

This item is held in Loughborough University's Institutional Repository (<https://dspace.lboro.ac.uk/>) and was harvested from the British Library's EThOS service (<http://www.ethos.bl.uk/>). It is made available under the following Creative Commons Licence conditions.



creative  
commons  
C O M M O N S D E E D

**Attribution-NonCommercial-NoDerivs 2.5**

**You are free:**

- to copy, distribute, display, and perform the work

**Under the following conditions:**

 **BY:** **Attribution.** You must attribute the work in the manner specified by the author or licensor.

 **Noncommercial.** You may not use this work for commercial purposes.

 **No Derivative Works.** You may not alter, transform, or build upon this work.

- For any reuse or distribution, you must make clear to others the license terms of this work.
- Any of these conditions can be waived if you get permission from the copyright holder.

**Your fair use and other rights are in no way affected by the above.**

This is a human-readable summary of the [Legal Code \(the full license\)](#).

[Disclaimer](#) 

For the full text of this licence, please go to:  
<http://creativecommons.org/licenses/by-nc-nd/2.5/>

**THE SOCIAL PSYCHOLOGY OF  
DIGITAL PHOTOGRAPHY:  
A PROCESS PHILOSOPHY APPROACH**

Jonathan Woodrow

A thesis submitted in partial fulfilment of the  
requirements of Loughborough University  
for the degree of Doctor of Philosophy

September 2004

**THE SOCIAL PSYCHOLOGY OF  
DIGITAL PHOTOGRAPHY:  
A PROCESS PHILOSOPHY APPROACH**

Jonathan Woodrow

A thesis submitted in partial fulfilment of the  
requirements of Loughborough University  
for the degree of Doctor of Philosophy

September 2004

## Abstract

This thesis addresses the nature of the image and its relationship to human perception and memory. Traditionally psychology approaches the relationship between the image and the human in a representationalist register, in which the world represents itself through images to the subjective observer. The thesis questions these assumptions about the representational relationship between the world, the mind and the image through a study of people using digital photographic technologies. It argues that digital images exist as a complex network of technology and activity that manage their incessant movement, production, consumption, convertibility, connectedness and fragility. The digital image exposes the complex nature of the image as more than a simple representation. If this is the case, then human involvement with images as networks occurs in terms of our inclusion in the network rather than as a subjective observer positioned outside of the world. Henri Bergson proposes that we see the image in terms of a distinction between time and space rather than as an intermediary between a subject and the object. The implications of this for the way in which we think about the interaction between people and technology and the nature of perception and memory are explored through some data examples from three settings. These are; amateur photographers using digital technology; families looking through their stocks of digital images and remembering past events together and finally, displays of family member's histories and identities on the internet.

**Key words:** Digital, photography, image, perception, memory, Bergson and process.



## **Acknowledgments**

This research was conducted at Loughborough University in the Human sciences department and was funded by the department. From day one of my studies, I was inserted into an intellectually challenging yet supportive company of academics and research students gathered around my supervisor. For that, I thank my supervisor Steve Brown who has created endless opportunities for me over the four years to present work, to teach, and to experience life as an academic. Thank you for taking all my ideas seriously and giving me the guidance and the freedom to productively explore all manner of readings and bring them to bear on topics of common interest to the group of like minded enthusiasts. “Pushing the limits of my understanding” sums up my experience of studying for a PhD under Steve Brown, and I’ve thoroughly enjoyed every minute.

Thanks go to all those like-minded enthusiasts who have shared ideas and reading with me. They are; Dave Middleton, Sean Vernall, Israel Rodriguez, Miquel Domenech, Francisco Tirado, and Danny Lopez. With special thanks to Dave for his encouragement and enthusiasm and to Israel, who pointed me to Bergson in the first place over a summer of intensive reading and discussion.

Biggest thanks go to my wife Ruth for more than willingly shouldering all of my responsibilities for the last four months and more, keeping everything else going while I was writing up, and for your constant encouragement and support.

Thanks go to the families who agreed to take part in the study; Colleen who found them for me and the photographic clubs who let me hijack their evenings with a video camera. Thanks also to Matthew and Tom for helping on the formatting; to Emma for helping me on transcription and the rest of the LEEC family for your prayers and tea time at the EHB.

**Table of contents**

Thesis access form	i
Title page	ii
Certificate of originality	iii
Abstract	iv
Acknowledgements	v
Table of contents	vi
Table of figures	vii
Chapter 1 Introduction	1
Chapter 2 Representation and the modern settlement	28
Chapter 3 Context and process: Heidegger, technology and humans	54
Chapter 4 The subjective observer, the image and technologies of mass reproduction	95
Chapter 5 Bergson and the image: Bergsonian psychology	148
Chapter 6 Managing underdetermined technology: Digital photography and hobbyists	206
Chapter 7 Mass and action: families and their digital photographs	234
Chapter 8 Acting on the past: families and their digital photographs	268
Chapter 9 Identity and the past on the internet: some examples from family WebPages	295
Chapter 10 Thesis conclusion	321
References	324

**List of Figures**

Figure 1. derived from Latour, 1999a:73: fig 2.24.	46
Figure 2. Two classes of discrete variables	61
Figure 3. Technical embedded in social	63
Figure 4. Social context shaping the interpretation of technical content	63
Figure 5. The world through the Mathematical grid	69
Figure 6. Language and technology	77
Figure 7. Poiesis.	83
Figure 8. Core/context model	85
Figure 9. Las Meninas by Diego Velásquez (1656)	104
Figure 10.a,b, Bergsons's cone (Bergson [1908} 1991: 152 and 162)	195
Figure 11. Share your thoughts	270

## Chapter 1

### **Introduction**

Photographic technology and photographs are bound up with people. A rather obvious statement one might think. However, there is a more fundamental and mutually dependent relationship that exists between humans and technology beyond photography simply as a means to an end for humans. Photographs can have things appear in many places at once and can put us in touch with places, like hotels and holiday destinations before we get there. They can present evidence for events and can advertise products to us. As we consume them they can put us into contact with people and events a long way off or a long time ago. Photographs, among other things, can stitch people together into collectives; they can prolong the past into the present, making it possible to establish the family likeness between a new born baby and his or her grandparents at the same age - they can fold time periods together, and shape memories.

For instance, Marianne Hirsch (1997) begins her book "Family Frames," with a review of Barthes' commentary in *Camera Lucida* on his experience of searching through family photographs to find one image that brings his dead mother back to him in her fullest sense. He finds a picture of her as a five year old girl in a winter garden, and only this one will do. Hirsch, quoting Barthes writes:

In that single picture, Barthes tells us, the young child rejoins the frail old woman he nursed through her last illness: "She had become my little girl, uniting for me with that essential child she was in her first photograph. (72)" (Barthes, "Camera Lucida," 2000, quoted in Hirsch 1997:1)!

Hirsch goes on to describe how, in that image, Barthes found the quality and nature of his relationship with his mother as it was in those last days. As he looks at the image of her as a five year old girl after his mother's death, he can read the maternal/parental role that he had had in caring for her. In front of the image he becomes the parent to the child in the picture. The image of the "mother/child"



comes to bridge the gap between his mother as a child and his present grief (Hirsch 1997).

The image of his mother holds together a network of looks, readings, emotions, and time periods, all folded into each other. The little girl looks out at the place where her father stands to take the photograph, a position now occupied by her son who stands, reading her old aged likeness, and his own family resemblance, into the image as part of his attempt to manage his grief and family identity. A whole host of relationships, times and states are simultaneously mediated through the image across time periods as the past is prolonged into the present and read from a position marked out by grief, sense making and remembrance.

We cannot understand Barthes' experience and comprehension of this photograph unless we see it in terms of his immersion into the complex network brought together by the picture of his mother as child.

In referring to the image as a 'network', I want to argue that western culture, which is saturated with images, is not so much a culture that is simply filled with images, rather it is a culture that is mediated through images which both perform and hold together multiple relationships between different times and spaces, social practices and readings, as they are circulated. Photographs hold heterogeneous elements together - they mediate and channel - and are put into circulation in cultural forms of knowledge. These cultural forms of knowledge such as discourses of the family, of nationality and of identity, which all arise around and through photographic technologies, channel the photographic injection of the past into a complex set of current networked relationships, which are themselves constantly on the move.

These complex social forms of knowledge and discourse around photography have been explored within the sociological literature. For instance, the literature describes the use of photography in terms of the rise of consumer culture and the emergence of a distinct family leisure industry (Slater 1995, Holland 1998, Musello 1979). Musello (1979) suggests that the family genre of

photography must be understood in terms of the conventions and rules that grew up to govern its use in terms of what is recorded and displayed. He points out that the photograph album, as a record of the family, is a selective description of history in a culturally specific form and set of terms. Hirsch (1997) has written on photography and discourses of the family, with a particular emphasis on conventions in the narrative construction of family relationships around pictures and alternative narrative forms presented in the work of photographic artists. Reviewing the work of Spence and Holland (1991), Slater (1995), claims that the act of compiling the family album is concerned with editing a selection of privileged images that together construct the family identity. Slater argues that the integrity of the constructed history is underpinned by the myth of the objectivity of the photograph and camera which in turn fastens this constructed history on to the natural flow of time. Writers such as Slater (1995) and Lister (1995) have commented on, among other things, the place of digital photographs and images in the home from a wider sociological perspective as well as the differences between traditional and digital photographic technologies in terms of the construction of reality.

But how do we understand and make sense of the *experience* of Barthes as he is immersed in amongst these cultural forms and networks held together by images, as he stands in front of the photograph of his mother as a child? How do we go about making a *psychological account* of his experience? This question – which will be the central concern of this thesis – concerns how we understand the relationship between the human and the image. In this first chapter I want to sketch the close relationship that has existed between Photography and Psychology in order to discover our point of departure from mainstream psychology. I will address this relationship in two ways. First, we will consider how Psychology has approached and shaped accounts of photography. Secondly, we will see how Photography has shaped the “subject” at the centre of Psychology. Then, in chapter 2 I will present some of the key thinkers whom I will draw upon to formulate an alternative framework for thinking about the image and how it informs us about the nature of human experience and interaction with the world.



## Psychology and Photography

In reviewing the literature on the relationship between human experience and the photographic image we quickly discover that each of these terms has become inextricably linked to the other. The human relationship with the image is bound up with accounts of consciousness and our understanding of human perception.

For instance, Sontag's famous book *On photography* begins with a discussion of how the proliferation of photographs and photographic technology have changed the terms of the "confinement" of humans in Plato's cave by re-educating us about the nature and scope of the image. However, despite this service, human kind still "lingers unregenerately" in the cave (Sontag 1977: 3).

Photographs re-educate by turning the heads of the prisoners of the cave. But they do this not by revealing the real forms which are projected by the fire, but rather, photographs re-educate us by having us look around the cave wall more closely as they "teach a new visual code" which brings new visual experiences and redefines "what's worth looking at and what we have the right to observe"(3). Sontag argues, in these platonic terms, that the biggest and grandest achievement of photography is in giving us the sense or idea that we "can hold the whole world in our heads- as an anthology of images"(3) through expanding our visual horizons.

For Sontag the place to start with an understanding of photographs is with the nature of human perception of the world, dealing with images as representations or shadows instead of true forms first hand. Photographs as images in this representational sense, stand between us and the world, and are bound up with consciousness and our experience of the world such that Sontag can say from within this framework; "photos really are experience captured...the camera is the ideal arm of consciousness in its acquisitive mood"(4). Part of the re-education in the nature of images and our perception that the photograph brings is its tangible and physical nature, which captures experience of the world in a two dimensional object. This brings a new experience into the cave; consciousness no



longer just collects images as shadows on the wall but now it can acquire images of the world as objects – as part of the world rather than just shadows of it.

Sontag begins her exploration of photographic images in terms of educating the cave dwellers. According to this settlement of the relationship between images and humans, we have to understand pictures in relation to the nature of our psychological experience which is understood in turn to be a matter of access to the world through images. Psychology then, gives a privileged and pivotal position to the image in understanding our experience of the world and it is in these terms that mainstream Psychology has approached our relationship to photographs. However, in describing the photograph in terms of mental images one is immediately confronted with clear differences between these two modes of representation, involving a restatement of the nature of the images as the foundational object of mental processes.

This is exemplified in a paper entitled “understanding the photographic image” where Beilin (1999) reviews studies of “representational competence.” That is our perceptual competence in reading and comprehending pictures and photographs. In order to approach the task of describing and laying bare the features of the perceptual and cognitive systems for processing photographs, Beilin begins by establishing a framework built on the nature of mental images. The beginning of the paper underlines the importance of the need to establish their nature, in the following way - “Because so much depends in our talk about the mind on mental images, it is necessary to take a stand on the acceptability of their status” (Beilin 1999:2). But in order to do this in relation to photographic images, Beilin has to manage the difference between mental images on the one hand, which psychology deals in, and on the other hand, photographic images which come into contact with our image based psychological systems. Beilin does this by expanding on Barlow’s (1990) distinction between the image in front of the eye (physical images in the world) and the image behind the eye (mental images in the head) before reviewing the state of the field on mental images.

Beilin argues that images in the region behind the eye encompass physical systems and optical systems (including the eye, brain and optical pathways), and

also “non-physical” systems, which include “the products of the brain and visual activity, perceptual activities, image formation, and the belief and knowledge systems that constitute the perceptual and cognitive systems of the mind” (Beilin 1999: 2). He goes on to comment that in order to investigate the relationship between the image in front of the eye and the image behind the eye we need to understand the complexity of the image processing systems behind the eye - especially the functional, cognitive and perceptual processes of the non physical systems.

In short, in order to understand our comprehension of photographs, psychology requires us to understand the human as a complex physical and non-physical image management system where mental images have a physical basis but exist as epiphenomena, mirroring the activity of the brain as transcendent non-physical representations. Mental images, Beilin concedes, are not pictures in the sense of photographs but are, nevertheless, non-physical representations which arise from an objective and therefore testable set of physical structures behind the eye and therefore constitute the contents of consciousness. In Beilin’s case, this is best understood by reviewing the perceptual and developmental literature on pictorial competencies and the skills required to manage, for instance, the difference between reality and pictures (Perner, 1991), or the processing of meaning invariance across different symbolic forms (Sigel, 1991).

But somehow, in this foray into the psychology of human engagement with photographs (with the notable exception of the work of Halla Beloff) we have left behind Barthes’ experience of being immersed in a rich and complex set of relations which took him beyond the difference between a real world and its representation. We have shifted from describing the photographic image as a network to loosely equating it with an image as a representation that brings the outside world into our consciousness. I want to propose, therefore that this shift is rooted in a different understanding of the image which consequently unfolds into a different kind of account of the human experience of the world and photographs in particular.



This is not a new proposal. It was made and argued for by the French philosopher Henri Bergson throughout his corpus of work but in a concentrated way in his book *Matter and Memory* ([1908]1991). In this text Bergson revolts against treating images within a representationist framework and proposes a radically different foundation for modern psychology based around a different conception of the image. Radical implications follow from Bergson's understanding of the nature of the image for our understanding of the nature of the relationship between body and mind and the relationship between memory and perception. This thesis is an exploration of the Bergsonian shift in the conception of image and the kind of psychology it produces, particularly with respect to memory and perception.

A major reconfiguration of our understanding of core psychological topics such as memory and perception has already occurred as part of the turn to discursive psychology (Edwards, 1997; Middleton and Edwards, 1990a; Middleton and Edwards, 1990b; Edwards and Potter, 1992; Potter and Wetherell, 1987). The contribution of discursive psychology to the place of photographs in human activities such as social remembering, as part of the turn to language, has radically reformulated how we think about memory and perception, from mental processes to social achievements and actions (for a discursive approach to social remembering around photographs see for instance; Radley and Taylor, 2003; Edwards & Middleton 1988).

However, although our place in the world is undeniably shaped by verbal discourse, the discursive psychology tradition has been criticised for inadequately accounting for the experience of being in that constructed place and more recently for its under developed conception of how the past contributes to present action (Middleton and Brown, 2005). Curt (1994) argues that discursive psychology has been criticised both for being a new form of cognitivism in terms of the way it sees language constructing reality *and* for being a new kind of verbal behaviourism (depending on one's position). According to Curt, the confusion of contradictory criticism comes from discursive psychology's silence on its position regarding the position from where experience is best understood; from the inside or the outside. The confusion in part occurs because discursive psychology

operates without a commitment to the inside or to the outside but instead operates on a commitment to pure discursive action. However, as we shall see later, Bruno Latour (1999a) has argued that at its core the discursive tradition within social constructionism retains a basic commitment to the notion of the world being experienced through representation, albeit a socially agreed and constructed verbal representation. The alternatives frameworks on offer then, appear to be approaches which promote internal representational structures, as occurs within the mainstream psychological literature, and those which emphasise the construction of external social representations and action, as described in the sociological and discursive psychology literature.

However Barthes' experience of finding his mother as a child in the photograph requires more from an explanation than an account of representations, be they social or cognitive. It requires more than simply attempting to embed the cognitive image system into a social context. The image of his mother holds a network of emotions, likenesses, looks, times, spaces and readings together.

This conception of image as a network points to a very different register in which the world, the cognitive and the social are seamlessly blended together, such that it is no longer possible to pick out and separate any discrete object or social or cognitive variables since they are all managed and mediated by one another. The blending that I have in mind, is not that of the cognitive internalisation of social representations of the world, nor is it the externalisation and socialisation of internal images of the world. Instead, I will argue throughout the thesis that there is no inside and outside (as mainstream psychology would understand those categories) to fudge together. There is no clearly defined 'subject' viewing an external 'object' via a mental representation. Instead, there are collections of heterogeneous elements relating to each other on their own terms rather than through the mystical exchange of immaterial images. There are humans and pictures and objects circulating and caught up in the networks that images hold together. This shift in the conception of the image from a representation to a network therefore assumes a different relationship between human experience and the world.



In broad terms, then, this thesis will address two key and interrelated themes. First and foremost it will address the nature of the image, and then secondly human experience and interaction with the world, particularly as it is mediated by technology and photographic images. As we have seen, reflecting on the comprehension of photographs throws into sharp relief the issue of the nature of our interaction with technology and the nature and role of images in relation to consciousness and our experience of the world.

However, with the development of *digital* photographic technologies the issue of the nature of image and the nature of human interaction with technology and the world is made all the more pressing. The arrival of digital cameras and supporting hardware and software into the home in the place of traditional photographic technologies has been a source of discussion around both the nature of truth and the effects of disposable images on the family record in terms of what sorts of images find their way into collections.

### **The impact of digital photography**

In a review of the literature, Lister (1995) argues that in discussions of the differences between digital and traditional photography, the opposed notions of empirical and constructionist truth have crystallised around traditional photography and digital photography respectively. He argues, however, that this is a false distinction since old traditions are employed in the use of the new digital technology. Moreover, he argues that on the basis of this false distinction discussions have divided traditional photography from digital photography in terms of a distinction between Science and Art. However, Lister points out that this division between Art and Science rests on the ends to which we employ the technology and therefore is not an inherent feature of the technology itself. If the purpose is to establish truth and history then the realist or empiricist view of the technology proves most persuasive, yet if the purpose is aesthetic then relativism or the constructionist perceptive appears acceptable.

Slater (1995) agrees with Lister's argument on the relationship between usage and realist/relativist interpretations of photographic technology. He suggests

that the relativist and realist positions find expression in two types of domestic user; on the one hand there is the relativist hobbyist or amateur photographer who creates and manipulates images and on the other hand there is the realist home user who manages the family photo albums. Slater's argument suggests that issues of realism and relativism are worked out and managed in the everyday activities of folk using digital technologies. In everyday activities people manage issues of our perceptual access to the world and what is it to have observed something and to have captured something, and they also manage the process and practice of what it is to be able to marshal the past in the present. I want to argue that the study of this everyday activity with digital technology is crucial because it constitutes an exemplary context for encountering the full nature of the image and how that nature works to mobilise and form the past and construct pieces of photographic work.

For now, whatever kind of activity the new digital technologies support (and we shall encounter some of those activities in the second part of this thesis), it is clear that the technology draws us into more reflection on the terms of our access to the world beyond the image and the state of the image as a reflection of that world for consciousness. We can see this in discussions around the nature of digital photography, which typically concern the relationship between the technology and the cognitive system. In these accounts it is argued that cognition is fundamentally governed by perception. For instance, Rotzer (1996) in an essay in the exhibition catalogue 'Photography after Photography,' gives an account of photography and digital photography in terms of how they mark the changing conceptions of the relationship between the observer and the real world in the shift from modernity to post modernity. The account revolves around the nature of image and whether or not we should understand the 'image' by aligning it with the observer or with the world. These changing conceptions are predominantly understood in terms of the relationship between the world and the eye and brain with the result that, in these accounts, the nature of image is simultaneously a technical, physiological and cognitive issue. In these terms Rotzer supplies some reasons for why the camera can no longer be compared to the eye:



These have to do with the fact that 'judgment' and the 'visual act,' or observer and image, can no longer be as strictly separated, as was traditionally the case, once the eye is understood as a part of the brain. (Rotzer, 1996: 17).

What was once 'traditionally the case' was the idea that images objectively represent the world. However, Rotzer argues that physiological investigation into the relationship between the eye and brain has reconfigured the relationships between the world, the image and the observer and that now the image belongs to the observer rather than the world. Now that the observer and image are linked, as the eye is understood as part of the brain, images are no longer understood as being formed by the 'world-out-there'. Instead they become tied to, and emerge from, a self contained and self referential cognitive/physiological system:

In brief, today, seeing the world is no longer understood as a process of copying but of modeling, a rendering based on data. A person does not see the world out there, he only sees the model created by the brain and projected outwards. (Rotzer, 1996: 17).

On the basis of physiology, Rotzer makes the relationship between the observer and the real world outside an issue of access through images. For Rotzer, images stand between the observer and the 'world-out-there' blocking our access to it. Digital images and technologies are therefore understood as an illustration of this state of affairs;

In the end, our visual perceptions too, like photographic images, are only models of a world which is not directly accessible to us, a model dependant on interface and guided by interest. The irritations caused by digital images merely bring this insight home to us more clearly. (Rotzer, 1996: 17).

Indeed, according to Rotzer we should have always known this about photography, which, during the modern era was wrongly understood in terms of an 'ideological' orientation to an objectively available reality;



The photographic image and the film were the late descendants of a modern era oriented ideologically, not practically, around a final reality and objectivity, a modern era from which one tried to wrest a subjective and fictional side in the sphere of art and entertainment. How is the photographic apparatus still supposed to be a prolongation of the eye when the latter, as a continuation of a self-referential brain, has forfeited all metaphors suitable for recognising reality? (Rotzer, 1996:21-22).

The physiological link between eye and brain, according to Rotzer, has revealed to us the true nature of our relationship to the outside world - that we are cut off from it and are imprisoned (as Latour, 1999a, would present it) in the subjective world created by a self referential brain. It follows that image technologies have to be understood from within this settlement of the relationship between mind, brain and world. For Rotzer aligning images with the observer via the eye and brain, in favor of 'subjective vision' rather than with the real world marks the break with the modern era and its obsession with objectivity of which photography and film had become markers and champions.

in the era of biology, of optical machines and computers, the ideological importance of photographic realism is declining" (Rotzer, 1996:18).

Subjectivity pitted itself against the ideology of objectivity in the modern era by expressing itself in art, fiction and entertainment, finally triumphing in the post modern era through biology and optical technologies, as underpinning the authentic conception of vision of which digital photography becomes a marker. As we shall see later Crary (1991) argues that far from the subjective arts and objective sciences being in opposition they were both rooted in the same settlement in which knowledge became a matter of subjective vision.

Legrady (1996) agrees with Rotzer. His argument blends photography, digital images and perception to render digital photography as an exemplar of cognition.

A digital image does not represent an optical trace such as a photograph but provides a logical model of a visual experience. In other words, it describes not the phenomenon of perception but rather the physical laws that govern it. (Legrady, 1996:90)

Legrady argues then that digital images model the physical laws that govern perception, that is, the laws which govern the construction of images from data coming together according to certain logical patterns into representations of the world. According to Rotzer these laws or processes of digital technology produce a representation of the world in an analogous way to the processes involved in cognition that transfer sense data into chemical data and electrical signals and the language of neurons that operate like an electrical code in constructing mental representations.

Digital photography has become a site around which these kinds of arguments about the structures of the cognitive system and its similarities with digital technology are deployed. However, in this thesis I want to argue for a shift in our conception of image from a representationist framework to the interpretation of images as networks of heterogeneous entities.

Digital images are therefore a challenging test case for this thesis on the nature of the image because, through their electronic and digital rather than “physical” constitution they ostensibly look like a close analogue to mental images, and, as we have seen above, they have indeed been interpreted in those terms. However I want to argue that digital images actually demonstrate that the “image” is a network rather than a mental representation which stands between us and the world. Therefore, just like Barthes’ photograph of his mother - but on a much larger scale - digital photographs hold vast networks of people, objects, events, times and spaces together (through their management of history, memory, identity or works of art) in and through digital technology and the internet. In terms of human experience of the world, digital photography constitutes one set of technologies through which people do the everyday work of managing the activities of remembering and seeing as they go to work on memories, histories and collective identity by directly managing networks of technology, people,



language, text and pictures. In addition, when we work with a digital image the sheer number of technological mediators increases from those that accompany the traditional handling of the family stock of images in an album. We have to work with computers, monitors, keyboards, printers and e-mail etc. The digital image is unapologetic about the network of technology and activity that it requires to exist and move and therefore the fast, incessant movement, production, consumption, convertibility, connectedness and fragility of digital images expose the complex nature of the image as more than a simple representation.

If this is the case then it follows that psychology can no longer be based on a concern with our mental access to the world through images as representations. Instead, perception and memory will be managed through networks of images and as such they will take on an entirely different nature. They will no longer be seen as processors and storehouses for images but instead as networked '*things*' in their own right. In short what this thesis will grapple with is how, with the shift from the representationist framework to a network framework, we move away from the conception that consciousness is defined by being *of* something, to the radical idea that consciousness *is* something and does not (because it can not) 'contain' anything (Lawlor 2001). And that further to this, consciousness as a network of entities is always in a state of change as the relationships between networked entities shifts and changes. This central claim of the thesis will be unfolded within a Bergsonian process philosophy conception of perception and memory.

If this Bergsonian view of the image and consciousness is apposite then the best forum to work out the nature of human psychology and experience is within the activity of humans within networks; where remembering and perception are managed as networked achievements in and through heterogeneous entities. This then constitutes the major empirical site described in the second part of the thesis, where we will encounter people using digital imaging technologies across a range of different contexts.

By noticing the mediating properties of technology we can start to understand the nature of the new forms of mediation that digital technology brings with it. For instance Slater argues that a new form of image, the "trashy"

disposable image, has found its way into the family record through the cheap and disposable nature of the digital photograph. For Slater digital photography has polarised the images in the family record. On the one hand there is the 'true' and serious historical photo and on the other there is the 'pin board' or 'trashy' image that makes no truth claim but simply presents the self, often in 'questionable' or embarrassing poses and situations. These new forms of image in the family record, will bring a new rhythm to family remembering, with new ideas of what one can see and what is worth seeing of the past.

The domestic use of digital photographic technology is therefore an empirically rich site for investigating the relationship of humans, images and technology in the formulation and construction of human experience which is mediated through networks.

### **Photography and the psychological "subject"**

Photographic and digital technologies are psychologically interesting because of the role of photography in producing our understanding of human psychology, which is at the centre of the modern settlement (Latour 1999a) of the relationship between humans, images and the world in western philosophy. As technologies, they relate to psychology in more ways than simply as objects that raise psychological issues and present metaphors for cognition. Photographic technology has had a role in shaping the very "subject" at the centre of psychology and as such has haunted psychology.

Photographic technology developed during the nineteenth century at a time when there was an epistemological shift taking place in which 'knowledge' became equated with subjective vision (Crary 1990) and so scientific objectivity found its problematic foundation in the subjective observer. The 'objectivity' of the camera provided a form of observation that was chemically based and free from subjectivism. However, photography not only supplied an objective view of the world and its subjects, it also allowed the user to combine images through the chemical developing process. Photography was adopted as a technique for organising and summarising people - by their mass reproduction in photographs -



into genres and types. For instance, photography made it possible to capture collections of images of sufferers of consumption or TB. This made it possible to construct an 'ideal type' image of the 'normal' sufferer through the production of compositive photographic images (Lury 1998). This technology was then extended to 'social' rather than biological afflictions, such as 'criminality'. Photography therefore made the study of people possible based on the universalisation and standardisation of the properties of the human condition which could be caught on camera and summarised.

John Crary (1990) gives an account of how this epistemological shift occurred. He argues that Kant's reconfiguration of the spectator "is a definitive sign of a new organisation and positioning of the subject" (Crary, 1990:69). Quoting Kant, he says "our representations of things, as they are given, does not conform to these things as they are in themselves, but that these objects as appearances conform to our mode of representation"(70). What is significant about Kant, argues Crary, is a change in point of view whereby objects and the world become known and knowable only in terms of our psychological systems of representation. As a result, Crary says that vision in the aftermath of Kant becomes less about light and optics and increasingly about the physiology of human visual systems and "vision rather than a privileged form of knowing, becomes itself an object of knowledge"(70). Through the modern metaphysics of representation and its consequent elevation of man as the site of all certainty, knowledge becomes embedded in "the unstable physiology and temporality of the human body" (70).

In his book *Techniques of the observer*, Crary charts the emergence of this physiological/psychological view of knowledge in the nineteenth century. Crary cites Goethe, for example, for whom vision was demonstrably a bodily achievement as shown by the phenomena of the after image- the chemical echo of an object or a scene on the retina that we still see after our eyes are shut or we look away. Crary also cites Maine de Biran who made perception inseparable from the muscular movements of the eye and who argued for a link between colour perception and physical fatigue. Mind and body then became inseparable, as knowledge became rooted in the physiological system. At the same time the

universalisation of human capacities was made thinkable by locating knowledge in universally available structures. Crary then goes on to describe how Schopenhauer and Goethe, amongst other physiologists, had by the 1840's moved "the holistic study of subjective experience or mental life to an empirical and quantitative plane"(81) and achieved "the division and fragmentation of the physical subject into increasingly specific organic and mechanical systems"(81).

This fragmentation occurred precisely because of the methodological procedures that accompanied the epistemological shift to subjective knowledge. With this epistemological shift came a parallel shift in the way objectivity and methodology were conceived in observational terms. What was deemed to be scientific and objective knowledge was constituted by the collection of facts by ever closer observation of finer and finer and more specific elements of a whole (Stenner, 1998). The effect on the human subject (conceived as white middle class male) was that he was both conceived of as a set of discoverable structures and that these structures were best displayed through a methodology that increasingly isolated each element for further sub-disciplinary observation. As a result of this increasingly specialised separation of human physiological systems and the separation of the senses, humans were displayed through the practice of experimentation and all its surrounding paraphernalia, and in scientific papers as collections of systems (Crary 1990).

While this occurred biologically, human sciences on a sociological level were also being founded on techniques of observation. Through observation and categorisation technologies like photography and archiving practices, people could also be pictorially displayed in terms of social strata as types and genres, as we shall see later in this section (Lury 1998). Techniques of observation at both the social and biological level presented people as collections of properties drawn from two distinct realms, the social and the biological or natural. While in scientific discourses the social investigation and organisation of humankind was seen as a different but complimentary discipline to the biological sciences in the increasing specialisation and isolation of human subject matter, Crary's (1990) next point makes clear that in reality these two realms were not so inseparable.



Rather, they served each other. The “isolated” biological system was and is a social achievement as well as a natural one.

Crary points out that alongside the emergence of this new discipline of physiological psychology was the economic and social need for rationalising human labour. The economic need for repetitive actions and hand eye co-ordination shaped and underpinned by machine technologies of mass reproduction began to carve out a need to organise workers ‘on mass’ in terms of the tasks afforded by the machines. The quantitative study of the eye, attentiveness, fatigue, reaction times, and stimulation thresholds undertaken by physiological psychology provided society with a metaphysical subject, laid bare for empirical mapping and for understanding universal qualities of humanity (see for instance, Anson Rabinbach’s *The human motor* on the case of Etienne-Jules Marey). Stenner (1998) agrees that the conditions for psychology and its subject to emerge were established by at least three interdependent ‘events’. Firstly evolutionary theory had pushed mind into the realm of the extended world as it became located in the brain and so was made calculable. Secondly Weber et al started experimenting and a mathematically readable psyche became possible and demonstrable. Thirdly, Stenner argues, as does Crary, that through the social and human biological sciences, society and its constituents (humans) became a useable resource shaped for emerging industrial requirements. Crary’s argument points to and assumes an interdependency between the objects and events that modernity manages into the distinct categories of ‘nature’ and ‘society’. These distinct categories that exist in the scientific and observational discourses of modernity are produced by the very interdependency that they cover up.

The nature of this interdependency is at stake in this thesis and so we shall return to it repeatedly. For now, concerning the discourses of the individual, Strathern (1991) argues that during this time the individual is shaped by scientific discourse by partial analogy to these distinct categories of ‘nature’ and ‘society’. Personhood is established and represented as different relations between nature and society and these are folded into the site of the individual as constituting this site. By making partial analogies to nature and society, modernity manages the universal quality of the subjective observer and the differences between examples



of the same, thus the universal subject appears as neither entirely natural nor as entirely social but rather as parts of both distinct categories, as a collection of partial analogies; as visual systems and as social types. Lury (1998) says; “The classifications of genre - of gender, class, race, sexuality, age or other natural, political and social categories or types - and other aspects of the individual come to inhere in different bodies in different ways”(14).

Photographic technologies -which present us to ourselves - played a key role in a time of observing and calculating and shaping the observer by making it possible to present people in the kinds of categories that Lury (1998) and Strathern (1991) describe. Crary (1990) writes, regarding photographic technologies, that “these apparatuses are the outcome of a complex remaking of the individual as observer into something calculable and regularizable and of human vision into something measurable and thus exchangeable”(17). He goes on to say that the standardisation of visual imagery was not simply the effect of mechanical reproduction but was part of the “broader process of normalisation and subjection of the observer”(17). This has implications for how individuality is managed in a drive to normalise in purely ‘scientific’ terms.

What constitutes an individual is at the same time all that constitutes a type and a biological system. The modern discourses of individuality pin down the individual as an instance of a wider category. It follows from this that all that constitutes an individual in modern discourse is all that in turn places the individual on standing reserve, as a resource waiting to be ordered according to economic and social need. Each individual becomes a single instance or collection of properties that are common to all. The individual is translated into a system as something readable - as a collection of properties drawn from the distinct realms of nature and society. Yet as a collection of natural and social kinds the individual is an apparently cohesive but ultimately fragmented ‘whole’. The terms of its collection are also the terms of its dispersion.

This conception of the individual is constructed around a tension at the centre of modernity’s methods for representing and acting on the world through science and technology. That tension is between the opposite forces of collection

and dispersion (Cooper, 2001; Weber, 1996). In the discourse around the individual, according to Lury - who builds on Walter Benjamin's presentation of this tension - collection and dispersion operate as individualism and individuation respectively.

From a reading of Benjamin (1968abc; 1977), Weber (1996) and Lury (1998), I want to describe the force of individualism as the moment of the collection and gathering of universal properties into a particular local expression of those properties in the act of describing or otherwise marking an individual off from the crowd or masses in some way. This moment of pulling the individual out of the mass of universal properties is always answered by the force of individuation that pulls the individual back into the mass or the stock of exchangeable properties.

For Benjamin, film and photography embody these processes of collection and dispersion. Photographic technology plays a central role in discourses of modernity around the individual both for a scientific register and a domestic one (the nature of the latter is the concern of the empirical work of this thesis). For Lury (1998) and Crary (1990) this is because photographic technology provides a way of both observing the observer (collecting) and summarising (dispersing) the observer in terms of both an observable 'inner nature' and at the same time, their social position according to a system of types.

For instance, Lury, quoting Sekula, notes that the photographic portrait in the nineteenth century was being adopted in medical and legal and administrative procedures: "To establish and delimit the terrain of the *other*, to define both the generalised look- the typology- and the contingent instance of deviance and social pathology" (Sekula, 'The body and the archive', 1986, quoted in Lury, 1997:43).

Categorising procedures drew upon physiognomy and phrenology, both of which attempted to read inner characteristics from the surface of the body (Lury, 1998). Physiognomy analytically isolated facial features and assigned inner significance to them. Individuality was assessed according to a *type*. Lury argues that "Photography appeared to promise to provide the evidence for such readings,



and offered a documentary basis for formulating types in relation to which difference could acquire meaning as variation.” (Lury 1998: 43)

The photographic portrait employed alongside these techniques for categorising humanity produced an all inclusive “shadow archive” (Sekula, ‘The body and the archive’, 1986, quoted in Lury, 1997:43) in which portraits fit are assembled together as a “social and moral hierarchy” (Lury 1997). Every image then became at once a picture of a loved one and at the same time part of a system of charting position, type and genre. Lury again quotes Sekula - “The *private* moment of sentimental individuation, the look at the frozen gaze-of-the-loved-one, was shadowed by two other more *public* looks: a look up at one’s ‘betters’ and a look down at one’s ‘inferiors’.” (Sekula, ‘The body and the archive’, 1986, quoted in Lury, 1997:44).

Photography becomes part of the modern tension around the individual between individuation and individuality. As I stated above, Individuality in modernity is established through discourses of the uniqueness of the person in terms of personality, inner qualities, will, and a subjective consciousness. Individuation results in the making over of persons as an ‘individual’ in a normal, homogenous form who is made up of infinitely exchangeable components such that the individual is infinitely, partially or wholly, substitutable as one instance of a massive stock of components, who could fall back into the masses and be replaced by another example. Or as Lury has it:

On the one hand, then, the portrait allowed for scrutiny of the person, the search for the depiction of character. It gave the belief in individualism full play, inviting the view that the individual is first and foremost a personality whose characteristics can be read from facial expression and gesture. On the other hand, however, the portrait might also communicate a type, whether that type be a sub-section of humanity or the whole of humanity, itself and thus provided a technique of individuation. (Lury, 1997:46)

But it is not only as a type or subset of humanity that the individual can appear to us by virtue of the photograph along side others in a hierarchy. One

photograph can contain and reveal us as an assemblage of the features of another kind of type or stock; the family stock. In *Camera Lucida*, Barthes presents a photograph of an old man and two children that he calls 'the stock,' in which family resemblances and lineage appears. He writes;

the photograph sometimes makes appear what we never see in a real face (or in a face reflected in a mirror) : a genetic feature, the fragment of oneself or of a relative which comes from some ancestor...sometimes I am mistaken, or at least I hesitate: a medallion represents a young women and her child: surely that is my mother and myself? But no, it is *her* mother and her son (my uncle); I don't know this so much from the clothes (the etherealized photograph does not show much of them) as from the structure of the face; between my grandmother's face and my mother's there has been the incidence, the flash of the husband, the father, which has refashioned the countenance, and so on down to me. (Barthes 2000: 103)

Barthes goes on to note that the lineage revealed by the photograph, which promises a stronger identity than 'legal status' and 'asserts a permanence' of the race, also disappoints because it shows up variation in the line and so the impermanence of each generation that constitute the continuation of the line. It shows difference by means of repetition. Difference and similarity answer and co construct each other as individuality is formed as a selective collection drawn from a stock of circulating features. The photograph itself is therefore already a stocking system before it is employed in the production of archives and hierarchies. The single image reveals group ties and lineage, or summaries of events, which can then be infinitely reproduced and circulated and subsequently combined with other images in archives.

Lury concludes that "the portrait, then, has two faces; it individualises by highlighting the inner self or personality and yet constantly threatens individuation, the absorption of the individual into a taxonomic schema of humanity, the 'sameness of man'"(47). Even the interior world of the consciousness, the inner self or personality is formulated and made readable in systems of sameness. Photography collects and disperses in the same moment and



thereby threatens man inwardly and outwardly with 'sameness' while promising the preservation of something unique; a moment; a scene; a relative; an event.

The relationship between humanity and what we might call technologies of 'massification' - which detach part of the world from its original ordered occurrence and send it into circulation for stocking and ordering as a resource or as standing reserve - have been major themes for both Martin Heidegger and Walter Benjamin in their critiques of modern society. Whether it be the spectator in front of the incessant flow of the products and technologies of mass media and mass reproduction (Benjamin, 1968), or the effects of Newtonian mathematics and new technologies that challenge forth the earth and humanity to stand as standing reserve or stock (Heidegger, 1977a), the kinds of order that these technologies and modern metaphysics produce are centred around representation for both Heidegger and Benjamin.

For Heidegger modern metaphysics conquers the world as a picture and brings it to stand before the subjective observer. For Benjamin the trend of technologies of mass is similarly to detach the event or object from its place in time and space and represent it elsewhere before an observer. Benjamin saw this manifest in the incessant drive of the masses to conquer distance and bring everything ever closer to them. Samuel Weber (1996) argues that the difference between Benjamin and Heidegger was that while Heidegger saw the world rendered as a picture for the observer i.e. 'getting the picture', Benjamin saw our involvement with technologies of Mass in terms of "getting *in* the picture". For both of these writers modernity could be construed in terms of a relationship between a subjective observer and the world as picture, whether the observer got the picture or was in it, the relationship between the subject on the one hand and the objective world on the other through representation was seen as a strategic settlement deployed to theoretically and politically manage the massification or stocking of the world and man. The solution - which comes to underpin modern psychology - is to make the subjective observer the store and organiser of images of the outside world. Therefore the world is understood as that which is put into circulation around the subjective observer for the observer.

According to Walter Benjamin (1968) the effect or order created by technologies which put the world into circulation around the subject, separates the experience of the world into two interrelated realms – the public and private. This occurs especially where the mass media is concerned. Through the mass media the world is increasingly fragmented and events are dissociated from their time and place of occurrence and put into circulation. For Benjamin, the experience of the individual of this flow can only ever amount to either a private or a public distracted perception of the flow (Cooper, 2001).

This technological push to render the world as a flow of images, when mixed with the metaphysics of the age through the lens of psychology, casts these images as existing *for* the experience of the individual. Through physiology and psychology, this experience comes to be understood in terms of the inner subjective world whereby the momentary arresting of the flow of images is accounted for as a private individual subjective affair. Through the forms of knowledge that Psychology and Physiology construct and circulate, Benjamin's "atrophy of experience," (which I will return to and unpack in more detail in the empirical chapters) and the empirically available subject, become related. It is this private experience of stocking or arresting the world as a flow of images that is offered up and translated by psychology into the empirically available inner subjective life of the observer where the world as image is stored and processed and produced.

This inner world is then also put into mass circulation by psychology as a discipline. However, it is also put into circulation, in its raw, atrophied, that is to say 'pre-psychologised' state by the technologies of mass reproduction in the home, for instance through the public display of family and individual identity and history on the internet. The essence of this practice which we will turn to in chapter nine is wonderfully captured by Celia Lury (1998) as a display of "interiority without intimacy"; a term which neatly captures the circulation of this private space that is created by the atrophy of experience left in the wake of the flow of mass culture- the corollary of the circulation of the private in archives stored as mass and stock.



Both the psychologist - studying the subjective observer - and the visitor to a family website - showing family history or personal details of family members - encounter displays of “interiority without intimacy” in a distracted anesthetised way. That is, both encounter presentations of private life in publicly available forms of knowledge. Psychologists, through their publications, theories, experiments and statistical tests, translate the responses of individuals to their experimental conditions through public forms of knowledge (published findings and theories) as an “interiority without intimacy” in terms of the image processing, cognitive world of the subjective observer. One of the aims of this thesis is to uncover some of the ways in which the visitor to the website and the viewer of the store of images take up this interiority without intimacy.

I will explore this theme through out the thesis, but for now it will suffice to say that this conception of the human as a subjective observer and originator and organiser of images shapes our analytical understanding of the interaction of humans and technology. If we stayed within this settlement we would approach the experience of the domestic user of mass image based technology in terms of a technology in front of an image processing subjectivity.

However, there is an alternative formulation in Benjamin’s account of the “atrophy of experience” which accords with Henri Bergson’s ([1908]1991) conception of the ‘image’ and its relationship to humans and perception. Both Benjamin and Bergson resist the translation of the stocking and flow of circulating images into a feature of a self referential cognitive system. As we shall see Bergson took issue with Psychologists’ attempts to construe the relationship between humans and images in terms of the stocking and processing of representations of an outer disconnected world that we can never be sure of and that only exists as images for the inner cognitive world. The alternative formulation that we will draw out from Bergson and Benjamin rests on a different understanding of image and it forms the basis of the approach I will unpack and adopt in this thesis.



## Summary

In the last two sections I have sketched something of the way in which psychology and photography have constructed each other.

Photography as a means of mass reproduction constructs the individual as mass; as a collection of universal and mass elements. Photography as a tool for the fledgling human sciences produced humanity as an observable mass of exchangeable parts; modern digital photographic systems including internet technology also go to work on the individual, as does psychology itself, to produce humanity as a mass. If this is so, the change from traditional photography to digital photography can be understood in terms of the kinds of movement and rendering (that is, collection and dispersion) of the individual that it makes possible. The subjective observer then is produced as mass by photography and film, and now by means of digital technology this fragmented and collected individual is circulated as electronic mass in new electronic systems throughout the internet and is recombined, like code, into instances of mass in websites or electronic albums.

Photography and digital photography as technologies of mass have created a tension in the individual between individualism and individuation, between the instance and the mass; the individual and the crowd. In the world produced as mass the experience of the individual increasingly becomes atrophied and becomes a private, as distinct from public, experience. But in mass culture even this private experience can be publicly circulated and experienced by others as an “interiority without intimacy.”

In order to address the relationship between humans and digital photography as a technology of mass reproduction we have to escape the representationist conception of image and adopt the network approach which makes visible the mediating qualities of digital images to hold together networks of mass, heterogeneous entities. Therefore, to complete the picture we need to consider the underlying settlement of the relationship between the image and human which runs through psychology and western epistemology. Therefore, the next chapter

will unpack the representationist framework which underpins the relationship between images and humans and then move on to a survey of the key thinkers of the image that this thesis draws on.

In the Chapters that follow, I will be arguing for a shift in the concept of the image from a representational register to an allegorical register. In Chapter 3 this will manifest its self in terms of the implications for how we understand the interaction of humans and technology. In Chapter 4 I will tackle the shift in terms of how it positions and constructs the subjective observer of the world out side. It will be argued that Newtonian metaphysics and modern technologies of mass reproduction propagate the illusion of the subjective observer. However, Walter Benjamin provides us with an understanding of objects existing in the flow of allegorical progression through a movement of collection and dispersion, which will help us to understand the allegorical nature of the human's inclusion in networks of technology and people. Then in Chapter 5, the last of the theory chapters, I will present Bergson's version of this shift in the conception of images and the implications he spells out for our understanding of perception and memory.

Having established the nature of the relationship between technology and people and the nature of image and perception and memory, we will then be equipped to approach the four empirical chapters. Chapter 6 looks at the nature of digital technology as an underdetermined artefact in the hands of amateur photographers. In Chapter 7 and 8 we will enter the family home and look at some data examples from families using their computers to look through digital images. Chapter 7 will be concerned with how digital technology manages images and amorphous mass and Chapter 8 will look at how this for of mass mediates in social remembering. Finally, in Chapter 9 I will present some examples of family websites in which family members histories and identity are displayed for public mass consumption and then I will draw the central themes together in Chapter 10. The aim in the empirical chapters is to provide concrete examples of some of the themes of a Bergsonian psychology of everyday experience.



## **Chapter 2**

### **Representation and the modern settlement**

The search for an adequate framework and method for approaching digital image technology and human psychological activity places this project right into the heart of ancient debates about how theory and empirical research articulate the relationships between humans, images and the world beyond them. Key to understanding the relationship between psychology and photography is what Latour (1999a) calls, the 'modernist settlement' wherein humans and the world relate as observer, image and object.

From within this settlement photographs are understood in psychological terms, as representations which stand between us and events in the real world. Questions about the truth of the image (i.e. its correspondence with the real world) are never far away, especially with the proliferation of digital software and hardware for manipulating digital images. But how do we know the world behind the representation? Can we get past the representation? This formulation of the problem of the image underpins psychology as a discipline rooted in modernist epistemology. In this scheme the photograph stands alongside other forms of representation – words, art, diagrams, and mental images - which stand between us and the world. As such from within this settlement we will be unable to interpret photography and the circulation of photographs in any other way than in terms of this settlement; as either part of the world out there or part of the psychic world in the head; bound up with questions about knowing the world.

The relationship between humans and the world, since Descartes, can be understood in terms of the problem of the status of image. Descartes split the world into two realms, the extended physical world and the unextended mental world (Stenner, 1998). These two worlds come into contact through systems of representation. For Descartes that system was mathematics rooted in Newtonian physics (Heidegger, 1978) whereby the mental unextended realm superimposed a mathematic grid over the extended world. The mathematical system acted as an



intermediary deployed by the mind to ensure the faithful transfer of knowledge about the extended world to the unextended world through the grid of mathematical relationships. Since then, and particularly since Kant's rendering of the same settlement (which we will explore more fully with Latour in the next section), any form of representation - number, word or image - has been understood as an intermediary between the extended and unextended worlds. Under this system the nature of various artistic and literary representational systems have shaken confidence in the transfer of knowledge about the world, while at the same time the representational systems around the sciences have been built to ensure and maintain the transfer (Crary, 1990). Digital photography has been interpreted under this settlement as a representational system that severs the lines of contact.

However critics of this Cartesian system as far back as Leibniz (1686) have argued that it is impossible to adequately establish the point of contact between the two worlds. Leibniz raised the question of how a non extended world could move objects in the extended world, that is, how does an unextended immaterial action change into an extended material action? He saw Descartes' dualism as presenting a yawning gap that we were asked to leap. Latterly, with Bergson ([1908]1991), the same dilemma was raised in its nineteenth century guise as the assumed parallel relationship between the physiological system and the cognitive system. In his book *Matter and Memory* ([1908]1991), Bergson finds no answer to the Cartesian dilemma in the field of physiology except a dogged adherence to the hypothesis of "epiphenomenalism" where the brain state mirrors the cognitive state. Almost a hundred years later we see this same appeal to epiphenomenalism in Beilin's review of the field (1999).

Following the neuronal passageways from the external senses, Bergson finds no cause to invoke the emergence of representations in order to understand the system. Nor can he find any place in the head where representations emerge. He concludes, "the nervous system is in no sense an apparatus which may serve to fabricate, or even to prepare, representations"([1908]1991:31). The implication of this for the relationship between humans and images is that there are no representations behind the eye which process representations in front of the eye as

Barlow (1990) and Beilin (1999) argue. There are only photographs and digital images circulating in the world and so the relationship between humans and images must be structured by another settlement of the nature of image.

The full nature of a photographic image shows that it defies any attempt to discern its form and function according to the Cartesian and Kantian systems as an intermediary between a real world and a subjective inner world. According to Roland Barthes the photograph is a marriage of the referent or event to the physical properties of the image such that in the photograph one cannot conceive of the one without the other:

It is as if the Photograph always carries its referent with itself, both affected by the same amorous funereal immobility, at the very heart of the moving world, they are glued together, limb by limb, like the condemned man and the corpse in certain tortures...The Photograph belongs to that class of laminated objects whose two leaves cannot be separated without destroying them both: the windowpane and the landscape, and why not: Good and Evil desire and its object: dualities we can conceive but not perceive. (Barthes, 2000:6)

The photographic image as a marriage of referent and image is both material and symbolic at the same time. As such it is less than real and also more than a mental or social representation. In this understanding the photographic image is not part of a distinct extended material world since it constructs the world as it selects and fragments and distributes it. The world that Barthes then has in mind is very much that constructed by photography as it is taken up by the photograph.

But at the same time the photograph does not belong to the unextended world of mind and social world of signs either. At no point is it seen to give up its place in materiality, nor does it mark, and there by point to, an event that still exists beyond it. On both of these points, Barthes' understanding of the image is very close to Walter Benjamin's.



Every photograph marks a past arrangement of circumstances (i.e. event to which the photograph is the continuation) and is therefore invisible to us as something on its own apart from its referent. Barthes claims that:

Photography is unclassifiable because there is no reason to *mark* this or that of its occurrences; it aspires, perhaps, to become as crude, as certain, as noble as a sign, which would afford it access to the dignity of a language: but for there to be a sign there must be a mark; deprived of a principle of marking, photographs are signs which don't *take*, which *turn*, as milk does. Whatever it grants to vision and what ever its manner, a photograph is always invisible: it is not it that we see. (Barthes, 2000:6).

For Barthes, the photograph does not achieve the noble status of a sign that points to something beyond it, nor even a post-modern sign that exists without pointing to anything. Barthes understands the relationship between the world and the photograph in a fundamentally different way to that of the modern settlement in which the image is a representation pointing to a real world behind it. From the simple observation that there is no photograph without a referent and no referent without a photograph Barthes presents us with a view of the photographic image as an interdependency that exists between the image and the referent; they are ontologically inextricably linked by chemical and physical/optical processes on paper.

Barthes thereby rescues the image from a representational register. Barthes' photograph demands another register in which it will be taken on its own terms as less than real and more than representation. As we shall see, Barthes conception of the photograph sounds rather like Bergson's treatment of images; where the image defeats both realism and idealism. The photographic image, according to Barthes, is then a manner or mode of transformation and displacement of an event, or, in the vocabulary of actor network theory, a form of translation.

Rather than serve as a pure intermediary that crosses over from the 'real' to the 'mental world', the photographic image is something that extends the referent or the event which it carries with it into different locations and times. It is not a



vehicle for messages between realms (one of which it never even asks us to invoke) but a mediator; selecting and translating parts of the world so that they can travel in time and space to occur in other parts of the world in connection with other forms of translation via other mediators like printing presses, word processing technologies, web page writing software etc.

It is worth noting here that I am not denying the mental world in the same way as Rotzer (1996) denies the real world by choosing which has the strongest grip or claim on the image. The nature of the photograph and the experience of looking at photographs will not allow me to do that. Instead I am opting out of the representational register all together to observe the circulation of photographs as mediators through digital technologies. The challenge of this thesis is to take up the idea of objects and humans as mediators translating each others activities and then to account for human experience without invoking a separate cognitive realm which occurs outside of this network of interrelating objects.

Memory and perception then become massively distributed categories. Approaching these psychological activities through photography and digital photography allows us to notice that the activity of remembering and perceiving are distributed across, and mediated through, multiple images and technologies arranged in situations with multiple subjects sharing stories in a multitude of locations with the possibility of doing so at the same time. If we now add digital imaging technologies into this account, the network of individuals and objects expands along with the points of access to the images as they are made available on the World Wide Web and take place in multiple locations. This of course applies to all images multiplied under digital reproductive technology such that art works can be viewed away from their original location.

Digital photographic technology and the activities that surround it invoke these psychological categories of memory and perception as we saw in chapter 1. However the nature of the digital image offers an alternative settlement of the nature of the relationship between images and human psychology. In everyday activities, the processes of perceiving and remembering (held by traditional psychology to be a faculties of the inner world of the mind) with digital

technologies are distributed across vast networks that are neither purely subjective nor objective.

As we follow the lines of activity and chains of associations connected by mediators between people and technologies that make up these activities around digital technology it also quickly disperses or distributes that which we traditionally take to be psychological across multiple objects (images and reproductive technologies) and subjects (family, friends, consumers, web surfers) far beyond the experience of the individual in the head or beyond an account of knowledge based purely on subjective observation.

Therefore, as we follow the connexions through the inquiries desk of digital photography we find ourselves having to find a place in our account for multiple objects and people in vast networks of technology and practice engaged in endlessly multiplying the instant caught in an image in many different locations as people share images and save multiple copies and distribute altered images for public consumption. And yet we must not lose sight of the activities of remembering and perceiving. The question becomes how we can factor in these networks to generate a psychological account of these activities from in the midst of these networks. The aim of the thesis is to present a vocabulary and set of theoretical resources to account for these networks of people and technology; the relationship between points in the network and the nature of the connexions. The final major concern of this thesis will be the attempt to escape this settlement of world, image and the observing subject by approaching the relationship between humans and technology in local settings from within a 'new settlement' of the relationship between humans, images and the world.

This new settlement, much like the old, will come with its own psychology. If the old settlement and its psychology rested on positioning the image between the observer and the real world, then the new settlement can be understood as a reconfiguration of image along the lines of Barthes' photograph; carrying the world with it. Indeed following Actor Network Theorists, I will argue that photography is just one mode of translation whereby we always encounter the world through mediators as always already taken up and under translation.



This insight is what unites the writers and philosophers and sociologists that I will present in this chapter, as they take another path other than that of Descartes'. To do so is to be able to look at the old modernist settlement, in which there is a real world and a subjective world connected in some unspecified way by images, from the outside. The difference between the paths will be ultimately presented as a difference in the theory of image variously designated as the difference between the *ideological* and the *topological*, or the *symbolic* and the *allegorical* modes. The difference is in a shift in image from something that simply is in correspondence with the world or with our minds to an entity that operates as Barthes photograph or in Latour's vocabulary as a "circulating reference"(Latour 1999). We will unpack this shift in the second part of this chapter.

The task in this chapter is to discover and uncover this second path through the work of Bruno Latour. Latour's work will provide a substantial part of the theoretical 'back bone' of the thesis from which the work of other thinkers will be approached. I begin with a review of his recent work on 'reality' in the field of Science Studies. His critique of what he refers to as the 'modernist settlement' begins with a treatment of modern epistemology and psychology. Central to this is a reconfiguration of the image as a representation to the images as a 'circulating reference.'

From this second path Latour (1999a) gives us an overview of the first well trodden path and we will be able to see the history of psychology from behaviourism to cognitivism and the recent turn to language in discursive psychology as permutations of the same underlying settlement of subject over and against object, connected by images or representations. Throughout the thesis we will then be able to see, with the help of Bergson, Benjamin and Heidegger - our guides along the new path - how psychology and Descartes' path blind us to the relationship of technology and the world to humans. Latour, Bergson, Heidegger and Benjamin are all then in their different ways thinkers of the 'image'. Following their work means that right at the centre of this thesis is a new

settlement of relations between humans and the world rooted in an alternative conception of image.

Following a discussion of Latour, I will then introduce Henri Bergson whose critique of psychology at the turn of the 20<sup>th</sup> century, I will argue, was an attempt to do for the mind in psychology what latterly Latour has done for the object in sociology. That is, reconnect it and hold it in the same register with its traditional counterpart. For Latour this means reconnecting the object with the social and for Bergson the mind with the world of matter.

In the last part of the chapter, I will briefly introduce our other two main thinkers that inform this work - Walter Benjamin and Martin Heidegger. In their different ways, these thinkers tackled head-on, the place of technologies of mass production and social relationships conducted through mass culture in reflecting back to us our modern conception of 'Massive mankind' that we find in the 'subject' of psychology and the human sciences. Like Latour and Bergson, the nature of the 'image' is central to both of their critiques of modern metaphysics.

### **Thinkers of the image**

#### *Latour- (re)discovering the path*

Bruno Latour is a key writer and thinker in the discipline of Science and technology studies (STS). In his recent book 'Pandora's hope' which is subtitled "essays on the reality of science studies", we find a summary of how the achievements of Science studies differ from the efforts of traditional philosophers of science. Latour writes; "instead of the stuffed scientists hanging on the walls of the armchair philosophers of the past, we have portrayed lively characters, immersed in their laboratories, full of passion, loaded with instruments, steeped in know-how, closely connected to a larger and more vibrant milieu."

Latour presents this description, which comes in the first few pages of the book, as he ponders the odd view of STS (to Latour at least) that he encounters in



a psychologist, who takes him aside and asks him at a gathering of scientists and science students; “Do you believe in reality?”

“Is reality something we have to believe in?” (Latour 1999a:1) asks Latour in response.

The psychologist’s question leaves Latour perplexed as to how STS has come to be seen in this way by scientists, as something which threatens belief in reality and therefore the very objectivity of scientific practice. The answer to the “image problem” of STS lay not in the research agenda of STS itself but in the position of the questioner who sees STS insights as a comment on the accessibility of an outside world to the scientific gaze. From this viewpoint, all that which Latour takes to be the basis of objectivity - the involvement of vast numbers of nonhumans (charts, lab equipment, reports, photographs, pedocomparators etc) in scientific practice and the production of facts, as things with history, culture and flexibility- looks suspiciously like an attempt to say that facts and objects as part of the outside world are merely ‘constructed’. Approaching objects as entities with their own sociality, history and contingencies does not fit into a system whereby objectivity is taken as opposed to construction. In such a system an object is either there *or* it is constructed but it can never be there *and* constructed. Including some notion of constructed and historical contingency in our approach to objects sounds from the psychologists point of view like the postmodern move to detune the mind from reality and expose mental pictures for what they are, just mental constructs behind which is lost any guaranteed contact with the objective world.

The implications of such a view are clearly massive for science, which explains itself in terms of a set of methodologies which guarantee or support an ‘objective’ channel for the alignment of human knowledge with the outside world. Science operates within a view of objectivity as the correctness of fit between a representation and object so that there might be a one way flow of accurate information from world to mind. Any hint of the constructed and social aspects of objects in an account of how we know the world appears to be saying that the world is a mere human construct since sociality is a purely human kind of relationship to be kept clear of objects altogether if objective access to them is to be guaranteed (Latour,1999a). STS claims that “objects are social” and so at best

appears to doubt the guarantees of science to get a clear look at them without human sociality or agreement polluting the pure gaze, or at worst seems to be saying there is only pollution and the real world has been lost. In his opening chapter Latour unfolds the development of the psychologists position and explains why STS has been read in these terms.

Latour's answer to the underlying framework that is deployed by the psychologist forms the argument of the book. It is an argument for the reality of science studies, that is, how Science Studies has been "adding realism to science." Latour pronounces; "who loves the sciences, I asked my self, more than this tiny scientific tribe that has learned to open up facts, machines, and theories with all their roots, blood vessels, networks, rhizomes, and tendrils?"(1999a:3) Latour is taken aback that this wasn't clear to the scientists at the gathering - "Then I realised I was wrong. What I would call "adding realism to science" was actually seen, by the scientists at this gathering, as a threat to the calling of science, as a way of decreasing its stake in truth and their claims to certainty"(1999:3).

Latour finds the root of the misunderstanding in the "strange invention" of an "outside" world and the subsequent fear of losing it (1999:3a). The fear of losing such a world was the foundation of Descartes philosophy. But only one answer to his question was available since what Latour refers to as 'sturdy relativism' had been buried three hundred years ago by the very formulation of Descartes question. For those reading *Pandora's Hope* as a starter to Latour this is the announcement of the project, to recover this sturdy relativism, which constitutes the register within which Science Studies operates. Descartes asked how an isolated mind could be absolutely rather than relatively sure of the "outside" world. The formulation of this question detaches the mind from the world and in doing so it reshapes our understanding of relative knowledge. Latour states that:

Of course, he framed his question in a way that made it impossible to give the only reasonable answer, which we in science studies have slowly rediscovered three centuries later: that we are *relatively* sure of many things with which we are daily engaged through the practice of our laboratories. By Descartes's time



this sturdy relativism, based on the number of *relations* established with the world, was already in the past a once-passable path now lost in a thicket of brambles (1999a: 4)

Latour's sturdy relativism has nothing to do with the certainty or uncertainty of our knowledge of an outside world but refers instead to a recognition that every entity that makes up the world takes up its place in relationship to other entities. For Latour there is not a world outside and another world of the mind, there is only one flat world made up of networks of relations between objects each mediating for each other. That is lending each other form and continuity. The more mediators an object has relations or connections with the more real it becomes and the longer it lasts.

Latour argues that Descartes presented us with a 'brain in a vat', separated from the world and its body, where the only connection that matters is the tenuous link to the world formed by a gaze of the subjective observer. The tenuous link begs the question of certainty and configures its own kind of relativism which is concerned with the incommensurability of view points. It results in a version of relativism which, unlike sturdy relativism, has nothing to do with mediating relations and connections between things. Instead it is an epistemological relativism concerned with destabilising the one single tenuous connection between the brain in the vat and the outside world that Descartes allowed. It is a system built entirely on doubting the reliability of the gaze which simply requires pointing to many other equally valid gazes, and as such modern debates between realist and the relativist epistemologies can be traced back to Cartesian metaphysics and its brain in a vat, along the path that western epistemology has been treading for 300 years.

In formulating the question of certainty in this way Descartes set the terms of human engagement with the world as epistemological and psychological categories based around the image. The image in this system was conceived of entirely in terms of the gaze, as the intermediary zipping up and down this channel between the world and the mind; a vehicle of transmission; a symbol given off by the real world whose unenviable task was to faithfully transmit to the mind,

without transformation, all the information it was dispatched with otherwise it failed to be a symbol. It is significant then that in a book written about the study of science that Latour starts with a question from a psychologist who attempts to stand up for science against the science students.

It should come as no surprise that the psychologist becomes the defender of science; he is the holder of the settlement of categories that western epistemology deploys for our understanding of science and the world, which ultimately rest on a psychological account of objectivity and worldly connection. Latour describes this state of affairs where all questions about Humans, their relationships and the world are tackled all at once as the “modernist settlement.” He argues that the modernist settlement:

has sealed off into incommensurable problems questions that cannot be solved separately and have to be tackled all at once: the epistemological question of how we can know the outside world, the psychological question of how a mind can maintain a connection with an outside, the political question of how we can keep order in society, and the moral question of how we can live a good life- to sum up, “out there”, “in there” “down there” and “up there” (1999a: 310)

The empiricists dispensed with Descartes appeal to God as a survival kit to shore up the connection between the “brain-in-the-vat” and the world outside and instead asked whether the world was able to send “enough information to produce a stable image of itself in our minds” (1999a:5) The empiricists retained the mind in a vat and Latour argues that they sought to train it to recognize patterns. He says that the tabula rasa “was as disconnected as the mind in Descartes’ times”(5) and was expected to extract from a world of meaningless stimuli “everything to recompose the worlds’ shapes and stories” (5).

He says; “the result was like a badly connected TV set, and no amount of tuning made this precursor of neural nets produce more than a fuzzy set of blurry lines, with white points falling like snow. No shape was recognisable. Absolute certainty was lost, so precarious were the connections of the senses to a world that



was pushed ever further outside. There was too much static to get any clear picture”(1999:5).

Latour clearly sees even the modern day materialists as extending the life of the brain-in-the-vat; materialists who wouldn't dream of invoking an ephemeral, cognitive, other-world of unextended mind-stuff, but who ground the mind firmly in biology and never mention representations. Even so, the leap from the world to the neural net still requires the reproduction of the former in the latter by the connection of the gaze just like a badly connected TV set.

Kant's solution to the empiricist's 'poor reception,' according to Latour's potted history of philosophy, was to provide a fixed tuning grid so that the mind, unable to form pictures from the bad reception, extracted from itself, a priori, all that it needed to organise the fuzzy lines and dots into a steady picture through pre-designed universal categories. On the basis of a detached mind-in-a-vat, Kant abandons absolute epistemological certainty and opts for moral certainty and the universality of the system of scientific thought instead. Latour writes;

“if we abandon absolute certainty, Kant said, we can at least retrieve universality as long as we remain in the restricted sphere of science, to which the world outside contributes minimally. The rest of the quest for absolutes is to be found in morality, another *a priori* certainty that the mind-in-a-vat-extracts from its own wiring”(1999: 6)

We can see how, through Kant's philosophy; politics, morality, epistemology and psychology, are gathered in around the “despotic ruler of reality”(6) - the brain-in-the-vat - and how scientific discourse on the objectivity of the gaze (which simply reflected this settlement) became the bastion of certainty against the possibility of multiple other equally valid points of view.

In a similar but way to Heidegger and Benjamin, Latour sees this settlement of a world connected to the human by the gaze, as a strategy for managing the masses and thus as a political move. For Latour this system sets up the threat that the masses or the mob might be the final authority in matters of truth as they

threaten to over run certainty, breaking the connection with multiple “points of view.” Yet at the same time this settlement controls and manages that threat with stories about the objectivity and the authority of science and the scientific gaze.

The modern settlement sets up and manages the connection of the gaze, the transfer and storage of representations or images, as such it is the core model that underpins and shapes the modernist engagement with humans and the world.

The brain-in-the-vat is the perfect solution to a world which is only known through representation; a world which only works and has order if there is a despotic TV set to pick up the transmission and to manage it. This settlement is similar to Rotzer’s (1996) understanding of digital technology acting like the mind, shaping reality. However, for Rotzer it is digital technology that is the despot not the TV, because digital technology models the Kantian construction of the world. The TV set, in reality simply receives and decodes; digital technologies on the other hand lend themselves to the Kantian reading of them by the modernist settlement because they can generate ‘realities.’

