image.

I am following a system where I take the lines from a view-point through the points on the grid and then up to the picture plane. I have given each point a numerical value in order to give the points a 'height' on the picture plane.

I had no idea what this plan would look like before I projected the lines. It was really all about following a process to transfer ratios and take the measurements up through the picture plane. Just following the method, just doing the work created forms that were surprising – a pattern to create a solid!

Drawing 2

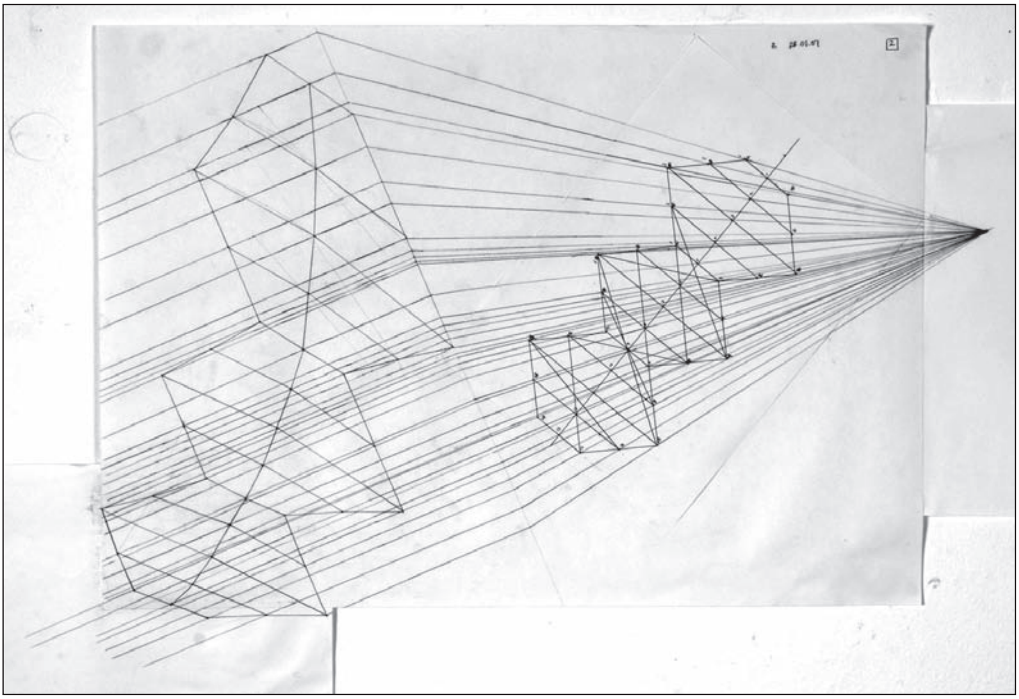


Fig. 116: Wall Drawing 2.

Journal entry

I continued to practice projecting lines building on my last experience.
This time I made a more complex pattern out of the grid to see how that would work. I anticipated producing something with a ‘helix’ effect by choosing lines of different lengths.

Working with a 2B pencil caused problems of smudging.
I started to make calculations in my mind’s eye about how the image might fit within my ‘cone of vision’ on the paper. I had to add paper as I went along because I couldn’t predict how the drawing would finish up.

Once projected, the emergent forms were completely different to what I had envisaged. They somehow seemed to be on a different plane. I couldn’t control the outcome of my system – I couldn’t predict how it would look – perhaps I am not familiar enough with playing yet.

Drawing 3

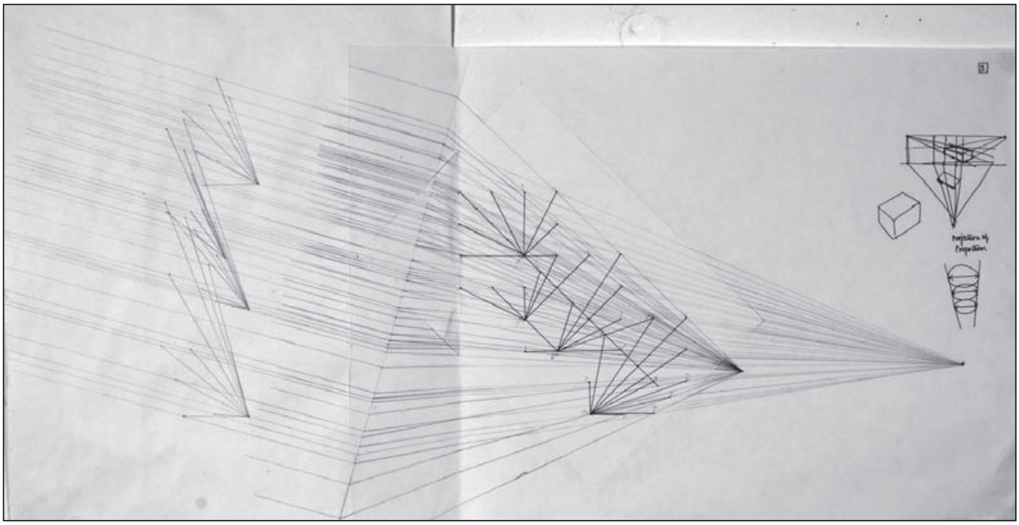


Fig. 117: Wall Drawing 3.

Journal entry

I'm building on what I thought was most successful from the first drawing yesterday.

Making these decisions; where to place the plan, the angle of the plan, the viewpoint and picture plane, drawing projections through points and projecting above the picture plane. In this pre-drawing phase of decision-making, I decided to try to create multiple views in the drawing. Re-familiarising myself with 2-point perspective, I tried to predict the outcome a bit better.

Make the plan a form that is less symmetrical and fixed changes the whole outcome.
I want to suspend my final forms in the space above the picture plane rather than have them 'sitting' there.

Giving values to each point in the plan involves me making imaginary projections. I am not drawing freely; there is a lot of planning going on. This involves complex decision-making; there is a lot of room for things to go wrong by imagining what it will be like.

I think about the relationship between the shapes in the plan come into being. The projection makes me reflect back to consider the plan in different ways.

Making the plan less symmetrical has meant that the image is very complex. I'm going to go back to something that 'worked' before to see if I can show different kinds of viewpoints.
I can also see that I'm not using what I've learnt about perspective drawing: instead I'm making the process up rather than following the rules of perspective.

Drawing 4

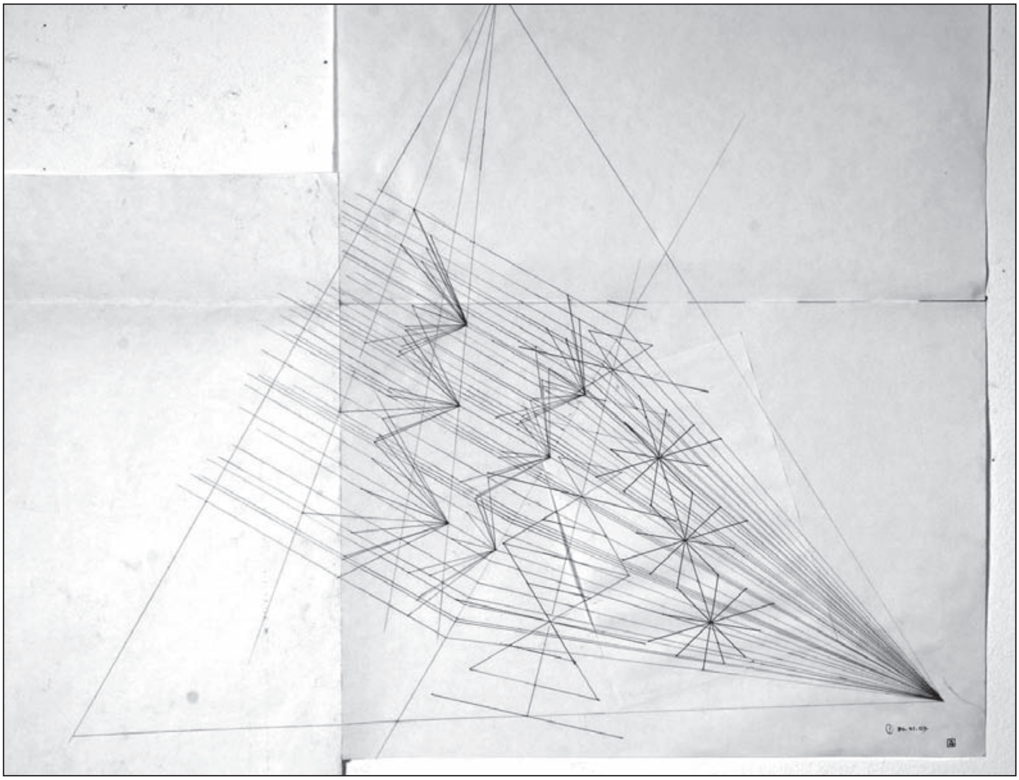


Fig. 118: Wall Drawing 4.

Journal entry

I’ve gone back to using the original plan from the first drawing as that was the least complex.

I’m trying to make clearer the transition from plan, to elevation, to two-point perspective. It all comes down to what’s in the plan.

Drawing 5

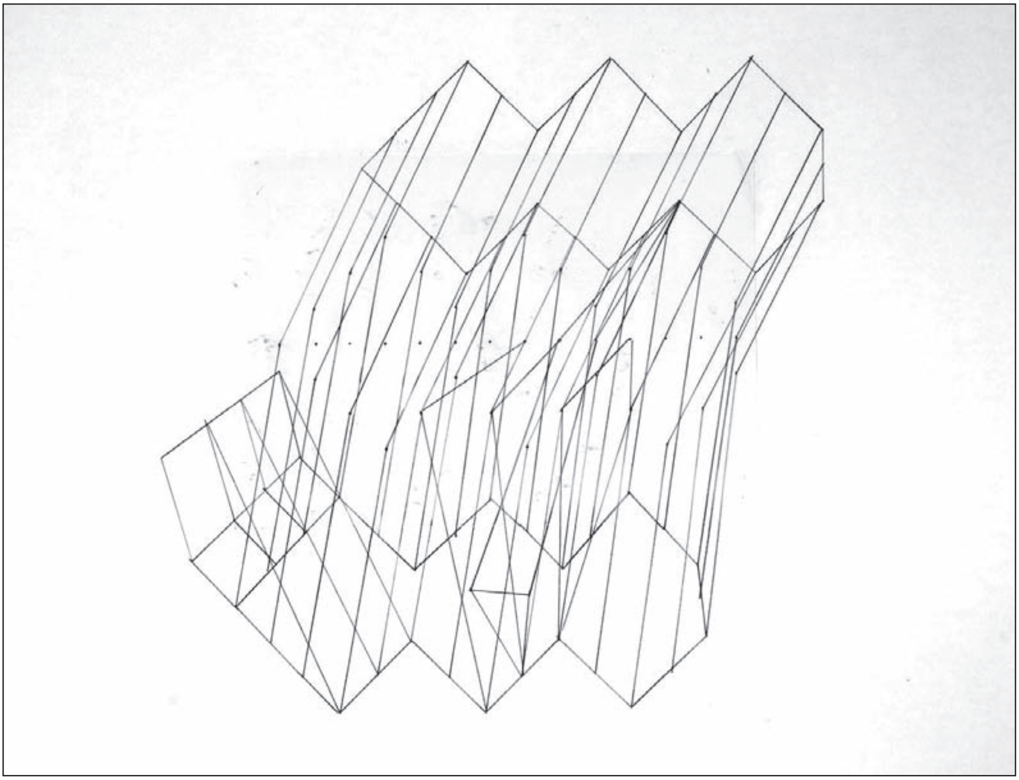


Fig. 119: Wall Drawing 5.

Journal entry

I decided to project up the lines only from the outer points of the plan, and to use the integrity of the fixedness of the grid to 'hide' other lines I've introduced which are not part of the system.

I'm moving around the paper taking the measurements with me.

Drawing 6

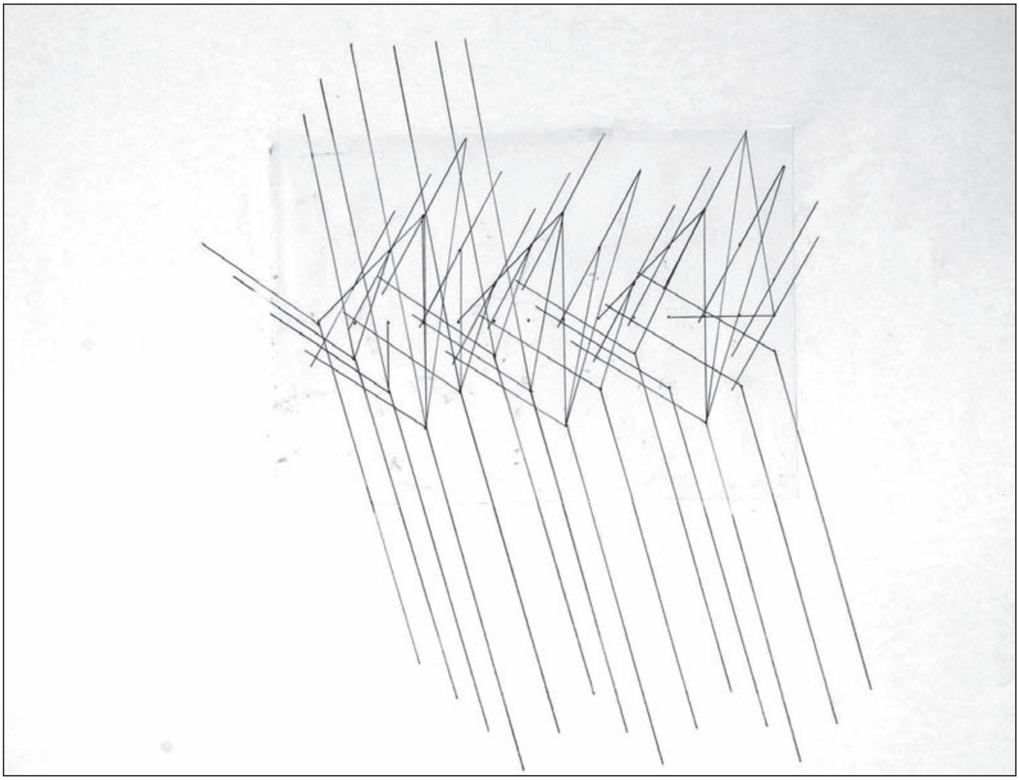


Fig. 120: Wall Drawing 6.

Journal entry

I decided to project up the lines only from the outer points of the plan, and to use the integrity of the fixedness of the grid to 'hide' other lines I've introduced which are not part of the system.

Drawing 7

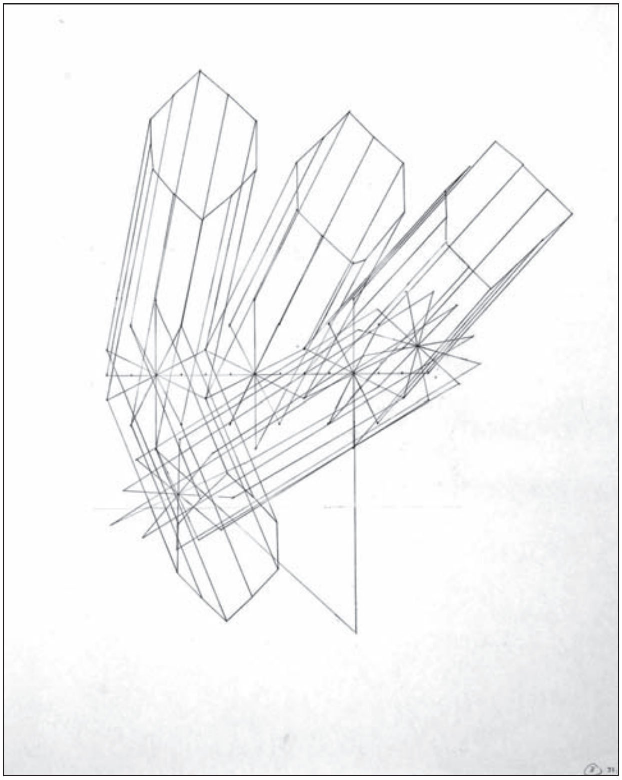


Fig. 121: Wall Drawing 7.

Journal entry

Setting up is maddening: if I were to rigorously follow the plan the outcome would be too boring.

My impulse is to keep making it more interesting in the early stages by cutting into it to make something 'at odds' against it – interrupting the systematised process. Doing this makes the projected lines too complex to read.

Small decisions have big effects: only a slight shift in degree of angle has enormous consequences.

Drawing 8

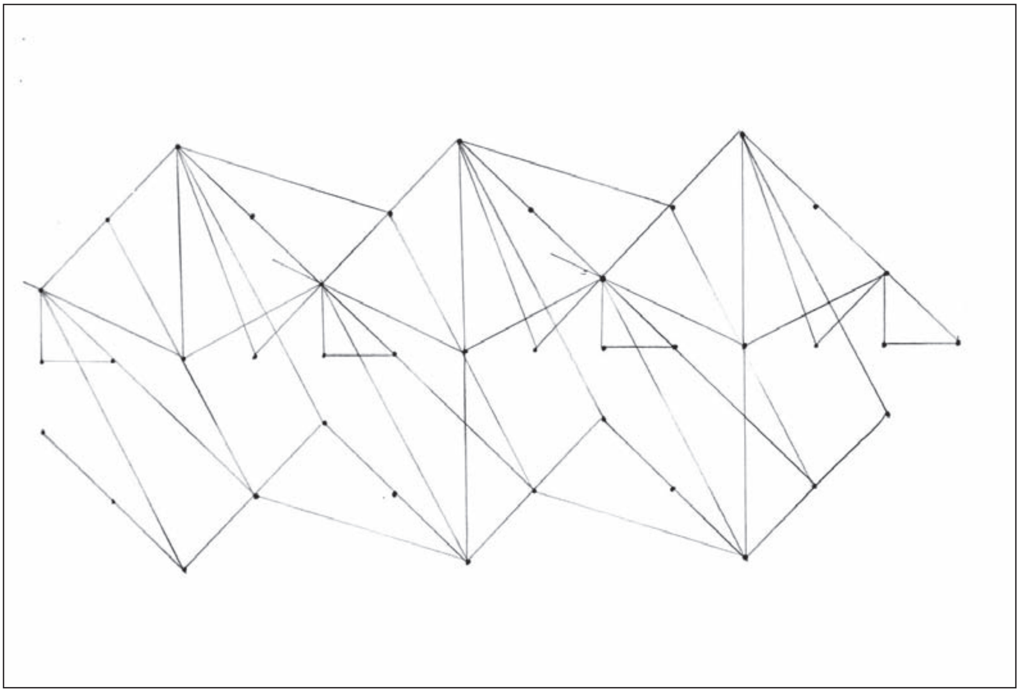


Fig. 122: Wall Drawing 8.

Journal entry

I’m projecting from the plan direct rather than going through a picture plane, transposing its shape and measurements to other areas of the paper.

I feel like these few pictures have come to a natural conclusion.

Drawing 9

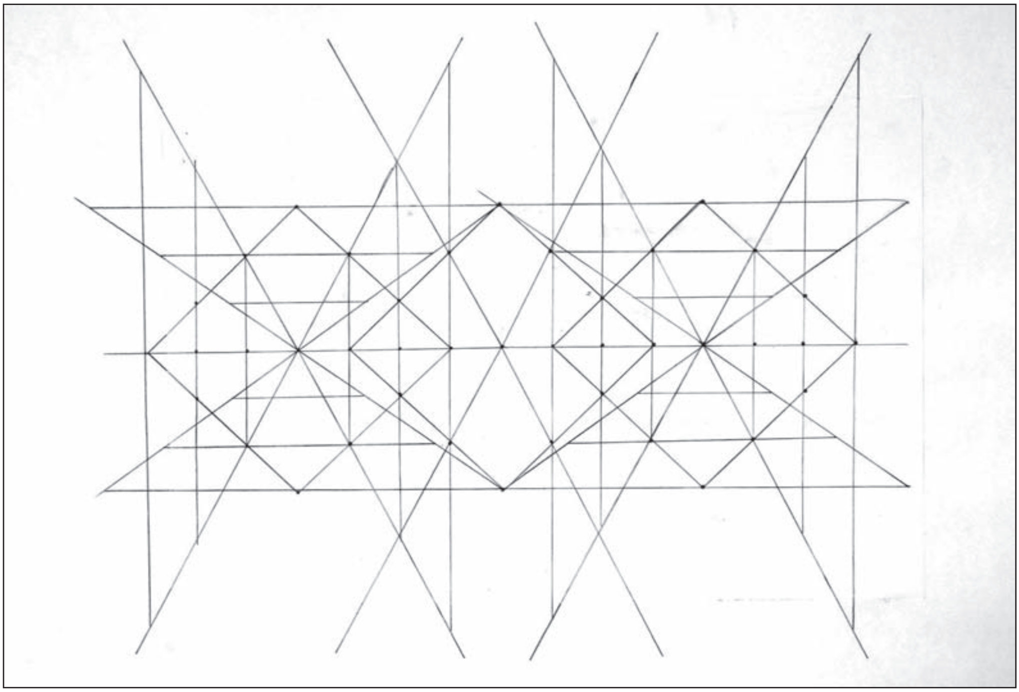


Fig. 123: Wall Drawing 9.