But as Latour goes on to point out, this transcendental ego or mind-in-a-vat, has been seen for its limited strategic value: “it would not be long before people realized that this “transcendental Ego,” as Kant named it, was a fiction, a line in the sand...a negotiating position in a complicated settlement to avoid the complete loss of the world or the complete abandonment of the quest for absolute certainty” (Latour, 1999a:6).

And I would reiterate the point made above that the loss of the world is made possible by the very settlement that makes it something one can lose by providing the conditions for a transcendental ego to emerge. Thereby creating the problem it is set up to solve.

Problems design their own solutions. In philosophy at least, there is no such thing as a bad solution only badly stated problems as Gilles Deleuze argues (1991). Latour stresses in the opening chapters of *Pandora’s Hope* that to understand science and technology studies requires recognition that STS is not the



latest in a long line of solutions to the problem of how the mind in the vat knows the world. Instead STS restates the problem entirely and therefore has much to say to the modernist formulation of the epistemological problem.

It is for this reason that 'society,' which came to replace the ego, was such an inadequate solution to the Kantian/ Cartesian problem because it failed to restate the problem and was simply a new permutation of the solution to the same old problem; a world that needs organising in a register that is characterised by everything that the world is not. 'Society' replaced the mind as that register with its own brand of a priori categories, traditions, cultures, biases etc, that all fall as intermediaries between the outside world and the spectator as a 'world view.' Latour argues that the move from mind to 'society' made humans, who were once prisoners of their own individual categories locked away from the outside world, into prisoners of the categories belonging to their social groups. He says that the prisoners were all thrown into the same dormitory and that far from escaping the mind in the vat, "society" simply groups minds in vats together against the world outside. The move from mind to society also opened the way to the complete loss of any notion of the universality of a priori categories because once society is set up against the world, multiple societies start to appear to us, or - as Latour argues by extending the metaphor - it opens multiple prisons; "everyone was not locked in the same prison anymore; now there were *many* prisons, incommensurable, unconnected. Not only was the mind disconnected from the world, but each collective mind, each culture was disconnected from the others"(Latour 1999a:7).

Each 'prison' is made up entirely of a conception of sociality which excludes the brut 'thinghood' of the world. In this development of the modernist settlement the label 'Social' is applied to everything that is not the world outside, in the same way that 'mind' labelled everything that wasn't extended and measurable world. Mind didn't belong to the world but *was* outside the world just as society and sociality under the same settlement also do not belong to the world. The implications of this for saying that any scientific fact or object has some social aspect to it are that for every degree of sociality the object gains it losses a degree of objective reality since it cannot occupy both ontological categories of

the world and the social at the same time. Thus what it takes from one category it possesses at the expense of its membership of the other category.

With the move to 'society' comes a swing in favour of 'social' explanations for 'natural' things. In other words, social explanations for everything become more powerful than natural explanations which seek to invoke nature as the foundation for true statements. Latour sees much social constructionism not as a solution to the Kantian framework but the next stage in its development. The only change he says is that now the shift to "discourse" celebrates the loss of the world behind language.

Every defect of the former position is now taken to be its best quality. Yes we have lost the world. Yes, we are forever prisoners of language. No, we will never regain certainty. No, we will never get beyond our biases. Yes, we will forever be stuck within our own selfish standpoint. Bravo! Encore! The prisoners are now gagging even those who ask them to look outside their cell windows; they will "deconstruct," as they say- which means destroy in slow motion- anyone who reminds them that there was a time when they were free and when their language bore a connection with the world"(1999:7).

The psychologist interprets the research agenda and the findings of STS as part of this development, which is precisely why he asks Latour 'do you believe in reality?' The psychologist reads the STS assertion that objects have sociality as part of the social constructionists attempt to collapse the "world out there" into a purely social realm where the loss of the world behind the rising power and increasing opacity of language is celebrated. However STS claims that instead of gaining social reality through the move to the 'social' objects loose their true sociality. For Latour and his STS colleagues, sociality is the relationships of mutual mediation that exist between things in the world, and it is this chain of connections that is lost from the analysis in the move to discursive method where 'discursive' only refers to linguistic activity. When everything is collapsed into the 'social' or language, nothing of the contribution of the object to the discourse can be made visible. The object loses its sociality according to STS because it is



forced into an *artificial* sociality that operates by robbing the object of 'thinghood'.

However, from within the 'modernist settlement' an entity can not be both an object and a social construction, it has to be either or. It is for this reason that when STS talks about the sociality of objects all that the psychologist can hear is that reality has been given up as lost to language, and, that truth is handed over to the masses and mob rule. However, according to Latour the psychologist (without recognising it) interprets STS as the natural development to his own 'modernist settlement' that opened the way to loosing the connection between language and the world in the first place.

Before we go any further I want to rescue my project from that interpretive frame by setting it in the slip stream of Latour's masterful exit from the modernist settlement through his restatement of the 'image' problem. By positioning the empirical work of this thesis amongst the work of Latour, Bergson, Benjamin and Heidegger I want to resist a reading of the discursive parts of this project as another development of the brain-in-the-vat hypothesis. With Latour I want to reconnect Descartes' bodiless brain with its own ecology which is made up of words and things in circulation. According to these thinkers, the connection between language and the world is not based on the gaze but on the connection that Latour helpfully calls 'circulating reference' and which the psychologist misses because he doesn't have the framework to notice it.

The modernist problem was formulated in a way in which the Connection between language and the world required a leap across a correspondence gap separating the thing from its representation. Latour restates the problem not in terms of a leap but in terms of a chain of translation. Underpinning this shift is a change in the conception of 'image' from a 'symbolic' to an 'allegorical' register.

### **The allegorical conception of Image in Latour's Work**

Latour (1999a) describes the symbolic register when he argues that the correspondence that modernity assumes between speaking and seeing requires us

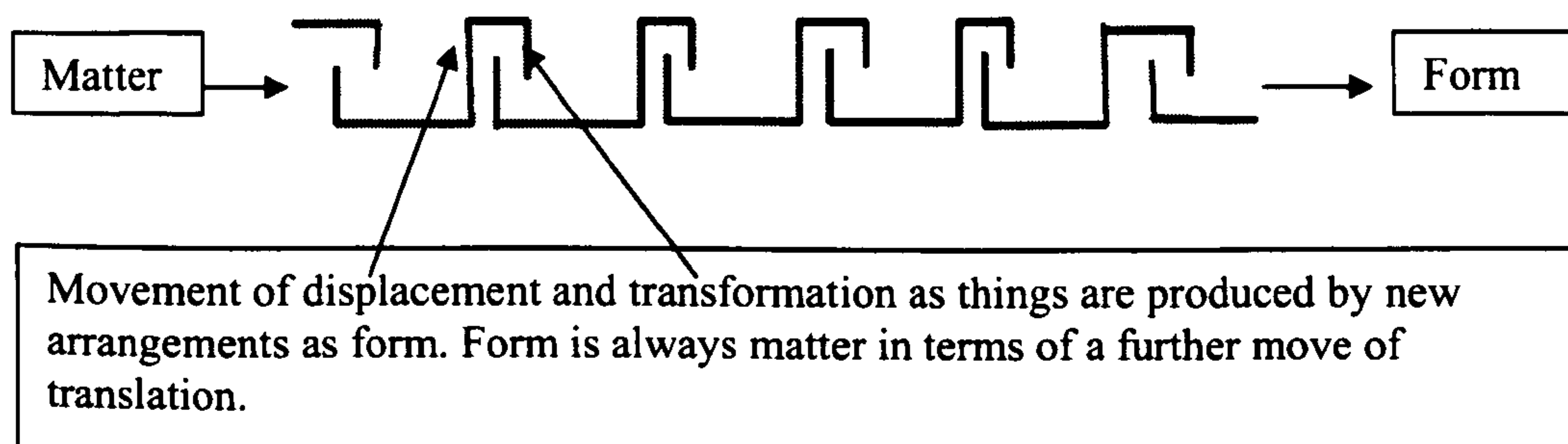
to accept an unmediated leap across the gap between signified and signifier. This leap across the gap, created by the gaze, is of course what the move to language and the social denies is possible. However, Latour argues that language never operated in those terms and as such the social constructionist critique of the settlement it seeks to solve adds nothing. It simply extends the life of the problem. Latour argues that “The cat is on the mat”, as a sentence is not *the* actual cat sat on the mat in front of the speaker. No one would ever seriously argue that the words and the objects were the same thing. Instead the sentence is a complex series of culturally and historically contingent displacements and transformations through which the words come to stand for things. The word “Cat” is a transformation and displacement of the object in a similar way to Barthes photos. The object as the content of the utterance has no unity with the form of its vehicle of displacement, i.e. the words ‘cat,’ ‘Mat,’ ‘sat’, which transforms it. The sentence “Cat on the mat” makes the complex and historically contingent alignments of culture; language; animals; the practice of keeping animals *as* pets; doors; door related accessories like door mats, etc, visible, manageable and transportable and therefore reportable elsewhere. The symbolic-logical content of the arrangement of words invites us to see these terms are linked by a conventional structure, whereas what Latour demands we see is the work that goes into making the practices, which then become material for conventional symbolization.

The modernist settlement for Latour operates with the notion that content dictates form and sidelines the historically contingent form of the presentation of content, which is a transformation, and displacement of content. STS gives technology and objects a voice in its analysis as a means of transformation and displacement to make other things visible.

Hetherington and Law, in a draft paper called “Allegory and interference: Representation in sociology,” agree with Latour and give us a view of the allegorical register. They say that the “Modern [epistemological] project seeks to let the eye speak directly but in allegory the relation is less direct” (22). In the system of allegory things stand for things that are not present. As Hetherington and Law say “allegory relies on similitude, on a chain of signifiers where there is no direct correspondence between matching signifier and signified. Instead, there



is a mobile play of connections between them” (22). It allows us to see that what was once read as the signifier or form is now read as an allegorical achievement and it becomes the mode of constructing or locating or making visible that which it signifies. The content, or signified matter, is constituted as it is given form. That is, as it is translated. Within this understanding, the photograph is best understood as an allegorical achievement rather than as a sign pointing to a signified event. The photograph stands for an event in another time and place, making it transportable by lending the event its form.



*Figure 1* (derived from Latour, 1999a:73: fig 2.24).

Objects, people and events mediate each others' activities in this way. One entity can take on the form of another entity in order to engage in a new set of relationships. In Figure 1 Latour shows this relationship as the movement from matter to form through displacement and transformation. In these terms the event, which is depicted in a photograph, is the matter that is given form by the photographic technology as a two dimension impression in chemicals on paper. In this form the event is transformed and displaced so that it can be inserted into action in various places and times.

Latour (1999) explains this diagram through his example of the pedocomparator that organizes and contains samples of soil arranged in terms of depth and area of extraction in a transportable case. The soil samples in the pedocomparator are not explained by the forest floor, which they come to represent, rather, the forest floor is made visible by its translation as a set of samples organized into a case (the pedocomparator). The pedocomparator is a set

of transformations and displacements where by the forest floor is moved and described in terms of the features of the pedocomparator.

The pedocomparator is another set of technical, scientific, and socially arranged practices that give form to the forest floor in a way that makes it available and visible to a particular economy of inquiry and a specific set of scientific issues to be addresses in other times and places. Further transformations and displacements will enable it to occur in multiple places and times, e.g. when it is turned into reportable results in tables and charts in a written report for publication. Figure 1 shows the move of displacements and transformations. Each transformation is a reconfiguration of an object in terms of a new set of practices and materials that give it form. Since all form is historical contingent, it is always open to further transformations and displacements. Chains of transformations and displacements stand as chains of ‘circulating reference’ through which matter moves through transformations and displacements to occur in modified forms in different programs of activity. This chain links the sign at one end with the signified and the other; the research results in a table of figures with the forest floor or the “cat on the mat” with the cat on the mat. It is also this very chain that disappears from view when the modernist settlement approaches the relationship between each of its ends – between the sign and the signified.

This is the foundation of the sturdy relativism that Latour wants to recover in *Pandora’s Hope*. I will explore the implications of Latour’s chains of circulating reference in a modified form (see for example, chapter 4 on Walter Benjamin and allegorical progression, and Chapter 5 on Henri Bergson and duration) as an alternative foundation for empirical research in psychology. Sturdy relativism, with its emphasis on associations between entities, sees these associations as mediating relationships and therefore should not be confused with a crude associationism, nor, with a post-modern relativism which is another version of the modernist “brain-in-a-vat” settlement, as we have seen. Following Latour we will trace things and words and people associating by mutual translation into chains of circulating reference.



*Henri Bergson, the image and psychology*

Henri Bergson's *Matter and Memory* ([1908]1991) was an attempt to do for the mind in psychology what Latour has done recently for the object in sociology, that is, reconnect it to and hold it together in the same register as its traditional counterpart. For Latour this means reconnecting the object with the social and for Bergson the mind with the world partly through materializing mind in a different way – seeing the body as the link between the dynamic processes of perception and memory. Bergson's account of human experience, begins with positioning the human as an 'image' within continuous networks of entities, that Bergson also calls 'images,' which selectively reflect the activity of each other (in chapter 5 I will unpack the nature of these processes).

Following Henri Bergson, the critique of psychology that will be explored in this thesis will be made precisely at the point through which Bergson identified a crisis in psychology that is, the nature of 'image'. In his opening chapter of *Matter and memory* he begins to introduce his compelling notion of the 'image' as a vehicle for exploring the paradoxes of 'image' as conceived in a representational framework. For Bergson, Psychology stands for that inherited western metaphysics which approaches image in terms of knowing the world by placing it in a representational register where images occur between the two poles of ideology and the real world. Bergson's crucial move in *Matter and Memory* is to understand 'image' not as something that stands between a subject and a real world but as a term that describes the condition of all things. He says;

Matter, in our view, is an aggregate of "images." And by "image" we mean a certain existence which is more than that which the idealist calls a representation, but less than that which a realist calls a thing- an existence placed half way between the "thing" and the "representation" (Bergson, [1908]1991: 9).

Within Bergson's work 'image' switches from its paradoxical position in the modern settlement as a veil between the observer and the world to something which reflects. As Bergson argues, this is far more in keeping with the common

sense notion of an image. It therefore follows from the switch from veil to reflection that in terms of human experience psychology is no longer about access to the world outside but about being included within networks of reflection. Perception is not a relationship between an inner subjectivity and an outside world but is a kind of order between “images” that includes humans. Bergson says “I call matter the aggregate of images, and perception of matter these same images referred to the eventual action of one particular image, my body.” (Bergson, 1991: 22)

As a property of the network of images the study of Perception for Bergson concerns the scope of connections and disconnections between images rather than the reception of ‘outside’ information in the manner of a TV set with the world being rebuilt from the signal in an ‘inner’ subjective space. This has implications for the study and conceptualisation of memory which can no longer be understood as a weaker form of perception and the storage of fading representations. Instead with Bergson memory becomes an issue of the local ordering of ‘images’ and how the past is inserted into spatial networks of entities.

Bergson understands memory and perception in terms of the difference between space and time rather than between the subject and the object. I will unpack this in chapter 5 but for now the shift that underpins Bergson’s work is a shift in the conception of image from thinking in terms of a subject encountering an image or representation of an object to images as mediating time in spatial and material arrangements or networks of mediating entities. Although Bergson doesn’t use the term ‘allegorical,’ the relationships that exists between his ‘images’ fits this register and so in chapters 4 and 5 I will draw on some of the parallels between Bergson and Benjamin.

Latour’s circulating reference, which I have couched in terms of allegory, also echoes Bergson’s images. Since an image only passes on or reflects those parts of other images which are relevant to its situation, reflection has much in common with Latour’s use of the term ‘translation.’ As an image takes on and reflects back selected elements of other images; it transforms them and displaces them by passing on selected elements.



*Benjamin and Heidegger allegory and the world picture*

For Benjamin photography and the cinema need to be seen in terms of allegory rather than the representational symbolic register of Immanuel Kant, in order for us to recover the authentic experience of being confronted with the world that they fragment and arranged for mass consumption. With Benjamin we will understand something of the distributed psychological experience in the moment of consumption that occurs as a holding up and arresting of the mass movement of photographic images through technology. For Benjamin there is nothing beyond this mass that the mass represents, there is just mass movement out of which representations are formed.

Benjamin was concerned with how the unity of the symbol and signified was achieved. Benjamin's project can be understood as reclaiming the analytical power of the allegorical register (Bell, 1997) which had been seen as inferior or as a failed symbol, and reconfiguring the symbolic order as an allegorical achievement in nature.

If the Kantian notion of the symbolic concerns a unity of form and content as we have seen, then communication occurs immediately in the transfer of a symbol because the idea is both contained *in* and *is* the symbol. Bell (1997) argues that as opposed to the immediacy of the symbol, allegory finds its expression in the flow of time and in the arbitrary connection of form and content. Walter Benjamin writes:

The distinction between the two modes is therefore to be sought in the momentariness which allegory lacks...there [In the symbol] we have momentary totality here [in allegory] we have progression in a series of moments. (Benjamin, 1977:165)

The difference is that Allegorical relations between form and content are historically contingent- occurring only for a moment without binding content to form in an unbreakable bond. The symbolic mode's immediacy and unity of word

and object, form and content is taken to be outside of time and therefore permanent and universal. This is because traditionally, understanding of the symbolic mode excludes the work that has to go on in aligning or folding up and securing the symbolic relationship from the analysis. In other words, analysis proceeds by removing the chain of circulating reference that links form and content. However, as Bell argues, since the symbol attempts to signify something beyond its self it lets in time. Its unity of form and content is illusionary.

According to Bell, Benjamin recasts the universal symbolic unity as a temporally and historically contingent totality. This would mean reducing the correspondence between sign and signified to Latour's transformations and displacements. Since allegory concerns relations between signs and the things they come to signify through time, there is a connection between the symbolic mode and the allegorical. Since the symbolic unity of sign and signified constitutes one moment, it is a single moment in allegorical progression. As such the allegorical relationship needs the series of symbolic moments, and, as we have seen, the symbolic itself has to be arranged from objects relating allegorically, that is, through transformation and displacement. The greater of the two modes then for Benjamin and his analysis of photographic technologies is allegory since it is allegory that is the mode of constituting the symbolic; the mode of presenting an image. I will return to Benjamin in chapter 4 where I will unpack his critique of modern technologies of mass reproduction as a way to understand the kinds of networks that humans are included in with digital technologies.

For Martin Heidegger the modern metaphysics that underpins modern science configures the world as a picture that presents itself to the perceiving subject and thus promotes the conception of man as the seat of certainty and the measure or pivotal point upon which whose subjective gaze the existence of the world relies. He argues:

The fundamental event of the modern age is the conquest of the world as picture. The word picture [bild] now means the structured image [gebild] that is the creature of man's producing which represents and sets before. In such producing, man contends for the position in which he can be that particular



being who gives the measure and draws up the guidelines for everything that is. (Heidegger, 1977b: 129)

The despotic TV set of Latour returns, but this time in the analysis of Heidegger the only image that it broadcasts and receives is its own. The result for Heidegger is that all man ever meets in his conquest of the world is himself reflected back. Eventually man himself through the various scientific practices of the human sciences is challenged forth to stand as a picture in front of the perceiving subject *as* the perceiving subject, as something on 'standing reserve' waiting for manipulation as something to be 'used up' as a resource. Human science spawns and underpins human resources departments. This is what we see when psychology attempts to account for the place of technology in human activity. Invariably human metaphors are deployed to interpret technology and technological metaphors to understand humans. "Observation of and teaching about the world change into a doctrine of man, into anthropology" (Heidegger, 1977b: 129). And here we come full circle to Rotzer where we started and the problem of Digital photography becoming, in the final analysis, an expression of the way the brain works or an extension of psychological faculties.

Benjamin and Heidegger's critique of modern mass reproductive technologies are at the same time critiques of the modern conception of man and as such they both can be aligned with Bergson as thinkers of image outside of a representational register. Latour, Benjamin, Heidegger and Bergson point us forward to a different conception of image and ultimately an alternative foundation for psychology. This is the aim of the thesis to make the argument for and plot the shape of an allegorical or 'process' psychology, through a consideration of these thinkers in relation to data collected from people using digital images in three settings; Families around their digital cameras and technology; amateur photographers; and web based presentations of family.

Digital images are networks of mediating objects in which there is a constant interplay of matter and form in rapid movement. They are then images which illustrate the full allegorical nature of images in general. In order to approach the interaction of people and the rapid movement and mass nature of digital images in

terms of human experience and psychology we have to establish the framework with which to approach the relationship between humans and technology. This is the aim of the next chapter.



## **Chapter 3**

### **Context and process: Heidegger, technology and humans**

In chapter 1 and 2 I argued that our conception of the nature of the image shapes our understanding of the nature of human psychological experience and interaction with the world and technology. In this thesis I am arguing for a conceptual shift in our understanding of the image from a representationist framework to a network or process framework. To this end the empirical focus of the thesis is people and their relationship to digital images. The digital image has been understood in representationist terms as analogous to mental representations. However, it is the contention of this thesis that the digital image, perhaps more than any other form of image, demonstrates the networked nature of all images. Since psychological accounts of the relationship between people and images are bound up with the representationist conception of the image, a shift in our understanding of how humans relate to images will have significant implications for our conception of psychological experience. Before working through the psychological implications of people using digital images, we need to establish the framework for understanding the relationship between technology and people that accompanies this shift in the conception of image. That is, the nature of human relationships to technologies that produce and manage digital images.

In chapter 6 I will present some examples from an evening spent with some amateur photographers learning to use Photoshop. I will make broad reference to this data set throughout this chapter.

These examples present a case where the nature of the interdependency makes it difficult to make an analytical separation between technology and people. Without the people the photographic society would have no “society” and without the technology the society would not be “photographic.” In this chapter I want to explore some of the theoretical resources available for questioning the interaction

of technology and humans. Therefore I am pursuing an understanding of technology and humans that will help us begin to grasp how the technical parts of the photographic society meeting, for instance the PC, software, images, cameras, scanners, and data projectors relate to the collective nature of the activities that the members engage in. Crudely put, to answer this we must clarify what belongs to the photographic and what belongs to the social in a meeting of a photographic society. Do the photographic parts of the interaction create the societal parts? In other words, is it a *Photographic* society? Or, do the human social parts discover and adopt and shape the technology? In other words, is it a photographic *society*? Or, is there a third option where by we can understand these two terms as representing a relationship of indebtedness where the society is technical and the technology is social at the same time? The various ways of conceptualising the relationship between technology and humans that I will explore in this chapter can be understood in terms of the way in which they construe the relationship between these terms 'photographic' and 'society', or, more widely, in terms of how they construe the relationship between the technical and the social.

Studies of Human Computer Interaction (HCI) are an obvious place to begin an inquiry into the relationship between humans and technology. In the human computer interaction literature there has been work which not only looks at the relationship between humans and computers but more specifically the relationship between computer technology and humans in the context in which it is situated. This literature explores the way in which context shapes the interaction of humans and computers in action. In what follows I will consider approaches from a version of Human Computer Interaction that has been informed by a particular reading of Martin Heidegger. I will also consider work from Martin Heidegger himself and recent work by Bruno Latour.

There are two interrelated issues that we will deal with as we move through these writers. The first is their way of managing the tendency to think contextually or spatially about the relationship between technology and society. The second is the place, nature and status of the social interpretation of technology.



On the first issue, as we saw in chapter 2 Latour (1999) argues that the representationist framework positions humans on one side of a correspondence gap with the world and technology on the other; separating the social from the natural; the subject from the object. In this system (which collapses all questions into the psychological problem of human access to the world out there) the image is an intermediary between the subjective observer and the world. When it is in the world it is a picture; when it is in the head it is a mental representation. Because of its organization of the world in terms of a gulf (which is bridged by the to and fro and storage and processing of representations) between the social and/or cognitive and the natural and/or technical this framework shapes how we think about and explain the relationship between humans and technology.

Callon and Latour (1992) argue that the separation of the human, social and cognitive world from the natural world produces two competing sources for explaining how reality is structured. They call these positions “social realism” and “natural realism”. Callon and Latour explain that these positions compete for the position of which one structures the interaction between humans and the world. “Social realism” assumes that society is the constant basis for human collective agreement on facts and what is true and real in the natural world. “Natural realism” assumes that human collective agreement on the nature of the natural world is based on existence of natural objects. In terms of the relationship between technology and humans, for the “natural realist” (or the technological determinist) it is technology that holds its shape and structures society and human relationships and agreement. In other words the “natural realist” wants us to see social relations in the overarching context of the structures of the natural and technical “real” world. For the “social realist” it is social phenomena like power relationships, for instance, that hold their geometry and shape technology and nature. In other words, the “social realist” would like us to see technology and the real world in terms of the overarching context of social relations and agreement.

Both positions treat the relationship between human activity and technology as distinct entities that relate as context and content. For instance treating human activity as a pre-given context into which various technologies are inserted. Alternatively, technology might be understood as the pre-given context into which

new forms of human activity and relationships are inserted. It then follows that we can evaluate new technologies or emerging social relationships in terms of the pre-given context. So, as we shall see, for Winograd and Flores, working within the HCI tradition, technology exists and functions in a pre-given social space which for them is primarily a language space. It follows that the very nature of technology varies in terms of the forms of discourse that surround it.

The second issue of interpretation of technology and how it is ordered is therefore bound up with the first as is the case with Winograd and Flores. The position we take on the first issue in terms of what constitutes technology and how it is ordered (is it a space that shapes and contains human relations or a social construct, contained in social space?) commits us to a position on how technology is socially interpreted and the status and nature of that interpretation. Social interpretation becomes either that which constitutes the technology or that which is received by society from the technology. Therefore the second issue is concerned with the nature of the activity of language. That is, whether language directly reflects technology or may be said to actively construct it.

The privileged position that Winograd and Flores give to language is based upon a particular reading of Martin Heidegger's earlier writings on technology in *Being and time*. However, other readings which we will discuss do not arrive at the same position. For example, one of Heidegger's concerns is to escape from the tendency to think spatially, that is, to treat one class of entity as the context for another.

Heidegger replaces an account of technology entering social space or its converse, with an account of technology and humans "taking place" in the sense of an event marking out the boundaries and opening up space rather than simply occupying some super ordinate, determining space or pre-given context that is either purely technical or purely social in nature. That is, Heidegger understands the interdependency of humans and technology as a matter of relationships of indebtedness.



We will return to this later but for now the key difference is that space may be seen as a process of unfolding as objects and people open up, close down and mark out and shape spatiality by the nature and arrangement of their interdependent relationships with each other.

The final writer that we will turn to is Bruno Latour. For Latour what technology is depends upon unfolding arrangements of actors. It is not settled by either humans or by technology. What is striking about Latour is his refusal to accept that “technology” and “human” as category distinctions have any explanatory power whatsoever. Instead what constitutes any object, space, person, or society is an unfolding arrangement of tools or mediators which are technical and social, natural and human, such that they may be collectively understood as hybrid entities. Actor network theory (see for instance, Callon, 1986a, 1986b, 1991; Latour, 1986, 1991, 1999) applies the label “actors” to these technical and human and natural entities, in order to make them visible in terms of their action on other actors rather than in terms of an arbitrary category membership. Objects are made up of networks of actors acting upon one other to transform and displace and stand for each other. For example, the photographic society may be seen as neither primarily photographic nor social in nature, but instead as a collection of interrelating actors where the photographs, data projectors and keyboards are as active as the club members in having the photographic society ‘take place’. The objects have no less a role than the members and their language.

For Latour, language isn’t the sole productive engine but is rather one of many modes by which this hybrid entity is held together, or, to use Latour’s preferred term, language is one of many modes by which hybrid entities are *articulated*. In which case, following Heidegger and Latour, we need to extend the concepts of articulation and sociality to objects as well as people and language and make the articulation and mediatory activity of technology visible in our account.

Part of the work of this chapter will be to understand what Latour means by his use of the term mediation. The chapter will unpack this position as we arrive at it through a critique of “contextual” traditions in HCI where a technical or social

context for activity is invoked to explain the order and shape of activity, and, Winograd and Flores' (1986) reading of Heidegger

As part of the empirical work of this thesis I want to be able say something about the arrangement and interaction of humans and their computers. To that end we must engage with the theoretical frameworks that are available to us that offer up systematic mappings of the relationships between humans and technology to guide our analysis. In our example setting we have a group of hobbyists whose activities are inextricably linked to the technology they use. In the HCI literature there is a strand of work looking at context-aware technology. This strand deals with context-aware computer systems without direct reference to desk top computing (e.g. Moran, 1994; Norman, 1998; Agre, 2001; Dourish, 2001; Winograd, 2001). Nevertheless for our purpose we may interrogate the close relationship of technology to people it proposes in its theorising of context which offers up a potential framework for guiding the analysis in the empirical portion of this thesis.

We could approach the data examples in the empirical portion of this thesis and begin to manage the analysis of it by trying to discern what constitutes the "context" or setting in which the activities take place. Dourish (2001) places conceptions of context right at the centre of HCI work when he presents a brief history of HCI in terms of two major traditions which approach context from very different angles. These traditions are attempts to define context in order to determine how one would 'carve up', for analysis and for design purposes, situations made up of humans and computing equipment. Dourish's (2001) purpose in presenting these two approaches is to reconcile the two traditions at the point at which the technical context (understood in terms of the physical attributes of a situation therefore all that is not included in the social) meets the social context by an appeal to the work of the German philosopher Martin Heidegger. As we shall see later this produces an explanatory tension between the two categories or contexts which cannot be resolved.

Dourish argues that there is a technical or physical conception of context and a social conception of context to be found in the HCI tradition. Both strands look



to their formulation of context to understand the situation of technology and make recommendations for design. Dourish (2001), commenting on the agenda of two projects with a technical conception of context, marks out three key features. He says that they:

Both attempt to exploit our natural familiarity with the everyday environment and our highly developed spatial and physical skills to specialize and control how computation can be used in concert with naturalistic activities. Second, they both use spatial and temporal configurations of elements and activities in the real world to disambiguate actions and so make computational responses a better fit for the actions in which users are engaged. Third, they both look for opportunities to tie computational and physical activities together in such a that the computer “withdraws” into the activity, so that users engage directly with the tasks at hand and the distinction between “interface” and “action” is reduced (Dourish, 2001:232).

The first two points present categories under which we can understand naturalistic activity. One concerns the user and is characterised by a set of pre-given human physical and cognitive skills for operating in measurable space. The other concerns the arrangement *in* time and space of activities and objects in the real world where activities and objects are understood in terms of their positions and change in position in time and space. Real world activity occurs at the point at which the “natural” abilities of humans to operate in time and space meet a situation or a task that is constituted by the position of its various elements including its trajectory of completion or resolution are marked out in time and space. Activity in these terms is completely measurable against time and space. It follows that technology reaches its optimum functionality in these terms as it reflects the naturalistic activity of humans and responds in measurable, spatial and temporal terms to the features of the task at hand. It is then possible in measurable spatial and temporal terms, or more specifically in terms of a spatial understanding of time, to mark out a way in which we can evaluate the success of technology. For instance, if technology speeds things up or moves objects or information closer to humans then it can be regarded as successful. Context from this perspective is made up of natural ‘real world’ entities, including in some way,

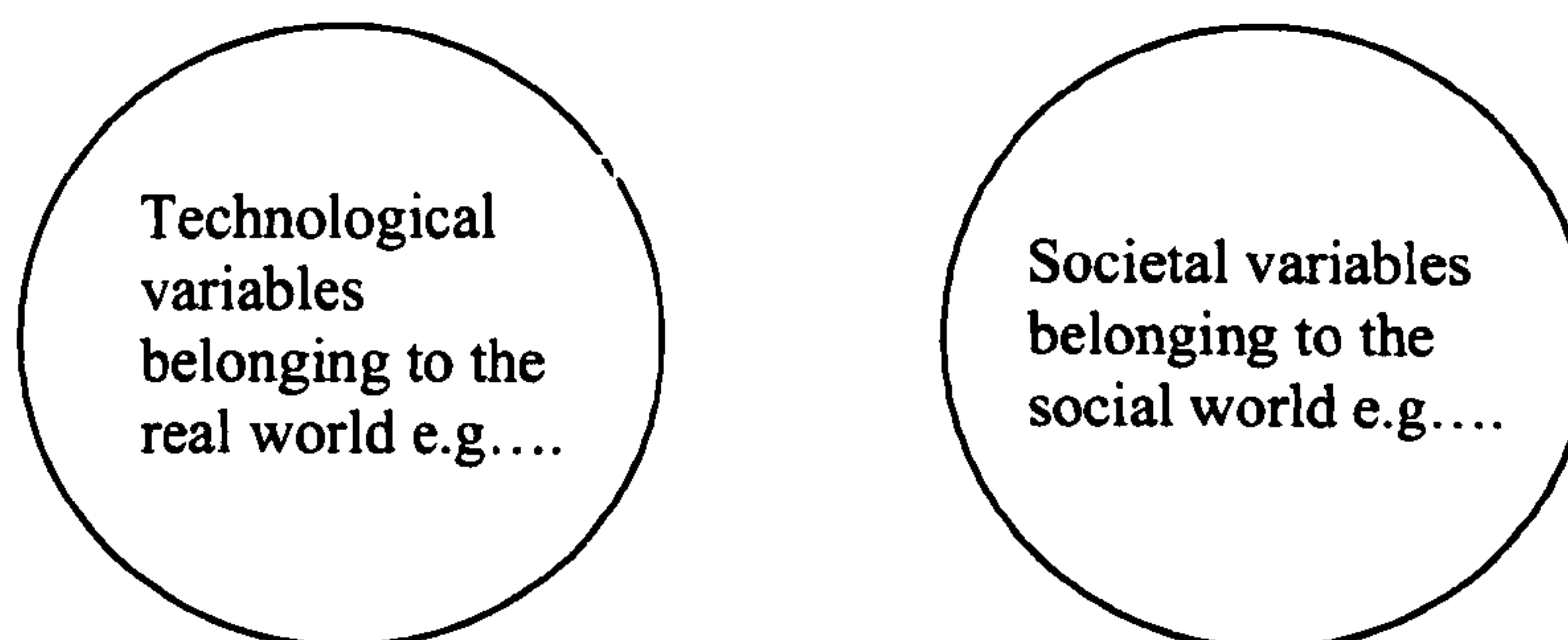
the physical and cognitive attributes of humans in the world which are understood in terms of the spatial and temporal situation of activities and elements of the real world.

The natural physical context, determined by and measurable in time and space, is used to shape technology to the end that it would “withdraw” into the set of physical variables and task variables that shape, constitute, and describe activity and technology in a setting. That is, successfully designed technology would not spatially or temporally hinder ‘real world’ activity.

The social conception of context within the HCI tradition draws on sociological studies of technology where;

they look at the context in which that interaction emerges- the social, cultural, and organizational factors that affect interaction, and which the user will draw upon in making decisions about actions to take and in interpreting the systems response (2001:233)

Dourish argues that we can hold these two perspectives together by recognising that they are attempting to come to the problem of humans and computers and design from complementary angles. Any situation that involves humans and technology in action includes task components that are physical, that is, measurable against time and space, and social components. According to Dourish, as we honour these two approaches in our analysis, we have to start with the idea that there is technology on the one hand with its class of variables to which it belongs and society on the other hand with its own class of variables (fig 2).



*Figure 2. Two classes of discrete variables*



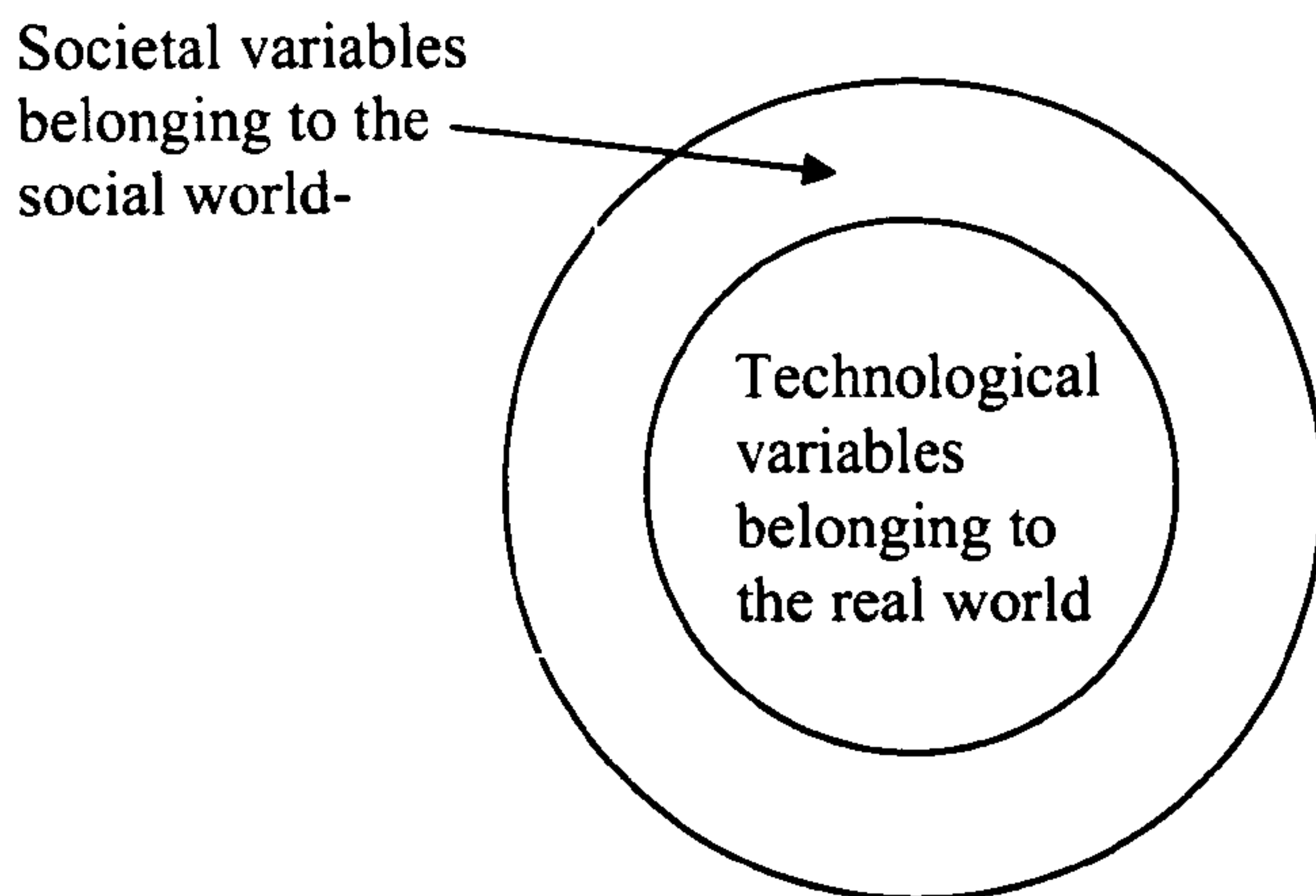
Let us return briefly to the meeting of the photographic society. The evening was set up as a tutorial session on how to use Photoshop. They had a small room with a screen filling most of one end, upon which Photoshop was projected. There was one “expert” operating the program from his own computer brought from home. He was sat at the opposite end of the room from the screen, and everyone else was packed in down the sides of the room or behind the tutor and in the doorway facing the screen at the other end.

Dourish’s approach would lead us in our analysis of our example of the Photoshop tutorial session to stack up all physical variables on one side, like the hardware; the room; the images; cognitive capacities of the users; the task components etc, and social kinds on the other like social agreement and the institutional organisation of the photographic society. The analysis would then attempt to break up the tasks and activities attempted by the group in terms of their physical spatiotemporal characteristics and at the same time to study the emergence of social agreement on the interpretation of the technology. We would be looking for how two distinct classes of discrete variables, those that belong to the social and those that belong to the physical or technological, contribute to the production of the evening’s activities.

Dourish’s solution to understanding how the two sets of variables relate is to bring them together by embedding the technological class of variables into the social class of variables so that the social variables become the context within which we find technology (Fig 3). Figure 3 shows these two classes of variables operating and relating to one another under Dourish’s solution as content and context. The assumption is that we always encounter technology and the world through activity set *in* the social context through the activity of the social context. It follows that we encounter technology through the social realm of human relationships and communicative practice. Dourish claims that:

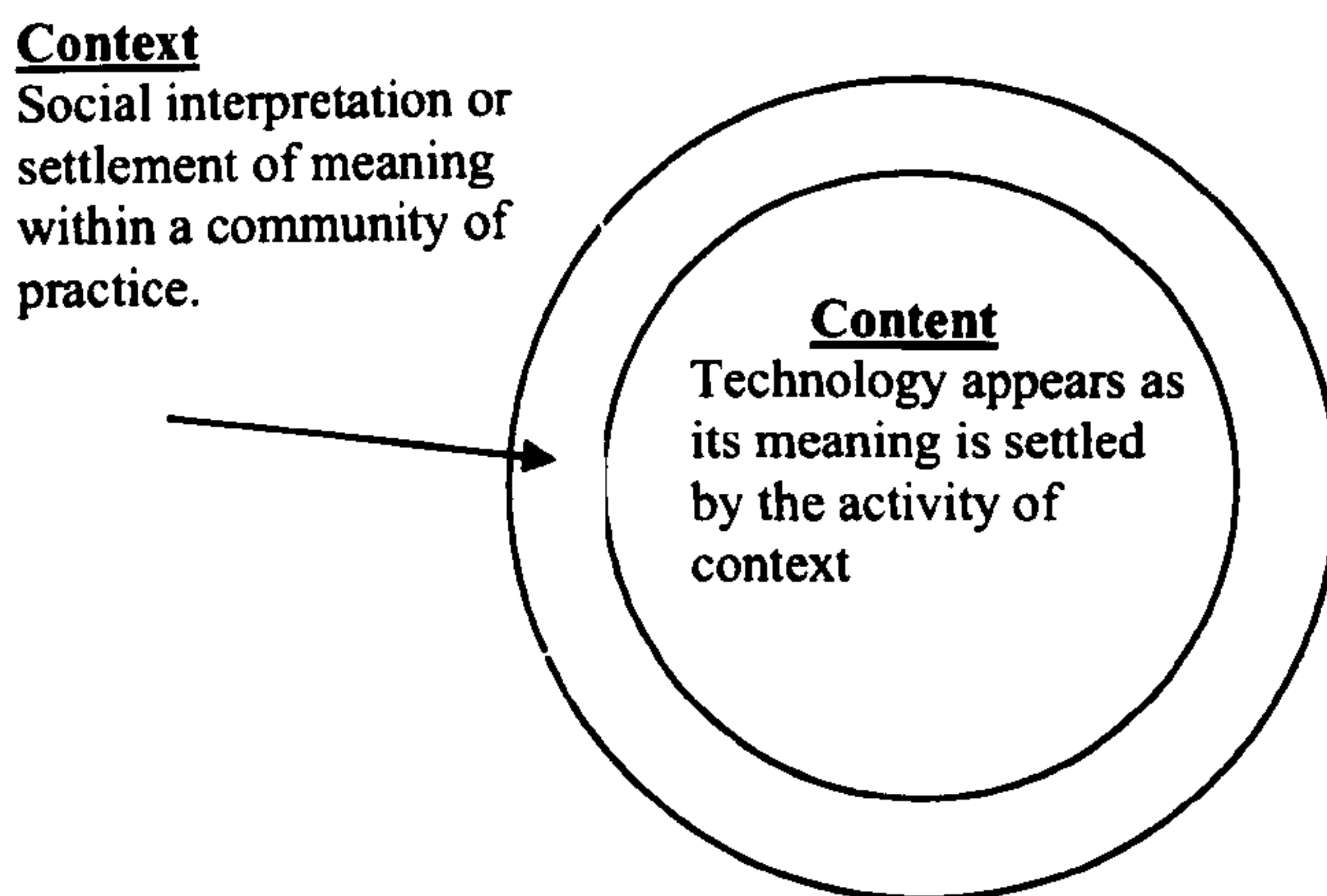
This suggests that if the meaning of the use of the technology is, first, in flux and, second, something that is worked out again and again in each setting, then the technology needs to be able to support this sort of repurposing, and needs

to be able to support the communication of meaning through it, within a community of practice. (2001: 240).



*Figure 3. Technical embedded in social*

In this scheme (fig 4) the social consists of a community of practice engaged in settling the fluctuating meaning of technology. These categories relate to each other as one category acts as a context which lends significance and stability to the other which is inserted into it or passes through it. The social context can be understood in these terms as a community of practice (the outer ring) whose action is to construct meaning and significance and lay it over the technology (the inner circle) that is inserted into the social practices.



*Figure 4. Social context shaping the interpretation of technical content*

The social interpretation of technology and the technology itself come together in forms of activity that are primarily social in character. The social context is the active agent as it lends significance to the technology that is contained within it. The role of the technology is made visible, in the analysis,



simply as an occasion for this kind of social activity. It follows from this that for design purposes, good technology merely facilitates its own repurposing and social interpretation in a way that smoothes the path of meaning negotiation that occurs in and through human communication (Dourish 2001).

Dourish's (2001) project belongs to traditional HCI studies where the analytical problem in addressing technology and situated activity becomes one of identifying the context (social or technical) which is providing the structure in the interaction. Theoretically, technology and humans can never meet in the same register as co-active agents. One will always have to passively await the active intervention of the other. Moreover, one end of the interaction will always emerge from the other. Contextualisation always forces us into an economy of explanation that only registers influence in one direction at a time. When both directions of influence are held together they cancel each other out. Digital technology cannot be held to structure or produce cognition or human social activity if it is from cognition and human social activity that it first emerges and receives its order. It is a line of enquiry that requires us to hold one set of variables steady, either the technology or the human society, as an organising principle or agent and explanatory grid that impacts or appears in the passive other set of variables. One set of variables cannot be both independent and dependent at the same time, either the technology is shaped by society and society is shaped by technology. Dourish fudges these two competing explanations by papering "embodiment" over the point of conflict, the point of interaction, the very thing we want to investigate.

While the analytical framework that focuses on interaction at the point of embodiment promises much, Dourish's retention of the two research agendas renders his promise of Heideggerian ontological insight unfulfilled. Moreover, the design agenda to have technology withdraw into context (Dourish cites Weiser, 1991, and Ishii and Ullmer, 1997, as examples of this proposal) shapes the explanatory, theoretical and analytical agenda that makes technology subservient to two different explanatory registers at the same time. Technology disappears twice, once into the wall and then into the social meaning. We sit in the middle of the interaction between social forces and physical forces.

Agre (2001) in the same special issue of 'Human-computer interaction' on context-aware computing makes a similar error. He invokes architecture instead of technical context which consists of buildings, doors and physical objects arranged in particular ways, and institutions instead of social context that consist of persistent structures of human relationships. These two forces come together to shape "practice" or interaction. But the competing registers are managed here by another fudge in the form of coincidence or mapping precisely at the point where some account needs to be made of the way that humans and technology operate together. Mapping occurs where the institution (the social stuff) maps onto the architecture (the physical stuff). Again the tools for analysis are set up as opposing forces that sometimes coincide in a way that has them come close to each other but never mingle.

Dourish's attempt to merge these two traditions by mixing the variables that set them apart is informed by a particular reading of Heidegger within the HCI literature. We will return to his work and ask whether it holds these two registers or sets of variables together in a truly Heideggerian worldview after we have understood the emergence of this scheme in figure 4, from a particular reading of Heidegger.

### **Heidegger in the HCI Literature**

This tradition within human-computer interaction where technology is understood as a socially interpreted entity, purposed with the facilitation of human communications can be traced back to the work of Winograd and Flores (1986) and their interpretation and application of some of the writings of Martin Heidegger.

In *Understanding computers and cognition*, Winograd and Flores (1986) set out to reposition our understanding of computers in terms of communication rather than computation. Computation metaphors for understanding computers are informed by a rationalistic tradition which sees an objective reality that is open to observation governed by scientific rules of engagement that are based on



guaranteeing the objectivity of subjective, mentally held representations of the world along logical lines. Within this world view computers become extensions of human cognition as they come to be understood as systems for managing representations through logical computational rules.

Winograd and Flores reject the rationalistic tradition and see it instead as a socially agreed interpretative framework or background within which computers and humans are made to appear. Instead (following Heidegger) Winograd and Flores start out by questioning technology in terms of the role that tradition and interpretative frameworks play in its constitution. This repositions technology within human collective activity and experience which for Winograd and Flores is understood fundamentally as language based and concerned with social interpretation and communication as opposed to private cognition.

Their dual concern for social interpretation and human experience is shaped by their reading of Heidegger as a thinker who constitutes an intersection between hermeneutics (the study of interpretation) and phenomenology, which as Winograd and Flores (1986) describe it is; "The philosophical examination of the foundations of experience and action"(9). Interpretation in a social context is the terms of human experience and this position on the human in the world marks the terms of Winograd and Flores's rejection of the rationalistic tradition.

Writing about the hermeneutic and phenomenological approach, which they find in Heidegger they say that;

this tradition has emerged from humanistic studies, and is concerned with the relation of the individual to the context- especially the social context- in which he or she lives. It emphasises those areas of experience where individual interpretation and intuitive understanding (as opposed to logical deduction and conscious reflection) play a central role (1986: 9).

What is central here is the idea that human experience and activity are primarily interpretative. In addition, this interpretive activity takes place within the social context rather than the real world. It is in these terms that Winograd and

Flores approach the Heideggerian project of questioning concerning technology. If human experience is largely made up of and mediated through action in the domain of language, then technology is encountered in some way as it enters that domain. It is at this point where language encounters technology that is key to understanding Winograd and Flores reading of Heidegger because it is this point, or moment, that the Heideggerian distinction of two ways in which the 'being' of technology is encountered becomes relevant. These ways are, the *present-to-hand*, and the *ready-to-hand*.

We can briefly flag up the distinction between the present-to-hand and ready-to-hand as a way of encountering objects with Heidegger's famous example of the hammer (Heidegger, 1990), although we must keep in mind that the difference is far more subtle than this example reveals as we shall see.

The hammer in action, hitting a nail, is encountered as ready-to-hand as it is with in its proper network of operation. As such, it goes unnoticed and is part of the hand and arm engaged in the action of hammering. Until, that is, the nail that it hits belongs to a thumb then the hammer shifts out of its regular set of operations and appears to us as the thing that inflicted the pain and so it becomes present to us as we encounter it as an object out side of its network of readiness. It is encountered as present-to-hand. At the risk of oversimplification the key point is that the hammer never leaves its "to-handedness", but it is to hand in two different ways as ready and as present.

In order to understand the way Winograd and Flores go onto manage and work with these terms and why they eventually take them beyond a Heideggerian framework we need to take a brief detour into Heidegger's writings to discover how the distinction between the *present-to-hand* and *ready-to-hand* manifests itself in the modern rationalist settlement that Winograd and Flores reject. That is, how are objects made present to hand in the rationalist tradition, and, through what kinds of networks are they made available? What is at issue here is the understanding of how technology is ordered in human experience and so a small digression into Heidegger's work is necessary at this point.



### **The present-to-hand in the metaphysics of presence**

These ideas then are central to the issue of how humans manage experience and think about their technology. The movement between the ready-to-hand and the present-to-hand will become important in chapter 8 for understanding how digital images are managed by computer systems which operate by continually moving between the two ways of Being.

According to Heidegger, historically, 'being' has shown itself in different ages in different forms. Modern metaphysics is the latest in a line of ways of tackling the question and letting being 'show itself'. Stenner (1998) summarises Heidegger's tour of the history of western ontology. He states; "for the pre-Socratics, being was thought as *physis*- the unfolding or *becoming* of beings through *kinesis* and *genesis*" (1998:62). This understanding of being was replaced by a 'substance ontology' that was concerned with the persistence and endurance of entities. The switch was from an ontology of process to an ontology that "prioritises that which is present (rather than in-process) and permanent (a 'metaphysics of presence')" (Stenner 1998:62). Since then western ontology has been through a number of permutations of this shift from process to presence. All have followed Plato and Socrates' separation of the idea (*eidos*), from the object. The idea is taken as permanent and the object as transitory, borrowing its form from the idea as it reflects it and therefore making a distinction between the two.

It follows from this ontology that the Modern version of the 'metaphysics of presence,' according to Heidegger, is received from Descartes. Stenner (1998) asserts that

Descartes is considered 'modern' because he insisted on a clear distinction between thought and extension which separates being into, on the one hand, a mathematically specifiable realm of brute 'thinghood' and, on the other, an ephemeral but self certain subject who can find security in the objectivity of that mathematization (1998: 63)

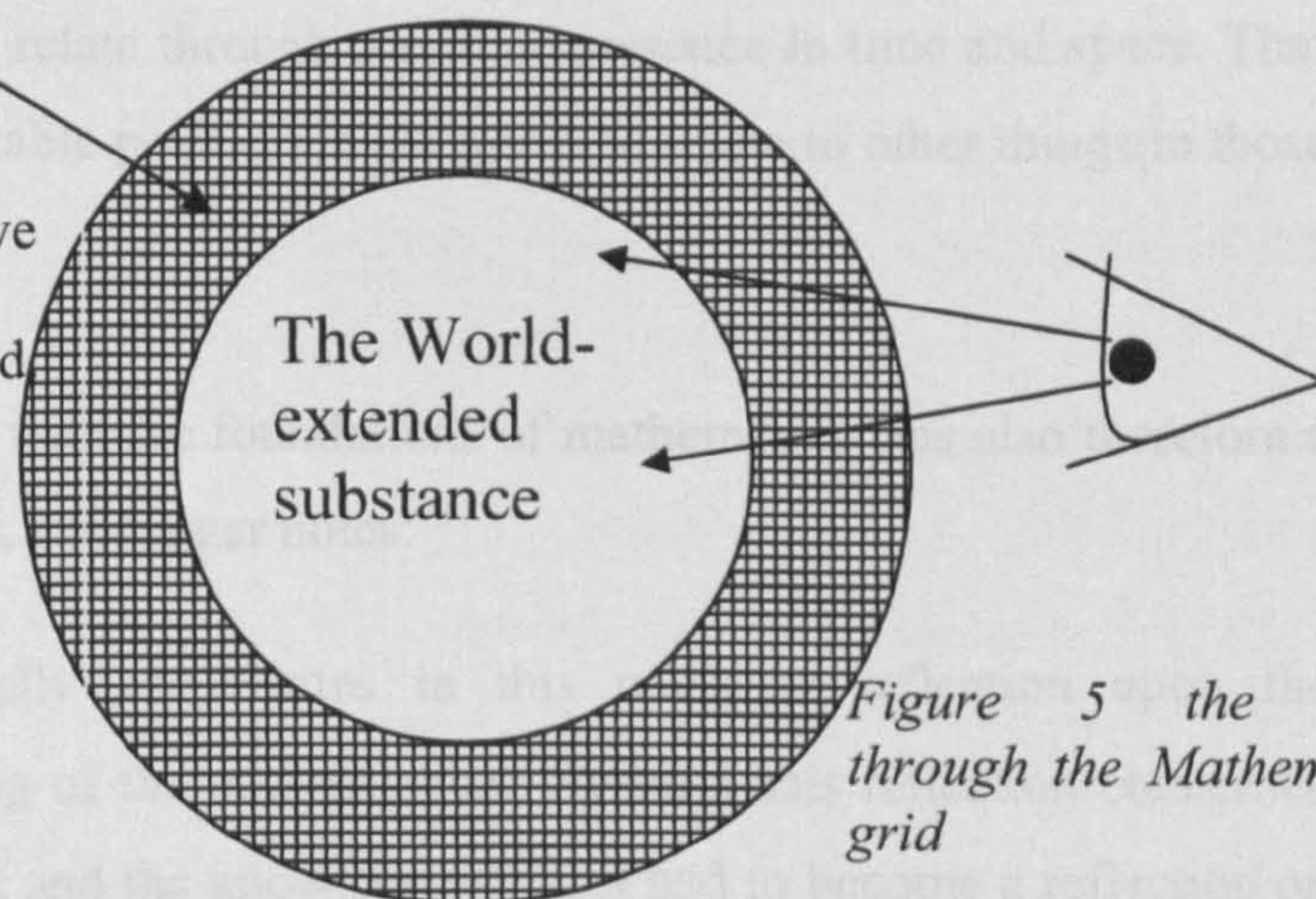


Descartes modern settlement carves up the world into these two realms so that brute thing hood presents itself to an ephemeral subjectivity through the logical structures of the mathematical grid which stands between the realms having emerged from the realm of thought and where those logical structures provide their own guarantee.

We could express this scheme in terms of a content (i.e. the world) presenting its self through another register (i.e. the mathematical grid) which is, by definition, external to it. That is, the register or grid is of a different kind to the content over which it is laid. Again we would arrive at this diagram (fig 5) where the context is, in this case, the mathematical grid that stands between the knower and the known (the content) and guarantees the knowledge of the content by lending it the terms of its appearance or presentation to us, the observing subject.

Stenner (1998) summarises Heidegger's view of the activity of Cartesian mathematics when he says "Cartesian co-ordinates can be laid over any extended substance which can henceforth be 'known' by the subject as such" (63).

Mathematical grid  
which belongs to the  
realm of thought, laid  
over the world which  
guarantees the objective  
status of what can be  
known about the World



*Figure 5 the world through the Mathematical grid*

According to Heidegger, Descartes philosophy is not simply a commitment to how we come to know the world. Heidegger says the "story of Descartes, who came and doubted and so became a subjectivist, thus grounding epistemology, does give the usual picture; but at best it is only a bad novel, and anything but a



story in which the movement of being becomes visible” (Heidegger, 1978:297-298). He goes on to argue that it is not first and foremost to be approached as epistemology but rather, the fullest way to understand Descartes philosophy is as an articulation of the terms within which being was permitted to show itself within the age of Newtonian physics in which Descartes lived.

Newtonian physics, according to Heidegger, reveals ‘Being’ through a particular set of axioms. It is in this sense that Newtonian physics is mathematical in that it takes up the world into a system. We will return to this idea in the next chapter, for now we need to see that Newtonian physics sets the blueprint through which beings are permitted to reveal themselves. He writes: “As axiomatic, the mathematical project is the anticipation of the essence of things, of bodies; thus the basic blueprint of the structure of everything and its relation to every other thing is sketched in advance” (Heidegger, 1978: 292).

All questioning proceeds by an attempt to have things locked into a local order. Newtonian mathematics is a grid into which things are made to appear and so the grid provides the order which becomes the guarantee of knowledge and the blueprint of being. The Newtonian blueprint shows up the world as it is made present and its elements relate through a grid of presence in time and space. That is, things are their calculable position in the grid and relate to other things in those terms.

Descartes concern with the foundations of mathematics was also therefore a concern for metaphysics, Heidegger notes:

Descartes substantially participates in this work of reflection upon the fundamental meaning of the mathematical. Because this reflection concerned the totality of beings and the knowledge of it, it had to become a reflection on metaphysics (1978: 299).

The point I wish to make for now is first, that there is in this metaphysics a separation of ‘thinghood’ and thought and that being is shown through the object appearing or being presented in thought or presented to a subject. The result is that

being is taken to be that which accords with a set of axioms, as accordance with a grid of pre-established relationships. Where the 'metaphysics of presence' holds sway things have their being only as they are made present as a set of coordinates in a calculable field of force, motion and space. Calculation demands that things are presented in these terms and shown up as being in correspondence with the points in a pre-established grid. Being is reduced to the set of attributes that an object displays in terms of the grid within which it appears and is understood as that which can be correctly determined about an object with reference to its position in the grid of calculation. It follows that a proper understanding of an object corresponds to the correctness of fit between the object and an external point of reference provided by the pre determined grid within which it appears.

The way in which things are made to present themselves to us is tied up with the way in which they are placed at hand and rendered available to us. Is it from this relationship between the way in which an object is available to us and its manner of being present that an understanding of the ontological difference between the ready-to-hand and the present-to-hand will follow since they are two ways of encountering objects in the world. The present to hand in the modern or rationalistic settlement (where things are available in terms of the way they are calculably present) underpins the way in which modern science places things at hand for us. This is because the 'metaphysics of presence' shapes the form of questioning that science engages in. This kind of revelation of being that holds sway in the modern settlement through scientific enquiry and the activities of modern technology Heidegger (1977a) calls 'enframing,' (we shall return to this term and consider its implications in the next chapter). Stenner (1998) explains that, "where enframing holds sway, being (whether that be mountains or people) is permitted to reveal itself only in the form of a calculated ordering where what *is* is rendered usable and at 'hand' for people"(64-65).

Heidegger refers to this form of questioning that works through 'enframing' as *ontical enquiry* as it makes things present to hand. That is, Heidegger makes a distinction between questioning beings (ontic inquiry) and questioning Being (ontological inquiry). The former is set up to inquire after things placed at hand by



being placed in order (on order is closer to it where enframing holds sway) in terms of their correctness of fit with in a calculable grid.

Stenner (1998) gives a useful example of the way in which we might make an ontical enquiry into a drinking glass. He argues that in order to inquire into what a glass of water *is*, ontical inquiry would proceed by measuring the height of the glass. Although this measurement stands as an established and repeatable 'fact' about the glass and is therefore 'correct', this form of inquiry does not give us an ontological account of what the glass *is*. Stenner notes that:

no amount of further measuring and analyzing (of its structure and composition, for instance), perhaps with more and more accurate instruments, will get us any nearer to understanding what the glass is (the being of this being).....The glass, despite its obvious presence, is not simply something present-to- hand (1998:70).

An ontical inquiry has the object appear as present-to-hand. By contrast, ontological enquiry seeks to understand things in terms of their readiness-to-hand, that is, their availability as part of a network of use, or, in other words, its position in an 'equipmental totality.'

Questioning that proceeds by making things present-to-hand stands in contrast to ontological inquiry since ontic questioning extracts the thing from its set of relationships within which it is available in its everyday usage. Ontical enquiry, then does not reveal the 'being' of a thing; instead it reduces it to the terms of its appearance or *occurrence* as a calculable set of properties in a grid or measurement system. However, according Heidegger, modern metaphysics takes this derivative form of being to be the fullest, most substantial expression of the being of an entity.

Ontological questioning approaches the object through the way in which it points beyond itself through its availability to all points in the network that constitute it (we will return to this point later on in the chapter). Stenner (1998) nicely summarises the difference between ontical inquiry which reveals things as

present-to-hand and ontological enquiry which aims at understand an entity as it is ready-to hand. He writes;

in Heidegger's terms, the mode of being of equipment is not *presence-at-hand* (or occurrentness- the kind of being that objects have) but *readiness-to-hand* (or availableness). What is decisive about any equipment is that it always refers outside of itself (equipment is something *in-order-to*) and belongs within a wider network or 'equipmental totality' (70).

Winograd and Flores use the word processor as an example of a piece of modern technology which many users relate to as an object that is ready-to-hand, but that also appears to the factory owner as a set of objects that are present-to-hand. In order to make the ready-to-hand the focus of their study Winograd and Flores look at the purchasers experience with a computer rather than that of the factory owners on the basis that the former is embedded into an equipmental totality and the latter is encountered as merely occurrent, that is, present-to-hand. According to Winograd and Flores, it is in the domain of the purchaser that the word processor appears as what it actually is and that questioning what it does, leads to a proper understanding of what it is. They argue that questioning *what* it is leaves out "the fact that it is a medium for the creation and modification of linguistic structures that play a role in human communication"(1986:5). This fact, we are told, is what the purchaser is interested in since this is the understanding that comes from the everyday usage or ready to hand nature of a word processor. We only come across the factory owners understanding or the programmers understanding when the technology breaks down and ceases to be ready-to-hand and becomes present-to-hand.

However I want to argue that there is a subtle but vast difference between Winograd and Flores application of the present to hand and the ready to hand and Stenner's presentation of the same. The distinction between the factory owner and the purchaser in terms of how they experience the word processor does not illustrate or represent the difference between the present-to-hand and the ready-to-hand.



The factory owner still encounters the word processor in a purposeful network of practice. A study of the factory owner's experience of the word processor doesn't necessarily remove the word processor from its network but sees it in another network to that of the purchaser. For this reason it is hard to see why Winograd and Flores argue that the purchaser's experience is the more ontologically significant and revealing of the two settings. The difference between ontical and ontological accounts of being is in the terms of the enquiry and not in the difference between the situations an object appears in. So it is perfectly possible to make an ontological enquiry into the factory owner's experience of the word processor. It is also perfectly possible to make an ontical enquiry of the purchaser's experience by measuring aspects of it and therefore having it appear as a set of variables. That is, in terms of the way it is made present by a calculative grid rather than the way it operates in its network of practice.

To understand Winograd and Flores use of these two states of technology and their relationship to language we will look more closely at their introduction where they lay out the terms of the situated nature of technology.

### **Technology and Language in Winograd and Flores**

Having established that we need to understand technology in its everyday usage Winograd and Flores (1986) then go on to sketch out the network of functional relationships that the word processor enters and in which it operates in everyday terms. We have to understand the word processor in the context of "communication and equipment that it is situated in" (5). They argue that the word processor is not just about the production of documents. It has to be understood in terms of part of the network in which documents are circulated and make sense. These networks include publishers, post offices, computer networks, older forms of technology and practices like reading mail and buying books or conventions in the use of documents like their legal status for example. In short then, the word processor and user are tied into vast networks of communication and printing when a document is produced and it is in this network that a word processor operates as ready-to-hand.

In addition they argue that an account of technology that is sensitive to its position in networks of practice is not the full story. We also need an account of language. But what sort of account does that turn out to be? The answer is one where language becomes the wider context in which these technical networks of practice appear (fig6). This becomes clear when we consider how technology and language operate together in Winograd and Flores' view. They make two assertions, the first is that language constructs and orders the world and the second is that computers do not exist outside of the linguistic construction of the world. So, for instance, on the relationship between language and the world they say:

in this view, language- the public manifestation in speech and writing of this mutual orientation- is no longer merely a reflective but rather a constitutive medium. We create and give meaning to the world we live in and share with others. To put the point in a more radical form, we design ourselves (and the social and technological networks in which our lives have meaning) in language (1986: 78).

Language is therefore made the primary production engine of reality. Both the social and technological networks within which human experience is understood are ordered and constituted by language. It follows that computers and technology also are constructed in language. In the next paragraph they say:

Computers do not exist, in the sense of things possessing objective features and functions, outside of language. They are created in the conversations human beings engage in when they cope with and anticipate breakdown (1986: 78).

The clear implication is that there is no contribution from the computer to what is said about it apart from moments of breakdown in which it presents its self for discussion. Computers meet or appear *in* the domain of language in this moment of breakdown, that is, when things are no longer ready to hand but are unready and appear to us as present-to-hand and offer themselves up for discussion. They state that:



Following Heidegger, we prefer to talk about 'breakdowns.' By this we mean the interrupted moment of our habitual, standard, comfortable 'being in the world.' Breakdowns serve an extremely important cognitive function, revealing to us the nature of our practices and equipment, making them 'present to hand' to us, perhaps for the first time (1986: 77).

The movement from the ready to hand to the present to hand is understood in terms of the revealing of technology to, in, and through the domain of language for linguistic articulation. It is in this process of revealing through language that things come into existence for Winograd and Flores.

Existence is a matter of linguistic articulation according to Winograd and Flores. They avoid slipping into "linguistic solipsism" by having technology or the world present itself to the domain of language for arrangement or articulation in moments of breakdown. They write:

In saying that some 'thing' exists (or that it has some property), we have brought it into a domain of articulated objects and qualities that exists in language and through the structure of language, constrained by our potential for action in the world.(1986: 69)

In the final analysis, for Winograd and Flores, the technical networks of practice are well and truly situated in the domain of language, and as content they present themselves in breakdown to language for discursive ordering. The present-to-hand then is understood as a moment of the articulation of content- of being revealed in language. Therefore the diagram (fig 6) becomes a statement of the terms of existence. The present at hand becomes the event of technology presenting itself through breakdowns to language for revealing and arranging and creating that technology. The ready to hand becomes the status of technology already linguistically arranged and operating smoothly in terms of human communications. The ready to hand is understood as technology fitting into and facilitating human communications and the present to hand becomes an opportunity for renegotiation within the realm of human interaction. However, it is not clear in this scheme what state of existence is attributable to the ready to hand. Presumably it has already been settled and articulated in language but then

drops out of language and so out of social consciousness and presumably out of existence. Or perhaps it exists as well trodden forms of discourse? We are left to speculate because this 'settlement' makes no room for an account of technology that does not assume its subservient relationship to language.

The Domain of language- where the articulation of content and the ordering of the world takes place.

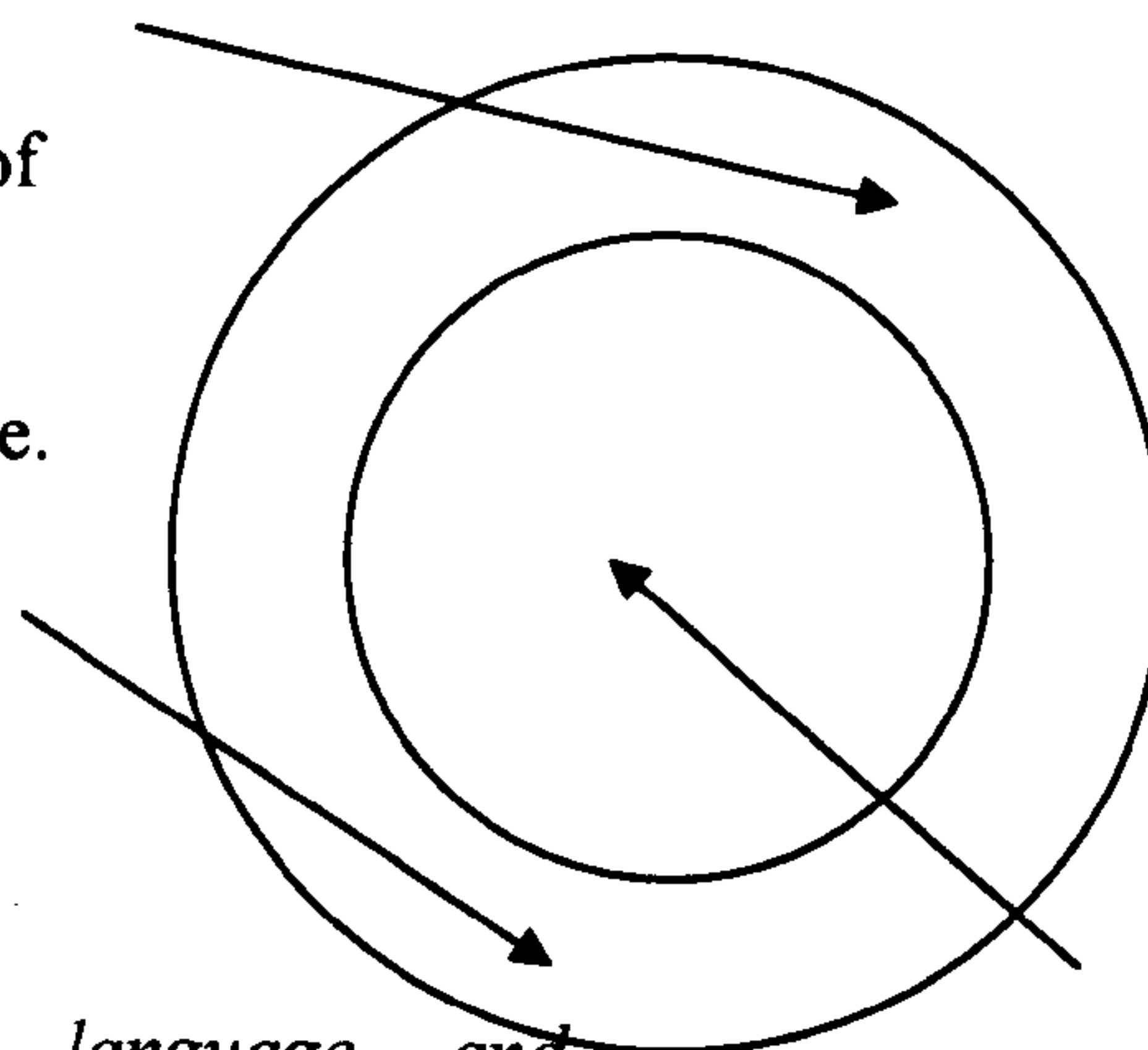


Figure 6. *language and technology*

Technical networks exist as they are called to appear as content when they present themselves in the domain or context of language as present to hand in the event of breakdown.

Moreover, this relationship between the present-to-hand and language whereby the existence of things present-to-hand depends upon the interpretative activity and structure of language is not recognised by other readings of Heidegger or in fact by Heidegger him self. Paul Stenner quotes Heidegger as writing:

In interpreting, we do not, so to speak, throw "significations" over some naked thing which is present-at-hand, we do not stick a value on it; but when something within-the-world is encountered as such, the thing in question already has an involvement which is disclosed in our understanding of the world, and this involvement is one which gets laid out by the interpretation (Heidegger, 1990:190-191, quoted in Stenner, 1998:74)

In Heidegger's account there is an 'involvement' that technology has with the world where interpretation is seen to emerge and unfold from the engagement 'with in the world' that an object already has. Rather than language and linguistic interpretation forming an over arching register which lends structure to anything which it covers language has to be seen as a co-mediator with technology and not something operating in opposition to the world but something which is always



already a part of the involvement that an object already has with the world. The kind of involvement that Heidegger has in mind avoids any attempt to privilege language over the world or the world over language because he sees the relationship between words, objects and people etc as one of indebtedness. We will return to this in the next section.

How do Winograd and Flores, informed by a reading of Heidegger's notions of ready-to-hand and present-at-hand, arrive at an analysis that assumes a set of relationships between technology and language that Heidegger's own project seeks to over turn?

The answer is that unlike Heidegger, Winograd and Flores, it turns out, have not rejected the rationalistic settlement as Heidegger and our diagrams present it, at all. Instead they have inherited it in a new permutation. Modernity looked to a rational subject in which resided value and significance to be projected on to an extended world, and now some forms of discourse analysis have replaced the subject with language as the unextended realm that projects value and significance as it articulates an extended world beyond it (Stenner, 1998). What they have rejected is the certainty of access to the extended world that mathematics and scientific method offered as a universal grid. They have rejected the rationalistic system or grid that guarantees objective access to the extended world and replaced it with language as the grid or register in which all things can be settled.

When they come to inject Heidegger's complex and subtle distinction between the two ways of being available into this scheme the present to hand and ready to hand are understood from within the metaphysics of presence. Language, like the grid it replaces, in Winograd and Flores analysis has things present themselves to it. That is, they are present to hand as they appear in language and then they disappear into the ready-to-hand as a linguistic flow. With this reduction of the world to the ebb and flow of language and the resulting under theorised contribution of technology (exemplified in the notion that computers don't have any meaningful existence outside of language) this account presents half the story.

If we wish to give an account of an evening spent with digital photographers in terms of what structures it (PhotoShop and the technical/natural stuff or the humans and the social stuff) or what holds the people and technology together in local configurations practice, we are already, it seems, faced with a situation where Photoshop has already been modified and co-opted into this strange set up. For the purposes of the group it has been blown up, projected onto a wall for the purposes of tuition. The activity of the man in control is also modified and amplified by the technology. All his actions are blown up onto the wall, since it is his expertise that we've all come to look at.

By virtue of its arrest and amplification Photoshop fills the room. It commands the lay out. The data projector, the very technology that the humans employ to tame and master PhotoShop in order to demonstrate expertise, hands PhotoShop command of the room and everybody's attention. It is very hard to spot a purely technical or social component or variable. Rather, we see chains of mediators modifying the actions of each other.

But with Winograd and Flores the world stands over and against language, waiting for language to come and articulate it. It stands ready to hand, available, no longer as points and movement in a grid, but instead in the flow of language. It begins to look like throwing significance over the naked present to hand object and so makes 'appearance' or presence in another register the terms of existence. It follows that Winograd and Flores scheme does not fit into a Heideggerian framework but a social constructionist one. Just as the modern settlement, by enframing, covers being by having things present their being in terms of another register, so Winograd and Flores present language as a mode of enframing, and, in their analysis practice enframing. That is, by having technology present its being in terms of an appeal to a higher register that is superimposed on to it. It is no wonder that they miss the involvement of technology in the world in the final analysis since its involvement is factored out before the analysis has begun.

Just like Winograd and Flores, but in a less sophisticated way, Dourish's take on interpretation is, in the end, an appeal to epistemological relativism in the form of social constructionism. Dourish makes it clear that the meaning of



technology, which he sees as in a constant state of flux, is a communicative meaning above the technology. This communicative flux is to do with changes in social agreement as to the purpose of technology. So we have technology facilitating and waiting on the achievement of a purely human social agreement on its status as a means to an end (its instrumental status), such that technology is sorted out and ordered in and by a social realm which is a completely different register outside of it. Dourish's Heideggerian insight by which he attempts to fuse the social and the technical realms, turns into a social constructionist statement made in the realm of ontical questioning.

Heidegger's view of technology is not as an intermediary that supports communication but as an interruption, a mediator that brings forth or in the case of modern technology, challenges forth settlements. Heidegger's analysis goes deeper than social agreement on what a thing is for. This is not a simple switch in favour of objects against subjective or social interpretation as if swapping the social context for the technical one – it is far more radical than that. It is to this radical understanding of the kind of 'involvement' that objects have with the world that we will turn to now. Mediation is right at the centre of Heidegger's account in his essay *the question concerning technology*, (1977a) whereby objects are seen as being involved with each other in relationships of 'indebtedness.'

### **Heidegger and 'Indebtedness'- the root to Ontological questioning**

Heidegger arrives at the ontological question in *the question concerning technology* via a trip through how reason and 'correctness' structure the notion of causality. Briefly, Heidegger points out that causality is usually tied up with the 'instrumental definition' of technology whereby technology is understood as the means by which an end is brought about. However to the ancient Greeks, objects were involved with a fuller set of causal relationships than our modern narrow instrumental definition permits us to think. Heidegger (1977a) presents us with four modes of causation and illustrates them with their co responsibility for the production of a chalice.

For centuries philosophy has taught that there are four causes: (1) the *causa materialis*, the material, the matter out of which, for example, a chalice is made; (2) the *causa formalis*, the form, the shape into which the material enters; (3) the *causa finalis*, the end, for example, the sacrificial rite in relation to which the required chalice is determined as to its form and matter; (4) the *causa efficiens*, which brings about the effect that is the finished, actual chalice, in this instance, the silversmith. (1997a: 313-314).

Heidegger's project here is to uncover the essence of technology by tracing its instrumental representation back to this four fold causality and recover something of Greek thought. He argues that today we are more accustomed to representing causality in terms of the *causa efficiens*, as that which brings about effects. He stresses that 'bringing about' in common understanding is understood in terms of obtaining effects. The problem comes with the understanding of *causa* which means 'to bring about' that is, 'to effect' which belongs to the Romans and our modern understanding. On this point it is worth observing that Winograd and Flores' favored functional question as the root into the ontological account of the word processor actually doesn't go any further than this instrumental definition. As we shall see, the four causal model places objects in a complex network of co-responsibility or 'indebtedness. Winograd and Flores' network is not conceived of in anymore complex terms than a network of means and ends.

Heidegger says that the Greek from whence we inherit the four causes has nothing to do with bringing about and effecting. The Greeks used *aition*, to designate that to which something is indebted. Heidegger argues then that the four causes are interrelated by their co-responsibility for something else. So, the chalice is indebted to the matter, the silver from which it is fashioned but at the same time it is indebted to "chalicness," the form into which the silver enters which is co-responsible with the silver for the chalice. Thirdly the chalice is indebted to "that which in advance confines the chalice within the realm of consecration and bestowal" (315). It is through this that "the chalice is circumscribed as sacrificial vessel" (315). For that which circumscribes or gives bounds, Heidegger uses the Greek *telos* in the sense that bounds don't stop a thing but instead set a thing off within them on its way to what it will be after



production. Telos, when usually translated as “aim” or “purpose” doesn’t capture this aspect of responsibility. The chalice is indebted to the practice of sacrificial rites as the telos that is responsible for the complete circumscription of what silver (matter) and chalicness (form) together present as a sacrificial vessel. All three then are responsible. The fourth responsibility is that of the silversmith who usually figures as the *causa efficiens* the cause of the effect that is the chalice. Heidegger argues that there is no place in Greek for the responsibility that the silversmith has. For Heidegger he is responsible for gathering together the three modes of responsibility and so he is co-responsible for bringing forward the chalice and setting it off into being, indebted for its subsistence to the four fold ways of being responsible.

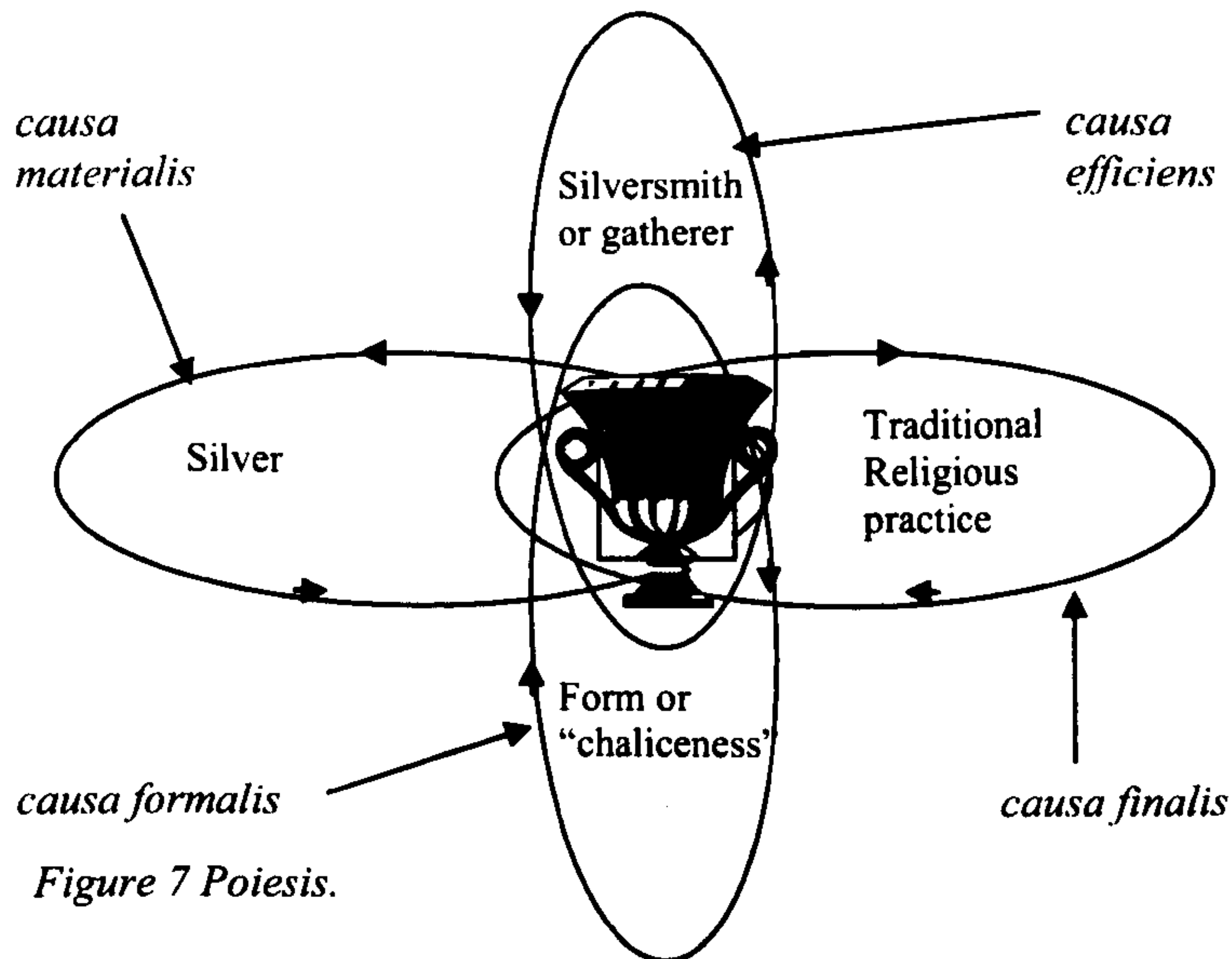
Next Heidegger makes the move to say that what unites these ways of being responsible is that they are modes of occasioning. In bringing forward the chalice as lying before us and lying ready, these modes of responsibility bring it into appearance or bring it into presence. In so doing they set it on its way to arriving at what it is. For Heidegger then bringing forth is about an event, an occasioning of inducing to go forward into appearance.

Through bringing forth the growing things of nature as well as what ever is completed through the crafts and the arts come at any given time to their appearance (1977a: 317)

This is the silversmith’s act; to gather and be co-responsible for bring forth the chalice; creating something new and setting it off to be what it is. The event of bringing something into appearance is the creation of something new.

We can illustrate this with four loops representing the four causes (fig 7). Each one should be read not as a kind of discrete variable that comes into contact with the other variables but as circulating entities which pass through each other. They should not be regarded as having an essential nature outside of their inclusion in this particular network where they are mutually indebted to each other. For instance, the silver is not a discrete entity but is encountered as it circulates in the form of a chalice, manufactured to circulate through a set of

religious practices. Silver is encountered outside of this network but always-already as circulating in alternative networks in which it unfolds as something other than a silver-chalice.



In Figure 7 these circulatory loops are arranged so that they intersect. At the intersection we find the chalice revealed, but not as the occurrence of a core that is distinct from the outer context that surrounds it. The chalice is constituted by the entire network, by every part of the four loops. The centre then is a pivot point around which these four causes are bound together and encounter and transform each other. The chalice unfolds as a pivot point with a kind of centripetal force that holds these heterogeneous elements (matter, practice, form and purpose) together. The chalice is an occasion for these things to be arranged into this network of interdependency in this way.

We can now see how the ontological enquiry into the coming together of the event from where the object unfolds, is prior to ontical inquiry, and, how the status of the ontic inquiry is a derivative of the ontological. Put crudely the ontological inquiry is concerned with events, that is, how objects come together and are held in local arrangements while ontical inquiry is concerned with the accordance between things that is produced or arises out of the arrangements of entities in an event, rather than the event of the occasion coming together.



religious practices. Silver is encountered outside of this network but always-already as circulating in alternative networks in which it unfolds as something other than a silver-chalice.

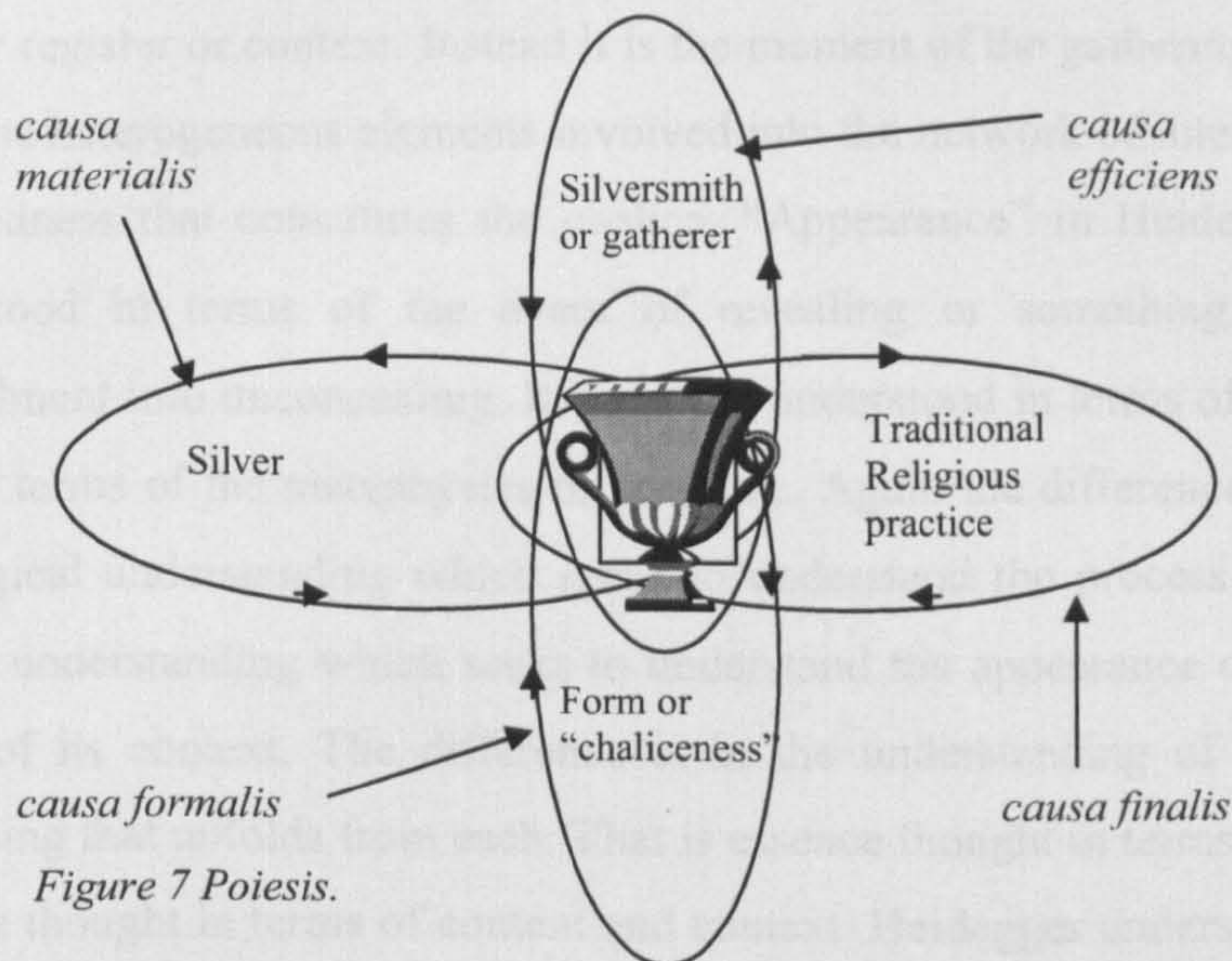


Figure 7 Poiesis.

In Figure 7 these circulatory loops are arranged so that they intersect. At the intersection we find the chalice revealed, but not as the occurrence of a core that is distinct from the outer context that surrounds it. The chalice is constituted by the entire network, by every part of the four loops. The centre then is a pivot point around which these four causes are bound together and encounter and transform each other. The chalice unfolds as a pivot point with a kind of centripetal force that holds these heterogeneous elements (matter, practice, form and purpose) together. The chalice is an occasion for these things to be arranged into this network of interdependency in this way.

We can now see how the ontological enquiry into the coming together of the event from where the object unfolds, is prior to ontical inquiry, and, how the status of the ontic inquiry is a derivative of the ontological. Put crudely the ontological inquiry is concerned with events, that is, how objects come together and are held in local arrangements while ontical inquiry is concerned with the accordance between things that is produced or arises out of the arrangements of entities in an event, rather than the event of the occasion coming together.



The appearance of something like a chalice; going forth; unfolding from its bounds into what it is as an occasion or event, is not 'appearance' in the sense of the modern settlement which establishes *being* by an entities appearance in another register or context. Instead it is the moment of the gathering by translation of all the heterogeneous elements involved into the network of interdependency or indebtedness that constitutes the chalice. "Appearance" in Heidegger's work is understood in terms of the event of revealing or something moving from concealment into unconcealing. It has to be understood in terms of Poiesis rather than in terms of the metaphysics of presence. Again the difference is between an ontological understanding which seeks to understand the process of Poiesis and ontical understanding which seeks to understand the appearance of something in terms of its context. The difference is in the understanding of the essence of something that unfolds from each. That is essence thought in terms of the event or essence thought in terms of content and context. Heidegger understood essence in terms of the event of Poiesis .

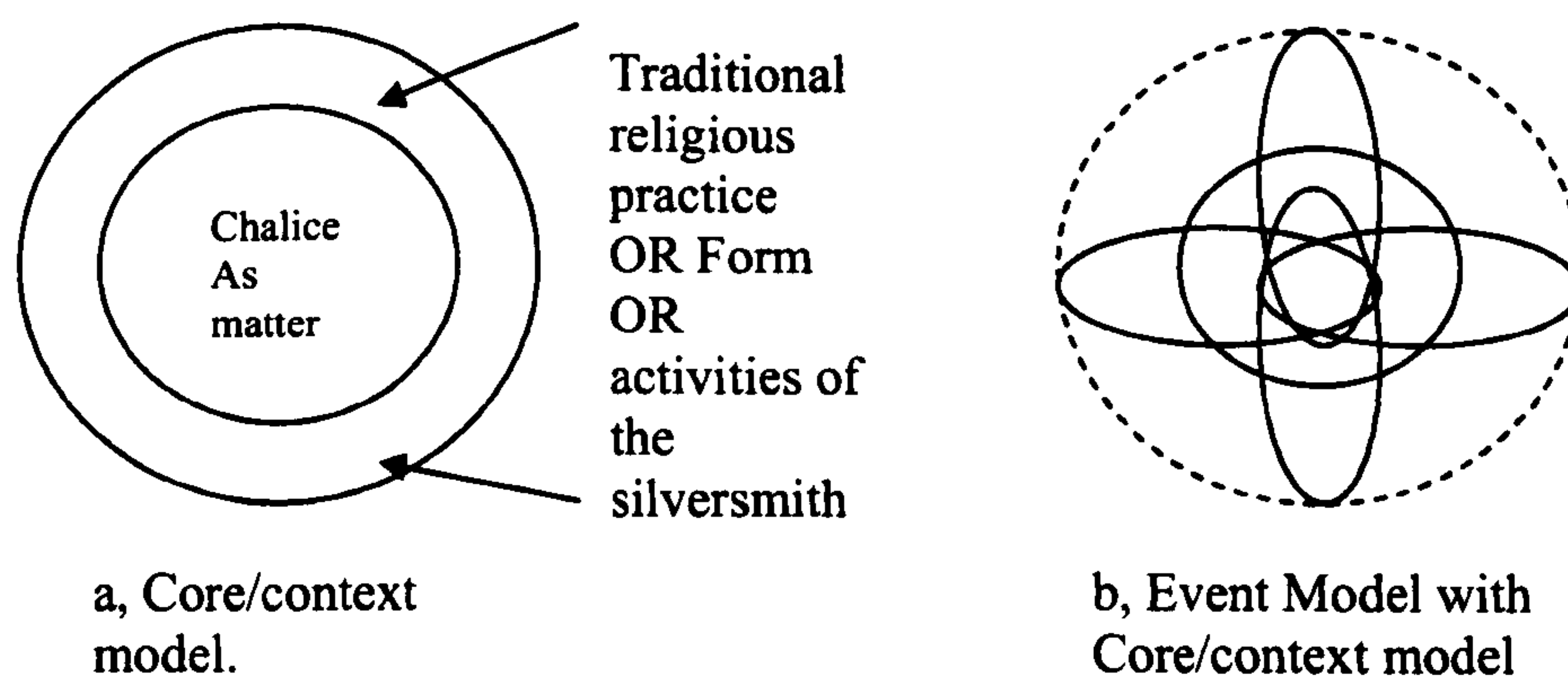
Weber (1996) explains that the word usually translated, as essence is *Wesen* in German. He argues that essence is not what Heidegger was after in talking about the essence of technology. He say "technics [Weber's preferred translation of technology]...compels us to rethink the meaning of *Wesen* and no longer construe it in the sense either of "genre or of *essentia*"(Weber, 1996:62). Weber translates *Wesen* as goings-on since the original German communicates a sense of 'staying in play' rather than of possessing 'essence' or an essential nature apart from anything else. Going-on and staying in play invokes an unsteady unfolding over time through networks of association rather than a fixed timeless existence or an existence that comes from being fixed in time and space.

Weber says "the goings-on of technics are on-going, not just in the sense of being long standing, staying in play, lasting, but in the more dynamic one of moving away from the idea of a pure and simple self-identity of technology" (Weber, 1996:62). Technology goes on indebted not to distinct social and technical categories anteceding it or surrounding it. It is not an effect of the activity of society but is indebted to humans and nonhumans, traditions, other



technologies, and social procedures all mixed together. Its essence or Wesen is as something brought forth in the act of poiesis, that is, through the movement from concealment to unconcealment.

This short discussion of Wesen is important for understanding how Weber goes on to unpack Heidegger's use of the term 'revealing' because if Wesen is to be understood as going on or staying in play then the event is the event of putting into play. 'Revealing' is the translation of Heidegger's term *entbergen*, but as Weber points out translators are aware that the sense is actually 'harbouring forth' where *bergen* means to 'harbour' or conceal and 'ent' means 'forth' or a 'change of place' with respect to a former condition. Revealing then could be understood as an act of bringing forth into security. However, Weber argues that there is an interesting contraction missed. Harbouring is certainly about securing, shoring up, and as Weber points out, is talked of in terms of cherishing or protecting. However, harboring forth, leaving shelter is an act of unsecuring "to venture into a certain insecurity" (1996:65). It follows then that the security of the arrangement of the chalice, for instance, is always up for grabs and constantly requires resettlement, as things will always err toward flying apart. Arrangements go on as more and more objects are introduced to sure up and maintain or discipline a network.



*Figure 8 core/context superimposed model*

We have moved from an ontology that has the four causes distributed as content and context to one where they relate as mediators. We have moved from a context content settlement to an event model represented by the move in fig 8

from a to b. But we can see how the content/context settlement can be derived from Heidegger's model by an ontical enquiry that proceeds without reference to the indebtedness of the relationships that constitute the centre. To move from the ontological to the ontical, the object, constituted by the intersection of the four causes and existing throughout the whole circulating system (b) gets reduced to the centre and becomes the core as it is cut free from the circulating contribution of the four causes. The co-responsible causes are reduced to the context. By severing the centre from the circulating causes the content/context model cuts the centre from its arteries and vascular system within which it exists (Latour 1999). However this is to miss the true nature of the centre. Where the entire network constitutes an unfolding object or entity like technology there is no centre surrounded by context but a point of central tendency that operates as an occasion for heterogeneous entities to come into relationship.

Heidegger makes the form, the silversmith, the silver and religious practice hold together with in the chalice as a point of centrifugal force. They are translated by it, and they appear and are encountered in it and through it as it unfolds from them. In other words the object doesn't appear as either purely social or technical; instead it 'takes place.' That is, it opens up its own set of social and technical forms and relationships. Technology as an event is best understood in these terms- as a network of elements that have come together. That is why for Heidegger (1977a), the essence of technology is not technical; firstly because it is made up of much more than technology and secondly because it 'takes place' as an occasion or as a network and not as an 'essentia.' The essence of technology is in its mode of Poiesis.

The term "network" does not appear in Heidegger's work. I have borrowed it from Actor Network Theory (ANT) because it echoes Heidegger's understanding of wessen or essence (Brown & Capdevila, 1999). It represents a topological view of object integrity or essence; one where objects are sustained by their position in networks of relations between heterogeneous elements; (Law 1992, Latour 1991, 1992, Callon 1986a, 1986b etc) . In this topology objects cannot be transported or reproduced perfectly, they are always transformed when



displaced because displacement means replacement into another set of heterogeneous relations (Latour 1991), which changes the topology of the object.

This is quite different to the idea that objects as Content have integrity independent of their Context where Context only provides resistance to the objects passage through it or where context facilitates the order of its movement and passage (Latour 1986). In *the powers of association* Latour labels this content/context model the dissolution model of the power of a token (token being the generic term for the content passing through the context. A token might be a scientific fact or a piece of technology). The context determines the order of passage and the content is endowed with its own inertia, which runs its course and runs down in the face of resistance.

The translation model of ANT as presented by Latour in the same paper (1986) removes the notion of inertia given to the token by the content/context settlement. Instead the passage of a token is in the hands of people and their projects (Latour 1991). This point is important because it means firstly that if there is no project, no uptake of the token then it stops. Its energy comes from the programs of action into which it is enrolled (Latour 1992, Callon 1986b). It follows that a token will be modified in any number of ways. Latour (1986) uses the rugby ball as an example. It isn't the inertia from the first kick that sees the ball continue to move for the rest of the game but the energy given to it by every subsequent action it is enrolled into- passing, throwing and even stopping the game for half time.

The network or process model that has been extracted from Heidegger (that so helpfully displays what Heidegger is proposing, and that has served us as we have been developing it over the course of this chapter to show the shift we are making from content/context arguments to a network or process model) has been informed by a reading of Heidegger that is close to Latour's model of the knots and tendencies and circulating entities that make up science (1999). Through out Latour's work he is concerned to map out the various consequences of the modern settlement that divides society and nature in terms of the way in which it constrains our thinking about technology, society and science.

The content/context model limits the role of technology in creating society and relegates it to an appearance in human history rather than something which co produces human history and society. The contribution of technology to the construction of society is kept hidden according to Latour (1996) by the content/context model. He argues that since the split between a human and objective realm things can only appear amongst humans in three ways, and in none of them “as associates in the weaving of social life.” He states that objects appear,

as invisible and faithful tool, as the determining superstructure and as a projection screen. As tools they faithfully transmit the social intention that traverses them, without taking anything from them or adding anything on to them. As infrastructures, they interconnect and form a continuous material base over which the social world of representations and signs subsequently flows. As screens, they can but reflect social status, and serve as a basis for subtle games of distinction (1996:236)

He goes on to illustrate each mode with the example of a speaking grill in his post office counter.

As a tool, the speaking grill, for instance, would serve only to prevent customers from attacking the staff - and its function goes no further; it does not influence the interaction - only facilitates or hinders it. As an infrastructure, the speaking grill is directly connected to walls, partitions and computers so as to compose a material world that, it is said, completely shapes the remainder of the relationship just as a waffle iron molds a waffle. As a projection screen, the same speaking grill doesn't have any glass or wood or orifice or matter left - it becomes a sign, different from plate glass, barriers, bay windows, landscaped offices and thus signaling a difference in status, or signifying the modernization of public service. Slave, master or substrate of a sign - in each case the objects themselves remain invisible, in each case they are asocial, marginal, impossible to engage in detail in the construction of society.(1996:36).



Technology is left to impact upon society, reflect it or facilitate it. For Dourish, Winograd and Flores technology appears as either faithful tool or projection screen. Agre (2001) sees a split between, on the one hand, human institutions like marriage and on the other, the fabric of buildings and technology which he collectively labels as 'architecture.' In Agre's account architecture shapes the human institution and, in Latour's terms, acts like a waffle iron on human relationships. The result is that neither has an account of the place of technology amongst humans in constructing society.

Our example of an evening spent with digital photographers sharing good practice and images will not allow the technology to disappear from the account of the order and construction of the photographic society or to dominate the evening's proceedings. Already before the evening starts and they even start to talk and the session starts we are prevented from invoking a pure moment of digital technology as the structuring agent or a pure moment of human cognition or purely human sociality as structuring the situation. It is filled with impurities. PhotoShop is as much human and social as the humans and social are technological. As we go to the technology for structure we are thrown back to the activity of people and vice versa.

Social and technical contextualisation will divide the social stuff of the photographic society from the technology in a way that will never allow them both to speak of their contribution to what is after all a technological society, a photographic society. To return to Heidegger and the event, Brown and Lightfoot (1998) summarise Heidegger's early take on technology:

to step into the workshop is to take up a place within equipment totality. It is to realise a form of being which apprehends the world by way of the responsibilities revealed by ones relationship to the equipment therein. Understood in this way, equipment plays an absolutely pivotal role in our existence and our ways of understanding, which is not to say that technology determines what we are. (1998: 298)

Neither the humans nor the technology are privileged in this scene but all are found in a set of proposed relationships.

The workshop is an equipmental totality, pregnant with proposed relationships between entities human and non human. Far from elevating the social or the technical to the status of overarching context, Heidegger's take on these entities (that HCI would want to stack up as social and technical kinds) is that they have to be understood essentially in terms of events. Therefore, what we're studying is an example of the photographic society taking place where taking place is understood as an event. It follows from this that the entities that make up the photographic society in this event/evening have to be understood as taking place in relation to one another and through one another.

### **Channeling technology and humans**

Instead of attempting to untangle the humans and technology into two different ontological categories Latour's *Interobjectivity* paper (1996) is an argument for extending sociality to objects in order to understand our own sociality. *Pandoras hope* (1999) extends the traditionally human and social terms, articulation and proposition and interaction, from language and social interaction to objects. Having collapsed the distinction between words and the world, subject and object, the term proposition is used "in the ontological sense of what an actor offers to other actors"(309). Actors offer or propose many alternative possible relationships and forms of contact to other actors within the limits prescribed by their networked relationships. Articulation refers to the selection and configuration of a particular set of proposed relationships. In the glossary of terms Latour writes;

Like translation, this term occupies the position left empty by the dichotomy between the object and the subject or the external world and the mind. Articulation is not a property of human speech but an ontological property of the universe. The question is no longer whether or not statements refer to a state of affairs, but only whether or not propositions are well articulated (1999: 303)



Latour understands interaction as the local order or articulation of proposed relationships between actors rather than as a purely human event. Latour (1996) writes “we must hear the word 'inter'-action differently. It signifies that action must be shared with other kinds of actants dispersed in other spatio-temporal frameworks and who exhibit other kinds of ontology”(235). This requires seeing objects and people as mediators which take up and pass on the action of other mediators that they are in contact with. In addition it requires understanding how different temporal and spatial orders come into contact. Given this chapters concern for understanding a hobbyist group meeting around a set of technologies then Latour’s ‘interobjectivity’ paper sets us up to notice that the inclusion of objects and multiple spatio-temporal frameworks is essential even in seemingly purely human face to face interaction. Comparing Humans and baboons, whose social life is far more complex (due to a comparatively lower number of mediating objects) than human social life, Latour argues that-

There is another difference between simian interaction and what one observes of human interactions. For the latter, it is very difficult to obtain the simultaneity in space and time that are the province of the first. We say, without giving the matter too much thought, that we engage in 'face to face' interactions. Indeed we do, but the clothing that we are wearing comes from elsewhere and was manufactured a long time ago; the words we use were not formed for this occasion; the walls we have been leaning on were designed by an architect for a client, and constructed by workers - people who are absent today, although their action continues to make itself felt. The very person we are addressing is a product of a history that goes far beyond the framework of our relationship. If one attempted to draw a spatio-temporal map of what is present in the interaction, and to draw up a list of everyone who in one form or another were present, one would not sketch out a well-demarcated frame, but a convoluted network with a multiplicity of highly diverse dates, places and people. (1996: 233)

As an event the evening session of the photographic club using PhotoShop has to be approached as a spatio-temporal envelope, that is, as an arrangement or

articulation of PhotoShop and humans that burst the boundaries of any attempt to contextualise or contain an interaction between variables in a well demarcated frame provided by an overarching context. The evening constitutes a particular folding up of multiple histories and practice; imported places and past achievements in the form of finished images and their content with varying kinds of duration. Some images are competition entries that will be maintained and kept some are works in progress, some are works just for the evening that will be discarded.

There are multiple configurations of hardware and software such that even PhotoShop is never just a program that contains the event and a set of programmers sitting behind it. It has its own history and durational rhythm which is moved through, backwards and forwards as its multiple incarnations or past versions are called up, or declared redundant. To trace these connections, paths, lines, and points which constitute what it is and what it could be in the hands of these photographers is part of the project of this thesis. Latour, again comparing baboons to humans says:

Amongst humans, on the other hand, an interaction is actively localized by a set of partitions, frames, umbrellas, fire-breaks, which permit passage from a situation that is complex to one that is merely complicated. While I am at the counter buying my postage stamps and talking into the speaking grill, I don't have my family, colleagues or bosses breathing down my neck. And, thank heavens, the server doesn't tell me stories about his mother-in-law, or his darlings' teeth. A baboon could not operate such a felicitous channeling. Any other baboon could interfere in any one interaction. (1996:236)

Sharing the inter-active (in the Latourian sense) spatio-temporal envelope with non-humans is about making complex relations complicated by the framing (i.e. by the boundaries from which things unfold in Heidegger's sense see next chapter) provided by the mediation of other non-human actants with different ontology's. The inter-action described by Latour differs from the baboon's in that there is little that is instantaneous about it and the arrangement of the various actants prevents the inter-action from becoming something other, i.e. the presence



of non humans (objects) maintains a centrifugal force that keeps it together. Through the sociality of objects and technology and their ability as mediators to fold time and place and so have time and place unfold, they channel associations, extending our reach spatially and temporally and prolonging and limiting our activities within the networks we inhabit. Latour notes that -

At time  $t$ , I find myself in contact with beings who have acted at  $t-1$ , and I fold the situations together so that I myself will act under another form at  $t+1$ . In situation  $s$ , I find myself attached to situations  $s-1$ , and I act such that downstream situations  $s+1$  come to be associated with mine (1996: 240)

Developing a 'process' framework for tracing the moments of this channelling of time and space will elevate technology like PhotoShop in the analysis from an intermediary or a context to a set of mediators which "do not transmit our force faithfully - any more then we are faithful messengers of theirs"(Latour 1996: 230).

### **Conclusion**

There is no overarching social or technical context to which we can appeal to help us to understand the example of the evening with the digital photographers using Photoshop. Instead what we can see (and will see in detail in chapter 6) there is a flow of action or movement between the people and the technology acting as mediators, taking up and channelling action with out being able to locate a single original source of action or overarching structure. In chapter 6 I will explore how structure emerges from this process of mediated action.

We have arrived at a position where analysis of the activities of humans and computers is conducted by following chains of mediators and the action of one entity on another. Under the process model, context has been replaced by relationships of indebtedness such that one thing is understood not in the context of another but as it is articulated in relationship with another.

In this chapter I have argued that the HCI literature on context-aware computing, as an example of research which takes seriously the close relationship

between technology and humans, appeals in the final analysis to a settlement in which humans and technology are distinct categories. This leads to formulations of the relationship between the social and technical in terms of the social providing the terms of the existence of the technical such that we encounter technology and order its activities in language. However, through Heidegger I argued that the emergence of technology and organised activity is not achieved in and through a distinct social or technical realm but is instead the result of relationships of indebtedness between humans and technology in the process of poieses.

Through this shift from overarching structures to an ongoing process of mutual mediation between humans and technology we can escape the modern settlement which invokes society and technology as competing contexts.

The question of our own inclusion with in this process will be the concern of the next two chapters as we move towards a 'process psychology.' Over the course of this chapter we have picked up a number of Heideggerian terms which we will revisit on our way to this process psychology as they help us to interpret the kinds of events that include us along side digital photography. The next chapter will look at Heidegger's and Benjamin's contributions to an understanding of our dwelling amongst technologies of Mass and then in the fifth chapter we will turn to Bergson's process approach to psychology in light of Benjamin's understanding of mass and allegory.



## **Chapter 4**

### **The subjective observer, the image and technologies of mass reproduction**

Arriving at a psychology of everyday experience requires an attempt to understand how we inhabit these spatio-temporal envelopes or networks from chapter 3. We have already begun to unpack how approaching human interaction in networks requires approaching humans as mediators or actors alongside objects and technologies. In the last chapter, I addressed the theoretical and analytical approach to human interaction with technology that divides a setting into purely social and purely natural or technical variables. I argued that in following this approach it becomes necessary to explain the interaction of these distinct categories of variables -the social or the cognitive over against the technical- by elevating one category of variables above the other as the chief architect of the interaction, or, in other words, as the context which shapes and contains the other category of passive variables.

However, I also showed how these artificially pure categories blur into each other when following the chains of mediation, which made up an evening of amateur digital photographers using PhotoShop. Context explanations attempt to separate out, into artificially distinct ontological categories, humans and nonhumans. However, Heidegger demonstrates that these are better understood as residing in networks of relationships of “indebtedness.” Heidegger’s account of the chalice being “brought forth” by a process of poiesis requires no distinction to be made between variables as belonging to the world of extension or the non-extended world of ideas or purely human sociality. Since it does not invoke this distinction, his account does not require one set of variables to function as an external ordering register. The local order within which the chalice appears and is released into and unfolds from the chalice itself and all that is included within it in terms of the “indebtedness,” or, as Latour has it, “inter-action” (see last chapter). That is, the relationships of mutual mediation that binds humans and nonhumans together in the world the chalice opens up.

However, simply approaching a human as a link in a network is not as yet a compelling story of human psychological experience. In order to try to understand how a human as an actor can be understood as a psychological being rather than simply as a link in a network we have to unpack and expose the nature and origins of the standard psychological account of the human as the subjective observer of the world outside. Subjectivity and psychology have become synonymous terms so that to say something psychological (to make an account of human experience “psychological”) one must say something about the organisation of the inner subjective world. However, this version of the human as subjective observer is incompatible with the kind of spatio-temporal envelopes we have been considering. Far from being an ephemeral subjective presence in a “real” objective world an account of human experience can be made with the human and all our properties as a mediator in mind.

I am not proposing a behaviourist kind of associationism as a replacement to the subjective observer. Both the behaviourist and Cognitivist accounts of human experience are locked into the modernist settlement which reduces everything to the extended world or to unextended representation. Both Latour (1999) and Heidegger (1978) locate this ontological distinction between an extended world and unextended mind in Descartes work. Heidegger, as we shall see in this chapter, was also clear that Descartes famous question arose from far more than a nagging doubt about how he could know the world, but rather, it reflected the metaphysics of his day.

Heidegger (1978) argues that Descartes question about the certainty of our knowledge about the world owes much to the way in which Newtonian physics set the world up in terms of mathematical and therefore calculable relationships which can be approached by the application of a mathematical grid. The world and matter was therefore that which had extension and the mind by definition did not. Mathematics linked the unextended mind to the extended world because the mathematical grid was a property of the mind which, under Newtonian physics was able to represent the world because it mapped on to the nature of matter. In invoking a mathematical grid Newtonian physics succeeded in making a



distinction between the world on the one hand and its mathematical order (which was essentially a mental achievement) on the other. That is, it set up the possibility of a world which could be ordered in a realm that is ontologically distinct from its original occurrence. Any investigation of the human condition based on this distinction, as Heidegger explains, is going to be premised on the idea of encountering the world in a register that stands between it and our knowledge of it.

Newtonian physics promised that through the grid of mathematics - slotted in between our knowledge or mental representation and the extended world - the observer could be confident that their mental representations of the world were accurate. It followed from this that the only sensible questions about human experience and human interaction with the world, under this settlement, that can be asked, all address the certainty or uncertainty of access to the world. This would be done by trying to define and test the robustness of the register that veils the world from us and sets our minds apart from it. Latour (1999) shows how western thought has indeed pursued this form of question by trying out different registers drawn from the mind and society: from a priori mental categories to language and the subsequent celebration of the final deconstruction (or destruction in slow motion, Latour, 1999) and disappearance of the world behind the ordering register.

In *Pandoras Hope* (1999) Latour shows how with each new register the underlying problem is always the same; human involvement with the world is conceived of as a problem of access, therefore each new version of the register offered is an attempt to settle the terms of access to the outside world. It therefore follows, as we saw in chapter 2, that in the modernist settlement all questions of ethics, epistemology, psychology and politics are conceived in the same terms and approached at the same time under the single question of the terms of access to the "world out there". Latour argues that all at once the modernist settlement,

has sealed off into incommensurable problems questions that cannot be solved separately and have to be tackled all at once: the epistemological question of how we can know the outside world, the psychological question of how a

mind can maintain a connection with an outside, the political question of how we can keep order in society, and the moral question of how we can live a good life- to sum up, “out there”, “in there” “down there” and “up there”.(Latour, 1999: 310).

All these questions are premised on the assumption that human interaction with the world is conducted in terms of a ‘mind in a vat’; a non extended subjective space or position separated from a “world out there.”

In their different ways Latour and Heidegger argue that this modernist settlement pushes all questions about humans and the world into the realm of perception which is conceived in terms of access to an outside world via mental representations stored and processed in the head. Moreover, this perceptual settlement presents human involvement in terms of perceiving subject in the act of constructing or reconstructing the world from this distant and distinct privileged subjective space.

Much of the work of discursive psychology with regard to main stream Psychology has been to critique the kinds of ordering registers that it invokes. For instance in *Discourse and Cognition* Edwards (1997) systematically takes topics like memory, emotion and colour perception (all taken by mainstream psychology to be examples of the universal organization of the inner cognitive life of humans) and shows how memory, emotion and perception are socially constructed achievements within discourse. However, in chapter 2, with Latour I argued that although discursive psychology has contributed much to our understanding of the function of language and discourse, in terms of its theoretical architecture it has simply replaced the cognitive register, within which the world is constructed, with a social and linguistic alternative.

We will therefore not make progress with our understanding of how humans become involved with digital imaging technologies and each other if we propose yet another register and yet another criticism of a previous conception of it. If we want to say something about human involvement with the digital images and the supporting technology then the formulation of human involvement in terms of a



perceiving subject occupying a privileged space (processing mental images) outside of the world must be overturned lest we slip backwards into Cartesian dualism. This chapter will start the task of re-orientating us with regards to the nature of human involvement with the world before we tackle, in detail in the next chapter, Bergson's alternative theory of perception and memory.

The chapter is organised into two parts around two broad themes. The way forward in the first part will be to critique the subjective observer that the modernist or perceptualist settlement (as it will be referred to from now on) invokes to account for human experience of the world. Martin Heidegger and Michel Foucault will show us that this is a construct to be explained rather than a position from which to solve the experience of humans viewing the world. From the discussion of the construction of the subjective observer we will conclude that we are included in local order or spatio-temporal envelopes and that daily human psychological experience must be understood in those terms. Before moving onto part two we will see with Heidegger that approaching human experience in terms of inhabiting spatio-temporal networks means we have to rethink human experience of space beyond the perceptualist reduction of space to either external geometry or internal mental space. Instead, Heidegger argues that space is opened up by the organisation of networks of relationships between things. Then, through the work of Walter Benjamin we will arrive at collection and dispersion as key terms for this thesis which belong to an allegorical register as an alternative to the symbolic representational register that underpins psychological accounts of human experience.

Part two will be about taking the idea of human inclusion in networks by the movement of collection and dispersion and understanding modern science and technologies of mass reproduction in terms of how they take-up and order the world. This will help us to understand how psychology has emerged from the order effected by this form of taking-up and also from our experience of inhabiting these technologies.

**Part 1****Heidegger and the illusion of the position of the subjective observer**

For Martin Heidegger (1977b) it is precisely the subjective observer space understood within a representational or perceptualist framework that he critiques. He argues that the modern metaphysics that underpins modern science configures the world as a picture that presents itself to the perceiving subject and thus promotes the conception of man as the seat of certainty and the measure or pivotal point upon which whose subjective gaze the existence of the world relies for its construction.

The fundamental event of the modern age is the conquest of the world as picture. The word picture [bild] now means the structured image [gebild] that is the creature of man's producing which represents and sets before. In such producing, man contends for the position in which he can be that particular being who gives the measure and draws up the guidelines for everything that is (1977b: 129).

There are three moments or features of this settlement that require each other that Heidegger presents us with in this quote. There is the preparation of the world as picture, by its production as an image. Secondly there is person for whom and to whom the world is presented as structured image who contends for the position from which the third moment - the imposition of order - precedes. All three come together in the cycle of production. It is by the imposition of order that the world is produced as image and man contends for the privileged position of the subjective observer from which the worlds order ultimately emerges and to which it ultimately refers- the perceiving subject who sets the guidelines for everything.

Heidegger reveals with this description of the perceptualist settlement the origins of the subject space positioned outside of the "world out there" from where humans construct the world through their gaze. It emerges from the way the world is produced. What Heidegger points us to in this quote is the idea that although the event of the world picture seems to rely on the subjective observer



and indeed modern metaphysics assumes this, the structure of the world cannot emerge from the subject since it is by the production of the world as picture that 'man' contends for the position of the subjective observer. The production of the world preceding the emergence of the subjective observer is the order of events since, according to Heidegger; 'man' has not achieved the position but is busy contending for it. Yet the perceptualist settlement accounts for human involvement with the world on the premise that 'man' has achieved the subjective position and then proceeds to construct the world via his gaze. Heidegger argues for the reverse, that it is in the production of the world in this new event (i.e. it has not always been this way) of the world produced as picture that both the privileged position of the subjective observer emerges and is contended for. This means that the terms in which 'man' performs 'his' contending (and thus producing the subject space) cannot be those that the perceptualist settlement says operates from the subjective space that 'man' seeks to inhabit. Both the production of the world and the construction of the subjective observer and 'his' space occur, according to Heidegger outside of the perceptualist settlement which itself is a by-product of the way the world is produced. It is nothing more than a poor but powerful story told about how people and the world fit together. Its power is that it sounds compelling because it covers the tracks of its own production.

In *the Question Concerning Technology* Heidegger (1977a) repeats this argument about the emergence of the subjective observer and 'his' privileged space and brings the manner in which the world is produced as picture into focus as an order that new technologies effect. He unpacks the essence of technology in terms of its position within the process of poiesis (see chapter 3), of bringing things into unconcealment. Rather than *bringing* forth, modern technologies for Heidegger *challenge* forth the world into unconcealment. This represents a new form of setting-in-ordering from which the illusion of the gaze emerges:

A tract of land is challenged in the hauling out of coal and ore. The earth now reveals itself as a coal-mining district, the soil as a mineral deposit. The field that the peasant formerly cultivated and set in order appears differently than it did when to set in order still meant to take care of and maintain. The work of

the peasant does not challenge the soil of the field. In sowing grain it places seed in the keeping of the forces of growth and watches over its increase (Heidegger, 1977a: 320).

The setting-in-order brought about by new technologies unlocks the energy in nature; transforming it, storing it, distributing it and so rendering it useful in different ways in different economies of usage. Heidegger says that what is revealed as unlocked in this way is regulated and secured by the revealing that challenges forth. Technology of the sort that challenges forth renders the object or nature as “standing reserve”. The object that is set in order in this way is ordered to stand ready on hand for further ordering. The event of the world being placed on standing reserve, that is, the event of its being produced to stand before and await the order imposed onto it by ‘man’ accords with the world being conquered as picture. But the world encountered as standing reserve is never truly encountered since it is challenged forth to occur before the subject as standing reserve or “stock” rather than in its original state in its original network. It is encountered through the systems that render it orderable rather than in its own set of relationships of “indebtedness”.

The Newtonian conception of the world reporting itself in a mathematical grid to the subjective observer therefore belongs to this event of challenging the world the stand forth as standing reserve because the effect of reducing the world to a set of calculable coordinates presents a world to the subjective observer to manage and construct in the terms of its representation rather than in terms of its spatio-temporal network. This presents a danger according to Heidegger in terms of mankind’s hopes of encountering the world and himself as it is.

The danger attests itself to us in two ways. as soon as what is unconcealed no longer concerns man even as object, but exclusively as standing-reserve, then he comes to the very brink of a precipitous fall: that is, he comes to the point where he him self will have to be taken as standing-reserve. Meanwhile, man, precisely as the one so threatened, exalts himself and postures as the lord of the earth. In this way the illusion comes to prevail that everything man encounters exists only insofar as it is his construct. The illusion gives rise in



turn to one final delusion: it seems as though man everywhere and always encounters only himself...*In truth, however, precisely nowhere does man today any longer encounter himself, i.e., his essence.* Man stands so decisively in subservience to on the challenging-forth of enframing that he does not grasp enframing as a claim, that he fails in every way to here in what respect he exists, in terms of his essence, in a realm where he is addressed, so that he can never encounter only himself. (1977a:332)

The event of the world being brought forth into unconcealment by technologies that order by challenging forth produces the exaltation of 'man' and results in the illusion that everything is his construction. This further produces in the accounts of man and of the world, the delusion that everything as his construction reflects himself. It's a delusion because it masks the real state and position of 'man'. It is an illusion because the source of world construction is itself a construct, a product of a world in which things are presented through a particular ordering which Heidegger calls enframing. The illusion masks the connections that make it up and by which it refers outside of itself to those things which mankind mobilises in order to contend for it; those practices and technologies that prepare the world as picture; technologies, including psychology and its practices, that presence things and humans through enframing as we have seen in chapter 2 with early obsessions with measurement and attempts to standardise the observer in terms of partial analogies and the specialised investigation of human physiological systems.

Since the "world out there" and the "subjective space in there" are ordering effects then they cannot be taken as a place to start with an analysis of human experience and human and technological interaction. Rather, their emergence and the emergence of the perceptualist settlement based on a representationist framework needs to be explained and unpacked to show that it is a dead end.

At this point I want to turn to a short analysis by Michel Foucault (1989) of a painting by Diego Velázquez (1656) called *Las Meninas* (fig 9). Through his commentary on this painting, Foucault nicely takes up and articulates some of the key points I have been arguing for - the construction of the subject space the



perceptualist account and representational register - and it brings into focus and serves as a reference point for the kind of alternative settlement that I want to unpack in the rest of this chapter and the next. Ultimately the painting plays on but also thwarts the modernist conception of how we are included in the world. At first glance the representational register seems the obvious candidate for decoding and understanding the composition but in actual fact the painting acts out or lays out the construction of the representational register and perceptualist settlement and in so doing begins to reveal an alternative set of conditions at work for human experience and the order of things.

We don't have the space to present all of Foucault's brilliant analysis in all its elegance and subtlety, and so at risk of glossing his treatment of *Las Meninas* I will cover the most pertinent points for our purposes.



Figure 9. *Las Meninas* by Diego Velázquez (1656)



Foucault follows the vectors and lines of the gaze of the figures in the painting and finds that they converge on two points of order, one inside the picture and one outside of the picture. Inside the picture the figures are arranged to form two compositional shapes. The first is an X. Foucault traces the line of the first bar of the X from the painter's face in the top left hand corner down to the dwarf's foot on the back of the dog and the second bar from the male courtier's face in the top right to the corner of the large canvas in the bottom left hand corner. At the intersection of the two lines, in the middle of the X is the little princess's face. The second compositional shape formed by the arrangement of figures also picks out the princess's face as the internal point of order. Foucault traces a U shape beginning

with the artist's face moving down through the princess's face and ending up with the male courtier's face at the same height as the artist. Both of these shapes converge on the little princess's face and draw our attention to her gaze which is directed straight out in front of her. The direction and final resting place of her gaze is underlined as an important ordering feature of the painting by the fact that the artist and the male courtier who form the ends of the U shape are also looking out into the same space as the princess along with the figure next to the dwarf.

The artist is painting a subject, that we can't see, on to the large canvas which has its back to us and is looking out at the subject of his painting which is positioned in the space in front of the painting, where we the observer stands. Foucault writes; "The entire picture is looking out at a scene for which it is itself a scene" (1989:15). All seems to be ordered by the external observer space. The internal point of order, the princess's face, directs us to the external point of order, the observer space. But on closer analysis the reverse is true; the space of the observer is constructed entirely by the composition of the painting and the lines of representation that circumscribe it. In particular the observer's Position is fixed by the painter's sovereign gaze, but as a consequence it is also an unstable point of order since the painter's sovereign gaze is itself designed to be unstable. Foucault says

in appearance, this locus is a simple one; a matter of pure reciprocity: we are looking at a picture in which the painter is in turn looking out at us. A mere confrontation, eyes catching one another's glance, direct looks superimposing themselves upon one another as they cross. And yet this slender line of reciprocal visibility embraces a whole complex network of uncertainties, exchanges, and feints. The painter is turning his eyes towards us only in so far as we happen to occupy the same position as his subject (1989:5)

The observer position is already demarcated and set up before we enter it, and although the gaze of the artist fixes on us, the gaze itself is self sufficient i.e. it doesn't require our particular being and our gaze for it to function as a representational order. Foucault goes on "We, the spectators, are an additional factor. Though greeted by the gaze we are also dismissed by it, replaced by that which was always there before we were: the model itself" (1989:5). However, although the painter has his eyes fixed on a particular subject before we enter the observer space, Foucault says "but, inversely, the painter's gaze, addressed to the void confronting him outside the picture, accepts as many models as there are spectators; in this precise but neutral place, the observer and the observed take part in a ceaseless exchange"(1989:5).

The observer space outside the picture is neutral in the double sense that the representational order of the picture does not emerge from it and because it functions within the entire order of the picture by its precisely constructed fluidity as it shifts from a position observed to observer position. But it is also neutral or blank with regard to the identity of the subject because in the representational order of the painting there is an interruption. We cannot see the picture the artist is painting to settle who it is he has decided to represent in the observer space in front of him. Foucault writes:

The great canvas with its back to us on the extreme left of the picture exercises its second function: stubborn invisibility, it prevents the relation of these gazes from ever being discoverable or definitely established. The opaque fixity that it establishes on one side renders forever unstable the play or metamorphoses established in the centre between spectator and model. (1989:5).



The observer position does not impose an order onto the painting but is included in the representational order of the image which is established by the triangle created by the sovereign gaze of the artist, with its corners being the canvas, the observer position outside of the picture, and the artist's eyes collecting up the occupant of the observer space. The representational order is not settled in terms of the perceptualist model; instead, humans are included in it and take up a place within a complex network of translations. Foucault says:

As soon as they place the spectator in the field of their gaze, the painter's eyes seize hold of him, force him to enter the picture, assign him a place at once privileged and inescapable, levy their luminous and visible tribute from him, and project it upon the inaccessible surface of the canvas in the picture. (1989:5-6).

At all points the representational ideal of something being faithfully transported and replicated is thwarted and undermined. The lines of representation are broken by the invisible or the impossible, and the ultimate source of order, the observer, who the paintings order should reflect, is denied his place. What operates within this picture is a representational order that operates by translation rather than faithful replication, so that, the observer space can be taken up by an artists gaze and transposed, without being represented, onto a canvas and its ultimate form kept from ever being settled.

The observer position and its unsettled occupant is set up as the position of the observed by the gaze of the artist and the other figures in the picture, but just as the observer position is configured to take any occupant and just at the moment that we find ourselves occupying it we are denied the position. In the background a mirror reflects the position in front of the artist that we can't see. It shows that the space looked onto by the artist is already inhabited by the King and Queen of France who are reflected in the mirror. There is no other spectator reflected in the mirror, nor is the artist painting the picture we are considering, who also must stand in the place of the observer to paint, included in the mirror. There is an

interruption in the lines of representation that converge on the mirror in the centre where the spectator, king and artist all should be standing.

The attempt to have the painting ordered by the observer space in front of the artist is an attempt to have the observer take the place of the king. Psychology, under the perceptualist settlement, would insist on the observing subject being the point of order and so put ourselves in the place of the king as if the spatial arrangements of the image emanate from the gaze of the spectator. But the attempt always ultimately fails because it is at once invited but then it is resisted and played with by the composition of painting. We are at once designed out by the manner of our inclusion. Like the visitor on the steps in the background we are included as one that is caught oscillating between arriving and leaving in an endless repetitive movement, in and out of the scene (Foucault 1989).

Foucault argues that classical representation is presented in this painting in its purest form along with the definition of space it opens up, with the subject at its centre- the king and the invited spectator- elided.

Perhaps there exists, in this painting by Velazquez, the representation as it were, of classical representation, and the definition of the space it opens up to us. And, indeed, representation undertakes to represent itself here in all its elements, with its images, the eyes to which it is offered, the faces it makes visible, the gestures that call it into being. But there, in the midst of this dispersion, which it is simultaneously grouping together and spreading out before us, indicated compellingly from every side, is an essential void: the necessary disappearance of that which is its foundation – of the person it resembles and the person in whose eyes it is only a resemblance. This very subject – which is the same - has been elided. And representation, freed finally from the relation that was impeding it, can offer itself as representation in its pure form. (1989: 17-18).

In *Las Meninas* there is reflection and representation all over the place; however none of it is about the painting requiring its order from outside of the canvas from the gaze of the observing subject. *Las Meninas* shows us



representation freed from the relationship with the subjective observer which impeded it. The painting parades this freedom as it composes the observer space but denies the subject a pure reflection. We are not in the mirror or seen on the canvas. We are included by our exclusion. We relate to this image by being included in it by its own representational logic; organised by the composition and the direction of the gaze of the artist which takes up the observer space and throws it on to the canvas that we can't see. Through the blankness of the canvas we are visible in the picture by an ordered invisibility.

To account for the experience of standing before this image by saying the picture is brought before us for ordering is to elevate the human gaze to the point of being the source of order that conquers the world as picture (Heidegger, 1977b). *Las Meninas* shows us that the perceptualist account is a bad caricature of human experience because the painting objects to the imposition of that limited summary. Far from standing before the picture, *Las Meninas* shows that we are in some way in the picture and that human experience must be understood in terms of our inclusion in an allegorical representational order rather than as something that constructs the world through representation. The move from understanding representational order as emanating from the observer as they 'standing before' to an 'inclusion in' the picture requires a shift in our understanding of the ordering principles of representation from the symbolic to the allegorical mode. That is, from pure reflection where *Las Meninas* would appear as a mental copy in the head of the observer for construction and processing, to translation, where objects are taken up and continued in different forms in other objects. For example, the observer is taken-up and placed on the canvas we can't see by the gaze of the artist. It is translation which operates throughout *Las Meninas*.

Synonymous with the shift in representation is a shift in our understanding of the relationship between humans and space and our experience of being in spaces. *Las Meninas* has shown us that the observer space and mental representations are not the starting point or the framework for an analysis of the experience of viewing a painting or for a settlement on the nature of perception. Rather, its emergence from an alternative mode of representational order, as a space, is something to be explained.

To begin to explore this dual shift in our conception of representation and space, in the next section we will turn to Martin Heidegger on space and then to Walter Benjamin on allegory. Through Heidegger's essay *Building Dwelling Thinking* (1971) we will approach the experience of dwelling in spaces in terms of the construction of locally ordered spatiotemporal envelopes, arriving at 'collection' and 'dispersion' as a vocabulary for understanding the emergence and organisation of networks from which space unfolds. We will then turn to Walter Benjamin. Collection and dispersion are also central concepts to Walter Benjamin's work on allegory as a way of understanding the constitution of objects and local order.

### **Heidegger and the experience of space**

According to the perceptualist settlement, space can only occur in two forms; as either an inner subjective space, in which case the term 'space' is used metaphorically, or, as a measurable property of the outside world through which we can plot the size shape and location of objects. The two spaces interact with each other through the subjective Observer who represents the outside world in the inner space of 'mind,' as they look out to a calculable world where space is measurable and understood geometrically. The relationship between the two kinds of space in the perceptualist settlement is rooted in a representational register and therefore both forms of space have a different relationship to objects. The inner subjective space contains mental representations of objects and their spatial arrangement while space in the outside world contains and defines objects in terms of their geometry. It follows that within the perceptualist account the way humans relate to space is understood in these two ways. We experience objective space bodily; we are contained within calculable space with our movement and position marked by coordinates; our size and shape calculated and our relationships with other objects described in terms of measurable distance. Our experience of subjective space occurs as the outside world is represented in the inner subjective space of the mind which is connected to the outside world by the gaze.



Las Meninas shows that both of these kinds of space are composed and produced. Neither holds the key to the nature of space and so neither gives a clue to the human experience of space. The nature, and experience, of inhabiting space are grasped when we pursue the terms of the networked composition of space. The first step is to ‘hear’ ‘man’ and space differently, Heidegger writes;

when we speak of man and space, it sounds as though man stood on one side, space on the other. Yet space is not something that faces man. It is neither an external object nor an inner experience. It is not that there are men, and over and above them space...Even when we relate ourselves to those things that are not in our immediate reach, we are staying with the things themselves. We do not represent distant things merely in our mind – as the textbooks have it - so that only mental representations of distant things run through our minds and heads as substitutes for the things. (Heidegger, 1971:358)

Heidegger gives us three examples; the distant object; the room and the inner self. Our involvement with all of them is to be understood in the same terms; as a networked experience, that is, in non-representational terms. In these few pages of *Building Dwelling Thinking* Heidegger gives us a sketch of what we are looking for; human experience understood in terms of pervading networks. The sketch will be coloured in, as it were, in the next chapter when we look at Bergson’s work on the relationship between matter and memory ([1908]1991). For now I will deal with each example in reverse order; moving from the inner space to the immediate environment and then to our relationship to the distant object. First then the inward looking of mortals. Heidegger writes:

Even when mortals turn “inward,” taking stock of themselves, they do not leave behind their belonging to the fourfold. When, as we say, we come to our senses and reflect on ourselves, we come back to ourselves from things *without ever abandoning* our stay among things. (1971:359).

The term “fourfold” covers everything in its pre-spatialised formlessness (mortals, gods, earth and sky) and underlines how extensive and far reaching the relationships are which make up networks. ‘Things’ spatialise the fourfold and as

such through things we dwell amongst the fourfold. Therefore, when talking about mortals Heidegger says “they do not leave behind their belonging to the fourfold” because we live “*without ever abandoning our stay among things.*” (1971:359)

Heidegger presents the inner world and our inspection of it, as a networked activity that goes on without ever losing connection with things. There is therefore, no break with the outside; there is no change of metaphysical state when moving from the outside to the inside as if moving from a real world to a mental world made of mental representations. The inner world can therefore be thought of as continuous with the outside world; as a fold in the network of things (Curt, 1994). Heidegger illustrates with the example of depression and feelings of disconnection with things;

Indeed, the loss of rapport with things that occurs in states of depression would be wholly impossible if even such a state were not still what it is as a human state: that is, a staying *with* things. Only if this stay already characterizes human being can the things among which we are also *fail* to speak to us, *fail* to concern us any longer. (1971:359).

For depression to be a human state it must occur *in terms of* the human state, which Heidegger says is a state which is staying *with* things. The inner world then is made by a different configuration of relationships with things, not through an abandonment of them. The retreat inwards happens through relationships with things. The way into the fold is through the things that, as it were, constitute the crease in the network. Psychology as a scientific discipline and its relationship to the mind stands as a further example. Enrolling a participant into a relationship with the technology, practices and artifacts of experimental Psychology is to have them enter the network which when combined with a human and their responses, collectively constitute the folds which variously are labeled memory and perception and any number of features of the inner mental world, and ultimately the subjective observer.