Journal entry

I'm making different planes emanate from the plan by joining up points in the plan with lines. It's easier to see how this works in Talbot's drawing by using the circle rather than the square.

Drawing 10

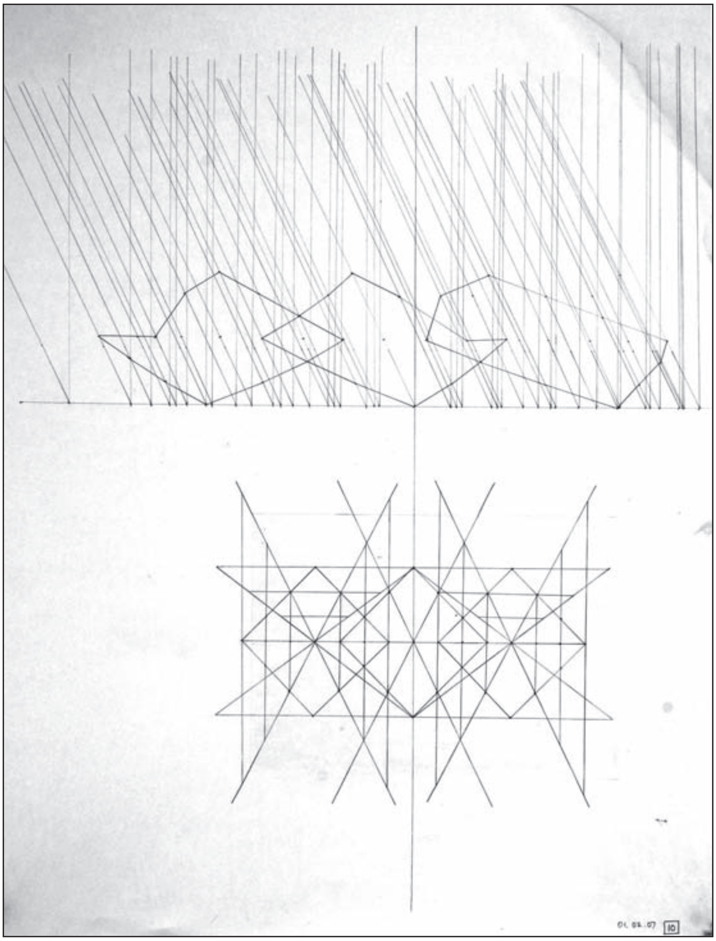


Fig. 124: Wall Drawing 10.

Journal entry

I'm getting a feel of what it's like to project something from the plan without leaving the construction lines below the picture plane visible. The vanishing point is 22.5 cm below the lowest point of the plan and is not visible in the drawing.

The drawing has a disjointed feel. Despite following a formula, it's even more difficult to read the connections between the lines.

Drawing 11

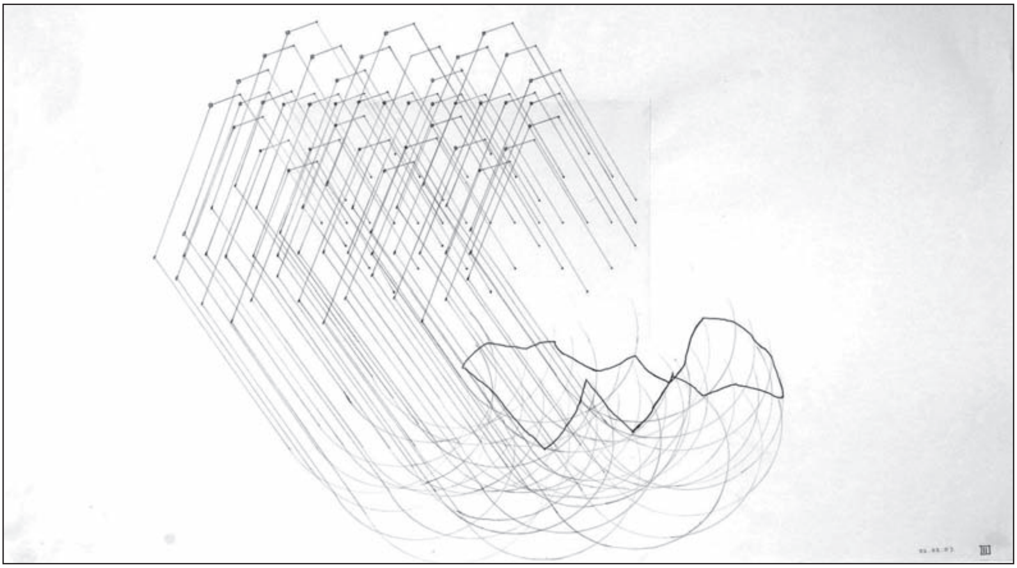
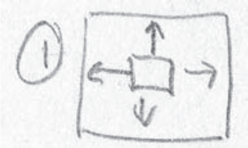


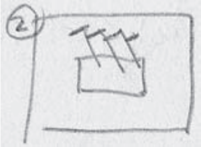
Fig. 125: Wall Drawing 11.

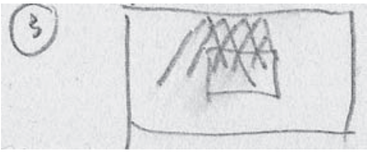
Journal entry

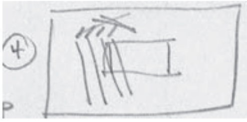
Moving around the space, taking measurements from the plan into other areas of the paper, using different kinds of lines.

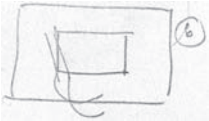
I placed the grid in the centre of the paper and tried transporting the scale of the points around the paper by using different types of lines. Simply transporting the lines through the same co-ordinates didn't alter the scale. I recorded my movements:

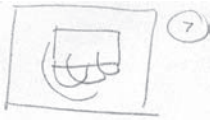


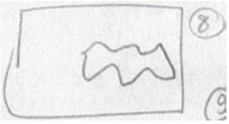












Excerpt from the Author's journal

I have struggled to find what it is that I 'know' about Talbot. It is hard to tell what has been physically transferred.

Although my focus has been on what Talbot does, I've not concentrated closely enough in endeavouring to follow his path. This is the same problem I had when I began to copy – struggling with the impulse to make something my own – veering from somebody else's path to follow my own terms instead of his.

It feels like I've been going 'wrong' in these drawings. I've not got the same type of concentration Talbot uses; my mind is all over the place. It's not so much that I can't apply myself; I just keep going off on a different tangent. This whole process is pressurised by the requirements and time constraints of my research. This has been the lowest point of the research for me. The problem comes from expecting some sort of result but quite obviously, contemplative playing is at odds with producing outcomes.

The notion was to go off and play but this part of the experiment has had so much less structure than the others. There's a huge difference between the parameters given by the orthodox method of copying and being free enough to make this kind of work. Making these wall drawings is the nearest I've come to letting myself go, but I somehow feel as though I'm avoiding the main point, whatever that is…

I feel frustrated and that I've been wasting my precious time. The things I am learning are more about my own capabilities than Talbot's principles. I am coming to see that what I have been doing is not so much learning about Talbot, as learning something about myself. I have been trying to discover aspects about him but I'm actually showing things about myself through him. Is this the nature of embodied thinking?

Perhaps I should just accept that I'm looking at my own creative process. At each stage I have shown myself about my own process through my own process. Perhaps as I continue, I need to be aware that my focus is about trying to understand myself.

In relation to these wall drawings then, it's not relevant that they go off the point – they go straight to the point if the subject matter is myself because this shows the nature of my own embodied thinking – the angle of my enquiry changes – it's not about, 'can I perceive his embodied thinking?' but, 'can I perceive my own embodied thinking?' The question becomes 'What have I learnt?'

The process of re-enaction is the constant in everything I've done; the methods by which I've gone about doing this are the variables. If I have an overview and understand what has motivated these variables, I can see what my creative process is; once I can see this, I can start to identify the way in which my own thinking process works – a process for creating art based on my embodied understanding.

If I am going to complete this series of drawing by remaining on Talbot's terms, I realise that I am missing one fundamental aspect of his process – an initial object which inspires and grounds the work. I have not based my plan on a real object – my plan here is an abstract pattern made from simply joining points on a grid. I think I need to start a drawing from a real object…

Drawing 12

I am basing this drawing on a square pyramid and making a plan of this object to show the relationship between the shapes.

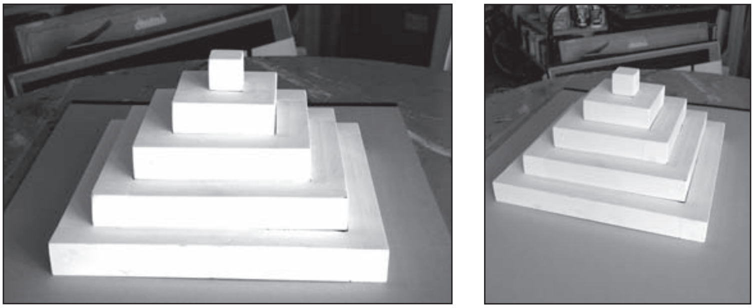


Fig. 126: The pyramid.

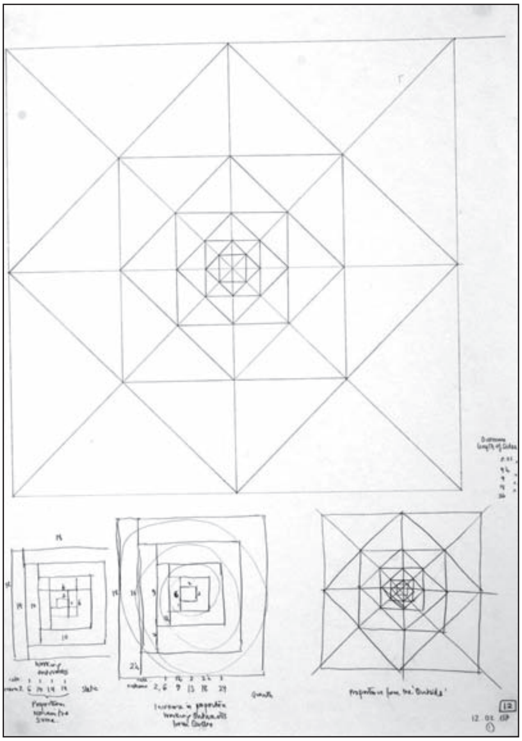


Fig. 127: Wall Drawing 12.

Drawing 13

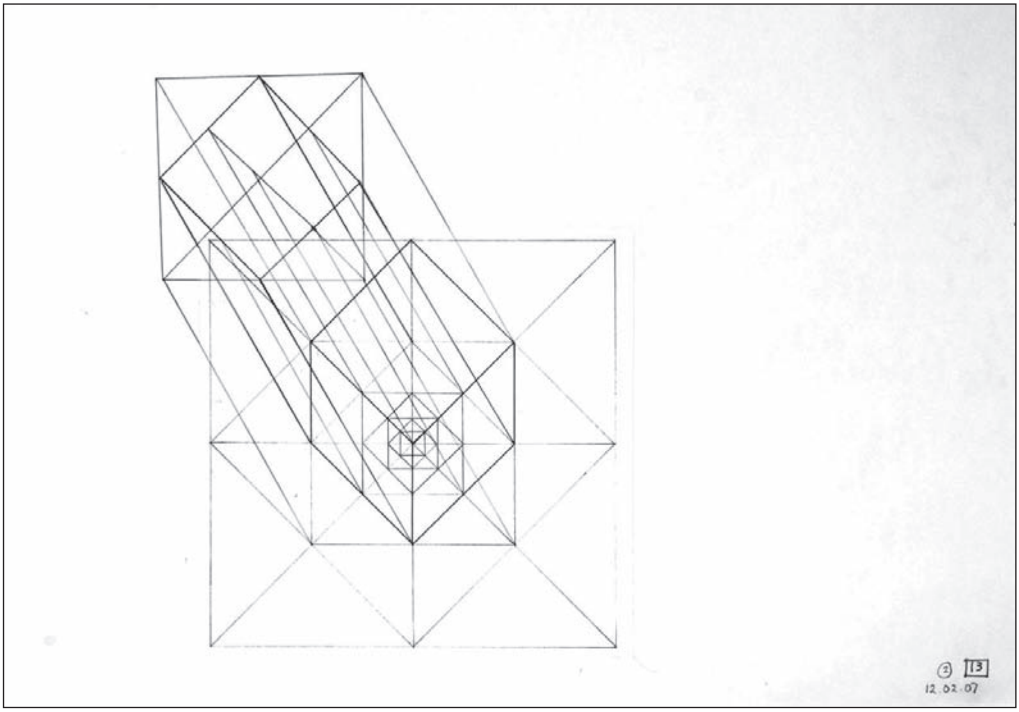


Fig. 128: Wall Drawing 13.

Journal entry

Projecting from the plan into different spaces using the measurements from the plan.

Drawing 14

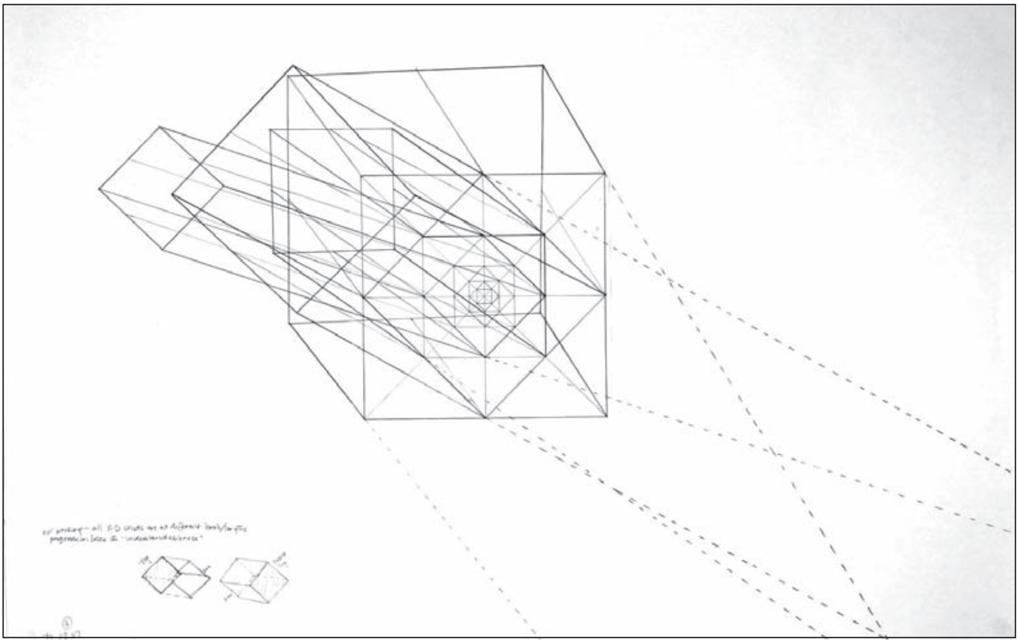


Fig. 129: Wall Drawing 14.

Drawing 15

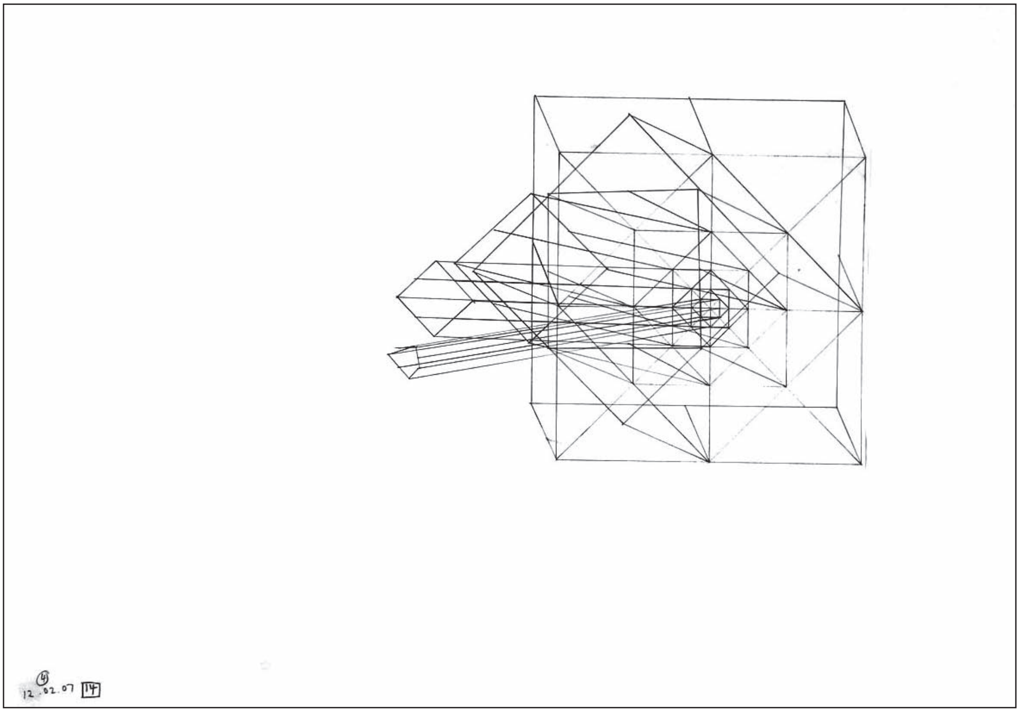


Fig. 130: Wall Drawing 15.

Journal entry

I'm using some of the devices Talbot uses to extend from the plan. These include intersecting the plan, projecting from a viewpoint off the paper, developing an elevation and rotating the elevation on an axis.

Drawing 16

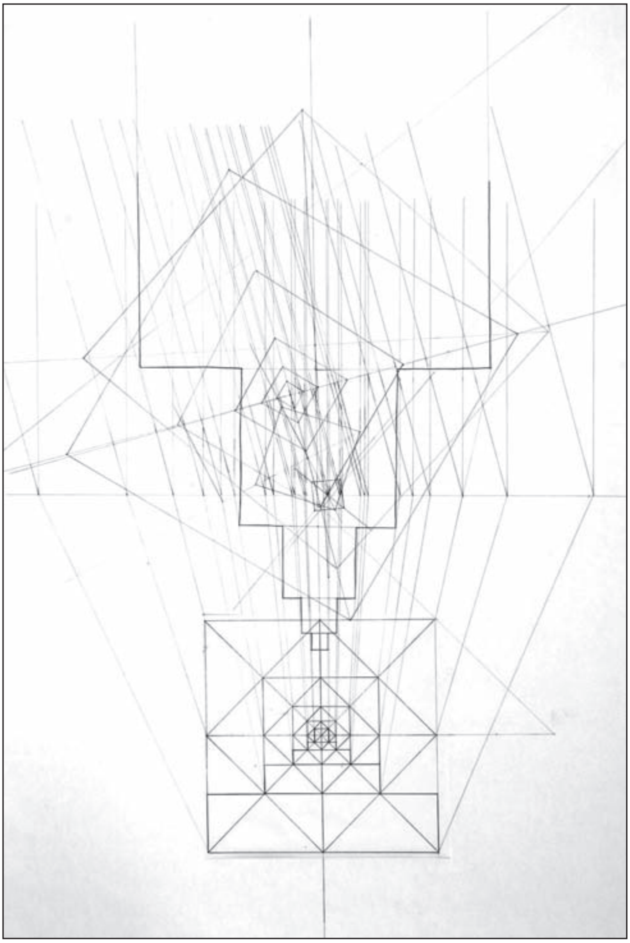


Fig. 131: Wall Drawing 16.

Journal entry

The final drawing incorporates many features Talbot uses in *Glass*. I now feel more comfortable in using his processes but I am aware that this drawing is very much about re-enacting the particular decisions Talbot has made in one specific drawing.

Re-enacting in this case has been more concerned with a conscious decision to play as closely as possible on Talbot's terms, rather than simply to play on those of my own.

Reviewing this final stage

This additional project of taking what I might 'know' from interrogating Talbot's *Glass* gives only a small glimpse into how an intensive interrogation can be continued on into studio practice. I have made the following final observations as a result:

- I spent as much time becoming familiar with aspects of perspective drawing as I did with Talbot's use of it. The two are intricately bound and only when I had some idea of the system's potential through familiarity was I able to start playing with it. Someone with more familiarity might gain a more direct understanding of his process, otherwise there is an element of learning perspective á la Talbot.
- There is a limit to using the abstract processes of another artist without basing this in a reality of one's own.
- Playing as a method of contemplative experimentation takes place in a different space to conscious thinking. Doing this is incompatible with time-limited situations which require firm results or compliance with time scales. I anticipate that what I will have learnt from my interrogation of *Glass* will take years to reveal itself rather than the limited two week period I had to spend on this stage of my investigation. My objective has not been to examine what I knew by reference to my own personal art practice, but this is one potential possibility for further examination.
- Playing takes one away from the path of conscious description. In activity, whilst self-conscious description is part of the experience, discoveries very often appear too self evident to make a conscious note of. The disadvantage of this is that thoughts are lost over time. Recording processes can expose what we do and reveal new patterns. Spelling things out can in itself create a space for making revelations and new discoveries.
- The revelation that I was learning about myself rather than Talbot came at a particularly difficult and uncomfortable point as I was trying to make sense of what I was doing through making these drawings. This discovery had the effect of freeing me up by giving me a new outlook, and gave me the courage to continue drawing in the knowledge that I didn't necessarily have to understand what it was that I was doing as I did this.