According to Heidegger then we must conclude that the participant in the experiment is *not* providing the experimenter with his or her mental structures for



processing mental images, for investigation. Instead the entire experimental set up is a network configured to fold up an 'inside' which would then be taken-up and reported *in terms of* an internal set of mental structures containing representations. The way *into* memory is through experimental materials. Paper, printed word lists, computer programs, statistical packages and procedures all work together to convert verbalizations or other kinds of participant response into reflections of the organization of the inner world. But in order to read the structure of the mind one can never leave those pieces of paper and statistics and procedures and lists of words and language and social behavior, behind. The network may be erased from the presentation of findings or presented as the way to expose the inner workings of the mind but it is never presented as the materials that construct the fold. However, in order to keep the phenomena going, psychologists must keep adding more and more materials to the network, through replication and validity work, to make discovered 'structures' robust, stable and durable in the scientific community.

The next example is the experience of being in a lecture hall, Heidegger writes;

We always go through spaces in such a way that we already sustain them by staying constantly with near and remote locales and things. When I go toward the door of the lecture hall, I am already there, and I could not go to it at all if I were not such that I am there. I am never here only, as this encapsulated body; rather, I am there, that is, I already pervade the space of the room, and only thus can I go through it. (1971:359).

A geometrical understanding of space and our place within it cannot conceive of the idea of pervading the space beyond the borders of our body. Geometrical thinking will only allows us to be in one place and so Heidegger's comments look odd and far fetched to us if we are thinking of space in those terms. However, according to Heidegger we pervade the room by being in varying relationships with everything that makes up the room and our position within it. This comment opens up an experiential rather than geometrical understanding of space and our place in a room and in our difficult discussions of Heidegger's

understands of building dwelling and thinking which will follow shortly, the reader would do well to keep this difference in conceiving space in mind.

In the next chapter we will see through the work of Bergson that “pervading” means to be in a network of varying relationships between objects (or ‘images’) which present multiple potential actions; the selection of any potential action will bring about a future reordering of the network of relationships which presents a further multitude of potential actions with near and far objects and with every element reflecting possible actions circumscribed by the current order of relationships, which shift and change as relationships change. Heidegger is already at the door simply because the door reflects the varying possibility of passing through it throughout the network that constitutes the room with Heidegger in. By virtue of inhabiting or Dwelling in the network of relationships the door reflects a set of potential relationships that are possible to have with it.

If Heidegger is already at the door because of being included in its network of both actual and potential relationships then what are we to make of relationships to objects that are much further away and out of sight? Heidegger’s example of the bridge at Heidelberg whose distance from the thinker, even from Heidegger’s location as he writes, seems most challenging to the idea that distance is, again, first and foremost, another emergent feature of a particular local order;

If all of us now think, from where we are right here, of the old bridge in Heidelberg, this thinking toward that locale is not a mere experience inside the persons present here; rather, it belongs to the essence of our thinking of that bridge that in itself thinking persists through the distance to that locale. From this spot right here, we are at the bridge – we are by no means at some representational content in our consciousness. (1971:358-359)

It is in the sense of pervading the network that, as part of a network, the Heidelberg Bridge is included in a way that means we can think our way to it rather than invoking a mental representation. Its distance from the thinker is just a way of describing one feature of its relationship to other elements of the network rather than a gap that needs filling with a visual representation.



These examples of our experience of the inner world, the lecture theatre and the distant bridge are part of Heidegger's attempt to think about the way in which humans inhabit or dwell in space. For Heidegger inhabiting or dwelling in space concerns the very being of humans and must not be confused with a simple exploration of humans in context. In order to pursue the question of humans dwelling in space Heidegger explores the nature of dwelling in terms of how space is organized through dwelling rather than how dwelling is organized through space- which would conceive of the relationship between dwelling and space as an activity contained in a spatial context.

In the rest of the essay, Heidegger describes 'dwelling' as a concept that reaches further than our understanding of inhabiting and 'building' as the way in which dwelling is locally organized. Heidegger writes of dwelling that; "It is the domain to which everything that *is* belongs"(353) Inhabiting is a limited term because it refers to a particular activity, rather than all activity. In addition, building, as the process by which dwelling is achieved, in this sense is not always directed towards inhabiting as if it were simply a means to that end- i.e. a means of providing lodgings. In order to orientate us to his use of these terms, dwelling and building, Heidegger starts with the experience of being at home to demonstrate that experientially it takes us beyond lodgings. The achievement of "being at home" is wider than inhabiting lodgings. Truck drivers are at home on the highway, says Heidegger, even though they don't have their lodgings there. "At home" means something beyond inhabiting and this fact points to dwelling. Dwelling is not the inactive end to which building is only the means. If it were, then dwelling would be limited to certain times and spaces. Rather, what makes the truck driver at home is his inclusion in a set of relations with trucks, delivery schedules, steering wheels, highways, etc. this is what pertains to dwelling and so it refers to the way in which humans are included in networks.

Looking to "the old high German" Heidegger tells us that the word for building (*bauen*) is *buan*, which also means to dwell, signifies a "staying in place." Heidegger goes further, the word *bin*, belongs to the old word *bauen* and so *Ich bin*, I am, means I dwell, and *Du bist* means "you dwell." "Man *is* insofar

as he dwells” says Heidegger (1971:349). This is how far reaching the essential nature of dwelling is as it takes us beyond a narrow type of activity or inactivity that inhabiting denotes. Since *Bauen* originally means to dwell and since the manner in which human kind have their being is in dwelling, it turns out, that man has his being through building, that is, through the process of the arrangement of networks. In other words human kinds dwelling or inhabiting of networks, which constitutes our being, is constantly in a process of change and movement through building and arrangement and is never in a permanent state of ‘settlement.’ In fact, we might say (and this goes beyond Heidegger here, and anticipates our later discussions on allegory and becoming) that ‘settlement’ is a moment in the flow of change and movement.

Heidegger says that dwelling is letting something be in its essence (which we have said is *being* through change and movement). What does this mean and how is it achieved? At first sight there seems to be a tension in the relationship between the terms ‘essence’ and ‘local ordering’; between that which is included with its essence and the order into which it is included. The question seems to be which one holds sway in the final interpretation of the whole. Are things as they are in themselves, in their essence or do things receive their essence from the local order or understanding, in short, the statements that are made about them? The tension is set up already in advance by the way the modernist settlement prepares our thinking about the relationship between things and context, objects and their interpretations. The modernist settlement embeds our thinking in a hermeneutical loop where we have to decide whether on the one hand something has meaning or being in and of itself or, on the other hand whether that being and meaning is something that comes entirely from our interpretation. In this sense the problem is analogous to the problem of perception of mental representations, do we see things as they are or only copies of those things which belong to the mental world. However, a proper understating of Dwelling collapses this problem since dwelling requires that we see that things are freed into their essence by virtue of the fact that they combine with local ordering, so that they are *continued in* and through the local order of objects. So we can say that objects and humans dwell in a constant movement of settlement and resettlement in local order. And this process



of movement through settlements within local order, where objects are continued, is what we refer to as building.

At this point the word 'essence' becomes unhelpful in approaching the inclusion of humans and non humans in local order so we will switch to the word envelope instead (Latour 1999). The term 'Essence' in the English language artificially separates out the properties of an object from its history and also from the local order through which we know it. Therefore, following Latour we will swap the term for envelope. Latour writes:

Envelope: An ad hoc term invented to replace "essence" or "substance" and provide actors with a provisional definition. Instead of opposing entities and history, content and context, one can describe an actor's envelope, that is, it's performances in space and time. There are thus not three words, one for the properties of an entity, another for its history, and a third for the act of knowing it, but only one continuous network."(Latour, 1999:306)

The term 'envelope' combines all three terms and we can see things as continuous networks or assemblies of other humans and non humans with different ontologies, containing different substances and different histories etc. An objects envelope is then its network. Objects are constituted as folds in a continuous network made up of various other objects and humans with different histories and properties, all folded into particular local settlements.

How do objects as envelopes settle and stabilise relationships between objects and humans? We have to remember that objects, in order to continue must be included in local order and as such are assemblies, that is, they gather everything to themselves and order it in their own way. It is in this sense that Heidegger calls things 'locales' as they spatialise and locate or, in other words, set out the terms of relations between things which pass through them. Heidegger uses the tricky term "fourfold" for the unity of mortals, earth, sky and gods which is called to order, all at once, through locales. In their own way, things or locales, allow a site for the fourfold to dwell by the process of setting out and arranging spatial relationships between the elements of the fourfold. In a sense we can see

the fourfold in its pre-spatialised form as pure potential; when one aspect of it is spatialised all the rest will fall into place around it.

Heidegger uses the example of the bridge that gathers and includes with in it the earth; as the bridge crosses a stream it orders the earth as it causes banks to emerge. As it orders the banks it also orders the expanse behind the banks as expanses of landscape that are brought together as dry land around the stream. As such the bridge allows the stream to go on through the landscape. In gathering the earth and the stream, the bridge also admits the sky and its weather to the site. It also carries mortals on their way, in commercial traffic, harvest wagons, connecting towns to cities and as such admitting mortals to its site.

The bridge is truly a thing in the ancient sense of the word as assembly (Latour) as it selects and sets the limits and terms of inclusion that lends order to, or, reformulates that which it includes. But the bridge in no way contains the entire world, it simply is a moment of order (or building) in the flow of things. The bridge is the pivot around which humans and non humans circulate and are brought into relationship according to the logic of inclusion that operates through it. As such it opens up spaces and paths and a thinkable world, that is, a world in which objects relates in predictable and ordered ways as it provides the spatial and temporal order which structures the kinds of relationships that objects and humans can occupy and move through. The bridge orders a thinkable world; stabilising and configuring the relations between the fourfold.

The process, by which this continuation of humans and objects through combination with locale order occurs, as we have said, is building. This building is more than simply placing bricks; it is the cultivation (Heidegger, 1971) or the process of collecting a thing together as an assembly by the mediating work of other things as they lend their form and order to an object. In other words it is the process of poiesis. We will therefore, continue with the term 'collection' as this keeps in mind the assembled nature of things and the indebtedness that holds them together in their production through poiesis.

This collective production or building is a call to order; a call to appearance in and through relationships of 'indebtedness' which secure the continuation and



preservation of objects and humans by selective collection into sets of practice, materials, forms and craftsmanship. To be produced or revealed is to be taken-up into locally ordered relations of indebtednesses by the necessary exclusion of alternative ordering. What we are talking about is building as collection, as a process of poiesis, which works by the selection of particular orders over others from a field of potential. This selection, we might say, works by the collection of things in terms of the four causes into local order that we encountered in the last chapter

However, while the revealing that occurs through this collection, building or process of poiesis (what ever phrase one prefers) is a call to order, Weber (1996) helps us understand that revealing is not to be understood as a permanent and stable order or settlement. On the contrary, Weber argues that 'revealing' - usually understood in translations of Heidegger's work as "harbouring", invoking ideas of protection - is better understood as a "harbouring forth." Far from invoking protection and securing, harbouring forth invokes an idea in tension; of harbouring and of going forth or leaving and therefore of leaving home and shelter. Weber prefers to translate it as unsecuring. So at the heart of the collection that promises to stabilise, assemble and order, is an opposite move. If revealing works by a selection and collection then this movement of poiesis is answered by an opposite movement of unsecuring; an opening up of a new field of potentiality which we will call a movement of 'dispersion'. Collection then is a moment of assembling, from the field of potential, a set of stable relationships through the mediating work of objects lending their form and order to each other in local configurations. And yet, at the same time collection redefines and sets out a new field of potential. We can summarise by saying that Collection and dispersion describe the temporary moment of settlement on the one hand and the flow of dispersed things on the other.

If the continuation of objects in other objects, as they lend their form and order to each other, can be thought of as allegorical (see chapter 3) in nature then the relationship between collection and dispersion has to be understood as the movement at the heart of allegory. These terms therefore belong to a different representational order to that of the perceptualist settlement. They belong to the

representational order of Las Meninas and they are the only vocabulary that will help us to sketch the movement and order of the networks effected by new technologies that humans move in and have their dwelling. For the remainder of the first part of this chapter we will show how these terms are allegorical and unpack how objects are allegorically ordered in Walter Benjamin's work. In part two we will approach the effects of modern science and new technologies on local order in terms of collection and dispersion i.e. the way they collect or take-up and disperse the world and humans.

### **Benjamin and collection and dispersion and allegory**

We have been arguing that allegory is a representational order in which entities exist and survive as they are continued in other entities, that is, as other artifacts lend their form to the artifacts that come before them to pass on their content and influence to the artifacts that come after them. Artifacts therefore act as mediators that channel (see the chapter 3 for a discussion) and take-up the content of other artifacts and transform them and then displace their content. As a result they can transmit their influence to other parts of a network and enter into relationships with other objects with which they do not have an immediate connection. We have already encountered an example of this in Latour's work on the pedocomparator, which brings many more people, and artifacts into contact with the forest floor as it transforms it and displaces it.

If we begin to see artifacts lending form to each other then as we have argued we will begin to see objects as connected to each other in vast flowing networks, transforming and displacing each others influence. Allegory, as a system of representation sees artifacts in their own form representing the content of other artifacts, in other words as artifacts come to signify other artifacts they do so through transformation and displacement and not through pure reflection as a copy of an object. As Hetherington and Law (online paper) say "allegory relies on similitude, on a chain of signifiers where there is no direct correspondence between matching signifier and signified. Instead, there is a mobile play of connections between them". As we saw in chapter 2, allegory explains the relationship between words and the world or events and their representations, far



more convincingly than the symbolic mode. Latour argues that “the cat sat on the mat” as a phrase is not in fact the actual cat sat on an actual mat but is a way of taking up and transforming and displacing an event in a way that language provides. The words in no way faithfully ‘copy’ the event, they communicate it allegorically, that is they have it continue in the words. Similarly Barthes’ (2000) photos in chapter 2, were not copies of events but a way in which the event continued in a transformed and displaced form, such that the scene and the photo were wedded like a window pane and its view.

The symbolic mode however ignores the connections between artifacts, events, and people and sees the world instead as signifiers on the one hand and objects on the other. The signifiers exist as copies of the things they signify, that is they share the form and content of the signified object but in the form of a representation. By wiping out the connections the symbolic mode - which underpins the modern epistemological project (Hetherington and Law) - asks us to make a leap from the copy to the object across a yawning gap (Latour 1999). When we make an inquiry into the nature of human interaction, then, in various forms the answer arrives that objects somehow give rise to a copy of themselves, which we receive, and process and store. Thus, the symbolic mode underpins the modernist understanding of perception. Hetherington and Law say that the “Modern [epistemological] project seeks to let the eye speak directly but in allegory the relation is less direct.”(online paper).

The symbolic mode assumes an immediate connection between signifier and signified in contrast to the allegorical mode, which sees a delay caused by alignment and progression where objects continue into other objects. The difference between the two forms of representation is that the immediate connection or the leap between signifier and signified in the symbolic mode is timeless, while the continuation of the signified in the signifier in the allegorical mode occurs in the flow of time.

Bell (1997) says that as opposed to the immediacy of the symbol, allegory finds its expression in the flow of time. The difference is that allegorical relations as we shall see are historically contingent, while the symbolic modes immediacy

is taken to occur outside of time. However, as Bell says, since the symbol attempts to signify something beyond its self it lets in time. Its perfect unity between content and form, which renders it a copy, is illusionary and asks us to buy into an ahistorical view of the relationship between form and content.

If we understand the immediacy of the symbolic mode as an illusion covering and blinding us to the temporal nature of the connections between objects and representations of them then we must conclude that the symbolic mode is in the end contained within the flow of allegory. It by locating the symbolic within time that Walter Benjamin describes the difference between the two modes of representation. He writes:

The distinction between the two modes is therefore to be sought in the momentariness which allegory lacks...there [In the symbol] we have momentary totality here [in allegory] we have progression in a series of moments". Benjamin (1977:165)

Here Benjamin recasts the symbolic mode as a 'moment' in the allegorical flow or progression of moments of transformation and displacement. Since the symbolic mode constitutes one moment, it is a single moment in allegorical progression it is achieved by a Holding up of the flow of moments and so the moment its self has to be arranged from objects relating allegorically. The greater of the two representational modes then for Benjamin is the progression of allegory, which in a sense contains the symbolic mode, since it is through allegory that the symbolic mode is constituted. The symbolic mode seen in the flow of allegory becomes visible as a stripped down version of representation; a section in the flow of allegorical progression. Benjamin's project as Hetherington and Law point out is to understand how this relationship between the moment and the series of moments works to produce the 'appearance' (and we use that word now in the sense of harbouring forth or unsecuring) of the symbolic relationship between object and representation (while Benjamin puts us on the road to answering this question about the true status of representations or images, the full explanation with all its psychological impact comes from Bergson as we shall see in the next chapter.) Hetherington and Law say "Benjamin seeks to extract from the material



flux [series of moments] of the world, an eternal image, a monad [a single moment], that comes to represent the world as a whole” (online paper).

Benjamin saw the progression of allegory as operating on the laws of collection and dispersion (Weber, 1996). The relationship between the moment and the series of moments is therefore the same as the relationship that exists between the dual movements of collection and dispersion. Dispersion describes the series of moments and collection describes the moment or the monad. In order to understand this relationship and the constitution of the immediacy of the symbolic mode we have to first understand the moment of symbolic unity -the apparent immediate perception of an object- as a holding up of the object in the flow of allegory. Benjamin addresses the nature of objects in the flow of allegorical relations in terms of its embeddedness in tradition, where the tradition of an object is understood as a process of recording of previous arrangements or collections of the world around it.

We find all this in Benjamin’s descriptions of Aura and technologies of reproduction. Aura for Benjamin is a recasting of the features of symbolic unity and momentariness of the symbolic mode in terms of the allegorical mode. In *The work of art in the age of mechanical reproduction* (1968a) Benjamin argues that the dissolution of the aura of the work of art occurs at the hands of reproductive technologies and mass movement. It is in the contrast between mass production and the unique occurrence of an object or piece of art work that we find the constitution of aura through the allegoric mode. What is the aura (or moment) of a piece of work? It is that which a copy made through reproductive technologies lacks - a trail of past unique occurrences in time and space. Benjamin writes:

Even the most perfect reproduction of a work of art is lacking in one element: its presence in time and space, its unique existence at the place where it happens to be. (1968a:222)

The originality or uniqueness of an object is made through its spatio-temporal location and it is this that gives an object its authenticity.

The authenticity of a thing is the essence of all that is transmissible from its beginning, ranging from its substantive duration to its testimony to the history which it has experienced. Since the historical testimony rests on the authenticity, the former, too, is jeopardised by reproduction when substantive duration ceases to matter. (1968a:223)

Things survive as they transmit their influence and continue through settlement and resettlement. In this sense they are then their own history, which they have experienced, or, as both Benjamin and also Henri Bergson say, they are their own duration (we will see later in this chapter that this holds the key to understanding the networked effects of mass technologies, which produce objects without substantive duration). The uniqueness of an object comes from its duration or its embeddedness in history or tradition. In the reproduced object, we find a parallel with the timeless symbol which has no duration since it itself continues nothing; is continued in nothing; and has come from nowhere; having simply popped up, as it were, in the same occurrence of the object but only having existence as a copy in the subjective realm. Unlike the symbol - which is understood to be outside of time where its duration "ceases to matter"- Benjamin's aura is a product of its temporal duration, that is, it is product of all its history so far.

The object is its movement through history as a series of collections, and, its entire past is an amorphous whole of all its past collections, which blur into each other. The object is in this sense the pointed end (to anticipate our discussion of Bergson) of its duration pushing into the future. The totality of its past constitutes its aura which it turns out, is constituted directly through the movement of collection and dispersion. Weber (1996) comments on Benjamin's doctoral thesis, *the origin of German tragic drama*, that the mode of signification in the mourning play is allegory. And further, allegory operates by bringing together a 'court' (in German court is 'hof') around a centre as a point of order. Weber points out that Benjamin sees collection and dispersion as the laws which bring this court (or hof) together and that 'hof' can be translated as aura. Collection and dispersion then are the laws, which attend the constitution and dispersion of aura. Each moment of collection adds to the past and adds a new set of relationships and potential



relationships to the object. Therefore in the object the past meets the future in the movement of collection and the past is swollen by the same movement of dispersion. The momentariness of the symbol - the apparent immediate perception of the object - is a snap shot of an objects' temporal progression location which is always unfolding and which is always a product of its past. As a snap shot it diminishes the aura, it is never a picture of the whole duration of an object, but simply as section in the flow of its becoming; it is simply a moment in its progression and is, therefore, less than the object. We will return to the way in which this snap shot produces a perceptual image in the next chapter.

For the remainder of the first half of the chapter we will look at the accumulation of the past as the tradition or duration of an object more closely in the work of Benjamin. The tradition that aura is embedded into isn't fixed but is always unfolding:

This tradition itself is thoroughly alive and extremely changeable. An ancient statue of Venus, for example, stood in a different traditional context with the Greek's, who made it an object of veneration, than with the clerics of the middle ages, who viewed it as an ominous idol. Both of them, however were equally confronted with its uniqueness, that is, its aura. (Benjamin, 1968a:225)

If the aura or uniqueness of an object is inseparable from its historical context then it does not originate from a particular arrangement of meaning in the sense of having an interpretation laid over it. Instead it comes from being settled and secured as a located object in terms of its set of relationships. Benjamin's understanding of context is not a return to the modern settlement of content and context. Instead context is understood as the network of relationships and so is always changing along with the entities included in it. The historical context should not be read as a container of the interaction that is left unchanged, instead, historical context should be understood as referring to the chain of rewritings (a flow of becoming, or the duration of an object) the entity has undergone as it has moved through different networks. Inclusion in local order melts down this rigid distinction so that there is no context to be reflected in a core interaction (see last chapter) there are simply continuous networks.

Each tradition that an object appears within maintains it as an object by rewriting it. Its history then is the accumulation of different rewritings; what it has been too different situations. Each rewriting secures it in contextual terms as an object that is rewritable here and now. The result is that the objects or aura is its own manner of progression through a series of moments or historical and cultural locations i.e. its duration. We could represent this by relabeling Latour's chain of transformations, which we encountered in chapter 2 (see figure2). Each moment is a settling of an object by giving it a form relevant for insertion into a new set of relationships. Matter, then, can be seen as its formless past. The object is always moving from matter to form and its past is all its past forms strung out behind it which to its current situation operate as a formless past. This formless past (formless in terms of its current set of relationships) provides the continuity of the object, which enables the next set of relations to take up the object and continue it further. Its past then secures the object as a recording space through its constant re collection and dispersion. We can think about collection as writing on to the recording space of dispersed and potential collections. In this sense dispersion is an enabling limit providing the formless field for rewriting. Collection or writing and rewriting is the process of self-demarcation, or form giving, or, we might say, spatialisation through the setting in place of relationships and terms of contact between entities in a setting.

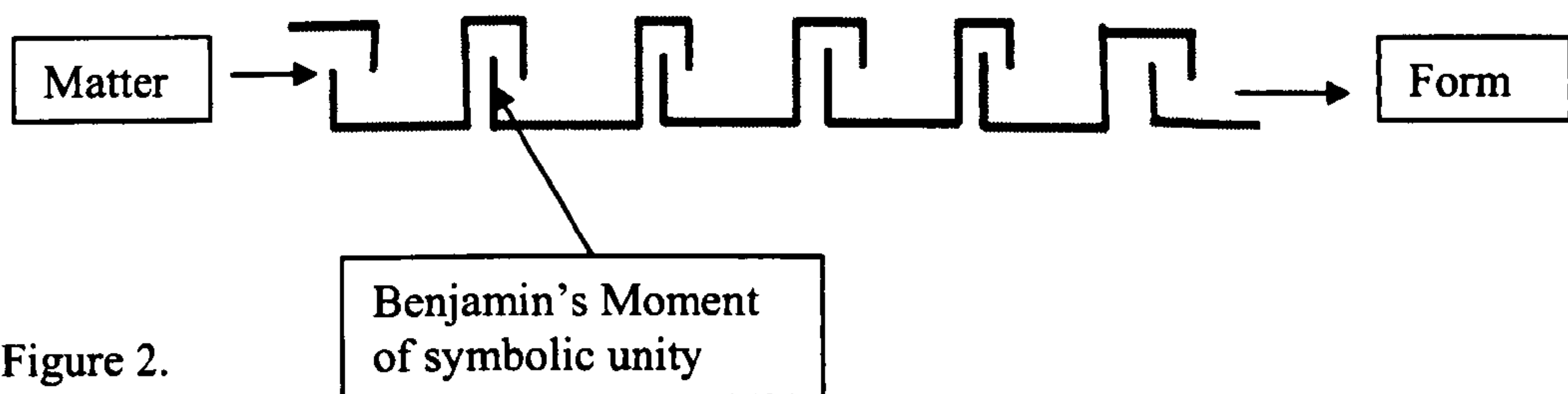


Figure 2.

Benjamin's piece on collecting books (1968c) further illustrates the constitution of aura through the progress through collection and dispersion which write and re write the borders and demarcations of form on to the object. Benjamin says of the Book and its collector:



the period, the region, the craftsmanship, the former ownership- for a true collector the whole background of an item adds up to the magic encyclopedia whose quintessence is the fate of his object. (1968c: 60)

Parker (1997) commenting on this quotation says it exemplifies Benjamin's tendency to see a grander narrative in the specific object. The grand narrative is more than the objects immediate history "but history itself as it spills out from history's most conservative vessel; the material object" This is the duration of the object. It is the relationship between this history and the object that we find a parallel with symbolic unity. Parker explains that Benjamin quotes Proust on the relationship between these two, "the past is somewhere beyond the reach of the intellect and unmistakably present in some material object" (1968b: 158). As the object is perceived it stands for its own history of allegorical progression through settlement and resettlement. This history constitutes its aura.

The Aura is the point around which order is produced. It is the point that is written and secured as it orders the world around it. The perception that humans can have of aura is as a point of order around which the world and history are unmistakably there but beyond the intellect. The immediate perception of the aura of the object is to behold one facet of the world, as an abbreviated world image, and not the whole. The threat to the aura comes in the form of detaching an object from this history and the world and having it stand outside of time as a pure copy and not as an assembly of its current set of relationships as the pointed end of its growing past pushing into the present.

We could say that Benjamin's goal was then to rescue the object from theory, which detaches it, and instead to expose the object as a monad constituted through transformation or translation. The ancient statue of Venus was passed on from tradition to tradition to be rewritten or translated, in the same way Benjamin took texts and translated them adding to his collection. It is through constant translation that unity is produced. The history or duration of an object which is beyond the intellect but unmistakably there, becomes united with the object in the moment its progression is held up for a time by perception (we will see later that Bergson says something similar, that when we perceive the object its virtual

existence is what we actually grasp). As the object is translated into another set of relationships the world is aligned to secure its aura in time and space. The effect of translation is therefore creation of a monad and it is this that Benjamin wanted to hold up as the true nature of objects, As Hetherington and Law point out

Through the monad... Benjamin sought to hold time still so that the materiality and spatiality of human history could be crystallized in a baroque image, often of a ruined past, that would shatter the illusion of progress and offer redemptive glimpses of hope for the future. For Benjamin, these distilled images are the vehicle for allegory. (Online paper)

For Walter Benjamin the movement of collection and dispersion lends the object, Art work, and book or story its authentic constitution since it is the very basis on which tradition works. Each collection is a re-appropriation in terms of a new set of relations that is in terms of a new local order. By being taken-up into local order an object remains readable and usable and durable. Objects exist through allegorical progression that is through collection in to local order and dispersion for further collections.

## **Part 2**

What happens when objects and people, existing through the progression of allegory, encounter technologies like digital photographic technologies, which massively reproduce objects and images? How does the modernist settlement effectively take up objects? Both, the modern settlement and modern technologies of mass reproduction reveal objects without apparent duration. Both questions are asking, in short, what happens when networks become populated with objects whose substantive duration ceases to matter? In order to answer this question and understand the ordering effects of new technologies and the modern settlement we need to consider more closely the process of an object being included or taken up into a local order. To do this we will return to Heidegger and dwelling.

Dwelling is concerned with this kind of survival or duration. As we have seen it is the processes of being through an on going progression through



collection and dispersion, that we have called building in Heidegger's work (1971). This occurs by letting something *be* in its essence or envelope through being taken-up into local ordering. On going dwelling is about successfully combining the phenomena with a local order (e.g. theory, statement system, technology) to produce a new order where the phenomena or object is made relevant to the system and the system relevant to the object in order to maintain its integrity.

The achievement of dwelling is in a collection (building) which combines the object or human with a locally ordered thinkable world, which renders the object readable as it reconfigures the local order by its inclusion. Heidegger contrasts dwelling with mastering. If we think about it in terms of statements as locally ordered systems of relations that give expression to objects, then the task of combination by collection is to make objects relevant to statements that are made about them (Latour, 1999b) in such away that statements become relevant to objects. Mastering an entity would be denying its integrity by subjugating it to another order that doesn't belong to it or that doesn't offer a relationship of indebtedness but seeks to determine its structure and make it dependent. That is why we talk of indebtedness rather than dependence. Statements systems that don't master the entity but discipline, that is, make its nature readable and visible in an ordered system invite entities into relationship of indebtedness.

Laboratories work in this way, by making statements 'stick' to phenomena. Through experimentation (which we can understand as a series of trialled assemblies) the statement system of the local order of the laboratory (inscribed in theory and equipment) shifts and changes to accommodate the shifting changing phenomena. To make statements relevant. Unlike the bridge in Heidegger's example of an ordered dwelling, where the order that emanates from it is a straight reflection of the things included in its assembly, the phenomena of science are recalcitrant in that they present a "zone of indetermination." That is, their output and action is unknown and unpredictable. As a result, in terms of the network of objects and practice in a laboratory the phenomenon being studied is an underdetermined actor in the network. The network therefore must wait to see what it will do. The network then is set up to wait, to allow the object to perform

and emanate order. By creating an interval in which the things of the laboratory (its theory, objects and practice) are made to wait on output from the phenomenon. The community of practice, including the objects and procedures of science, wait to be ordered by the response of the phenomena to the movements it receives from this network of practice. The waiting network offers the object a form or a system within which it can be 'read' and understood, and the object as an underdetermined zone, offer the network content.

In terms of science, Heidegger's notions of dwelling and building, are the process of this combination and therefore resonate with Latour's take on "Objectivity" as an on going process of entertaining an objects *objection* to statements made about it where attempts to articulate the phenomena go through a number of "retellings." to continue the metaphor from Benjamin (1968c). Latour says

Objectivity does not refer to a special quality of the mind, an inner state of justice and fairness, but to the presence of objects which have been rendered 'able' (the word is etymologically so powerful) to *object* to what is told about them. A laboratory experiment is a rare, costly, local, artificial set up in which it becomes possible for objects to become relevant for statements made by scientist. (Latour, 1999b:110)

Phenomena for Latour and indeed Heidegger (in terms of the propensity toward unsecuring in poiesis) are recalcitrant Latour says:

Natural objects are naturally recalcitrant; the last thing that one scientist will say about them is that they are fully masterable. On the contrary, they always resist and make a shambles of our pretensions to control. (1999b:111)

Methods that proceed by including objects in this 'risky' way (by an unsecuring, in Heidegger's terms) by entertaining the recalcitrant object observes 'due political processes' says Latour in the same article. The opposite of due political process would be to ask society or nature to impose the structure, to master the phenomena in their terms. The logic of inclusion that holds sway in a



site may be a website (i.e. the ways in which collection occurs) is an issue of the management of collection by due political process (dwelling) or by an attempt at mastering.

What is of interest then in terms of the object is the nature of the statement system that it is taken up into. The question is how does the system allow objects to object? A question that is central for Isabelle Stengers (1997). In terms of science and technology and in particular this is a concern with the axioms inscribed in the local order (theory, technology) i.e. the logic of inclusion or the manner in which a site takes up phenomena and produces them through a combination with local order.

The manner of taking up, or collection, produces the nature of the object and disciplines the future of the object, giving it a system to appear which in turn offers the possibility of predicting its future. Heidegger (1978) helps us to grasp this in terms of the axiomatic nature of questioning that proceeds by making objects relevant to statements. This is about the production of objects to circulate within the economy of the statement system.

In order to understand this we have to look more closely at the way in which collection is achieved in understanding and how questioning and understanding operate by collecting things up into local order and operate as a moment of collection and as an attempt to stabilise relationships between objects. Questioning is the setting up of an order and the inclusion of an object into it to both stabilise the object and to render it useful in new ways and to develop new questions. Questioning in this sense can be understood in terms of *mathēsis* that is, the properly understood mathematical project. Questioning and understanding being are mathematical as the Mathematical project is axiomatic:

As axiomatic, the mathematical project is the anticipation of the essence of things, of bodies; thus the basic blueprint of the structure of everything and its relation to every other thing is sketched in advance. (Heidegger, 1978: 292).

That is, all questioning proceeds in terms of a logic of inclusion which is an attempt to reveal things by locking them into relationships of indebtedness. That is, the blueprint co-produces that which it reveals.

Mathematics for Heidegger is about a kind of “taking-up” in terms of what we already know, before it is anything numerical. At its Greek root mathematics involves the process of learning or taking up (*mathēsis*) things (*mathēmata*) in terms of what we already know them to be in advance (275). This knowing in advance involves an imparting or a self giving of the fundamental presuppositions or category structures that the *mathēmata* will show up in- plants are taken as plant- like, the body as bodily. In short the ‘thingness’ of a thing derives from its combination with statement systems. Matter in this sense is achieved as a local collection or express of essence where by it *is* according to its place with in a local ordering. In which case this thesis is mathematical and owes much to an Aristotelian understanding of matter. In order to understand with Heidegger more fully the statement systems or axioms of modern age we make a small detour in to his discussion of Aristotle’s understanding of matter.

Heidegger (1978) describes Aristotle’s understanding of matter as substantial form. The body is its motion and its motion is its manner of being. Heidegger says “how a body moves, i.e., how it relates to place and to which place relates- all this has its basis in the body itself”(283-284). The body determines its own movement in terms of its own nature. “Each body has *its* place according to its kind, and it strives towards that place” (284).

In searching for the basis of natural motion Aristotle secures it firmly within the essence of the body itself. Therefore the kind of motion follows from the kind of being - i.e movement is not something outside of objects as something that objects do but rather something that they have and impart to other objects. Therefore there are different kinds of motion according to different places. On earth, the earth as against the sky orders that things move in a rectilinear fashion away from it or towards it or along it from one place to another. Fire goes up and rocks fall down. In the heavens the celestial beings move around the earth in circular motion again according to their kind. The point is that motion and the



nature of bodies are according to their place as ordered. In this sense Aristotle's blueprint performs bodies in terms of their assembled indebted situation and as such represents an analytical sensitivity to local ordering and an understanding of production as order.

Within this understanding of bodies is the possibility of violence against objects, that is, in moving something against its nature. Not a nature apart from its place but a nature that includes its manner of movement and subjecting it to a movement that is not included in its nature. For instance throwing rocks upwards is violent in this sense not because of the effects but in the sense that this motion is not within the nature of the rock and is against the natural movement of the rock according to its kind. From Aristotle we can add violence to the notion of mastering.

Modern dwelling for Heidegger is unthinkable out side of the things of Modern technology and science wherein Enframing holds sway as a "principle according to which knowledge and technique unfold" (Stenner 1998: 65) That is according to a set of axioms along a set of paths and boundaries and spaces built on a particular system of inquiring after matter. Stenner summarises nicely "Where enframing holds sway, being (whether that be mountains or people) is permitted to reveal itself only in the form of a calculated ordering where "what is" is rendered usable and "at hand" for people"(Stenner 1998:64-65).

As such, calculation, as the bedrock of modern science brings its own blueprint as particular regime as it articulates, reveals and assembles or imparts 'thinghood' to things and essence as it orders in terms of that blueprint. What are the axioms that set up in advance the essences of bodies that belong to calculation? Heidegger roots these in Newton's first law of motion which constitutes a break with Aristotelian understanding of bodies.

Newton's calculative blue print departs from this take on bodies and essence in several important ways. Firstly, his law of motion removes the idea of bodies moving according to their kind by making a law that applies to all bodies universally. For Newton there are no longer different kinds of motion but a single

kind – rectilinear. It follows from this that all bodies are reduced to the same kind as they all move according to this law. Secondly the nature of a body as its location is removed and all bodies can appear in all places thereby severing the body from location as integral to its being. In addition Heidegger says that this changes the notion of place; “place no longer is where the body belongs according to its inner nature, but only a position in relation to another position” (286). Motion is understood in terms of measurable movement between points. The result is that we no longer look to the nature of the bodies to ascertain the basis of motion as if it were governed by things that are locally ordered. Instead, given that the law of inertia operates on all bodies all the time, we only ask as to the cause and determination of changes of direction. This removes the idea that objects impart motion according to their kind to other bodies in local order. It therefore closes down an analytical sensitivity to Indebtedness i.e. the contribution of bodies to each others form by the mutual reflection of motion. Nature moves from that which is the inner principle - and out of which motion follows its course according to its kind - and into a realm of measurable movement from which emerges a narrower understanding of mathematics as primarily numerical in nature rather than a process of inclusion into locally order knowledge systems.

When applied to the bridge as a locale the bridge undergoes a translation where by its ontological place as something that orders disappears and the spaces and paths that it opens up appear as measurable intervals. In *Building, dwelling, thinking*, Heidegger argues;

Thus nearness and remoteness between men and things can become mere distance, mere intervals of intervening space. In a space that is represented purely as *spatium*, the bridge now appears as a mere something at some position, which can be occupied at any time by something else or replaced by a mere marker.(1971:357).

The bridge becomes calculable as size and shape. Further abstractions occur as height, depth, and breath become representations of intervals in terms of three dimensions. Space is made room for and unfolds as extension and then finally as algebraic relations. These forms of abstractions make a bridge mobile in terms of



systems of information within which nothing of the bridges space as the site of the fourfold remains, only a system of markers representing the bridge. Here is an interesting form of gathering that calculation and Cartesian extension affords. Matter is as it becomes locatable as present in location and fixed in time but through a system that describes and admits things in terms of a collection of universal markers dislocates or abstracts from its place in time and space and offers it for comparison with other bridges as one instance of a category that contains many “mere” bridges.

It is taken up and challenged forth in terms of measurable space and change in motion. This shapes how we question technology and dwelling as activities in spaces made up of different degrees of speed and occupying different measurable spaces. To question how we live in technology follows the set of axioms of calculation. We become concerned with technology taking our place since we can't both occupy the same space. In addition and we become concerned about the effects of the difference in pace between increasingly faster movement of technology compared to the slower home context.

This is the nature of enframing whereby things are only as they are made present as a set of coordinates in a measurable field of force motion and space. Calculation demands that things are presented in these terms. And so it goes on to structure up a particular take on objectivity. But this presence is in terms of placelessness and dislocated symbols that come to stand as markers for that which is taken as a natural occurrence. Objecthood is forced to reveal itself as gathered from a field of equivalences as particular arrangement or collection of universal markers.

This Newtonian take on matter translates and brings in a new energy to the movement of collection and dispersion that is, to the revealing that renders objecthood and humans as fleeting forms, as arrangements of markers of position in relation to other positions in a field of numerical representation. Thus, it covers the action of revealing by a new action of challenging forth or enframing

Things are assembled from a field of amorphous mass and equivalence precisely because they are produced or revealed as mass; they are taken up by science as instances of wider categories and types. Objects and people are distributed and multiplied by mass production and so they can appear in many places and times through film and photography and technologies of mass communication. For Heidegger this spells the end of dwelling, specifically for 'man' (to use Heidegger's gendered pronoun), and sets 'man' up in the delusion as that he is the one who masters objects and supplies all of their being by his gaze. This results in his alienation from his own being; from the nature of his own dwelling among objects. Instead through the perceptualist settlement man's being appears as the subjective observer of a distant world of homogenous objects.

The horror for Heidegger is the possibility of becoming standing reserve ourselves. Becoming fragmented and called to order as we go on conquering the world-picture we go on producing it as picture; collected by our gaze and produced as equivalence.

However Both Heidegger and Benjamin see this subject/object relationship as a modern strategy in their different ways to render the world readable by collecting it up by the gaze from standing reserve or mass. This manner of collection from amorphous mass that proceeds by giving shape through the selection of particular instances by observation also produces those things it collects as mass.

As such the Newtonian position on matter that fragments it and disperses it finds its partner in the technologies of mass reproduction; of film and mass media and digital technology, where objects people and things are collections of fragments, words and images as they are produced as such by the same technologies of collection. But for Benjamin by these very technologies of mass media and representation 'Aura'(what we will understand as essential dwelling) returns through collection and dispersion achieved through arresting or slowing up of amorphous mass or by the reception of fragments- Reception and consumption name the kind of collection that repeatedly goes on through technologies of mass reproduction - specifically film.



Perhaps the difference between Heidegger and Benjamin is their view of the place of humans in the thinkable world of modernity. Heidegger sees humans as lifting themselves outside of it and losing sight of their ontological place amongst things. Benjamin's concept of Aura or the thinkable world, however, always includes humans within it. So as Weber (1996) says Heidegger has humanity *getting* the picture, Benjamin however continues to think about the experience of humanity *in* the picture. Therefore with Benjamin we can continue to think about building thinkable worlds and, within that, the way in which modern digital technologies collect and disperse the world without losing sight of our ontological place in the scheme.

### **Benjamin and Mass**

First it is worth reminding ourselves of how the aura is undermined by technologies of Mass reproduction before we turn to film and the way it reveals the world. Benjamin writes:

The technique of reproduction detaches the reproduced object from the domain of tradition. By making many reproductions, it substitutes a plurality of copies for a unique existence. Moreover, by permitting the reproduction to meet the beholder or listener in his own particular situation it reactivates the object reproduced. These two processes lead to a tremendous shattering, which is the obverse of the contemporary crisis and renewal of mankind. Both processes are intimately connected with the contemporary mass movements. (Benjamin, 1968a:223).

If the aura of a piece of work is dependent on its spatio-temporal envelope then reproduction technologies dislocate the aura in two moves. Firstly, Benjamin describes how they overcome spatial location by conquering distance as copies can go where originals cannot - into books and homes for instance. Secondly, they can go to many places at the same time thereby destroying the temporal location of the original; lifting it from tradition. All this is achieved by the replacement of the unique with a "plurality of copies" and is part of "contemporary mass

movements.” Therefore making copies of objects or the challenging forth of objects to present themselves a calculable stock, away from their traditional set of relationships, jeopardizes their aura because these techniques, particularly mass production and consumption, reduce objects to detached entities without substantive duration.

Weber (1996) explains how mass and movements are essential to understanding the move from the unique object and its duration to a plurality of copies. He translates Benjamin’s (1968a) statement: “by making many reproductions, it substitutes a plurality of copies for a unique existence.” as; “by multiplying the reproduction [of the artwork, the technique of reproduction] replaces its unique occurrence for one that is massive or mass-like”(Weber, 1996:84). The move is not simply from art taking its place traditionally in the “here and now” to a collection or a plurality. The move is from the former to a mass. Mass is tied to the technique of reproduction not simply a result. Weber explains that we can discern from Benjamin’s writings that Mass movements are the corollary of the detachment from tradition that Benjamin writes of in terms of the decline of the aura. The important moves to note in the switch to mass reproduction are from the moment to pure temporal flux and from location to pure spatial flux. Weber says, “The aura relates to mass not just as uniqueness does to multiplicity but also in spatial terms, as a fixed location does to one that is caught up in an incessant and complex movement”(84). The aura of Art for Benjamin *takes place* spatially and temporally. This is how it is embedded.

Mass movement is concerns the decline of aura because it dislocates objects in time and space and disperses them as fragments. That is, it opts for dispersion as a mode of production. Which means in turn that mass as movement is itself amorphous. It resists attempts to shape it and the spatialise it. Cooper (2001) says “Mass is so dense it is without distinguishable form. Put another way, mass is boundless, unfinished, infinite in the most basic sense of defying comprehension and resisting interpretation” (2001:16). It defies form because it defies location and duration.



But aura can return because collection and dispersion, the rules of its court are the movements of mass culture as well. Mass movement is the ceaseless movement of collection and dispersion (Cooper, 2001). Collection still occurs and so does aura but both now take on the form of the moment of the consumption of dispersed fragments.

And so we can return to the notion of dwelling within technologies of mass (in anticipation of the empirical work on digital photography). Dwelling among technologies of mass reproduction continues in terms of keeping the movement of collection and dispersion going through the production and consumption of fragments.

Film is one such technology in which dwelling and aura return by the very nature of the technology and the way it takes-up the world. Benjamin illustrates Collection and dispersion with a comparison of the nature of the painter and the cameraman. The cameraman does not stand back from reality and strip away representations rather he penetrates it and by the rules of the editing room produces it from fragments. Cooper says; “film does not merely represent an already-existing world; it actively participates in the production of that world”(38). It is easy to find the position from which to observe an illusion or the place in the theatre where the spectacle and illusions of the stage work for the audience; that position is in one of the theatre seats. But for film, illusion or reality is arranged not from an observer point or for an observer point but through editing and cutting fragments. Benjamin uses the following illustration-

“Even more revealing is the comparison of these circumstances, which differ so much from those of the theatre, with the situation in painting. Here is the question: How does the cameraman compare with the painter? To answer this we take recourse to an analogy with the surgical operation. The surgeon represents the polar opposite of the magician. The magician heals a sick person by lying on of hands; the Surgeon cuts into the patient’s body. The magician maintains the natural distance between the patient and himself; though he reduces it very slightly by the laying on of hands, he greatly increases it by virtue of his authority. The surgeon does exactly the reverse; he

greatly diminishes the distance between himself and the patient by penetrating into the patient's body, and increases it but little by the caution with which his hand moves among the organs. In short, in contrast to the magician- who is still hidden in the medical practitioner- the surgeon at the decisive moment abstains from facing the patient man to man; rather, it is through the operation that he penetrates into him. Magician and surgeon compare to painter and cameraman. The painter maintains in his work a natural distance from reality, the cameraman penetrates deeply into its web. There is a tremendous difference between the pictures they obtain. That of the painter is a total one that of the cameraman consists of multiple fragments which are assembled under a new law."(Benjamin, 1968a:235).

The law is that of the cutting room floor where reality and the single unique instant or event is arranged from dispersed fragments. As the camera records the performance for its distribution to the masses Benjamin tells us that at the point of recording and at the point of its reception or consumption something similar happens. Weber explains that both of these instances of "Taking up" or reception involve the inscription of the "given" (the performance and then the film) in three ways: first in the sense of an arresting; submitting the given to a set of transformations that are not part of its "given nature". Secondly under these transformations the given is opened to dislocation, fragmentation and reassembly and thirdly the ensemble is circulated to take place in multiple "here and now's" without the notion of an original unique occurrence. Collection and dispersion still operate with in new technologies with a new energy though collection by reception or consumption that produces mass itself as it collects in the same terms as technologies disperse fragments.

The world recorded by the camera is revealed as a world of multiple possibilities or potential, times, spaces and structures as it smashes old ones and introduces new ones. Benjamin says:

Our taverns and our metropolitan streets, our offices and furnished rooms, our railroad stations and our factories appeared to have us locked up hopelessly. Then came the film and burst this prison-world asunder by the dynamite of the



tenth of a second, so that now, in the midst of its far flung ruins and debris, we calmly and adventurously go travelling. With the close-up, space expands; with slow motion, movement is extended. The enlargement of a snap shot does not simply render more precise what in any case was viable, though unclear: it reveals entirely new structural formations of the subject. So, too, slow motion not only presents familiar qualities of movement but reveals in them entirely unknown ones (1968a:238).

The camera and film demonstrate that there never was a pure gaze but always local orderings that reveal the world as they take it up. The camera doesn't enhance or distort our vision as if standing between us and a world out there, it shapes that world as part of what orders that world in the first place.

Film propagates the flow of mass as it arrests and takes up the world it dissolves and disperses it in new ways adding to it a multitude of new fragments in the sense of reproductions and in the sense of circulating new times, spaces, perspectives and movements.

Cooper argues that "the material fragments of film begin to look like Saussure's (1966) words that simply circulate as pure deferral, without necessarily referring to objects or things in the solid world" (2001:21) Until, that is, a moment of collection. Collection and dispersion in the modern age truly come to reflect the logic of communicative inclusion as objects become as fleeting as the arrangement of letters and words into sentences. Matter and sentences become as they are readable and as such they possess the same fleeting order.

Cooper explains: "What we normally think is individual and self-contained is really a transient arresting or slowing down of mass's endless motion"(17) . It is through this slowing down that the world become "readable". Objects are not mathematical points but forms captured from mass through the action or channelling of other mediating objects. This sums up the kind of arresting that goes on through digital technologies which produce endless images and store them in ways which increase the number of copies; the assembly of things through

a logic of communicative inclusion as they are “taken up” into local ordering that produces and reveals things as mass.

The problem of locking down and presenting a single event or ordering an object increasingly becomes one of slowing down by reporting and presenting. This is the nature of Mass media, the endless circulation of fragments held up for an instant through reporting as the arrangement of words and image and technologies of reproduction we are included as consumer as things are endlessly brought to us away from their place of origin.

But all is still allegorical; the move to mass movement in no way changes our register in fact it points to the redemption of the Aura through the kind of collection that takes place in mass culture. This is what Weber goes on to describe. Returning to Benjamin’s other statement on the aura of natural objects Weber casts it in terms of setting a scene or having the aura take place;

On a summer afternoon, resting, to follow a chain of mountain’s on the horizon or a branch casting its shadow on the person resting- that is what it means to breathe in the aura of these mountain’s, of this branch. (Benjamin 1968a: 224-225).

Aura here makes sense in front of and, as separated from a viewing subject. As such part of the construction of aura is the securing of a point to be distanced from, this secures the subject. Weber concludes that the taking place of the aura is a process of taking leave from a point in constructing that point. It achieves the appearance of locatedness and distance by a process of self-detachment; appearing as located in relationship to that point.

The aura would be able to return in the age of technical reproducibility because, as the appearance or apparition of an irreducible separation, it was never uniquely itself but always constituted in a process of self detachment: detachment from the self as demarcation of the self (Weber, 1996: 87).



And so we seem to have come full circle. We started out with the position of a subjective observer who acted as the point of order for the world outside and now we find that aura, the apparently immediate perception of an object with its entire network just beyond the intellect, always required a point from which to demarcate it, from which to be observed. But this position that we have arrived at is not so much a return to where we've started but it is the same position viewed from allegory through a switch in register. Viewed from our new vantage point we can see that the observer position is not outside of the network and flow of allegorical progression but is produced in the moment of collection as part of the stability of the transient settlement *as* a consumer of mass; a mediator which operates in terms of the manner of collection in mass society. The object and the subject are therefore not starting points for an account of human interaction in the world as if they were individual self sufficient entities which face each other across a yawning gap, instead they are forms carved out of amorphous mass. Cooper writes:

There is no permanent subject that sees a substantive object. Both subject and object are themselves products of a strategy of framing which creates a provisional perspective with the viewing subject at one end and the seen object at the other. Outside this perspective, the subject and the object are actively suspended in a dynamic field of mutability and impermanence symbolised for Benjamin, by the passing urban crowd (Cooper 2001:18).

This framing which creates the provisional perspective is the process of demarcation which is the spatial setting in order of relations which at the same time creates forms of subjects and objects. The relationship between the point of observation (or "centre of action" as we will refer to it after Bergson in the next chapter) and the object is a networked perception which Cooper describes, in terms reminiscent of Henri Bergson, as: "at best a tentative arresting of mass's continuous movement in order to produce a visual object" (Cooper, 2001: 18)

Walter Benjamin illustrates with his comments on the passer by in Baudelaire's poem, who emerges from the crowd. At the same time that it emerges as a figure against the background of the crowd it fixes the poets gaze

and we are left with a subject and an object for a moment. For Benjamin this example illustrates these notions of collection as a reconfiguring of mass by its reception or consumption. Benjamin (1968b), commenting on Baudelaire's "A une passante" say this:

In the sonnet 'A une passante' the crowd is nowhere named in either word or phrase. And yet the whole happening hinges on it, just as the progress of a sailboat depends on the wind. In a widow's veil, mysteriously and mutely born along by the crowd, an unknown woman comes into the poet's field of vision. What this sonnet communicates is simply this: Far from experiencing the crowd as an opposed, antagonistic element, this very crowd brings to the city dweller the figure that fascinates. The delight of the poet is love-not at first sight, but at last sight (1968b:170-171).

The poet falls in love at last sight in this sense: In the centre of Baudelaire's poem - "A une passante" - we find that the manner in which the woman emerges from the crowded noisy street gives her status as *being* in-passing; a moment in the mass. She is a being without substantive Duration "a Lightning flash...then night!" The poet is left with the memory of the beauty or loveliness "whose glance has brought me back to life!" (1968b: 170-171). Weber (1996) argues that the passer-by only comes to be in passing in a moment of centrifugal force where the dispersed crowd or mass is configured and collected and in its reception by the poet and then dispersed again. In this sense the figure is the crowd or the mass, configured for a moment, rather than an instant separated from the movement embodied by the crowd. The figure is not over and against the crowd as a discrete object in front of an eternal and equally discrete subject but rather both are constituted out of the mass. Weber says:

The passante emerges from the deafening din of the street as a visual figure set off against the inchoate *noise* of the amorphous crowd of pedestrians. But in thus setting itself off from its pedestrian surroundings, this emergence also sets itself *apart* and reveals thereby its affinity with everything pedestrian (Weber, 1996:94).



In other words it shows its affinity with mass. By setting itself apart from the crowd that brings it, the figure reveals itself as an instant of what constitutes the crowd itself - "the passante appears only to disappear, almost instantaneously"(Weber, 1996:94)- to fade back into mass, or, show itself up as mass. What the poet grasps in a flash of lightening is a fleeting perception of a figure which actual serves to make him notice the crowd or mass in a different way. His perception is then in a sense distracted.

Experience of mass by its collection and dispersion in and through technologies of mass reproduction is answered by a distracted perception like the poets. Cooper illustrates this experience with the event of looking at products in a super market:

The superstore concentrates a massive range of merchandise in a circumscribed space so that the consumer's attention is dispersed rather than focused. The newspaper commodifies news in the same way, presenting a kaleidoscope of international and home news, politics, comment, sport, fashion and advertising that systematises distraction and thus reduces the singular significance of the story reported"(Cooper, 2001:22).

What is grasped is mass itself because collection produces mass.

Perception that holds up a distracted image of mass holds up the object by dispersing it. Cooper argues that this distraction as dispersion is a destruction and a de-striction of objects. As destruction, distraction is a loss of structure and, as de-striction, distraction is the "removal of strictures or commands to act or read a situation in a specific order and form" (Cooper, 2001: 22). In this sense the collection of fragments of mass movement is also the production of mass. We should understand this if we have grasped the close relationship between collection and dispersion. Now we get an understanding of the energy of mass culture, as everything is an attempt at slowing mass that goes on to produce it- there is a frenzied arresting and proliferation of mass. Structures, messages, products, human agents and cultural forms matter all become fleeting, transient forms "provisionally captured out of the radical impermanence of mass's dynamic

energy” (Cooper 2001:18), even cars are sold on their ability to be broken down and recycled.

If mass is grasped then at first aura seems to be gone for ever because mass is opposed to duration and seems to be made up of timeless symbols. But through collection by consumption mass can be held stable for a time and ordered relations are possible and so aura returns in the momentary stability of the subject and the object in the arresting of Mass but also because allegorical progression can still occur since the duration of mass objects is not completely removed. Instead it comes back in and through the ways these fragments are taken-up and reconfigured. The emphasis has simply, in one sense, shifted from what the item has in its past to what it will be in its future. Or put another way we have moved from objects in tradition to objects in consumption as if we have moved from objects as antiques storing their past to objects as massive icons waiting to be assimilated.

As mass produced items are taken up into projects they develop a massive duration. For instance on the face of it the mass production of tins of beans offers a repeated experience every time we open a can and consume the contents. It seems then through repetition that a mass produced item can have no history since its history is always restarted with every repetition. It seems as though each tin overwrites the experience of the last and so in a sense forgets its continuity. But as the consumption of a mass item we can have a unique and continuous experience of a tin of beans; it can have duration; it is not a timeless symbol; it is mass held up in an object and continued in an object into our current set of activities.

## **Conclusion**

We saw in chapter 3 that making a distinction between content and context was unsatisfactory for thinking about technology and social relationships. Instead we saw how human social relationships and technology related to each other in one continuous network so that the social relationships were mediated and channelled by the technology and vice versa. In this chapter we have begun to lay out the implications for psychology. The perceptualist account tries to do for the



relationship between the mind and the world what the content/context model does for the relationship between the social and the technical. We saw how the subjective observer, set apart from the world, is invoked as the point of order for the world. The world is made to stand before the observer as a picture formulated for the subjective observer.

Foucault's analysis of *Las Meninas* showed us how this position is not privileged in terms of ordering the world as if the world as picture was a kind of mental content that entered through sensation into the space of the subjective observer for ordering and processing. Instead, this observer position was *as* composed as the picture; it was part of a continuous network where entities relate allegorically rather than symbolically, that is, in a process allegorical translation.

Understanding this then required a switch in register and an unpacking of how objects are built or have their being through allegorical progression. Technologies of mass reproduction and Newtonian physics cover this allegorical progression, and opt for taking the world up as a calculable homogenous field that appears before the subjective observer without duration and without progression.

However, with Benjamin and Heidegger, we can see how the dwelling of humans in terms of their everyday experience with technologies of mass reproduction - like digital photographic technology - is still visible to the analyst and the perceptualist framework is not inevitable. We have begun to see perception and the experience of the human with mass as a process of hold up the flow of mass by its reception. We have come full circle back to the observer space but now from the vantage point of allegory, it no longer appears as an inner subjectivity but instead as a configured point within the network, which is part of the slowing down of mass by its consumption and collection. This paves the way for understanding human experience with digital images in the empirical chapters but also we have started to unpack the implications of a process approach for psychology. In the next chapter, I will present Bergson's version of a process psychology.

## Chapter 5

### **Bergson and the image: Bergsonian psychology**

In the last chapter, we made the move from symbolic representation to an allegorical understanding of representations. The symbolic mode of representation was seen as a moment in the unfolding of allegorical relationships or in other words, the process of becoming. We used the terms collection and dispersion, which Benjamin saw as the laws operating in allegory to understanding the new kinds of order that new technologies or mass reproduction effect. So, it was with the notion of arresting the flow of becoming or collecting from dispersion along with the kind of mass dispersion that new technologies effect that we came to the experience of a poet in a crowded city seeing a figure emerging from the mass of the crowd.

Viewed from the vantage point of allegorical theory rather than from the perceptualist settlement the poet's perception is a carving out of a figure from mass which gets held up for a moment and then returns to the crowd in a flash. Our inclusion and experience in continuous networks is something to do with carving out or arresting images from the flow of mass in the way the poet does under Benjamin's comments on Baudelaire. This is how I want to approach perception in this thesis. However, instead of crowded cities I am interested in how human perception can be understood in terms of dwelling in networks, which involve new technologies such as digital photographic technologies (which operate by fragmenting the world and making many copies)

This is why in this chapter I am turning to Henri Bergson. There is no shortage of reviews of Bergson's most difficult work, *Matter and Memory* (MM). See for instance Worms (1999), Mullarkey (1999a), Lawlor (2003), Ansell Pearson (2002), Middleton and Brown (2005), etc. In this chapter, I want to present a short review to show how Bergson's view of psychology resonates with what I have covered in the first four chapters and to show how the preceding chapters could settle down into a workable and radical psychology of experience.



In his large and influential corpus of work, but particularly in *Matter and Memory* (MM) Bergson presents a process psychology in contrast to what we might call a substance psychology. In *Matter and Memory* he sees perception as an activity of extracting forms from flow and movement rather than as the reception, processing and storage of representations of a world-out-there.

Movement and its relationship to objects is where we see begin to see the difference in Bergson's approach and where he departs from classical substance philosophy (Middleton and Brown, 2005). A 'substance' view sees static objects (in the sense of having no movement that belongs to themselves) understood as discrete and completely self sufficient 'things' moving around calculable space. Movement is seen simply as a change of place of fully formed objects or symbols. In contrast, a process view begins with movement but it does not see movement as a change of place, instead it sees movement as a fundamental property of objects; objects *are* in a constant state of movement in allegorical sense (see last chapter). Mullarkey (1999b) writes:

To look at what Bergson understands by the process of abstraction or concept formation, one must turn to the notion of movement that lies at the heart of his metaphysics. The individuality of movement *is* its metaphysical status. What makes a movement individual is the rich particularity of the situation in, or rather, with which it unfolds. (Mullarkey, 1999b: 6).

It seems that at the heart of Bergson's metaphysics is a notion of movement that is pre-Newtonian. As Mullarkey describes it, it sounds like Bergson's understanding of movement is identical to Heidegger's rendering of Aristotelian movement and its differences with Newtonian movement. Mullarkey goes on:

When represented however, this movement has each of its various dynamic properties 'extracted' as a concept, leaving a bare, formless and static object behind. Abstraction for Bergson is always extraction (1999b:6)

This movement is part of the object so that when it is represented we are not left with Newtonian movement as a derivative or a small change but we are left with a static object which we then can only be moved about in the Newtonian sense. When the object is represented and stripped of its rich particularity, movement is reduced to something that happens to it rather than something that unfolds from it. But according to Bergson as we shall see, this static object that now stands as a figure against the background of the rest of the static world is a derivative, a deduction, a representation, an isolated and reduced moment in the flow or stream of becoming. To approach objects as if they were primarily representations is to be “inattentive” to their place in continuous networks or this stream of becoming; it reduces the flow to a static background. Mullarkey continues:

We can only isolate a moving object from its supposedly static world by ignoring the specific moment that individuates that world as belonging exclusively to the object. Indeed, prior to our inattention, there was no ‘object plus world’ at all. For the purely pragmatic need to control (and the intellect has its roots in praxis for Bergson), we cut the ‘object’ out as a figure against a background. (1999b:6).

Perception works, as we shall see, by this kind of inattentiveness that holds up for pragmatic reasons the flow and carves the object from the world that belongs to it. Seen in these terms perception appears to be about finding a foothold in the flow of reality. Indeed the key difference between a processes philosophy and substance philosophy concerned with ‘stuff’ (Brown and Middleton, 2005) is that Bergson takes flowing mass or the continuity of becoming as reality and not substance. Substance or materiality is deduced from the flow. As a result perception doesn’t encounter reality in substance but interrupts reality to produce substance. Bergson ([1908]1991) writes:

In that continuity of becoming which is reality itself, the present moment is constituted by the quasi-instantaneous section effected by our perception in the flowing of mass, and this section is precisely that which we call the material world. (MM:139).



In Bergson's view substance or materiality far from being the basis of reality is a temporary section in the continuity of becoming. This chapter will unpack how Bergson's version of perception effects this section but before we do that we should dwell on this relationship between materiality and process and the mistake of taking static materiality as a starting point for a little longer because this is a central theme of the thesis.

We have met this relationship between flow and section in different terms in our discussion of Heidegger's account of differences in movement in Aristotle and Newton in chapter 4, but we have also encountered it in our discussion of Benjamin and allegory. We saw how Benjamin (1968) takes allegory as an unfolding process and shows how we derive a 'timeless symbol' from the flow in similar terms by making a section or isolating a moment in the flow of allegorical and therefore temporal progression. It is crucial to understand this relationship between process or flow and section; reality and materiality, because it underpins Bergson's approach to image and psychology. It also helps us to understand how the modern settlement misses the relationship and establishes its own version of image and psychology on this misunderstanding.

If we take the section in the flow, as the bedrock of reality, then, on the one hand discrete objects that occupy and take up space in the real extended world populate the world we encounter, and on the other hand, discrete timeless symbols or representations in the unextended world, two things occur. The first is that by dissociating the flow or stream of becoming from the section that is made in it (that *is* materiality) and making the section an independent and self-sufficient substance then we make the flow and the section relate to one another as background and figure. They relate as immobilised container and content (Mullarkey, 1999b:7) or context and content. Every *thing* in reality then shows up as a substance in a container and analytically we start to see the world as contents and containers all over the place. Instead of seeing technology and social relationships together in the flow and process of becoming we carve technology out of the social and make the social the back ground or container of a fully formed technology as substance or content. On the other hand, if we have social

relationships in view for study we carve them out of the flow and leave technology and material as the setting, context or container for the fully formed social relationships. When we start with the section in the flow as the bedrock of reality, the analytical task is already set up as explaining how the container facilitates the passage of the contents. We can now see that this was the point of the second chapter.

The second thing that occurs when the section in the flow is taken as things that are self sufficient substances (static objects) is that the human must encounter them, that is perceive them through *sensation*. An epistemology and psychology built on *sensation* assumes already that materiality and substance stand alone apart from flow and underpin the sensations they produce. They are perceived as they give off timeless symbolic representations of themselves. These unextended, timeless symbols are treated as content to the perceptual container. So perception which has sensation as its opening on the world and memory as its storeroom stands in front of a world with the five sensory doors open, sensation receives, perception orders and memory stores faded perceptions which are never the less “things” derived from sensations. Memory research that follows this ‘substance’ view will be concerned with mental “things” whether it is mental content or mental structures that contain the content. Middleton and Brown (2005) provide a review of memory research that follows this substance or ‘classical’ view:

Now in relation to the psychology of memory, we may see that this classical approach arrives at an understanding of remembering in terms of the structures or systems that underpin the act of recollection. For example, Lashley’s (1950) famous notion that memory traces (‘engrams’) are encoded across multiple brain regions makes neural structure the real, essential substance that gives rise secondarily to the human ability to remember. To approach memory in this fashion is then to be committed to a search for the number, location and precise nature of these differing neural systems (see, for instance, Tulving, 1983). (Middleton and Brown, 2005:59).

However, an epistemology which takes as its starting point *sensation* of static substance against a static background struggles to show how the final



perception matches the real object which provides a mental representation of itself:

As Kant has shown, all theories of knowledge which start with sensation, that is from a subjective given, are forced to show how this given agrees with the thing which produced it, that is with its object: put differently, if the *matter* of knowledge is in us or relative to us, it must pass through universal *forms* in order, as it were, to reconquer its objectivity, without any guarantee that it has caught up with *the thing* in itself that way.” (Worms, 1999:92)

If sensation gives rise to perception and perception is the human encounter with the world then as Middleton and Brown argue the question classically posed to perception is; do we see the world as it really is or do we only see the world in terms of the a prior organisation of our expectations? How can we be sure our representations in mind match the world out there? This is the shape of the problem that underpins Descartes’ doubt that we encountered in chapter 2.

Worms (1999) helpfully summarises the solution that is usually proposed in various guises; “it (our representations) must pass through universal *forms* in order, as it were, to reconquer its objectivity”(92). As we saw in chapter 2 Latour (1999) claims that these universal forms act as a grid. He argues that successive solutions to the ‘access to the world problem’ have proposed that the grid be made up of different universal forms; from the world itself (realism) to mathematics to a priori categories in the head (idealism) and more recently, relative rather than universal linguistic constructs.

The grid (in whatever form it is constituted) provides the universal forms which the *matter* of knowledge, in us or relative to us, as a subjective given must pass through in order to ever hope to agree with the thing in itself and give us a clear picture of the world. We saw how the only guarantee of the objectivity of the given (which is no guarantee at all) was provided by the universality of the grid which is easily disposed of. However, once we have done away with the universal forms in favour of linguistic construction it leaves us with a new form of subjective relativism or idealism (see chapter 2).

However, Bergson does not start with materiality and substance but with a stream of becoming from which material and substance emerge through the action of bodies. This effects a significant reversal. Worms goes on to say:

The strength of Bergson's chosen point of departure lies in the rigorous inversion of the above outcome: in starting from the action of the body, one is led to presuppose a real matter, exterior to us, on which this action imposes a relative aspect or form, relative, that is, to its practical needs.(1999:92).

Bergson's is not the relativism that celebrates the loss of the world (Latour 1999) on the basis of a subjectivism deciding that there is nothing empirically available beyond the language i.e. a new form of idealism. Bergson's is an anchored relativism based on the action of the body on a real world, which shows up aspects of that world that are relevant to our current needs. The activity of the body carves out aspects of reality for a time, which never loses connection with the flow, but each carving is different relative to the needs and activity of the body. Without pre-empting the discussion later in the chapter, these 'carvings' are what Bergson calls 'images'. As we shall see, Worms says:

Such is indeed the meaning of the Bergsonian notion of the image, with which we can now conclude: it designates the external object itself, or rather *that part of external matter which has been carved out as an object for the purpose of our action.* (1999:92).