Notes

1. Ingold uses this as an analogy for the synergies which lie between anthropology, art, archaeology and architecture.
2. Other decisions which also impacted on Talbot's environment included decisions about materials, costs, size of work space and availability of paper. Whilst these may be down to personal choice they could also be dictated by conditions out of his control.
3. Here I use the word determinate to mean 'having clearly defined limits' although I note that in mathematics the term is used to describe a limited number of solutions. The word 'indeterminate' I use to mean something which is not fixed or not definite.

4. I was reminded by this of the scientific notion of chaos which describes dynamic behaviour in deterministic systems, and how unpredictable complex structures emerged from divergent but constrained trajectories. I wondered if this might also be used to describe processes in drawing practice.
5. This also led me to reacquaint myself with the various ways in which artists such as Picasso, Gris, and Stella have represented several points of view within one space.
6. There are similarities between this and how others have regarded geometry as a framework for progression through contraries. Gombrich for instance suggested that Leonardo was an intelligence divided by the investigation of geometry and the avoidance of it (Gombrich in Evans 1995: 168), and Geometry has been seen as an example of how one actively participates in the fabrication of the world (Evans 1995: 354).

Chapter 11

Observations about the Method of *Enactive Copying*

a. Enactive copying as a means of self-discovery

By asking whether I can embody another artist's thinking process by copying his drawings, my discoveries have emerged from an intensely skill-based and intimate investigation.

The revelations I have made about Talbot's process have come from inhabiting his method rather than transcribing what he said. By capturing and distilling significant stages of learning I have moved beyond his style of drawing to make discoveries about elementary aspects of the activity. As I moved from the familiarisation stage, through the case studies, to the in-depth case study of *Glass*, the shape of my methods changed from focussing on the representational to the processual. Having put myself through this experience, I now think of enactive copying as a self-supporting mode of learning.

Possibly my most significant finding has been about how my subject matter and method have evolved symbiotically. My findings about Talbot developed alongside the methods I used to investigate his process. My understandings evolved through the circular relationship between these two; what I know is bounded by how I know it and this, I suggest, exemplifies the nature of experiential knowledge.

The difference between 'what' and 'how' is of course an artificial distinction, and distinguishing between the two enabled me to make sense of what I have done because in the exploratory process of drawing these aspects operate as a unity. Whilst this unified characteristic of drawing can accommodate the unique aspects of each individual's experience, its integrated nature does not lend itself to being reduced or repeated with the same results. In this sense, I cannot validate what I have done in terms of proof or refutation; I must find another way of validating the veracity of my understandings – by appreciating how it is that I know I make sense of what I do.

The experience recounted in this book is only one example of a drawing-led First Person research process. The focus has not been on the practices of the individuals concerned; Talbot, Zwink and I have simply been the vehicles through which the relationship between drawing and thinking has been investigated. The particular way I have interrogated *Glass* has been crafted to the unique circumstances of my own situation, yet there are basic elements in what I have done that others could try for themselves. I have drawn these together in the *Guide to Enactive Copying* below.

I suggest that a student can evolve insightful methods to mine processual aspects of drawing, re-designing or altering them where necessary, and recording significant findings and understandings whilst doing this. In these ways, enactive copying becomes more than just an analytical narrative; it becomes a method in its own right. Once the framework is there, it is simply a matter of being present in the experience and recording this as honestly and rigorously as possible.

A guide to using enactive copying as a means of self-discovery

1. The first step involves forming the intention of copying to learn. Rather than simply reproducing or transcribing an artwork, your focus is to try to understand what can be learnt about the original artist's process. By forming this intent you are already putting into action an intention to discover. By engaging in the experience you are also setting up a framework through which you can examine your experience.

   You should try throughout to keep to the terms of the original artist by focussing on the methods and processes (s)he uses rather than your own. Try also to rigorously and honestly record as much about your experience as possible in ways that allow for later reflection. If you keep within these parameters you can still vary how you can push these processes further by evolving (through drawing) methods which are more insightful. Pushing the notion of what copying is in these ways might mean leaving the representational aspects of the original drawing behind in order to focus on processes.

2. Using materials that are as close as possible to those used by the original artist, start copying a drawing by reproducing the original artist's marks. Rather than focussing on accuracy and exactness, try to get a sense of the quality of the original lines. Do not improvise at this stage as deviation will not help you to understand the sense in which the drawing speaks to the original artist's thinking process – what you are trying to do is to put yourself in the shoes of the original artist and the experience of doing this will be the referential point for subsequent work.

   Take notice of what you are doing physically rather than trying to direct the process by what you think you know. 'Listen' to what the process is telling you and record what you do as unobtrusively as possible. You might find that the marks you make are not familiar to you and that you will want to make them more your 'own'. Consider this challenge a sign that what you are doing is taking you outside the comfort of your previous knowledge and that if you are to learn something new, you should persevere.

3. You may find it difficult to pinpoint what you know about the original artist from simply having reproduced your first copy. Try unravelling this initial experience by making more evident what it was that you had to do to reproduce the lines of the drawing. By focussing on a section of the drawing rather than the whole thing, closely observe and compare how you reproduce the lines in this section to those from a section in another type of drawing. Observe what you have to do to physically remake each section, putting into words any thoughts or descriptions about the different qualities of each process as they naturally arise.

Allow this comparison to communicate to you what the significant qualities of the original artist's method or approach are. Try not to let your head direct this; concentrate on the activity of re-enacting the physical processes and connect this to what you experience as you do this. This should offer some insight into the mindset of the original artist without concentrating on what is represented in the drawing.

4. Next, focus on developing a way to mine further the key qualities you have discovered from making the comparison. Although you are keeping on the terms of the original artist, you are free to choose the method by which you analyse this. Mining key qualities of the original artist's process literally involves taking a quality, taking its dimensions apart through drawing and using simple methods to make a point. Invent ways of exploring these qualities by allowing them to influence the method, so that your method is intuitively 'found' from within your experience. The analytical qualities which are inherent in drawing will become evident from the way in which you proceed. Try to note the connections between your findings and your choice of method.

5. Finally, take and isolate the qualities you have exposed in the last stage by testing them in further drawings through as many trajectories as possible whilst remaining on the terms of the original artist. This means taking a quality and demonstrating it through drawing in order to make points to a third party. This could be articulated visually or through performance; for instance, through a series of sketches which reconstruct a process. Your drawings need not look like the original artist's drawing because at this stage you should be concerned with constructing and enacting these qualities at the same time. By doing this you are interpolating what you know from your findings through further drawings.

6. Having recorded each phase and annotated your discoveries, go back over the impression of what is being learnt, what has developed from your experience and how this has been done. From having an overview, you should start to gain insights about how you have reflected on what you have learnt whilst you have been learning it. Keep in mind that it is possible to critically summarise the key qualities of your own process of learning by becoming aware of the correlation between what you know and how you know it. The aim of this is to give you insight into how you think and learn.

Copying as learning

This *Guide to Enactive Copying* is not designed to be a fixed framework but is a suggestion for how one can learn something new for oneself through drawing. Copying works because it suspends our habitual drawing practices and dislodges our usual modes of thinking. The value of this lies not in analysing other's drawings but in embodying learning.

As a method of learning copying has been discouraged in Western education over the last 50 years for the reason that it inhibits creative growth and is contrary to the concept of originality. Lowenfeld for instance suggests that one should:

> Never let a child copy anything…because we will not only divert the child from creative expression but we will also hinder the development of his imagination, his own originality and thinking.
>
> (Lowenfeld in Kozlowshi & Yakel 1980: 25)

My findings challenge these ideas because these views do not take into consideration the processual nature of thinking in skill-based activity; they do not consider 'the progressive stages of transition through which the artist passes to achieve his results' (Kozlowski & Yakel 1980).

There is something that is more generally pervasive about these views of learning because they form part of a prevalent artistic paradigm in the West in which originality is linked to novelty, expression and even sensationalism, rather than to the individuals place in a relation to the rest of the world. The consequence of teaching art with these priorities is that the individual becomes all important, yet is isolated and disconnected from his or her environment. Little recognition is given to ones artistic antecedents and limited importance is attached to facilitating a higher level of consciousness through learning. My contemporaries and I found ourselves in the position of having experienced what happens when art is taught in this way. Not only were we left without an in-depth knowledge of skills at the end of our undergraduate degrees, but we were also faced with the prospect of having to begin (rather than continue with) the task of locating ourselves and our practices in relation to the world outside.

Whilst these paradigms of learning are difficult to dislodge, there have been hints of disquiet shown in recent exhibitions about copying such as *Copier créer: de Turner à Picasso* at the Louvre in 1993, and the recent exhibition at the Tate Gallery entitled *Drawing from Turner*, which has attempted to challenge the notion that 'copying is no way to learn' (Farthing 2006).

Whilst disadvantageous in some ways, my inexperience of copying has also been an advantage because 'not knowing' has been the catalyst and motivation for the method. I have found out for myself how copying feeds an appreciation of one's own context; I contextualised my own experience in relation to the practices of the artists whose drawings I copied, and contextualised their practices also. I also made connections between what I was doing and what has been written about copying in an historical context (Cennini 1954; Bambach 1991; Ames-Lewis 2000 & Elkins 2001). From this I could place myself in a lineage through the physical (rather than theoretical) links I was making with other generations of artists which I could not have acquired had I worked in isolation.

The disadvantages of copying appear primarily to be a consequence of the nature of self-learning generally. Copying places the responsibility for learning on the practitioner and this can be onerous because one cannot immediately apprehend what there is to learn until one engages in the activity. This means that the experience of learning very much occurs in a state of 'blindness' making it difficult to value prior to engagement. The symbiotic relationship between one's method and one's discoveries also make development difficult without the guidance of others who already have similar experiences. Varela also recognised this and addressed the problem by reference to a Second Person mediator who can facilitate the learning experience (Depraz et al. 2003: 81). In terms of how art and art research is taught, this makes a strong argument for teachers and supervisors being active practitioners rather than non-practitioners.

In the same way that practicing music from another's score not only develops one's skills but also one's own voice, enactive copying takes the process of learning further by assisting us to develop and establish our own practices. It promotes 'inventive expressive behaviours and assist[s] artistic skills generally' (Smith 1982: 147):

> Used effectively, a copy should function like a translation of a poem; it should help one capture in one's own language the essential points of a work, rather than translate every word literally irrespective of the role it happens to play in the original.
>
> (Gardner in Duncum 1988: 208)

What is experienced as one does this may occur in transformative and spiritual ways, which appear as being profound and highly significant to the individual in practice. The transformative aspects of my own experience which occurred, for instance, during the deep case study of *Glass,* were registered as such and formed a significant part of the experience. The intense quality of this appears to be specifically linked to the 'relational' and 'relative' aspects of how understandings are developed – the connections made between new understandings and our already existing knowledge.

Copying as enaction – the process by which we explore the line

The studio investigation allowed me to identify and synthesise the connections I made between enactive cognition and the activity of drawing. Enactive copying is, *the physical re-enactment of marks made by another, with the intention of learning about the relations between the processes involved in the making of those marks.* What can be learnt from enactive copying is achieved by remaining on the terms of the original artist, yet reveals something of the boundaries of one's own thinking process. Experiencing how another artist makes his marks, copying literally displaces our regular processes and takes us into the mindset of others, teaching ourselves about our own mindsets at the same time. Re-enacting the process of another artist in order to learn something new is not a matter of representation but 'enaction'.

Exploration of the line occurs as a matter of gesture and movement. Reproducing a line through action involves exploring the quality of the line and resisting the urge to try to reproduce a realistic copy of the artefact. Expression is generated through the energy which inhabits the line. In a similar way, the calligrapher's observation of movement in line is not only essential for the inspiration of original drawings but also for learning about the calligraphic line – 'the line with which to explore'. The analogy is often made between the art of calligraphy and dancing because of similarities in how the body is caught up in the action (Flint-Sato 1999; Billeter and Yen in Ingold 2007). The experience of calligraphic copying appears to reiterate the connection between Varela's notions of Enactivism and 'awareness' and the practice of line-making:

> The aesthetic is kind of in my bones as it permeates in unconsciously…practising over and over you naturally absorb the aesthetic of calligraphy – meaning primarily the quality of the line and the use of space. In terms of the quality of line, it is a question of being able to let go of what you're doing, and not to be consciously thinking about whether the line 'looks' good or not…It is necessary to keep questioning but simultaneously to allow the body to speak (which is what the copying allows). This makes for a living art and meaningful legacy.
>
> (Flint-Sato 2006)

Capturing the fluidity of the experience of copying

As Dewey had found, I too came to identify my understandings from the non-verbal expression of my internal experience of drawing as the 'consummation of a movement' (Dewey 1934: 38). For me, this was captured in the way in which I moved from:

1. 'orthodox copying', to;
2. comparison, in order to make my initial findings more explicit, to;
3. an analysis of key stages in order to 'out' the enacted findings of the first two stages, to;
4. deconstructing Talbot's determinate and indeterminate process in order to interpolate and demonstrate to others the nature of his process through paths of observation, to;
5. exploring what I had bodily learnt during the previous stages through unplanned wall drawings.

Each stage developed to allow my methods to become more nuanced, from the relatively straightforward and conventional mode of retracing Talbot's marks, to a more fluid interpolation of the continuous forging of conditions.

These qualitative changes are also demonstrated in the movement encountered through the written descriptions of this experience. During the stage of comparison, for instance, my vocabulary was closely tied to the physical engagement of re-enacting activities which involved 'placing', 'plotting', 'interrupting' and being 'unconnected'. During the sketchbook phase however, I use a more nuanced vocabulary to describe the line as holding 'the space inside it in tension' and line-growth as being dependent on 'an alternating visual sequence of determinacy and indeterminacy'. These emergent written descriptions allowed me to consciously develop a more nuanced level of understanding.

The unity of the method: being bounded in what we know by how we know

In the model of enactive copying learning is demonstrated in the way in which the practitioner evolves methods that (s)he perceives as being insightful. Each stage is built on previous stages. Methods change in response to the findings which emerge from those changes – what is learned is tied equally to both as a whole. As Smith notes:

> All copying begins with a need of some sort…The need prompts the copier to select a particular model and to use a particular copying process. All these are clues to […] artistic intentions.
>
> (Smith 1982: 148)

An integrated mode of learning like this is a circular rather than finite process. By comprising subject and method, or 'what' and 'how', one might say that 'drawing is the thing itself' – perhaps even a practical example of the *verum factum* principle, where truth is verified through creation or invention.

This shares a common structure with Varela's autopoietic notion that individuals are operationally closed systems with capacities to engage in their own processes. The copying project has revealed the inseparable nature of how both Talbot and I define our respective parameters by reference to our capacities to understand what we do. In this sense, Varela's propositions translate for the drawing practitioner into the very practical notion that drawing is about coming to know oneself.

Validating what we come to know through the 'irreducible' act of copying

By suggesting that we are limited in what we know by how we know it, how can I be sure that my account is nothing other than a series of self-serving statements?

Judging the veracity of a practitioner's experiential account is difficult because each experience is unique. Drawing depends on the internal workings of the artist. Self-observation and self-reflection are processes that create an intimate form of self-validation. In this sense the 'truth' about what I have discovered about Talbot is revealed in the subjective way I have made sense of what I have done as I do it, rather than by applying axioms derived from outside observation.

One might say, 'This is fair enough – but is there no way of validating your findings except to accept your word for it?' This depends on what your definition of validation is. For Varela the scientist, validation of findings was an important issue. As a consequence he outlined the notion of inter-subjective[1] validation which was constituted through a network between First, Second and Third Persons in order to address the kind of objectivity that is required by scientific method (Varela and Shear 1999b). If an individual can see his or her experiences as fitting descriptions given by others, a sense of congruence or believability occurs. The veracity of my experiential account might therefore be tested by reference to how relevant and pertinent you might find the connections I have made.

As artists, we are not generally concerned about validating our work in scientific terms, but we do make judgements about artistic work (and other situations) based on the understandings we acquire from our internal processes of self-validation. As artist-researchers we are also often asked to identify, explicate and validate what we do for research purposes by reference to criteria that are based on more rationalised schemes of working processes. It would perhaps make more sense to evaluate and assess the merits of creative research in ways that give recognition to the nature of the internal processes of validation in these situations.

Copying: what is original and what is new?

By observing and describing my experience, have I not in fact created a new experience? In a similar way Varela asks:

> How do you know that by exploring experience with a method you are not, in fact, deforming or even creating what you experience? Experience being what it is, what is the possible meaning of examination?
>
> (Varela & Shear 1999b: 12)

Varela deals with this by suggesting that reliving by recreating is a genuine act of recall in which one should be as honest as possible, and that fictitious elements are part of recall (Depraz et al. 2003: 67). I addressed this issue in the copying project by trying to ensure that I recorded my experience in as rigorous and honest manner as possible. These two qualities have become the benchmarks of 'objectivity' in this process.

I have embraced the 'non-objective' interpretive and perceptive elements of each narrative because they go to show how I have made sense of what I have done. They are not separate to my original experience but are part of that experience in the sense that this reflection is inherent within the activity rather than separate from it. I am not recreating my experience – my description forms part of it.

Likewise by copying, am I re-enacting something that already exists or enacting something new? Surely the answer must be that by re-enacting another artist's process, one is not simply recreating an artwork but making new art. A distinction can be made between the original act and its re-enactment; each repetition is a new experience, a new event. For this reason, the essence and iterative nature of enactive copying does not depend on recreating another's experience, but of understanding one's own.

b. What have I learnt about Talbot's thinking process from re-enacting Glass?

The in-depth case study of *Glass* involved rigorously mining Talbot's process, testing his technique, and cross-referencing his account in interview with the experience of re-enacting his marks. Moving beyond style and representation, I discovered how Talbot develops his clear methodology for constructing space. Evolving an analytical method of copying has enabled me to follow him through the process of establishing a ground, creating a space within an architecture, and playing with the qualities of the line. By identifying these milestones in his process and demonstrating how his spaces are constructed and communicated, I have also made discoveries about the nature of emergent thinking in drawing.

Talbot's thinking expresses itself in the material way he constructs his drawing from the series of interactions between himself and what he creates – his construction gives a clue to what becomes meaningful in his architecture of thinking. He helpfully leaves the archaeology of his thinking process visible in the construction lines of his drawings, and on first acquaintance this makes them appear highly technical. This assumption disappears as one re-enacts his process; trying to understand the technicalities of perspective become replaced with a curiosity about the particular ways in which Talbot responds to the placement of each line and the on-the-spot possibilities this creates. To analyse this, I have looked at the space the line contains and have found that his drawing is the manifestation of a deeper set of principles.

These principles were revealed through different stages in the copying process. Reproducing Talbot's plan using simple shapes gave me insights about how he establishes his concept in a way that 'sets up' yet remains open to possibilities. The plan provides the fundamental coordinates for growth, but it is worked on in such a way that what occurs is not about following an intended route, but allowing the drawing to evolve through a complex array of decisions and judgments. Re-enacting the lines which grow from the plan made visible how the formation of each line creates a dynamic effect in relation to others, yet remains hidden in their apparently static quality.

Breaking down the process like this shows me the basic reflexive consequence of placing one line next to another, and reveals how mark-marking is in itself a highly suggestive act in requesting a response from its maker. Milner pertinently describes this effect:

> I found that to draw the line of one object with fully felt awareness of the line of a neighbouring one and of the patterns of space that they mutually created between them, seemed as potent an act as laying a wire across the terminals of a battery: and the resulting flash seemed to light a new world of possibilities.
>
> (Milner 1971: 12).

The exploration of how Talbot juggles and balances his response to these basic acts reveals how he vacillates between a range of options, forming an environment for himself through the dialogue between determinate and indeterminate. At certain times the conventions of perspective drawing lead this discourse; at others, Talbot takes the initiative. Very often each mark involves a combination of both, and in this way Talbot not only creates a space in which to improvise, but improvises in order to create his space.

Talbot is not the author of his own process but part of it. This resonates with Varela's description of how the individual and his or her environment trigger or select in each other structural changes. Through this codetermination Talbot discovers unanticipated spaces in which he can hover between visualisation and conceptualisation. Structural coupling literally becomes a spatial issue, with drawing as a form of architectural or spatial knowledge where the image is the visual depiction of something deeper. From this it is possible to suggest that when we know spatially where we are as we draw, we are using a type of thinking which allows us to understand where we are. Conversely, making by 'not knowing where we are' takes us out of our range of understanding to invite in spaces that are unknown to us.

One particular mechanism Talbot invites into this spatial equation is constraint. To a great extent *Glass* evolves from the way in which Talbot constrains his freedom to choose. His decision to use perspective drawing and its associated formal modes of mark-making curtails his range of possible responses. Conventions such as plan-making and projection constrain Talbot's freedom to act because he has to conform to rules which are not his own.

It was only through re-enacting these processes however, that I came to see how self-constraint simultaneously creates opportunity. In Talbot's process, constraint is the means by which he can 'invite in the unknown' through a self-managing mechanism that allows him to make sense of emergence as it happens. Constraint in this sense is emergent because it makes visible our interactions; it is the 'causal engine that drives creative evolution, not through forced impact, but by making things interdependent' (Juarrero 1999: 150). Drawing makes this process visually visible[2] – a practical example of the successively emergent and mutually selecting circular patterns of processes described by Varela as being enactive. Evolution occurs through the dynamic and circular system of feedback between Talbot and his drawing. Previous actions (and interactions) feed into the structure of the drawing and the drawing represents the evolved history of interactions:

> Once the probability that something will happen depends on and is altered by the presence of something else, the two have become systematically and therefore internally related.
>
> (Juarrero 1999: 139)

Self-constraint helps to define what is meaningful for Talbot, in the sense that total freedom is meaningless without context. He effectively provides boundaries through which to evolve in ways that are meaningful to him, which Varela might describe as having 'relevance for the structure of the system' (Varela et al. 1991: 155). Re-enacting constraint on Talbot's terms made me consider more generally how artists require a capacity to manage and maintain the dynamic balance between constraining yet developing freedom at the same time. It could be interesting to investigate how this capacity to develop randomness without totally eliminating order operates in other forms of drawing.

My findings about how Talbot manages his representation have been formed in a sedimentary way through an accretion of events. As I have moved through the drawn analysis intuitively and analytically, I have revealed how the principles of drawing are also the principles of analysis and exploration. The analysis *is* drawing. To analyse stages of Talbot's drawing is to identify points; in moving from one point to the next, I create elements to decide, in Ingold's terms, at what stage Talbot is simply being transported and at what stage his is wayfaring. By recording the clear significant moments it can be shown that Talbot's entire concept is within and never leaves the space and that he never leaves his concept.

In retrospect, I realise that I have been dealing with a family of drawings in my enquiry which allude to establishing architectural space rather than expression. These drawings involve the paradox of looking like they have been pre-formed when in fact they are not; they are the results of the configuration of the principles of determinacy and indeterminacy. Evolving a language about these processes has allowed me to see more deeply and to 'mine' the principles of drawing. I am not on the outside of the process; I have inhabited it as a tool for cognition.

Notes

1. Here I use the term 'inter-subjectivity' to mean the capacity of a concept to be readily and accurately communicated between different individuals.
2. In a similar way, Matthew Barney's *Drawing Restraint* is interesting in relation to the way he physically and visually explores the notion that form emerges through the struggle against resistance.

Chapter 12

Where Does One go from Here?

> *We reflect on a world that is not made, but found, and yet it is also our structure that enables us to reflect upon this world. Thus in reflection, we find ourselves in a circle; we are in a world, but that world is not separate from us.*
>
> (Varela et al. 1991: 3)

What happens after one has put oneself through a deep experiential learning experience similar in nature to that outlined in these pages? As practitioners, how are we able to develop the understandings we make from doing something like this when we go back to pick up our own practices? These are the questions that now occupy my mind following the conclusion of this enquiry. Where does one go from here?

I am ending this account by contemplating possible options and giving some insight into what effect the experience of this enquiry has had on my practice during the year since it was completed. Before doing this however, I want to reflect on how the two research questions which emerged during the enquiry can now be answered. As the second question (about methodology) holds the key to answering the first (about the subject matter), I approach this first.

How is it possible within the practice of drawing to use First Person methods as a tool to investigate the notion of embodied thinking?

What does drawing as a First Person methodology look like?

Drawing is an intimate occupation; it is by nature a First Person activity because of the direct connection between the individual and the marks (s)he makes. It's most fundamental characteristic is that it evolves as it progresses – it is a process. This processual quality makes drawing both a method and a methodology; it is a method in the sense that it is a tool for investigation, and a methodology because the inherent nature of the activity determines how as a tool, it can be deployed and interpreted.

Before entering the studio for the final stage of investigation, I had many concerns about how I could best record experiential phenomena:

- How could I record an experience whilst simultaneously experiencing it?
- Would it be better to use video to capture the activity rather than use text-based methods? Could I use both together?
- How could I grasp the internal and implicit process of drawing by talking or writing about it when the explicit nature of language is entirely different in character to drawing?
- Is it possible to describe multi-sensorial experience linguistically anyway?
- How could I be explicit about tacit issues when they are consciously inaccessible?
- How could I make an experience explicit without changing the nature of that experience?

These concerns about method were perhaps foremost in my mind as I contemplated testing out the model of embodied thinking in practice, but it has been the process of doing this that has provided the answers.

My understandings about drawing as a First Person methodology evolved throughout the narrative of the whole enquiry (*Fig. 132*), and were specifically developed through practice whilst engaging with the self-reflexive method of enactive copying. By taking an existent method used by artists through a rigorous threshold, copying to learn became transformed into something that came close to inhabiting another person's working processes. Doing this allowed me to become increasingly aware that my methods were evolving to incorporate aspects about process, the body, action, experience and awareness. Drawing as a First Person methodology is as an open-ended process of discovery through which it is possible to present what is dynamic in concepts, and from which generalisations can be made from the specificity of what is done.

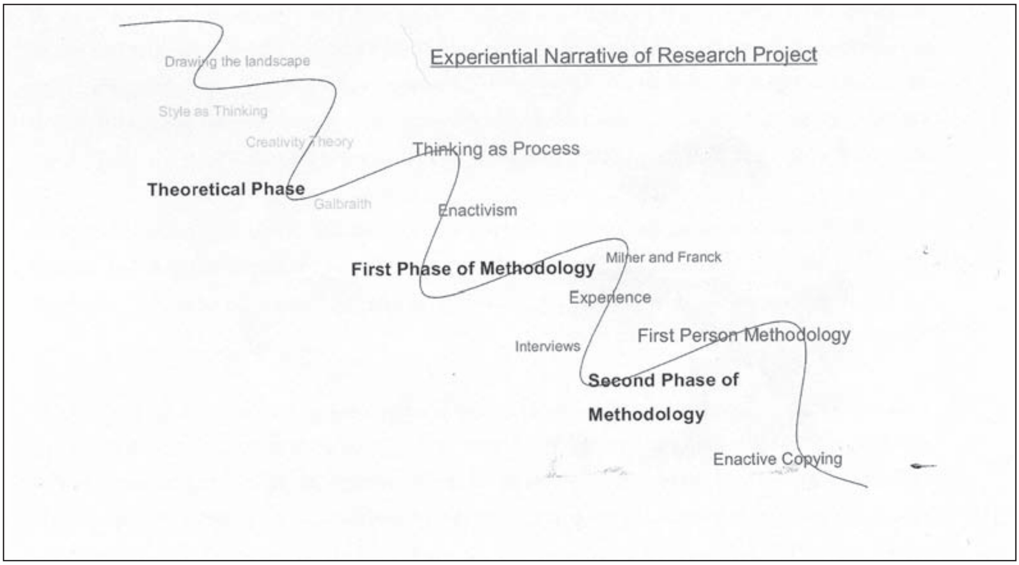

Experiential Narrative of Research Project
Drawing the landscape
Style as Thinking
Creativity Theory
Thinking as Process
Theoretical Phase
Galbraith
Enactivism
First Phase of Methodology
Milner and Franck
Experience
Interviews
First Person Methodology
Second Phase of Methodology
Enactive Copying

Fig. 132: The experiential narrative of my enquiry.

I suspect I am not the first to discover that drawing has these qualities. Many before me must have discovered this for themselves but what I have done which is slightly different is to try to make this process explicit, and in doing so, I have made connections between my experience of doing this and enactive thinking.

What are the qualities of this methodology?

Drawing is an experiential as well as a visual methodology. It is concerned with discovering what can be known through the experience of making rather than prescribing the content of what can be known.

Enactivism shores up this idea by suggesting that knowledge is grounded in the activity itself, and Varela's ideas have been important in presenting these active concepts. Whilst Merleau-Ponty or Husserl may perhaps have been a more obvious choice of companion for contemplating that emergent thinking is observable through experience, it is Varela who provides the practitioner with a basis for empirically doing this.

Discovery through drawing involves suspending one's usual practices and assumptions by focussing on activity instead. As one does this, one's role changes from being an 'objective' investigator to becoming a subjective examiner who inhabits the issues by putting one's skills into the service of the enquiry. Conscious discoveries are dependent on this physical submersion and drawing's particular capacity to construct and enact at the same time, and this makes it possible to investigate our own processes by engaging in the activity.

Throughout my own particular process of discovery, my findings were interpolated through methods that involved both drawing and writing. Both made visible how thinking occurs in the interactions between processes and gave me insight into the nature of the feedback loop of knowledge.

Writing became a significant part of making a full description of the 'act of becoming aware'. It helped me to articulate the significance of phenomena I experienced during the process without having that meaning construed by others. Writing operated in much the same way that drawing does: both make visible the practice of phenomenological description. My text became another part of the space in which I was able to explore my self and evolved through two particular forms of writing – the journal and the narrative. In my *journal*, I was primarily concerned with rigorously recording detailed descriptions of the experience of making, the outcome of which I could critically interpret and interrogate later. An array of different writing styles emerged. Some were descriptive and graphical, others involved either 'free' writing or more analytically reflective processes. Creating a record of the experience as near in time as possible to that experience assisted me in becoming aware of the intuitive and tacit aspects of my process, and enabled me to keep on track when progress was not constant.

These journal entries assisted me to create *narratives* in which I constructively interpreted how I made sense of my experience and the judgements I made about my own learning in so doing. This involved 'making difficult events meaningful by putting them into an interpretive sequence' (Reismann 1993: v), in which I become part of the emergent text.

Having used writing in this way, I suggest that the relationship of recorded to created work demonstrates how one's experiential account becomes part of what is known in the way in which it is known, because experience changes the way we express ourselves using these skills. Expressing one's experience through more than one medium allows for re-thinking in different formats, exposing ideas to critical reflection:

> Writing thus articulates what hermeneutics describes as the essential 'in-between' (*ins zwischen*) or *entre-deux* of our aesthetic engagement with art.
>
> (Davey 1999: 13)

This opposes the idea that writing interferes with the creative experience of drawing. What I have come to know is relative to what I do, and whether it is situated in drawing or writing, the important thing is to show how I know I make sense of what I do.

Observation and reflection as a process of learning

Knowing and learning have a close relationship in the process of drawing in which they are intertwined in a constructive process (Rogoff in McCormack & Paechter 1999). I believe that drawing is one method through which one can reflexively[1] recognise one's capacity to become aware of one's acts. It is this increasing awareness that actively guides what we do as a result:

> The cognitive structure does more than simply accumulate the material of learning and accommodate response – it is active in guiding the learning of new material.
>
> (Pines et al. in Moon 1999a: 109)

I have come to see drawing as a particular example of 'situated knowledge' through which we find ways of developing our (self-bounded) capacities. Whilst doing this I have found it possible to distinguish between how I inherently observe myself as part of my creative process, and how I observe myself as I do this. Both types of awareness are couched in how I make sense of what I do and are intimately aligned to my 'inside' knowledge about the event. Both demonstrate a capacity to be meta-cognitive, and that as observer, I enter the process as a continuous feature.

There are limitations to what I have done.

How robust is a methodology that has evolved in such singular and unrepeatable circumstances as this? I have to acknowledge that Talbot is only one particular artist. The fact that he makes evident the archaeology of his thinking process in his drawings makes him a good case study because his lines allow me to re-trace his steps more easily. The method I have developed of inhabiting his particular process by re-tracing his lines may not be applicable or possible for other types of drawings with different qualities.

The robustness of the methodology does not lie in developing a particular method but in allowing the activity to evolve in response to the specific circumstance of the situation. By rigorously recording and being exhaustively analytical throughout the process, it is possible to obtain a critical view of how self-discovery occurs and to apply this to other situations. It is these aspects which allow this methodology to be more universally applicable.

To what extent if any, can the drawing practitioner throw new light on the assumptions made about embodied thinking?

By examining through studio practice what creates the opportunity for the practitioner to come to know, I have found myself asking as Varela does in *Cognitive Science*, ‘How does “the novel” emerge?’ (Depraz et al. 2003: 48). My particular approach to this has been to examine how drawing as a phenomenal event can actualise and visually make evident the emergent aspects of its own activity.

I have already outlined in *Chapter 11* how the investigation of Talbot’s practices made visible the processual, relative and non-objective nature of the activity. Because of this I was able to reconcile elements of enactive thinking with aspects of my experience of doing this, but has this enabled me to ‘throw new light on the assumptions made about embodied thinking’ generally? I think the answer lies in the way in which I have investigated matters through practice as a practitioner.

Having found early on in my enquiry that existing theories about thinking and drawing lacked congruity with the experience of practice, I was in a position to value Varela’s critical concept that an individual’s structure is defined in terms of her process. My initial hunch that the two are connected was nurtured and extended by findings in the studio. There was evidence to suggest that the drawing process evolved from the interactions between the individual’s recursive, closed and self-referential structure and the mutual triggers between the individual and his/her surrounding environment. This helped inform my observations about drawing in particular ways, allowing me to take a previously un-tested method and explore possibilities for approaching matters from the physical event of drawing. In effect, I have been able to test these critical concepts in a different context, asking how these different forms of knowledge might map onto each other.

What is my perception about bridging these contexts?

By inhabiting the methodology, I have been taken deeper and deeper into the experience of a sustained drawing project through which my understandings about embodied thinking can be demonstrated.

I have discerned for myself through the analytical process of drawing, the way in which Talbot develops a methodology for constructing his space through the continuous forging of conditions between himself (self) and his process (other), and how he manages this process through a lineage of determinate and indeterminate decisions and judgements. In this sense, drawing is shown to be an unspoken dialogue between the self and the state that is to emerge, in which the process 'speaks back' (Sullivan 2005).

Going one step further, Talbot shows us how he is bounded by his own knowledge because the 'method-framework' he creates demonstrates the extent of his understandings. In this sense, his evolution is self-referential and his concern is with creating ways to enlarge these boundaries.

There is significance in knowing one's limitations; 'In art, progress lies not in an extension, but in a knowledge of limitations' (Braque in Kepes 1944: 98). Conceivably, one of the main tasks facing the practitioner is to develop an awareness of one's boundaries in order to better understand one's development. Perhaps we too often overlook the idea that the practitioner's role is to avoid the predictability of what is already known, and that what stops us from stagnancy is our ability to interact with the world. If this is true, then the seemingly limited proposition that our development is bounded by our capacity profoundly contradicts the importance given to individuality and novelty in contemporary Western culture.

Physically re-enacting these processes can demonstrate what it means to engage in the particular qualities of this inter-subjective conversation because the structure of the experience gives meaning to one's findings. What is meaningful is formed in the inter-relations between what one does and one's understandings of this. From this we make connections not previously recognised before, moving further to make sense of other unconnected situations:

> As an individual becomes conscious of the relational laws in drawing, he will begin to take notice of similar relationships in experience. The course of the stream works both ways; experience in drawing – arranging line, creativity form and space, relating parts, exploring various materials – will slowly act upon the vision of the sensitive individual affecting how he sees, even what he sees. Conversely, natural experience, as the ability to absorb and to see is developed, will give insight into the internal nature of the picture.
>
> (Hill 1966: 36)

The new light I throw on existing assumptions made about embodied thinking comes from redefining drawing as an enactive phenomenon in which the activity is the enactive methodological phenomenon in itself or a 'meta-domain' (Maturana in Maturana & Varela

1980: xxii). I suggest that the activity provides an introspective space in which to become aware of oneself through practice. Drawing increases our capacity to know by making visible our experience to ourselves in such a way that our focus is on the meaningful evolution of ourselves rather than focussing on the outcome.

Making sense of what I've done: options for the future

The outcomes of this enquiry are to be found within the relationships between practice, learning and drawing and I suspect that numerous research questions lurk within this space (*Fig. 133*). As I complete this enquiry, I am most interested in pursuing these options in ways where one can theorise from practice by developing 'know-how' as a practitioner.

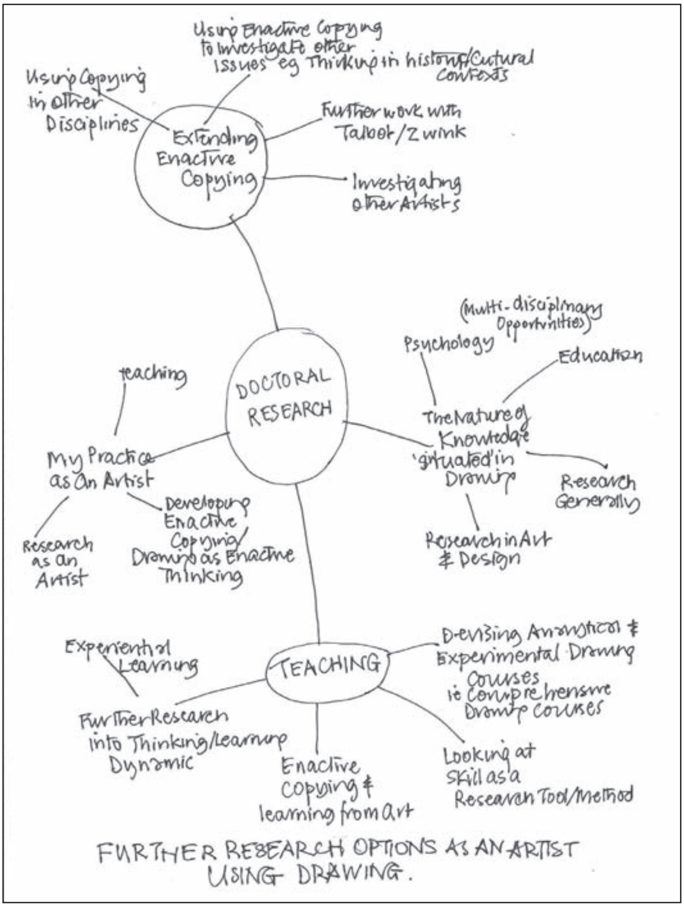

Using Enactive Copying to investigate other issues eg Thinking in history/Cultural contexts
Using Copying in other Disciplines
Extending Enactive Copying
Further work with Talbot/Zwink
Investigating other Artists
(Multi-disciplinary Opportunities)
Psychology
Education
teaching
DOCTORAL RESEARCH
The Nature of Knowledge 'situated' in Drawing
My Practice as an Artist
Research Generally
Developing Enactive Copying/ Drawing as Enactive Thinking
Research as an Artist
Research in Art & Design
Experiential Learning
TEACHING
Devising Analytical & Experimental Drawing Courses ie Comprehensive Drawing Courses
Further Research into Thinking/Learning Dynamic
Enactive Copying & learning from art
Looking at Skill as a Research Tool/Method
FURTHER RESEARCH OPTIONS AS AN ARTIST USING DRAWING.

Fig. 133: Possibilities for further research from the drawing practitioner's perspective.

It's an exciting prospect to consider that drawing as a methodology might be used as a basis for collaborative research. By valuing process rather than outcome, practitioners might work together using drawing to interrogate cognitive issues in practical ways. For instance, the connections made in this enquiry between Varela (a cognitive scientist) and myself (a drawing practitioner) put into dispute the idea that Art and Science are dissimilar and incompatible. Views that focus on the irreconcilable nature of Art and Science tend to put into simplistic opposition the fundamental nature of the disciplines; Science assumes an objective and analytical reflection of reality whereas Art does not (e.g. Snow 1964). Others view the irreconcilable differences as being based in how each discipline has historically assumed different functions; for instance, Wolpert suggests that the criteria necessary to create, judge and validate the two subjects are entirely different (Wolpert 2002); Kuhn suggests that the falsifiable criteria demanded by the scientific method allows Science to destroy its past, so that the 'end products' of each discipline are different (Kuhn in Krygier 1991: 7).

What has happened in my experience demonstrates a common desire to establish methodologies that make visible the implicit aspects of experience; if one approaches cognitive issues through practice-based methodologies, Art and Science exhibit 'functional similarities' (Krygier 1991: 15). This commonality has been identified both by scientists and artists;

> Both scientists and artists are engaged in the common pursuit of new ways of perceiving and of controlling nature…[which] is mirrored in common methods.
>
> (Root-Bernstein 1984: 109)

> Art becomes a participatory process rather than a discrete object or event, defined by behavioural relationships in which artist, observer and environment… are all integrated in an emergent, interactive system of morphological relationships.
>
> (Ascott in Shanken 2002: 4)

Drawing as a self-supporting process of learning also has pedagogical implications. In the broadest sense, this enquiry has shown that drawing helps to develop skills that promote learning generally because it enables us to:

- become familiar with self-observation in a learning experience.
- become self-disciplined.
- persevere.
- be creative to develop methods.
- become familiar with shifts in our modes of attention.
- record rigorously.
- understand the nature of self-learning.