If we begin with sensation as the foundation of epistemology then images are understood as timeless symbols against the background of the world and only make sense if they correspond with the object that they represent. The symbolic image is a non-extended impression given off by objects that is different in nature to the world it represents nevertheless; it is taken as a thing that presents itself to consciousness or perception through sensation for storage in memory.

If, however, we begin with the action of the body effecting a section in the stream of becoming (MM: 77) as the foundation of our theory of knowledge then



images are not self contained and unextended representations which are ‘given-off’ by objects for a perceptual system to contain and store as faded images. Images are extended and are material - they are only different to the flow by degree since they are a moment in the stream of becoming.

Let us summarise this shift in the nature of images that we have arrived at so far. If we begin with material as distinct from the flow then images become different in nature to the background world rather than different by degree. With the shift in the conception of the relationship between the world and the image from a difference in nature to a difference in degree the container and content system will simply no longer work. If images are not in fact discrete ‘things’ to be contained then along with this shift comes a change in our conception of the nature of, and relationship between, sensation, perception and memory. Images as discrete things are processed by sensation, perception and memory that differ by degree as containers of representations. Sensation has the strongest encounter with the world, which becomes a perception or image and is stored as a faded perception in memory.

Images as sections in the flow cannot be taken as things and so the function of perception and indeed the brain cannot be to contain them. Bergson argues, as we shall see that the role of the brain and nervous system in perception is as a centre of action and *not* a container of representations. This means that perception is not a feature of the head or part of an internal storage system instead it is something that occurs out of the head and between images relating in process; it is an activity not a faculty.

It also follows from an understanding of images as sections in the flow that the function of memory cannot be to assemble them into memories, which we can locate, as it were ‘in memory.’ Middleton and Brown (2005) comment;

what we usually consider to be ‘things’ are treated instead as complex bundles of processes viewed from a particular perspective. In the case of memory, this would mean denying that there is any mental content – be it a representation or a knowledge base – out of which a ‘memory’ is assembled. Furthermore, as

Bergson himself argues, that one would search in vain for the location where such memories might be handled because memories themselves are not ‘things’ and as such are not spatially located anywhere. Such an approach clearly poses severe challenges not only to the psychology of memory but also to our commonsensical notions about remembering! (2005:60).

Indeed Bergson ([1911]1998) writes:

Memory, as we have tried to prove, is not a faculty for putting away recollections in a drawer, or of inscribing them in a register. There is no register, no drawer; there is not even, properly speaking, a faculty, for a faculty works intermittently, when it will or when it can, whilst the piling up of the past upon the past goes on without relaxation. In reality the past is preserved by itself, automatically. In its entirety, probably, it follows us at every instant; all that we have felt, thought and willed from earliest infancy is there, leaning over the present which is about to join it, pressing against the portals of consciousness that would fain leave it outside. ([1911]1998: 4-5).

Bergson does not require memory as a faculty to preserve the past as if the past were preserved, located and existed *in* us. Bergson makes the point that the past preserves itself; it is not spatial but is purely temporal therefore Memory for Bergson is not material or located in us but is unextended and impotent or disinterested (Lawlor 2003) when it comes to action and exists temporally. It follows that pure memory has nothing to do with objects, material and space and so the implication is that it has nothing to do with the brain or the body, as we shall see later in the chapter. Unlike the substance approach, which defines sensation perception and memory as different by *degree*, Bergson’s conception of pure memory is different in *nature* to pure perception and sensation. Both of which are spatial and material and concerned with action. The true dualism then for Bergson (one which he provisionally proposes but over comes: Worms, 1999: Mullarkey, 1999b: Lawlor, 2003) is the difference between matter and memory and not between subject and object or mind and body.



With this set of startling and counterintuitive claims about memory perception and image in mind after this initial section of orientation, we will begin the next section with Bergson's account of image and then pure perception. Bergson's pure perception is an abstract idea that he uses to guide us into the practical perception that is imbued with memory that he has in mind. We will then move onto consider Bergson's position on memory before tackling his difficult and challenging conception of the cone, which he uses to illustrate the interaction of perception and memory or matter and memory. Finally, we will come to mass and technology in terms of Bergson's ideas on the intersection of perception and memory, which is his attempt at overcoming the matter and memory dualism, in the activity of remembering.

### **Image, the body and Pure perception.**

Image is central to Bergson's thesis in *Matter and Memory*. In the introduction and opening chapter, 'of the selection of images' Bergson begins with his central conception of images and demonstrates how realism and idealism mishandle matter and our knowledge of it. The nature of images as "more than representations and less than a thing' (MM: 9) points to the action of the body rather than the storage of representations as central to an understanding of pure perception.

### **Images and matter**

Image for Bergson is primarily a conception of matter that provides a way out of the traditional dualism that besets realist and idealist epistemologies. Therefore it serves in the beginning of the "Matter and Memory" (The title of the book displays Bergson's own provisional dualism) as a critique of these positions and seeks a way of putting accounts of perception back in line with what we know by virtue of common sense.

The aim of our first chapter is to show that realism and idealism both go too far, that it is a mistake to reduce matter to the perception which we have of it,

a mistake also to make of it a thing able to produce in us perceptions, but in itself of another nature than they.(MM:9)

In the opening pages, Bergson argues that common sense tells us that as we look out on the world the images that flood our eyes are what they appear to be. They are neither constructed nor invented in our own minds, they exist independently of our consciousness and so idealism is undermined. Nor are the images we see different in nature from the world. We see the world directly and not a copy of it; the properties we perceive in objects really reside in objects independently of us and so realism is undermined. Bergson writes; “For common sense, then, the object exists in itself, and, on the other hand, the object is, in itself, pictorial, as we perceive it: image it is, but a self-existing image” (MM:9).

What Bergson calls Matter *is* an aggregate of these self-existing images, that are less the realists’ ‘things’ but more than the idealists’ ‘representations’ (MM,9). As Bergson puts it, this aggregate of self-existing images is matter before “the dissociation which idealism and realism have brought about between its existence and its appearance”(9). The image is existence bound up with appearance rather than appearance disassociated from existence. The image is the *appearance* of existence in the sense of existence becoming apparent rather than in the sense of the illusion of existence. However, as such it is not the totality of existence. It is not the complete flow of becoming. It is a section in it. So while we can assert the material nature of images and the image-nature of matter we also have to say that images are less than real in this sense; as a section in the stream of becoming they are only ever a part of a whole. They *are* derived from the real; nevertheless, they are only different by degree. If we miss this last point and overstate the extent of the derivation then we will slip into disassociating existence from appearance.

As Lawlor (2003) points out, the impression that an image is nothing more than a copy of a real thing comes from the fact that the image we perceive is a surface. However, unlike the timeless symbol which is given off by a real thing there is always still something deeper in Bergson’s image (rather than behind them) that constitutes their objectivity and maintains their relationship and connection to the real. That *something* is the incessant movement of the stream of



becoming that writhes around under the 'crust' or surface of the image. Like a chrysalis, we can see its surface but at the same time suspect, something going on inside that is as yet unperceived. Bergson comments;

its objectivity – that is, what is contains over and above what is yields up – must then consist...precisely in the immense multiplicity of movements which it executes, somehow, within its chrysalis. Motionless on the surface, in its very depth it lives and vibrates (MM:204).

The image as the crust, the shell or the chrysalis helps us to understand the move from images being present to images as representations or as Lawlor (2003) puts it, the move from present image to representation. It is the opposite move to the one where we suspect what is under the skin - which would be going from the part to the whole or as Lawlor says, "from what is for us to what is in itself" (2003:7). Instead, moving from the present image to representation is moving from the whole to the part, alternatively, moving from the inside to the outside of the chrysalis.

The distance between the two terms Presence and representation seen through the disassociation between existence and appearance would be a measure of the difference between "matter and our conscious perception of matter" says Bergson (MM,35). Bergson writes:

If there were *more* in the second term than the first, if, in order to pass from presence to representation, it were necessary to add something, the barrier would indeed be insuperable, and the passage from matter to perception would remain wrapped in impenetrable mystery. It would not be the same if it were possible to pass from the first term to the second term by way of diminution, and if the representation of an image were *less* than its presence; for it would then suffice that the images should be compelled to abandon something of them selves in order that their mere presence should convert them into representations. (MM 35-36).

What it gives up in order to be converted into a representation is not so much lost or disconnected from it, instead it is suppressed. What is suppressed in the conversion are the connections with other images that all images exist within; acting and reacting to one another, translating and passing on their influence in vast continuous networks. In other words, images exist within “the vibrating multiplicity of movements which it executes, somehow, within its chrysalis”(MM: 204). Bergson writes “Being bound up with all other images, it is continued in those which follow it, just as it prolonged those which preceded it”(MM:35-36). This is what gives the image an objective reality as a *present* image;

the necessity which obliges it to act through every one of its points upon all the points of all other images, to transmit the whole of what it receives, to oppose to every action an equal and contrary reaction, to be, in short, merely a road by which pass, in every direction, the modifications propagated throughout the immensity of the universe. (MM:35-36).

The objective reality of the image resides in its state as a road transmitting the *whole* of what it receives onto every other image, which also transmit and continue the flow. To make the conversion to *representation* requires the suppression of connections, or, in other words, a roadblock so that the image comes to transmit only those parts of what it receives which are relevant to current activity. Bergson writes;

To transform its existence into representation, it would be enough to suppress what follows it, what precedes it, and also all that fills it, and to retain only its external crust, its superficial skin”(MM: 36).

In other words, the conversion takes place by holding up and carving the image out of the flow, which produces a less than objective, a less than real representation.

Significantly, in Bergson’s account there is no mysterious sudden appearance of unextended representational form from extended matter since Bergson removes both terms from the extended/unextended distinction (he saves



that distinction for the difference between space and time only) and keeps them connected with the real action of a reduction of connections. This process, which involves the reduction or suppression of connections in order to carve out an image, fit for or shaped to fit a project of activity echoes through Latour's (1999a) notion of a chain of reference that we encountered in chapter 2. With this chain Latour maintains the link between matter and form which he sees as traditionally dissociated by the modern settlement along the same lines as existence and appearance. Matter becomes form by a process of reduction and amplification. Amplification simply describes the shaping of an image (Latour 1999a uses the term phenomena instead of image) for compatibility with other images down the line.

Bergson describes this process as a movement of actualisation. This is a movement from the 'virtual' or the stream of becoming which is a stream of potentiality - to the 'actual' which is the moment of the carving the image from the flow by obscuring the parts of the whole that are not relevant to a present set of actions. Up until now I have been describing this move in other terms; as the move from dispersion (which we will now call the virtual) to collection (which we will now call the actual). 'Collection and dispersion' has been a useful vocabulary for sketching an understanding of the movement of allegory but as a vocabulary for our purposes in this chapter it is somewhat 'flat' and overly spatial - lacking a temporal and dynamic feel to it. Therefore I will continue with Bergson's vocabulary of the actual and the virtual.

The relationship between the virtual and the actual is central to Bergson's understanding of image. A key to grasping this relationship is to notice that the traditional understanding of the *virtual* as a category of existence (or non-existence) that is less than real, and the *actual* as a category of existence that is real and present, is reversed. For Bergson the *virtual* describes the stream of becoming and so refers to the real and not to the shell, which is less than real (by degree), while the *actual* describes this shell and is therefore, by definition, less than real.

To summarise, the virtual and actual do not relate in terms of the possible and the real respectively. If that were the case then there would be a logical relationship between them. The virtual would logically be the same as the actual but with this difference only; that it is not real. The virtual flow is not made up of possible arrangements, which we could pick, and make real, i.e. we cannot spot the actual in the virtual; it emerges from the virtual as a tree does from the seed. The seed does not contain the shape of the tree but the potential for a tree. The tree is virtually in the seed but we could not look into the seed and see a pre-existing fully formed tree (Levy 1998). Levy (1998) argues that there is no logical relationship between the virtual and the actual. If the connection between them was logical then nothing new could be started, but, since the actual image emerges as a different form from the potentiality of the virtual, the actual is always new. Therefore we can summarise by saying that the *virtual* and *actual* relate as two ways of existing; the virtual as a kind of dispersed existence as flow and potentiality and then the actual is a moment of selection and collection and holding up or carving out of arrangements or images fit for activity.

This is how the chalice (that we encountered in chapter 3), is produced as an image fit for activity; by the section in the flow effected by other images arranged as four causes; the form, matter, telos and gatherer; all operating in relationships of indebtedness. The collection of images into relationships of indebtedness or poiesis as Heidegger describes it is therefore the process of actualisation in other terms. It involves the action of images on other images in effecting a section in the flow, carving out and excluding irrelevant aspects and channelling heterogeneous aspects of images into the arrangement that stands forth as the chalice-fit-for-action. Indeed it can only be images that act on and mediate the activity of images to effect a section in the flow because there is nothing behind the flow of images to work on them from the outside. Therefore, images pass on the movements of other images in their own terms and as such lend their form to the images, which preceded them for the images which come after them (this is why the relationship between images is allegorical). In this way, images or artefacts slow the flow by channelling it into forms of action.



To take any object, chalice, or technology as a thing in itself is false, as we have said, misses the indebtedness of the images to other images. Now we can add to our understanding that these relationships of indebtedness belong to the stream of becoming as a selection and collection of connections that is in a process of effecting a section, that is, actualisation to bring forth a chalice or any other image. The chalice as the image that appears in our perception selectively enrolls images into its envelope. It is a chrysalis; the shell on top of the movement of the virtual that is underneath it, which is its true and fullest existence.

The actual shell always comes with its virtual 'insides', in other words the movement of actualisation of the shell is always accompanied or answered by the move of virtualisation. The image is always in the end virtual by virtue of its continued connection to the flow, which means that the actual is neutralised. Bergson writes:

Representation is there, but always virtual – being neutralized, at the very moment when it might become actual, by the obligation to continue itself and to lose itself in something else. (MM: 36)

In other words the actualised image or representation of a chalice that meets our perception aims at slipping past the road blocks and channelling provided by images that hold it for a moment and dispersing itself through the flow unhindered; free to associate with all points and transmit all it receives; to become an open road again. So the image we perceive, as the chrysalis is always in the end a virtual image, we just catch a snapshot of it (Middleton and Brown, 2005).

The order effected by new technologies of mass reproduction simply underlines this and makes it more apparent. As they take up their place in the process of actualisation their contribution is to virtualise as they actualise, making fleeting images that are quickly passed over and gone in a flash. A Bergsonian reading of Walter Benjamin's (1968a) critique of technologies of Mass reproduction would see new technologies as images acting on other images to obscure those aspects of the image to do with the traditional setting of the image thereby obscuring its Aura. The result is that new technologies of mass

reproduction present images as a massive, and so virtual, stock. This would be a Bergsonian understanding of what Heidegger calls ‘enframing’ or ‘challenging forth.’ Nevertheless, despite the effects of new technologies of mass reproduction, the ancient process of actualisation and virtualisation or collection and dispersion, though sped up somewhat (to put it crudely), continues.

When it comes to asking how humans and nonhumans (which are all images) are arranged and held together in societies, clubs, projects and other activities we can see that this becomes an issue of managing virtual images into actual activities. This occurs by the mediating activity of other images which then in turn reconfigure and send them off as new virtual arrangements.

To return to the gatherer for a moment, whom we left a little under developed as the silversmith in the actualisation of a chalice (chapter 3); the ‘gatherer’s’ contribution is as an image in the continuous flow of images. It is therefore to be found in his action as a body of reducing or suppressing irrelevant aspects, roads and paths and therefore carving out or channelling relevant aspects of other images into the chalice, with and through the mediating activity of other images such as technology and social practice (which Heidegger packages into the four causes, 1977a).

The manner of our inclusion in the continuous flow of images and the process of actualisation is what we will turn to next as we consider Bergson’s understanding of the role of the body.

### **The role of the body**

The idea that we have disengaged from the facts and confirmed by reasoning is that our body is an instrument of action, and of action only. In no degree, in no sense, under no aspect, does it serve to prepare, far less to explain, a representation. (MM: 225)

As Worms (1999) points out, Bergson starts his summary and conclusion of “Matter and Memory” with this assertion about the body thereby underlining the



significance of the place of the body as a body of action, and not as a container of representation, in his thesis in “Matter and Memory.” The body, once established as a centre of action, is the place where “Memory and Matter” meet and so the body as a centre of action is a central concept in overcoming Bergson’s dualism. Worms (1999) says the body constitutes, therefore, the ‘and’ in “Matter *and* Memory”. Given its central role, we will return to the body when we come to its place as the intersection of memory and matter when we come to consider Bergson’s Cone. Before then we will sketch Bergson’s argument in matter and memory that leads him to make the counterintuitive claim that the body has nothing to do with holding or preparing representations. It is at this point that we will make a big leap closer to understanding the nature of Bergsonian human perception in terms of our inclusion in networks.

The title of the first chapter of *Matter and Memory* is “*of the selection of images for conscious presentation: what our body means and does.*” From the outset of the chapter then, Bergson tells the reader that perception somehow involves the selection of images and that the body is involved in the process.

The body selects images *as* an image itself. Bergson opens his discussion on the selection of images and the action of the body with a reminder of the continuous nature of the relationships between images; “all these images act and react upon one another in all their elementary parts according to constant laws which I call laws of nature”(MM 17). As Lawlor (2003) argues, the continuity of images is crucial for Bergson who asserts that “all division of matter into independent bodies with absolutely determined outlines is an artificial division”(MM, 196). Therefore, what we have already said about the false division of objects and technologies into discrete self-sufficient entities goes for the body as well. The body is an image and is therefore continuous with other images; it can be perceived from the outside as an image and therefore it cannot be separated from matter. However, the body harbours a difference, which nevertheless does not undermine its status as an image. The difference between the body and other images - a difference that is bound up with the body’s unique position as the intersection between memory and matter - is that we can also know it from the inside. Bergson comments;

yet there is *one* of them [images] which is distinct from all others, in that I do not know it only from without by perceptions, but from within by affections: it is my body.”(MM:17)

The body is an image, which can be known from the outside by perceptions, but, by invoking affections as the way of knowing this image from the inside, Bergson points forward to the body’s intersection with matter and memory without unpacking the nature of that interaction at this early stage in his thesis. As Lawlor comments: “the body known from the *inside* by affection is already a body conditioned by memory.” (2003:11)

However, at this early stage we can argue from the way Bergson proceeds with his short enquiry into the inside of the image, that the ‘body known from the *inside*’ is at the very least known as an interval in the flow of images; between what it receives as an image and what it gives back to the flow. The interval is formed by the interposing affections, which seem to have an influence on the eventual action of the body. Bergson continues:

I examine the conditions in which these affections are produced: I find that they always interpose themselves between the excitations that I receive from without and the movements which I am about to execute, as though they had some undefined influence on the final issue.” (MM: 17)

These affections *do* have an influence on the eventual action of the body because as we shall see alter, memory is always pushing itself into the plane of action. For now, Bergson goes on in the next few paragraphs with a thumbnail sketch of the things that populate the interval. There are ‘invitations to act’ contained in affections; ‘movements begun, but not executed’; there are warnings from the environment in the form of sensations; there is even consciousness but in the form of ‘feeling or sensation’, which fades when, activities become automatic. All of these are picked up in the chapters, which follow in *Matter and Memory*, but significantly, in terms of movement received and then given back to the continuity of images, by virtue of the interval and all that constructs it, there is not



“that constraint which precludes choice”(MM:31) And so the movement the body gives back to the continuity of images cannot be deduced from the movement the body receives. Just as the actual cannot be deduced from the virtual. This lack of constraint in the interval therefore seems to hold the potential to introduce something new to the arrangement of images. Therefore, Bergson concludes:

All seems to take place as if, in the aggregate of images which I call the universe, nothing really new could happen except through the medium of certain particular images, the type of which is furnished me by my body”(MM:18).

Bergson continues with his inquiry into the structure of the body that is an image that includes an interval of choice in order to establish that the body, as an interval, is a centre of action and not an interval that is filled with generating, processing and storing representations. He follows the afferent nerves, which transmit disturbances through the nervous system to the nerve centres, and then he follows the efferent nerves, which transmit the disturbance to the periphery. He then asks unnamed physiologists and psychologists (perhaps hypothetical representatives of the disciplines) to provide an explanation for the centrifugal transmission of the efferent nerves to which the answer comes that their functions are to ‘call forth movements’(18). In response to the function of the centripetal transmission of the afferent nerves the answer comes that they ‘give birth to representations.’(19).

Bergson however, is not satisfied with this answer and has asked the question in order to set up the next phase of the argument which proceeds as follows: If the brain, the afferent nerves and the disturbance that moves through the sensory system are all images i.e. part of the material world, and they are all asked to beget the image of the external world as the physiologist and psychologists suggest, then all these images would have to contain the whole of the external world. Bergson comments that this proposition is absurd when stated in those terms. He says “The brain is part of the material world; the material world is not part of the brain,”(19) and follows up with a simple thought experiment: If you eliminate the material world you eliminate the brain and nervous system

along with it. On the other hand, if you eliminate the brain and the nervous system then a small detail of the material world disappears but the material world remains. In short, Bergson concludes that to make the brain the image on which all materiality depends is a contradiction in terms because the brain is part of the material world itself.

He concludes that the relationship between external images and his body is based on movement and not representation. External objects influence the image he calls his body by transmitting movement to it and his body answers by giving movement back. His body is like all other images in receiving and giving movement back “with this difference only, that my body appears to choose, within certain limits, the manner in which it shall restore what it receives”(MM:19). He concludes “My body, an object destined to move other objects, is, then, a centre of action; it cannot give birth to a representation” (MM:20).

If not a neuronal cinema showing pictures of the outside world then what does one see when one looks into the brain and nervous system? According to Bergson, we see something like a telephone switchboard where both the afferent and efferent nerves are concerned with movement and the brain with connections between them. The afferent nerves transmit stimulations or movements from other images and the efferent nerves transmit chosen movements, in between the brain acts to choose connections or delay connections. Bergson writes:

What I do see clearly is that the cells of the various regions of the cortex which are termed sensory...allow the stimulation received to reach *at will* this or that motor mechanism of the spinal cord, and so to *choose* its effect (MM: 30).

In Bergson's view the brain adds nothing to the vibrations it receives, it simply (though from its deceptively *simple* functions unfold profoundly complex arrangements) acts as a centre “where the peripheral excitation gets into relation with this or that motor mechanism, chosen and no longer prescribed.” (MM: 30). This moment or interval of choosing is why the telephone exchange illustration is so important (Lawlor, 2003). As Lawlor argues, a key feature to the telephone



exchange is “a making wait-” an interval before connection. He also points out at this point in his commentary that this interval in matter, that is, in the connections that the brain makes, allows memory to be inserted. We shall return to this later but for now, we begin to see why the body known from the inside as an interval is already conditioned by memory. This is because through this interval the body, seen from the inside, is the “sharp” point of memory pushing its way into matter (although for reasons surrounding the nature of memory that we will see later in the chapter, the term “inside” is unhelpful because memories which are neither things nor spatial in nature are not stored inside anywhere therefore the term “inside” is best understood in terms of the virtual vibrations under chrysalis rather than as some subjective container). On the other hand when we consider the body known from the outside, by perception we see it in the plane of matter or images acting on one another (which is different in nature to memory, which Bergson depicts as a cone pushing its way into the plane of action) and so we can see the material arrangement of the interval which is what the telephone exchange illustration allows us to do (Lawlor, 2003).

Lawlor (2003) nicely summarises Bergson’s illustration of the telephone exchange. The exchange consisted of a table with a number of wires with pins on the end and a wall of sockets behind the table. When a call comes in, it’s signal comes up the wire and then its pin is connected to one of the multiple sockets. The brain acts like this system to analyse and to select. As system of analysis, it acts like the plurality of sockets on the wall, leading the received vibration to a plurality of movement systems. Bergson argues that the brain presents the incoming vibration with;

the totality of motor pathways so that it indicates to it all the possible reactions with which [the brain] is pregnant and so that [the brain] analyses itself by dispersing itself. (MM :30)

This analysis function is how the brain makes the vibration wait. At other times, the brain simply acts to select the motor mechanism for the vibration and connects them. Lawlor says that as an instrument of selection the brain acts like the pin being inserted into the relevant socket, or chosen organ of reaction.

However, at all times the brains' role is limited to the transmission and division of movement and not to the production of representations.

In other words, the startling implication is that if we look into the brain we will not see an analogue of consciousness. We will not see a cerebral analogue of a complete conscious state that contains the whole world. The implications of Bergson's analysis are that instead of what the hypothesis of epiphenomenalism predicts, what we will see in the brain is the arrangement of possible and enacted motor responses to incoming nervous vibrations and *not* a complete mental state mapped on to the brain state. Bergson argues that we can no more discern the shape or state of consciousness from the brain than we can tell the nature and shape of a coat from the hook it hangs on. Indeed, for Bergson there is a close relationship between the brain state and consciousness but the brain does not add up to consciousness, which must go on beyond the head in some way (we will return to this point in the next section). Bergson illustrates the relationship with another example, this time from the stage, which contains a second extraordinarily counterintuitive implication:

The relation of the mental to the cerebral is not a constant, any more than it is a simple, relation. According to the nature of the play that is being acted, the movements of the players tell us more or less about it: nearly everything, if it is a pantomime; next to nothing, if it is a delicate comedy. Thus our cerebral state contains more or less of our mental state in the measure that we reel off our psychic life into action or wind it up into pure knowledge.(MM:14)

The more we engage in contemplating pure knowledge the less brain activity we will see! Instead, for Bergson increased brain activity reflects increased activity and interaction with the world in the present or, in other words, brain activity increase with the degree of what he calls *attention to life*. He continues

There are then, in short, divers *tones* of mental life, or,, in other words, our psychic life may be lived at different heights, now nearer to action, now further removed from it, according to the degree of our *attention to life*. The



more attention to life we exercise the more brain activity will be visible. (MM:14).

Attention to life could be characterised as our conscious concern for involvement with present actions as opposed to our contemplation of the past (Middleton and Brown, 2005). However, it is shaped by the past as it is made thick with what Bergson calls Habit-memory. In short, our attention to any set of actions includes and is shaped by learned habits and “ways of doing things”. Middleton and brown give this example of attention to life;

In following a speech or lecture, we are trying to grasp not merely what is being said right now, but also how these present utterances relate both to what has been said and what is likely to follow. This involves a habitual familiarity with forms and relationships. (2005:18).

In this example, the role of habit in predicting what comes next is crucial, and so attention to life involves an attention to actions in space *and* time as the past in the form of habits intercedes in the action. *Attention to life* begins with attention to possible actions in the present, which are reflected by the position of our body amongst images; it is by the degree to which we attend to this situation that brain activity will be set.

This is the last feature of Bergson’s notion of the action of the body that we will deal with in this section before moving on to perception. Bergson says that the images that surround the body reflect its possible action on them. In this regard, the body as an image is different to other images, which act on each other according to laws of nature. The body however holds a privileged position because as we have seen it chooses, but it can also modify its relationship to the images that surround it, according to the profit to the body perceived in the aspects of the images that are presented to it. By expanding its horizons, primarily through vision, and so changing the scope of its *attention to life*, the number of images it is in contact with is increased. This includes an increase in the number of images which are distance from the body and are therefore “insured in some way, against the immediate action of my body” unlike those which are close by

and within reach. With an expanded horizon, Bergson claims, “the images which surround me seem to be painted upon a more uniform background and become to me more indifferent” (21). he says that with a narrowed horizon the images arrange themselves according to the “the greater or lesser ease with which my body can touch and move them” (MM:21). Therefore, he concludes that the images around my body “...send back, then, to my body, as would a mirror, its eventual influence; they take rank in an order corresponding to the growing or decreasing powers of my body” (MM:21).

The body as a centre of action exists within the continuous flow of images as an image, which chooses the manner in which it restores movement to the aggregate of images, and, as an image that chooses, its eventual action is reflected back to it and its position defined by its relationship with other images within the continuity of images. With this in mind, we are on the road to understanding Bergson’s pure perception.

### **Pure perception**

Bergson repeats his thought experiment and modifies the image he calls his body by hypothetically cutting all the afferent nerves of the cerebro-spinal system. The result is simply that the images around him and the rest of his body are unaffected - they are still there. However, his perception of the images that surround him has vanished. Why is this? The afferent, that is the centripetal nerves habitually conduct movements received from the images that surround the body to the brain which then acts as a telephone exchange, analysing and selecting the connections to pass the movements along the centrifugal efferent nerves to the periphery and back to the surrounding images. Cutting the afferent nerves simply interrupts the transmission of movements to the centre and to the periphery. This has only one effect says Bergson;

that is, to interrupt the current which goes from the periphery to the periphery by way of the centre, and, consequently, to make it impossible for my body to extract, from among all the things which surround it, the quantity and quality of movement necessary in order to act upon them”(MM, 21).



The only effect of the cut in this part of the material world is that the action of the body on other images in response to their action on the body should be interrupted, but the result is that *perception has vanished*. The loss of perception is not the loss of pictures in the head but the loss of the action of the body in extracting from all other images that surround it “the quantity and quality of movement necessary in order to act upon them.” In other words, perception is lost when the body can no longer receive its possible action from the reflection of its position in surrounding images. This thought experiment shows how the whole system is concerned with action and has nothing at all to do with mental representations. Bergson concludes this short discussion with a basic principle upon which perception is based. He says “I call matter *the aggregate of images, and perception of matter these same images referred to the eventual action of one particular image, my body* (MM:22).

With this statement, Bergson makes perception continuous with matter and excludes any view of perception that makes it a faculty distinct from matter. It follows from this that secondly perception is not confined to the head but is dispersed across the network of images which includes and surrounds the body, ranked according to “the growing or decreasing powers of my body” (MM, 21).

We should also not read Bergson’s argument and conclude that perception is *in* the afferent and efferent nerves, rather, perception measures the complexity of their relations, and is in fact where it appears to be” (MM, 46) which is dispersed across the network. And so for Bergson we do not set out from infancy with a faculty in the head to discover and construct the world and its position, instead we start with action in the world and discover ourselves as a centre of action as we discover the way in which images refer to us as bodies of action.

Psychologists who have studied infancy are well aware that our representation [in the senses of an image carved from the flow] is at first impersonal. Only little by little, and as a result of experience, does it adopt our body as a centre and become *our* representation. (MM:46).

That is, perceptions adopt us as experience tells us that images refer to us and reflect our possible action. Bergson explains in terms of the way images vary in the aspect they show us according to our changing relationship with them;

The mechanism of this process is, moreover, easy to understand. As my body moves in space, all the other images vary, while that image, my body, remains invariable. I must, therefore, make it a centre, to which I refer all the other images. (MM:46).

This is how we come to discover our position within the world and differentiate a self in the continuity of images without ever losing connection with the network. There are no Cartesian dualist pitfalls then in saying that our bodies take up a privileged position in the network if we start from the aggregate of images as a given and *then* find our place within it. On the other hand, if we start from our bodies and then work out to the world, the world appears in our investigations to be contained within us and projected outside.

The whole subject becomes clear if we travel thus from the periphery to the centre, as the child does [in locating their body as a centre of action], and as we ourselves are invited to do by immediate experience and by common sense. On the contrary everything becomes obscure, and problems are multiplied on all sides, if we attempt, with the theorists, to travel from the centre to the periphery. Whence arises, then, this idea of an external world constructed artificially, piece by piece, out of unextended sensations, though we can neither understand how they come to form an extended surface, nor how they are subsequently projected outside our body?" (MM: 47).

As the world reflects our eventual action on it, we come to locate, by that reflection and action, a centre of action, which is ourselves without ever stepping outside the continuity of images. This is what was illustrated through Foucault's analysis of *Las Meninas*, which starts from the picture or - in Bergsonian terms - the images that surround the body rather than the privileged place of the observer. A Bergsonian reading of Foucault's analysis therefore shows the experience of looking at *Las Meninas* as a perceptual experience based on action and movement



and the reflection of images and not an inner experience based on mental representation. The organisation of the images i.e. the paint, canvas, composition, figures, gazes, vibrations to afferent nerves etc stands as a network of connections within which we can locate ourselves in multiple ways: As in the picture on the invisible canvas; as excluded from the picture; as in front of the picture; as a point of order for the picture. Our position depends on what aspects of the images we isolate and what connects we choose to follow.

In a similar way, we can make a Bergsonian reading of the emergence of Baudelaire's passer-by from the crowd which involves both the configuration of the massive crowd into the emerging women and the locating of the poets gaze (no longer a sovereign gaze but now something that connects the image of the poets body to the image of crowd) as a point of reception to which the passer-by uniquely appears in *that* time and place. This would give a Bergsonian perceptual account of why Walter Benjamin's aura reemerges in mass culture through a process of self-detachment (Weber 1996).

I interpret self-detachment as a process of appearing *uniquely* to a point of reception, in this case the gaze of the poet. In other words, self detachment is the process whereby an image reflects an actual aspect of itself that is relevant to the needs of the image we call our bodies in terms of our eventual action on it, thereby presenting a unique occurrence of itself and, in the same moment, locating the body as a centre of action. The unique occurrence of the image in time and space would constitute a re-emergence of the aura of the image in Bergsonian terms. In mass culture, this occurs in terms of reception, (see last chapter).

The basis of this unique perception of images is in the possibility of the selection of aspects of images that is furnished by the scope of perception. Perception therefore does not happen in us but in the things themselves. Furthermore, differences in perception do not originate in mental constructions of images (working from the centre to the periphery). That is, the difference does not reside in us but in the image itself as one of many different aspects. Therefore, working from the periphery to the centre, differences occur in perceptions according to the selection of aspects of the images that surround us.

In Lawlor's (2003) terms Bergsonian conscious perception is not a phenomenological account of human encounters with the world. It is not an account of perception that "consists in showing how conscious syntheses constitute the perception of an object" (18), as if perception involved the presentation of sense data *to* consciousness so that consciousness is always *of* something. Instead, he argues that Bergson shows us how conscious perception is deduced from matter (MM: 31). The nature of conscious perception is entirely based in action and bound up with carving or selecting images from the stream of becoming. In order to understand it therefore we have to start with the conditions of selection that it provides and then the process of selection itself.

So first, we will consider the nature of conscious perception in terms of the conditions of selection. In order to deduce conscious perception from matter Bergson says we need to start with living beings as "Zones of indetermination." We have seen the conditions upon which humans are zones of indetermination as we considered the body as an interval in the receiving and giving back of movement from and to the continuity of images. We said that the body was an interval which delayed movement and whose manner of returning movement could not be deduced from the movement it received. This was due to the nature of the nervous system and the brain acting like a telephone switchboard; analysing and choosing the eventual connection it makes in prolonging the vibrations in the afferent nerves into motor responses in the efferent nerves. Bergson, writing about the function and complexity of the nervous system and the spatial relationships it brings the body into, says;

Its function is to receive stimulation, to provide motor apparatus, and to present the largest possible number of these apparatuses to a given stimulus. The more it develops, the more numerous and the more distant are the points of space which it brings into relation with ever more complex motor mechanisms. In this way the scope which it allows to our action enlarges: its growing perfection consists in nothing else" (MM 31).



As the complexity of the nervous system increase along the lines of the switch board i.e. both its number of pins and number of connections increases, the more and distant vibrations can be received and presented to more complex and numerous motor responses. In this way both the scope of relations between images is increased, the interval, and its level in indetermination are increased. In other words, the range of indetermination is increased. If the nervous system is geared towards movement, action, and not mental representations then as we have seen perception must be seen as concerned with action and the scope of relations with other images. As the nervous system gets more complex as we move from single celled organisms to humans then the scope and richness of perception must also increase (MM 31).

What does this reveal about conscious perception and how are we to understand its increasing scope? Bergson says that we should start with this indeterminism in the network of images created by the nervous system because “perception appears at the precise moment when a stimulation received by matter is not prolonged into a necessary action”(32). It follows that in lower organisms where stimulation is quickly and necessarily followed by reaction that perception resembles a ‘mere contact’ and is almost indistinguishable from “a mechanical impulsion followed by a necessary movement”(MM 32). In lower order organisms, with simple nervous systems where stimulation is quickly followed by reaction, Bergson says that touch is both active and passive at the same time. It is both able to recognise the prey and seize it, or recognise danger and move to avoid it, in short Bergson says that in simple nervous systems organs of movement are also organs of perception. He cites the example of the stinging apparatus of the coelenterate as an instrument of perception and defence (MM 32). At one level this is also true of some automatic human systems, for instance receiving a burn for a hot kettle is quickly followed by removing your hand from the heat; perception resembles a mere contact as the nerves perceive the temperature change and motor nerves operate muscles to move the hand away.

However, due to the complexity of our telephonic switchboard nervous system we are also not compelled by necessity to react to touch with an immediate movement. The brain does not have to act as a selector but can also act as an

analyser and connect the afferent vibration to alternate efferent nerves- we can choose to leave our hand in the heat. Our quick reactions are not therefore a reflection of lower order simple nervous systems but rather they show the ability of our nervous system and brain in particular to act as a selector and to lay down habitual connections that have served us in the past. They therefore show how human perception always involves memory and in the case of automatic reactions perception is made 'thick' with habit-memory.

However, complex human sensory systems like hearing and vision bring us into contact with images that are out of range and therefore do not transmit movement to our sensory systems in a way that requires an immediate response. As the complexity of sensory systems, which put us into contact with more distant images increases, a delay between sensation and reaction opens up. Bergson says:

By sight, by hearing, it enters into relation with an ever greater number of things, and is subject to more and more distant influences; and, whether these objects promise an advantage or threaten a danger, both promises and threats defer the date of their fulfilment (MM:32).

Images which "defer the date of fulfilment"(MM:32) stand before the body as a "painted background" (MM 20). This makes the reaction that follows the perception more uncertain and introduces a time delay as the nervous system holds off connection between afferent and efferent nerves and the brain operates as an analyser as it brings the visual or auditory vibration to a multiplicity of possible motor reactions which may or may not be connected later on in response to the distant image. There is then, a direct relation between the distance at which living beings can detect other images and the uncertainty of the reaction that will follow. Bergson says:

But in the measure that the reaction becomes more uncertain and allows more room for suspense, does the distance increase at which the animal is sensible of the action of that which interests it (MM: 32).



As zones of indeterminacy the scope of our pervasion of the network- that is, the extent to which we can contact distant points in space and bring them into relationship with complex motor mechanisms- is in proportion to the level of indeterminacy we introduce into the network, which in turn gives us a measure of the extent and richness of our perception. Bergson therefore argues that the amplitude of perception gives the measure of the indeterminacy of the reaction, which will follow the reception of movement. Therefore, he concludes with this law, "*perception is master of space in the exact measure in which action is master of time* (MM: 32). The more space we pervade i.e. the more distance images we can contact increases in the same measure the amount of time before an action is executed which means that there is an interval of choice.

With the first part of this law that perception is master of space we can make a Bergsonian reading of Heidegger's (1971) comments on pervading a lecture room that we encountered in chapter three. He writes:

When I go toward the door of the lecture hall, I am already there, and I could not go to it at all if I were not such that I am there. I am never here only, as this encapsulated body; rather, I am there, that is, I already pervade the space of the room, and only thus can I go through it (1971:359).

Heidegger can go towards the door of the lecture theatre because he is already there and not only in his body. He is already there at the door because of the complexity of his nervous system that puts him in contact with it as the afferent nerves of the visual system stretches out beyond the bounds of his body and incorporates the door image into his network of surrounding images which vary according to the growing or decreasing powers of his body to act on them. The door reflects, at a distance his eventual action on it as part of the continuity of images that make up the room and that refer to the image that is his body. In other words when he writes that he is already there at the door because he pervades the space of the room he is describing the extent of his Bergsonian perception. His perception is not a mental representation in his body but is the measure of the scope of his relationships in the network of images that makes up the setting.

In a similar way we can make a Bergsonian reading of Benjamin's assessment of mass culture in overcoming the aura of objects by their mass reproduction, and add something to Bergson's idea of perception. As we quoted in chapter three from Weber (1996), Benjamin says:

To bring things spatially and humanly 'closer' is a no less passionate inclination of today's masses than is their tendency to overcome the uniqueness of every given [event] (*Gegebenheit*) through the reception (*Aufnahme*) of its reproduction." (Benjamin 1968 quoted in Weber 1996: 88)

Benjamin saw this overcoming of distance as part of the frenzied overcoming of uniqueness. By making, a plurality of copies of an object can appear in multiple places at the same time thereby conquering location and distance so that everything by its reproduction can occur away from its original occurrence and thus be brought into closer relationship with the body. As part of the continuity of images, our connections with images distant and close are always mediated through other images. Therefore we see that the effects of technologies of mass reproduction in overcoming location expands the scope of perception by bringing the body into contact with images which would be further away and otherwise fixed elsewhere. Distance and time are conquered without ever losing touch with images and our horizons are expanded since through new technologies we can pervade vast networks, putting us in direct contact with distant things and incorporating them into projects and actions.

We have established that perception arises in living beings in proportion to the level of indeterminacy that their nervous system allows and therefore it measures the extent of the number and proximity of relations with other images that a body has. In this sense perception as we have considered it so far concerns the virtual. However, this does not yet answer the question about how a particular perception comes about i.e., how it is actualised, in other words; what is the nature of being conscious of an object? To answer this question Bergson proposes the hypothesis of pure perception (Lawlor, 2003). That is, perception as selection without memory.



Bergson says there is no perception that is not filled with memories, mingled with immediate sense data. However, for the purpose of inquiring into the nature of conscious perception Bergson says:

Let us, for the purposes of study, substitute for this perception, impregnated without our past, apperception that a consciousness would have if it were supposed to be ripe and full-grown, yet confined to the present and absorbed, to the exclusion of all else, in the task of moulding itself upon the external object (MM: 33).

The function of the hypothesis of pure perception is for Bergson to show how perception is distinct and different in nature to memory and therefore to break with the 'the philosophers' who have overlooked this difference and have treated perception as an 'interior' and 'subjective vision' and memory as the same - differing from perception only by its lesser intensity. The hypothesis of pure perception is designed show how consciousness moulds itself around objects. Only later does Bergson graft memory back onto perception.

However, it must be pointed out that pure perception is 'ideal,' as Bergson says and not practical or concrete perception. The crucial difference between factual and pure perception is that the later lacks the continuity of the first. Bergson writes, "However brief we suppose any perception to be, it always occupies a certain duration, and involves, consequently, an effort of memory which prolongs, one into another, a plurality of moments" (MM 34).

This 'certain duration' and prolongation is precisely the two efforts of memory which keep perception from being more than a instant no matter how brief. The side effect of removing the two kinds of memory ('duration' and the contraction of a plurality of moments which later he will deal with as pure memory or image-memory and habit-memory) that Bergson indicates here is that pure perception is an immediate and instant vision of matter. Bergson comments on the term pure perception:

By this I mean a perception which exists in theory rather than in fact and would be possessed by a being placed where I am, living as I live, but absorbed in the present and capable, by giving up every form of memory, of obtaining a vision of matter both immediate and instantaneous (MM:34).

We will return to these two forms of memory in the next section but for now, the elimination of duration from pure perception removes the mediating effects of pure memory so that the vision occurs immediately. Secondly, the elimination of prolongation removes the multiplicity of moments and so the vision occurs instantaneously- pure perception is not made thick with habit memory. As Lawlor (2003) argues, pure perception has no access to the past and therefore it should be defined as forgetfulness because with out access to the past it forgets what it has just seen. Every experience is the same because there is nothing remembered to compare it against since all past experiences have been forgotten. Lawlor concludes that the experience of pure perception is the experience of repetition.

At first pure perception looks like the experience on offer from technologies of mass reproduction which swap a unique object for a plurality of copies so that an object can be experienced in multiple places in multiple times having had the memory of its unique situation erased by its reproduction. Pure perception begins to look like the experience of an object with its aura destroyed, that is, without its history that was beyond the intellect but present in the object. The copy has no uniqueness, it exists as mass, and it has no memory of its own. There is therefore nothing at first sight to distinguish one copy from another and so the goal of mass reproduction seems to be the “forgetful” experience of repetition. For instance, it might be to always have the same experience of a mass produced tin of beans. Each tin is exactly the same as the one before it and after it on the production line.

However, it turns out that with factual perception it is not possible to experience a set of indistinguishable moments that exclude the effort of both forms of memory. Our experience of a tin of beans is always made unique by its reception. As we have said in chapter four, and now understand from a Bergsonian point of view; although we do not experience it as a unique object in



the same way that we experience an antique, we do establish it as a unique experience as we appropriate it by its reception. It is simply not possible to replicate the experience of using a tin of beans or any other mass produced object down to the last detail. We experience a massive object as it is inserted into our current set of actions and therefore, by its inclusion it becomes imbued with the duration and thick with habit memory. The perception we have of a mass-produced tin of beans is still connected to the flow of becoming and so is ultimately virtual. Under its actual appearance in our perception is the flow of mass or becoming. Just like the woman who emerges from the crowd as a configuration of mass the mass produced object emerges by its reception as a configuration of mass. Therefore the perception of the copy is aura filled by its reception as mass, that is as virtual.

Pure perception therefore shouldn't be confused with the experience of mass even though the forms that emerge from mass are fleeting. It still has duration. Instead, pure perception is the experience of the extreme snap shot or the experience of the actual. Therefore, Lawlor says:

We must be extremely careful in our characterization of pure vision; we must not confuse pure perception with the act by which we pass from the chrysalis to what is inside it, an act which included duration, in fact, a duration with a very fast rhythm. In contrast to this act, pure perception is an experience of matter, but one that is instantaneous and therefore not the genuine experience of matter" (2003:21).

Perception is the act of moving from the inside to the outside of the chrysalis whether it is perception mixed with memory or perception laying memory aside for a moment. Perception is therefore the process by which an image moves from a present image to a representation by the suppression of all that precedes it and all that follows it leaving the crust. The representation is always virtually in the image and it is by the act of putting a section in the flow of the virtual that perception carves the representation out of the image and makes it actual. Perception for Bergson then is a process of subtraction and does not add anything

to that which it moulds itself around. Indeed, it is impoverished compared to that of unconscious material, Bergson writes:

In one sense we might say that the perception of any unconscious material point whatever, in its instantaneousness, is infinitely greater and more complete than ours, since this point gathers and transmits the influences of all the points of the material universe, where as our consciousness only attains certain parts and to certain aspects of those parts” (MM 38).

Herein lies the nature of conscious perception; it is continuous with the network of images and is not an internal subjective experience but rather it is a material, impersonal and extended ‘thing.’ It is therefore incorrect to talk about being conscious *of* something as if things were brought to it, instead, as part of the network of images we should properly speak of consciousness being something. Lawlor argues that rather than consciousness of something we should think that consciousness *is* something. The difference between being and being perceived is only a matter of degree and not a difference in nature. The only difference between conscious perception and matter is that conscious perception is an action of selection as Bergson says in the above quote.

Conscious perception selects on the basis of our functions and needs. Bergson says in a quote that brings us back round to the beginning of our discussion of perception in relation to images selectively reflecting our eventual possible action on them that;

our representation of matter [ conscious perception] is the measure of our possible action upon bodies: it results from the discarding of what has no interest for our needs, or more generally, for our functions (MM 38).

Images reflect our eventual action that will satisfy our needs, they therefore turn the side of themselves that interests us (Lawlor, 2003). However, the representation that is without memory is only a black and white sketch of ‘confusedly distinct bodies’ sketched out by our needs. Pure perception carves out only simple shapes. Therefore, our readings of Heidegger pervading the room and



Benjamin's consideration of the effects of technologies of mass reproduction on the scope of perception are not yet complete because they lack memory and only give us a sketch of the door and a broader canvas. That is what we will move on to now by first picking up on the two forms of memory and then tackling Bergson's cone where memory and perception intersect at the point of the body in the plane of action.

### **Habit memory, pure memory and the memory-image**

In the last section, we ended with conscious perception as the selection of images from the aggregate of images or matter, and that that selection happens on the basis of the body and its nervous system and needs (Lawlor 2003). We treated Perception as Bergson does in his first chapter as a pure perception devoid of an effort of memory for the purposes of showing that it was indeed based on selection and action not on mental representations. Perception was then an impersonal, extended, beyond the head thing. However, at the end of Bergson's first chapter he says that this hypothesis about perception as it stands as pure perception is difficult to establish by experience over and above the representationalist's alternative, even though Bergson's account has far more explanatory power. Our experience of the perception of an object cannot settle between the competing hypothesis, the perception of an object is experienced as an image without furnishing us with data on the nature or origin of the image. However, the matter can be settled if we inquire as to the nature of recollections of images because then we can see if they are stored as representations or on the other hand in some way concern action.

The matter can therefore be settled, says Bergson, with an investigation into memory. There are two key questions left by the discussion of pure perception that can settle the matter that memory can answer. The first concerns the nature of recollections and the role of the brain and the second concerns whether or not memory is distinct in nature from perception. On the first issue, recollections are representations of absent images and memory will be completely explicable by the brain if they were shown to be repetitions of past perceptual brain states in the absence of an image. It follows that if that is the case then perception itself is also

totally explicable by the brain and is purely an in-the-head experience. However, on the other hand if by an investigation of memory it can be shown that the brain 'conditions memories', but that it is not sufficient to account for their survival because it is concerned with its part in the act of remembered perception and not the storage of representations then it will follow that Bergson's hypothesis that perception and the brain are concerned with action and not the processing of mental representations is correct (MM 75). In short, if the brain cannot reproduce an absent object in our experience then our experience of objects must arise by the object in front of us and not a representation that can then be stored and recalled by a simple repetition of a brain state.

On the second question, if memory is different to perception only by a lesser degree of intensity, which is as a stored faded perception, then our experience of perception must be explicable in terms of mental representations. If, on the other hand memory can be shown to be totally different to perception and not concerned with the storage of mental representations then Bergson's hypothesis that perception is based in action and not representation will again be confirmed. It will follow from this confirmation that if perception is matter and memory is different in nature to perception then memory has nothing to do with matter but has a different existence altogether.

This is why Bergson's dualism is that of Memory on the one hand and Matter on the other. Since Memory does not exist as matter then it is unextended and non-spatial and exists as what Bergson calls 'spirit', or as Duration. Bergson's dualism then constitutes an opposition between duration and matter or, in other words time and space. Cartesian dualism makes matter synonymous with the body and memory synonymous with the mind. The difference between the two hypotheses goes beyond the nature of image as either mental representation on the one hand or matter on the other. The difference is between two dualisms; between Cartesian body and mind or Bergsonian space and time, and the choice we make between them settles the interpretation of the nature and relationship between matter and memory.



The integrity of Bergson's alternative dualism which by now should be clear contains a different representational order rests on the nature of memory. Symbolic representation is the order contained in the Cartesian dualism of mind and body. In this thesis I have been seeking to use Bergson's dualism to contain allegory, and have arranged the argument in the first four chapters to present allegory as the governing representational order, and now, in this chapter to present matter and memory as the fitting dualism which underpins and contains it. Memory must demonstrate that it is not synonymous with the brain and the mind but that it *is* duration; that it is not a faculty for the storage of faded perceptions but that it *is* the past and the past cannot be contained as if it were a thing, instead it preserves itself.

Memory is then a 'privileged problem' in Bergson as it will help to decide between two hypotheses on the nature of how we encounter the world. Bergson is also clear that if memory settles in favour of his view of perception then it settles for a metaphysical settlement that goes "far beyond psychology" (MM: 76). That is why Lawlor says in *Bergsonism* there is a 'primacy of memory' and not a 'primacy of perception'. We will closely follow Lawlor's treatment of Bergson's theory of memory- which Lawlor describes as perhaps his most difficult work - in the remainder of this chapter.

Let us begin with Lawlor's summary of the primacy of memory in Bergson's *Matter and Memory* and then we will move on to consider the two ways in which memory differs from matter in Bergson. Lawlor says that memory is primary for Bergson in three ways:

First, in reference to psychology or, more precisely, psycho-physiology; if the survival of memories, which are representations of absent objects, cannot be explained by the brain, Then we can conclude, as well, that the brain does not engender perceptions, which are representations of present objects. Second, if there is a difference in nature between memories and perceptions, and not a difference of degree, then we can conclude that perception is radically different from memory; perception really is the experience of matter. But then third, if there is a radical difference in nature between perceptions and

memories, between the experience of matter and the experience of spirit, we have reason to argue – here leaving the philosophy of matter behind for the philosophy of spirit – that spirit is a reality independent of matter (2003: 30).

### **The Two differences between memory and matter that define memory**

To show how memory differs from matter Bergson first designates a difference between two forms of memory and then shows a difference in interest between memory and matter. We will look at these in turn. First, the two forms of memory.

A central issue in considering memory is the survival of memories. If memories survive as part of the brain and so part of the body then memory is different to perception only by intensity and not nature and it does not have a reality of its own apart from the body. Therefore, Bergson's first definition of memory that establishes it as having its own reality - and that memories survive *as* spirit and not *in* the body - is to distinguish it from a kind of memory that does belong to the body. Bergson proposes that there is material memory and spiritual memory and illustrates them with the example of learning a poem by heart.

The illustration goes as follows. If I aim to learn a poem by heart then I go through a process of repeated recitals until it is memorized and I can repeat the whole thing. Each repetition or lesson before is contracted into my final achievement of having memorised the poem. Having learned the poem, I could recall each individual lesson on its own in the circumstances that attended it. Here then are two efforts of memory. One is active and the other a passive 're-seeing' of the individual events or moments that constitute a series of single readings. Bergson comments that people refer to both efforts of memory in the same terms as a single effort of memory directed at different goals, either to recall the poem or to recall an event in the learning of the poem. However, Bergson argues that these are not a single faculty at work but two different forms of memory.

The first, the effort of memorisation, operates by prolongation. That is, it prolongs the useful effects of the movements of images, which are repeated in the



series of lessons into the present as a final and complete, repeatable and automatic habit. Quoting Bergson Lawlor writes;

The role of prolongation, as Bergson says, 'is merely to utilise, more and more, the movements by which the first [image] was continued, in order to organise [the movements] together and, by setting up a mechanism, to create a bodily habit" (2003: 32).

Bergson argues that in the process of recalling this habit by repeating it involves only the step-by-step process of stringing the movements together into the complete action that makes up the habit and so this memory concerns action and not representation. Bergson says of this 'habit-memory':

It has retained from the past only the intelligently coordinated movements which represent the accumulated efforts of the past; it recovers those past efforts, not in the memory-images which recall them, but in the definite order and systematic character with which the actual movements take place. In truth it no longer *represents* our past to us, it acts it. (MM 82).

Since habit-memory no longer represents our past to us Bergson says it isn't really memory at all. It is mistaken for memory only because the habit is interpreted through the second form of memory. Without the second form of memory recalling the individual events of the learning processes, Bergson argues that habits would seem innate. They are alienated from our past since they have no mark of origin on them (MM: 82) and they become increasingly estranged as they become more 'innate' through repetition and become "more and more impersonal" the result is that they become "more and more foreign to our past life" (MM 83).

In fact Bergson goes further and says that these habit-memories, which are bent on action are "seated in the present and looking only to the future" (MM 83). Habit-memory as bent on action belongs to the body and to matter and it is here that they are 'deposited' (MM: 83) and survive; guiding and setting patterns of movement to and from the body in the continuity of images. It is in this sense that

habit-memories look towards the future because they anticipate future movement by being set up and ready to act in particular ways. As it belongs to the matter habit-memory involves having things set up in advance which channel perception; that is, factual perception is made thick with pre established configurations of the order and combination of actions or movement between images into repeatable mechanisms. A habit-memory is not an inner memory but an ordered set of relationships between the body and images near and far. It is therefore procedural and automatic and includes channelling and anticipation of movements by the inscription, in settings, of procedural paths and 'ways of doing things' which, after a long experience, become habit and no longer require reflection. For instance, computer programs are stocked with pathways for opening, saving, and closing files, or, for browsing the internet, which all become habitual for the user and automatic after many repetitions. Bergson argues that the actual instance of someone contracting a habit through deliberate practice is rare but we nevertheless contract habits all the time by living with obligations to act in certain ways prescribed for us by the arrangement of images that attend our bodies.

The second effort of memory, whereby we can recall the individual lessons and all the circumstances, which attended them, Bergson, calls regressive-memory. Unlike habit-memory, it is defined by the conservation of the past. It records *all* images in order of appearance and looks to the past unlike habit memory, which is why Bergson calls it regressive-memory. This is the memory, which belongs to spirit and not to the body. Unlike habit-memory, it does not deposit itself in the body but 'preserves itself'. In fact, for Bergson the question of where regressive-memory *is* is a badly formulated question since it assumes that memory is a container and memories are content. Instead, since Bergson uses the metaphor of imprinting with regard to this form of memory Lawlor says regressive memory is best thought of as a kind of writing or a sort of ledger rather than as a container. We could describe regressive memory as a sort of ledger writing out the series of images in order of their appearance (Lawlor, 2003). In these terms then regressive memory is close to the process of writing and rewriting -as it appears in Benjamin's work (see chapter 4) - of an object as it passes through tradition leaving behind a series of previous imprints or writings of



its past appearances. Bergson writes in terms which echo Benjamin's idea of aura years later, that this past follows the object everywhere as does our past.:

It follows us at every instant; all that we have felt, thought and willed from earliest infancy is there, leaning over the present which is about to join it, pressing against the portals of consciousness that would fain leave it outside. (Bergson, 1998: 4-5)

It is the past that is - as we said in chapter four in our discussion of Benjamin and book collecting - unmistakably in the object but out of reach of the intellect. It is this past, which constitutes the aura of the object. But before we go any further we need to stop for a moment and consider bergson's own term for this past, that is 'duration' because along side the image and the body, duration is the third central concept to bergson's thesis in matter and memory and indeed his whole corpus of work. Bergson writes in '*time and free will*':

Pure duration is the form which the succession of our conscious states assumes when our ego lets itself live, when it refrains from separating its present state from its former states. For this purpose it need not be entirely absorbed in the passing sensation or idea; for then, on the contrary, it would no longer endure. Nor need it forget its former states: it is enough that in recalling these states, it does not set them alongside its actual state as one point alongside another, but forms both the past and the present states into an organic whole, as happens when we recall the notes of a tune, melting, so to speak, into one another. ([1913]2001: 100)

Pure duration *is* regressive memory. Our memory of the past *is* our duration, each successive moment melting like the notes of a melody into one another. Therefore, duration is not simply a series of past moments strung together as we presented them in figure 2 of chapter 4. Instead, it is a synthesis of this series of moments into a continual whole. The past and present, in succession, form an organic whole and if duration is to be grasped, they cannot be positioned along side each other in the actual but blended into one another. If duration were actualised and brought into space to have its organic whole divided and laid out

for us to see, it would look like Latour's chain of reference; a series of moments of translation or, as we reinterpreted that very same chain later in chapter 4 (fig 2) with Benjamin, it would appear as a series of rewritings. Indeed, for us to experience duration and consider it we spatialise it in ways we will consider later in the chapter. Duration then is virtual and resembles the unfolding progress of allegory, which eats into the future by constantly claiming the present and refusing to let us separate the present from the past.

Regressive memory as Duration looks towards the past and the memories survive as memory-images (at this point in Lawlor's commentary he flags up the hyphen, which will become important when we come to consider the cone). They look to the past, and unlike habit-memory, they can't be repeated or perfected because they belong to the past and are at home there. Unlike habit-memory, they are time stamped and bare the marks of their origins. However, since they are directed to the past and therefore in the opposite direction to habit memory they are detached from the moment and directed away from action and attention to life toward dreaming and hallucinations. Lawlor says on this last point:

We must note immediately that dreams and hallucinations are 'evocations' of the past, which bring past images back to the present; *the direction of regressive memory has suddenly changed*, which suggests that the habit-memory and the regressive memory are really not independent but connected" (2003:34).

We will return to the nature of the connection when we look at the image of the cone, for now the direction of regressive memory towards dreams and hallucinations makes it useless in terms of action and the present moment since it does not pay attention to life in the way Habit-memory does. We will pick up this feature of regressive memory in the next section when we look at Lawlor's treatment of the second difference in nature that defines memory.

The first difference in nature shows a distinction between the memory of the body, which is not really memory, and the true memory of spirit, which defines memory as Duration. Habit-memory looks to the future and is deposited in the



body, regressive memory or pure memory, which looks to the past, exists as duration and cannot be positioned or located in space without changing its nature since it is unextended. We will now turn to the second difference.

Lawlor argues that according to the first differentiation, regressive memory was defined by purifying it of habit-memory, that is, it is memory purified of any bodily location, motion or existence, and instead it is defined as duration. In the second differentiation, he defines pure memory as without image, that is, without material and so the second differentiation is between memory and perception. However, Bergson positions these two on a continuum with pure memory at one end and perception at the other. He does not position pure perception against pure memory because perception always contains sensations, affections and feelings and so it is always prolonged to some degree and so is always thick and never instantaneous. Lawlor writes:

When affection is added into pure perception, we no longer have instantaneous perception, we have a thick perception. An affection, like pain, transforms or prolongs the virtual perceptual image into actual action. But, even though affection makes perception thick, the element of perception is an image, not a memory” (2003:36).

In the middle of the continuum we find the memory-image which is the form in which memory is preserved and which is the proper element of regressive memory. Where as pure memory is purged of perception the memory-image is a mixture of memory and image and so is not pure memory but is partly material and so contains perceptions. Memory-images are then pure memory on the way to being actualised in perceptions or past perceptions on their way to becoming pure memory and therefore impotent, unextended and virtual.

Here then is the difference between pure memory and perception in terms of interest. Perception is by definition interested in the present and action. Its images therefore are extended and actual while pure memory while directed to and seated in the past, is not interested in present action and contributes nothing to it. Therefore, as Lawlor argues, Bergson calls pure memory ‘impotent’ because it has

no utility and cannot bring about action. It is also virtual because it is not actual unless it is inserted into perceptions, and therefore it has no extension because it is not prolonged into sensations and actualised. Bergson says:

The memory actualised in an image differs, then profoundly from pure memory. The image is a present state and can participate in the past only by means of the memory from which it has emerged. The memory, in contrast, impotent as long as it remains without utility, is pure of all mixture with the sensation, without attachment to the present and consequently unextended (MM:141).

In this quote, Bergson indicates the change in direction of regressive memory in the connection that images make with the past. He indicates a double movement of the images towards the past and connecting the past through the memory they emerge from, for this to occur memories must somehow be pushing their way towards or into the present or as we shall see through the image of the cone, they are descending and being actualised in the plane of images. This complicated movement of the unextended virtual memory towards the extended, actual, and present plane of images is solved by the cone image and the hyphen between memory and image in the term memory-image. It is in the hyphen that the past connects with the present and the present becomes part of the past. All this happens through the centre of action that we call the body *without being stored in the body as habit memory is*. The hyphen therefore represents the body in the intersection of memory and matter that the term memory-image represents it is also the point where the two forms of memory connect.

Just before we move into the discussion of the cone image let us recap the difference between pure memory and perception. Perception itself is virtual, perceptual images are actual, extended, action and present orientated. Pure memory is virtual, unextended, and disinterested in the present because they are in the past and exist as duration. Therefore as Lawlor argues with these two differentiations between habit memory and regressive memory and memory and perception it becomes hard to argue that true memory occurs in the brain since the brain is action orientated. The brain is however, involved in preserving habit-



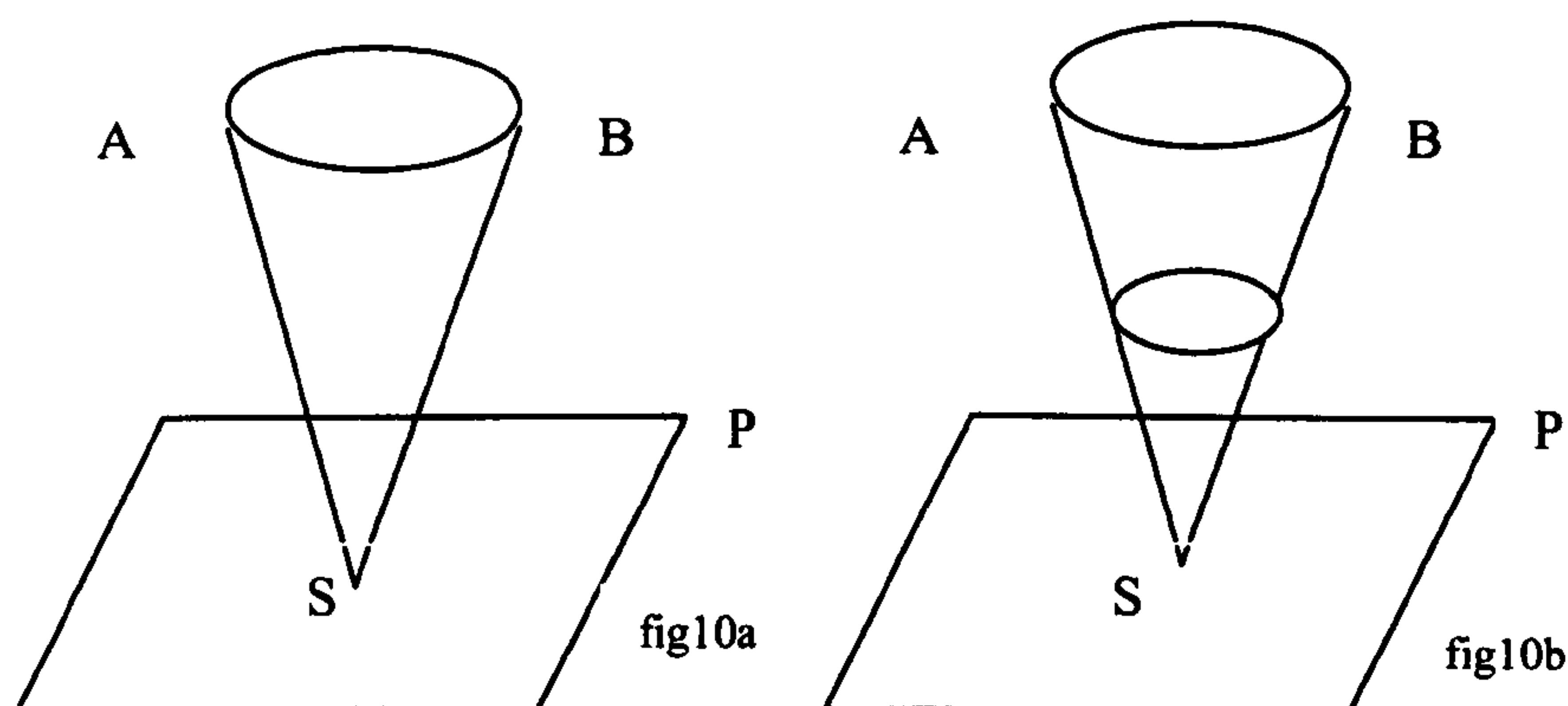
memory which as Bergson argues is not memory at all, unless one confuses it with the interpretation of habit-memory that regressive-memory provides. To make the point, in the central chapters of *Matter and Memory* Bergson examines evidence from aphasiacs. Lawlor summarises the evidence for us:

While a patient suffering from a brain lesion cannot come up with a word when its definition, for instance, is given, the patient can use the word under other circumstances; what the brain has destroyed, according to Bergson, is the mechanism that reacts to the hearing of the definition. The memory of the word is still intact. According to Bergson, since the motor mechanisms are in the body, they and only they can be destroyed. We must say that memory-images survive in a way different from bodily habits” (2003:39).

The memory of the word survives as a memory-image and is still intact as part of the patient’s duration and was never surviving in the brain. Therefore, a lesion to the brain does not wipe out a mental representation but destroys a habit; a coordinated set of movements that would respond to the definition.

With the difference between virtual pure memory and actual perceptual images in our minds, let us turn to the image of the cone and the intersection of matter and memory.

### **The Image of the Cone.**



The past exists as duration, that is, as a blend of moments like notes in a melody. Each note is a past present added to the chain. The past is then the whole, and the present is a part of the whole and so it can't contain the past. The past cannot be contained in some form in the present since the present is part of the whole and the part cannot contain the whole.

Lawlor says that we have to recognise the chain of memories has an existence in time in an analogous way to the chain of images in space. The present is a moment or a link in the chain and so the past is greater than the present and constitutes the whole of which the present is a part. The question then is not 'how is the past contained?' but 'how is the present derived from the past or time or duration?' The present, which is part of the past is, of course, concerned with action and so this link in the chain of memory also occurs as a link in the chain of images giving and receiving movement. This material link occurs as the images are actualised from virtual perception and converted by the action of selection into perceptual images. But as the past is always greater and exceeds the present - in a sense the past contains the present (Lawlor 2003)- and, as the present is also the link which is both a link in the material chain and a link in duration it follows that duration contains the present entirely. Duration therefore contains matter and not the other way round because matter, which is concerned with the present, cannot contain the whole of the past. The material world is only a section in the flow of becoming. Matter goes to be part of the past and survives as part of the past. The past does not survive in matter because the past preserves itself.