With these skills in mind, one might question how drawing is taught in educational contexts generally at present, and make a case for the activity to be taught in ways which are not limited to art or aesthetics. It might also be possible to theorise on educational issues through the practice of drawing. One might investigate where drawing is placed in the curriculum of different teaching environments and what role skill plays in the curriculum generally.

Enactive copying itself could be used to focus on any of these pedagogical issues, and put back onto the educational agenda the relevance of skill in an artistic era infatuated with the conceptual:

> What happens in this society is that people tend to get deskilled. So experiential learning is about giving some of those skills back. It is very much at the practical level. Even if you can look at those skills from a theoretical framework, it's still about whether you can put it into practice or not, that matters.
>
> (Warner & McGill 1989: 79)

Copying is one example of how we investigate becoming skilled at learning and 'become much more discriminative observers of our own mental processes' (Tart referred to by Pickering in Velmans 2004: 292). As a means of learning about a broad range of different cultural or historical contexts, copying could be used to gain deeper insights into how representation is managed in these contexts.

Although my Ph.D. timetable prevented me from returning to Talbot and Zwink to see where the synergies lay between my findings and their responses, I have since spoken with Talbot about the investigation of *Glass.* When I described the frustration I felt about 'not knowing where I was going' whilst making the wall drawings (despite my considerable interrogation of the processes used to create *Glass*), he appeared amused to confirm that this type of experience was an entirely familiar part of his process. Whereas I had berated myself for not concentrating sufficiently on his process, he confirmed that, like me, he felt as though he was playing with the system of perspective, often allowing the activity to lead what he was doing and making the process up as he went along. I realised that I had been so intent on understanding his process that when I finally experienced this for myself, I had difficulty in recognising it and we had a bit of a laugh about this!

I had however, whilst doing this, found in drawing a research methodology that could be used in its own context, on its own terms, without apology. I did not have to borrow a methodology from other disciplines to describe what I was doing in practice. Drawing is fundamentally situated within its own discipline and contradicts views that art-making cannot play a part in research:

> Describing how to paint or draw is not research, it is description. Making a painting or a drawing is not research, it is practice.
>
> (Mottram in Lyons 2006)

By challenging the idea that the artefact is central in the practitioner's process, the practitioner is freed from an-object centred domain to develop a process-centred logic evocative of 'material logic' (Bolt 2004) from a 'theorising practice' (McLeod & Holdridge 2001):

> The object of [making] a picture is not to make a picture – however unreasonable this may sound. The picture, if a picture results, is a by-product and may be useful, valuable, interesting as a sign of what has passed. The object, which is back [sic] of every true work of art, is the attainment of a state of being, a state of high functioning, a more than ordinary moment of existence.
>
> (Henri in London 1992: 9)

As the practitioner involved in this First Person methodology, I now want to develop these issues as an artist in order to establish what place research has in studio practice, outside the context of research that takes place in the academic institution.

Post script

Since concluding my enquiry, I have (except for writing this book) concentrated almost exclusively on developing my practice as an artist – not by making research the focus for my work, but by simply making drawings. As a contemporary artist, I am no doubt rather unfashionable in eschewing the conceptual in favour of allowing the process of making lead the development of my work.

I expect it will take years to understand more fully what effect the experience of this enquiry will have had on my practice, but I have already noticed the intense level of observation I now give to my drawings which I believe is a result of the mindset that has been cultivated by the high level of attention I have given to this enquiry. Before my PhD I had employed a relatively free process of mark-making, and I leave it to the viewer to impute what effect this intense analytical process has had on my mindset as a result *(Figs. 134–36)*.

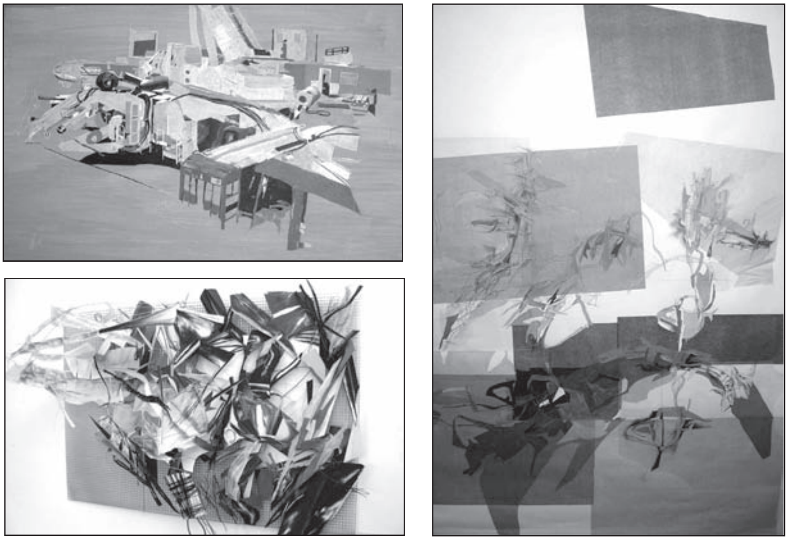


Fig. 134: Drawings by the Author during the first year of her enquiry.

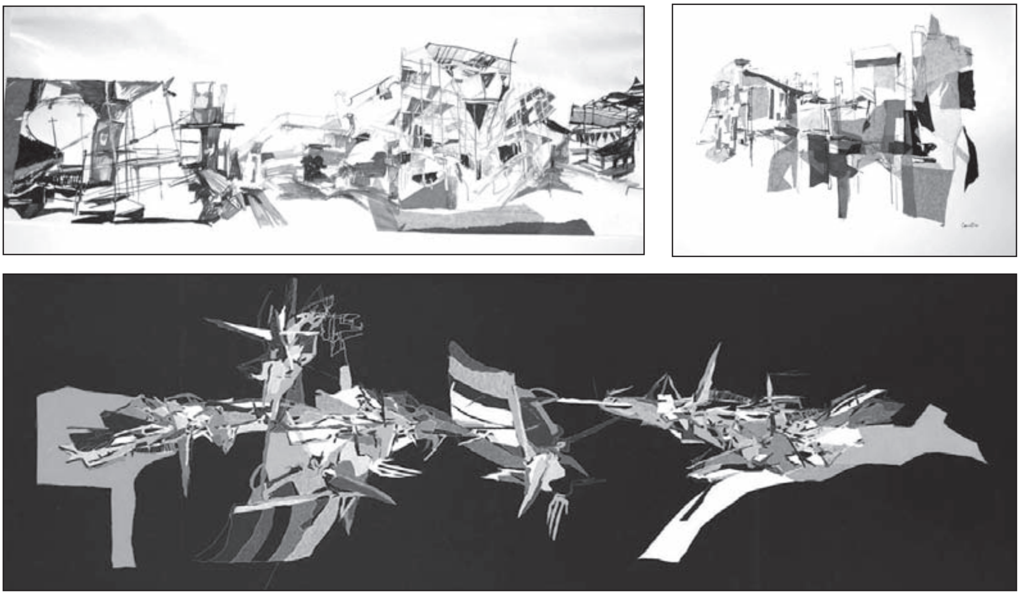


Fig. 135: Drawings by the Author during the second year of her enquiry.

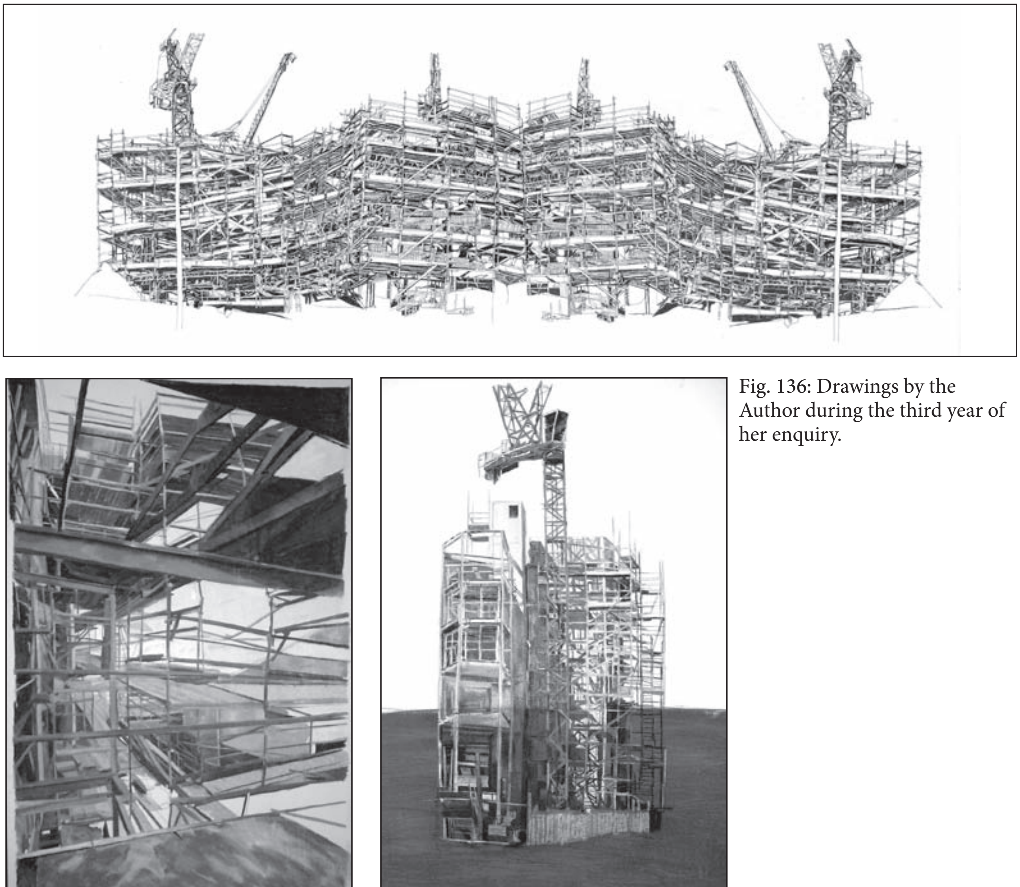


Fig. 136: Drawings by the Author during the third year of her enquiry.

Wishing to find a bit of the 'old me', I recently tried to dislodge some of the consequences of my enquiry and recapture something of my former self by copying my own drawings *(Fig. 137).*

I suspect this is the beginning of a new development which I am preparing to expand upon in the near future. Perhaps more pointedly I have noticed an appreciably heightened self-awareness about aspects of my process as I make my work. I find myself considering much more, the 'how-ness' of what I do, and am regularly reminded of the workings of self-referential processes as I navigate what I do to establish my own equilibrium in response to what is happening on the paper.

At natural points, I have started to incorporate periods of intense self-observation as part of my practice during which I make a particular effort to record what I am doing. This is something I did not do before my enquiry yet is becoming a significant factor towards marrying up my ideas about art and research.

As part of this, I am coming to terms with the idea that, for me, writing is as much a part of my creative process as drawing is, whereas I had not embraced this fact previously. I had always perceived these activities as being in conflict – writing was a separate occupation to drawing, a distraction from the 'main event' and even an indicator that I was not an artist. I have now begun to view each as an equal part of my creative process – each is after all, a process of line-making. Accepting that my texts are constructed as visibly as my drawings are has helped to harmonise these two parts of me *(Fig. 138).*

By putting my mind towards discovering how to develop these ideas through my art practice, whilst at the same time developing as an artist, I am now taking my first steps beyond this enquiry. In this way, I hope to develop the reflexive relationship between theory and practice through the activity of drawing, not because it is to do with research, but because it is to do with practice.

Note

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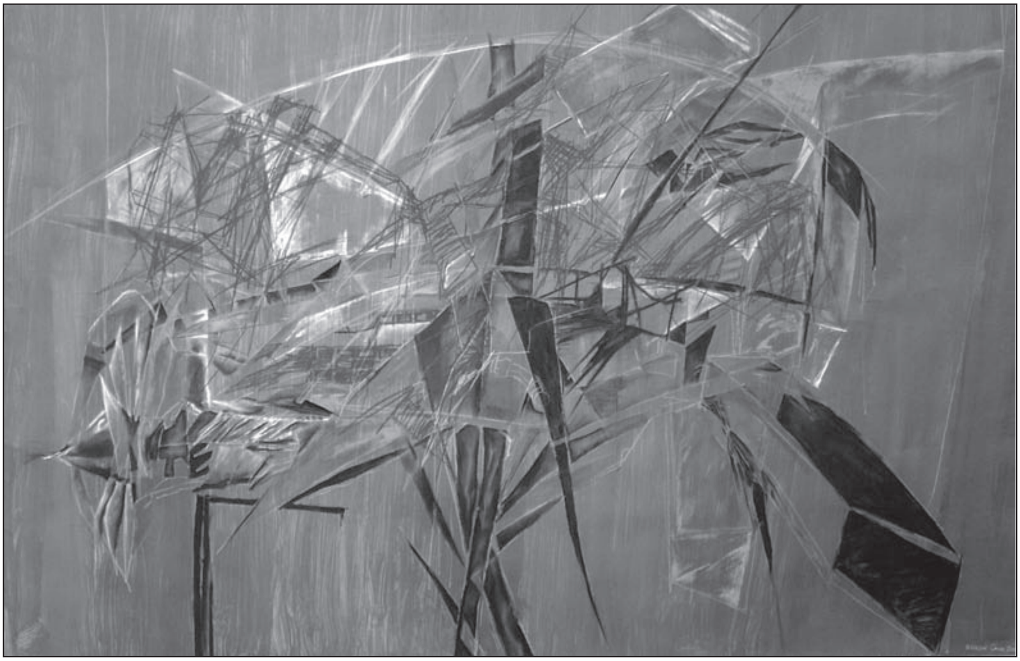
1. Reflexivity is in this sense another word for self-reference, whereby the observer is always part of whatever is being observed (Ramos-Poqui & Rodway 1995). As practitioner, I become part of the methodology as well as being part of the image.



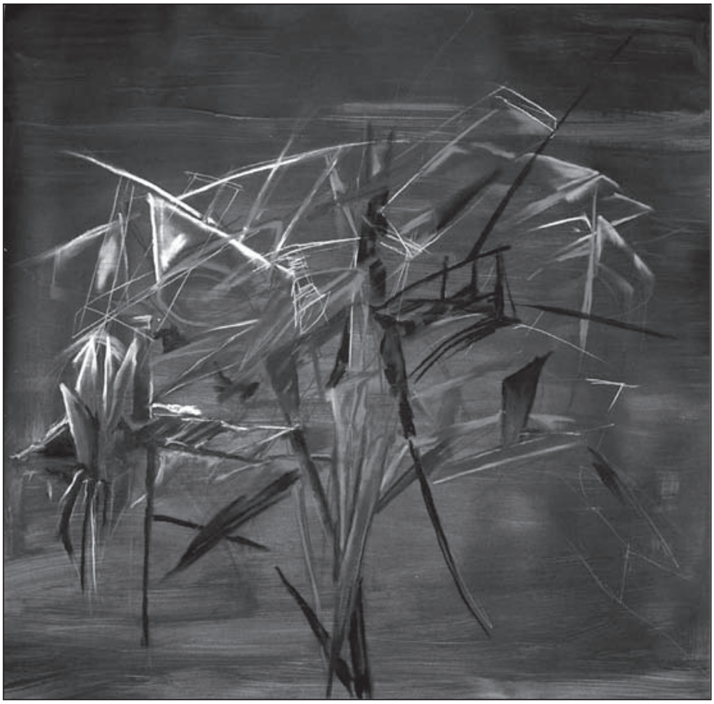
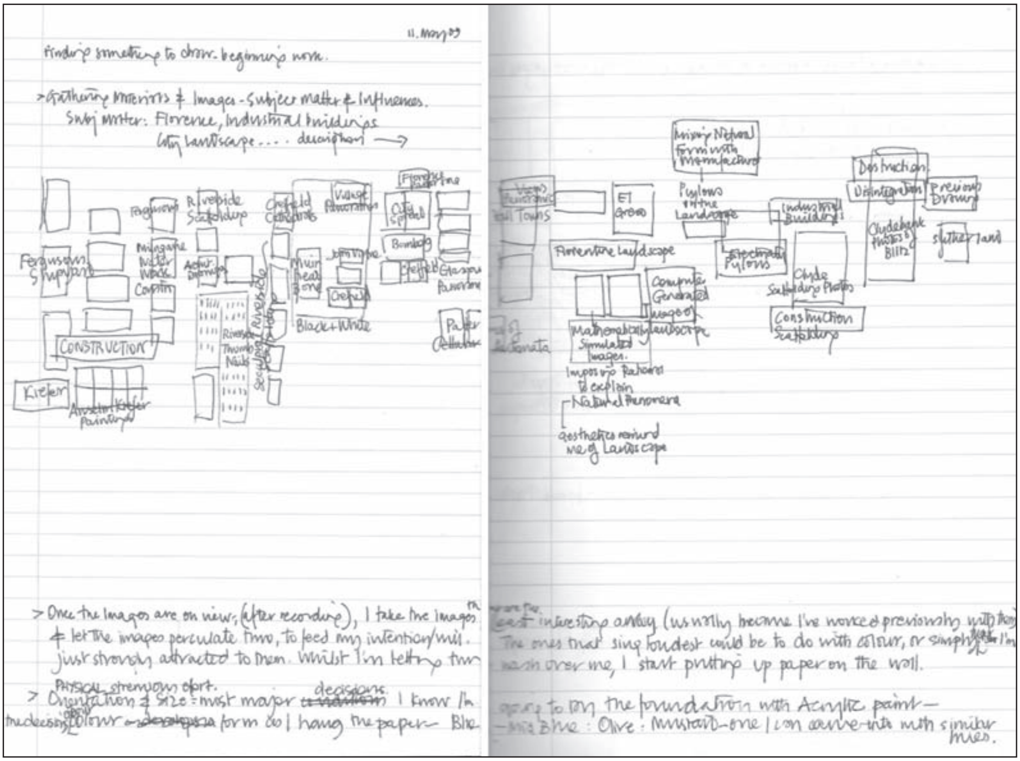


Fig. 137: *Anticline Pitch* by Author (2004) and a copy by the Author (2009).



11. May 09

finding something to draw. beginning work.

> Gathering materials & Images - Subject matter & Influences.
Subj matter: Florence, Industrial buildings
City Landscape.... description →

Riverside Scaffolding
Fergusons
Crefeld Cathedrals
Village Panoramas
Florence Panorama
City sprawl
Ferguson's Shipyard
Milngavie Water Works
Coptin
Actur Drawings
Muir head Bone
John Piper
Bombay
Crefeld
Glasgow Panorama
Crefeld
Black + White
Riverside Thumb Nails
Scaffolding Riverside
Paper Collection
CONSTRUCTION
Kiefer
Anselm Kiefer Paintings
Views Panorama
Hill Towns
Sonata
ET Group
Mixing Natural Form with Manufactured
Pylons in the Landscape
Industrial Buildings
Destruction
Disintegration
Previous Drawing
Florentine Landscape
Electricity Pylons
Clydebank photos of Blitz
Sutherland
Computer Generated images of landscape
Clyde Scaffolding Photos
Mathematically Simulated images.
Construction Scaffolding
Imposing Patterns to explain Natural Phenomena
aesthetics remind me of Landscape

> Once the Images are on view, (after recording), I take the images in remove the least interesting anyway (usually because I've worked previously with them)
& let the images percolate thro, to feed my intention/will. The ones that sing loudest would be to do with colour, or simply that I'm
just strongly attracted to them. Whilst I'm letting them wash over me, I start putting up paper on the wall.

PHYSICAL strenuous effort.
> Orientation & Size = most major ~~transition~~ decisions. I know I'm going to lay the foundation with Acrylic paint —
the decisions open colour ~~[illegible]~~ form as I hang the paper — Blue —Mid Blue : Olive : Mustard - one I can carve into with similar hues.