It also follows that consciousness, which, until now, we have described in purely spatial and material terms as the arrangement of images around the body also becomes contained in duration so that it takes the form of duration. If we recall our quote from above, Bergson says in time and free will:

Pure duration is the form which the succession of our conscious states assumes when our ego lets itself live, when it refrains from separating its present state from its former states. ([1913]2001: 100).



Consciousness, which is derived from matter, is constantly on the move through different states as the arrangement and selection of images shifts from moment to moment as the body moves amongst images giving and receiving movements. The continuity of consciousness, is like the unfolding of notes in a melody (Middleton and Brown 2005) and is experienced as duration when the wholeness and blendedness of the notes are considered.

If attention is purely on the present then it attempts to separate its “present state from its former states.” As consciousness takes the form of duration so impotent, memories are unconsciously part of duration since consciousness is concerned with action. The nature of consciousness and matter being, as it were, vacuumed up into duration is why Bergson’s philosophy gives primacy to memory and not perception. This of course turns modern psychology with its primacy of perception on its head. Bergson could only achieve this reverse as we have seen by freeing memory from perception and giving it back a life of its own.

Now we can approach the cone. Following Lawlor, we have just been using a container – content metaphor for the relationship between the present and the past. However, Lawlor uses the word ‘container’ provisionally as an aid to explanation before correcting the terminology with the nature of the cone. He says that the cone diagram illustrates this container-content relationship between the past and the present and also corrects it.

Bergson presents us with two cones (figure 10a and 10b) which are identical except that the second has some extra detail. The cone represents regressive memory with its summit ‘S’ pushing into the plane ‘P’ which represents the plane of action or as Bergson calls it the “plane of my actual representation of the universe” (MM:152). At the base of the cone, ‘AB’, there are the most distant and oldest memories, which exist unconsciously because of their impotence and disinterest in action. It is these memories which Bergson says move towards the summit of the cone spontaneously as dreams and hallucinations. Moving from the base to the summit, we find memories arranged in order from the most distant through to the most recent near the summit. The cone is divided into regions along the same lines according to temporal distance from the summit, which is in the

present and indicates the present of the body (fig 10b). The body which “constitutes at every moment, as we have said, a section in the universal becoming” (MM:151), is concentrated in the summit of the memory cone. Bergson writes:

At S, the image of the body is concentrated, and, since it belongs to the plane P, this image does but receive and restore actions emanating from all the images of which the plane is composed (MM 152).

However, this receiving and restoration is not pure perception but factual perception that is thick with habit-memory. As such, the body is the hyphen in memory-image that connects images with images and habit-memory in the plane, with regressive memory, which forms the cone; that is, the body connects the two forms of memory. Bergson says that the first as a bodily memory that is, habit-memory, is the point of the cone moving unceasingly forward through the plane P which is also moving. By it the body restores what it receives in habitual form but we do not live purely habitually and we choose when to enact a habit and when not to. This guidance is furnished by true memory, which pushes the body into the plane of action. In this way, true memory serves as a base for habit memory. Bergson writes: “on the one hand, the memory of the past offers to the sensori-motor mechanisms [habit-memory] all the recollections capable of guiding them in their task and of giving to the motor reaction the direction suggested by the lessons of experience” (MM 152). Habit-memory in return does something for the memory of the past. Bergson continues:

But, on the other hand, the sensori-motor apparatus furnish to ineffective, that is unconscious, memories, the means of taking on a body, of materializing themselves, in short of becoming present (MM 153).

The two forms of memory lend each other mutual support. However, we have said that true memory is regressive memory which is directed towards the past and hallucinations and is uninterested in action, so how and why does it furnish habit memory with guidance and find an opening in matter to materialize



in the present with the aid of habit memory? Bergson says it responds to a call from the present and descends from the base of the cone to the summit:

For, that a recollection should reappear in consciousness, it is necessary that it should descend from the heights of pure memory down to the point where *action* is taking place. In other words, it is from the present that the appeal to which memory responds comes, and it is from the sensori-motor elements of present action that a memory borrows the warmth which gives it life (MM 153).

Regressive memory is then progressive memory but not in the sense of anticipating the future as habit memory does but in the sense of descending into the present in its move from the immobile base of the cone, which symbolises contemplation, to the summit which symbolises action and into the plane. It follows that the movement of memories from the base to the summit is the movement from contemplation to action and as Lawlor explains this is the movement of intelligence or thinking. Lawlor helps us with another feature of the difference between the extremes of the cone. At the base, there are individual, singular memories, which are contiguous and organised according to their time and date of occurrence. At the summit there are habits contracted by repetition which respond to things which resemble one another, so the move from contemplation to action is also a move from the contiguity to resemblance or from the singular to the general (Lawlor 2003). Lawlor next describes the three steps, which all occur simultaneously, which constitute the movement of memories from contemplation into action and therefore spatialisation. He does this by way of an example of recollecting his brother's orderliness to help with a present problem, which requires some order imposed on it the three steps are the leap into the past, the rotation of the cone, and then the contraction of the cone as memories are inserted into action. To be clear, all these steps occur at the same time but for clarity Lawlor deals with them one by one and we will follow his example.

First then, the leap into the past. In order to solve the situation he must make a leap into a region of the general past, which is one of the sections of the cone. This leap puts him right away into the region he does not have to trek back

through the succession of moments to arrive in the region; he just makes the leap into the region of the whole of his duration. However, this region is made up of pure memories, which are virtual, and without extension. They are not yet images and so while in the region by way of the leap only an 'idea' of his character, that is his past conscious state that belongs to this region as a past arrangement of images, can be discerned. The memories survive as they hang around like droplets forming a cloud in the region before the droplets are condensed into rain. This occurs in the second movement, the rotation of the cone.

Bergson switches to another metaphor for the rotation of the cone. Instead of droplets forming from the cloud, Bergson sees the rotation of the cone as the focusing of a telescope, bringing the stars and planets into focus so that they appear to us. In this way, the singular memories become memory-images and in Lawlor's example, he now sees images of his parent's old house in the region. He writes:

Now I have the image of my parents' old house in the heart of the city; I can now walk through the different rooms in the house; I can see the pieces of furniture and people in each of the rooms, and then I see the events that took place in the rooms. The rotation of the lens-holders continues. I am in the bedroom I shared with my brother; he is huddled over the little desk that we also shared; he is pasting stamps into an album, carefully, according to the country of origin, according to the size and colour, according to the value of each (2003: 51).

Lawlor continues his contemplation of the memory-images he now has. At this point, along with Lawlor we are in conscious contemplation of memory-images until the next step of contraction.

Once the memory-images are fixed the contracts and narrows the images and as it does so it pulls the singular and personal memory-images down towards the summit of the cone contracting them into impersonal "images which resemble one another" (2003: 51). In Lawlor's example this means he forgets again his parents house and the events there and the whole summer of 64' and his memory of "my



brother carefully ordering what he used to call his 'stamp-book' contracts into an image of his general orderliness" (2003: 51). Lawlor's says the singularity of the image becomes obscured in order to correspond to the perceptual image, which we left as purely a sketch with out this insertion of memory-images. Now, swollen with the general memory-image of his brother orderliness his body moves through the plane of images by with an idea or general 'method' for solving problems of order (2003: 52). In fact, Lawlor at this point goes further than Bergson, and says the contraction would need to continue to make the idea or method into an action inserted into the body, he says:

But we must note that contraction can go further. If I am to solve the problem of orderliness, the contraction must go further. In order to be inserted into the present, the movement of contraction must make the idea of orderliness as thin as possible so that it can be inserted into the hyphen of the body, so that it can fit, in between 'the things which act upon me and the things upon which I act' (MM 151). When this happens the idea becomes an action" (2003:51).

However, the contraction can go further still. Through repetition if the set of actions prove profitable, the idea as an action can become a habit. At which point it is stripped of pure memory and is entirely focused on the future. Further still Lawlor says it can be contracted further, the method can be put into words, and become useful for thinking- the movement which Bergson calls thinking. Language is not the only way in which the past is contracted further and slowed; artefacts as we have already said lend their form to the images which preceded them, that is , the past; to break up the continuity of the past into events fit for action. Therefore, I take Lawlor's comments to mean that talk facilitates the descent of memories into action in the same way as objects but in a more fluid way by arranging, in the action plane, the manner in which habit-memory or methods give an opening for memory images to descend. That is talk is a way of slowing the flow and ordering the spatialisation of the past; giving it boundaries and breaking up the continuity of lived experience, or duration into events. Therefore, in talk we can propose methods for organising the past into actions on the basis of the efficacy of certain methods. We can argue for the form and order of the past, which means further that the rhetorical organisation of talk in

proposing methods and arguing for ways of doing things or the form and order of past events becomes analytically interesting. From Bergson then we can say that in investigating the use of the past *we must be concerned with the ways in which the past is spatialised and inserted into action by the mediating activity of language and artefacts.*

But when we talk about organising the past into action in this way, we are not just saying that talk and artefacts only play part in managing method organising the flow of becoming through establishing methods, arguing for form and lending shape to the flow when recall is occurring. As we shall see in the last point before moving on, we are always dealing with the past when we act and so the role of talk as an action of organising the past into actions is central to language. I will say more about this in the empirical chapters.

We always operate on and in the past, because as Bergson says the past gnaws into the future. It must be the case that we work with the past because we are always working with continuity, prolonging actions into the future, which is to keep the past with us in usable forms, and calling on lived experience to insert itself into action. We have already indicated this throughout in saying that the present calls in the past and that regressive memory is in fact progressive. However, it deserves a little space of its own if only because of its implications for the relationship between the past and the act of remembering. If we are always acting in the past, the remembering is not the only action, which involves the past, all actions do involve the past and remembering no longer holds the monopoly.

The present is always the past gnawing into the future as the stream of becoming, the present is the section made in the flow by perception. If perception occurred only as a section in space thereby differentiating images, only by degree then we would have only a pure perception with no continuity and we would only see sketches that is images with faint outlines. But as perception occurs with duration memory, that is, thick with habit memory and swollen with memory-images for its continuity we are always perceiving through the past and making a section in the past or duration and channelling the stream of becoming. Therefore, perception is making a section in the past. The key to understanding the



experience of other images is more than simply seeing them spatially at different distances with edges- that would be to live by pure perception. As perception carves out shapes from the flow that is duration i.e. as it spatialises duration and dissects it into events then objects appear as slowed down duration to us it is by perceiving the duration of the image that images differentiate themselves from other images as they appear to us which moves them from sketches to as it were, full colour. Gilles Deleuze (1991) reminds us that therefore we inhabit a world of multiple durations, which in turn reveal our own duration as they reflect our possible action back to us. Deleuze illustrates with Bergson's own example of the sugar cube;

Take a lump of sugar: it has a spatial configuration. But if we approach it from that angle, all we will ever grasp are differences in degree between that sugar and any other thing. But it also has a duration, a rhythm of duration, a way of being in time that is at least partially revealed in the process of its dissolving, and that shows how this sugar differs in kind not only from other things, but first and foremost from itself. This alteration, which is one with the essence or the substance of a thing, is what we grasp when we conceive of it in terms of Duration. In this respect, Bergson's famous formulation, "I must wait until the sugar dissolves" has a still broader meaning than is given to it by its context. It signifies that my own duration, such as I live it in the impatience of waiting, for example, serves to reveal other durations that beat to other rhythms, that differ in kind from mine. Duration is always the location and the environment of differences in kind; it is even their totality and multiplicity. There are no differences in kind except in duration – while space is nothing other than the location, the environment, the totality of differences in degree (1991: 32).

Perception of an image then is always about isolating the duration of an image, the becoming of an image in space, which therefore enables us to combine it with the duration of other images. Therefore, the perception of a set of images like a sugar cube, a teapot, teacup and hot water involves the experience of putting a sugar cube into a cup of tea and of waiting on the duration of the sugar cube as it changes over time to sweeten our tea. Our tea has its own duration which appears to us when it is arranged with the duration of other images we must manage; it

gets cold over time, so there is an optimum moment in its flow to align it with the duration of a sugar cube and then with our taste buds and digestive system (Bergson [1911]1998). The act of perception or the experience of being amongst images which act on us and to which we restore action is the experience of being in a network of both varying spatial arrangements (as we saw with the hypothesis of pure perception) but also varying durations. For something to be arrested and appear to us requires that its duration becomes apparent by spatial arrangement in the plane of action. In this sense, we inhabit spatio-temporal envelopes and are folded into them as images, which act and set out habits and have our own duration.

### **Concluding remarks**

In chapter 4 I ended with the proposition that humans and technology need to be understood as relating in spatio-temporal envelopes. At the end of this chapter, we have arrived at a process account of human experience *in* spatio-temporal envelopes. These are central issues to the study of the experience of people using computers to work with digital images. Having reviewed Bergson's theories of memory and perception based on his non-representationalist position on the nature of image, we can now think about the interaction of humans and technology and the forms of mediation that digital technologies reflect as a set of psychologically interesting topics in terms of the inclusion of the human in unfolding spatio-temporal envelopes of action. Bergson gives us a framework for thinking about human perception in terms of unfolding action and human memory in terms of the insertion of the past into action with technology.

In the second half of the thesis, I will present some transcripts from amateur photographers who have adopted digital photography and who meet regularly to present their work and share best practice. I will also present some data from families working with their computers and reminiscing around their digital record. Finally, I will present some data from some internet pages, which display photographs of family members for public consumption.



All of these settings offer an opportunity to study the settlement of technology and people, in the carving out of the past in spatial arrangements through unfolding action. However, the data will also give us more than an opportunity to work out some of Bergson's insights in some concrete examples. These settings are based around digital images, which are endlessly convertible, reproducible, fragile, and endlessly combinable circulating fragments. We will therefore be able to see how perception and memory are mediated in networks populated by mass. What happens when the action plane is populated by mass objects such as digital file stores and underdetermined technology, and the public circulation of digital fragments through websites?

In the next four chapters then we can see in some concrete examples the past descending into the spatial grid of the action plane to guide action through underdetermined technology; piece together the past through fragmented and massive stocks of images; and produce online accounts of childhood development and identity.

## **Chapter 6**

### **Managing underdetermined technology: Digital photography and hobbyists**

The empirical focus of this project is the digital image which stands as a challenging test case for this thesis on the nature of image. As I argued in chapter one, this is because, through their electronic rather than “physical” constitution they seem to resemble mental images and so appear to support a representationist framework for thinking about the interaction of humans and image. However, it is the contention of this thesis that digital images exist in a complex network of technology and activity that manage their incessant movement, production, consumption, convertibility, connectedness and fragility, which exposes the complex nature of the image as more than a simple representation. In this chapter, I want to consider the relationship between humans and digital technology, which manages the digital image through Bergson’s non-representationalist approach.

In the shift from the conception of image as representation to image as an ongoing process of networked achievements, perception also shifts from the reception, processing and storage of representations of a world-out-there to an activity of extracting forms from duration - the unfolding flow of images. Perception sections the flow, spatialising duration by inserting it into the arrangement of images in the plane of action. In chapter three, following Walter Benjamin, I described this process of spatialisation through the arrangement of images, in terms of allegorical progression where objects are configured as they are prolonged by being taken up into local order and continued through the form of mediating images. Allegorical progression is then the ongoing movement of the collection and dispersion of images into local arrangements. In that chapter I also argued that the duration of an entity unfolds through this process which constantly writes and rewrites the entity by its collection and dispersion. The object then continues and unfolds as it is constantly reinserted into new arrangements of images.



Humans achieve a foothold in the flow of reality as a body which interrupts the flow of movement between images (as all images do). However, this image, as we saw in chapter 5 can connect to images further a field and so does not have to react immediately but can delay the flow of movement, creating an interval. This interval is an arrangement of images which attend to the body and which wait on the return of movement as they reflect its eventual action. In chapter 5 we saw how Bergson argued that the scope of this waiting network of reflected potential action was the measure of the richness of perception. Therefore perception is not a faculty in the head, so to speak, but is an arrangement of images around the image we call the body. Perception is a field of potential spatial arrangements which grows or shrinks as a function of the distance at which an organism can relate to other images. The scope of perception then is the measure of the extent of the connections and potential actions that are reflected back to the body. It follows that the nature of the inclusion of people in the flow of the collection and dispersion of arrangements technology is a perceptual issue, since human perception actualises a set of relationships between aspects of images, which attend the body, and in so doing, it sets up a potential field of action.

Technology and perception are not two different things, which relate as subject and objects. Instead, humans and technology as images in continuous networks mediate each other's movement through the process of collection and dispersion. This means that we need to be analytically sensitised to how people are holding up technology and so the presentation of forms or versions of technology as carved from the flow is seen as a perceptual act. Digital photographic technologies present an example of an underdetermined or virtual set of objects, which require constant settlement. In this chapter, I want to explore this idea in terms of how hobbyists construct different versions of digital technology. I will present some data from a Bergsonian perspective on the relationship between language and technology, from two contexts in which hobbyists construct their technology in presentations of their work and in a group demonstration of Photoshop.

**Bergsonian discursive analysis.**

The approach to the data adopted in this thesis is derived from Bergson's position on the relationship between objects and language and so a short digression into Bergson's work on the issue will provide the framework for the analysis in the empirical portion of the thesis. In *Creative Evolution* (Bergson, [1911]1998) Bergson treats language as a symbolic system which operates in the same way as other markers - which includes the arrangement of objects- of the contours of local cooperative order. Objects and language mark out the contours of local order and as such operate as signalling systems. According to Bergson the relationship between language and the world is not to be understood in terms of the relationship between subject and object, where language represents the world and relates to it in terms of correspondence. What is different about Bergson's understanding of the linguistic is that he has drawn up a different dualism for language to function within. Instead of the dualism of subject and object Bergson proposes the provisional dualism of time and space. Language and the world relate to each other as ways of spatialising the flow of time. Objects and words are therefore bound together as action oriented channels and co-constructors of local order.

Language is then a system of ordering, arranging and channelling alongside objects and technology. However Bergson argues that language is a more fluid form of ordering than objects. What makes it different to objects and technology is its inherent mobility. Words can come to rest on any object, conception or person in variable ways, coordinating fluid kinds of order. Objects on the other hand mark out or contain local order in a way in which is less fluid. Bergson illustrates this point by contrasting the ant to the human in this regard. The activities of a colony of ants in constructing their world are dependent on the form and structure of the organisms which make up the colony. The individual ant is bound into these systems of action by their very structure. Bergson argues that in ant colonies their signalling system, or language which describes the contours of the activities of the social system is limited since it is found only in the points of order like objects and particular colony operations. Humans however have a signalling system which is not inherently tied to any objects but is far more fluid and mobile making



much more complex forms of order, coordination and cooperation possible between people. Language in its most basic function as a system of ordering operates to “establish a communication with a view to cooperation. Language transmits orders or warnings. It prescribes or describes” ([1946]1992: 80).

This means that the data in this thesis will be approached in terms of how language and objects act to mediate and coordinate action and spatialise the past and also, how the past is invoked and managed to guide present action.

The data in this chapter comes from two evenings spent with two different amateur photographic clubs. Both clubs were selected from an internet search of photography club websites on the basis that they had active members who used digital photographic technology. These two clubs regularly organised lectures, tutorial sessions and presentations of digital work.

The first data set was recorded at an evening of club member’s presentations of their digital technology, work and techniques. The second data set comes from an evening where one member was demonstrating the basic settings and how to use Photoshop for image manipulation. Participant consent to have the evening recorded transcribed and analysed was obtained by way of signatures on a consent form.

Both sets of data were audio recorded and then transcribed on Microsoft Word using cooledit sound file software, using basic transcription conventions. The conventions that were used were square brackets ([..]) to indicate overlapping speech; brackets with a point in between ((.)) to indicate an audible pause, and brackets with numbers in between ((1.2)) to indicate a measured pause to tenths of a second; and finally, colons to indicate elongated vowels (a::h); and finally underlining indicates emphasis.

The first four examples are taken from three presentations from the evening of club members showing their work.

### **Example 1**

J- [alls I've done is I've brought roughly a dozen prints to show you ]

A- [((general commotion))]

J- and they're what I've produced over the last fifteen months since I've had the computer more by trial and error but I've just bought one or two just to give you some idea of what - some are not so good as others but this one here I produced this and unfortunately these coconuts out in where I took this they chop all the outside off so they were white so I attempted to colour them but at the end of the day I thought its no good worth it so I printed another one but with out the coconuts

((swaps the image for an identical one without the coconuts))

A- ((laughing))

J- and put in the curb as well it takes a wee bit of time but not not such a great deal of time and most of my pictures have only got minor details er I don't consider that to be anything drastic cause you could do that in the dark room anyway so when- when people get worried about digital imaging you got to remember that where the bloke in the cupboard who's not with us now unfortunately he used to produce pictures with five or six images on one piece of paper and we all thought it was fantastic and nobody ever said that wasn't a photograph its just a piece of art.

This first extract comes from John's introduction to his work in which he anticipates and manages the accusation that digital photography isn't photography. He shows a picture of a boy sitting on a curb in South America with some coconuts. The image is about A3 size and is display on an easel. He then swaps the picture for an identical image with the coconuts removed. This first pair of images opens the way for John to introduce the level of alteration that he wants to argue is acceptable. He manages the swap with comic effect. On presenting the first image he indicates the coconuts as a problem in terms of them appearing as white which is the result of a set of culturally specific ways of keeping and preparing them: "unfortunately these coconuts out in where I took this they chop all the outside off so they were white so I attempted to colour them." This set of



cultural mediations is positioned in terms of the “unfortunate” actions of the nondescript “other” (“out in where I took this they...”) which required colouring them brown, to restore them to their original state. This story of the attempted restoration of the coconuts (which is basically an attempt to reappropriate them to the cultural expectations of the viewers of the image) and the final giving up and opting for deleting them altogether, sets up the swap of images as the magical and comical disappearance of the coconuts.

The dramatic disappearance of the coconuts, which demonstrates to the audience the impact of digital photographic manipulation, neatly sets up John’s defense of the place and nature of digital manipulation as a successor to darkroom practice; it is followed by mitigation of the process. The coconuts become an example of the level of manipulation, which constitutes a “minor detail,” that John says he carries out on his pictures. This minor detail is described as something one could do in a dark room and is then contrasted with the dark room practice of combining images. The construction of the contrast positions the darkroom practice of combining four or five images as the more extreme form of image manipulation of the two. This formulation manages to position digitally manipulated image within the category of photograph since the more extreme form of dark room manipulation also produced a photograph that no one questioned and that everyone got excited about.

John’s comment “its just a piece of art” removes the digital image and the traditional photograph from any claim to reasonable truth and the concerns of representation and places them into the realm of “truth autonomous” art where image stands on its own away from referent. It represents the final category into which all digital and photography is placed. Tracing the argument backwards, the “art” John refers to is the hypothetical montage image produced by the ‘bloke in the cupboard that no one would deny was a photograph. The darkroom then, was always about pieces of art, about the collection of separate images on to the site of a single piece of paper, creating the appearance of representation without there existing anything past the representation. The photograph was always a product of calculation, of organisation, gathering and performing rather than reflection of external reality.

The presentation of the example images; the story and mitigation and comparison with darkroom practice; the gathering together of digital imaging and the darkroom as part of the heritage of digital photography; the darkroom as the site of artistic production, are all invoked to insulate John's work from the accusation of not being a photograph. He manages this by claiming the very heart of the photographic tradition (the dark room and the "bloke in the cupboard who's not with us now unfortunately") as the heritage and forerunner to digital photography.

Here digital photography makes sense as is it mediated by the past; John gathers past practice and traditional photographic heritage around digital imaging and in so doing manages the legitimacy of the current state of affairs by invoking the past. The next example stands in contrast to this formulation.

### **Example 2**

B- all of these photographs I'm going to show you are basic (.) I've done no moving and haven't been able to take anything out or put anything in (.) so all I've done (.) is (.) I've taken photographs for a long time: (.) which (.) I go out and sketch and then I take photographs (.)if I haven't had time to do a sketch (.) I'll do photographs (.) and (.) I can bring them home and use them(.) not copy them I use them (.) a::nd I've got the memories of (.) where I've bee::n I bring back with me and as soon as I look at a photograph I'm back there (.) so:: (.) this is why I take photographs

In this example Billy introduces her work and presents a series of images on an easel in the same way that John did just before her. In this extract Billy works up an alternative interpretative framework within which to read her pictures which stands in contrast to the photographic manipulation framework that John mobilized for reading his pictures. Billy's images, read from within the manipulation framework are self confessedly "basic," in comparison to John's who went before her.



Billy's opening words then are designed to manage a shift in interpretive framework by negation and then a presentation of the place of these images in a complex experiential, perceptual network of the painter who "uses" photographs. She says, "I've done no moving and haven't been able to take anything out or put anything in (.) so all I've done (.) is (.) I've taken photographs for a long time..."

Billy describes how she takes photographs along side of, and in place of, sketching scenes that she then later paints. The primary utility of the photographs is found in bringing them home to "use". In the contrast between "use" and "copying" Billy works up a distinctly non representational account of the status of her pictures. She doesn't copy them, instead they take her back to the scene, ('I've got the memories of (.) where I've been I bring back with me and as soon as I look at a photograph I'm back there (.) so:: (.) this is why I take photographs') and that is the key reason she takes photographs. They stand as memories but not for copying; their function is not to represent a scene encountered in the past but to take Billy back to the scene. The pictures on the easel are constructed, as mediators not copies; channels through which the past survives in space through being welded to an object rather than representations (like Barthes laminated objects, which carry their referent with them; see chapter one). As mediators of the past they hold Billy in a complex network of time and space and experience, folded together in the perceptual activity of being connected to the experience of the past. Here then the past prolonged into the present as it is spatialised in the object of the image, mediates perception by swelling it with the past (Bergson [1908]1991)

From our Bergsonian position we can say that this perception of the past scene is not the recall of a mental representation but is an issue of the continuation of the past by its spatialisation into the present, populating the network, which Billy inhabits and swelling perception with memory. In this sense, we can recall Heidegger's (1971) illustration of thinking his way to the Heidelberg bridge and being there rather than holding a mental representation (see chapter 4). Or again, the way to understand Billy's construction of her pictures is as holding her together with a complex network of time, and space and mediated vision, which is

reminiscent of Roland Barthes complex experience of encountering his mother in the image of the child (see chapter one).

Billy then presents her work by constructing a network of experience and practice in which the insertion of the past experience through her pictures into the ongoing practice of producing paintings, stabilizes and actualizes the relationships between the pieces of technology and practice through which the past can be experienced and painted. The pictures arise through the technology as mediators of experience; they are not the product of a combination of technology and practice which produces the manipulated image. In the next extract Billy describes the way in which she uses digital technology to produce the images she presents as mediators of the past.

### Example 3

B- these are all(.) the photograph was put into the scanner (.) if they're (.) seven by five I've (.) erm enlarge them (.) erm (.) hundred and fifty percent (.) if they're six by four (.) I've enlarged them (.) two hundred percent which gives me A4 (.) or as near to A4 as I can get (.) erm (.) I put them into the scanner and pre- and with the mouse I can press the button and (.) and it (.) scans it for me (.) and then if I feel that I want to lighten the highlights or darken the highlights (.) all I do I've got (.) I put on erm (.) oh (I can't think what they're called) I'm I'm no good at all these things I don't remember names but (.) I can get it (.) I can make the highlights lighter or darker (.) I can make the shadows lighter or darker (.) and I can make the (.) midtones lighter or darker (.) I rarely (.) do m (.) any mucking about like that

In this example Billy describes how she uses her digital technology to produce the images, which are all about A4 size and being passed around the group. This example continues from the introduction above where Billy had positioned her pictures as mediators of past experience. In this example she goes on to describe how the digital technology is used to produce them. All Billy's



pictures are “put into the scanner” and then they are enlarged to fill an A4 sheet of paper.

What is striking is that the network of technology mobilized as “digital” is constructed in terms of a relatively simple input and output system, which enlarges and improves the definition of the images. The process begins with a scanner at one end and ends with an enlarged picture at the other. With just the click of the mouse button the image is scanned. In between the click of the mouse button and the final print out Billy describes the kinds of operations she performs on the images besides fitting them onto an A4 sheet. Digital technology allows her to adjust highlights, brightness shadows and mid tones.

The construction of the account presents the technology as an enhancing system for her images. The adjustment software has the images appear in it in terms of variable size and lighting. The system performs the pictures in these terms and takes them from a form in which size and lighting shades are fixed (seven by five or six by four on photographic paper) and then frees up these features for change. This simple set of modifications is designed to make by images more visible and it is in this A4 size state of clearer light definition that these pictures are used by Billy to mediate the past in the activity of painting scenes.

The digital technology then spatially serves the insertion of the past into the present by managing the clarity of its contribution in terms of a further set of translations on to paint and canvas. The representational order then is allegorical, in that the past is spatialised and continuously translated into different forms; chemical and paper, digital and enlarged and ink on printer paper before becoming paint on canvas. The digital technology is constructed as a participating and mediating set of objects in this allegorical progression of the past into the present and the folding of time and space as it makes the past fit for insertion into current action.

A third presentation offers a very different conception of digital technology and its relationship to the image.

#### **Example 4**

D- everything on the computer is working in red green and blue and the combinations of the red green and blue er from naught to two hundred and fifty five in each of the cases so you can see on this one that er although the statue was absolutely pure white in the shadows you can see that we've got blue and green are very similar in value red (.) is lacking some what alright so in effect we're going towards a cyan type of colour

Derek had a computer set up in the room and had Photoshop open on the desk top with a picture of a white statue. A window is open showing the red green and blue values of selected pixels as numbers and graphs. Derek presents the pixilation of image as he describes the manipulations that can be done on individual pixels when image is reduced to red green and blue values. The image is not part of an artistic program or the dark room heritage. Here the image is embedded in a system that renders it calculable as a set of variable values. Images are made visible in an economy of graphs charts and numbers. Which constitute a mathematical form of spatialisation and reflected potential action- in short perception here is mediated through mathematical forms of knowledge, which are laid down by the technology. Coherent forms of knowledge are systems of action that prove profitable and so in this sense I want to argue that perception here is made "thick" that is guided with fixed set of transferable procedures which prescribe the terms of variation (increasing or decreasing numerical values by manipulating curves on graphs of values in boxes).

In these three presentations we have three very different versions of what constitutes digital photography. John presents it in terms of the next step in an unfolding heritage of photographic image manipulation. Billy presents the digital image as a translation of traditional photographs, which mediate the past, bringing



it into the present for further translation into paint on canvas. Finally Derek presents the image of the statue through the mathematical grid of the composition of pixels. In a sense, we can see the scaling up and down of digital technologies across these three. At its widest gathering, Billy constructs it as a facilitator in a wider set of practices around constructing the experience of the past in terms fit for present artistic action. Then there is John for whom digital technology is about the construction of images. Then Derek scales it down further to pixels and mathematics and graph manipulation.

Digital photography is actualised in the mathematic rendering of the image; in the deleting and colouring of coconuts and the creation of something new in the artistic tradition of the darkroom; and in the reproduction of images, which facilitate painting, by spatialising the past. Digital photography is a virtual, underdetermined set of objects and practices, which can be actualised in multiple arrangements and versions.

But the actualization of each arrangement can be seen to involve attempts to stabilise the arrangement in an interplay of space and time; memory and perception; the past and action. In the first two examples the past in different ways is inserted into the present to manage the duration of the arrangement of the technology. In John's example he invokes the heritage of image manipulation, which makes sense of and guarantees the necessity of the future of digital image manipulation in photography if those traditions are to remain alive. In Billy's example, the technology and practice is set up to prolong the past experience of a scene into the network of artistic actions of the present giving the paintings value as more than just copies. The digital images held Billy in a complex network of technology, times and places in producing her paintings.

This is of course not a surprise from a Bergsonian point of view. In the last chapter we saw how perception required the past to descend in order to escape the moment and to have objects and people prolonged into the future. The past descends down the cone into action and can remain in the plane of action in the contracted form of laid down habitual configurations of images in systems of action, which can be deployed for their profitable outcome. Even Derek's example

demonstrates a particular action plane set up within which an ancient statue is managed in mathematical terms. The set up is a stabilising set of objects which can manage the past and which themselves resemble Bergson's notion of habit memory- the laying down of past profitable action systems.

These are versions, which manage the past and action in different ways as different writings of digital technology. The question is how does an underdetermined object insert itself into programs of action and how does it stitch a society together?

The underdetermined nature or "blankness" of digital photography requires that it be constantly settled and resettled. Its blankness then puts it in a constant and rapid movement of allegorical progression through writings and rewritings. At first sight this raises the question of how a collective can be formed around it since agreement on what the object is seems illusive because of its blank nature. This photographic society for instance has three different projects that I have presented here but there were many more presented in that evening.

However this underdetermined nature of the technology, or its blankness (Hetherington and Lee, 2000) is what keeps the photographic club together as an ever changing and evolving society in terms of its interests and practices. Hetherington and Lee (2000) use the example of the joker in the pack which in some card games is a wild card. Compared to the other cards in the deck which have their rank and suit, the joker in a game in which it is wild can cross rank and suit to stand for any card. It has a functional blankness. Within the rules of the game the joker as a blank figure in some card games forms a crucial part in the movement and management of the social relationships, its blankness does not threaten the cohesion of relationships, rather it is an agent for keeping the game moving. Hetherington and Lee assert that:

Used skilfully, then, it [the joker] can form the basis of a new order in the form of a winning hand. It can break a stasis and make for change. Above all, the joker ensures that, until the end of the game, all orders produced are temporary and provisional. Because of the joker, the order of the game is best referred to



as a process of ordering to register that uncertainty and chance. (Hetherington and Lee 2000: 169-170).

Digital photography is like a joker in this photographic club. It is a “process of ordering”. Everyone can play it differently; it can cross photographic practices, artistic and technical it can produce a constructed image or a mediator for the insertion of the past into the present. And all the time the group is kept together as if talking about the same object.

Underdetermined objects have a powerful agency in keeping collectives together in the on going process of writing them and rewriting as they stand as an endless source of new order in a constant movement of collection and dispersion; actualisation and virtualisation. In other words they keep new orders emerging because when they are settled they rearrange the field of potential alternative actions and arrangements.

Using this kind of technology then is an issue of managing action with an underdetermined virtual object, which reflects a multitude of potential actions. It involves carving out or actualizing a set of configurations or versions from the virtual action it reflects. Photography clubs spend a lot of their time in meetings sharing best practice. How does one manage to pass on best practice in operating a software package like Photoshop, which is an example of a piece of virtual technology, which reflects a multitude of potential actions back at the user? In this next set of examples we see the underdetermined nature of digital technology being managed in the context of a demonstration of Photoshop to the digital section of the photographic club.

The approach I want to adopt here again is to consider human computer interaction in terms of Bergsonian perception. That is, in terms of humans inhabiting a network of reflected action, selecting courses of action which are made “thick” with best practice.

In order to address the question of what is structuring the activity of humans and their technology I’m looking to avoid any appeal to either purely human kinds

like cognition, language or social agreement or purely technical kinds of overarching structure (see chapter two). Shifting the research agenda from representational accounts to networks of practice refocuses attention onto emergent structures as a property of networks of practice in terms of the carving out of a path of action from the backdrop of virtual technology.

Bergson's theory of perception gives us two moments of emergent structure in any interaction between humans and images. If we recall from the last chapter, Bergson argues that a body's position within the network is always constructed by its possible action reflected in the configuration of relationships in which it finds itself; receiving and giving back movement.

Within the continuity of images which we inhabit there are two discernable moments of emergent structure that act as interruptions within these networks of movement. There is on the one hand the interruption caused by zones of indetermination or virtual entities which are underdetermined points in a network from which a number of potential movements can be restored to the network. In the case of humans, we interrupt the network and choose the manner in which we restore movement. In the case of virtual technologies, they continue in a flow of amorphous movement until channelled or sectioned and actualised in systems of coordinated action. This first interruption then constitutes a kind of delay in the flow where a number of modifications are possible and so the network waits in some sense for the second interruption.

The second moment of interruption is the selection from those possible network modifications. It is the end of the delay; the manner of restoration or giving back of movement to the network. It is the moment in which the flow of movement in the network is channelled or modified. The manner of the restoration of movement is constituted by a configuration of images which channel movement into a combination of actions between images. These moments of combination can make perception "thick" as they move from one-off configurations to repeatable mechanisms, if they prove profitable. As we saw in the last chapter Bergson calls these configurations "habit memory" which was seated in the present looking towards the future as they introduce predictable



patterns of movement by their introduction as such they anticipate future movement by being set up and ready to act in particular ways.

I want to argue that we can see externalised versions of habit memory embedded in technology as ways of managing and configuring action. These two moments of emergent structure- the moment of indeterminism and the moment of restoration of order which can become habitual- answer each other as the movement of the virtual and the actual. By highlighting their movement in some data around digital photographic technologies we shall see something of the movement of, dispersion/collection of mass, amorphous, underdetermined digital technologies and human perception. This next set of data examples demonstrates these interruptions and how they structure unfolding action in actualising a virtual technology.

These next data examples are from an evening spent with some amateur photographers. The evening was a meeting of the club's digital photography group that was set up as a demonstration and tutorial session on using Photoshop. Those in attendance were white male and female amateur photographers ranging in age from 30 to 65 years old. The meeting took place in a long and small room with a screen filling most of one end upon which Photoshop was projected from a computer and projector set up in the middle at the opposite end of the room. The rest of the room was dark with the only light in the space coming from the data projector and the screen and opposite ends.

There was one "expert" (Malcolm) operating the program from his own computer brought from home. He was sat at the other end of the room facing the big screen, which was showing his desktop setup. He had Photoshop open. Everyone else was sat in the tight space down the sides of the room or behind the tutor facing the screen at the end.

In this situation Photoshop has been modified and co-opted into this strange set up. For the purposes of the group it has been blown up, projected onto a wall for the purposes of tuition. The activity of the man in control is also modified and amplified by the technology. All his actions are blown up onto the wall, since it is

his expertise that we've all come to look at. But then by virtue of its arrest and amplification Photoshop fills the room. It commands the lay out. The data projector -the very technology that the humans employ to tame and master Photoshop- in order to demonstrate expertise, hands PhotoShop command of the room and everybody's attention.

In looking for the structure of the session it is very hard to identify a purely technical or social component or variable which masters and shapes the interaction. Rather, we see chains of mediators modifying the actions of each other.

Already before the evening starts and they even start to talk and the session starts we are prevented from invoking a pure moment of digital technology as the structuring agent or a pure moment of human cognition or purely human sociality as structuring the situation. It is filled with impurities. PhotoShop is as much human and social as the humans and the social are technological. As we go to the technology for structure we are thrown back to the activity of people and vice versa.

As a chain of heterogeneous mediators channelling the flow of movement it makes sense to look for the interplay of the virtual and actual in the moments of establishing coordinated relationships between images which make up the evening. It is these moments of restoring movement that are at stake in passing on best practice with a virtual technology which reflects an overwhelming potentiality of action. So we shall see that the movement of virtual and actual occurs through setting up points of order that are transferable and repeatable as emerging structure. These points are neither purely human nor purely technical but are moments of systematically arranged images which channel or give form to the moment of restoration of movement. They operate a little like the establishment of obligatory points of passage (OPPs) identified in the Actor-Network theory literature as points of order which are established as essential points - to varying degrees - to the emerging order. For instance Callon (1986b) in his study of a controversy over the causes of the decline in Scallop populations in St. Brieuc Bay argues that the researchers who were investigating the problem



positioned their work as the necessary link between the scientific community, the scallops and the fishing community. All three groups were constructed as needing to move through the research in order to reach a solution as parties with vested interests. An obligatory point of passage was established that the communities had to negotiate in order to move towards a solution.

However, these *points of coordinated movement* (PCMs) that I have in mind as points of emergent structure in the process of unfolding versions of virtual technology are drawn from Bergson's theory of habit memory and its relationship to perception. As such they operate to channel activity by actualizing virtual arrangements of images. They are externalized versions of habit memories, embedded in technology in ways that make human perceptual activity "thick." That is, they guarantee a predictable set of outcomes to anyone who deploys them in action. Therefore, not only do they guarantee the future but also, by their circulation to multiple people, they also guarantee a collective future experience through their transferability.

It is on the basis of setting up transferable PCMs to guarantee a collective future experience that a tutorial session works. In the tutorial session in question, Malcolm was demonstrating to everyone some basic, transferable ways of setting up Photoshop to do basic digital image manipulation. Therefore we can find PCMs spread throughout this teaching session. In the data we will see them, set up, announced, challenged and proposed as 'ways of doing things.' Photoshop is filled with PCMs or more accurately it is a field which reflects the potential for arranging PCMs, for instance; configuring settings and combinations of menu clicks to get to different states of affairs. Through the announcement and enactment of PCMs ("ways of doing things"), the virtual field of reflected action is channelled, as courses of action unfold through strings of PCMs into actualised procedural pathways.

However, it is not only through the production of transferable PCMs that the tutorial session unfolds and the technology is actualised. The tutorial itself works by establishing non transferable PCMs whose redeployment in another situation would not always be appropriate or essential but as a point of order they channel

activity in the present; holding together both the humans and the technology. For instance, the projector single computer interface through which the evenings activities are being run stands along with Malcolm who is running the session and who has control of the computer as a point of coordinated movement (PCM). All requests from the club members and the operation of Photoshop go through him and his computer setup as the sole operator and as the owner and organiser of the equipment. This point of order in the flow of action manages the actualisation of the photographer's version of Photoshop.

In all the following examples PCMs are managed around Photoshop settings. In this example Malcolm has Photoshop open and everyone is watching the screen as he opens up the tools menu on the screen from his desk top and selects the option for adjusting brush sizes.

#### **Example 5**

M- [right]

D- [you see] those now that that that that's how Malcolm has set em that's how we have them as photographers but not like that put em at wh where they normally are whe when you-

M- they come in-

D- as a default

(1.7)

M- they come in standard and both standard I think they are () so you just put them at brush sizes

D- that's how they normally are but you don't want them like that

M- you want em brush strokes y you want the um adobe one right preferences there

This example occurs at the very beginning of the evening. Derek (who is sitting right next to Malcolm at the computer) calls attention to Malcolm's Photoshop brush size settings which appear on the large screen in a window that Malcolm has just opened on the computer. Derek presents Malcolm's particular configuration of Photoshop as a marker of being a photographer - a category



within which Derek places himself: “that’s how Malcolm has set em that’s how we have them as photographers.” The settings, which are a photographer’s settings, are not the same as the default settings of Photoshop. Derek points out the need to change the settings and asks Malcolm to set them to the default (i.e. the non-photographic) position; “but not like that put em at wh where they normally are whe when you- as a default.” Malcolm sets the brush sizes back to the default values and then Derek and Malcolm co construct the activity of setting up the brush sizes through the menu system. The default position then is presented by implication as a non photographers setting and the group are told that “they don’t want them like that.” The photographer’s modification of brush sizes, on the other hand, is presented as a “way of doing things.” Malcolm’s settings are PCMs which are presented here with a large degree of obligation attached to their observance and transference to the practice of the audience if they too consider themselves photographers.

These settings as PCMs are a mixture of humans and technology which actualising both a version of Photoshop and a category of human identity (a photographer).- Photoshop offers up to the waiting network of people and practice, some terms and categories to be taken up and actualised configured according to a photographers settings. Photographers want soft edged brushes so that the area of “touch up” on a photo is feathered into the original data. So in offering this PCM Malcolm and Derek are not just setting up Photoshop, they’re offering up what it is to be a photographer at the same time by setting up a particular quality of relationship to a photo (i.e. operating on it with the correct brush size) as an obligatory point of coordinated movement, for qualification as a photographer

These PCMs are networked achievements which stitch people together into collectives. They can operate, as in this example, as points for recruitment or enrolment into a particular category or collective.

There are many more of these PCMs; around which, practices, technology and people are gathered in and circulated. I want to argue that the unfolding action and recommendation of practice is made up of strings of these kinds of points or

pivots. Action proceeds by moving through them, negotiating their existence, subverting them defending them and even leaving them behind in the form of past practice and redundant technology. PCMs guide and shape action because each one as a point of passage anticipates or shapes the terms and conditions of the subsequent set of potential actions. Just like habit memory, PCMs anticipate future movement by being set up and ready to act in particular ways. When an example of best practice is configured as a series of PCMs it can be promoted on the basis of what it will permit one to do next. For instance, in the next data example Malcolm makes a case for a particular level of memory allocation to PhotoShop in order to keep the potential for future action as open as possible.

### Example 6

- D- you can't do that
- M- you can I'm always on mine about ninety eight (1.9) and that's given you four hundred and fifty three ram but if you say take take it down to (1.8) fifty percent (.) you've only got (.) two hundred and three ram what Photoshop's using (.) and when you got a picture of say of um (.) a ff hundred megs (1.2) a couple a couple of moves (.) and you used all your all your memory up (.) so (.) so the more memory you got for Photoshop the better it is so you want to go to about ninety eight (.) that's giving you four hundred and fifty three meg of ram (.) of Photoshop (.) but when Photoshop takes all of that (.) to do anything else (.) its alright for your printer and your scanner (.) but put another program up (.) what needs memory as well its not going its not going to work you have to close Photoshop down (.) so (.) and it don't work until you um (1.3) restart Photoshop again next you know next time you start Photoshop (.) so that's about right (1.8) and leave that about four (2.2) so we all (.) so we all got that did we

In this example, Malcolm has a window open which allows the user to modify the allocation of computer memory to programs that are in use. The extract begins as Malcolm has set the level of RAM allocated to Photoshop to



ninety eight percent and Derek has objected that the computer won't let the user allocate that level of memory to a program. Malcolm comes to the issue of memory allocation and makes a case for setting it at ninety eight percent. This is another example of an argument for a modification or configuration of the default settings as a point in a wider coordination of movement between heterogonous images- humans and technology. In this case the setting of memory allocation is related explicitly to the number of "moves" available to the user. Malcolm begins by demonstrating the relationship between the percentage of memory allocation and the increase and decrease in megabytes:

"ninety eight (1.9) and that's given you four hundred and fifty three ram but if you say take take it down to (1.8) fifty percent (.) you've only got (.) two hundred and three ram what Photoshop's using."

There are multiple combinations of memory allocation, file sizes and programs that can be running alongside each other. Malcolm presents the case for ninety eight percent through a contrast with an example of an alternative setting in terms of how they limit "moves." For instance he says;

"fifty percent (.) you've only got (.) two hundred and three ram what Photoshops using (.) and when you got a picture of say of um (.) a ff hundred megs (1.2) a couple a couple of moves (.) and you used all your all your memory up (.) so (.) so the more memory you got for Photoshop the better it is so you want to go to about ninety eight."

The contrast works to exclude alternative configurations and to recommend the ideal setting, on the strength of the "moves" it makes possible. This configuration that includes a ninety eight percent memory allocation is designed to guarantee and keep future functionality as open as possible. A low memory allocation along with having many programs open would close down the functionality of Photoshop by reducing the possible eventual actions or movements. So the message is; configure your memory allocation, or coordinate maximum movement, to reflect maximum future movement or action. In

Bergsonian terms what is at stake is maintaining Photoshop's functionality as a zone of limited indeterminacy.

As we saw in the last chapter, Bergson argues that a zone of indetermination is an interval of multiple possible movements. The indeterminacy (or blankness) of an image increases where an image can enter into and support multiple sets of functional relationships. The "wild" joker in a game of cards can be inserted into relationships between any rank and suit to complete a sequence or hand. The joker lends itself to this wild card position as the face of the card holds no symbol that would bind it to a particular rank and position in a particular sequence. Nevertheless the face has an inscription on it which marks it out as the wild card. Its blankness refers to its motility (Hetherington and Lee, 2000) and flexibility in relation to its circulation in a network of practice as an underdetermined object which is open to supporting multiple relationships and orders.

In a similar way Photoshop is open to multiple relationships and actions; it can be used in various ways in various networks of practice. The joker needs its picture face and a set of rules of the game in order to function as a blank object. 'Photoshop,' as it is inserted into this local set of "photographers" practices, has to be made over as a 'photographers' 'Photoshop'- i.e. as non-mechanical and flexible - by changing its default settings to bring it in line with a photographers requirements. In so doing it also configures the user as such as well.

In setting brush sizes and types, and memory allocation levels Malcolm to configure the photographers Photoshop from the multiplicity of potential configurations of settings. He does this by setting up PCMs and excluding other forms of order (default settings and low memory allocation) that result from alternative settings. At the settlement of each point the royal road to photography is also being settled at least for a time in this room; the PCMs may or may not be transferred to home practice.

We've established that settling and passing on practice is about settling and making a case for points of coordinated movement. Given that Photoshop in combination with humans presents multiple possibilities, the task of presenting a



path is also about closing down alternatives as we've seen in this example. Expertise in this sense is about the extent of one's reach throughout the network.

It is about pervading the network of practice. Pervading a room, a city or digital technology is about moving through a network by an ongoing process of the selection of action from the possibilities reflected back to us from the images which refer to us. Every action reconfigures the reflection and sets up a new set of virtual relationships. Changing reflected possibilities actions and re-settlement. To be expert, to know something well, is to be well versed in the terms of negotiation the points of coordinated movement; to be able to deploy coordinated systems of action and predict outcomes. In other words to know something well is to be able to trace the paths, lines, and points which constitute what it is and what it could be. But these pretensions to control, by constructing deploying PCMs and predicting outcomes are always eventually overthrown with digital technology. Photoshop and photographic practice refuse to be black boxed as they tend towards a functional blankness. Either the points of coordinated movement fail to be profitably or even accurately replicated or they fail to transfer to a different set of circumstances (i.e. another person's home set up) or a later version of the same program.

In short, PCMs within digital technologies - which are constantly evolving - rarely continue into habitual forms or (in Heideggerian terms) the ready-to-hand, instead they are often being made over as the present-to-hand. Digital technology (as we shall see in the next two chapters) is more than simply prone to Heideggerian breakdowns; the experience of using the underdetermined technology, is a constant movement from habit to unexpected occurrence and reflection. That is, digital photography is always moving from the ready-to-hand to the present-to-hand as it behaves unexpectedly and overthrows attempts to coordinate it in habitual ways or fails to make its own pre established PCMs visible to the user. We will see some examples of this in the next two chapters.

In this last example we see how a PCM, which has been presented as habit, is questioned on the basis of its usefulness.

**Example 7**

- B- [j just to] go back to those preferences Malcolm
- M- yeah
- B- if () if you're not set on those or if you:: if you take it as adobe sets  
() I mean what is the kind of general overall effect () does it
- D- [wel/ it st]
- B- [ I mean have] you noticed anything different in the way you work
- D- you have [a job]
- M- [yeah]
- D- to see anything diff[erent]
- M- [no]
- D- and it does/ it still works
- M- still works
- D- if you (1.6) if you weren't on some of those settings there it it still  
works (0.5) in a way but (.) probably not perfectly (1.5) but that's  
how they should be set

The presentation of settings and combinations of activities are key points in the session for club members to get a foothold in the flow of activity. For a large part of the session the tutor have been working in the preferences menu In this example the settings on the preferences are questioned by one of the club members. The club member asks what would happen if those settings were all left in their default settings. The club member modifies the question from “what would happen?” to “have you noticed anything different in the way you work?” At this moment the entire “photographers” configuration of Photoshop is at stake. The club member has tabled a question which puts the rational of the evening- the construction of a photographer’s version of Photoshop out of a default version is at stake. Do these points of coordinated movement make a noticeable difference to the photographers work? In other words, do they make using Photoshop a



significantly different experience for the photographer from that offered by the default settings from 'Adobe.'

This problem is taken up in a surprising way. The tutors respond by saying that the difference would be hard to spot. Between the club member and the tutors the profitability of the photographer's version of Photoshop is questioned and the lack of difference is announced by one tutor and then confirmed by the other tutor. Derek and Malcolm are now in the situation of managing the legitimacy of the settings they have recommended and the entire tutorial session. The idea of demonstrating a PCM as obligatory which then turns out to be an unprofitable and unnecessary configuration undermines the legitimacy of their construction of PCMs and significantly, any future points they might recommend in the remainder of the session.

The value of their expertise as photographers using a photographer's configuration of Photoshop, is thrown into doubt if what they offer is no better than the default state of the program. If expertise is based on the construction and deployment of PCMs in anticipation of predictable new orders then the idea that a PCM has been recommended that makes no controlling or noticeably different outcome to action undermines the difference between expert knowledge and knowledge the new user. However the tutors manage to regain the agenda. It is recovered by Derek who adds two modifiers ("in a way but" and "probably not perfectly") which reintroduce an evidential base for a difference between the default settings and the photographers settings. The modifications manage the scope of the default settings from conceding that they will still work to them working "in a way but probably not perfectly. These modifications also perform tactic knowledge which underpins their evidential legitimacy. The first is a judgement on the utility of the default settings in terms of a sense. "In a way" suggests a sensitivity to subtle changes in unfolding action which can not easily be articulated. The second modification is a prediction which frames the unfolding action from default settings as not working perfectly. The construction of speaking from a position of possessing Tacit knowledge is performed in this conversation is sensitivity and being able to predict the changes and qualities in unfolding action. This works to make Derek's reaffirmation of the settings stick as it were, as it

closes down the topic through the mobilisation of expert tactic knowledge re-establishing by performing expertise.

### **Concluding Remarks**

The data from the photographic clubs illustrates the point that I argued in chapter two, that invoking an over arching technical or social context to understand how the interaction of humans and computers unfolds is unnecessary. Instead, in this chapter I have treated the relationships between the technology and the people as a continuous network of mediated action and movement. From this point of view digital technology and practise appear as fluid mixtures of people and technology which can be settled in any number of ways.

From this Bergsonian perspective perception is understood in terms of the arrangement of the network from the perspective of the individual. Therefore the settlement of fluid technology and humans is always about settling the order of perception. In addition this leads us to propose that it is through the settlement of points of order (or PCMs) that human experience and psychology are mediated as we pervade networks.

We also saw how this process or network approach to the relationship between humans and technology helps us notice how the past is mediated by the spatialised arrangement of objects. From both Billy and John we saw how the past is inserted to stabilise the settlement of digital technology and humans that they produce. Derek's presentation of the mathematical version of digital photography also showed how the settlement of the fluid relations between the technology and people also manages perception and memory in non representational ways.

In the second set of data we saw how structure emerges as action unfolds through points where movement is coordinated by configurations of technology and practice. From these points emerge the category of photographer and the settlement of the photographer's version of Photoshop. In addition we saw how



these very PCMs, as structural points, are ways into to the technology and points of contention.

The psychological point that is being aimed for is to notice that human experience is embedded within these networks and is mediated through habit memory and the externalisation of habit memory (or PCMs). And secondly that we pervade networks by moving through the sets of relations held together around zones of indetermination and their settlement which allow prediction and so enable renegotiation of PCMs.

The negotiation of PCMs is then an important psychological issue for the study of perception and the descent of memory or duration into space. The key point to carry into the next two chapters, where I will continue to focus on humans using digital technology to manage digital images is that in studying the interaction of humans and digital technology we need to recognise that people are dealing with a virtual technology that is constantly in need of being settled and that emergent structure happens through the arrangement of images as PCMs and not as mental constructions or technological determined.

In this chapter both the fluidity or functional blankness of the hardware and the virtual nature of the software show how their settlement is an interplay of technology shaping human perception, both individually and collectively (through passing on PCMs), and perception shaping technology in a fluid blend of humans and non humans in networks of movement. In the next chapter I will look at what it is to remember with networked digital images, that is, how the past is inserted into action and mediated through virtual, mass, digital technology. Digital technologies which are used to manage digital images expose the networked and complex nature of these kinds of fragile and fleeing forms. Over the next two chapters then I will tackle, head on, the nature of image as process rather than representation and what that shows about nature of memory and perception from a process or network perspective.

## **Chapter 7**

### **Mass and action: families and their digital photographs**

In itself, the material sign – like the letters of the alphabet or the isolated word – is an indeterminate fragment; it begins to take on meaning when it is placed in the context of other material signs such as a sentence or a news report. The distinctive feature of modern mass society is its continuous and repeated acts of work on such indeterminate fragments in order to give them some sense of order and meaning, however temporary and ephemeral. This is the work of collection that makes the material mass of the world ‘readable.’ The material sign as indeterminate fragment is the dispersion of collection and therefore of meaning. Circulation as dispersion and indeterminacy represents mass as pure movement and mutability. (Cooper 2001: 18)

The distinctive feature of mass society according to Cooper (2001) is the act of working on indeterminate material fragments to give them order and meaning, which will inevitably prove to be a fleeting, passing and ephemeral order as they quickly disperse themselves into indeterminate fragments once again. As such the task is never finished and indeterminate material fragments require a repeated action of ordering which is answered by dispersion. This work of ordering and stabilising the fragments is the work of collection.

How does the collection of fragments occur? What does it look like? In the first half of the thesis I have argued that the production of an object as an arrangement of images occurs through the movement of collection or actualisation. I have also argued that every act of collection is answered by a movement of dispersion or virtualisation, which is the emergence of a new potentiality from which new forms can be carved. The production of the world as fragments - an act of collection - is then answered by the dispersion of the world in the same form. Or as Cooper says, “the indeterminate fragment is itself, in its



very nature, the dispersion of order; of collection”(18). Every moment of collection is answered by dispersion; this is the collection-dispersion movement of material mass. Cooper writes it with a hyphen in order to keep the double movement in mind.

For instance, words and pictures as fragments come together in news papers and film and mediate and prolong the world and its events into a mass of fragments for circulation and reception. The world and its events take on the form of fragments and eventually are consumed and disposed off in those terms. In other words mass media render the world as mass and put it literally at our *disposal* (Munro 2001). News is relentlessly consumed and thrown away; its meaning has order and significance for a short time in and through mediators of mass.

We saw in chapter three how the collection which fragments the flow of becoming operates at both the moment of reception and the moment of the production of mass. The mode of collection that operates therefore looks like the reception that distractedly holds fragments in place for a moment by their consumption before discarding them and letting them disperse again into indeterminate pieces, and at the same time, it can also be seen in the production of mass. That is, the production of the world *as* a plurality of indeterminate fragments as it collects up the world and inserts it into technologies of mass reproduction (or fragmentation) like photography and film which continue the world's influence in fragments.

Fragmentation is then a form of collection; a way of holding up the flow of becoming by breaking it up. Even in its consumption the world as mass is consumed as mass as we break it down into pieces and stock it and consume its parts that can be reproduced, exchanged and reassembled in any number of ways according to our current set of actions. We saw in chapter one how the human similarly has been made massive and broken down into a collection of systems and collections of social and natural parts by psychology which has formalized a set of knowledges and techniques for rendering the human in this way (Crary, 1990; Strathern, 1992; Lury, 1998).

In Lury's book *Prosthetic culture: photography, memory and identity*, she elaborates Strathern's argument that mass society has moved beyond constructing humans from partial analogies with society and nature. Through new technologies mass culture has moved to a prosthetics which see humans as built out of parts and code rather than ascribing identities onto the outside to the body as a fixed object. Lury (1998) argues that partial analogy has been replaced by "the enabling power of technology in the form of the prosthesis" (p.17) where ever its effects are deployed and managed. She writes;

The suggestion is that the classifications of genre – of gender, class, race, sexuality and age or other natural or social categories – no longer inhere in the individual as they did in plural or synthetic culture; instead, they are seen as the effects of (mechanical and perceptual) prosthesis (1998:17).

Digital photography and the process of digitisation is one set of technologies which can effect the mechanical and perceptual fragmentation of the world and identity by encoding the body and identity in digital pictures which can be stored as code and combined with text and other images and can hold together links to other digital forms. Prosthetic culture operates by the fragmentation of the world, body and identity and their dispersion, circulation and collection. In these terms then the move to prosthetic culture, with its rapid movement of collection and dispersion also re-mediate perception which occurs in terms of the arresting of forms from these rapidly moving fragments.

In order to understand the relationship between collection and dispersion we have to come to terms with the difficult idea that the world is produced as fragments which are managed and ordered *as* mass. It therefore follows that we will see the circulation of fragments, or mass, injected into everyday activity. Analytically this means that not only will we need to account for the collection of fragments into local order and into readable arrangements when looking at people using technologies, but also the presence of mass, that is put ready-to-hand at our disposal, in those networks. That is, where both dispersion and collection or the virtual and the actual are features of local order and have a function in the



production of ephemeral order and meaning. In Bergsonian terms we have to think about the presence of this indeterminate mass in the plane of action and account for its ordering and mediating effects on other images.

In the last chapter I argued that digital photography was a fluid and underdetermined technology which could be carved into multiple forms. I also argued that Photoshop as a technology for managing photographs was a field of multiple potential actions which unfolded in the interaction with a photographic society into a photographers 'Photoshop' through moments or points of coordinated movement. The precarious PCMs were moments of the collection of humans and technology into configurations which channelled action. Digital technologies then exist in networks of technology and people and practice as underdetermined, mass entities. They exist in the plane of action as images which constantly need settling into systems of coordinated movement.

Digital technology as a technology which collects the world as fragments introduces its subjects (for instance, personal histories, family events) into the action plane in a dispersed form. The action of perception then, which sections the flow by making a selection of relevant aspects of images, now takes on the form of a dispersed and distracted perception which manages a mass of digital images, which disperse the past, into readable forms.

However, as we saw in our discussion of Bergson we are not dealing with pure perception but practical, factual perception which is the action of selection and collection that in practice is always swollen with past in the form of memory-images and made thick with habit memory.

If we recall from chapter 5 a Bergsonian psychological account of human experience is concerned with the action of the body as the summit of the cone of that past pushing its way into the plane of action, thereby rendering human experience an issue of inhabiting unfolding spatio-temporal networks. In other words it is concerned with how humans work in the flow of images as the point at which time and space intermingle in action, where the past is inserted into action and action calls on the past. The analytical concern of this chapter is then to

explore how mass is incorporated into the action plane and what this means for the insertion of past. In short the descent of the past into the action plane that is populated with mass is the descent of memory into fleeting and short lived fragments which gives the past a fleeting form in action as duration is spatially fragmented.

In this chapter and the next we will look at data examples from families sat around their computers performing actions and working through their stock of digital images - remembering the past and working through series of actions – as this presents an privileged setting to explore the descent of memory into an action plane that is set up to produce and manage a stock of fragments (digital images). In this chapter we will pave the way to understanding the descent of memories into the action plane by sketching some of the features of the collection of mediators that make up much of the plane of action in this setting. In the next chapter we will begin to look at how the past is inserted into action with these mediators.

It is worth saying at this juncture that I am not claiming that in this setting we can see the memories coming ‘down the cone’, as it were. A Bergsonian approach to memory is not a soft option for research; it is not, somehow, avoiding hard experimental work and instead simply pulling memories out of thin air without explanation of their form and nature. We have spent several chapters laying out a foundation and presenting a Bergsonian approach which offers a compelling explanation for the form and nature of the memory as the past. Far from plucking memories out of the air or out of a supposed storage compartment in the brain, we can see the introduction of the past in forms fitted out for insertion into action by the rhetorical organisation of talk. That is, we can see the work of persuasively managing the relevance of past experience in guiding current sets of action; the invocation of the past as the basis of current action; and the way in which mass mediates the well trodden cultural forms of social remembering which surround families talking and reminiscing through their photographs (see for instance Edwards and Middleton 1988).



So Bergsonism is an approach to social remembering but it is also more than that. We have said that the past is always in action and so it follows for this, then, that the study of the use of the past cannot only be restricted to occasions where the construction of the past is primarily at stake in some way. The study of the insertion of the past, from a Bergsonian perspective also becomes relevant to the structure of every action that takes place, since all action in some way acts upon the past. From the perspective of time, the past is always already dissolving into the present like a series of notes in a melody which then blend into a single duration. From the perspective of the spatial arrangement of the present, the continuous melody of the past is fragmented and cut up and inserted into spatial arrangements, to serve the needs of current action.

This thinking about the arrangement of images takes us beyond much existing work on social remembering and the corresponding discursive tradition with its exclusive concern with language. But this does not lead us into dualistic difficulties around the relationship between representations and the world, since we have already done the work in the first five chapters of escaping the subject object dualism and ending up with images understood in terms of Bergson's provisional dualism of time and space. So an appeal to both the world and language is not to go beyond the linguistic representation to the world behind it. Instead it is to see language and world as images in action, both prolonging the past as they contribute to the mediation of the movement of images as action unfolds. Indeed according to Middleton and Brown (2005) Bergson's view of language is close to that held in Discursive Psychology and Social Constructionist Psychology. What is different is that he has drawn up a different dualism for language to function within.

As already indicated, for the remainder of the chapter and also in the next, I will present some examples extracted from some interview data gathered from families using their computers to work through stocks of digital images. The number of families were selected on the basis that they owned and used a digital camera and a computer. Participant consent to have the sessions recorded, transcribed and analysed was obtained by way of signatures on a consent form.

The interviews took the form of a semi-structured engagement with the family and their equipment, with the interviewer asking a few introductory questions about how they got the equipment and how they viewed the photographs. In most cases the session started with a single member of the family and then more members joined in as the sessions moved from general introductory talk about the technology to instances of family reminiscence. The interviews were audio and video recorded (in order to capture what was happening on the monitors) and then transcribed on Microsoft Word using cooledit sound file software, using basic transcription conventions. Conventions that were used were square brackets ([..]) to indicate overlapping speech; brackets with a point in between ((.)) to indicate an audible pause, and brackets with numbers in between ((1.2)) to indicate a measured pause to tenths of a second; and finally, colons to indicate elongated vowels (a::h) and finally, underlining is used to indicate emphasis. I took a broadly discursive approach to collecting and handling the data, however the discursive analysis of the data was derived from a Bergsonian perspective on the relationship between language and technology. In this chapter I aim to look at some of the features of the forms of mediation and mass sketch the playing field before seeing how these features manage the past in action in the next chapter.

### **Example 1**

- I- So you've got some of your stuff on cd have you  
 F- [ yeah I've got er ]  
 I- [I'll place it there right]  
 F- I've got er um .hhhh (2.1) er cd burner  
 I- cd burner (.) oh right  
 F- er which er is portable one which I just plug and I erm (1.3) erm transfer it (0.2) from here (0.3) into there because it takes (0.9) a lot of memory space up er pictures do (1.6)  
 I- oh right yeah of course yeah they would [do yeah]



- F- [erm] (1.2) sniff (0.8) so what I do is occasionally I erm (0.8) go through and .hh(3.8) take the pictures (0.4) a::nd just (1.5) stick em on here coz erm (0.8) sniff got a few discs\_(0.5) er (1.2) before I bought the cd burner I used to zip them up (0.5) try and save space (0.6)
- I- right (0.55)
- F- erm (3.2) hhh the problem being is ((sound of discs crashing together begins pause)) (1.2) then you've got to find where the disc is (3.3) which disc you've got on what [heh ]
- I- (((laughs))) (5.5) ((Father looking through CDs))

In this example the interviewer sits with the father of the family in a small study in the family home where they have their computer set up. The computer is booting up at this point and the father is showing the interviewer a few of the objects (the collection of CDs in the desk draw, the CPU and a portable CD burner) which make up part of the setting; describing how they relate to each other. The discourse in this example falls broadly into three phases. The first two phases deal with the process of managing the pictures on the hard drive, which take up “a lot of memory space”. To manage the problem, the father bought a portable CD burner to “plug in” to the CPU, to transfer the files from the PC to blank CDs. The third phase deals with the subsequent problem of physically managing the CDs that arises from putting the images on to them.

These objects relate to each other as a chain of translators which both *shape* and *manage* space (or “memory space”) through the movement and translation of pictures from the memory centres of the CPU to the CDs in the desk drawer. At the centre of the chain is the portable CD burner which, when plugged in connects the rewritable CDs to the CPU. The burner lends a moment of translation to the files which solves the problem of exceeding the capacity of the “memory space” by moving the pictures, which take up a lot of memory space, onto the CDs. But

this management system creates another dilemma. As we will unpack in the following discussion, a feature of this technology is the presence of mass in the system which brings a source of resistance to order and a sense that the task of the management of mass is never over and never ultimately complete and therefore it comes with a sense of “overwhelmedness” when it is encountered (Cooper 2001).

In this example the chain of mediators - arranged to manage a “space “ problem - creates a further problem of managing the solution; the CDs which all look the same (‘the problem being is (1.2) then you’ve got to find where the disc is (3.3) which disc you’ve got on what’). The physical homogeneity of CDs require a further set of mediators; for instance labels and filing systems for the CDs and their boxes, without which it is hard to find what images you’ve got and where they are.

I want to explore these issues in this example by looking at two features of this chain of objects which channel pictures onto CDs, as they are presented here. The first is the form of “space,” described as “memory space,” that unfolds from, operates through, and, organises the objects into relations. The second feature is the nature of the process of the movement of the pictures as an example of the function and features of mass in the system.