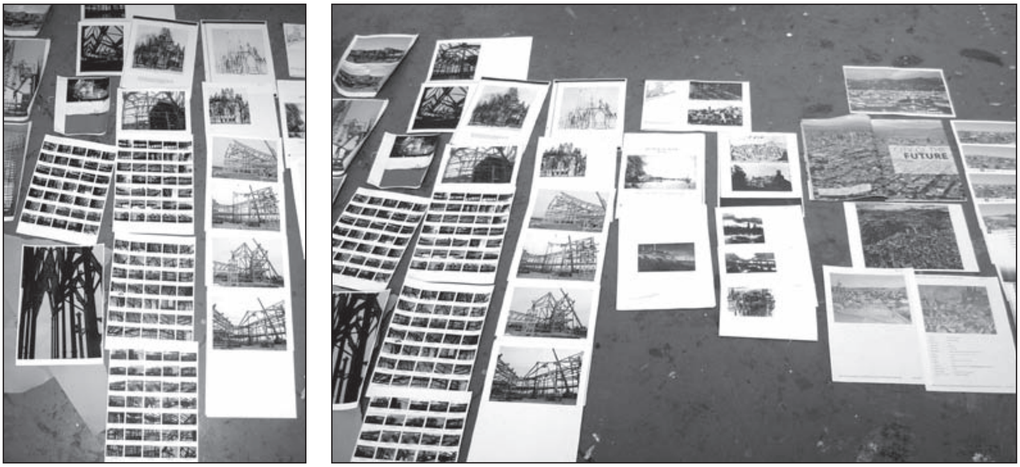


Fig. 138: Capturing my processes of working in the studio.

Bibliography

Abbs, P. (1989), *The Symbolic Order: A Contemporary Reader On The Arts Debate*, Falmer Press.

Aimes-Lewis, F. (2000), *Drawing in early Renaissance Italy*, New Haven, CT: Yale University Press.

Alloway, L. (1984), 'Network: The Art World Described as a System', in *Artforum: Network art and complex present,* UMI Research Publishing.

Amabile, T. M. (1983), *The Social Psychology of Creativity,* New York, NY: SpringerVerlag.

Arnaud, Reid, L. (1980), 'Art: Knowledge That and Knowing This', *British Journal of Aesthetics,* 20, p. 330.

Arnheim, R. (1956), *Art and Visual Perception: A Psychology of the Creative Eye,* London: Faber and Faber.

Arnheim, R. (1981), 'The State of the Art: An introduction', *Review of Research in Visual Arts Education,* 14, pp. 1–3.

Ascott, R. (1990), 'Is There Love in the Telematic Embrace?', *Art Journal*, New York: College Arts Association of America, 49: 3, pp. 241–7.

Atkinson, T. and Claxton, G. (2000), *The intuitive practitioner: on the value of not always knowing what one is doing*, Bristol: Open University Press.

Audi, Robert (ed.) (1999), *The Cambridge Dictionary of Philosophy*, Cambridge: Cambridge University Press.

Bailey, G.H. (1982), 'Drawing and the Drawing Activity: A Phenomenological Investigation', Ph.D. thesis, London Institute of Education.

Bambach, C. (1999), *Drawing and painting in the Italian Renaissance workshop: theory and practice, 1300–1600*, Cambridge: Cambridge University Press.

Barfield, N. and Quinn, M. (2004), 'Research as a mode of construction; engaging with the artefact in art and design research', *Working Papers in Art and Design.* http: //www.herts.ac.uk/artdes/research/papers/wpades/vol3/nbfull.html. Accessed 21st September 2007.

Barnett, R. (1994), *The Limits of Competence, Knowledge, Higher Education and Society*, Buckingham: The Society for Research into Higher Education & Open University Press.

Barron, F. (1988), 'Putting creativity to work', in R.J. Sternberg (ed.), *The Nature of Creativity,* Cambridge: Cambridge University Press.

Bateson, G. (1973), *Mind and Nature: Steps to an Ecology of mind*, Paladin Books.

Bechara, A., Damasio, H., Tranel, D. and Damasio, A. R. (1997), 'Deciding Advantageously Before Knowing the Advantageous Strategy', *Science*, 275: 5304, pp. 1293–1295.

Becker, H. (1967), 'Whose Side Are We On?', *Social Problems*, 14, pp. 239–247.

Benjamin, W. (1969), *Illuminations*, New York: Schoken Book.

Bermúdez, J. L. (2003), *Thinking without words***,** Oxford: Oxford University Press.

Berry, D. C. and Broadbent, D. E. (1995), 'Implicit learning in the control of complex systems: A reconsideration of some of the earlier claims', in P.A Frensch and J. Funke (eds.), *Complex problem solving: The European Perspective*, Hillsdale, NJ: Lawrence Erlbaum Associates, pp. 131–150.

Berry, D.C. and Dienes, Z. (1993), *Implicit learning: Theoretical and Empirical Issues*, Hove: Lawrence Erlbaum.

Bertalanffy, L. Von. (1950), 'An Outline of General Systems Theory', *Philosophy of Science,* 1: 2.

Best, D. (1985), *Feeling and Reason in the Arts*, London: George Allan and Unwin.

Beuys, J. (1990), 'From a competitive to a Compassionate Society', in L. Wijers (ed.), *Art meets Science and Spiritualit*y, Art and Design, Academy Editions.

Bird, E. (2000), 'Research in Art and Design: the first decade', *Working Papers in Art and Design*, 1, http: //www.herts.ac.uk/artdes/research/papers/wpades/vol1/bird2full.html. Accessed 21 September 2007.

Blunsden, P. (1998), 'Research into Practice', *Point: Art and Design Research Journal*, 5, Spring/Summer, p. 20.

Boden, M. A. (1990), *The creative mind: Myths and mechanisms*, London: Weidenfeld & Nicolson.

Bogdan, R. and Taylor, S.J. (1975), *Introduction to Qualitative Research Methods: A Phenomenological Approach to the Social Sciences*, London: John Wiley & Sons.

Bolt, B. (2004), *Art Beyond Representation: The Performative Power of the Image*, London: I.B. Taurus.

Bolt, B. (2006), 'Materializing Pedagogies', http: //www.herts.ac.uk/artdes/research/papers/wpades/vol4/bbfull.html. Accessed 21 September 2007.

Boud, D., Keogh, R. and Walker, D. (1985), 'Promoting Reflection in Learning; a model', in D. Boud, R. Keogh and D. Walker (eds.), *Reflection: Turning Experience into Learning*, London: Kogan Page.

Bourgoine, F. and Varela, F. (1992), 'Towards a practice of autonomy', in P. Bourgine and F.J. Varela (eds.), *Toward a Practice of Autonomous Systems*, Cambridge, MA: MIT Press/Bradford Books.

Brennan, T. and Walsh, J. (2005), 'Douglas Harding and 'Headlessness' Implications for Psychology', *Transpersonal Psychology Review*, 9: 1, pp. 80–93.

Broadbent, D. (1977), 'The hidden preattentive processes', *American Psychologist*, 32, pp. 109–118.

Brockman, J. (1995), *The Third Culture: Beyond the Scientific Revolution*, New York, NY: Simon & Schuster.

Brown, R., Aleksander, I., Mackenzie, J. and Faith, J. (2001), *Biotica: Art Emergence and Artificial Life*, RCA CRD Research Publications.

Bruner, J. (1990), *Acts of Meaning*, Cambridge, MA: Harvard University Press.

Bruns, G. (1994), *Hermeneutics Ancient and Modern*, Albany, NY: Yale University Press.

Burgess, R.G. (1981), 'Keeping a research diary', *Cambridge Journal of Education*, 11: 1, pp. 75–83

Buzan, T. and Buzan, B. (1994), *The Mind Map Book*, London: E P Dutton.

Cameron, Dan (2003), *Living Inside the Grid*, New York, NY: New Museum of Contemporary Art.

Campbell, D.T. (1960), 'Blind variation and selective retention in creative thought as in other knowledge processes', *Psychological Review,* 67, pp. 380–400.

Candy, P., Harri-Augstein, S., and Thomas, L. (1985), 'Reflection and the Self-Organised Learner; A model of Learning Conversations', in D. Boud, R. Keogh and D. Walker (eds.), *Reflection: 'Turning Experience into Learning'*, London: Kogan Page.

Capra, F. (1996), *The web of life: a new synthesis of mind and matter***,** London: Flamingo.

Carlisle, B. (1989), 'The Fourth Good; Observations on Art Education in China', *Journal of Aesthetic Education*, 23: 1, Arts Education in China (Spring 1989), pp. 17–39.

Carnie, Andrew (2002), 'Scientists and artists must rub shoulders', *The Observer*, 17 March 2002.

Cennini, Cennino d'Andrea (1954), *The Craftsman's Handbook – "Il libro dell Arte"*, New York: Dover Publications.

Chalmers, D. (1995), 'Facing up to the problem of Consciousness', *Journal of Consciousness Studies*, 2: 3, pp. 200–219.

Chalmers, D. J. (1999), 'First Person Methods in the Science of Consciousness', *Arizona Consciousness Bulletin,* 1999. [Also at http: //consc.net/papers/firstperson.html. Accessed on 25 May 2007].

Chalmers, David J. (2004), 'How can we construct a science of consciousness?', in *The Cognitive Neurosciences III*, MIT Press: Cambridge, MA. [Also at http: //consc.net/papers/scicon.pdf. Accessed 23 May 2007].

Clark, A. (1997), *Being There: Putting Brain, Body and World Together Again*, Cambridge MA: MIT Press.

Clark, A. (1998), 'Embodied, situated, and distributed cognition', in W. Bechtel and G. Graham (eds.), *A companion to cognitive sciences*, Oxford: Blackwell Publishers Inc. pp. 506–517.

Claxton, G.L. (2004), 'The Anatomy of Intuition', in T. Atkinson and G.L Claxton (eds.), *The Intuitive Practitioner,* Maidenhead: Open University Press.

Claxton, G. L. (1997), *Hare Brain, Tortoise Mind – Why Intelligence increases when you think less*, London: Fourth Estate.

Coessens, K., Crispin, D. and Douglas, A. (2009), *The Artistic Turn*, Leuven: University of Leuven Press.

Collins, Cecil, (1994), *The Vision of the Fool and Other Writings*, Golgonooza Press

Collins, G. R. (1979), *Visionary Drawing of Architecture and Planning: 20th Century through the 60's,* Cambridge: MIT Press

Collins, M.A. and Amabile, T.M. (2003), 'Motivation and Creativity', in R.J. Sternberg (ed.), *Handbook of Creativity*, Cambridge: Cambridge University Press, pp. 297–312.

Corner, J. (1992), 'Representation and landscape, drawing and making in the landscape medium', *Word and Image,* 8: 3, July/September, pp. 243–275.

Cornock, S. (1986), 'Forms of Knowing in the Study of the Arts', in D.F. Marks, J.T.E Richardson and D.G Russell (eds.), *Imagery 2: Proceedings of the Second Imagery Conference*, Human Performance Associates, pp. 202–207.

Couclelis, H. and Gale, N. (1996), 'Space and Spaces' in Geografiska Annaler, Vol 68, 68B pp. 1–12.

Coulson, M. (1996), *The Cognitive Function of Confusion*, Paper presented to the British Psychological Society Conference, London, December 1996.

Craig-Martin, M. (1995), *Drawing the Line: Re-appraising drawing past and present*, South Bank Centre.

Csikszentmihalyi, M. (2003), 'Implications of a Systems Perspective for the Study of Creativity', in R.J. Sternberg (ed.), *Handbook of Creativity*, Cambridge: Cambridge University Press, pp. 313–330.

Cullen, G. (1961), *Townscape*, London: The Architectural Press.

Damasio, A. R. (1994), *Descartes' Error: Emotion Reason and the Human Brain*, New York: Putnam.

Davey, J. R. Nicholas (1999), 'Writing and the in-between', *Point 7,* Spring/Summer, pp. 12–18.

Davies, T. (2002), 'Drawing on the Past: Reflecting on the Future', *International Journal of Art & Design Education*, 21: 3, pp. 284–291.

De Freitas, N. (2002), 'Towards a definition of studio documentation: working tool and transparent record', *Working Papers in Art and Design*, *2*, http: //www.herts.ac.uk/artdes/research/papers/wpades/vol2/freitasfull.html. Accessed 13 March 2005.

De Magalhães, R. M. (1999), 'The Organizational Implementation of Information Systems; Towards a new theory', Ph.D. thesis, The London School of Economics.

De Zegher, C. (2003), *The Stage of Drawing: Gesture and Act,* New York: Tate Publishing and The Drawing Center.

De Zegher, C. and Wigley, D. (2001), *The Activist Drawing: Retracing Situationist Architectures, Constants New Babylon and Beyond*, New York: The Drawing Center.

Dennet, D. (1978), 'Toward a cognitive theory of consciousness', in *Brainstorms*, Cambridge, MA: The MIT Press and Bradford Books.

Dennett, D. C. (1991), *Consciousness Explained*, London: The Penguin Press

Denzin, N. K. and Lincoln, Y. S. (2003), *The Landscape of Qualitative Research: Theories and Issues*, Sage.

Depraz, N, Varela, F. and Vermersch, P. (2003), *On becoming Aware – Steps to Phenomenological Pragmatics*, Advances in Consciousness Research, Amsterdam/Philadelphia: Benjamin Publishing.

Dewey, J. (1933), *How do we think*? Boston, MA: D C Heath and Co.

Dewey, J. (1934), *Art as Experience*, New York, NY: Capricorn Books.

Diaz de Chumacerio, C.L. (1999), 'Seredipity', in M. Runco and S. Pritziker (eds.), *Encyclopaedia of Creativity*, 2, San Diego and London: Academic Press, pp. 543–549.

Dodson, Bert (1990), *Keys to Drawing*, North Light Books.

Douglas, A. (1992), 'Structure and Improvisation: The Making Aspects of Sculpture', Ph.D. thesis, University of Sunderland.

Douglas, A., K. Scopa & C. Gray (2000), 'Research through practice: positioning the practitioner as researcher', *Working Papers in Art and Design*, 1, http: //www.herts.ac.uk/artdes/research/papers/wpades/vol1/douglas2.html. Accessed 8 October 2007.

Doyle, M., MacFarlane, K. and Stout, K. (eds.) (2002), *Drawing on Space*, London: The Drawing Room.

Dubury, F. and Willats, J. (1972), *Drawing Systems*, London: Studio Vista.

Duncum, Paul (1985), 'How 35 Children Born between 1724 and 1900 Learned to Draw Studies', Art Education, 26: 2, pp. 93–102.

Duncum, Paul (1988), 'To Copy or Not to Copy: A Review', *Studies in Art Education*, 29: 4, pp. 203–210.

Eames, A. (2000), 'From Drawing to Computing and Back Again', *Paper from the Drawing Across Boundaries Conference*, Published on the Tracey Website, http: //www.lboro.ac.uk/departments/ac/tracey/dab/eames.html. Accessed 8 October 2007.

Edelman, G. M. (1991), 'Antibody structure and molecular immunology', *Scandinavian Journal of Immunology,* 34, pp. 1–22.

Edmonds, Ernest A. and Candy, Linda (eds.), Proceedings of the 3rd Conference on Creativity & Cognition, Loughborough, United Kingdom, October 11–13 1999.

Edwards, B. (1981), *Drawing on the right side of the brain*, London: Souvenir Press.

Edwards, B. (1987), *Drawing on the Artist Within: how to release your hidden creativity*, London: William Collins.

Eilen, N., McCarthy, R. and Brewer, W. (eds.) (1999), *Spatial Representation: Problems in Philosophy and Psychology*, Oxford: Oxford University Press

Eisner, E. W. (1972), *Educating Artist Vision*, New York NY: Macmillan.

Eisner, E. W. (1993), 'Forms of Understanding and the Future of Educational Research', *Educational Researcher*, 22: 7, October 1993, pp. 5–11.

Elderfield, J. (1983), *Some paragraphs on Modern Drawing*, Cleveland Drawing Biennale.

Elderfield, J. (1983), *The Modern Drawing: 100 works on Paper from the Museum of Modern Art,* London: Thames and Hudson.

Elkins, J. (1993), 'From Original to Copy and back again', *British Journal of Aesthetics*, 33: 2, pp. 113–120.

Elkins, J. (2001), *Why Art cannot be taught: a handbook for art students*, University of Illinois Press.

Emery, F.E. (ed.) (1969), *Systems thinking: Selected readings*, Harmondsworth: Penguin Modern Management Readings.

Emig, J. (1977), 'Writing as a Model of Learning', *College Composition and Communication,* 28, pp. 122–28.

English, Leona M. and Gillen, Marie A. (eds.) (2000), *Addressing the spiritual dimensions of adult learning: what educators can do*, San Francisco: Jossey-Bass.

Epstein, S., Pacini, R., Denes-Raj, V. and Heier, H. (1996), 'Individual Differences in Intuitive-Experiential and Analytical-Rational Thinking Styles', *Journal of Personality and Social Psychology*, 71: 2, pp. 390–405.

Evans, N. (1994), *Experiential learning for all*, London: Cassell.

Evan, R. (1995), *The Projective Cast: Architecture and its Three Geometries*, The MIT Press.

Farthing, S. (2006), *Turner Exhibition*, http://www.tate.org.uk/britain/exhibitions/drawingfromturner. Accessed 7 October 2007.

Fernyhough, C. (2005), 'What's on your mind?', *The Guardian*, 15 October 2005.

Feyerabend, P. K. (1978), *Against Method, Outline of an Anarchistic Theory of Knowledge*, London: Verso.

Finke, R. A. (1996), 'Imagery, Creativity, and Emergent Structure', *Consciousness and Cognition*, 5: 3, pp. 381–393.

Finke, R., Ward, T. and Smith, S. (1992), *Creative Cognition: Theory, Research and Applications*, Cambridge, MA: MIT Press.

Fish, J. (1996), 'How Sketches Work: A cognitive Theory for Improved System Design', Ph.D. thesis, University of Loughborough.

Flint, J. (2006), 'How to cure a bad case of chance', in J. Walwin and H. Krokatsis, *Drawing and Random Interference*, London: Hayward Gallery.

Flint-Sato, C. (1999), *Japanese Calligraphy: The Art of Line and Space*, Art Books Intl Ltd.

Flint-Sato, C. (2006), E-mail to Patricia Cain, 28 July 2006.

Franck, F. (1973), *Zen of Seeing: Seeing/Drawing as Meditation*, Vintage.

Franck, F. (1993), *Zen Seeing, Zen Drawing: Meditation in Action*, New York, NY: Bantam.

Franz, Jason (2006), E-mail to Patricia Cain, 06 July 2006.

Frayling, C. (1993/4), *Research in Art and Design*, Royal College of Art Research Papers,1: 1.

Frazer, I. and Hemni, R. (1994*), Envisioning Architecture: An analysis of Drawing*, New York, NY: Van Nostrand Reinhold.

French, R. M. and Cleeremans, A. (2002), *Notes from Implicit leaning and consciousness: An Empirical philosophical and computational consensus in the making*, Hove: Psychological Press.

Frith, C. and Law, J. (1993), 'Cognitive and Psychological Processes Underlying Drawing Skills', *Leonardo*, 28: 3, pp. 203–206.

Galbraith, D. (1992), 'Conditions for Discovery through writing', *Instructional Science*, 21: 1–3, pp. 45–71.

Galbraith, D. (1996), 'Self-monitoring, discovery through writing and individual differences in drafting strategy', in G. Rijlaarsdam, H. van den Burgh and M. Couzjin (eds.), *Theories, Models and Methodology in Writing Research*, Amsterdam; Amsterdam University Press, pp. 121–141.

Galbraith, D. (1999), 'Writing as a knowledge-constituting process', in M. Torrance and D. Galbraith (eds.), *Knowing What to Write: Conceptual Processes in Text Production,* Amsterdam: Amsterdam University Press, pp. 139–160.

Galbraith, D. (2006b), E-mail to Patricia Cain, 28 January 2006

Galbraith, D., Torrance, M. and Hallam, J. (2006), *Effects on Writing on conceptual Coherence*, Paper given at 10th International SIG Conference on the ERLI special interest group on writing in September 2006: University of Antwerp.

Gallagher, S. and Shear, J. (eds.) (2000), *Models of the Self*, Thorverton: Imprint Academic.

Gardner, H. (1980)**,** *Artful scribbles: The significance of children's drawings***,** New York, NY: Basic Books.

Gardner, H. (1982), *Art, mind, and brain: a cognitive approach to creativity*, New York, NY: Basic Books.

Gardner, H. and Winner, E. (1982) First intimations of artistry in Strauss, S. (ed) *U-shaped behavioural growth*. New York: Academic Press.

Gardner, H. (1993), *Frames of mind: the theory of multiple intelligences***,** London: Fontana.

Gardner, H. (1994), *Creating Minds,* New York, NY: Basic Books.

Gardner, H. and Winner, E. (1995), *First intimations of Avlistry in Strauss, S* (Ed) ??????

Garner, S. (1992), 'The Undervalued Role of Drawing in Design', in David Thistlewood (ed.), *Drawing Research and Development*, London: Longmans, pp. 98–109.

Gedenryd, H. (1998), 'How designers work: Making sense of authentic cognitive activities', Ph.D. thesis, Lund University.

Getzels, J. W. and Csikszentmihalyi, M. (1975*),* 'From problem solving to problem finding', in I.A. Taylor and J.W. Getzels (eds.), *Perspectives in Creativity*, Aldine Publishing Company, pp. 108–114.

Getzels, J. W. and Csikszentmihalyi, M. (1976), *The Creative Vision: A longitudinal Study of Problem Finding in Art*, New York, NY: Wiley.