In this example there is a set of mediators – a memory space, CDs, pictures and the CD burner - which give the picture-images continuity in different forms; as ‘burnt’ on to a CD or as compressed or ‘zipped’ (following Bergson pictures can no longer be accorded the monopoly on the term ‘image’; they are simply one category of image in the continuous network of images and so I will refer to them as picture-images). The mediators relate as a set of moments of translation which operate *on* space and picture-images in terms of what Bergson ([1911]1998) referred to as a “logic of solids.” These picture-images are talked of as spatially significant objects and as relating to other images through logic of solids. For instance picture images are talked about as taking up space and being put “into” the CD burner. Through the system Picture- images are redistributed or shrunk or transferred or moved and take up the space that unfolds as memory space through



the chain of mediators such that their presence is registered in terms of how much “memory space” they fill.

All these spatialised forms of giving form and continuity to the picture-images – as held in memory space, then moved and burnt onto cds and then put in desk draws - are aimed at (“occasionally”) guarding the memory space from having its spatial limitations exceeded. The father says “so what I do is occasionally I erm (0.8) go through and .hh(3.8) take the pictures (0.4) a::nd just (1.5) stick em on here” (indicating the CD burner).

Taking up space is only a problem if that space has its primary utility as a mediator in terms of the future activities it permits. If it is filled up then nothing more can be added later to its space and therefore it will no longer relate meaningfully to future images as a working memory; a mediator which permits a semi-continuous flow of images through its form. If it is filled, it stands as a static store house which cannot take on new fragments to work on and combine with other fragments into temporary local arrangements of images (new documents or programs for instance) before they are sent on into other networks or stored. This memory space is then managed as a temporary holding chamber which stocks images but only for a time, and as such it itself requires the mediation of another object or system of images, to “plug in,” connect, and take away or transfer the images into another set of spatial relationships (from CDs to drawers and labels and boxes etc). It is a moment in the network or chain of mediators of a stocked and held up flow of spatial relations between the fragment-images which it contains. To have a functional place within a network it must lend its “working” form, that is, its potential to stock and arrange fragments; holding up their flow; combining fragments; holding work in progress to be taken up later; and passing on fragments in different configuration to different networks. Ultimately it is a mass mediator which disperses as it collects. It replaces a unique occurrence of a document for a multiplicity so that the document can be saved in multiple files as multiple instances and files are moved by making copies. It is a mediator by which mass society works on the collection and stocking of fragments and it is constructed as such by the intervention of other mediators like CD burners or

compression software which variously engraves fragments onto other objects or compresses them for redistribution into future projects and configurations.

A constructed 'working' memory space therefore underpins the relationship between the items which relate in terms of its limitations and keeping it open. But the relations between the images that it holds together are not just simply relations between items *in* space but are a set of relations bound together in and through the management of a space which they open up. And here we are reminded of Heidegger's ontological view of space as unfolding from things as locales. Here, memory space unfolds from these mediators as an arrangement of these items and other hardware and software; like hard drives and directories. This arrangement of images is concerned with keeping the movement of images within "memory space" free by plotting and forming, as it were, a memory-path out of the main store along which images can flow into a new set of storage relations. It is not that they are images arranged in *spatium*, but that a space or a path emerges from them and takes place as an unfolding event or an ordering or channelling in the flow of images. The space that unfolds is one that manages and is shaped entirely around fragments and their movement as collected and dispersed images, as it works to temporally stock and redistribute them.

The idea of a working memory space, where items are temporarily held for modification and combination with other items before having them move to a longer term storage or to be disposed, resonates with a modern psychological account of the functions and differences between working or short term memory and long term memory. But from a Bergsonian perspective human memory is first and foremost understood as duration whereas this conception of memory which we find here and which seems to echo the modern psychological approach is understood spatially as an arrangement of images. The memory space functions as a spatial mediator *within* the past, that is, it is not the container of the past, but is itself contained in the action plane and so is itself ultimately contained (to use Lawlor's provisional reversal of the container/contained metaphor; see chapter 5) in the past because, according to Lawlor (2003) the present is contained in the flow of duration, or, in other words the present is contained within the amassing of the past as a moment in its unfolding. This memory-space is actually then a



moment in the structuring of relations between images which attend it and possible future actions to come that it opens up. It is a prolongation of the past but of the sort that looks to the future and so is entirely a spatial arrangement a holding of flow in forms for future use which are selected from the stock, such that retrieval should be understood as a spatial selection in terms of perception and not at all in terms of the recall of pure memories.

The label, 'memory' therefore, refers to the relative permanency of an arrangement of images and the consistent availability of an image for insertion into future networks. Understood in these terms memory space is not so much a container of images but a mediator which prolongs them and gives them continuity in a field where they can be worked on. So the way the memory space works in this example above, has more in common with habit memory than STM, as the laying down of a useful configuration of images which are repeated because of the profitable actions they makes possible. In which case, habit memory should not be confused with modern psychological conceptions of short term memory which operate in terms of the storage of discrete mental units. Habit memories are not stored in this sense but are laid down configurations of images which channel movement in particular ways. They are only stored in the lesser sense that the human contribution of images to these wider configurations of images can be found *inside* the body.

The storage function of a memory space is better understood as a hold-up in the flow of the network of images and also, in the case of electronic 'storage,' as a moment of massification whereby fragments are held up as a potentially inexhaustible source or resource for future actions; they can be opened up and multiplied. Alternative versions can be worked on and originals kept intact. This happens because the fragments are constituted by electronic pulses and fibres as electrons on discs. The document that appears is a statistical coalition called together through the activation of symbolic systems e.g. icons, files names and hypertext (Cooper 2001). These symbolic systems come to relate themselves to a particular statistical configuration but in and of themselves they are meaningless items. They have meaning only as they mediate and call to order the pulses and electrons.

In terms of human experience then this spatial and massive “memory” which holds the amorphous collection of pulses and electrons is encountered as a feature of the networks we inhabit and is not the same as our experience of pure or true memory that is duration. As Middleton and Brown (in press) point out, Bergson conceives of two ways in which we experience the world: as time and as space, that is, as duration and the arrangement of the action plane. In this example this memory space is memory thought and experienced spatially but this spatialised version of memory is not the same as pure duration; it is a qualitatively different experience. As Middleton and Brown argue “[It] stands in sharp contrast to duration – our experience of the ‘fluid’ continuity of time passing.” (2005: chapter 4: 10)

There are two kinds of experience on offer from the world from a Bergsonian perspective; one of space and another of time or duration, which need to be held in tension when considering the total human experience of inhabiting spatio-temporal envelops. As Middleton and Brown argue; “Bergson then identifies a central tension between two forms of human experience – our experience of time and our experience of space. On the one hand, we have a ‘natural’ immersion in a ‘self-sufficient’ passage of unfolding time, where our inner life is continuous flow of heterogeneous change. And on the other, our intellect leads us toward a practical engagement with space, understood as a homogenous medium that can be divided ad infinitum in accord with our needs. The key to understanding Bergson’s work on memory is to grasp the full implications of this tension for psychological life.” (2005: chapter 4: 10)

In other words immersion into the continuous flow of images is immersion into a dual experience of time and space (which is why we have called networks ‘spatio-temporal envelops’). The key to understanding Bergson’s memory and the total experience of inhabiting the flow of time and space is to see experience in terms of the tension between, on the one hand, the life lived in the action plane and on the other hand, the descent of memories ‘down the cone’. The tension in experiential terms is then between attention to life and pure contemplation of memory images. Both of these come together in the event of the descent of



memory-images into the action plane as the action plane calls on duration, and, as duration is given a spatial expression and form through the arrangement of images in the action plane.

As Middleton and Brown also go on to argue, and as we have seen in chapter 5 depicted in the cone diagram, these experiences of time and space intermingle in action. This is what we see going on at the summit of the cone: practical perception, which is thick with habit memory (the contracted past which looks to the future) and swollen with memory-images (the past reflected on and inserted into action to guide the deployment of habit). The homogenous field is broken up to be filled with descending memories, the collection and dispersion of fragments by mediators like electronic memory space, is therefore not memory but offers a vehicle for pure memory to descend into action. This tension between these two kinds of experience is why considering the use of digital photography is an important opportunity to empirically explore the shape and form of a Bergsonian psychology because this tension clearly operates through the management of digital picture-images as we shall see.

Middleton and Brown explain the intermingling of these experiences:

“In Time and free will, Bergson refers to the commingling of these two forms of experience as endosmosis. This is an ‘exchange’ where ‘real duration’ is brought ‘into relation with a state of the external world’ giving rise to a ‘symbolical representation’ of time (p.110). Put crudely, something of our experience of time passes into our experience of space, and vice versa. The net effect is to breathe life into our otherwise inert conception of space, and to allow for divisions to be made in the otherwise continuous passage of time.” (2005: Chapter 4:10)

Our lived and intellectual experience of time is thoroughly mediated by spatial arrangements so that it is divided up for practical use. A photographic record, as a collection of ‘symbolic representations of time,’ can operate then as a way of intellectually (and I use that term in the Bergsonian sense of thinking, as the decent of memory into space) managing duration into episodes, and can be

used in working up histories, continuities and discontinuities in personal, familial or national accounts. On the basis of the intellectual management potential of photos to arrange continuity they can also be used to work up kinds of discontinuity.

So now we can see digital photos as vehicles for the spatial symbolic representation of duration. With this definition of digital picture-images we have properly placed their potential role as symbolic representations in an allegorical register as a derivative *of* and a moment *in* the flow of becoming or duration (see chapter three). They become symbolic representations of time as they are taken up into actions and projects, which use them as such; as evidence; as occasions for mediating reminiscence work etc. We shall see later in the chapter how these images become imbued with duration and how this involves a process of rhetorical work, both in talk and action to settle the correct past into the fragment through an example where the moment of family duration that an image stands for is contested.

However, what is interesting in considering digital images is that in mass society the vehicles for shaping duration are fragments; which move around, by being continued through a chain of mediators, which manage them through various moments of existing as, on the one hand, amorphous mass and on the other as fleeting forms. Both the unfolding of memory space in this example and setting, and the issue of the management of memory space are achieved through the features, presence and formlessness of mass, which is inserted into the network as a functional formlessness or blankness. The memory space is filled with a formless mass of digital fragments that is open to shaping by other mediators like file directories and the process of opening files and inserting them into a variety of projects *or* the mass can be taken up and passed on *as* mass into different networks of objects, like CDs and desk drawers. In short from the mass storage of the memory space fragments can be actualized as the passerby from the crowd or virtualized and managed as mass.

The second feature of our first example is the nature of the process of the movement of the pictures as an example of the function and features of mass in



the system. The father by demonstration and talk describes how the solution to the memory-space problem created by the pictures comes with its own problem of finding the pictures again when they are burnt onto CD and distributed around the setting. At this point as he constructs the nature of the 'lostness' of the pictures and the problem of finding them as first finding the CD and then finding what you've got on the CD, he is shuffling through draws and a pile of unmarked CDs. The problem is shown before it is described.

F- erm (3.2) hhh the problem being is ((sound of discs crashing together begins pause)) (1.2) then you've got to find where the disc is (3.3) ((more searching)) which disc you've got on what [heh ]  
 I- (((laughs)))

The father announces after a 3 second pause in his talk - which was filled with him looking through draws at CDs - that there is a problem; thereby providing an interpretation of his actions as an example of a present continuous problem and in so doing opting the interviewer into the non verbal behaviour that has just occurred. The problem of keeping the human social relations stitched together in these sorts of settings, where part of the process of operating equipment and moving through the objects occurs through an apparent detachment and distraction from the normal pattern of turn taking in conversation, is a feature of interaction around this sort of equipment as we will see. And it is managed in various ways including; providing commentary on ongoing actions and interpretation of non verbal occurrences, either human or technical, as significant to the unfolding interaction. But they also illustrate the point that beyond turn taking, conversation is structured around waiting times, that is, around waiting on the unfolding duration of other parts of the network - whether it be programs opening up or equipment being arranged - to come into line with current and future courses of action. I will return to this point in the next chapter when we encounter some examples of both the problem of including others in what looks like a course of action unfolding from the work of a single individual and also how this kind of technology contributes to the structure of conversation by interruption and making one wait; which often has the effect of bifurcating the

ongoing interaction into two or more separate courses of action that need bringing back together later on.

In our current example both the verbal and the non verbal work, continue to contribute to the unfolding interaction. The fathers utterance - "the problem being is"- is left open verbally by finishing on "is" which has the effect of setting up the clatter of CDs as he continues to look through them, as the completion of the utterance or a suitable continuation of his turn. What follows from "is" is a verbal and non verbal construction of the problem. And so this action makes a significant contribution to extending the fathers turn in the conversation which is held by the clatter for 1.2 seconds.

The finely managed combination of talk and action continues to stitch the interviewer into the unfolding interaction. The pause and clatter is not taken as a transition relevant place and the father holds the floor. The clatter is then followed by another announcement and a further 3.3 seconds of looking through the CDs accompanied by more clatter, and then another announcement. But the interviewer is still on board with the unfolding construction of the problem. This is clear because the interviewers' continued alignment with what is going on is signalled by the joint laughter at the unfolded problem situation near the end of the example. What is achieved then is, as it were, the stitching together of the humans with word and deed into a social encounter with the massive elements of the setting.

These massive elements - the indistinguishable CDs- contribute their form (i.e, plastic "encasedness" and shiny surfaces which give nothing away as to the form of their content) of formlessness or homogeneity to the unfolding conversation. Like a parasite (see Brown on this concept from Michel Serres in Middleton and Brown, (in press), and Brown, 2002; 2004) on the interaction, the actions and nature of the objects as homogeneous and indistinguishable interrupt the talk and mediate its flow so that the interaction, at parts, can continue in nonverbal actions which demonstrate the homogeneity of the stock of CDs. Such acts of demonstration which on the surface look like non-social individual courses of actions but as they mediate the flow we can see that a man looking directly at a



stack of CDs in his hands and shuffling through them can be managed as a social and joint affair.

The nonverbal actions of clattering the unmarked CDs; of piling them up and shuffling through them itself shows how the nature of these massive objects does not yield any further information as to the form of their burden of information through the activity of repeatedly looking at their form on their own. In terms of their content they hide it from us by their form. This nonverbal contribution of the very form of the CDs to the unfolding interaction and constructing of the problem that accompanies the memory-space solution must be taken into account if we are to understand this example. The nature of the interaction of these objects and the talk then, achieves a joint experience, and a 'making-relevant' of the massive elements of the setting; to the effect that the interaction sets up the need for an effort which, by implication, must be more than just shuffling the CDs to find where the disk is and what is on it.

Without a further set of translations like labels or filing systems, which would describe and differentiate the CDs, they remain indistinguishable and losable and the stock of images on them appears in the network as an amorphous mass. The CD with its reflective surface lends the stock its form in a way that withholds the form of the record. It has a special kind of formlessness without markers which would enable a more easy and immediate interfacing with the stock. Instead it requires further translations to make demarcations in the record - you need to put the CD back into the computer to work out what is on it.

The nature of this form of stocking the pictures, in order to read them and render them usable, requires a reversal of what has occurred to get them into that form, and this fact therefore reveals something of the nature of their state of existence on CDs. We do not mean a reversal in the sense of somehow reversing the burning process, but in the ontological sense of moving them from a state of homogeneity back to a state of heterogeneity through the further parasitic intervention of other images lending them some form i.e. CD reading equipment, monitors, key boards, file directories and so on. We will return to this reversal in the next section. For now, what is intriguing is that the problem of managing

'memory-space' is solved by the strategic loss of the stock! Each fragment is pushed into the crowd of fragments as part of the solution, that is as part of the process of managing the files, where objects are managed as mass.

This is the effect of new technologies of mass reproduction; to actualise mass in such a way that it can have a function in the network and can be encountered as such. Mass objects interrupt and insert themselves in interactions as a functional formlessness and also in ways in which they require their contribution to the interaction to be attended by mediators that give them form. New technologies like CDs actualise mass as a usable homogeneity and thereby prolonging the fragments into the present and action but it does so by making them virtual. The CD is a virtual object, it is a way of having mass ready-to-hand in the Heideggerian sense. It makes indeterminate fragments available in all their indeterminacy, to work on, to put them through mediators to give them varying forms and arrangements (see Cooper quoted above). And when not lost or left in the draw it is attended by systems which give its mass shape again. It is mass storage not in the sense of a mobile warehouse storing lots of visible distinguishable objects but instead it is mass storage in the sense of translating things into mass.

### Example 2

M- it came with something like an eight (0.5) [is it]

I- [mm]

M- eight mega bytes or something like that [um]

I- [right]

(0.6)

M- and if you wanted the top quality (.) pictures that it could take it could only store something like eight or ten (0.6) photographs

I- right

(0.1)

M- but if you had it like at the lesser amount you could store about twenty(0.5) but um we thought well if we're going on holiday (0.4)



y'know (0.5) you gonna take more than twenty photographs over a  
[two week period]

I- [yeh yeh  
]

M- so your gonna need (0.3) more memory so we've actually um (0.3)  
through the same website again we bought the (.) we bought a (.)  
big memory card to go with it so I think we got a hundred and  
twenty eight (0.4) um megabyte (0.5) um memory card which can  
sto::re (0.4) something like ff (0.6) I don't know (.) three hundred  
(0.4)

I- right

M- at at (0.1) almost the top quality

I- yeh (0.1) yeh

M- so we thought well that's enough to cover us then for holidays and  
things like that and we [haven't]

I- [yeh]

M- got to worry about (0.5) y'know seeing a picture and thinking oo I  
quite like that but I've got to delete that because I want to take  
some more pictures

In this example and the next we see the construction and discursive management of the memory capacity of the memory card in a digital camera is mediated by what is taken to constitute a reasonable number of pictures to cover an event. Both users invoke what they take to be a reasonable number of pictures to cover a holiday in order to manage the construction of the functionality of camera and the use of methods that maintain it; i.e. downloading, deleting and increased memory capacity. The cameras functionality is a function of the degree to which it enables potential future fragmenting by keeping fragments moving, either by downloading them on to a PC or deleting them. Blockages in the movement of fragments caused either by a problem with the memory card or a lack of access to a pc to off load the stock, results in problems in terms of limiting the potential for fragmentation of events.

In this first example the mother of the family recounts how the camera they bought came with an eight megabyte memory card and why they needed to buy a bigger card. The account works around the sketching of upper and lower limits of the number of images a camera can take and hold, and the invocation of a hypothetical test case. She first presents the upper capacity of the original card and then, because of what is presented as a self evident fact, that a two week holiday would require more than twenty pictures a bigger card was needed. That the capacity of the card and camera is established by this contrast between the top quality, which gives eight or ten pictures, and the lesser quality, which would give you a maximum of twenty images:

M- and if you wanted the top quality (.) pictures that it could take it could only store something like eight or ten (0.6) photographs

I- right  
(0.1)

M- but if you had it like at the lesser amount you could store about twenty.

This functions to construct the upper limit of the memory card, which is twenty images. She then takes us into the event of a joint assessment of this upper limit, which is conducted by invoking a hypothetical situation of going on holiday ('we thought well if we're going on holiday (0.4)'). The interviewer is invited to confirm the conclusion of the assessment (y'know) before it is given. As if, the juxtaposition of "twenty images" and "going on holiday" self evidently invokes the conclusion that twenty images isn't enough. She then voices the conclusion in general terms: 'you gonna take more than twenty photographs over a [two week period]'

What is interesting, thus far, is the construction of an unreasonable upper limit of how many pictures you would want to take on holiday. This piece of talk works by a subtle appeal to an assumed, collectively understood sense of a lower limit of the number of fragments with which you can spatialise a holiday event. The photographing of time periods like holidays therefore needs to be captured within a fine enough limit of resolution; one image would not capture enough detail. The exact number isn't mentioned but twenty is not enough.



There is no ideal top limit either. The functionality of the 300 image capacity memory card which they bought and which will cover them for holidays is positioned in terms of avoiding the 'worry' of the decision process that is presented in another hypothetical situation where images one might like would need to be deleted in order to keep open the possibility of taking more images.

Up to this point the functionality of the camera is constructed around a mixture of cultural and technical issues in terms of its capacity to both provide coverage of a holiday with a reasonable amount of resolution and to avoid having its capacity exhausted. The camera is discursively managed as something that must not be filled! That is unless there is some form of computer based storage nearby such as a laptop or other central processing unit or device.

### Example 3

F- [cause what I do]

I- [oh right ]

F- is I (0.5) I use the camera I take the pictures and then I dump them here

(0.5)

I- yeah

F- then I got the memory card um (.) which:: (.) increased the memory on the (0.2) comp Pc cause you can only take about twelve pictures (0.2)

I- right ok

F- so I got the memory card and it it (0.5) put it up to about um (.)ahm close-to (0.9) I thi:nk about fifty pictures

I- right

(0.3)

F- e:rm which is quite-quite enough for one holiday

(0.4)

I- yeah yeah

- F- u::m (0.6) ((throat noise)) (0.9) (0.5) mm (0.3) what the computer does it lets you (0.1) erase after downloading it on to the PC (0.8) and I didn't erase and now it um (1.0) it never seems to work again because it just (1.0) thinks its full and its not
- I- oh ↑really [ah]
- F- [so] I've tried all the various methods but I don't haven't got away of (0.2) free formatting it so (0.7)
- I- right
- F- I've given that up for the time being (1.0)
- I- So how many can you get on there now (0.1) back down to twelve
- F- I'm back to twelve again (0.4)
- I- Right (0.4) ok (0.6)
- F- um (1.0) but its (1.4)
- I- so that limits you when you go on holiday
- F- yeah cause I mean yeah the problem is cause you you can't download it (0.8) onto the pc (0.5) [so when you]
- I- [yeah yeah ]
- F- 've::: maxed out you're maxed out but it does give you the advantage if you don't like the picture you just delete it

In this example we have an account of a problem with the upper limit of a memory card. The father of the family downloads or dumps the pictures on to the computer after they have been taken. He had recently got a new memory card which increased the capacity of the camera from twelve images up to about fifty images which he says is enough for a holiday. So here we have the invocation of a reasonable upper limit to the fragmentation and coverage of a holiday; fifty images is enough resolution. After the images are downloaded the computer erases the data on the camera but after one use he reports that this erasure did not occur and now the memory card 'thinks its full', reducing the number of images



he can take back down to about twelve again. So without the possibility of further downloading holiday coverage is limited, unless one deletes the images, which is the saving grace of the camera.

What we have here is again the presentation of limits and the management of limits through the invocation of the holiday as the test case for setting limits, but also the use of the delete function in keeping it all going. When it does not delete properly, the camera's functionality in terms of covering a holiday is compromised. Deleting is then a mediation which maintains functionality.

The key issue around the capacity of memory cards is future oriented. It concerns the scope and limit of the potential to fragmentation and requires a download, a stocking of mass, and a moment of deleting. The camera as an object which must not be filled is then a moment in the flow of images which operates as a temporary collection of the world in fragments where deleting is required and so flow continues by a constant process of fragmentation and destruction. In summary, the digital camera as we find it in these examples it is an object which mediates by replacing an unfolding continuous event with a plurality of fragments whose life is shortened by the requirement to keep them on the move. Like a prism the camera receives a whole and distributes it into parts which pass through it leaving their mark only provisionally. The camera virtualises as it collects. It collects by taking up the world into new forms of distribution. As device of fragmentation - which is a method of selection - it is a mediator of perception. It translates events into fragments which we are then arranged into readable collections. In its power to select, it reveals aspects of duration for insertion into future actions within electronic forms of mediation. And if it loses this power to continually select from flow of events it becomes a storage object. If its temporary stock becomes permanent logged in it the camera ceases to have full functionality.

Electronic memory as electronic mass is about keeping movement going in order to keep open the potential to select and fragment in the future. In this sense mass memory tells us more about the make up and organization of the action plane and perception than it does about the nature of human memory. In the last

example we encounter the movement of mass into systems, which make it perceivable, or in Cooper's terms 'readable.'

#### Example 4

I- .hhhh so (.) how do you go about viewing them do do you print them off or do you

F- no: its all on screen

I- on screen

F- I (0.3) 'I don't print them' (0.3) erm (1,3) er it all goes into one place mm (0.4) dum/ps (0.3) it automatically into (0.6) er (1.3) a directory o on the (0.3) harddrive (1.1) and then (1.0) basically it's a case of going through the dir- directories to um (1.3) whatyouwantto getup so that's (0.2) that was the card which (1.1) was one trip (1.2)

I- right

(1.6)

F- which I have (1.4) ?cut? (0.4) HH (1.0) so its no longer in there

I- [laughs]

F- [I didn't] realise that heh (1.7) ah so the problem with:: (0.5) eh having these al- (0.4) electronic albums is (0.4) unlike other albums (0.7) you kno::w (0.4) er whats there (1.5) because you just openit and its there

I- [right yeah]

F- [with these] itsjust afile

(0.8)

I- Yeah

(0.3)

F- so you have to actually look at each picture to figure out

(0.5)

I- what yer got

F -what it is

I- wow () [wow]



- F- [erm] (0.6) and I'm- haveto admit i:: isuppose I could be more organised I could go in and (0.3) actually giveit a la- a name (0.7) so I knew what was in the (1.0) (inaudible) what was in each picture (0.4)
- I- [right]
- F- [but] (0.1) sniff (1.2) ah (0.4) I'm on to:::(1.9) eeerrfffourhundred (0.4) der::almostffyeah () fourhundred seventy- fourhundred and eighty pictures (0.3)
- I- wow (0.1)
- F- u:m (2.0) and plus what ever was in that other (0.1) album (0.1) sniff (0.2) er:: (0.9) so (0.6) (sucking noise) (0.4) (sucking noise) (0.3) it's a bit late to go back and take to

In the last example we saw how the memory management systems of the computer incorporated amorphous mass in the form of CDs and memory-space as a mediator in the movement of pictures. A key feature of digital computer technologies is the tension and movement between amorphous mass and files; between formlessness and form. I argued, following Cooper (2001), that electronic pulses and fibres as electrons on discs, as it were, constitute the fragments that the system manipulates and goes to work on,, and as such it exists as formless electronic mass in this state. The appearance of these fragments as documents, as forms, occurs as a statistical coalition of electrons and pulses called together by the symbolic systems of the computer and operating system that mediate operations on mass; e.g. icons, files names and hypertext etc. These symbolic systems come to relate themselves to a particular statistical configuration and as such render mass 'readable.'

In this example the father demonstrates how the family images are organised on the computer and presents us with a number of mediators such as icons and file directories which go to work on the files which are 'dumped' onto the hard drive to make them readable.

What kind of 'readability' do I have in mind? In Bergsonian terms this is a psychological question. Psychology is about inhabiting networks, and the process of configuring those networks occurs as a moment in the flow of becoming. The human body inhabits this flow as an image that forms a zone of indetermination that analyses the actions it receives and chooses the actions it restores to the images which attend to it. The body is then a mediator like others which sections the flow and channels it into useable forms. It only differs by degrees of complexity from the outside and by means of the insertion of memory from the 'inside', which constitute its difference in nature. The spatialised nature of perception and the temporal, unfolding nature of action allow the arrangement and predication of future arrangements of images which refer to the body. In these terms 'readability' is a feature of settled network as it refers the perception of it as a coherent and formed network. Amorphous mass is beyond our perception, it is the moment in the life of the network that is ontologically prior to the diminutive act of perception. It is the virtual from which perception carves out an actual or readable occurrence. So we can hold it in a CD and manage it on a computer but even then it is contracted into a form and made functional. A key feature of this kind of technology is its power to actualise Mass and bring it to the fore as a functional form of order (of disorder). Our perception then in these kinds of networks of digital technologies covers the spatial management of mass which otherwise is beyond us.

As we saw in chapter three, the establishment of networks of reflected action constitutes 'building' which is how we have our being through our place as a mediator with in the flow of 'building'. Now this building in mass culture - as I argued through Cooper in that chapter- takes on the form of making the mass readable through the mediation of fragments, and as such the process of building readable worlds to inhabit is fast and fleeting. Therefore Building in mass culture is the process of managing encounters with Mass to make it readable through mediators – which is precisely what we observe in example 4. Here we see the presentation and management of a stock of pictures and as such the collection and dispersion and therefore building (i.e. on going production) of a readable stock. The form of this process of the collection and dispersion of the stock as stock is



unpacked here in the discussion of the way in which the amorphous stock is made manageable by the mediators, which make it readable. The key to understanding the achieved readable form revolves around a contrast in the way in which these images are managed which preclude one kind of reading and open up another. The central difference that is worked up in this example is that between traditional albums, which one can open up and instantly see what images one has and the electronic album which is read (actualised) by opening individual files and revealing the images one by one.

Example 4 begins with a question about how the family views the images. The suggestion that they might print them is rebutted with a description of dumping the pictures into a directory on the hard drive and a demonstration of the 'Album' files and the list of numbered icons within the Album files, which represent the pictures. As the father talks about going through directories, he opens a window and number of file icons labelled as "albums" appear. He then opens one which he believes contains images of a trip but nothing appears in the window. On opening another 'album,' after a 1.7 second pause a long list of icons with numbers next to them appears which he interprets as a problematic format through the contrast of this symbolic system which constitutes an electronic album with 'other' (i.e. traditional, non-electronic albums). Before getting into some of the detail we can see that this example moves us from a sense of amorphous stock which is automatically 'dumped' (which suggests arbitrarily placement) into a directory which enables it to be organised and made readable through files as albums and the icons making the 'dumped' stock accessible as a list of individual images. The discourse moves us from mass to a readable networked stock in the form of a list of icons which stand for individual pictures.

With this example I am interested in the interrelation of the two moments of mediation; the 'albums' and the list of icons, which make the mass readable. The contrast between electronic albums and other albums which is designed to construct the problem with the list as a form of electronic album reveals something of the nature of the form of mediation that the list enables. As the list appears the father announces that it is a problematic form of album. In contrast to other albums, which you merely have to open to see 'what's there,' in the

electronic album the pictures appear first as a list of icons or files which are all the same. The album is in fact a trunk file and the pictures are represented as files coming off it in the file tree. They are distinguished from each other in the window by a file name which is simply a number; each files number follows sequentially from the one before. The files are represented in the order in which they were taken. The point of contrast is in the fact that this is actually an album without pictures, containing just files. The pictures cannot be seen all at once by opening the album icon. The individual icons introduce another level of mediation which requires that the pictures reveal themselves by being looked at individually because there is no other option on offer in this system of symbols. Unlike other albums where pictures are collectively visible this album reveals the images individually and so resists or precludes images indexing each other as they do when viewed collectively, as they cluster and reveal events. Although the system allows the user to swap the number for a descriptive label the father's construction of the overwhelming number of images he has which only have numbers positions that level of organisation as unreasonable at this stage. The only form of indexing in this form of album is the numbers which label the icons. At the level of the icons the images are ordered in the sequence in which they were taken but what is not visible through this collective indexing are the topic and event changes. There is an order or pockets and clusters of order that every stock of family images holds amongst themselves - i.e. birthdays and holidays etc, which are made invisible at the level of the standardised and uniform icons which index each other by the regular progression of number in the sequence.

The status of these files and icons, by which the stock retains an ordered homogeneity and resists heterogeneity at their level, is similar to that of hypertext which can stand for infinitely complex combinations of fragments. The process of opening a file is constructed by this level of homogeneity as an electronic version of spotting a passer by in the crowd, where the homogenous electronic crowd of icons momentarily recedes and is replaced by a configuration of electronic mass. Hypertext is also, in this sense, a temporary and mutable configuration of electronic mass that has been contracted into a single marker.



As markers, hypertext and icons manage the movement, connections and combination of fragments of electronic mass on screen and as such are a means of *revealing* electronic mass as a form. The file icon can function to hold together other levels of file icons in file trees in clusters of temporary and mutable connections as we see in this example where the album files collect the picture files together. They are a form of collection-dispersion which works as a process of assemblage and reassemblage (Cooper 2001).

But the symbolic system of file icons in hierarchy can exist separately from the mass it mediates. So that not all points in the system call up mass, some which once did are left redundant, like the album file of the trip that was empty. So icons can channel Mass just like hypertext they are also blanker than hyper text and can even stand for absent files.

As an expression of mass, Cooper asserts that hypertext and icons indicate the virtual presence not actual presence of their subject matter. At the level of the icons in the list the files indicate the presence of a picture in memory space without revealing its form. As such the reader can read the mass of pictures as they relate to each at the level of their indicators and not through their form. This is the cause of the problem in the way the father manages the files in example 4. At the level where the picture is gathered up from electronic mass and revealed on screen (that is, when the icon is selected) it is carved out from the rest of the stock which remain virtual. There is then in this mediation of mass, an interplay of the known and unknown, seen and unseen in the movement, connection and combination of virtual subject matter through the constant conversion of icons into pictures and pictures into icons.

This move from the virtual to the actual operates through these files by a process of revealing through 'collaged convertabilities', as Cooper (2001) puts it 'Collaged' in the sense that icons and hypertext do not receive their meaning from inclusion in linear and sequential forms of communication, such as conventional language, which by its linearity reveals a world of solid forms which relate in logical ways. Instead Cooper argues that hypertext (and I would argue that icons share substantially in this nature as they, like hypertext, having their meaning as

sites which gather and combine mass) has more in common with Picasso's collages. He writes;

In contrast, [to linear forms of communication] hypertext is like Picasso's strategy of collage: it reveals and displays information as the play of form's plastic potential, its possibilities for combination and permutation, its 'readability' is not already there for us but has to be created. (2001: 35)

The kind of readability or 'visibility' that is made available to mass through the symbolic order of icons is suited to the fluidity and movement of mass in that the endless potential for combination and permutation of icons leaves the settlement of a readable stock open to creation and re-creation (or even recreation in the case of hobbyists and domestic users).

In our example the organisation of pictures into files and their representation and relationship to other pictures through homogenous icons creates a field which is rich for the collage, creation and re-creation of combinations of images into accounts of family duration.

This kind of album is one marker of a shift in photographic practice from traditional methods to electronic digital photography. The collection of pictures into icons in a list constructs an album without images and so at the level of the list which covers the clusters of pictures around events, the pictures are without durational context. That is context in the sense that Middleton and Edwards (1990a) describe as the on going unfolding construction of discourse. Context can only be worked up by making a collage of the icons and pictures; creating indexing relationships between adjacent pictures. This happens, as we shall see in the next chapter. By plunging in or sampling areas of the list to find the beginning and the end of sequences and clusters to discover and create order. Stories about family events are collaged by the combination and stringing together of the virtual and unseen through icons and collaged conversion, in the constant interplay of the known and unknown.



For the collage process to arrive at visible and readable worlds through the constant combination and re-combination of images there must be a near inexhaustible source of the unknown from which to make versions of the known. The list of collective homogenous icons marks up and indicates the virtual stock but maintains its invisibility, making the odd, new, mediation of an album without pictures. But this very medium of the presented unknown through which by selection the individual images become known, one by one, resists a final authoritative telling of the record that traditional albums tend towards. This is because by its very nature this management system of icons is interacting with inexhaustible mass as a constant moving set of processes rather than a fixed set of discrete objects with fixed relationships. The symbolic system therefore makes and remakes sections in the mass, revealing parts from the whole. Yet the icons which make it up do so as they provide “transient centres of understanding which, by the indefiniteness of their definition, can be at best only temporary resting places for the mind.” (Cooper 2001:36)

Three features of this kind of listing of icons emerge from this example. The interconnectedness (intertextuality) and consequent potential for multiple versions (multivocality) to be built (both in the sense of combining images and in the ontological, Heideggerian sense) and the potential for starting this building from any point (de-centredness) and therefore extending a plot line out from multiple starting points through any number of images. These three interrelated features of hypertext contribute to the action plane in mediating and operating on mass to hold it up. In Landow’s (1992) terms these features are described as intertextuality, multivocality and de-centring. Cooper writes;

Intertextuality, multivocality and de-centring are hypertext’s strategies for engaging with the prodigality of mass; they defer to mass’s intrinsic resistance to fixed locations and ultimate meanings; they are traces of mass’s dense mutability and might almost be said to be its messengers. (Cooper 2001: 36).

The multivocality of the stock is supported by the Intertextuality of the connectedness of files and the de-centredness of the system- that is, the lack of a privileged centre or point of order- are messengers of the mass of invisible

electrons that make up and populate the memory space. They are messengers in the sense of being the manner of the arrangement of images for translating mass and therefore they lend their form and mass speak through them. So the action plane is set out with these fluid points of order; markers, file arrangements, and icons, along with electronic mass as the matter from which forms are carved by these forms of mediation.

We will look at the interaction of these three in the carving out of perspectives by combining parts selected from the whole, based on the multivocality of the stock (the potential for holding many voices and therefore the communal aspect of mass which is responsible for knitting together a collective of voices) and the construction of perspectives around mutable and fleeting centres in the next chapter in the flow of talk and action. For now what we are seeing in this example is the play of form and formlessness (the dumped to the icons calling up the dumped) as a process of the actualisation of mass in terms of its messengers, those complex icons, files etc which reveal the pictures but which also maintain a fluid indexing between the images.

### **Summary**

Through these examples, we have seen the movement of shapeless mass to form and back into formlessness as a feature of the technology for handling data and storing it. Digital technology and the images it produces and manage are then in a constant movement between form and formlessness as part of their management, they are mass. The memory storage systems also function as storerooms for the mass of data and demonstrate the dynamic nature of mass. In order for the memory systems to work, they need to keep mass in flow. Moving from system to system, from memory card to hard drive, such that a camera loses functionality if it becomes full and can't off load its stock of data. Therefore, when people are dealing with digital technology they are managing the massification and movement of images in and out of form.

We have also seen something of how mass is made readable. I will pick up on this in the next chapter when we look at some examples of people using file



systems as part of their reminiscing over old images. However, in the last example we saw how the directory system which made mass manageable did so as an interplay between the visible and the invisible as icons stood for pictures and as such mass is managed through the intertextuality, multivocality and de-centredness of directory systems.

## Chapter 8

### **Acting on the past: families and their digital photographs**

In the last chapter I finished with three features, from Cooper (2001) and Landow (1992), of the way in which file systems manage mass into readable forms. The intertextuality, multivocality and de-centredness of icons and files were presented as the ‘messengers’ of mass in making it readable as a process as apposed to a fixed commodity. Through this threefold act of mediation provided by the structures and forms of movement and connection that make up the windows based symbolic system, fleeting and multiple forms are carved out of mass from a multitude of possible points of order.

However, if these readable forms are so transient and fleeting how do they hold people and action together? What sort of sociality do these forms and mass - as process -mediate? If the relationships between the images which make up the world are only readable as fast and fleeting forms which dissolve in an instant, to be replaced by new forms and relationships, then, at first it seems that the mutability of mass would make the possibility of predicting future actions on the basis of a stable and predicable set of relationships, apparently a lot more difficult. However, according to Cooper (2001) the production of mass is more than simply about the production of lots of useful and consumable products for the individual; surprisingly mass is more about the prediction of the “likely behaviour of collectives”(Cooper, 2001:34) since the production of mass is itself a form of stability or securing of future forms of relationships, therefore Cooper says:

Production as prediction is always about *probabilities*, about the likely behaviour of collectives rather than the more unpredictable behaviour of individuals. The supermarket, through its vast range of mass products, is more a means of ensuring the collective future than a satisfier of individual wants and tastes. (Cooper, 2001:34)



According to Cooper, mass is about securing the behaviour of collectives. It can only do this by including and 'knitting' humans, as it were, into a common source of mutability; linking people's projects and actions in the process of drawing multiple forms from a common source of mass. The multivocality of a stock of electronic mass knits users together in the action of carving multiple forms. Mass production produces items and events as a plurality of copies which then can populate our own duration linking private duration into collective durations. Cooper's supermarket analogy is helpful here. The super market offers a common and collective experience through its massive stock of items.

The mass produced product taking up residence in multiple local networks of activity it knits together a wider commonality to channel private local experiences together into a collective but localised experience. In this way mass products secure a collective future through their mutability and inexhaustible supply. Like a supermarket, mass ensures the collective future in terms of providing a common stock to draw from. The supermarket is increasingly a common source of life style and lived experience, especially Wal-Mart where you can buy everything from food to interior and leisure products, ensuring the probability that everyone has the same set of items constructing and forming their private spaces.

In the same way digital photographs as digital 'products' - which can be managed into multiple forms and combinations through the mediating work of windows based symbolic systems - can occur in multiple times and places and be combined in multiple ways. This is exactly how digital photographic technology is marketed; Kodak offers its software and range of digital "Easyshare" cameras in order to "Share moments, Share life," - or as the advert below says "share your thoughts"- by multiplying them in the form of digital pictures and distributing them.

Connection to the common stock knits people into a private permutation of a collective experience. For example, digital images - which belong to a family - knit a collective together in a double sense. first, in the sense just described as making available (perhaps on websites provided by Kodak or family websites as



we shall see in the next chapter) a common stock for people outside of the family to engage in the activity of producing arrangements of images and accounts from the stock. In this way families can share their moments by continuing them into the present experience of the visitor to a family website in the form of digital images which can be downloaded onto a desk top any where in the world.



Figure 11

Secondly, digital images offer the opportunity to construct stories of the past through their infinite mutability. A family's collective duration – their virtual past - can dissolve into the present and be cut up and fragmented by being spatialised through the stock of digital images. In this way the past can be managed to display group membership and change and development (see for example Middleton 2002).

Electronic mass products can knit together collectives through the mutable interconnectedness of icons and consequent potential for multiple voices which can be ordered up from any point. But if the points of order and settlements of form and relationship are always dissolving in an instant, how do social networks escape the instant and have duration and continuity? How are they prolonged together into strings of communal action through time?

From a Bergsonian perspective the insertion and contraction of the past in action is a central concern in understanding the prolongation of forms escaping the instant and also translating difference in degree into differences in nature by making mass items readable as swollen with the past. In other words the past



assembles actions and images together in the plane of action which is populated by these features we've met in the last chapter.

So, the social use of the past through the decent of memories into the actions of carving forms from mass is a way of stabilising those forms and making them readable. In this chapter then I am interested in both the insertion of the past in action with mass and also the past in the action of reminiscence with electronic mass. In this chapter I will present more data examples from families using their equipment which address these two concerns.

### **Example 1**

M- and then it just downloads it on to here (0.2) what we don't know yet and what we haven't really (0.1) read (0.1) the manual to do (.) um (0.3) some of them have gone into files and I don't know if that's (0.1) my husbands put them into files or um (0.3) you ca::n (0.5) at the moment these are just pictures (.) we I think it says we got two hundred and forty pictures (0.7) but you can put these all into separate (0.2) sort of files

(0.2)

I- yeh

(0.6)

M- of which we got some files at the bottom (.) but I don't know how we got those files at the bottom whether my husbands done that (0.7) where are we::: (0.5) aha [like here]

I- [oh I see]

In this example the mother of the family has a program open which displays pictures in a grid of tiles. At the bottom of the grid a few of the tiles displayed are not pictures but show icons of files instead and a number indicating that they contain images. The mother is demonstrating to the interviewer how the pictures are downloaded and viewed on screen. At some point in the process she says that some pictures have been downloaded and have 'gone into files', but that she doesn't know if her husband has performed that operation. The grid then holds an

area of images which are partially ordered in a different way to the rest. Since the family members have not read the manual on how to have pictures downloaded into files in this way, a process has intervened in the activity of downloading which has ordered part of the record. The mother presents this arrangement within an arrangement as a potentially authorless occurrence; she is not sure if it was her husband that had arranged the files ('but I don't know how we got those files at the bottom whether my husbands done that').

We can see how through the arrangement of icons according to the 'messengers of mass' traces of past actions are left or prolonged into the present which lend some form to present actions. Like foot prints in the snow that have been half covered by fresh a fresh flurry of flakes, the arrangement of icons and the consequent relationship between files and pictures, traces the past activity of other users (family or programmers). Electronic symbolic systems, in the same way as the nervous system, preserve past actions for the future therefore picking up the activity or operating with the new arrangement has the effect of knitting the current user into a continuing collage of action like a game of consequences. But who or what went before? The tracks of past activity are there but it's not clear what left them, the software or the husband, the nature of the program or the local nurture of it. Nevertheless the preservation of past actions, whether traceable or untraceable, functions to secure the virtual future arrangement of images by partially structuring the form of reflected action in a setting. Current potential for action then occurs in a significant way on the basis of the past preserved in a kind of electronic habit memory but also through the call to memory-images to descend into action as the next example illustrates.

### Example 2

- I- how have how have you sort of (0.8) viewed them er do do do are  
 you printing them out (0.2) o::r  
 (0.1)
- M- we we printed some out (.) at the [moment]
- I- [yeh]



- M- um (0.3) if I do this I think this is how (0.4) I kinda thought um (.) I was trying to look at this how we could then get back to the other images (0.6) the other images we had I think we just go to the top (0.4)
- I- yeh (1.3)
- M- when we do this (0.3) um (0.9) my mum wanted some pictures so (.) um (1.8) we'd (1.6) you'd just sort of click on (clicks on the image) them and then that will (1.0) it should bring it up as a (0.8) (clicks again) a big picture (.) al[right yeh]
- I- [oh right ok]

This example, and the following example, demonstrate how the family view the digital photographs by printing them. The mother is working with the tiled presentation and the little area of files from the last example. She works through the process of selecting an image to translate it into a bigger image from where she can then look at it and insert it into the printing system of the computer through the relevant menus etc. In the process she is managing movement between different levels of files in the hierarchy ('I was trying to look at this how we could then get back to the other images (0.6) the other images we had I think we just go to the top').

Progress is made through the insertion of a past event, which over the episode guides the unfolding action. The event of printing pictures for her mum ('my mum wanted some pictures so (.) um (1.8) we'd (1.6) you'd just sort of click on (clicks on the image) them') mediates the current process. The invocation of the past event occasions the action of clicking on the image to make it bigger as it offers guidance on the potential future arrangement that will result as it forms the basis for current and predicted actions and potential future action (' then that will (1.0) it should bring it up as a (0.8) (clicks again)) a big picture').

The series of actions which unfolds with the mouse; keyboard; icons; pictures; and menus; is a process of carving out a path of connections, and conversions and translations from the intertextuality of the systems symbolic

system for managing mass, that ends in a print out. With each move the user is faced with a new set of reflected potential actions furnished by the continuous network of multiple icons and menus which reflect the user's current situation and potential actions. These relationships are constantly unfolding and being reconfigured with every reflected action that is enacted. Every action unfolds a new set of potentialities and the past guides the selection of the path through them.

The past experience of using the equipment for printing pictures for her mum not only mediates the flow of action with the computer it also stitches the human relationships into the flow of action, particularly through the commentary which sets up the search for resemblances of sketches of past configurations of the action plane.

### Example 3

M- ok (0.2) so then you can have a [look at it]

I- [coughs]

M- and (1.2)) do any colour and (0.1) and stuff [like that]

I- [stuff like that] (0.5) right

(0.2) right

(0.3)

I- [yeh]

M- [and] you just shut that down (0.3) um (0.3) we went into something see this is what I mean we're complete novices at this um (0.5) where you (0.1) you had a file up here and then you could (0.4) organise (0.2) bring over which pictures you wanted

(0.1)

I- right

M- on to a page and then sort of photoco um (0.1) print out sort of three or four pictures

(0.5)

I- [oh right I see]

M- [?all on one?] piece

I- right right I got you (0.4) I got you



- M- so I think it was like if we wanted to (0.2) pri::nt (.) if we went over there (0.2) then you [can go to layout]
- I- [arh right] right ok

As the episode continues the mother works within the context of the current arrangement of elements, which mark out her current field of potential actions, to sketch out another set of arrangements and actions ('we went in to something...where you you had a file up here and then you could organise...') that she had encountered in the past episode of printing pictures for her mother that need to be rediscovered in order to proceed. What is presented is not a clear, fully formed memory as if reminiscing without any attendance to the unfolding action, nor is this a presentation of a definite set of moves that she plans to execute. Instead the mother and the interviewer are set up by the utterance to look for 'something'; a vague mediator which once enabled a set of operations ('where you (0.1) you had a file up here and then you could (0.4) organise (0.2) bring over which pictures you wanted') the encounter with which is discursively positioned in the past tense. What this invocation of a vague past mediator does is to set up the search for a something which resembles the past configuration of the setting. The utterance is a suitable contraction of the past which hangs between habit and pure memory as a memory-image which is suspended in the move from the specific past memory to a generalised vague form which enables it to serve the unfolding of the present set of actions.

In this sense it is the past inserted into action in the same way in which Lawlor describes the move from the memory of his brother's systems of organisation to a generalised form of the continuation of organisation into the present to solve a situation which requires organisation.

This is not then a deployment of the past in habit form which is set down and doesn't need reconstruction, instead, this is a set of actions which unfolds to *resemble* a past incident which is stamped with the marks of it's origins and is significantly different from the current set of actions. It the current set of actions, no prints were made and the grandmother (for whom the past printing episode unfolded) was not present asking for prints again. The current and past situations

simply resemble each other in certain features and are connected by the movement of the past into the present which generalises the memory-image – in terms of Bergson's image of the cone, we may think of this as akin to a contraction.

There is then a fluid interplay of the present and the past where the present mediates and occasions the invocation of the past. The question of how they view the images and the answer that they print them which begins this episode gives an occasion for the memory of the event with her mum to be invoked, which then in turn occasions the reconstruction of a set of past actions in the present. As the present action comes together more of the past unfolds and is inserted. As the connections in the present come together so they mediate an incidental construction of the past, building up a relationship of resemblance between the past and the present through current mediators linking the past with present spatial arrangements so that movement to and from past to action occurs seamlessly, demonstrated by constant shifting tenses.

This then is Bergson's idea of the past and action serving each other. Bergson writes: "on the one hand, the memory of the past offers to the sensori-motor mechanisms [habit-memory] all the recollections capable of guiding them in their task and of giving to the motor reaction the direction suggested by the lessons of experience" (MM 152). Habit-memory in return does something for the memory of the past. Bergson continues: "But, on the other hand, the sensori-motor apparatus furnish to ineffective, that is unconscious, memories, the means of taking on a body, of materializing themselves, in short of becoming present" (MM 153).

The talk mediates the insertion of the past which guides the current action in the symbolic order of the system to structure the steps and make predictions of reflected possible actions ( M- so I think it was like if we wanted to (0.2) pri::nt (.) if we went over there (0.2) then you [can go to layout]). The talk is not an expression of inner cognitive processes but a social action of remembering by which the past is contracted into a useful and relevant form. The relevance and use of the past is an achievement. Organising the past into the action plane is discursively achieved and all participants are opted into the action. The



interviewer is co-opted into the flow by the details and relevance of the past by implicitly couching the interpretation of the unfolding action as looking for resemblances to the past.

This is social remembering with technologies of mass. The memory of the mum wanting pictures is mediating the current activity in terms of the possible actions that the 'messengers of mass' afford (multiple configurations, centres of order and voices) and providing a narrative for the humans to engage with the unfolding process and therefore managing both the social and the technical and the past in piecing together the activity. Objects mediate the insertion of the past into the present, prolonging action within the field of the intertextual, decentred, and multivocal operating system, beyond the instant and guiding action in the future. The key issue is that images, objects and icons etc mediate action and the past in both incidental recall and in family reminiscence. The focus of the next section is families reminiscing through their digital images, again, thinking in terms of how electronic mass is managed through arrangements of the symbolic order of the computer operating system. We will first consider some data from a family who use the TV set to view their digital images, to throw into sharp relief some of the fluidity of the computer system as a set of mediators for viewing images.

#### **Example 4**

F- huh (1.2) that's a friends daughter huh

S- satan

(0.4)

F- satan huh shes not that bad

S- she is

(0.8)

F- oh yet another er social gathering (.) huh

(1.3)

I- another fancy dress one [or]

F- [yeh] now (.) this was a murder mystery evening huh

- (0.2)
- I- right  
(4.1)
- F- huhuhu (0.6) who was I I was some (0.1) Australian Greek chef  
(0.4)  
((sniggering))  
(0.5)
- F- yeh arh that was it was set in Australia the hence the um .hhhh  
(0.3) um the corks (0.2) the corks on the on the hat yeh (0.2) and  
the and the cricket top yeh ok .hhhh (2.1) ah that's you doing um  
(1.1) down the music centre isn't it
- S- yeh (2.6) percussion concert  
(0.3)
- F- was that the one where you had to conduct  
(0.2)
- S- yeh  
(0.5)
- F- yeh (0.6) yeh normally its his drum teacher that would (0.4) conduct  
there but the his drum teacher- where had he gone julian  
(0.2)
- S- china  
(0.2)
- F- oh was it china yeh his drum teacher had gone to china to do some  
drumming so um .hhhh (0.2) young man here got to um conduct  
everybody look oo look (.) the hand  
(0.9)  
((sniggering))  
(0.6)
- F- what a natural hahahaha

In this first example in this section a father and son sit in front of the TV set with the digital camera plugged into the front. The images on the camera appear on the TV screen and are moved on by a button on the camera by the father.



How do you keep a collection of people, including a stranger, together when looking at a series of images which is essentially a visual exercise? The problem is compounded when one can't pass the images around because they are on a slide show. In Bergsonian terms people are held together by objects and highly structured talk. It was argued in chapter 5 that Bergson treats language as a symbolic system which belongs with other markers - which includes the arrangement of objects - of the contours of local cooperative order. Language then is a form of ordering and channelling of the world and action alongside objects and technology which works by selecting aspects of the world and instructing others in relationship to them (Middleton and Brown, in press). Therefore the slideshow of photographs and the talk around it are arranged to order a cooperative coordination of actions on the spatialised past through a technological and linguistic unfolding of reminiscence.

As the images appear on the screen, the talk around them falls into a discernable pattern of an initial identification based on some feature of the image. Next, an associated element would be mentioned and then this extra detail either becomes an occasion to articulate more associated features which often takes the talk beyond the bounds of the image. For instance, in this example, there is an initial announcement directing attention toward an object or person in the image. All three first announcements in this example occur at the point of a topic change in the sequence of images. For instance: "huh (1.2) that's a friends daughter huh" or; "oh yet another er social gathering (.) huh" or again; "ah that's you doing um (1.1) down the music centre isn't it." These initial utterance may simply fall by the way side or alternatively someone else, or ,the original speaker may add some detail based on a connection, so for example: "yeh (2.6) percussion concert" follows: "ah that's you doing um (1.1) down the music centre isn't it." We can think about the pattern of unfolding conversation around these images in terms of taking up objects and details in the pictures and constructing increasingly complex networks of associations around them as mediating objects. In this way an event is spatialised and encountered as it unfolds through tracing more and more associations that centre on and unfold from the subject of the first indication of a photographic detail or feature.

For example, the recall and presentation of the ‘contours’ of the event of the social gathering unfolds through the clothing in the picture. After the initial utterance announcing the topic depicted, the interviewer offers an interpretation based on the kind of clothing in the picture (“another fancy dress one?”). The father then unpacks the identity of his character and the fictitious setting of the murder mystery evening through the clothing “yeh arh that was it was set in Australia the hence the um .hhhh (0.3) um the corks (0.2) the corks on the on the hat yeh (0.2) and the and the cricket top yeh ok .hhhh.” Middleton and Brown (in press) quote an example which illustrates how social remembering works by the reconstruction of the networks of associations that make up an event, setting or collective. They report data from Gibson (1989) where members of a farming community are reminiscing about farming practices within their shared experience. A key feature of the way in which social relations were socially reconstructed between one family and the rest of the community was the family’s ownership of a big bath for dipping sheep. Middleton and Brown argue from a Bergsonian perspective on the relationship between language and objects that objects can discursively fix social relations in place and therefore mediate social remembering; exploring the ‘contours’ of the common experience of a social grouping, life stage, event or what ever which unfold from key objects. The announcement of objects and details within a picture, present potential footholds in the passing sequence of images from which collective, social remembering can gain a purchase and unfold.

The construction of such networks of relationships in reminiscence are never a collection of arbitrary connections but are always occasioned to do collective work. In this example many of the accounts are occasioned to offer a point of engagement for the stranger. Accounts can be constructed to hold and perform social relationships, values and ideologies etc. these ideas have been well rehearsed and explored in the social remembering literature (e.g. Edwards and Middleton, 1988, Edwards, 1997). However, the twist in Middleton and Brown’s (2005) work is to extend the term ‘discursive’ to objects as well as talk.

In the last section of this example an account unfolds of an event in which the son had the job of conducting a percussion concert. The combination of the



appearance of the image on the screen; the father's invitation to the son to confirm the identification of the depicted occasion and the son's confirmation by offering more detail; followed by the offer of further detail from the father with an invitation for corroboration; all conspire to occasion the subsequent unfolding of a network of associated peoples and events. A drum teacher; a trip to china; and his son conducting the concert are all held together in an account of the son's achievement culminating in the father's summary; "oh was it china yeh his drum teacher had gone to china to do some drumming so um .hhhh (0.2) young man here got to um conduct everybody look oo look (.) the hand."

The objects in the pictures and the talk (the drum set; the 'hand' holding the baton; the drum teacher etc) along with the technological and social order of the session occasion social remembering in a regular sequential form. The human relations in the interaction are stitched together by spotting mediators as footholds in the flow from which events can unfold. The key to this is the way in which objects 'point out' or do the work of establishing social relations, such that invoking the object is already to have formalized the relations.

However, it is through the regular and familiar patterns of talk around photographs that work is done to accomplish the presentation of the unique and noteworthy. In this example what is achieved by invoking social relationships, through their formalization in mediating objects in the flow of regular photographic talk is the configuration of the son as an accomplished percussionist who can take the place of the teacher. Through the settlement of circulating objects and talk an individual is "pulled from the crowd" as it were. Like the passer by who starts as part of the amorphous crowd and who is then "made over" by the poet's gaze and configured as the fleeting form of an individual apart from the crowd. The poet holds her in his gaze and constructs the experience of her momentary uniqueness in the words of the poem. In this example the son is similarly "made over," moving him out from the crowd and the 'ordinary' and into the position of the drum teacher. The moment is captured in the photograph, which formalizes and preserves, as the poem does for the passer by, a past moment of uniqueness, which can unfold itself again and again in the present with every retelling.

**Example 5**

M- who took these ones then

I- which ones do you remember taking  
(0.4)

M- did you take this one of mummy  
(0.7)

R- yeh  
(0.2)

M- shall we click on that one (0.2) oo transferring images oo perhaps  
I've got to transfer them all (1.0) failed to complete oh right ooooh  
right  
(0.3)

What happens when the technology does not lend itself to the display of images in a sequential form? In this next example a mother and young son have just plugged a digital camera into the computer and have downloaded the images into a program which displays them as a grid of tiles. The pictures were taken by the child over the previous few days. The example begins with the images displayed in tile format and the mother and interviewer initiating an interaction with the child around the images which were of various toys, family members with objects, friends on bikes and swings etc. the task was to ask the child about what he had been doing with the camera, to reconstruct his activity and to explain a few of the images. In Bergsonian terms the child was being asked to organise his memory into the spatialised record of it in terms of the action of reconstructing his past activity. Bergson argued in MM that on the one hand we could engage in pure contemplation which would be reflecting on the past without reference to the relevance of the memory-images to on going action, on the other hand our attention to life could be so focused that activity is present and future focused operating through habit memory but with out calling on memory images he describes these extremes as two tendencies which characterise many people. The person who is lost in contemplation with little or no attention to life is a dreamer and the person who contemplates little and is engaged purely in activity is the



'conscious automaton.' The child then has to learn to organise these two tendencies and manage the past into their actions; to manage the relevance of their recall and make it fit for their current action. This mismatch, if you like, between the child's past and their conduct explains (for Bergson) the phenomenon of spontaneous memory in children. He writes;

The extraordinary development of spontaneous memory in most children is due to the fact that they have not yet persuaded their memory to remain bound up with their conduct. They usually follow the impression of the moment, and as with them action does not bow to the suggestions of memory, so neither are their recollections limited to the necessities of action. They seem to retain with greater facility only because they remember with less discernment."(MM: 150-151)

As a spatialisation of a record of events worth remembering, the collection of images on the screen was best described as lacking discernment or the cultural form of an album. The opening questions then (who took these ones then? Which ones can you remember taking? Did you take this one of mummy?) can be seen as the discursive management of recall into action by offering occasions for the child to respond to increasingly prescriptive questions which begin by offering a spatialised break down of activity for him to insert memory into. Three occasions are deployed to provide the child with a foothold in the collection of images. The first is an invitation to identify himself as the author of the stock, the second is an invitation to select the ones he remembers taking and the third is an actual selection of an image made by his mum who gives him the opportunity to own that specific image. It is this foothold that the child responds to and the interaction unfolds; having passed over the opportunity to own the whole stock and the opportunity to make a selection himself.

However the child's confirmation and then provision his memory of taking the picture as the evidential base for his confirmation is now interwoven with the emergence of another set of actions that his mum is engaged with, which originated from the act of selecting the image as a way of continuing the building of the recall (shall we click on that one).

**Example 6**

- M- shall we click on that one (0.2) oo transferring images oo perhaps  
I've got to transfer them all (1.0) failed to complete oh right ooooh  
right  
(0.3)
- R- yeh
- M- perhaps I gotta now
- R- I did take that one  
(0.1)
- I- did you  
(0.1)
- R- yeh  
(0.1)
- I- right  
(0.6)
- R- I remembered taking that one
- M- well [why why why won't it let me]
- R- [coz I remember jake's snowy] (0.2) in the picture

As the example continues the boy continues to make confirmatory utterances which build from a repeat of 'yeh' to 'I did take that one' and finally a detailed a provision of evidence: 'I remembered taking that one...[coz I remember jake's snowy](0.2) in the picture'. The interviewer takes up the interaction while the child continues with the question.

Interleaved with this sequence is another unfolding action sequence between mum and computer where she is engaged in attention to the interruption caused by the unexpected result of clicking on the image. The image did not enlarge - instead it started to download. This makes a bifurcation in the sequence. Up to this point where the computer presents the message; 'transferring images' the setting up of the equipment the downloading and the opening of this sequence had been a regular pattern of turn taking and taking up of a previous speakers utterance. From



this point on the transcription shows how the mother's utterances do not in anyway pick up the contribution of the child but instead they pick up the activity of the computer ('oo transferring images oo perhaps I've got to transfer them all' and: 'well why why why won't it let me?')

There are now two projects going on in tandem which although linked by a common root and common eventual goal have different foci. This is not the same as the configuration of multiple streams of action which we are always engaged. What makes this different is that there are two interleaved sequences with different focuses from one sequence divided by the interruption to the flow like a rock in the stream splitting it into two forks. The computer acts like a parasite (see Middleton and Brown, 2005; Brown 2004; Brown, 2002) for a discussion of the use of this term) on the interaction, intervening with its own agenda, pulling the interaction into two. This creates two sequences of sets of mediators which don't mesh even though their unfolding into two different streams is supported by the same technology. The image remains on screen mediating the recall of the child through his brother's teddy called Jake (coz I remember Jake's snowy (0.2) in the picture) while the screen also offers up messages suggesting and supports unfolding actions of configuring icons. The two streams are kept in parallel by the common field of action; the picture is still on the screen. The two streams have their own duration and rhythm, the mother is busy waiting on the computer between her utterances, while the photo affords the continued rate and rhythm of conversation and turn taking.

What this example shows us is a bifurcation and (as we shall see in a moment) a coming together of durations and a recovery of the joint project. Like Bergson waiting on his sugar lump to dissolve, that we encountered in chapter 4, waiting reveals the different temporal and spatial rhythms which make up a setting and unfolding action. Parasitic mediation (all mediation is parasitic) holds up the flow, sometimes in unexpected ways, making other elements wait on the configuration of another part of the network. An achieved goal is then an intersection of different temporal rhythms; a spatiotemporal network.

**Example 7**

M- well [why why why won't it let me]

R- [coz I remember jake's snowy] (0.2) in the picture  
(2.3)

M- oh right I see what its done we'll have to go back up to there don't  
we (1.7) for some reason right (2.4) we want select all (0.9) is that  
selected all now [right]

I- [yeh ]  
(0.5)

M- and transfer (0.2) right [now its transferring]

The unfolding action in which the mother is engaged can be characterised as finding the contours of the pre-programmed combination of icons and processes which enables and channels mass in different ways. The discovery of functions and mediating sets of actions occurs by kind of unfolding trial and error which defines and makes apparent the contours of these arrangements and processes within the symbolic system. Rather than knowing them from the inside, we happen upon them as they interrupt and reflect our unfolding possible actions. In this example the 'transfer' process emerges from a misreading of the status of the tiles and a subsequent attempted action based on that reading. The tiles are complex intertextual centres connecting the mass of electrons on the camera to a provisional glimpse on screen which allows the user to choose which pictures to transfer. They hold together a connection and set of possible actions between two pieces of hardware. However this was not obvious and the mother reads them as simply thumbnail images which can be enlarged, their true nature is revealed by the operation that unfolds from the click on the tile picture. The operation fails to complete which then (after a moments frustration) opens up another set of options which begin to reveal the set of mediations that are required ('oh right I see what its done we'll have to go back up to there don't we (1.7) for some reason right (2.4) we want select all (0.9) is that selected all now [right]') and then transfer



begins. A new set of operations has been discovered and enacted which interrupt the flow.

The status of the tiles as previews and not the full version is hidden, making them problematic images. Their networked intertextuality makes them problematic because they channel movement in a different set of ways and need to be carved from their current status and translated into another set of connections. Rather like the presently occluded image, they connect to manifold other images and the process of selecting them requires closing down of some of those connections (i.e. by transferring them so that they no longer link the camera to the hard drive and instead wait as stock to be called up). A feature of the symbolic system of icons is that much of the process and mediating translations that connect them are undisclosed unless they are happened upon.

But there are multiple layers of mediators involved in the management and movement of mass; many which the user never sees and many which the user has to discover. The symbolic “messenger” system of mass does not therefore do the work for us but requires animation and creation which is not a simple operation but is one consisting of many complex layers of mediations with different rhythms and combinations of different combinations of the symbolic system.

The intertextuality of every electronic object links activity to other parts of the system which need to be configured in order to perform an operation. but many of these connections (as in the case here) may not be visible or apparent; making simple actions often notoriously difficult and the experience of having to take time out to manage a computer problem, in what seemed like a simple task, all too common an experience. However as a messenger of mass the multilayered symbolic system needs to be a fluid and vast set of connections to capture and manage the amorphous mass. Like a vast net with every actualisation of mass being dependent on the integrity and order of the whole net.

### **Example 7**

M- now we'll have two of those pictures of me holding your teddy  
(1.2)

- R- no jakes  
(0.6)
- M- was that jakes teddy
- R- yes its snowy  
(1.2)
- M- oh was it I thought I you took a picture of me holding your teddy  
(0.5)
- R- I did somewhere (1.5) that could be mine and jakes  
(1.5)
- M- have some of that (0.8) while we have a look at these pictures (0.3)  
did you eat your sandwich (1.2) good boy (0.6) failed to complete  
data transfer why  
(1.4)
- I- oo its got some of them
- M- but it has  
(0.7)
- I- no oh  
(1.2)
- R- (coughs)
- I- well lets see what we've got  
(0.8)
- M- right (.) so who took this one

This last phase of the interaction begins within the waiting time for the transfer to complete. It therefore sees a re-convergence of the divergent foci onto the picture (now we'll have two of those pictures of me holding your teddy)

But this re-convergence does not occur without some realignment work. The realignment statement of the mother becomes an occasion for a dispute. First the child corrects his mother on whose teddy she is holding in the picture on the screen ('no jakes') having previously used Jake's teddy recollection to identify the photo as his work while his mum was engaged in the parallel project. He uses this previously tabled and unchallenged identification to establish an evidential base to



correctly identify the photo afresh and challenge his mother's interpretation ('yes its snowy'). The mum then provides her own past evidential base invoking another event which she thought the image was of ('oh was it I thought I you took a picture of me holding your teddy '). All is then sorted by the child who invokes another similar event which leaves the image open to both interpretations ('I did somewhere (1.5) that could be mine and jakes') on the basis that there is a similar event recorded by a similar image. Here then the re-convergence occurs around the identification of the content and occasion of the image all sorted by the insertion of past possible events.

Then the re-convergence work continues: 'have some of that ((points to a sandwich)) (0.8) while we have a look at these pictures (0.3) did you eat your sandwich (1.2) good boy (0.6) failed to complete data transfer why?') This utterance serves to ensure the closure of the topic of the teddy picture for everyone and has the effect of channelling everyone into the event of the failed file transfer. The initial project then restarts when the transfer has semi completed and significantly the first question is restated.