Ghaye, T. and Lillyman, S. (1997), *Learning Journals and Critical Incidents; Reflective Practice for Health Care Professionals*, Dinton: Quay Books.

Ghiselin, B. (ed.) (1952), *The Creative Process: A Symposium*, Berkeley, CA: University of California Press.

Gibbs, G. (1988), *Learning by doing: a guide to teaching and learning methods*, Birmingham: SCED.

Gibson, J. J. (1979), *The Ecological Approach to Visual Perception*, Boston: Houghton Mifflin.

Gill, R. W. (1974), *Basic Perspective*, London: Thames and Hudson.

Glanville, R. (1998), 'Challenging the scientific paradigm for research and design: Keeping Faith with the Design in Design Research', *Designing Design Research 2*, The Design Publication, De Montford University, Leicester: Cyberbridge-4D Design.

Gillham, B. (2000), *The Research Interview*, London and New York: Continuum Books.

Gilham, B. (2005), *Research Interviewing – The range of Techniques*, Open University Press.

Gillham, B. and McGilp, H. (2007), 'Re-coding the Creative Process: An Empirical Basis for Practice Integrated Research in the Arts', *International Journal of Art and Design Education*, 26: 2, June 2007, pp. 177–184(8).

Godfrey, T. (1980), *Drawing Today: Draftsman in the Eighties*, Oxford: Phaidon.

Goleman, D. (1995), *Emotional Intelligence*, London: Bloomsbury.

Gombrich, E (1966), *Norm and form: studies in the art of the Renaissance*, London: Phaidon Press.

Goodfield, J. (1981), *The Imagined world: A story of Scientific Study*, New York: Harper and Rowe.

Grant, A. A., Langer, E. J., Falk, E. and Capodilupo,. C. (2001), 'Mindful Creativity; Drawing to Draw Distinctions', *Creativity Research Journal*, 16: 2/3, pp. 261.

Gray, C. (1998), 'Inquiry through Practice; Developing Appropriate research Strategies in Art and Design', in Pekka Korvenmaa (ed.), *No Guru, No Method? Discussions on Art and Design Research*, Helsinki: Helsinki University of Art and Design, Helsinki.

Gray, C. (1996), 'Developing a research procedures programme for artists and designers', Aberdeen: Gray's School of Art, http: //graysnet.rgu.ac.uk?visualisingresearch/Publications/CraftCouncilconf.pdf. Accessed 5 October 2007.

Gray, C. and Malins, J. (2004), *Visualising Research: A Guide to the Research Process in Art and Design*, Aldershot: Ashgate.

Gray, C. and Pirie, I. (1995), 'Artistic Research Procedure', *Research at the Edge of Chaos? Proceedings Design Interfaces Conference*, Salford.

Green, A. (2003), 'The Science and Philosophy of Consciousness', http: //www.users.globalnet.co.uk/~lka/conz.htm. Accessed 4 July 2006.

Greeno, J.G., Pearson, P. D. and Schoenfeld, A. H. (1999), 'Achievement and Theories of Knowing and Learning', in R. McCormack and C. Paechter (eds.), *Learning and knowledge*, London: Paul Chapman in association with the Open University.

Gregory, R. L. (ed.) (2004), *The Oxford Companion to the Mind*, Second Edition, Oxford University Press.

Gruber, Howard E. (1978), 'Darwin's "Tree of Nature" and other images of wide scope', in Judith Wechsler (ed.), *On Aesthetics in Science*, Cambridge, MA: MIT Press, pp. 121–140.

Gruber, H. (1981), 'On the relation between "A-ha experiences" and the construction of Ideas', *History of Science*, Vol. 19, pp.41–59.

Gruber, Howard, E. (1999), 'Evolving Systems Approach', in Mark Runco and Steven R. Prittzker (eds.), *Encyclopaedia of Creativity*, San Diego and London: Academic Press.

Guilford, J.P. (1950), 'Creativity', *American Psychologist*, 5, pp. 444–54.

Habermas, J. (1971), *Knowledge and Human Interests*, London: Heinemann.

Hadamard, J. (1945), *An Essay on the Psychology of Invention in the Mathematical Field*, Princeton: Princeton University Press.

Hagaman, Sally (1990), '"Review of Teaching Drawing from Art" – B. Wilson Hurwitz, M. Wilson', *Studies in Art Education***,** Vol. 31: 3, pp. 189–191.

Halsall, F. (2004), 'Art, Art History and Systems Theory', Ph.D. thesis, Fine Arts Department, Glasgow: University of Glasgow.

Hanrahan, S. (1998), 'The Possibility of dialogue; The relationship between "words" and "art-making" in Fine Art Research', *Drawing Fire: The Journal of the National Association for Fine Arts Education,* 2: 2, pp. 29–31.

Harding, D. (2002), *On Having No Head: Zen and the Rediscovery of the Obvious*, Revised Edition, Inner Directions Foundation.

Hardt, S. (1992), 'Physics, Naive', in S. Shapiro (ed.), *Encyclopaedia of Artificial Intelligence*, New York: John Willey and Sons, pp. 1147–1149.

Harrison, E. (1960), *Self-expression through art*, Toronto: W.J Cage.

Hays, P. (1978), 'The Naïve Physics Manifesto' in Michie, D. (ed) *Expert Systems in the Microelectronic Age*. Edinburgh: Edinburgh University Press.

Hayward, J. and Varela, F. (eds.) (1992), *Gentle Bridges: Dialogues between the Cognitive Sciences and the Buddhist Tradition*, Boston: Shambhala Publishers.

Helighen, F. (2006), 'What is systems theory?', in F. Heylighen, C. Joslyn and V. Turchin (eds.), *PC Web Principia Cybernetica,* Brussels.

Herivel, A. (1997), 'A Voyage between Tide and Time: Creating Research in the Studio', *Canadian Review of Art Education: Research and Issues*, 23: 2, pp. 55–73.

Herwitz, D. (1995), *Making theory constructing art: on the authority of the avant-garde,* Chicago: University of Chicago Press.

Hill, E. (1966), *The Language of Drawing*, Englewood Cliffs, NJ: Prentice-Hall.

Hockney, D. (2001), *Secret Knowledge: Rediscovering the Lost Techniques of the Old Masters Studio*, London: Thames and Hudson.

Hockey, J. (1998), 'Writing and Making; problems encountered by practice-based research degree students', *Point* 7, Spring/Summer, pp. 38–43.

Holmes, J. (2005), 'Re: definition: erasing as drawing', E-mail posted to the Drawing Research Network on 12 November 2005, http: //www.jiscmail.ac.uk/cgi-bin/webadmin?A2=ind05&L=drawing-research&T=0&O=A&X=5335607E31636868A3&Y=cainpi%40aol.com&P=39765. Accessed 17 June 2005.

Holton, G. (1978), *The Scientific Imagination; Case Studies*, Cambridge: Cambridge University Press.

Hunt, I. (2001), 'From Mental Freedom: Ansuja Bloms House of the Invertebrates Series', in Angela Kingston (ed.), *The Centre for Drawing; The First Year*, Wimbledon School of Art.

Hurley, S. (2003), 'Animal Actions in the Space of Reasons', *Mind and Language,* 18: 3, pp. 231–257.

Ingold, T. (2007), *Lines: A Brief History*, London: Routledge.

Isaksen, S.G. and Trefflinger, D.J. (1985), *Creative Problem Solving: The Basic Course,* Buffalo NY: Bearly Publishing.

Itten, J. (2006) in C. Harrison and P. Wood, *Art in Theory 1900–1990: An Anthology of Changing Ideas*, Oxford, UK and Cambridge, USA: Blackwell.

Jackendoff, R. (1987), *Consciousness and the Computational Mind*, Cambridge, MA: MIT Press.

Janesick, V. J.(1999), 'A Journal about Journal Writing', *Qualitative Inquiry*, December 1999, pp. 505–524.

Janesick, V. J.(2001), 'Intuition and Creativity; A pas de Deux for Qualitative Researchers', *Qualitative Inquiry*, 7: 5, pp. 531–540.

Johnson, S. (2001), *The connected lives of ants, brains, cities and software*, London: Allan Lane.

John-Steiner, V. (1995), 'Cognitive Pluralism: A Socio-cultural Approach in Mind Culture and Activity', *An International Journal*, 2, Winter 1995, pp. 3–11.

John-Steiner, V. (1997), *Notebooks of the Mind: Explorations of thinking*, Oxford: Oxford University Press.

Jones, R. D. (2004), 'The Illustration of Experience', Ph.D. thesis, Plymouth: Plymouth University.

Jonston, B. (2002), 'Sketching Now', *The International Journal of Art and Design*, 21: 3, pp. 246–253.

Joue, G. (2004), 'Speech as Embodied Cognition', Ph.D. thesis, Dublin: Department of Computer Science, University College Dublin.

Juarrero, A. (1999), *Dynamics in action: intentional behaviour as a complex system***,** Cambridge, MA and London: MIT.

Kandinsky, W. (1979), *Point and Line to Plane*, New York NY: Dover Publications.

Kavakli, M., Scrivener, S. and Ball, L. J. (1998), 'Structure in idea sketching behaviour', *Design Studies,* 19: 4, pp. 485–517.

Kay, S. (1991), 'Comparing the figural problem-solving and problem-finding of professional semi-professional and non-artists', *Creativity Research Journal*, 4: 3, pp. 223–252.

Keane, J. (2006), 'Arakawa and Gins: The Æffective Practice of Embodied Cognition', Ph.D. thesis, Griffith University.

Kellogg, R. (1969), *Analysing Children's Art*, Palo Alto, CA: National Press.

Kemp, M. (1992), *The Science of Art: Optical Themes in Western Art from Brunelleschi to Sueurat,* Newhaven and London: Yale University Press.

Kepes, G. (1944), *The Language of Vision*, Chicago, IL: Paul Theobold.

King, M. (1999), 'The New Metaphysics and the Deep Structure of Creativity and Cognition', in E.A. Edmonds and L. Candy (eds.), Proceedings of the 3rd Conference on Creativity & Cognition, Loughborough, United Kingdom, October 11–13, pp. 93–100.

King, P. M. and Kitchener, K. S. (1994), *Developing reflective judgement*, San Francisco, CA: Jossey-Bass.

Kingston, A. (ed.) (2001), *The Centre for Drawing: The First Year*, Wimbledon School of Art.

Kingston, A. (2003), *What is Drawing?*, London: Black Dog Publishing.

Kirton, M. J. (1989), *Adaptors and Innovators; Styles of Creativity and Problem-Solving*, Routledge.

Klee, P. (1961), *The Thinking Eye: Notebooks Vol. 1*, London: Lund Humphries.

Kolb, D. A. (1984), *Experiential learning: experience as the source of learning and development*, Englewood Cliffs, N.J: Prentice-Hall.

Kozlowski, P. J. & Yakel, N. C. (1980), 'Copying …The Direct Line to Creativity', *Art Education*, 33: 8, pp. 24–27.

Krygier, J. B. (1991), 'Cartography as an Art and Science?', *Cartographic Journal*, 32: 6, pp. 3–10.

Lakoff and Johnston (1999), *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought*, Harper Collins Publishers.

Lamme, L. L. and Thompson**,** S. (1994), '"Copy? Real Artists Don't Copy!" but maybe children should', *Art Education***,** 47: 6, pp. 46–51.

Lansing, K. M. (1976), *Art, Artists and Art Education*, Kendal: Hunt Publishing Co.

Lee, Sun-Young, and Barrett, T. (1991), 'The Critical Writings of Lawrence Alloway', *Studies in Art Education*, 32: 3, Spring 1991, pp. 171–177.

Leeds, J. A. (1984), 'Copying and Invention as Sources of Form in Art', *Art Education*, 37: 2, pp. 41–44/46.

Leedy, P. D. & Ormrod. J. E. (2001), *Practical research: planning and design*, Upper Saddle River, N.J: Merrill Prentice Hall.

Lewicki, P., Hill, T. and Czyzewska, M. (1992), 'Non-conscious acquisition of information', *American Psychologist*, 47, pp.796–801.

London, P. (1992), 'Art as Transformation', *Art Education*, 45: 3, May, pp. 8–15.

Lorimer, D. (ed.) (1999), *The Spirit of Science: From Experiment to Experience*, New York: Continuum.

Lowe, J. (1998), *Drawing the Poetic into the law of the architect*, Paper submitted for the 'Drawing Across Boundaries; International Drawing Symposium', School of Art and Design: Loughborough University.

Lowenfeld, V. (1954), *Your child and His Art*, New York, NY: The MacMillan Company.

Lowenfeld, V. and Brittain, W. l. (1987), *Creative and Mental Growth***,** Upper Saddle River, NJ: Prentice Hall.

Lowry, K. and Wolf, C. (1988), 'Arts Education in the Peoples Republic of China: Results of Interviews with Chinese Musicians and Visual Artists', *Journal of Aesthetic Education*, 22: 1, pp. 89–98.

Lutz, A. (2002), 'Toward a neurophenomenology as an account of generative passages: A first empirical case study', *Pheno Cogn Sci*, 1: 2, pp. 133–167.

Lyons, L. (2006), 'Walls are not my friends: issues surrounding the dissemination of practice-led research within appropriate and relevant contexts', *Working Papers in Art and Design*, 4, http: // www.herts.ac.uk/artdes/research/papers/wpades/vol4/llfull.html. Accessed 30 August 2009.

Maccoby, E. E. (1968), 'What copying requires', *Ontario Journal of Educational Research*, 10: 3, pp. 163–170.

Mace, M. A. and Ward, T. (2002), 'Modelling the Creative Process: A Grounded Theory of Analysis of Creativity in the Domain of Art Making', *Creativity Research Journal,* 14: 2, pp. 179–192.

MacLeod, K. (1998), 'Research in Fine Art: theory, judgement and discourse', *Drawing Fire: The Journal of the National Association for Fine Arts Education*, 2: 2, pp. 33–37.

MacLeod, K. (1999), 'New Knowledge/Art Knowledge: Post-graduate Research in Fine Art', *Drawing Fire: The Journal of the National Association for Fine Arts Education,* 2: 3, pp. 35–40.

MacLeod, K. (1999), 'The Relationship of making to writing', *Point* 7, Spring/Summer, pp. 4–7

MacLeod, K. and Holdridge, L. (2002), 'Theory/Practice: a relationship in the making', European Journal of Arts Education, Vol III, issues 2 and 3, 2001.

MacLeod, K. and Holdridge, L. (2005), 'The Enactment of Thinking: creative practice research degrees', in K. Mey (ed.), *The Journal of Visual Arts Practice*, 3: 1 & 2.

MacLeod, K. and Holdridge, L. (eds.) (2006), *Thinking Through Art: Reflections on art as research*, London and New York: Routledge.

Mair, Miller (1980), 'Feeling and Knowing', in P. Salmon, *Coming to know,* Routledge and Kegan Paul, pp. 113–127.

Maison, K. E. (1960), *Themes and Variations*, Norwich: Thames and Hudson.

Marton, F. and Booth, S. (1997), *Learning and Awareness***,** Mahwah, NJ: Lawrence Erlbaum Associates.

Maturana, H. R. (1978), 'Biology of Language: The Epistemology of Reality', in G.A. Miller and E. Lenneberg (eds.), *Psychology and Biology of Language and Thought: Essays in Honor of Eric Lenneberg*, New York: Academic Press, pp. 27–63.

Maturana, H. & Varela, F. J. (1980), *Autopoiesis and Cognition: the Realization of the Living*, Boston, MA: Reidel.

McCormack, R. (1999), 'Practical Knowledge: A view form the Snooker Table', in R. McCormack and C. Paechter (eds.), *Learning and knowledge***,** London: Paul Chapman in association with the Open University.

McCormack, R. and Paechter, C. (1999), 'Introduction: Learning and Knowledge construction', in R. McCormack and C. Paechter (eds.), *Learning and knowledge***,** London: Paul Chapman in association with the Open University.

McGee, K (2005), 'Enactive Cognitive Science. Part One: Background and Research Themes', *Engineering Computer Scientific Survey*, 1: 1, www.invie.ac.at/constructivism/journal/articles/1.1.mcgee.pdf. Accessed 19 June 2006.

McMahon, (2005), E-mail posted to the Drawing Research Network Discussion Group on 27 January, 2005, http: //www.jiscmail.ac.uk/cgi-bin/webadmin?A2=ind05&L=drawingresearch&T=0&F=&S=&P=5546. Accessed 12 June 2006.

McNorton, J. (2002), 'Choreography of Drawing: The Consciousness of the Body in the Space of a Drawing', *International Journal of Art & Design Education*, 21: 3, pp. 254–257.

Medawar, P. (1996), 'Is the scientific paper a fraud?', in P. Medawar, *The Strange Case of Spotted Mice and other classic essays on science*, Oxford: Oxford University Press.

Mey, K. (2005), Special edition of *The Journal of Visual Arts Practice*, 3: 142.

Mezirow J. and Associates (2000), *Learning as transformation: critical perspectives on a theory in progress***,** San Francisco: Jossey-Bass.

Milner M. [Joanna Field] (1971), *On not being able to Paint*, Los Angeles, CA: J.P. Tarcher, Inc.

Milner, M. (1986), *A Life of One's Own*, London: Virago Press.

Milner, M. (1987), *The Suppressed Madness of Sane Men: Forty four years of exploring psychoanalysis*, London/New York: Tavistock Publications, Inc.

Mingers, J. (1989), 'An introduction to Autopoiesis: Implications and Applications', *Systems Practice*, 2: 2.

Mobley, M., Doares, L. and Mumford, M.D. (1992), 'Process Analytic Models of Creative Capacities; Evidence for the Combination and Re-organisation Process', *Creativity Research Journal*, 5, pp. 125–156.

Monte Grande (2004), Directed by Franz Reichle, Switzerland: t & c film.

Moon, J. A. (1999a), *Learning Journals: A Handbook for Academics, Students and Professional Development*, London. Kogan Page.

Moon, J. A. (1999b), *Reflection in learning & professional development: theory & practice***,** London: Kogan Page.

Moon, J. A. (2004), *A Handbook of Reflective and Experiential Learning: Theory and Practice*, Routledge Falmer.

Moore, K. (2003), 'Between the lines: the role of drawing in design', Loughborough University, http: //www.lboro.ac.uk/departments/ac/tracey/comm/moore.html. Accessed 8 October 2007.

Morgan, M. (1998), 'Qualitative research: Science or Pseudo Science?', *The Psychologist: Bulletin of the British Psychological Servic*e, 10: 11, pp. 481–483.

Motherwell, R. (1997), *Robert Motherwell on Paper: Drawings, Prints, Collages*, New York, NY: Harry N Abrahams.

Museé du Louvre (1993), *Copier Creér: De Turner á Picasso: 300 oeuvres insepareés par les maîtres du Louvre*, Reunion des Musseés Nationaux.

Nagel T. (1974), 'What is it like to be a bat?', *The Philosophical Review*, 83: 4, October 1974, pp. 435–50.

Nakamura, F. (2006), 'Issues of Authenticity and Originality in the Practice of "Copying": Case of Contemporary Japanese Calligraphy', http: //www.yale.edu/macmillan/ceas/reproduction/reproduction_abstracts.html. Accessed 3 December 2007.

Newbury, Darren (2001), 'Diaries and Fieldnotes in the Research Process', *Research Issues in Art and design media*, 1: 1, Autumn, http: //www.biad.uce.ac.uk/research/rti/riadm/issue1/abstract.htm. Accessed 3 December 2007.

Nolan, R. (1976), 'The Character of Writings by Artists about Their Art', *Leonardo*, 9, pp. 231–234.

Nørretranders, Tor (1999), *The user illusion: cutting consciousness down to size*, London: Penguin.

Noë, A. (2004), *Action in perception*, Cambridge, MA and London: The MIT Press.

Nussbaum, M. (2003) *Upheavals of Thought*, Cambridge: Cambridge University Press.

Nyrnes, A. (2004), *Sensuous Knowledge*, Conference Paper at Solstrand, Norway, 26–28 October, Bergen University College.

O'Callaghan, A.C. (2002), 'The Creative Phenomena: the influence of Marion Milner on an understanding of the creative process and its potential', M.Phil thesis, University of Kent.

Osborne, A. F. (1953), *Applied Imagination: Principles and Procedures of Creative Problem-Solving*, New York, NY: Schribners.

Overgaard, Morton, (2001), 'The Role of Phenomenological Reports in Experiments on Consciousness', *Psycoloquy*, 12: 29, Consciousness Report (1), http: //psycprints.ecs.soton.ac.uk/perl/search?year=20012001. Accessed 10 October 2006.

Pakes, A. (2004), 'Art as action or art as object? The embodiment of knowledge in practice as research', *Working Papers in Art and Design 3*, http: //www.herts.ac.uk/artdesign/research/papers/wpades/vol3/apfull.html. Accessed 29 may 2005.

Palmer, M. (2003), 'Fw: Love at first sight', Posting to the Drawing Research Network, PHD-DESIGN@JISCMAIL.AC.UK, Accessed 15 January 2003.