This management of bifurcation and re-convergence could be interpreted as a breakdown in technology if we approached it through Winograd and Flores' reading of Heidegger's relationship between the present to hand and the ready to hand. But to label this a breakdown which is constituted by the conversational problems occasioned by the technology failing to run smoothly, is to miss the spatio-temporal nature of technology and humans in action. What this example reveals is how durations diverge and converge. Using technologies which manage mass through intertextuality, multivocality and decentredness, means working with fragments and actions all acting at different rates and unfolding in different durations. Managing mass is about knitting different processes with different durations together and therefore revealing our own position in relationship to what is reasserted as the primary melody line of the interaction (drinking sugared water or enlarging an image). This then is not a breakdown which brings technology into language for repair. It is the ongoing management of mass through the messengers of mass in talk and technology.

This example illustrates how, when dealing with vast networks, social remembering is mediated through the messengers of mass and so forms itself around their rhythms and bifurcations and multiplications of actions. In the last example, we will see how this works by stitching together the talk with the numbered files we encountered in the last chapter.

### Example 8

S- did you take any pictures of the maze (.) the maze that we went through and it kept giving us riddles of which way to go and

F- yeah I think I did (.) got to find it now don't know- (.) see this is the down down side to this (.) i::s (.) you really should label them rather than leave them as numbers

I- hhh its quite a big task though isn't it

F- yeah o yeah basically you should- eh- if you do it as you go along its fine but nine ninty per cent of the time (.) I:: (.) going somewhere need the camera (.) and then its er remember to dump (.) pictures there you go theres wearing a

S- huh [anorak]

F- [Disney]land er rain jack jacket

YS- yeah

S- anorak

F- yeah

S- hhh

(.)

F- that was [ the day-]

YS- [where's the maze]

F- what night pict- the day of the nice pic- night picture

YS- where's the maze

(.)

F- maze

S- doesn't know where it ish

(.)

F- lets have a look we'll see we'll go along (.) closer we'll go along



- S- two twenty two  
 (.) (waiting on file)  
 F- uh was  
 (.)  
 S- ohyeah tiger (.) the- there's me getting crippled by eehor

In this example a father and his two sons sit around the computer with a directory open with a long list of icons with umbers which represent the pictures on the hard disk. We encountered this mediation system in the last chapter when the same family contrasted it with traditional albums.

In this section we encounter again the nature of the list of icons as a mediator. The father, acting on a request to find images of a maze at Disneyland Paris, attributes the fact that he has difficulty finding them to the numbered nature of the directory ('yeah I think I did (.) got to find it now don't know- (.) see this is the down down side to this (.) i::s (.) you really should label them rather than leave them as numbers'). We are reminded here of the discourse in the last chapter which occurs earlier in this session where accountability in terms of the failure to take up the opportunity the system offers to name the images is managed by the conveying a sense of the vastness of the task. Here this discourse is repeated but on this occasion the interviewer supplies the a get out clause for the task of naming each image: 'hhh its quite a big task though isn't it.' Then the father takes up the task and presents it by constructing a story of what's realistic by way of a contrast between what you should do and what you do do: "yeah o yeah basically you should- eh- if you do it as you go along its fine but nine ninety per cent of the time (.) I:: (.) going somewhere need the camera (.) and then its er remember to dump (.) pictures."

Ideally you should label each image every time you download them. But the Mass of the record is always there, and all work with it operates in the face of it. Mass far outstrips the task of managing it; most of the time the necessity to use the camera elsewhere requires that you treat the stock of images as just that: a stock that needs quickly dumping.

The rest of the example shows how one can work with the amorphous stock to formulate a vehicle for spatialisation of duration. Here we have a directory which shows icons which stand for images in a list. The issue what kinds of actions and relationships does this form of mediation put these images into with each other and how does this provide a vehicle for the descent of memories?

The family duration is encountered in its spatialised form in this stock of images but the images are not in eventful relationship to each other, they are not held in visible adjacent relationships. The images therefore don't provide context for each other as they would in a traditional album instead they are connected by the numbering system which hides the topic changes and events, leaving the images to be encounter singularly. The numbers provide the context and a key to working through the record, so where as images indexed images in albums here, numbers index the relationships between homogenous fragments at the homogenous level. The father and eldest son have to return to this level and go along the numbers in order to find the maze images and stitch these images together in terms of events (lets have a look we'll see we'll go along (.) closer we'll go along).

In order to have them work as vehicles for the past they are arranged by a sort of hit and miss opening and the numbers become a system for predicting and judging where to click next. This all means that stitching the images into stories occurs through the numbering system.

The indexing at the level of the icons which hides the pictures and their event relationships then happens by incidental sequence of numbers which can themselves be imbued with or spatialise the past and can be negotiated by treating the sequence in terms of the vague sequential seamless order of regions of the past. The stitching of images into stories and find them then is achieved by a combination of numbered indexing and spoken indexing whereby the family duration meets its spatialised version, however the two don't mesh easily because the indexing and requirement to view images separately means the family has to plunge into the record like dropping into roughly worked out regions of the past (as duration guides) and build the account from that point of entry. The request for



the maze pictures, which were taken on a holiday to Disneyland, is 'hijacked' by spontaneous social remembering which unfolds from a misjudged 'entry' into the record as two different pictures appear consecutively. The result is that two other events are unfolded in the discourse. One event unfolds around some boots and an anorak and another event unfolds around an encounter with a Disney character.

This contrasts with the sequential slide show system but demonstrates how social remembering is shaped by the forms of intertextuality (here the connective order between the icons, numbers and images) which produce the potential of multivocality supported by the plunging in and unfolding order from any point in the record. The mass outstrips attempts to tame it. The inbuilt interplay of the visible and invisibility of the record makes the process of plunging into spatialised regions of the past an act of carving out social remembering against the background mass of the unknown and amorphous. This then is the grounds for the multivocal nature of computer based symbolic systems for managing mass. It holds the capacity to spatialise the collective duration in multiple forms and combinations like pulling an instant from a crowd.

### **Summary**

I have had two things broadly in sight for this chapter. First, the organisation of the past into action which has been the theme of this and the last chapter and secondly the nature of the insertion of the past in to digital photographs in the process of social remembering. We began the chapter by continuing the theme of the last. Digital technology mediates the fragmented family digital stock of images as a mass through the messengers of mass (Intertextuality, multivocality and de-centredness). In order to bring this into sharp relief we approached an example of the insertion of the past into a sequential demonstration of digital photographs and found a discernable pattern of conversation and image, which unfolded the past from objects and incidence by association. Through this regular photographic 'talk' the remarkable was worked up through unfolding a set of associated objects, people and places in the construction of the son as a drum teacher.

However this process is remediated by digital computer technology in the form of on screen file systems or directories which hide the image behind a lit of homogenous icons. Social remembering in the form of unfolding incidence from mediating objects, which stabilise relationships, could be observed but there was also an ordering effect of mass in the system.

In this last example the family past, or duration, is collectively held in mass and as such it is presented as something which can be explored and discovered in contrast to a sequential arrangement of images which lock down a story, for instance in a album or a slide show. This is the haphazard exploration of family duration and common experience through the intertextual, multivocal and decentred symbolic system. Here we see that multivocality is like whipping around the super market looking at the stock which gives the family a common source of shape (or potential for shaping) and form (or endless potential for forming) for their duration. The past has a massive vehicle and action in mass is animated by inserting the family duration into the relevant and discovered fragments of it.



## **Chapter 9**

### **Identity and the past on the internet: some examples from family WebPages**

There is no permanent subject that sees a substantive object. Both subject and object are themselves products of a strategy of framing which creates a provisional perspective with the viewing subject at one end and the seen object at the other. Outside this perspective, the subject and the object are actively suspended in a dynamic field of mutability and impermanence symbolised for Benjamin, by the passing urban crowd.”(Cooper 2001:18)

As we saw in chapter 4 Cooper (2001) argues that for Walter Benjamin the subject/object settlement - with the subject and object at different ends of the perceptual encounter with the world - is in fact an arrangement and arresting of the flow of becoming. I argued from a reading of Heidegger’s work (1977a) that this settlement emerges through technologies of mass reproduction and Newtonian metaphysics both of which reveal the world through ‘enframing’ as a homogenous calculable stock in front of an immaterial mind. According to Cooper (2001), Benjamin (1968a) saw the subject and the object as held in a “dynamic field of mutability and impermanence.” Therefore recognition of this fact means that it becomes clear that neither the subject nor the object were ever discrete entities staring at each other across the material and immaterial divide. If we started from that assumption, we would miss the fact that they emerge as a temporary derivative form from the continuous network of images.

Weber (1996) argues that the new technologies herald the return of aura for Benjamin since aura was always a process of arresting the flow through reception of it in terms of both production (e.g. the shooting of film) and consumption. In both production and consumption, objects are formed from the flow of becoming as something that demarcated itself and in so doing secured a point from which to be distanced. This was illustrated by Benjamin’s interpretation of the production and consumption of film which reveals a new world of fragments by ‘shooting’

the world and produces that world through the rules of the editing room, which operate through collection and dispersion of fragments. It is also illustrated in his comments on Baudelaire's poem "A une passante" where the poet stands before the crowd and sees a woman emerge (Benjamin, 1968b).

Through new technologies then we see or consume forms as fleeting cutouts from the mass movement of fragments. Perception, as we saw in Bergsonian terms, is an act of sectioning the flow and carving forms from it as the flow of images attends to our bodies. What is common in both of the examples we have picked from Benjamin is the private experience of the observer standing in front of public forms – the mass produced and publicly circulated film and the public crowd- by which the mass is collected by its reception as it attends to the perceptual act of the observer. Part of the arresting of flow has always been about the configuration of the network which centres on our bodies (indeed Bergson saw children's perceptual development in terms of learning to locate themselves as a centre of action from the reflection of their situation in the images which surround and attend to their bodies). However through technologies of mass reproduction and the public circulation of fragments the centre of action is increasing formulated in terms of a private (and so inward) experience of being located in massive public categories. There is a new private experience of mass.

The action of carving forms from mass culture is the problem of locking down and presenting a single event or ordering an object, which, in our modern society of mass media, increasingly becomes a problem of slowing down the flow by reporting and presenting and privately consuming. This is the nature of Mass media; the endless circulation of fragments held up for an instant through reporting as the arrangement of words and image and technologies of reproduction. We are included in this movement of collection and dispersion as a private consumer; as events and objects are endlessly brought to us, away from their place of origin, through *public* spaces and channels.

The internet is one such set of technologies that opens up and provides channels and spaces which offer a publicly available source of events and objects supplied in digital form by digital imaging technologies for consumption and



private appropriation. If we apply Benjamin's understanding of the collection of fragments by a reception that operates in and through technologies of mass reproduction at both the point of creation and consumption, to digital technologies then the internet can be seen to present multiple layers of reception both in the building of the site and in the consumption of the site.

As a collection of fragments arranged, like words in sentences (Cooper 2001), into fleeting arrangements which are always on the move and always deferring meaning through hypertext connections to other collections of fragments, our consumption of website through selective arresting of the flow constitutes a kind of distracted perception or dispersed attention. Perception resembles a holding up of a kaleidoscopic image of words, pictures and connections. As an ongoing section in this mass perception is more like leaving a trail of dispersed order.

Surfing the net then is a perceptual act (in a Bergsonian sense) and can be understood in terms of Benjamin's ideas of reception as way in which the flow is held up and redistributed in particular forms in a privately experienced way. The website history folder operates less as a journal or a map of progress through a fixed terrain and more as the production of the terrain itself for the user as a loose collection of connections, images and words. History folders with their private configuration of public information can knit private actions together linking them as one adds to the folder which holds past actions. Therefore private configurations can be linked in an ongoing collective creation of the public field. And the family of private life can be displayed as a set of publicly available links. A feature of family sites is a links page which shows an individual's favourite links, a little configuration of the internet which unfolds from a person's interests—the private is displayed and configured in the public. We will explore some of these issues in this chapter

As we navigate websites and their hypertext connections we inhabit a network that forms and informs our location; as we operate within the combination of links, building a history; constructing and inhabiting a thinkable and readable world that is changing as we move through it. As we do so the

network is configured as an interplay of the public and the private both through the private arrangement of connections and the public combinations of images and words which display (in the case of family websites) private worlds.

We inhabit or dwell (in the Heideggerian sense) within the interplay of the public and private within the internet and new digital technologies, by slowing down public information and privately appropriating it, both in the production and consumption of web based material.

So we return to our set of original concerns where we made inhabiting an issue of inclusion in local order through collection and dispersion. We can approach family websites as collections of fragments which display personal and family identities and histories in public spaces. From a Bergsonian perspective what is at issue when histories and change is displayed is how fragments spatialise duration. It is possible for instance that the presentation of the past can be made by spatialising personal histories in terms of massive categories such that a personal duration is so contracted into broad culture narrative forms that the history could be applied to anyone with in that culture. In such cases I would argue that this is a future looking construction, concerned with initiation into normal society rather than the display of a specific unfolding duration. We will see an example of this in this chapter. On the other hand it is possible to spatialise particular features of change and duration in such a way as to allow the unfolding duration to show itself and remain open to further infusion of the past. Again we will see an example of this in this chapter.

In this chapter I will consider examples of web based displays of family members. First, I will look at the display of the private and personal in public forms which manages the private at a distance: the display of interiority without intimacy. That is, how the public and the private interrelate in presentations of self. Secondly, I will consider how selection, collection and dispersion work to build readable accounts of child development. That is, the spatialisation of a period of duration. I will compare two sites which are both ways of making child development massive. However the key difference between them is that one



builds the duration into mass markers of development while the other fragments duration and spatialises it, leaving it open to further interpretation.

### **Public and private in a presentation of identity**

In the move from tradition to consumption in the allegorical constitution of the object that we saw in chapter four, Day (2001) argues that Benjamin saw an “atrophy of experience” brought about by technologies of mass reproduction. Day writes:

For Benjamin, this “atrophy of experience” involved a bifurcation of experience into an “inner sense” of experience (a new, “personalized” sense of *Erfahrung*) and into a sense of experience as something “publicly” lived through (*Erlebnis*) (“On Some Motifs in Baudelaire” 159). The difference between “experience” in terms of *Erfahrung* and of *Erlebnis* is important, because it indicates a split in the subject between private and public “selves” and spaces as well as a decrease in the importance of what we might now term the “local” or “personal” experience as a measure for “public” meaning and social fact.” (Day 2001:103)

Technologies of mass reproduction, like digital photographic technologies, produce a public forum or space by their circulation of the world in fragments. This means that the perception, or holding up of this public flow - as I have argued above - increasingly locates a private self and space.

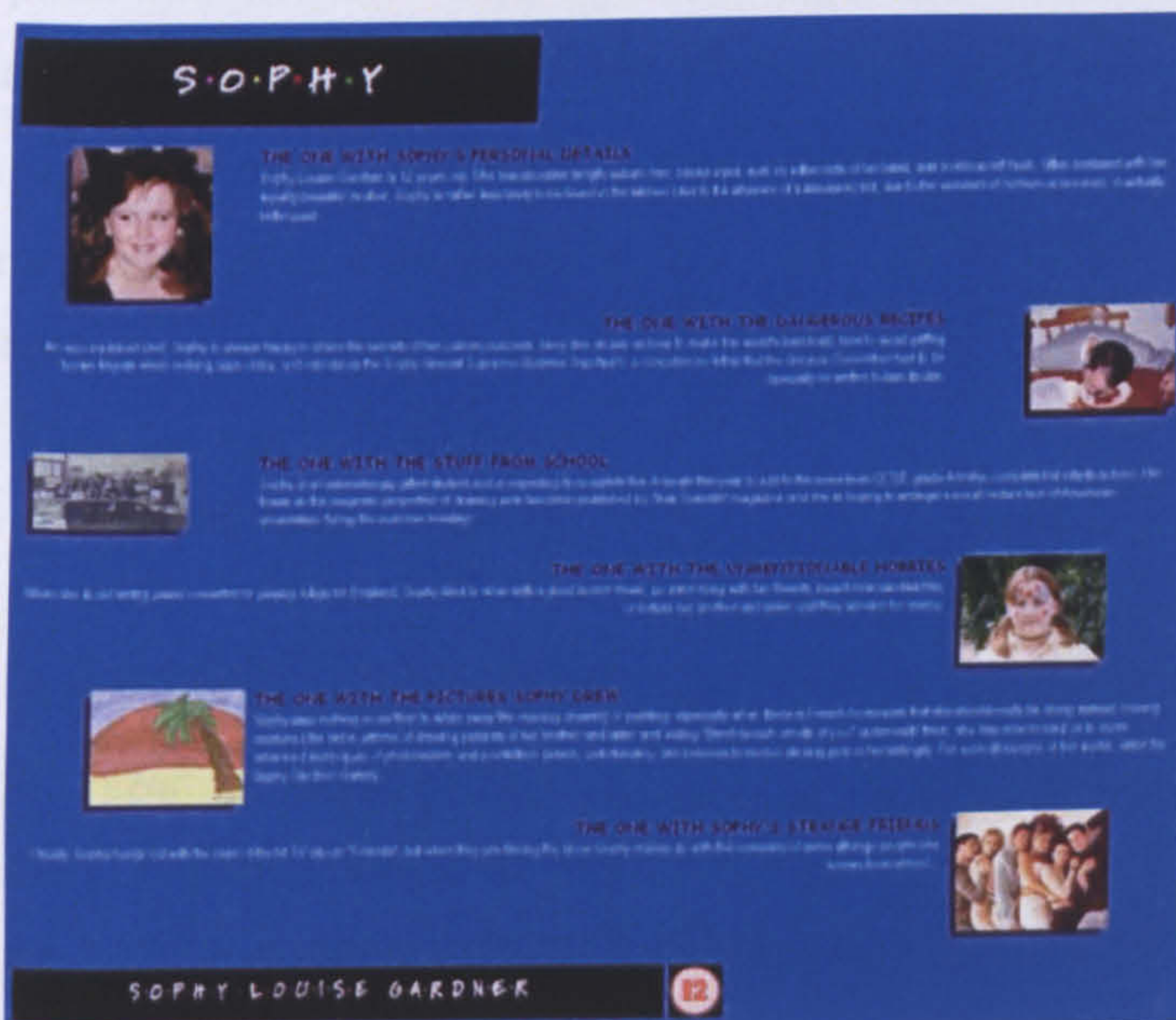
It is through these technologies of mass reproduction that we split in our experience between the private and the public and live in the interplay of the two. For instance Family websites which display personal and family histories and identities in photographs and text constitute the public display of private lives as family records are put into public circulation through the internet.

According to Day then the private has become less important in determining public meaning and in this chapter I want to argue that the public gives private meaning as we fill our spaces with mass produced items, connecting private spaces with private spaces through a publicly available source of meaning. It is in



this sense that the supermarket ensures the probability of predictive collective behaviour rather than the satisfaction of individuals needs (Cooper 2001).

For instance, this next set of pages (from the Neale family at <http://www.neale.co.uk>) illustrates the use of publicly available symbols in the construction of meaning in the presentation of personal information on the internet.



Example 1

Example 1 shows the personal page of a twelve year old girl called Sophy. The page has been written by one of her parents. Each of the images on the page is a link to another page which gives more information about the aspect of Sophy it represents or a small collection of photographs. The information that is presented includes a personal profile favourite recipes, school activity, hobbies, drawings and pictures of friends. This private information is collected together and presented in the format of the reverse side of a video case from the TV series “Friends.” Even Her name “Sophy” is written in the title font of the TV series. On the back of a “Friends” video sleeve the six or so episodes on the video are described and the title of each episode is prefixed with the words “the one with.” On this page we can see that the information about Sophy is managed in this format into pseudo “Friends” episodes. For instance, the personal details link is



entitled “the one with Sophy’s personal details,” or the link with her hobbies is labeled “the one with the unmentionable hobbies.”

Each title is accompanied by a picture, which refers to the title in some way and a short description, exactly as episodes appear on the back of a video cover with a photograph from the episode and a short description. The tie in to the TV series is significant completed by the link to pictures of Sophy’s friends, in which the description mentions the cast of friends (“Usually Sophy hangs out with the cast of the hit TV sitcom "Friends", but when they are filming the show Sophy makes do with the company of some strange people she knows from school...”) and the image that goes with it unlike the others on the page is not from her personal collection of family images but instead is a picture of the cast of “friends.” Even her age (12) is coded in terms of public information with a twelve certificate film classification symbol.

This website is an example of this shift from the private being the measure of the public meaning to the private meaning constructed and presented through mass, publicly available forms. It is an example of mass media technologies taking up the individual and having them straddle this public/private distinction.

This is not a site that takes itself seriously. In its descriptions of private information, It emulates “friends” humour. This is part of what makes the site work. If the descriptions were a straight reporting of information then they would jar with the overall code that this personal site has mobilised in order to display its subject to multitudes who surf the internet. But the use of humour is also part of the achievement of managing the private in the public and giving a public version of the private by the display of self through public code without giving anything significant away

This next link, example 2, (the one with the unmentionable hobbies) is again a presentation of details of Sophy’s life without any providing for any meaningful engagement. On following the link the expectation of going from the title page to the sub page is of going from a summary to more detail of a feature of Sophy’s







knowledge and public forms of narrative of the family and family members are the forms I want to argue operate through websites. As in the example above of Sophy's website, we find out very little of substance even though we have a display of some detail. We are kept by humour and public forms of meaning (the Friends coding and format) from any substantial encounter as the private is publicly displayed and constructed from public mass. This is private life lived publicly and finding public semantic cohesion.

The private life is not an inner subjective experience, disconnected from the material objective world. It is the mass presentation and organisation of private duration. In the Cartesian dichotomy between mind and body that Bergsonism over turns, the private inner life is nothing more than an immaterial subjective storehouse of memories which might be reflected in the home or in publications or diaries or websites as material expressions of the inner subjective world. However, in Bergson's psychology experience is understood in terms of the intersection of time and space in the insertion of duration into the plane of action. In terms of the individual this means that our inner world is understood instead as our personal duration that exists in the past and which is encountered as it unfolds into the present through the plane of action. The action plane is populated with images which mediate our duration and make it intellectually manageable in spatialised forms. This plane of action then, could spatialise duration in and through unique traditional objects like family heirlooms, or pieces of art work etc, and/or mass produced, publicly circulated fragments, like films, music, news paper reports, and lifestyle products or souvenirs etc. Where the public forum mediates individual duration we can say the private is formed, or made intellectually available, through the public and therefore that the private is a fold, imbued with memory, in the continuous network of public forms of knowledge.

The private inner experience of the individual working with technologies of mass reproduction, that psychology makes its subject is replaced in Bergsonian psychology with the insertion of duration into public forms which are widely available and which connect people into collective action by spatialising duration with mass objects.

This shifts the research focus onto the organisation of the plane of action and the insertion of the past into action rather than the organisation of an inner subjectivity. The research issue becomes “how do we display and make our pasts intellectually available through the objects that we populate our worlds with as vehicles for duration.” This of course brings website presentations of the development of children into focus as a psychological issue. How is development, which is a spatialised version of duration, made available?

As a fold in public forms of knowledge, which are fleeting, the presentation of identity and duration becomes an achievement in holding up the incessant movement of mass. Identity as a mass fleeting form is experienced as an achievement that is in constant jeopardy and constantly needs reaffirming. This means, in the domestic sphere, that technologies of mass reproduction and public circulation like digital photography and access to the internet and website writing software offer the opportunity to do repeated identity work to produce the mundane as well as the shocking. On the internet we can find family websites which work up stories of members as remarkable for being unremarkable.

The process of formulating identity is one of pulling an individual from mass only to have them return to it as an instance in the crowd, to reveal them as both “pedestrian” and without intimacy. From our discussion of Sophy’s site we have seen something of this achievement of the mundane through the public forms of knowledge which manage the private in a way which distances the reader even though detail is given; with the result that the presentation of the individual is achieved in terms of stories of the remarkably unremarkable.

For the rest of the chapter I will review two sites where development is presented in two different ways. Through these sites we will explore these issues of the spatialisation of duration in public forms of knowledge.

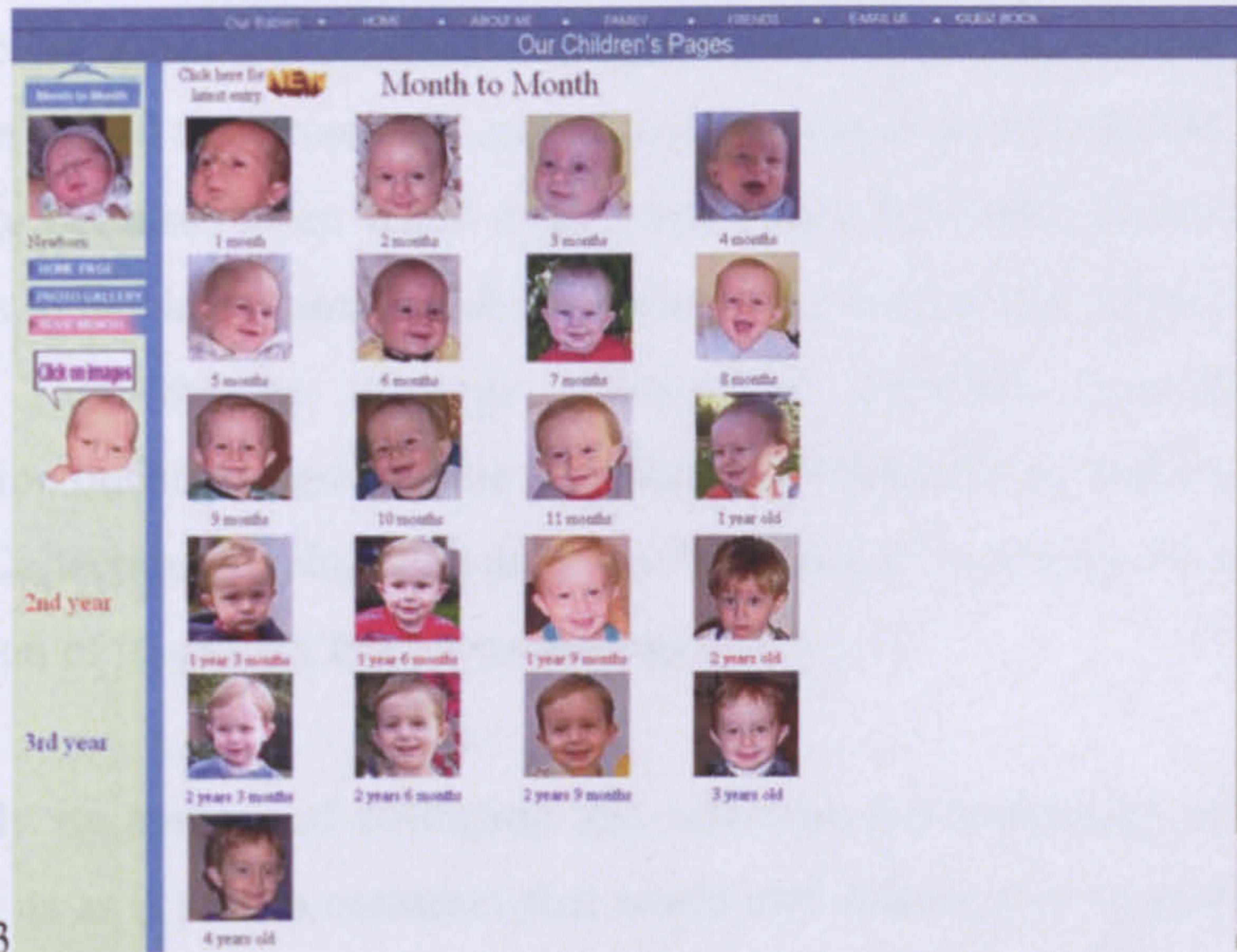
### **The presentation of development.**

These two collections of web pages both present the development of children and so give us an opportunity to compare ways in which the changing child has been revealed through the arrangement of text and image. They are interesting because

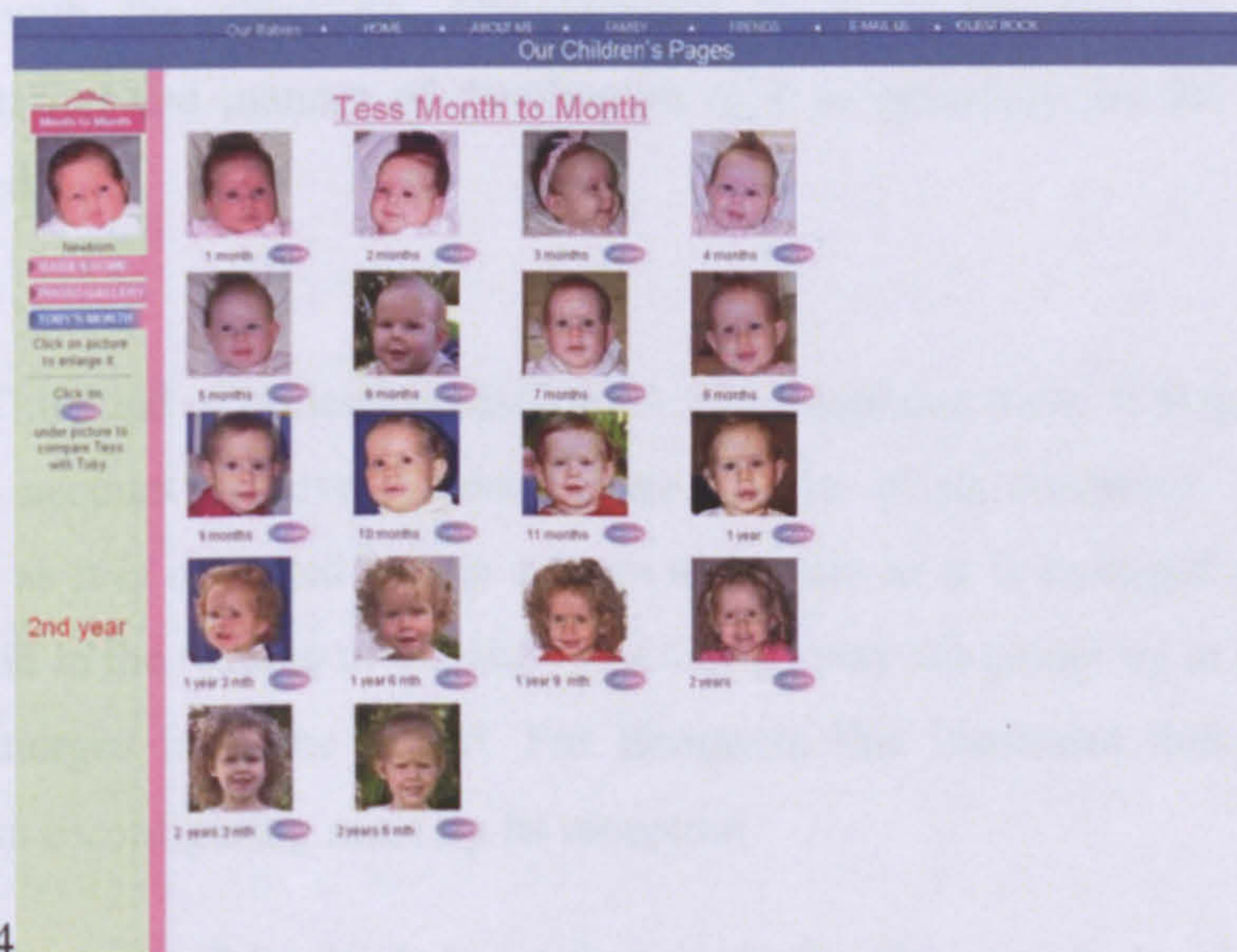


they demonstrate different ways of spatialising Duration of children as development.

**The Orvin family ([http://www.orvin.net/babyy\\_mth.html](http://www.orvin.net/babyy_mth.html))**



Example 3



Example 4

The first site (shown in examples 3 and 4) contains two pages that we will concentrate on in our analysis. There is one for each child that consists of a simple arrangement of images taken at monthly intervals. There is a schedule of recording: an order into which the children are injected. The text serves as a kind



of scale of time marking progression and arranging the images into this scheme to achieve a readable development.

The schedule of recording carries with it the message. We can imagine that with a different limit of resolution the message might be lost. That is, if we could make second by second images we would produce an almost seamless amorphous mass of a record that would be unmanageable. Moreover it would be unreadable, as change because, when faced with development first hand progress occurs so slowly as to be almost unnoticeable without some kind of marker to check change against. This website displays development precisely because it leaves information out and fragments the continuous development so that it is readable at glance. Collection therefore that achieves "readability" works by the selection and subtraction of fragments from a continuous whole.

By its manner of collection and selection the technology reveals a new world to us as it acts to construct that world and deliver it to us in the same way that Benjamin saw film Revealing walking through slow motion or picking up spoons with the close up. Development is made readable by its rate of fragmentation and manner of distribution as it is spread across the images and actualized.

This kind of collection disciplines an amorphous mass of fragments into a personal account of development by the manner of its reception. The account emerges as it is collected by the camera and again as it is arranged as a site and then again in the reading of the site. In a similar way the passer by in Baudelaire's poem emerges from the crowd. For Benjamin this illustrates these notions of collection reconfiguring mass by its reception.

The poet falls in love at last sight in this sense: In the centre of Baudelaire's poem we find the manner in which the woman who emerges from the crowded noisy street has her being-in passing. "A Lightning flash...then night!" the poet is left with the memory of the beauty or loveliness "whose glance has brought me back to life!" Weber (1996) argues that the passer by only comes



to be in passing in a moment of centrifugal force where the dispersed crowd or mass is configured and collected in its reception by the poet and then dispersed again. In this sense the figure is the crowd or the mass configured for a moment rather than an instant separate from the movement embodied by the crowd. The figure is not over and against the crowd as man over against space but rather is constituted out of the mass. Weber says:

The *passante* emerges from the deafening din of the street as a visual figure set off against the inchoate *noise* of the amorphous crowd of pedestrians. But in thus setting itself off from its pedestrian surroundings, this emergence also sets itself *apart* and reveals thereby its affinity with everything pedestrian.”(1996: 94)

By setting its self apart from the crowd that brings it, the figure reveals itself as an instant of what constitutes the crowd itself- “the *passante* appears only to disappear, almost instantaneously”. Just as the passer by, in emerging from the crowd, reveals herself to be nothing but pedestrian and at that moment retreats as such back into the crowd or mass, so this emergence of development is remarkable by its normality and reveals these children to be absolutely normal but in a remarkable way. The fact that this site presents *two* children in this way demonstrates first the statement system or schedule of fragmentation to be universally useful and applicable; on Tess’s page the system is waiting for her further development. And secondly by its universal applicability demonstrates its contents as mass; these are developing children, examples of many. This page is fascinating, but at the same time it’s not surprising – the idea of development isn’t alien to us but it is rendered captivating by the presentation of normality by its fragmentation and collection. The receiver is a bit like the poet in that sense. In its distracted consumption the viewer can’t help but be intrigued by what in the end isn’t remarkable. In a sense this is what distracted perception is about; momentarily noticing normality.

Does this system spatialise an encounter with unfolding childhood development, that is, does it combine time with space in such away that the past is made manageable and readable in its own terms? This is the question (now

rephrased with Bergsonian terms) that we encountered in chapter three where we considered the idea of statement systems taking up the world in a deterministic way or on the other hand in a way which performs the unfolding duration of a subject in a way which makes its recalcitrance readable and intellectually manageable. In Chapter 4 I argued through Latour (1999b) that objective science was 'risky' in that the combination of object and statement allows the object to *object* about what was said about it by resisting the categories that a statement system attempts to make it appear in. Objectivity is achieved when statements are made relevant to the changing nature of their subjects. In Bergsonian terms this is about allowing the unfolding changing nature or duration to shape and guide the manner in which it is spatialised and made readable. Objectivity depends upon the interrelationship of the past and the action plane that Bergson ([1908]1991) wrote about when he argued in *Matter and Memory* that the past guides action and action calls on the past to give it life. It is then an achievement of the insertion of the past into space such that duration is revealed and its unfolding is made readable and predicable and not mastered.

I want to make the argument that it is an example of a collection of fragments in such away that it achieves a relevance of statement and phenomena. That is, that it is indeed a combination of duration and statement system where by duration is able to object in a readable way, revealing change in its own terms. The site shapes development through images as it is built around the objecting unfolding infant. The system waits for the Childs movement or change. Through the monthly schedule of reporting it anticipates the next set of changes in terms of that register.

Cooper (2001) illustrates the relationship between a statement system and change with the example of the 'shelf life' of products. Cooper says:

The "shelf life" of the thousands of products in a food supermarket is not just an indicator of a products freshness and edibility; it is a major vector that directs the whole production-consumption system of the mass food industry. A product in this sense helps realize a mass of individual life worlds; it becomes



less a consumable item and more an object through which to think (Cooper 2001: 22-23).

Without sell by dates, products would not go off but without the biological and chemical changes of produce, that is, without the trajectory of collection and dispersion that essentially belongs to a product, sell by dates would not be relevant. Sell by dates discipline or reveal the unfolding movements of collection and dispersion that supermarket produce go through as periods of usefulness and redundancy. As such they regulate production and consumption because they spatialise duration, making it intellectually manageable. For instance, through the dating system we can think about the window of time within which we have to use the product and when they can be combined successfully with other items in cooking etc and also when it would be unreasonable to use the product. Collection into statement systems disciplines the object in such a way that its ordered nature renders its recalcitrant nature both readable and predictable. To go “out of date” is an achievement of a combination of statement and the duration of an object into a spatial new order.

Just as the sell by dates of products combine a set of changes and reconfigurations within an item with a readable world so that those changes move an item ‘out of date,’ so also in this example the child’s change is taken-up by a system. The statement system and the unfolding changes mediate each other such that neither the statement system nor the change exists outside of the display “monthly development.” Just like Benjamin’s film which reveals new worlds through the arrangement of fragments into slow motion or the close up, so this site reveals the new world of facial change through the spatialisation of that aspect of a child’s duration.

**The Ramos Family <http://www.ramosfamily.com>**

In the second website, we are presented with a set of pages devoted to Harrison the eldest son of a North American family. Through the pages we are invited to “watch him grow up”. Just like the first site we are dealing with another presentation of development. I will limit analysis to noticing the way in which the



phenomena (and he is that to his parents at least) is taken up and made readable. How is Harrison's development made readable through the statements made about him?



Example 5

The site presents a combination of images and text through which Harrison is taken up into a developmental narrative order that is very different to the first site. The Pages are organized by year, and supported by images of Harrison around birthdays and 'holiday' events, like Christmas and Halloween. This yearly limit of resolution hands over scheduling of development to the narrative that accompanies the pictures. Unlike the first set of images from the first site this set of pictures does not embody a Meta narrative. In the presentation of Harrison the images are subordinate to the textual accounts. We aren't told of the occasion on which many of the images are taken and they are not presented as reference points in and of themselves, rather, in combination with the text, we are led through them, often without comment on what the image offers up. We can guess the occasion or event in a few of the images inasmuch as they represent a more familiar schedule of photographing than the first site; like lost teeth and new born babies, birthday's, Christmas's and other 'holidays' etc. But also unlike the first site where the images are arranged along a scale of temporal progression, these images are woven together in a report of remarkably unremarkable events. It is a report that could apply to anyone.



In this sense Harrison is produced in massive terms through a typical developmental story. In terms of Baudelaire's sonnet (which provides such a useful metaphor for much of this chapter) Harrison is carved from mass and returns to mass just as the passerby does through the gaze of the writer; in this case it's Harrison's mother in the place of the poet. Harrison's pages require the parents to make the narrative work by providing a point of reception through which Harrison emerges: a gaze by which Harrison is pulled out of mass and produced as mass.

Here are some examples of developmental formulations from the gaze of the parents that populate the text on Harrison's web pages:

At age two Harrison started developing his own personality. We took the good with the bad, and enjoyed every moment watching him grow and learn new things. For Halloween that year he was a dinosaur, though there for a while we thought he would be a cowboy.

This piece of text appears amongst a set of images in the 'Harrison at 2 years' section of the website. After marking the beginning of personality development at two years, we are presented with an anecdote about Harrison at Halloween. The anecdote provides us with a reading of the two images that come to form an evidential base for the construction of developing personality. A photo of Harrison wearing a dinosaur outfit is juxtaposed with Harrison wearing a cowboy hat and the text has us read these images as a change in decision on Harrison's part. In combination with this text the images are constructed as imbued with personality. Personality that begins at two years is presented as manifestly to do with a change of mind and more specifically with the parental observation and reception of that change ("We took the good with the bad, and enjoyed every moment watching him grow and learn new things ....for a while we thought he would be a cowboy"). The photographic evidence of a change of mind and the textual construction of this unfolding personality couched in terms of the 'watching' and 'taking' reception of the same by Harrison's parents are the anchor points or hooks across which this construction of personality is stretched.

The experience of having a photograph taken involves offering up a pose; for instance, raising a glass and smiling at an event for a photograph of a Christmas dinner or a celebration. A pose for a photograph offers up a stripped down and summarised version of an activity: to pose, along with the composition of an image, is to offer up a readable configuration of an event by boiling it down to some key elements.

In this example the arrangement of images and text achieve the same thing. Here we have a textual and pictorial boiling down of change and recalcitrance (both the change of mind and the output of “the good with the bad”) into ‘choice as personality’. If we recall Bergson’s understanding of the human as an image that interrupts the continuous flow of images with the ability to choose, then humans are encountered by other images in the network as unfolding zones of indetermination. This set of images and text can be seen as a way of boiling Harrison down, as a zone of indetermination, into an intellectually manageable ‘personality;’ understood in terms of the manifestation of ‘choice under observation.’

The zone of indetermination is a site of selection as it sits within an awaiting network that waits to receive its structure from the output of the zone. The zone of indetermination must select the range of actions it gives back to the network in terms that the network can read otherwise it runs the risk of becoming irrelevant to the network (see chapter 4).

The most powerful object in the network is therefore the least well defined (Hetherington and Lee, 2000). So an object that collects or acts back on its network in an unpredictable way becomes imbued with a networked agency. The way in which this agency is read is important because here in this section Harrison as a zone of indetermination is made readable as a developing personality precisely because he is watched and received by the waiting gaze of the parents. They are the waiting network in the account; the output of Harrison is revealed in terms of the reception of the parents, they “took the good with the bad” and “watch him grow” the switch from cowboy to dinosaur for Halloween is revealed over time (“we thought there for a while”) situating the parents in the waiting



observers position where thought is ordered, by the confirmation of hypotheses about choice.

Harrison emerges from the crowd as the waiting network takes up the zone of indetermination and circulates it as personality through the arrangement of text and pictures. As we the web surfer encounters Harrison he is already a report; a presentation of personality as a striped down, offered up, package label for a kind of human agency that emerges through the reception of output by an observer. "Personality" is a public category or form of knowledge that is usefully loose enough to gather up and circulate the output of behavior in massive terms. In this way the Harrison is combined with a culturally manageable categorization of agency as choice that then propels him into the next few pages of his life that tell a story of the beginnings of independence.

As Harrison's pages progress, his developing personality constitutes a discursive vehicle for presenting the increase of independence and the networks of relationships he gathers to himself. Through this account 'Personality' circulates as a kind of quasi-object. Brown (2002) presents this notion through the example of the movement of the rugby ball.

The ball in motion is a quasi-object. On its own it is just a ball. The legal moves of the game are nothing apart from the ball. In combination with the rules and players the ball in motion according to the rules has multiple movements that belong to it. It emerges as a quasi-object that has a motion according to its nature and by that nature shapes the relations within the collective as it moves. Players become attributes of the ball as it stitches them together by their actions on it within the rules (kicker, catcher etc) which keep it in motion. The quasi-object emerges from local order as something to attend to, to wait on and receive relations from by its moment.

The movement of personality occurs through its development and its encounter with other people. The mother becomes an attribute of Harrison's personality in her reception of it. Throughout the site personality is presented as a way of both reading Harrison's relationships as it operates as an agent in its own

right by which Harrison enters into relations with friends and trouble; and it also works to fix an emotion in his mother as a response to the development of personality.

For example for the entry for his ninth year his mom writes:

Harrison is now nine years old. He makes friends easily and has a real magnetic personality. He has some trouble in school, but not with his grades. Usually it's his outspoken personality that tends to get him into a fix.

And at aged ten she comments:

At age ten, his wonderful personality is as captivating as it always has been. His intelligence, greater than ever. I watch him grow in amazement, in awe.

Harrison's personality makes his Mother proud; it attracts friends like a magnet; it is outspoken and brings trouble. It circulates and crystallizes relationships and emotional responses; it even gets Harrison "in a fix." It also shapes and provides entry into a kind of special parental knowledge; the kind the poet has in the moment he beholds the passer by. Through the gaze of the poet, the woman appears and in beholding her from the crowd he falls in love for a moment (Weber, 1996). In our example website it is through the gaze of the mother that Harrison is captured from the crowd (or digital information, and childhood) and held up with amazement, and awe at his "captivating personality" and great intelligence.

At this juncture, if the reader will forgive a slight digression I want to draw a comparison between this presentation of Harrison and his personality and Latour's analysis of Milgram's famous study. Latour (1999b) argues that Milgram's experimental study already, and in advance, in the name of scientific control, dictated the terms in which people offer up a stripped down version of their behaviour. In a sense the experiment asked the participants to offer up a posed and



boiled down version of real life: They could choose either to continue electrocuting another participant in response to incorrect answers to questions or they could choose to stop. Latour presents this as an example of non risky science; the root of which is in removing the “subjective” influence of the subject from the experiment. The experiment works by disciplining the zone of indetermination that is the human in the network. Latour commenting on the experiment says:

While the actor is held by forces unbeknownst to him or her, only the scientist is “in the know”, producing what is taken as solid knowledge since it is untainted by the subjective reaction of the participants. The scientist is disinterested and the subject uninterested in what is by definition unknown. The set up seems ideal for producing a science of humans as hard as that of natural objects, since human subjects have *no influence* whatsoever on what is said about them. Unfortunately, although it tastes and smells like hard science, those all-terrain “scientific methodologies” are a sham and a cheap imitation for a reason that becomes clear if we go back to the definition of objectivity”(Latour 1999b: 115)

According to Latour then, the study lacks objectivity because it fails to make human behaviour and influence readable. Instead it strips an either/or response from participants and presents it as a summary of human behavior. It is not therefore objective because there is nothing of what makes human behavior left in the data as it systematically cleans the experiment of any unfolding complex ‘humanness’, i.e. it squeezes out duration by contracting it to a point where it no longer emerges from the individual. In the same way I want to argue that Harrison’s duration is contracted into “personality” and that this contraction is managed through the construction of the gaze of the mother in terms of present tense emotional responses.

We as viewers of the site receive Harrison’s development through his Mom’s gaze. In that sense we are like the readers of the poem inserted into the position of the observer through the written account rather than the poet as the first hand observer. As a piece of social memory this website works like the poets report. It locks us into a present tense encounter. So Harrison is about 13 years old

when this site is being observed but each year begins with a present tense construction of emotional response. For instance; “Harrison is *now* nine years old. He *makes* friends easily and *has* a real magnetic personality”, or again “at age ten, his wonderful personality *is* as captivating as ever” (emphasis added).

The website is a piece of social memory constructed in and through mass, with the construction of an individual pulled out of the crowd through the subjective experience of an observer which is pitched in massive catch-all categories (i.e. watching the development of personality, taking the good with the bad etc) in an account which could describe anyone. Again, just as with Sophy’s site this is an account of how remarkably unremarkable Harrison is. In contrast with the Orvin site, aspects of Harrison’s unfolding duration are contracted into mass categories and typical development in such away that the observations of personality were already culturally set up in the same way that Milgram’s study set up human behaviour by expunging the recalcitrant and unpredictable. In a sense then the contraction of duration into personality development is a closing down of the unique duration of a zone of indetermination. To be in possession of personality is to possess individuality in the same terms as everyone else. Significantly, Benjamin (1968a) argues that the notion of personality and the “cult of personality” emerge where we have a public encounter with an individual through the circulation of fragments in mass media. The cult of personality emerges as a way of attempting to restore (at a distance) the intimacy of a personal encounter with the individual. Famous people, through their mass production in film, TV and print, lose their aura, and the cult of personality - which is the incessant creation of character - is constructed in mass media forums from fragments (news paper reports, celebrities photographed on the beach on holiday, scandalous revelations etc), and emerges to fill the void left by the loss of an intellectual (i.e. ‘thinking’ in the Bergsonian sense of spatialising duration) encounter with their duration. The cult of personality that surrounds a celebrity is the construction of an encounter with their interiority with out intimacy. On the small screen or monitor screen, a mass produced, Harrison has undergone a similar construction along with Sophy.



Can Harrison's unfolding duration object to what is said about him? Or, are his thoughts and words and character already mastered by a set of parental and cultural developmental narratives? This is not a case of saying that this narrative isn't true or that these are dictatorial parents constructing this site. But it is a case of asking, what is the accomplishment of this site. I would argue that it is not so much an accomplishment of the objective display of an individual's unfolding duration but is instead a construction of personality in the sense of Benjamin's use of that term as filling a void in the absence of allowing duration to be read as it unfolds.

Harrison's story is then a publicly available story which not only displays a way of inserting the private at a distance into the public, it also displays the contradistinctions between at least two discourses of the individual described by Abercrombie et al (1986).

Briefly, Abercrombie et al (1986) describe the public discourse of *individualism* as the story of the human as a free, acting, rational and self-motivating individual (Lury 1998). However at the same time as this discourse of the individual arises historically, so too are there developments in the surveillance and management of human techniques in the form of clinics and prisons and also a move to equate knowledge with the sovereign empirical gaze (Crary, 1990; Lury, 1998). This combination of a universal discourse or doctrine of the individual along with surveillance culture and science-by-sight reveals human uniqueness as an expression of universal categories. *Individualism* therefore paves the way, paradoxically for a discourse of *individuation*; the subordination of the individual as one amongst many free, acting, rational and self-motivating individuals who can be grouped and watched and studied. Abercrombie et al (1986), quoted in Lury (1998) argues;

We see that this very process that we have called the Discovery of the Individual not only gives importance to individuals, it also makes it meaningful to tell individuals apart, to identify them, to register them and ultimately to control them; the uniqueness of the individual is his or her subordination. At the most fundamental level, the importance, and even

dignity, of individuals is conveyed by giving them names, but the custom of unique names gave the state a powerful means of control. (Abercrombie et al 1986, quoted in Lury 1998: 10)

The tension that exists between individualism and individuation is introduced into the display of individuality through digital technologies as the tension between the individual and mass. When considering the circulation of digital photographs in websites along with text we not only encounter the issue of public forms of knowledge lending meaning to the private in a display of interiority with out intimacy; we also encounter the constant to-and-fro in the construction of the individual between their unique duration and mass. This tension between the individual and mass or individualism and individuation is there in the category of 'personality'. It is a contraction of the individual into a category of massive individuality.

In the case of Harrison personality operates as a culturally habitual way of setting up the plane of action to receive duration in public forms of and mass knowledge. The spatialisation of duration is a contraction that is more concerned with inserting its subject into society as a fitting member with social and cultural currency than with the task of reminiscence. Harrison's site then is an example of social remembering but in the broadest terms; where the past *incidentally* guides the production of Harrison as a 'normal' boy at various stages. With its use of the present tense in each year category it is written as if each year is added as he gets a year older with a construction of Harrison as normal for that age group.

The Orvin site with the pictures arranged month by month and opens up a schedule where by the development of the child is made visible and readable through the combination of images read along a time line. Images that are added in the future, in the next slot along the time line will be read as further development. The risk (in Latour's sense of allowing the phenomena to express its changing nature through the statement system) is that the kids shape what will be said about them. The systems displays but does not dictate the development of face shape and family likeness. With Harrison there is a sense in which he is locked into a narrative and cannot object to what is said about him if the site is to



maintain its integrity. The Orvin site is built to accommodate change. Change in the Harrison site requires a rewriting of history.

### **Summary**

Why is this interplay of the private and public in the display of identity on the internet a psychological issue? Because with a Bergsonian psychology that sees continuous networks of images translating each others actions, the private is rescued from subjectivism and is reconnected with what constructs it. As such we can see how the private world is mediated by mass technologies through its fragmentation and circulation as an interiority without intimacy. Bergson refocuses our psychological accounts from the inner world to the issue of the spatialisation of the past in action, which also refocuses our attention on everyday life objects and new technologies in terms of how they mediate perception and memory, space and time.

## **Chapter 10**

### **Thesis Conclusion**

In this thesis, I started in chapter 1 with the private experience of Roland Barthes' searching through his family photographs to find an image, which represented his dead mother in her fullest sense as she was in the last days of her life. I argued that Barthes' description of the image indicated that the single photographic image was more than a representation since the work that it accomplished for Barthes' far exceeded the bounds of accounts of the relationship between external images and mental images.

Barthes' picture of his mother as a five year old girl held in place a network of time periods and relationships, such that Barthes' could find the parental role he had had as he nursed his dying mother in the experience of looking at her as a five year old. The picture showed a time before his lifetime and which now was continued into the present and imbued with a new significance based on the future of the little girl in the image and Barthes' memory as he looks at the picture. The photograph held together, multiple looks, relationships, resemblances and readings, which were all configured into the past inserted into a private grief, mediated by the photograph.

This set of observations set up the question of how one would make a psychological account of the experience of looking at images. This thesis has aimed at addressing that question.

The thesis has ended with a look at a very public display of the private world of the family through digital images. The observation of childhood development was once the private experience of those closest to the individual. Now through the internet and digital images it can be displayed publicly. These family websites manage the past and identity of individuals and families into the remarkably unremarkable by folding the past and identity into text and images and circulating



them through massive public forms of communication, both symbolic (like the use of the 'friends' logo) and technological.

Both Barthes' experience and the internet display of digital pictures demonstrate the networked nature of the image. Therefore, from the beginning to the end of this thesis I have moved from the private network of relationships held in place by the image to the public network of the display of the private. What links the two is the full nature of the image. The internet examples are a remediated form of Barthes' experience, however, the networked nature of images connect Barthes' to this internet phenomena since both are based on the circulation and everyday experience of images holding personal and private experience together in managing the private and public.

Key to this experience is the nature of the object and the image as well as 'talk' in holding sets of relationships in which we dwell in place. The central concern with the nature of the image as a point of order in a network has united the various threads of the thesis; the nature of the relationship between technology and people; the nature of mass technologies and the nature of perception and memory.

The central argument of the thesis has been that if the image is a network then the inclusion of people in networks needed to become the focus of psychology. However in order to make this shift in the nature of image and the consequent shift in understanding the relationship of people to images and image technologies I have attempted to overturn the well established representational framework in each chapter.

In terms of the relationship between technology and people, the argument has been made for the theoretical shift from seeing the social and technological in terms of context and content to seeing them intertwined in mediated action. In terms of the subject and the image, I have argued for the move from the subjective observer understood from the vantage point of the representational framework to the human as a Bergsonian image included in the flow of allegorical progression. Then finally, I have argued for the shift in our conception of the image in terms of

its implications for perception and memory as announced by Bergson. The thesis therefore has moved from the private to the public but also from the broadly social and technical to the minutia of psychological experience in Bergson.

Across the empirical chapters, the interplay of the public and private, the social and technical and the wider nature of digital technology as a mass production system and their impact on unfolding action have been displayed. The social, technical, and experiential are all blended into the flow of action such that, in the end, image is about the public circulation of the private - seamlessly played out through the circulation of the digital image.

In terms of wider theoretical and methodological focus, digital photography and technologies of mass show how we need to shift from prioritizing perception to prioritizing memory or duration. Images are not fixed things which stand in front of a perceiving subject, instead they are constantly taking up the past and lending it temporary form and the opportunity to be endlessly combined with other continuations of the past. Therefore, the shift in the conception of image has implications for psychology and its priority of perception. Image as a continuation of the past rather than as a representation brings with it a shift from the priority of perception to a priority of memory or more broadly, the past prolonged into action through images. Perception then takes up its place as a measure of the scope of connections an object has rather than as a mental faculty. Psychology should be about the spatialisation of the past in action.

The research agenda should then be focused on memory as a discursive activity in both talk and objects. This would mean that social remembering needs to study the set up and unfolding of the plane of action. The study of the tension between the past and the present puts social remembering right in the place where psychology should be. This thesis then is not announcing the latest shift in the constitution of the grid of perception, but a completely new shift: it is an argument for starting again with memory.



## References

- Agre, P.E. (2001). Changing places: Contexts of awareness in computing. *Human-computer interaction, Vol 16:177-192.*
- Ansell Pearson, K. (2002). *Philosophy and the adventure of the virtual: Bergson and the time of life.* London: Routledge.
- Barlow, H. (1990). What does the brain see? How does it understand? In H. Barlow, C. Blakemore, & M. Weston-Smith (Eds.), *Images and understanding (pp5-25.)* Cambridge, UK: Cambridge University Press.
- Barthes, R. (2000). *Camera Lucida.* Vintage classics
- Beilin , H. (1999). Understanding the photographic Image. *Journal of Applied Developmental Psychology, Vol 20(1):1-30.*
- Bell, V. (1997), *Falling into time: the historicity of the symbol.* Other Voices, Vol 1,no. 1
- Benjamin, W. (1977). *The origin of German tragic drama.* Verso press.
- Benjamin, W. (1968a). The work of art in the age of mechanical reproduction. In Ardent, H. (Ed.) *Illuminations.* (Zohn, H. trans). New York: Schocken Books.
- Benjamin, W. (1968b). On some motifs in Baudelaire. In Ardent, H. (Ed.) *Illuminations.* (Zohn, H. trans). New York: Schocken Books.
- Benjamin, W. (1968c). Unpacking my library: A talk about book collecting. In Ardent, H. (Ed.) *Illuminations.* (Zohn, H. trans). New York: Schocken Books.

- Bergson, H. ([1908]1991). *Matter and memory* (trans. N.M. Paul & W.S. Palmer). New York: Zone.
- Bergson, H. ([1911]1998) *Creative evolution*. Mineola, New York: Dover.  
(translated by Arthur Mitchell)
- Bergson, H. ([1913]2001) *Time and free will: An essay on the immediate data of consciousness*. Mineola, New York: Dover. (translated by F.L.Pogson)
- Brown, S.D. & Lightfoot, G. M. (1998). Insistent emplacement: Heidegger on the technologies of informing. *Information technology and people Vol11(4):290-304*.
- Brown, S.D. & Capdevila, R. (1999) Perpetuum mobile: Substance, force and the sociology of translation. *Actor network and after* (Ed J. Law & J. Hassard) pp26-50 Sociological Review Monograph, Blackwell, Oxford
- Brown, S.D. (2002) 'Michel Serres: Science, translation and the logic of the parasite'  
*Theory, Culture & Society Vol 19, 3. pp1-27*.
- Brown, S.D. (2004) 'Parasite logic' *Journal of Organisational Change Management Vol 17, 4. 383-395*.
- Callon, M. (1986b), Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of Saint Briec Bay. In J. Law (Ed.) *Power, Action and Belief: a new Sociology of Knowledge? Sociological Review Monograph*. London, Routledge and Kegan Paul. 32: 196-233.
- Callon, M. (1986a). The Sociology of an Actor-Network: the Case of the Electric Vehicle. In M. Callon, J. Law and A. Rip (Eds.) *Mapping the Dynamics of Science and Technology: Sociology of Science in the Real World*. London, Macmillan: 19-34.



- Callon, M. (1991). Techno-economic Networks and Irreversibility. In J. Law (Ed.) *A Sociology of Monsters? Essays on Power, Technology and Domination, Sociological Review Monograph*. London, Routledge. 38: 132-161.
- Callon, M. and B. Latour (1992). Don't Throw the Baby Out with the Bath School! A Reply to Collins and Yearley. In A. Pickering (Ed.) *Science as Practice and Culture*. Chicago, Chicago University Press: 343-368.
- Cooper, R. (2001). Interpreting mass: Collection/dispersion. In N. Lee & R. Munro (Eds.) *The consumption of mass*. Oxford: Blackwell.
- Crary, J. (1990). *Techniques of the observer*. MIT Press, Cambridge, Massachusetts, London, England.
- Curt, B. (1994). *Textuality and tectonics: Troubling social and psychological science*. Buckingham: Open university press.
- Day, R.E. (2001). *The modern invention of information: Discourse, history and power*. Southern Illinois, University Press.
- Deleuze, G. (1991) *Bergsonism*. (Tomlinson, H. & Habberiam, B. Trans). Zone Books: New york.
- Dourish, P. (2001). Seeking a foundation for context-aware computing. *Human-computer interaction, Vol 16:229-241*.
- Edwards, D., & Middleton, D. (1988). Conversational remembering and Family Relationships: How children Learn to Remember. *Journal of Social and Personal Relationships. Vol 5, 3-15*.
- Edwards, D. & Potter, J. (1992). *Discursive Psychology*. London: Sage.

- Edwards, D. (1997). *Discourse and Cognition*. London: Sage Publications.
- Foucault, M. (1989). *The order of things: An archeology of the human sciences*.  
Routledge: London and New York.
- Heidegger, M. (1971). Building dwelling thinking. In Krell, D. F (Ed.) *Basic readings: Martin Heidegger*, revised edition. London, Routledge.
- Heidegger, M. (1977a). The question concerning technology. In Krell, D. F (Ed.)  
*Basic readings: Martin Heidegger*, revised edition. London, Routledge.
- Heidegger, M. (1977b). The age of the world picture. In *the question concerning technology and other essays*. (Lovitt, W. Trans). New york: Harper & Colins
- Heidegger, M. (1978). Modern science, metaphysics, and mathematics. In Krell, D. F (Ed.) *Basic readings: Martin Heidegger*, revised edition. London, Routledge.
- Heidegger, M. (1990). *Being and time*. (Macquarrie, J. & Robinson, E. Trans.) Blackwell, Oxford.
- Hetherington, K. & Law, J. *Allegory and interference: Representation in sociology*. Draft paper, online  
[Http://www.comp.lancs.ac.uk/sociology/reskhjl1.html](http://www.comp.lancs.ac.uk/sociology/reskhjl1.html).
- Hetherington, K. Lee, N. (2000). Social Order and the blank figure.  
*Environmental planning D: society and space*. Vol 18: 169-184.
- Hirsch, M. (1997). *Family frames: photography narrative and postmemory*.  
Harvard university press. Cambridge, Massachusetts, London, England:



- Holland, P. (1998). *sweet is to scan: Personal Photographs and Popular Photography* in Wells, L. (1997). (Ed.), *Photography: a Critical Introduction*. London, New York: Routledge.
- Latour, B. (1986). The Powers of Association. In J. Law (Ed.) *Power, Action and Belief: a New Sociology of Knowledge?*. London, Boston and Henley, Routledge and Kegan Paul. 32: 264-280.
- Latour, B. (1991). Technology is Society Made Durable. In J. Law (Ed.) *A Sociology of Monsters? Essays on Power, Technology and Domination, Sociological Review Monograph*. London, Routledge. 38: 103-131.
- Latour, B. (1992). Where are the Missing Masses? Sociology of a Few Mundane Artefacts. In W. Bijker and J. Law (Eds.) *Shaping Technology, Building Society: Studies in Sociotechnical Change*. Cambridge, Mass, MIT Press: 225-258.
- Latour, B. (1996). On interobjectivity. *Mind, culture and activity*. Vol3(4):228-245
- Latour, B. (1999a). *Pandora's Hope: essays on the reality of science studies*. Harvard university press.
- Latour, B. (1999b). When things strike back: a possible contribution of science studies. *British Journal of sociology*. Vol51(1):105-123.
- Law, J. (1992), Notes on the Theory of the Actor-Network: Ordering, Strategy and Heterogeneity. *Systems Practice* 5: 379-393.
- Lawlor, L. (2003) *The challenge of Bergsonism: Phenomenology, ontology, ethics*. London: Continuum.
- Leibniz, G. W.(1686), Discourse on Metaphysics. In Woolhouse, R. S. and Francks, R. (Eds.) (1998) *G.W.Leibniz: Philosophical texts*. Oxford.

- Legrady, G. (1996). Image, Language, and belief in synthesis. In Amelunxen, H.V., Iglhaut, S., Rotzer, F (Eds.) (1996). *Photography after photography: Memory and Representation in the digital age*. G and B Arts.
- Levy, P. (1998). *Becoming virtual: reality in the digital age*. New York: Plenum
- Lister, M. (1995). (Ed.), *The Photographic Image in Digital Culture*. London, New York: Routledge.
- Lury, C. (1997). *Prosthetic culture: Photography, memory and identity*. London: Routledge
- Middleton, D. & Edwards, D. (Eds.) (1990a) *Collective Remembering*. London: Sage.
- Middleton, D., & Edwards, D., (1990b). Conversational Remembering: a Social Psychological Approach in D. Middleton and D. Edwards (Eds.), *Collective Remembering*, (pp. 23-46). London: Sage Publications.
- Middleton, D. (2002). Succession and change in the socio-cultural use of memory: Building-in the past in communicative action. *Culture & Psychology*, 8(1), 79-95.
- Middleton, D. & Brown, S.D. (2005). *The social psychology of experience: Studies in remembering and forgetting*. Sage Publications. London
- Mullarkey, J. (1999a) *Bergson and philosophy*. Edinburgh: Edinburgh University Press.
- Mullarkey, J. (1999b) La philosophie nouvelle, or change in philosophy. In *The new Bergson*. J. Mullarkey (Ed.). Manchester: Manchester University Press.



- Munro, R. (2001) Introduction. In N. Lee & R. Munro (Eds.) *The consumption of mass*. Oxford: Blackwell.
- Musello, C. (1979). Family Photography in Wagner, J. (1979). (Ed.), *Images of Information: Still Photography in the Social Sciences*. Beverly Hills, London: Sage Publications, inc.
- Moran, T.P. (Ed.). (1994). Special issue on context in design. *Human-computer interaction, Vol 9:1-149*.
- Norman, D. A. (1998). *The invisible computer*. Cambridge, MA: MIT Press.
- Parker, J. (1997), *The dialectics of allegoresis: Historical materialism in Benjamin's Illuminations*. Other Voices, Vol 1, no.1
- Perner, J. (1991). *Understanding the representational mind*. Cambridge, MA: MIT Press.
- Potter, J.A. & Wetherell, M. (1987). *Discourse and social psychology: Beyond attitudes and behaviour*. London: Sage.
- Rabinbach, A. (1990) *The human motor: Energy, fatigue, and the origins of modernity*. Berkeley: University of California Press.
- Radley, A. (1990). Artefacts, Memory and a Sense of the Past. In Middleton, D., & Edwards, D. (1990). (Eds.), *Collective Remembering*. London, Thousand Oaks, New Delhi: Sage Publications.
- Radley, A and Taylor, D. (2003). Remembering one's stay in hospital: a study in photography, recovery and forgetting. *Health: an interdisciplinary journal for the social study of health, illness and medicine. Vol 7(2):120-159*.

- Rotzer, R. (1996). Re: Photography. In Amelunxen, H.V., Iglhaut, S., Rotzer, F (Eds.) *Photography after photography: Memory and Representation in the digital age*. G and B Arts.
- Sekula, A. (1986). The body and the archive. October, 39:3-65. In Lury, C. (1997). *Prosthetic culture: Photography, memory and identity*. London: Routledge
- Sigel, I.E. (1991). Representational competence: Another type? In M. Chandler & M. Chapman (Eds.) *Criteria for competence: Controversies in the conceptualization and assessment of childhood abilities*. (pp. 189-207). Hillsdale, NJ: Erlbaum.
- Slater, D. (1995). Domestic Photography and Digital Culture in Lister, M. (1995). (Ed.), *The Photographic Image in Digital Culture*. London, New York: Routledge.
- Spence, J., & Holland, P. (1991). *Family Snaps: The Meaning of Domestic Photography*. London: Virago Press.
- Sontag, S. (1977). *On Photography*. Penguin Books Ltd.
- Stengers, I. (1997). *Cosmopolitiques- Tome 7: pour en finir avec la tolérance*. Paris: La Découverte-Les Empêcheurs de penser en rond.
- Stenner, P. (1998). Heidegger and the subject: questioning concerning psychology. *Theory and Psychology, Vol 8(1) 59-77*
- Strathern, M. (1991). *Partial connections*. Savage, Maryland: Rowman and Littlefield Publishers.
- Ishii, H. & Ullmer, B. (1997). Tangible bits: Towards seamless interfaces between people, bits and atoms. *Proceedings of the ACM CHI 97 Conference on Human factors in computing systems*. New York: ACM



- Weber, S. (1996), *Mass Mediauras : Form, Technics, Media*. Stanford University Press
- Weiser, M. (1991). The computer for the twenty-first century. *Scientific American, Vol 265(3):94-104*.
- Winograd, T. Flores, F. (1986). *Understanding computers and cognition*. Ablex, Norwood. CT.
- Winograd, T. (2001). Architectures for context. *Human-computer interaction, Vol 16:401-419*.
- Worms, F. (1999) *Matter and memory on mind and body: Final statements and new perspectives*. In *The new Bergson*. J. Mullarkey (Ed.). Manchester: Manchester University Press.