Panofsky, E. (1991), *Perspective as symbolic form*, New York, NY: Zone Books.

Pask, G. (1975), *Conversation, cognition and learning*, New York: Elsevier.

Patterson, T. (2003), Conversation with Patricia Cain on 29 August 2003.

Perkins, D. N. (1977), 'The Limits of Intuition', *Leonardo*, 10, pp. 119–125.

Perkins, D. N. (1988), 'Art as Understanding', *Journal of Aesthetic Education*, 22: 1, Spring, p.122.

Perry, L. (1992), 'Towards a definition of Drawing', in D. Thistlewood (ed.), *Drawing Research and Development*, Harlow, UK: Longman in Association with the National Society for Art and Design Education.

Peshkin, A. (1988), 'In search of subjectivity: one's own', *Educational Researcher*, 17: 7, pp. 17–21.

Petherbridge, D. (1991), *The Primacy of Drawing: - An Artists View*, London: South Bank Centre.

Petitmengin, Claire (1999), 'The Intuitive Experience', *Journal of Consciousness Studies*, 6: 2–3, pp. 43–77.

Petitot, J., Varela, F., Pachond, B. and Roy, J-M. (eds.) (1999), *Naturalizing phenomenology: issues in contemporary phenomenology and cognitive science*, Stanford, CA: Stanford University Press & Cambridge: Cambridge University Press.

Pickering, J. (2000), 'Methods are a Message', in M. Velmans, *Investigating Phenomenological Consciousness*, *New Methodologies and Maps* (Advances in Consciousness Research Series), John Benjamins, pp. 279–302.

Poggenpohl, S. (2000), 'Constructing Knowledge in Design, Part 2: Questions, An Approach to Design Research', in David Durling et al. (eds.), *Foundations for the Future, Doctoral Education in Design Proceedings*, UK: Staffordshire University Press.

Poincaré, H. (1924), *Mathematical Creation*, Science Press, pp. 383–94.

Polyani, M. (1958), *Personal Knowledge*, London: Routledge and Kegan Paul.

Polyani, M. (1966), *The Tacit Dimension*, London: Routledge and Kegan Paul.

Prosser, B. (2004), 'An archetypal psychology of the ordinary; an investigation through drawing', Ph.D. thesis, West of England University.

Purcell, A. T. and Gero J.S. (1998), 'Drawings and the design process: A review of protocol studies in design and other disciplines and related research in cognitive psychology', *Design Studies*, 19 : 4, pp. 389–430.

Ramos-Poqui, Ramos, and Rodway, David (1995), 'Fine Art Research Methodology: The Meta Theoretical Level', http: //freespace.virgin.net/g.ramos-poqui/Philosophy/PreparePhD.html Accessed 14 September 2007.

Rawson, P. (1969), *Drawing*, Oxford: Oxford University Press.

Rawson, P. (1973), *The Art of Drawing*, Prentice-Hall.

Rawson, P. (1979), *Seeing through Drawing*, British Broadcasting Corporation.

Reismann, C. (1993), *Narrative Analysis Quantitative Reseach Methods*, Sage.

Reynolds, Sir J. (1966), *Discourses on Art*, London: Collier Macmillan.

Riley, H. (2002), 'Mapping the Domain of Drawing', *The International Journal of Art and Design*, 21: 3, pp. 258–272.

Robbins, E. (1994), *Why Architects draw*, Cambridge, MA: The MIT Press.

Robertson, A. (1987), 'Borrowing and Artistic Behaviour: A Case-Study of the Development of Bruce's Spontaneous Drawings from Six to Sixteen', *Studies in Art Education*, 29: 1, pp. 37–51.

Roe, A. (1952), 'A psychologist examines sixty-four eminent scientists', *Scientific American*, 187, pp. 21–25.

Root-Bernstein, Robert Scott (1984), 'On Paradigms and Revolutions in Science and Art: The Challenge of Interpretation', *Art Journal*, 44: 2, Part I, Life Sciences Summer, pp. 109–118.

Rothenberg, A. (1988), 'Creativity and the homospatial process', *Experimental Studies*, 11: 3, Psychiatric Clinic, North Am., pp. 443–59.

Rudrauf, D., Lutz, A., Cosmelli, D., Lachaux, J.P. and Le Van Queyen, M. (2003), 'From autopoiesis to neurophenomenology: Francisco Varela's exploration of the biophysics of being', *Biological Research*, 36: 1, pp. 27–65.

Runco, M. A. (2004), 'Creativity', *Annual Review of Psychology*, 55, pp. 657–87.

Ruskin, J. (1971), *The Elements of Drawing*, New York, NY: Dover Publications.

Ryecroft, C. (1980), *Imagination and Reality*, London: Maresfield Library.

Ryle, G. (1984), *The Concept of Mind*, London: Hutchison.

Sawdon, P. (2003), 'In Other Words It Is An Essay', Unpublished manuscript.

Schön, D. A. (1983), *The Reflective Practitioner: How Professionals Think in Action*, London: Temple Smith.

Scott, T. E. (1999), 'Knowledge', in M. Runco and S.R. Prittzker (eds.), *Encyclopaedia of Creativity*, San Diego, CA & London: Academic Press.

Scrivener, S. (2002), 'The art object does not embody a form of knowledge', *Working Papers in Art and Design 2*, http: //www.herts.ac.uk/artdes/research/papers/wpades/vol2/scrivenerfull.html. Accessed 16 January 2005.

Sevanen, E. (2001), 'Art as an Autopoietic Sub-System of Modern Society: A Critical Analysis of the Concepts of Art and Autopoietic Systems in Luhmann's Late Production Theory', *Culture and Society*, 18: 1, Sage.

Shanken, E. A. (1997), 'Technology and Intuition: A Love Story? Roy Ascott's Telematic Embrace', *Leonardo*, 30: 1.

Sheets-Johnstone, M. (2000), 'The Primacy of Movement', *Psycoloquy*, 11: 98, http: //psycprints.ecs.soton.ac.uk/perl/search?year=2000. Accessed 3 December 2007.

Shoemaker, S. (1996), *The First Person Perspective and other Essays*, Cambridge: Cambridge University Press.

Simon, H. (2003), 'Artificial intelligence as a framework for understanding intuition', *Journal of Economic Psychology*, 24: 2, pp. 265–277.

Simonton, D. K. (1988), 'Creativity, leadership, and chance', in R.J. Sternberg (ed.), *The Nature of Creativity,* Cambridge: Cambridge University Press.

Smith, Barry and Casati, Robereto (1994), 'Naive Physics: An Essay in Ontology', *Philosophical Psychology*, 7: 2, pp. 225–244.

Smith, N. R. (1985), 'Copying and Artistic Behaviours: Children and Comic Strips', *Studies in Art Education*, 26: 3, pp. 147–156.

Snow, C.P. (1964), *The Two Cultures*, Cambridge: Cambridge University Press.

Soarsa, J. (2006), 'Drawing as a method of exploring and interpreting ordinary verbal interaction; an investigation through contemporary practice', Ph.D. thesis, University of Loughborough, https://dspace.lboro.ac.uk/dspace/bitstream/2134/2805/3/Master_Document_Saorsa_Thesis.pdf. Accessed 8 October 2007.

Spence, C. (2003), *The ICI Report on the Secrets of the Senses*, London: The Communication Group.

Stackhouse, A. (2006), 'Trahere: The Sense of unease in making a mark, the practice of drawing and the practice of thinking', Ph.D. thesis, Dundee School of Art.

Starszakowna, N. (2002), 'The Concept of Knowledge', *Working Papers in Art and Design* 2, http: //www.herts.ac.uk/artdes/research/papers/wpades/vol2/norma.html. Accessed 3 May 2007.

Straus, C. and Quinn, N. (2003), *A Cognitive Theory of Cultural Meaning*, Cambridge: Cambridge University Press.

Sullivan, G. (2005), *Art Practice as Research Inquiry in the Visual Arts*, Thousand Oaks, CA: Sage.

Sullivan, P. (2004), 'Lived Experience and the visual artists' accounts of making art', Ph.D. thesis, University College, Cork, Ireland.

Talbot, Elizabeth, Talbot, Neil and Talbot, Richard (2006), *Space time and other stuff,* Catalogue for the exhibition 'Painting Sculpture and Drawing' at the Red Box Gallery, Newcastle Upon Tyne. 28 September–8 November 2006.

Talbot, R. (2003), 'Speculations on the Origin of Linear Perspective including analyses of Masaccio's Trinity and Piero's Flagellation', *Nexus Network Journal*, 5: 1, Spring, pp. 64–98, http: //www.nexusjournal.com/Talbot-pt01.html. Accessed 21 April 2007.

Talbot, R. (2006), 'The Design and Perspective Construction of the Chalice: Why is the Chalice the shape it is?', in Sylvie Duvernoy and Orietta Pedemonte (eds.), *Nexus VI: Architecture and Mathematics* [in publication].

Tarr, J. (2004), 'Wise bodies: Movement Re-Education, Subjectivity and Embodied Discourse', Ph.D. thesis, London: Sociology Department, Goldsmiths University.

Taylor, P. (1960), *The Notebooks of Leonardo Da Vinci*, New York: The New American Library Inc.

Tebby, S. (1983), 'Patterns of Organisation in Constructed Art', Ph.D. thesis, Leicester: Leicester Polytechnic.

Thompson, D'Arcy Wentworth (1961), *On Growth and Form*, Cambridge: Cambridge University Press.

Thompson, E. (1999), *Human Consciousness: Integrating Phenomenology and Cognitive Science* (Abridged), Report to the Fetzer Institute on the Symposium held at Seasons, 24–27 September, http: //www.philosophy.ucf.edu/pcsreport.html. Accessed 6 May 2007.

Thompson, E. (2001), 'Obituary for Francesco Varela', http: //psyche.cs.monash.edu.au/v7/psyche-7-12-thompson.html. Accessed 14 October 2005.

Thompson, E. (2005), 'Sensorimotor subjectivity and the enactive approach to experience', *Phenomenology and the Cognitive Sciences*, 4: 4, December, pp. 407–427.

Thompson, F. and Varela, F. (2001), 'Radical embodiment: neural dynamics and consciousness', *Trends in Cognitive Sciences*, 5: 10, pp. 418–425.

Thompson, E., Lutz, A. and Cosmelli, D. (2005), 'Neurophenomenology: An Introduction for Neurophilosophers', in A. Brook and K. Akins (eds.), *Cognition and the Brain: The Philosophy and neuroscience movement*, Cambridge: Cambridge University Press, pp. 40–97, http: //brainimaging.waisman.wisc.edu/~lutz/ET&AL&DC.Neuropheno_intro_2004.pdf. Accessed 21 September 2007.

Thomson, H. (1969), 'The relationship between the capacity for logical thinking and creativity', Ph.D. thesis, Birmingham: Birmingham University.

Titherington, T. (1982), 'The decision making processes of the painter: A Personal description of the act of painting, together with a commentary on the writings on art and selected artists and a critique of the work of Rudolf Arnheim', M Litt. Thesis, Lancaster: University of Lancaster.

Torrance, E. P. (1971), 'Are the Torrance Tests of creative thinking biased against or in favour of "disadvantaged groups?"', *Gifted Child Quarterly*, 15, pp. 75–80.

Torrance, E.P. (1988), 'The Nature Of Creativity As Manifest In Its Testing', in R.J Sternberg (ed.), *The Nature of Creativity,* Cambridge: Cambridge University Press.

Treffinger, D. J., Issakson, S. C, and Dorvall, K. B. (1995), 'Creative Problem Solving: An Overview', in M. Joyce, S. Isakson, G. Puccio, F. Davidson and C. Coppage (eds.), *An Introduction to Creativity*, Acton, MA: Copley Publishing Group, pp. 114–24.

Tucker, N. (1959), 'An Experimental Drawing Course Based on Old Masters', *College Art Journal*, 18: 3, pp. 228–235.

Turner, Mark (2006), *The Artful Mind: Cognitive Science and the Riddle of Human Creativity*, Oxford: Oxford University Press.

Tversky, B. (1999), 'What does drawing reveal about thinking?', in J.S. Gero and B. Tversky (eds.), *Visual and Spatial Reasoning in Design*, Sydney: Key Centre for Design Computing and Cognition, pp. 93–101.

Tyler, C. W. and Ione, A. (2001), 'The Concept of Space in Twentieth Century Art', in B.E Rogowitz and T.N Pappas (eds.), *Human Vision and Electronic Imaging: Proceedings of Photonics West, Technical Conference sponsored by The International Society for Optical Engineering (SPIE) and the Society for Imaging Science and Technology (IS&T),* San Jose, California, http: //www.ski.org/CWTyler_lab?CWTyler?Art%20Investigations/20th_Space/C20thSpace.html. Accessed on 08 October 2007.

Varela, F. (1976), 'Not one, not two', *CoEvolution Quart*, 12, pp. 62–67.

Varela, F. (1977), 'On being autonomous: The lessons of natural history for systems theory', in G. Klir, (ed.), *Applied Systems Research*, New York, NY: Plenum Press, pp. 77–85.

Varela, F. J. (1979), *Principles of Biological Autonomy*, New York, NY: Elsevier/North-Holland.

Varela, F. (1980), 'Describing the logic of the living', in M. Zeleny (ed.), *Autopoeisis: A theory of the living organization*, New York, NY: North-Holland, pp. 36–48.

Varela, F. (1984), 'Two principles for self-organization', in H. Ulrich and G. Probst (eds.), *Self-organization and Management of Social Systems*, Berlin: Springer Verlag, pp. 25–33.

Varela, F.J. (1986), 'Laying down a path in walking: a biologist's look at a new biology', *Cybernetic*, 2 pp. 6–15.

Varela, F. J. (1995), 'The Emergent Self', in J. Brockman (ed.), *The Third Culture; Beyond the Scientific Revolution*, New York, NY: Simon & Schuster.

Varela, F. (1995), 'The re-enchantment of the concrete', in L. Steels and Brooks (eds.), *The Artificial Life route to Artificial Intelligence: Building Embodied, Situated Agents*, New Haven, CT: Lawrence Erlbaum Assoc, pp. 11–20.

Varela, F.J. (1996), 'Neurophenomenology: A Methodological remedy to the hard problem', *Journal of Consciousness Studies*, 3, pp. 330–350.

Varela, F. (1997a), 'Patterns of Life: Intertwining identity and cognition', *Brain Cognition*, 34, pp. 72–87.

Varela, F. (1997b), 'The Naturalization of Phenomenology as the Transcendence of Nature: searching for generative mutual constraints', *Revue de Phénoménologie*, 5, pp. 355–385.

Varela, F. (1997c), 'Metaphor to mechanism: Natural to disciplined', *Journal of Consciousness Studies,* 4, pp. 344–346.

Varela, F.J. (1999a), 'The specious present: the neurophenomenology of time consciousness', in J. Petitot, F.J. Varela, B. Pachoud and J-M. Roy (eds.), *Naturalizing Phenomenology*, Stanford, CA: Stanford University Press, pp. 266–314.

Varela, F. (1999b), 'Steps to a science of Interbeing: unfolding the Dharma implicit in modern cognitive science', in S. Bachelor, G. Claxton, and G. Watson (eds.), *The Psychology of Awakening: Buddhism, Science and Our Day to Day Lives*, New York, NY: Rider/Random House, pp. 71–89.

Varela, F. and Depraz, N. (2000), 'The gesture of awareness: an account of its structural dynamics', in M. Velmans (ed.), *Investigating Phenomenal Consciousness,* Amsterdam: Benjamin Publishers.

Varela, F. and Duprey, J-P. (eds.) (1992), *Understanding Origins: Contemporary Views on the origin of life, mind and society*, Dortrecht/Boston/London: Klewer Academic Publications.

Varela, F. and Maturana, H. (1987), *The Tree of Knowledge: The Biological Roots of Human Understanding*, Boston, MA: Shambhala Press.

Varela, F., Maturana, H. and Uribe, G. (1974), 'Autopoiesis: the organisation of living systems – its characterisation and a model', *Biosystems*, 5, pp. 187–96.

Varela, F. and Sher, J. (1999a), *The View from Within: First-Person Methodologies in the Study of Consciousness*, London: Imprint Academic.

Varela, F. and Shear, J. (1999b), 'First Person Accounts: Why, what and how?', Journal of Consciousness Studies, 6: 2–3, pp. 1–14.

Varela, F. J., Thompson, E. and Rosch, E. (1991), *The Embodied Mind: Cognitive science and human experience*, Cambridge, MA & London: MIT Press.

Velmans, M. (2004), *Investigating Phenomenological Consciousness,* Amsterdam: Benjamin Publishers.

Vernon, P. (1982), *Creativity: Selected Readings*, Harmondsworth: Penguin.

Vinacke, W.E. (1953), *The Psychology of Thinking,* New York, NY: McGraw Hill.

Wallace, B. (1999), 'The Buddhist Tradition of Samatha; Methods of Refining and Examining Consciousness', *Journal of Consciousness Studies*, 6: 2/3, pp. 175–187.

Wallace, D. B. and Gruber, H. E. E. (1989), *Creative people at work: twelve cognitive case studies*, New York, NY & Oxford: Oxford University Press.

Wallis, G. (1926), *The Art of Thought*, Jonathan Cape.

Walwin, J. and Krokatsis, H. (2006), *Drawing and Random Interference*, London: Hayward Gallery.

Warner, W. S. and McGill, I. (eds.) (1989), *Making sense of experiential learning: diversity in theory and practice*, Milton Keynes: Society for Research into Higher Education & Open University Press.

Watson, J. D. (1968), *The Double Helix: A personal account of the discovery of DNA*, New York, NY: Athenium.

Weiss, J. (2004), 'Language in the vicinity of art: artists' writings, 1960–1975', *ArtForum*, Summer.

Welton, M. (2002), 'Sense and Self: Towards an Embodied Epistemology of Acting', D.Phil., University of Surrey.

Wertheimer, M. (1945), *Productive Thinking*, New York NY: Harper.

Wijers, L. (1990), *Art meets Science and Spirituality*, Art and Design, Academy Editions.

Willats, J. (1997), *Art and Representation: New Principles in the Analysis of Pictures*, Princeton, NJ: Princeton University Press.

Wilson, M. (2002), 'Six views of Embodied Cognition', *Psychonomic Bulletin & Review*, 9: 4, 1 December, pp. 625–636, http: //philosophy.wisc.edu/shapiro/PHIL951/951articles/wilson.htm. Accessed 8 April 2007.

Wilson, B., Hurwitz, A. and Wilson, M. (1987), *Teaching Drawing from Art*, Worcester, MA: Davis Publications.

Wilson, M. and Wilson, B. (1977), 'An Iconoclastic view of the imagery sources – in the drawings of young people', *Art Education*, 30 pp. 4–11.

Wilson, T. and Schooler, J. (1991), 'Thinking Too Much: Introspection Can Reduce the Quality of Preferences and Decisions', *Journal of Personality and Social Psychology*, 60: 2, pp. 181–192.

Wilson, M. and Wilson, B. (1982), *Teaching Children to Draw*, Englewood Cliffs, NJ; Prentice Hall.

Winner, Ellen (1989), 'How Can Chinese Children Draw so Well?', *Journal of Aesthetic Education*, 23: 1, pp. 41–63.

Wolpert, L. (2002), 'Which side are you on?', *The Observer*, 10 March 2002.

Woods, J. (2005), 'Re: "Is the dissertation a dead dog?"', Posting to the Drawing Research Network, Reference Lost.

Woolf, J. (1988), 'Experiential learning in professional education; concepts and tools', *New Directions for Experiential Learning*, 8, p.17.

Wyatt, R. (1998), *The Drawing Tutorial in the Context of the Undergraduate Fine Art Curriculum*: Drawing Across Boundaries; International Drawing Symposium.

Zahavi, D. (2009), 'Is the self a social construct?' *Inquiry* S2/6, pp. 551–573.

By Patricia Cain

Drawing

The Enactive Evolution of the Practitioner

In an era which has seen many forms of artistic creation becoming digitized, the practice of drawing by hand in the traditional sense, has remained constant. However, many discussions about the function of the activity and the relationship between drawing and thinking are dependent upon the discipline for which it is being used.

Drawing: The Enactive Evolution of the Practitioner redefines drawing more holistically as an enactive phenomenon, and makes connections between a variety of disciplines in order to find out how drawing helps us understand the world. Instead of the finite event of producing an artifact, drawing is a process and an end in itself, through which the practitioner might gain self-awareness.

By synthesizing enactive thinking and the practice of drawing, this volume provides valuable insights into the creative mind, and will appeal to scholars and practitioners alike.

Patricia Cain is an artist and honorary research fellow of the Humanities Advanced Technology and Information Institute, University of Glasgow. She won the prestigious Aspect Prize in 2010 and is also a recent recipient of the RSA Kinross Scholarship, the RSW Hospitalfield Residency, and the RGI House for an Art Lover Prize. She exhibits in the UK and abroad.

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